Performance Work Statement (PWS)

Ultra-High Frequency (UHF) Tactical Satellite (TACSAT) Type 1 Radios - Advanced Multiband Multichannel Man-pack Terminals (AM3Ts), Associated Ancillaries, Services and Training

Foreign Military Sales (FMS) Case K4-B-VAA

30 July 2026

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1.0 Scope.

This document defines the efforts required to provide the Ultra-High Frequency (UHF) Tactical Satellite (TACSAT) Type 1 Radios - Advanced Multiband Multichannel Man-pack Terminals (AM3Ts), associated ancillaries, services and training for North Atlantic Treaty Organization (NATO) Communications and Information Agency (NCIA) under Foreign Military Sales (FMS) case K4-B-VAA. The word Government in this document refers to the United States Government. The word Purchaser in this document refers to the FMS Customer(s) or NATO NCIA.

2.0 Applicable Documents.

2.1 Military Standards

MIL-STD-130N with Change 1	Identification Marking of U.S. Military Property
MIL-STD-882E	System Safety
DoD Directive 5230.11	Disclosure of Classified Military Information to Foreign Governments and International Organizations
AR 525-13	Antiterrorism
AR 530-1	Operations Security
AR 381-12	Threat Awareness and Reporting Program (TARP)

2.2 Commercial Standards

ISPM 15	Guidelines for Regulating Wood Packaging Material in International Trade
ASTM D 3951-18	Standard Practice for Commercial Packaging

3.0 Requirements. The contractor shall provide all the hardware, software, services and training as specified in PWS. Items shall be presented as new or updated and shall meet the performance criteria and characteristics as specified in the manufacturer's drawings and specifications. Required hardware, software, and services are described in below paragraphs. Detailed requirements, technical specifications, operational and performance characteristics are provided in Appendix A.

3.1 Requirements for Hardware and Software. The contractor shall provide hardware and software in accordance with and shall meet the technical specifications, operational and performance criteria stated in this PWS. The contractor shall notify, and receive approval from, the Government of any component or system substitutions due to obsolescence or other issues, prior to packing for shipment.

The overall requirements for the Ultra-High Frequency (UHF) Tactical Satellite (TACSAT) Type 1 Radios - Advanced Multiband Multichannel Man-pack Terminals (AM3Ts), associated ancillaries, services and training are outlined in Appendix A, Scope Summary.

3.1.1 AM3T Kit (Batch 1). The contractor shall deliver one-hundred fifty (150) AM3T Kits (Batch 1) within twelve (12) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph A. Upgrade to M-Code (if required). Waveform Licenses (if required) with each

batch delivery.

3.1.2 Man Portable Kit (Ancillary Set for OTP Operations) (Batch 1). The contractor shall deliver seventy-five (75) Man Portable Kits (Ancillary Sets for OTP Operations) (Batch 1) within twelve (12) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph B.

3.1.3 Mobile Kit (Ancillary Set for OTM Operations) (Batch 1). The contractor shall deliver sixty (60) Mobile Kits (Ancillary Sets for OTM Operations) (Batch 1) within twelve (12) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph C.

3.1.4 Deployed HQ Kit (Ancillary Set) (Batch 1). The contractor shall deliver six (6) Deployed HQ Kits (Ancillary Sets) (Batch 1) within twelve (12) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph D.

3.1.5 AM3T Kit (Batch 2). The contractor shall deliver one hundred eighty-four (184) AM3T Kits (Batch 2) within twelve (12) months but no later than twenty-four (24) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph A. Upgrade to M-Code (if required). Waveform Licenses (if required) with each batch delivery.

3.1.6 Man Portable Kits (Ancillary Set for OTP Operations) (Batch 2). The contractor shall deliver eighty-six (86) Man Portable Kits (Ancillary Sets for OTP Operations) (Batch 2) within fifteen (15) months but no later than twenty-four (24) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph B.

3.1.7 Mobile Kit (Ancillary Set for OTM Operations) (Batch 2). The contractor shall deliver seventy-eight (78) Mobile Kits (Ancillary Sets for OTM Operations) (Batch 2) within fifteen (15) months but no later than twenty-four (24) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph C.

3.1.8 Deployed HQ Kit (Ancillary Set) (Batch 2). The contractor shall deliver six (6) Deployed HQ Kits (Ancillary Sets) (Batch 2) within fifteen (15) months but no later than twenty-four (24) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph D.

3.1.9 AM3T Kit (Batch 3). The contractor shall deliver one-hundred eighty-three (183) AM3T

Kits (Batch 3) within twelve (12) months but no later than thirty-six (36) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph A. Upgrade to M-Code (if required). Waveform Licenses (if required) with each batch delivery.

3.1.10 Man Portable Kits (Ancillary Set for OTP Operations) (Batch 3). The contractor shall deliver eighty-seven (87) Man Portable Kits (Ancillary Sets for OTP Operations) (Batch 3) within eighteen (18) months but no later than thirty-six (36) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph B.

3.1.11 Mobile Kit (Ancillary Set for OTM Operations) (Batch 3). The contractor shall deliver seventy-eight (78) Mobile Kits (Ancillary Sets for OTM Operations) (Batch 3) within eighteen (18) months but no later than thirty-six (36) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph C.

3.1.12 Deployed HQ Kit (Ancillary Set) (Batch 3). The contractor shall deliver six (6) Deployed HQ Kits (Ancillary Sets) (Batch 3) within eighteen (18) months but no later than thirty-six (36) months of contract award (or as soon as the contractor is able.) The equipment shall be provided in accordance with and shall meet the technical specifications, operational and performance criteria listed in Appendix A, Section 1, Paragraph D.

3.2 Requirements for Services and Training. The contractor shall provide services and training in accordance with and shall meet the specifications and performance criteria stated in this PWS.

3.2.1 CONUS Radio Operator Training. The contractor shall provide one (1) session of Continental United States (CONUS) Radio Operator Training at the contractor's facility. One (1) instructor, one (1) week, up to twelve (12) students.

3.2.2 CONUS Radio Maintenance Training. The contractor shall provide one (1) session of CONUS Radio Maintenance Training at the contractor's facility. One (1) instructor, one (1) week, up to twelve (12) students.

3.2.3 OCONUS Radio Operator Training. The contractor shall provide one (1) session of Outside the Continental United States (OCONUS) Radio Operator Training at the NCI Academy, Portugal with one (1) instructor, one (1) week, up to twelve (12) students.

3.2.4 OCONUS Radio Maintenance Training. The contractor shall provide one (1) session of Outside the Continental United States (OCONUS) Radio Levels I and II Maintenance Training at the NCI Academy, Portugal with one (1) instructor, one (1) week, up to twelve (12) students.

3.3 Other Requirements.

3.3.1 Project Implementation Plan (PIP). The Contractor shall deliver a Project Implementation Plan (PIP) (Draft and Final) to NCIA, Effective Date of Contract (EDC) plus 2 weeks (Draft) and EDC plus 8 weeks (Final). The detailed requirements of the PIP are listed in Appendix A, Section 2 (CDRL B001).

3.3.2 Project Review Meetings (PRMs). The contractor shall coordinate and hold seven (7) Project Review Meetings (PRMs) with NCIA. The detailed requirements and schedule of PRMs are listed in Appendix A, Section 2. (CDRLs B002, B003)

3.3.3 System Design Specification. The contractor shall deliver a System Design Specification (SDS) (Draft and Final) to NCIA, EDC plus 6 weeks (Draft) and EDC plus 12 weeks (Final). The detailed requirements of System Design are listed in Appendix A, Section 3 (CDRL B004).

3.3.4 System Test and Acceptance. The contractor shall perform testing activities to verify that the hardware and software meets requirements, characteristics, and performance criteria listed in Appendix A, Section 4.

3.3.4.1 System Test and Acceptance Plan (STAP) (Draft and Final). The contractor shall provide the System Test and Acceptance Plan (STAP) within four (4) weeks (draft) and six (6) weeks of EDC (Final). The detailed requirements of STAP are listed in Appendix A, Section 4. (CDRL B005)

3.3.4.2 Test Readiness Review (TRR). The contractor shall conduct a Test Readiness Review (TRR) one (1) week before FAST. The detailed requirements of the TRR are listed in Appendix A, Section 4.

3.3.4.3 First Article System Test (FAST). The contractor shall conduct First Article System Test (FAST) six (6) months from EDC. The procedures for FAST (CDRL B006) shall be provided three (3) weeks before FAST; the FAST Report (CDRL B007, including Test Results Sheets) shall be delivered two (2) weeks after the conclusion of FAST. The detailed FAST requirements are listed in Appendix A, Section 4.

3.3.4.4 BATCH Delivery Acceptance (BDA). The contractor shall provide a representative to support the BDA IAW with the following schedule. The detailed requirements of BDA are listed in Appendix A, Section 4 (CDRL B002).

3.3.4.4.1 BDA – Batch 1. EDC in accordance with the delivery schedule for batch one (1) in paragraphs 3.1.1 to 3.1.4.

3.3.4.4.2 BDA – Batch 2. EDC in accordance with the delivery schedule for batch two (2) in paragraphs 3.1.5 to 3.1.8.

3.3.4.4.3 BDA – Batch 3. EDC in accordance with the delivery schedule for batch two (2) in paragraphs 3.1.11 to 3.1.12.

3.3.4.5 Final System Acceptance (FSA). The contractor shall conduct Final System Acceptance (FSA) within thirty-nine (39) months from EDC (or earlier if the contractor delivers sooner.) The contractor shall also provide FSA Reports (CDRL B007) within thirty-nine (39) months from EDC. The detailed requirements of FSA (CDRL B006) are listed in Appendix A, Section 4.

3.3.5 Integrated Product Support (IPS) Deliveries. The contractor shall provide Integrated Product Support (IPS) deliveries (documents, data and activities) IAW with the following schedule. The detailed IPS deliveries are listed in Appendix A, Section 5 and Section 6.

3.3.5.1 Integrated Product Support Plan (IPSP) (Draft and Final) required by EDC plus 8 weeks (Draft) and EDC plus 6 months (Final) (CDRL C001).

3.3.5.2 Product Support Data Package (Draft and Final) required by EDC plus 6 months (Draft) and EDC plus 12 months (Final + Revisions) (CDRLs C002 and C003).

3.3.5.3 Obsolescence Report (Draft and Final + Revisions) required by EDC plus 6 months (Draft) and EDC plus 12/18/24/30/36 months (Final) (CDRL C004).

3.3.5.4 Operators Manuals (Draft and Final + Revisions) required by EDC+12 months (Draft) and within 2 months after each batch delivery (Final + Revisions). Commercial Off-the-Shelf (COTS) Operator Manuals shall be provided, supplemented as necessary to reflect unique AM3T, Man Portable, Mobile, and Deployed HQ Kit configurations. Supplemental information shall be provided IAW DI-TMSS-80527D and DI-TMSS-81816. The Operators Manual shall also include as a separable document a Quick Setup Pocket Guide (CDRL C005).

3.3.5.5 Maintenance Manuals (Draft and Final + Revisions) required by EDC plus 12 months (Draft) and within 2 months after each batch delivery (Final + Revisions). (COTS) Maintenance Manuals shall be provided, supplemented as necessary to reflect unique AM3T, Man Portable, Mobile, and Deployed HQ Kit configurations. Supplemental information shall be provided IAW DI-TMSS-80527D and DI-TMSS-81816 (CDRL C005).

3.3.5.6 Training Material (Draft and Final) required two (2) months before 1st training (Draft) and 2 weeks before 1st training (Final). Training Material shall include presentation slides, accompanying notes, handouts, and visual aids required to conduct operator and maintenance training of the AM3T, Man Portable, Mobile, and Deployed HQ kit configurations. Training instructors shall provide one (1) hard copy of training handouts for each student (CDRL C006).

3.3.5.7 In Service Support and Warranty shall be valid for each batch two (2) years after U.S. Government acceptance.

3.3.5.8 Warranty Report (Final) required at the end of the warranty period (CDRL C012).

3.3.5.9 Configuration Management Plan required by EDC plus eight (8) weeks (CDRL C007).

3.3.5.10 Configuration Baseline required with each batch after approved engineering change proposals (ECPs) (CDRL C008).

3.4 Requirements for Item Unique Identification (IUID). The contractor shall mark all contract deliverables In Accordance With (IAW) DFARS clause 252.211-7003 in Section F of this contract and the following requirements.

3.4.1 IUID Marking.

3.4.1.1 New items: The contractor shall provide IUID, or DoD recognized unique identification equivalent as detailed in DFARS 252.211-7003, for all items delivered with an acquisition cost of $5,000.00 or more and Government serial numbered items. For long term contracts, the Contractor shall implement IUID markings IAW MIL-STD-130N w/Ch1, dated 16 Nov 2012 for any item that will exceed the $5,000.00 unit price for any range quantity or contract year. This requirement is effective throughout the life of this contract.

3.4.1.2 Repair items: Items received for repair shall be inspected for IUID markings. For items where the marking is damaged or missing the contractor shall mark the equipment with the appropriate IUID markings. For previously acquired items where the IUID markings were not required the contractor shall follow the procedures as if the item was a new item.

3.4.1.3 Commercial Markings. All other items shall have acceptable commercial markings that meet the guidelines in Department of Defense (DoD) Guide to Uniquely Identifying Items http://www.acq.osd.mil/dpap/pdi/uid/index.html.

3.4.1.4 Permanency and Legibility. The IUID marking and identification plates, tags, etching, or labels when used on equipment, parts, assemblies, subassemblies, units, sets, groups, or kits shall be as permanent as the normal life expectancy of the item and be capable of withstanding the environment, test, cleaning, repair, and rebuild procedures specified for the item. Legibility shall be as required and verified for ready readability per MIL-STD-130N w/Ch1, dated 16 Nov 2012.

3.4.1.5 Deleterious Effect. Marking of items shall be accomplished in a manner that will not adversely affect the life and utility of the item. Marking materials creating hazardous conditions shall not be used. Placement and choice of the marking shall not create hazardous conditions.

3.4.1.6 Mandatory Information Reporting for all items requiring IUID marking. The contractor shall include the National Stock Number (NSN), if the item has a NSN, the Serial Number marked on the item, if a Serial Number is marked on the item, the original part number, the current part number (only if not the same as the original part number), the current part number effective date (only if the current part number is used) and the US ARMY as the SERVICE /AGENCY/COMMAND data element in the information reported to the IUID Registry, in addition to the information required to be reported to the IUID Registry by DFARS clause 252.211-7003.

3.4.1.6.1 Wide Area Workflow (WAWF) users shall report this mandatory information to the IUID Registry by Direct submission via an X12 Ship Notice/Shipment and Billing Notice

(856/857) transaction, an IUID XML transaction, an IUID flat file transaction or a WAWF IUID Material Inspection and Receiving Report/Combo UDF through the Global Exchange (GEX) Service, or manually, via the IUID Web Entry Site at http://www.bpn.gov/iuid. For WAWF users, these methods do not replace the current WAWF interaction but are performed in addition to it after the shipment has been accepted to provide IUID data that cannot be provided via WAWF.

3.4.2 IUID Coding. IUID markings and readability requirements shall comply with MIL-STD-130N w/Ch1, dated 16 Nov 2012.

3.4.2.1 Symbology markings and the order of priority for marking the hardware shall be in accordance with MIL-STD-130N w/Ch1, dated 16 Nov 12. Priority is the 2D data matrix symbol (machine readable) IUID is the minimum requirement when there are severe space limitations. The second priority is the human readable characters. The third priority is the Linear Bar Code.

3.4.2.2 If technical data has not specified the marking location, markings shall be located such that they are visible during item use, provided that sufficient space is available, and does not interfere with equipment operations.

3.4.2.3 If items are not described by Government Product Technical Data (i.e. Commercial Items), the contractor shall maintain diagrams showing placement and description of the IUID marking and applicable installation and processing instructions for government review.

3.4.2.4 The contractor shall maintain an accurate, current list of IUIDs for all manufactured items on this contract. Dates of manufacture, substitutions, shop changes, etc. shall be included on this list. The list shall be available for inspection by the PCO or other Government representative at any time during the life of this contract. The contractor shall provide this list to the government at the end of the contract.

3.4.3 Correction of Noncompliant Equipment and Technical Data.

3.4.3.1 The contractor shall initiate the appropriate configuration control document to correct all affected drawings/specifications which conflict with or omit the marking requirements stipulated above.

3.4.3.2 The contractor shall advise the COR if any configuration control requirements do not apply or when the equipment on order is defined by technical data which conflicts with or omits the marking requirements stated above. Such advice shall list the number of each deficient drawing/specification and a brief description of the deficiency.

3.4.3.3 If the item on order is defined by existing Government technical documentation and such documentation conflicts with the requirements of this PWS, production of equipment with revised markings shall not proceed until Government approval is received by email from the PCO.

3.4.4 Government Purchase of Product/Technical Data.

3.4.4.1 Specifications. Any equipment specification(s) on this contract procured by the Government shall include a requirement to mark the appropriate items with IUID.

3.4.4.2 Drawings. If the Government is procuring engineering drawings or drawing revisions on this contract, the contractor shall include IUID marking requirements on each applicable drawing. Location shall be depicted on the pictorial and other details presented in the notes.

3.4.5 Pricing of IUID Requirements. All efforts required by this PWS and contract, including, but not limited to, the preparation of ECPs or notification of marking deficiencies, serial number data reporting at end of contract and the actual marking of hardware, will be included in the base contract price.

3.5 Security Requirements. The contractor shall meet requirements for Security stated below:

3.5.1 Anti-Terrorism (AT)/ Operations Security

3.5.1.1. AT Level 1 Training: This standard language is for contractor employees with an area of performance within a controlled installation, facility or area: All contractor employees, to include subcontractor employees, requiring access to installations, facilities and controlled access areas shall complete AT Level I Awareness Training within 30 calendar days after contract start date or effective date of incorporation of this requirement into the contract, whichever is applicable. The contractor shall submit certificates of completion for each affected contractor employee and subcontractor employee, to the COR or to the contracting officer, if a COR is not assigned, within 60 calendar days after completion of training by all employees and subcontractor personnel. AT Level I Awareness Training is available at the following website: http://jko.jten.mil (course number "- US007"). (CDRL A001)

3.5.1.2. AT Awareness Training for Personnel Traveling Overseas: This standard language required U.S. based contractor employees and associated subcontractor employees to make available and to receive Government provided area of responsibility (AOR)-specific AT awareness training as directed by AR 525-13. Specific AOR training content is directed by the combatant commander, with the unit ATO being the local point of contact.

3.5.2. iWATCH Training: This standard language is for contractor employees with an area of performance within a controlled installation, facility or area: The contractor and all associated subcontractors shall brief all employees on the local iWATCH program (training standards provided by the requiring activity ATO). This local developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the COR. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 60 calendar days after contract award. (CDRL A001) https://www.dhs.gov/see-something-say-something

3.5.3 Operations Security (OPSEC)

3.5.3.1 OPSEC Plan: For contracts that require a formal OPSEC program: The contractor shall develop an OPSEC Standing Operating Procedure (SOP)/Plan within 90 calendar days of contract award, to be reviewed and approved by the responsible Government OPSEC officer. This plan shall include a process to identify critical information, where it is located, who is responsible for it, how to protect it and why it needs to be protected. The contractor shall implement OPSEC measures as ordered by the commander. In addition, the contractor shall have an identified certified Level II OPSEC coordinator per AR 530-1. (CDRL A002)

3.5.3.2 OPSEC Training: Per AR-530-1 Operations Security, the contractor employees must complete Level I OPSEC Awareness training. New employees must be trained within 30 calendar days of their reporting for duty and annually thereafter. (CDRL A001)

3.5.4 Cybersecurity.

3.5.4.1 Cybersecurity/Information Technology (IT) Training. All contractor employees and associated sub-contractor employees must complete the DoD Cybersecurity awareness training before issuance of network access and annually thereafter. All contractor employees working Cybersecurity/IT functions must comply with DoD and Army training requirements in DoDD 8570.01, DoD 8570.01-M and AR 25-2 within six months of appointment to Cybersecurity/IT functions (CDRL A001).

3.5.4.2 Cybersecurity/Information Technology (IT) Certification. Per DoD 8570.01-M, DFARS 252.239.7001 and AR 25-2, the contractor employees supporting Cybersecurity/IT functions shall be appropriately certified upon contract award.

3.5.5 Information Security

3.5.5.1 For contracts that require handling or access to classified information. Contractor shall comply with FAR 52.204-2, Security Requirements. This clause involves access to information classified “Confidential,” “Secret,” or “Top Secret” and requires contractors to comply with— (1) The Security Agreement (DD Form 441), including the National Industrial Security Program Operating Manual (DoD 5220.22-M); (2) any revisions to DoD 5220.22-M, notice of which has been furnished to the contractor.

a. If secure telecommunication requirements apply, include clause 252.239-7016 and follow guidance at 239.74.

b. If covered system support requirements apply, include provision 252.239-7017 into the solicitation, clause 252.239-7018 into the contract, and follow guidance at 239.73

3.5.5.2 Controlled Unclassified Information (CUI). Include DFARS clause 252.204-7012, which requires the contractor to comply with NIST 800-171. Also include DFARS provision 252.204-2019 into solicitations. Acquisition officials should follow procedures outlined in DFARS 204.73 and verify vendors have an adequate NIST SP 800-171 summary assessment score within the Supplier Performance Risk System (within PIEE). If the score doesn't show a medium- or high-level assessment with a score of 110 or better (as

described in the "NIST SP 800-171 DoD Assessment Methodology"), include clause 252.204-7020 and obtain the vendor's "system security plan" and "plan of action" for NIST SP 800-171 verification and assurance by Army security officials.

a. The contractor is required to receive, handle, store, process, and deliver information addressing designs and capabilities of military command, control, and communications technology. As such, the contractor's Information Technology (IT) shall be Cybersecurity Maturity Model Certification (CMMC) certified as Level 2 (self-assessment) for CUI Basic information. While the contractor is not required to be CMMC certified at Level 2 Third-Party Assessor Organization (C3PAO) until 10 November 2026, the contractor's IT must satisfy requirements to receive, handle, store, process, and deliver CUI Specified information.

3.5.5.3 Security Training: Several training requirements exist for contractor personnel per DoD and Army regulation/ directives. On-site contractors may receive training briefs from the government appointed Security Manager; however, contracting companies will be required to provide training to offsite contractor employees. Training is tailored to the organization's requirements as well as local policy. Some examples of Security training provided to integrated/embedded contractors may include, but is not limited to, the following:

- Threat Awareness Reporting Program (required for all contractors with security clearances) - Per AR 381-12 Threat Awareness and Reporting Program (TARP), cleared contractor employees must receive annual TARP training by a CI agent or other trainer as specified in 2-4b. (CDRL A001)
- Initial Security Orientation: Online training available on the Army Training Information System (ATIS) at https://learn.atis.army.mil/.
- Annual Security Orientation: Online training available on the Training Information System (ATIS) at https://learn.atis.army.mil/.
- Derivative Classification Training: Online training available via CDSE STEP, DoD 5200.01 and memo for Chief Management Officer of the Department of Defense dated 31 January 2019 - annual requirement reference.
- DA, AMC, and/or commander directed security stand-downs, e.g., ad-hoc refresher training.

3.5.5.4 For Contract Requiring Performance or Delivery in a Foreign Country: DFARS Clause 252.225-7043 Antiterrorism/ Force Protection for Defense Contractors Outside the US. The clause shall be used in solicitations and contracts that require performance or delivery in a foreign country. This clause applies to both contingencies and non-contingency support. The key AT requirement is for non-local national contractor personnel to comply with theater clearance requirements and allows the combatant commander to exercise oversight to ensure the contractors compliance with combatant commander and subordinate task force commander policies and directives.

3.6 Procurement New Production. The contractor shall provide email verification to the COR that all delivered hardware is supplied from new production and is of the latest configuration at time of production. The email shall include model/configuration number,

date of production, and serial number of major end items delivered.

3.7 Requirements for Packaging. Packaging/packing shall be in accordance with ASTM D 3951-10, Standard Practice for Commercial Packaging, Level of Protection (LOP): Commercial, Level of Pack (LPK): Commercial, Quantity Unit Pack (QUP): 001. Marking shall be in accordance with MIL-STD-129R.

3.7.1. Wood Packaging Material (WPM) includes but is not limited to pallets, skids, load boards, pallet collars, wooden boxes, reels, dunnage, crates, frame and cleats. This requirement excludes materials that have undergone a manufacturing process, such as corrugated fiberboard, plywood, particleboard, veneer, and oriented strand board (OSD).

3.7.2. All WPM shall meet the requirements of International Standards for Phytosanitary Measures (ISPM) Number 15, "Regulations in Wood Packaging Material in International Trade (2009)". DoD shipments inside and outside of the United States shall meet the requirements of ISPM 15 whenever WPM is used to ship DoD cargo.

3.7.3. All WPM shall comply with the official quality control program for heat treatment (HT) or kiln dried heat treatment (KD HT) (IAW) American Lumber Standard Committee (ALSC), Incorporated, Wood Packaging Material Program and WPM Enforcement Regulations (see ALSC WPM).

3.7.4. All WPM shall include certification/quality markings IAW the ALSC standard. Markings shall be placed in an unobstructed area that will be readily visible to inspectors. Pallet markings shall be applied to the stringer or block on opposite sides of the pallet and be contrasting and clearly visible. All containers shall be marked on a side other than the top or bottom, contrasting and clearly visible. All dunnage used in configuring and/or securing the load shall also comply with ISPM 15 and be marked with an ASLC approved DUNNAGE stamp.

3.7.5. Failure to comply with these requirements may result in refusal, destruction, or treatment of materials at the point of entry. The Government reserves the right to recoup from the contractor any remediation costs incurred by the Government.

3.7.6 Handling, Storage, Preservation, Packaging and Shipping. The Contractor shall establish, maintain, control and be responsible for the handling, storage, preservation, packaging and shipping to protect the quality of the materials and to prevent damage from loss, deterioration, degradation, or substitution of products.

3.8 Requirements for Quality, Final Inspection and Test. The contractor shall comply with the following requirements:

3.8.1. Sites for Inspection, Testing, and Acceptance. Inspection, testing, and acceptance of all equipment shall be at Origin. Inspection and testing shall be performed by the contractor. Acceptance shall be by the cognizant DCMA office/POC identified in the Wide Area Work Flow (WAWF) clause 252.232-7006.

3.8.2 Quality System. The contractor shall establish/maintain a system for the final inspection and test of all purchased items to comply with contract requirements. The Government has the right to review the contractor's quality system and require correction whenever it, or any portion thereof, fails to meet the requirements set forth in the contract (see Appendix A, Section 7).

3.8.3 Inspection and Testing. The contractor shall ensure that all necessary inspections and tests are performed on completed products, and this shall include all inspections and tests which are normally performed for the equipment on order. The contractor shall at a minimum perform any inspections and tests (including visual/mechanical inspections and functional tests) required to satisfy the form, fit, and function requirements of the contract. The form, fit, and function requirements are defined by the contractor's drawings and literature (specification documents, data sheets, acceptance test procedures, host component assembly checklist, remote antenna assembly checklist, and laptop configuration checklist.) System functional and performance testing shall be performed IAW the System Requirements listed in Appendix A, Section 1 and System Testing and Acceptance listed in Appendix A, Section 4.

3.8.4 Responsibility. The requirements of this PWS do not relieve the contractor of the responsibility to perform any additional tests or inspections required to assure product quality and compliance with drawings and specification requirements.

3.8.5 Records. The contractor shall maintain adequate records of inspections and tests to demonstrate that the final product satisfies contract requirements. The Government has the right to review these records at any time.

3.9 Requirements for Safety Engineering.

The contractor shall identify and document all real and potential hazards associated with the equipment ordered in this contract. This shall include any toxic substance exposure concerns to personnel during operation or maintenance to include transportation or resulting from damage to the equipment. The contractor shall also identify and document any special disposal procedures. The identified hazards and special disposal procedures shall be described either in the applicable Technical Manual shipped with each hardware item, or alternatively as a separate insert (in English) included with each hardware item if no Technical Manual is available for the item. All hazards that cannot be eliminated shall be reduced to the lowest risk possible. Those hazards that cannot be eliminated must be presented to the COR via email, providing at a minimum the post and pre-fix hazard severity and hazard probability levels, corrective action and status, prior to government acceptance of the equipment. MIL-STD-882E shall be used in assessing system safety. The contractor shall affix applicable safety/hazardous precautionary warnings on hardware in English.

3.10 Requirements for Warranty. The contractor shall provide a no-cost warranty IAW below paragraphs, 3.3.5.7, REQ-90, and from IPS-75 to IPS-80.

3.10.1 The Contractor shall provide a no-cost warranty covering workmanship and materials for all items furnished in accordance with this contract or any modification thereof. If the

warranty is a commercial warranty and states that the warranty is not in effect outside the continental United States, then the wording of the warranty shall be amended so that the warranty is extended to the customer country. The warranty shall be for a minimum of two (2) years following the date of acceptance by the U.S. Government.

3.10.2. Warranty Procedures. The FMS customer will notify The US Army Security Assistance Command (USASAC) New Cumberland (NC) of an equipment failure using a Supply Deficiency Report (SDR). USASAC NC will forward the SDR to the CECOM SAMD SDR action officer, and the contractor will be notified of an equipment failure. Exercising of the warranty shall commence upon contractor receipt of failure notification, at which point the warranty clock shall be stopped relative to the unit in question. Upon receipt of the failed item, the contractor shall determine if the item and failure are covered by the warranty. Upon confirmation that the contractor has repaired/replaced the item under warranty, the warranty clock shall be restarted. The FMS Customer shall be responsible for the established contractual price for items tested and found to be a "False Pull" or "No Evidence of Failure (NEOF)". The contractor shall meet or exceed a 90-day turn-around time for repairs. This time shall be from the date of receipt of the failed item by the contractor at the Contractor's facility, to shipment from the contractor's facility. The contractor shall be responsible for the transportation cost of repaired items under warranty from the contractor's facilities to the partner nation base in the customer country. Transportation costs of repair items determined not to be under warranty shall be borne by the customer country.

3.11 Requirements for Meetings and Reports.

3.11.1 Program Management

a. Program Manager. The contractor shall designate a Program Manager who has overall responsibility for the program, and the control and coordination of work performed. The Program Manager shall continue to act as the single point of contact within the contractor's activity for all required program status information, including program cost, schedule, and performance. The contractor shall prepare for, conduct, and present required information needed to support management, design, and status reviews. In addition to meetings described in paragraph 3.3.2, the contractor shall conduct the following review meetings:

1) Monthly Status Reviews. Monthly status review meetings shall be conducted with the US Government team via phone to discuss progress against open actions, address potential risks and plan for upcoming milestones.

2) Quarterly In-Progress Reviews. Quarterly In-Progress Review meetings shall be held in person at the US Government facility to discuss overall program progress to date and request feedback regarding performance, schedule and adherence to contractual requirements to date

b. Monthly Status Report. In the Monthly Status Report, the Contractor shall document the status of efforts towards achieving contract hardware deliverables, installation, acceptance tests and training objectives. The Contractor shall identify

accomplishments and challenges encountered, and compare the status achieved to planned goals. The Government shall use the document to monitor and evaluate Contractor performance. The Contractor shall provide this report to the Government monthly IAW CDRL B003. The document shall be titled Status Report and subtitled Monthly Status Report.

1) The contractor shall submit a digital copy of the first Monthly Status Report 30 days after contract award. Subsequent reports shall be submitted by the 5th day of each month.
2) The layout and form of the report shall be in the contractor's format. Any diagrams and drawings provided shall be in accordance with the contractor's standard engineering drawing practices. Any illustrations and graphs, e.g., charts, graphs, photographs, sketches, shall be in accordance with the contractor's normal methods for such data.
3) Alternative delivery media may be discussed with the Contracting Officer prior to delivery.
4) The report, including appendices, attachments, illustrations, graphics, shall be clear, legible and reproducible.
5) Contents of the Monthly Status Report shall include the following:
   a) A monthly Milestone/Timeline Chart providing a chronological resume estimating the start and completion times of events from the time of contract award to the end of the contract's period of performance. An event is defined as a concise, complete and clearly identifiable work effort to be accomplished. Each event shall be sequentially numbered. A description of the purpose of each event shall be included with the Chart.
   b) In each report, the contractor shall provide a report summary with a brief statement of the overall contract status, complete Milestone events, whether the event was accomplished within the estimated time for completion, reason for task/schedule variances, and scheduling impacts on any other events or on the Milestone/Timeline Chart in its entirety.
   c) The contractor shall identify all major problems and deficiencies with impact and recommended solutions narrative.
   d) The contractor shall summarize the status of tickets and incidents submitted.
   e) A revised Milestone/Timeline Chart shall be included with the report when major problems and deficiencies result in changes to the contract scheduling of events.
   f) The name of the person(s) preparing report and contact telephone number(s).

c. At a minimum, the contractor shall conduct monthly meetings to monitor contract execution and status IAW reference Appendix A, Section 2. Meetings shall be conducted with the customer and key contract management and technical personnel selected by the contractor. The contractor shall deliver a meeting report describing topics discussed, project status, problem areas/concerns, proposed solutions, and customer feedback. The meeting report shall be IAW CDRL B002.

3.11.2 Status Report – Certificate of Completion.

The Contractor shall attach a completed Certificate of Completion to each DD Form 250 submitted for any and all services in the WAWF system in accordance with CDRL B008, and this PWS. At a minimum, the Contractor shall provide the following to include but not limited to (see attached template in Appendix B):

a. Contract number
b. Delivery Order Number
c. Contract CLIN
d. FMS Case designator
e. Period/service being invoiced
f. Contractor Point of contact for certificate of completion to include, printed name, position/title/rank, phone number, email and signature certifying completion.
g. Class Roster when training is provided.
h. Certifying person's information that can verify the services have been completed to include but not limited to Country/customer/US Government Personnel, point of contact for certificate of completion to include, printed name, position/title/rank, phone number, email address and signature verifying completion. Failure to provide all the information as indicated in this paragraph could result in payment delays.

4.0 Data and Data Rights. The Government's rights in non-commercial technical data and software deliverables shall be governed by RFO DFARS 252.227-7989. The Government's rights in commercial technical data deliverables shall be governed by RFO DFARS 252.227-7990. All technical data (e.g. documents, drawings, computer aided design models, simulation and modeling) and software deliverables shall be properly marked in accordance with the marking requirements set forth in RFO DFARS 252.227-7989(g). Technical data and software deliverables with non-conforming restrictive markings shall be rejected and corrected by the Contractor at the Contractor's expense, in accordance with RFO DFARS 252.227-7989(i). A Data Rights Assertion List IAW RFO DFARS 252.227-7992 for all Prime and sub-Contractors (including sub-contractors from previous Task Orders) shall be included in the proposal.

No other marking regarding the license rights is allowed in the data deliverables. For example, Notice or Disclaimer to the Third party, Proprietary markings, and any other related statements regarding the rights are strictly prohibited.

The contractor shall submit the corresponding commercial software license agreements which will be reviewed and approved by the Contracting Officer for the Government. IAW FAR 12.212 and RFO DFARS 227.7202-1, the contractor shall not submit any commercial software license terms that conflict with federal procurement law or do not satisfy the Government's needs. Commercial Software License terms that are unacceptable to the Government include (but are not limited to) indemnification provisions (and other types of provisions that include unauthorized or unbudgeted funding obligations), attorney's fees provision, state or foreign choice of law/jurisdiction provisions, binding arbitration provisions, and injunctive relief provisions.

In order to assert that the Government will only have limited rights to non-commercial technical data and restricted rights to non-commercial computer software, the Contractor must be prepared to show evidence that (1) all components/parts of the product were

developed exclusively with private funds; and (2) the Government was not entitled to Government Purpose Rights or Unlimited Rights IAW RFO DFARS 252.227-7989.

5.0 Procurement Contracting Officer. The ACC-APG Procurement Contracting Officer (PCO) is the single point of contact within the government for funds, program direction or approval of progress payments. Only the PCO can approve or direct changes or additions to the contract.

APPENDIX A

NCIA intends to replace the AN/PRC-117F and AN/PRC-117G with UHF TACSAT Type 1 Radios - Advanced Multiband Multichannel Man-pack Terminals (AM3Ts) which are designed in Man Portable, Mobile Vehicular, and Deployable HQ configurations. The AM3T Kits which include UHF TACSAT Type 1 Radio - Advanced Multiband Multichannel Man-pack Terminal (AM3T) are configured in Dismount/Man Portable, Vehicular/Mobile, and Deployable HQ configurations. The Man Portable Kit is used for On-the Pause (OTP) operations. The Mobile Kit is used for On-the-Move (OTM) operations while the Deployable Headquarter (HQ) Kit is for deployed sites. The following summaries describe the four (4) specified kits and three (3) deployment use cases.

KIT SUMMARY:

- **AM3T KIT**: Each AM3T Kit consists of an AM3T Hard Side Transit and Storage Case (UHF TACSAT Type 1 Radios, basic accessories and Operator's Manual, CDRL C005) and an AM3T Kit Standard Packaging (configuration software and technical manual).

- **MAN PORTABLE KIT**: Each Man Portable Kit consists of a Man Portable Hard Side Wheeled Ancillary Case (Ancillary set OTP Operations) and one (1) 8-Bay Battery Charging System for every eight (8) Man Portable Kits rounded to the highest whole number.

- **MOBILE KIT**: Each Mobile Kit consists of a Mobile Kit Integrated Hard Side Mount Storage and Transit Case (RF amplifier, power supply, shock mount and other accessories) and a Mobil Kit Standard Packaging (vehicular antennas, cables and connectors). (Note that rugged shock mounts are required for end item components within the transit case.)

- **DEPLOYABLE HQ KIT**: Each Deployable HQ Kit consists of a Deployable HQ Kit Integrated Deployable Transit, Storage, and Operations Case (Ancillary Set for deployed sites), Deployable HQ Kit Standard Packaging (deployable antennas, switch, etc.) and one (1) 8-Bay Battery Charging System for every eight (8) Deployable HQ Kits rounded to the highest whole number. (Note that rugged shock mounts are required for end item components within the transit case.)

DEPLOYMENT USE CASE SUMMARY: All Development Use Cases for Dismount/Man Portable, Vehicular/Mobile, and Deployable HQ Configurations will require the AM3T Kit since it is the only kit that contains the UHF TACSAT Type 1 Radio.

- **MAN PORTABLE (OTP) DEPLOYMENT USE CASE**: Each Man Portable (OTP) Deployment Use Case consists of an AM3T Kit and Man Portable Kit.

- **MOBILE (OTM) DEPLOYMENT USE CASE**: Each Mobile (OTM) Deployment Use Case consists of an AM3T Kit, and Mobile Kit.

- **DEPLOYABLE HQ DEPLOYMENT USE CASE**: Each Deployable HQ Deployment Use Case consists of an AM3T Kit, and Deployable HQ Kit.

The required equipment, associated ancillaries, services and training are summarized in the table below:

Type of Equipment /Service	Total Qty	Batch 1	Batch 2	Batch 3
AM3T Kits (Upgrade to M-Code (if required) and Waveform Licenses (if required))	517	150	184	183
Man Portable Kit (Ancillary Set for OTP Operations)	248	75	86	87
Mobile Kit (Ancillary Set for OTM Operations)	216	60	78	78
Deployable HQ Kit (Ancillary Set)	18	6	6	6
Eight (8) Bay Battery Charging System	35	11	12	12
CONUS Radio Operator Training	1			
CONUS Radio Maintenance Training	1			
OCONUS Radio Operator Training	2			
Project Implementation Plan (PIP) (Draft and Final) (CDRL B001)	2 [Draft (1) + Final(1)]			
Project Review Meetings (PRMs) (CDRLs B002, B003)	7			
System Design Specification (SDS) (Draft and Final) (CDRL B004)	2 [Draft (1) + Final(1)]			
System Test and Acceptance				
System Test and Acceptance Plan (Draft and Final) (CDRL B005)	Qty: 2 [Draft (1) + Final(1)]			
Test Readiness Review (TRR)	1			
First Article System Test (FAST) and FAST procedure (CDRL B006) and FAST report (CDRL B007, including Test Results Sheets)	3 [Test Execution (1) + Procedure (1) + Report (1)]			
BATCH Delivery Acceptance (BDA) (CDRL B002)	3	1	1	1
Final System Acceptance (FSA) (CDRL B006) and Report (CDRL B007)	2 [Test Execution(1) +Report(1)]			
Integrated Product Support (IPS) Deliveries (Documents, Data and Activities)				
Integrated Product Support Plan (IPSP) (Draft and Final+ Revisions) (CDRL C001)	As many as required			
Product Support Data Package (Draft and Final + Revisions) (CDRLs C002 and C003)	As many as required			
Obsolescence Report (Draft and Final + Revisions) (CDRL C004)	As many as required			
Operators Manuals (Draft and Final+ Revisions) (CDRL C005)	As many as required			
Maintenance Manuals (Draft and Final+ Revisions) (CDRL C005)	As many as required			
Training Material (Draft and Final) (CDRL C006)	As many as required			
In Service Support and Warranty (Each batch two (2) years after U.S. Government Acceptance)	1			
Warranty Report (CDRL C012)	As many as required			
Configurations Management Plan (CDRL C007)	1			
Configuration Baseline (CDRL C008)	As many as required			
Additional Warranty (Option)	1			
Post Warranty Support (PWS) Service (Option)	1			

APPENDIX A

SECTION 1 - SYSTEM REQUIREMENTS

The requirements for each type of equipment are organized in eight (8) categories in Appendix A:

1. Deliverables
2. Functional Requirements
3. Performance Requirements
4. Physical Requirements
5. Operational Requirements
6. Security Requirements
7. Environmental Requirements
8. Electrical Power Requirements

All system requirements specified in this appendix are preceded by specific prefix REQ. The prefix requirement numbers (REQ- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

REQ-1 The overall system solution shall be based on COTS hardware and software, and Purchaser provided software and encryption equipment. NCIA seeks a Commercial/ Non-Developmental Item (NDI) that can meet NATO's operational requirements.

REQ-2 The equipment for this Contract shall meet or exceed the specifications provided in this document for each of the requirements categories.

A. AM3T KIT – Each AM3T Kit consists of a Hard Side Transit and Storage Case and below-listed hardware and ancillary items. All items shall be delivered in Standard Packaging.

A1. AM3T KIT DELIVERABLES

A1.1 HARD SIDE TRANSIT AND STORAGE CASE AND CONTENTS. The AM3T Hard Side Transit and Storage Case shall be a Pelican-style case or equivalent style briefcase with rigid foam cutouts and pouches designed to accommodate the following kit equipment:

Description	QTY
UHF TACSAT Terminal – Multiband Multichannel Man-pack Radio	1
Push-to-Talk (PTT) handset (see REQ-56 for specifications)	2
PTT headset (see REQ-57 for specifications)	2
AC/DC - DC/DC Power Supply Attachment (i.e. "battery eliminator") (see REQ-126 for specifications)	1
Cable assembly – Terminal Management (programming cable)	1
Cable assembly – Data Cable (data conductor)	1
Rechargeable Battery	2
Battery Adapter/Case	1
Battery Charging System (Single Bay)	1
Technical Manual - Pocket/Quick-Setup Guide	1

A1.2 AM3T SOFTWARE AND MANUALS. The following items shall be delivered separately in standard packaging:

Description	QTY
Software licenses shall be perpetual and include all waveform options – Terminal Management and Programming	1
Software licenses shall be perpetual and include all waveform options – Communications Planning	1
Technical Manual - Detailed Operator Guide (CDRL C005)	1
Technical Manual – Supplemental Modes of Operation (as applicable)	1

A2. AM3T FUNCTIONAL REQUIREMENTS

REQ-3 The future UHF TACSAT terminal shall operate by means of AM3T to provide reliable tactical communications through enhanced secure voice and data capabilities.

REQ-4 The terminal design shall be based on a fully programmable software module which allows for easy upgrades of the used waveforms and frame formats.

REQ-5 The AM3T shall have a minimum of two channels, fully symmetrical and capable of operating simultaneously in the required frequency ranges in compliance with the associated STANAG defined mode of operations in REQ-11, including, but not limited to:

(1) UHF Dedicated Satellite Communications (SATCOM)
(2) UHF Demand Assigned Multiple Access (DAMA) (SATCOM)
(3) UHF Integrated Waveform (IW) (SATCOM)
(4) Very High Frequency (VHF)-UHF Line of Site (VULOS) (AM/FM)

Although the primary purpose of the manpack is to provide UHF SATCOM services some LOS features have been identified which would allow NATO to maximize the utility of the unit and its investment.

REQ-6 The AM3T shall be able to relay VHF and UHF communications (i.e. UHF/UHF, UHF/VHF, VHF/VHF) either internally or via external cable.

REQ-7 The AM3T UHF TACSAT Terminal – Multiband Multichannel Man-pack Radio (base unit) shall consist of a single sealed chassis containing but not limited to 2 transceivers each containing a built in 20-watt amplifier and crypto device. The display, control interface, fill and antenna connectors must be located on a single face so that the unit can be flush mounted with the other 5 sides being enclosed.

REQ-8 The AM3T shall support the tactical voice and data networks for man-portable, deployable and mobile users with an all-informed network connectivity, where any of the connected users can transmit and all other connected users can listen.

REQ-9 The AM3T shall be capable of receiving input from an internal Selective Availability Anti-Spoofing Module (SAASM) Global Positioning System (GPS) to support position and timing requirements for all waveforms that require it. Additionally, the AM3T shall be upgradeable to M-Code once the technology reaches maturity. The price of the upgrade whether software/firmware/hardware based must be either included in the initial purchase or be identified as a future cost and included in the price proposal.

REQ-10 The AM3T must be able to operate simultaneously at 20 watts on two channels, with a minimum of one channel operating in either of the SATCOM modes of operation.

REQ-11 The AM3T must be capable of operating within the below modes of operation. If additional licenses are required for any of these modes of operation, any license fees must be included in the price proposal.

(1) The AM3T shall be fully compliant with MIL-STD-188-181B for Dedicated Single channel per carrier (SCPC) SATCOM. SCPC refers to exclusive use of a single signal at a given frequency and bandwidth.

(2) The AM3T shall be fully compliant with MIL-STD-188-183A (25 kHz) for Demand Assigned Multiple Access (DAMA) SATCOM. DAMA is a technology used to assign a non-dedicated channel to clients that require intermittent access while making bandwidth available to others. DAMA systems assign communication channels based on requests issued from user terminal to a network control system.

(3) The AM3T shall be fully compliant with MIL-STD-188-181C, MIL-STD-188-182B and MIL-STD-188-183B for Integrated Waveform (IW) Phase II (FOC) delivery of the First Article.

(4) The AM3T shall be fully compliant with MIL-STD-188-242 (STANAG 4204) and MIL-STD-188-243 (STANAG 4205) for Visual Line of Sight (VLOS) operation.

(5) The AM3T shall be fully compliant with MIL-STD-188-241-1 for SINCGARS and be capable of performing HOPSET, ERF, Cold Start and Over-the-Air Rekeying (OTAR) functions.

(6) IAW AC/322-N(2016)0088-ADD2 (INV) the AM3T shall support HAVEQUICK (HQ) II (STANAG 4246) and SATURN (STANAG 4372 Ed.4) modes of operation. The terminal shall receive HQ TOD from an internal SAASM GPS selectable from an easy-to-use front panel interface.

(7) The AM3T shall be capable of receiving channel information from the NATO controller (NUCC) based on MIL-STD-188-185 and MIL-STD-188-185A Signaling for voice operations.

REQ-12 The AM3T shall enable the function of sending and receiving situation awareness data in all LOS and all SATCOM waveforms, supporting outputs in MIL-STD-2525 Format (Shall use JTIC certified SA Standards, for Example: Cursor on Target (CoT), JREAP-A, etc.).

REQ-13 The AM3T capability shall provide secure voice and data communication between man-portable, deployable and mobile users utilizing non-proprietary applications.

REQ-14 The AM3T shall enable secure voice and data communication up to NATO SECRET level, using NATO approved cryptographic key material.

(1) Type-1 HAIPE (USKAD and AKAD)
(2) 256 AES Suite B

REQ-15 The AM3T provided under this contract shall be interoperable with the NATO UHF Controller in DAMA and Integrated Waveform (IW) modes of operation.

REQ-16 The AM3T shall support operator firmware upgrades, to support security patches and fixes, waveform upgrades, license renewal (as needed), cryptographic reset, or future platform enhancements.

REQ-17 The AM3T shall support Management and Control (M&C) over Serial (RS-232/422/485) or Ethernet/Internet Protocol (IP) or Universal Serial Bus (USB) based interfaces. Interfaces shall be DB-9, RJ45 or USB-A/USB-C respectively. If adapter cables are required, cables shall have minimum of 3 meters for vehicle installations, and 1 Meter for Man-portable configurations, with pre-terminated ends.

A3. AM3T PERFORMANCE REQUIREMENTS

REQ-24 The AM3T shall be interoperable with all UHF space segment assets acquired under the NATO - SATCOM Services 6 Generation (NSS6G) program and with other military UHF space assets operated by NATO Nations. The AM3T shall be able to tune to all UHF SATCOM frequencies from:

(1) UHF SATCOM (Dedicated, DAMA, IW) Uplink – 291.000 to 318.300 MHz (STANAG 4681 TX 291.000 to 318.300 MHz.)
(2) UHF SATCOM (Dedicated, DAMA, IW) Downlink – 243.000 to 270.000 MHz (STANAG 4681 RX 243.000 to 270.000 MHz)
(3) LOS (VHF Low band) – 30 to 89.975 MHz
(4) LOS (VHF High band) – 90 to 225 MHz
(5) LOS (UHF) – 225 to 399.975 MHz

REQ-25 The AM3T shall support the following Channel Spacing:

(1) Narrowband: 8.33kHz, 12.5 kHz, 25 kHz
(2) Wideband: 1.2 MHz, 5 MHz, 10 MHz
(3) SATCOM: 5 kHz, 25 kHz
(4) FM deviation: 5 kHz, 6.5 kHz, 8 kHz

REQ-26 The AM3T shall have a radio frequency (RF) power output of 20 watts per channel using an internal amplifier.

REQ-27 The AM3T frequency stability and purity shall be plus or minus 0.5 parts per million (Hz)

REQ-28 The AM3T shall be capable of at least 20 Watts of RF output power per channel using an internal amplifier in the SATCOM transmit frequency band (291-318 MHz).

REQ-29 The AM3T shall have greater than 50 dBc harmonic isolation

REQ-30 The AM3T shall have a minimum of -30 dB Adjacent Channel Rejection

REQ-31 The AM3T Shall have the following SINAD Sensitivity:
(1) LOS FM: 30-152 MHz; -100 dBm (Minimum)
(2) LOS AM: 90-512 MHz; -100 dBm with 60% modulation (Minimum)
(3) TACSAT: -110 dBm (Minimum)

REQ-32 The AM3T shall support the following user selectable Squelch settings and modes:

(1) Noise
(2) Tone
(3) Digital (CDCSS, CTCSS)
(4) None

REQ-33 The AM3T shall be fully interoperable with NATO's current generation of UHF radios (AN/PRC-117F and AN/PRC-117G) or UHF controller terminals in legacy modes of operation via satellite RF communications.

REQ-52 The AM3T Kit shall include Battery Adapter/Case, to hold a single BB- 2590/U Style battery and attach directly to the rear of the terminal chassis directly opposite the front panel controls.

REQ-53 The AM3T Kit shall include two (2) each BB-2590/U rechargeable batteries per terminal, minimum 9.9 A/h in 24V mode; 112mm L x 61mm W x 127mm H. Batteries must meet MIL-PRF-32052/1 standards and be compliant to European Council EMC Directive 2004/108/EC and Battery Directive 2006/66/EC standards. Also, batteries must have floating type connector in accordance with U.S. Army DWG # SC-C-179495.

REQ-55 The AM3T Kit shall include one (1) each single bay BB-2590/U charger for every terminal.

A4. AM3T PHYSICAL REQUIREMENTS

REQ-77 The AM3T shall be delivered in customized containers protecting the equipment against any damage during transportation and storage.

REQ-78 The AM3T shall be fitted into a STANAG 4280 and MIL-STD-810G or MIL STD-810H compliant transit case which houses the terminal itself and the ancillaries, in an organized manner. The transit case affords protection for the TACSAT terminal during transport and storage and ensures that ancillary equipment is housed together to facilitate a

complete system approach, minimizing the loss of critical components during times of deployment and shipment. An acceptable example would be a “Pelican” (brand) style durable case, with rigid foam cut-outs/shadowing and pouches to hold cabling.

REQ-79 The AM3T shall be fully voice and data interoperable with the mobile, man portable and deployable HQ ancillary equipment.

REQ-80 The AM3T shall be equipped with the following interfaces for data transmission:
(1) Ethernet
(2) USB Version 2.0 (no substitutes). Later versions may be offered in addition to this version
(3) RS232/RS-422

REQ-81 All connecting and cabling interfaces, and mechanical latches, should support connectivity without the use of additional tools.

REQ-82 The volume of the AM3T base unit shall not exceed the current fielded AN/PRC 117F terminals by more than 10%.

REQ-83 The AM3T operational configuration (including battery, antenna, and handset) shall not exceed the weight of the current fielded AN/PRC 117F by more than 10%, resulting in the AM3T terminal itself not exceeding 13 lbs (8 kg) with battery.

A5. AM3T OPERATIONAL REQUIREMENTS

REQ-89 The Contractor shall have conducted/conduct an effective Reliability, Maintainability, and Availability (RMA) program that has been/will be planned, integrated and developed in conjunction with system and equipment design, fabrication, installation and test activities to ensure the achievement of the overall program objectives inherent in the Mean Time Between Failure (MTBF), Mean Time to Replace/Repair (MTTR) and system availability criteria specified below:

(1) The Operational Readiness of the UHF TACSAT terminal equipment is required to be better than 99.5%, whatever the configuration (deployable HQ, mobile, man portable).

(2) The Reliability for each UHF TACSAT terminal when expressed as Mean Time Between Critical Failures (MTBCF) must be at least 10,000 operational hours (Ground Mobile Environment IAW MIL-HDBK-217F), encompassing both Hardware (HW) and Software/Firmware (SW/FW) and including the terminal, antenna, power source, battery, keypad and cabling.

REQ-90 Warranty shall be a minimum of two (2) years for TACSAT terminals and for all ancillary items associated with this procurement, following System Acceptance of batches of provided equipment.

REQ-91 No special protection against operation under jamming conditions is required for the AM3T.

REQ-92 The AM3T shall be built in a ruggedized manner to facilitate their use in the field environment, complying with MIL-STD-810G or MIL-STD-810H Standards.

REQ-93 There is no specific system integration requirement upon the delivery of the AM3T.

REQ-94 The AM3T radio system and ancillary items shall be delivered as a Commercial-Off-The-Shelf (COTS) product.

A6. AM3T SECURITY REQUIREMENTS

REQ-99 The AM3T shall meet requirements for Magnetic Field Emissions and Immunity Testing, as described in MIL-STD-2036A and MIL-STD-1399 respectively.

REQ-100 The AM3T shall conform to the Requirements for the control of electromagnetic interference characteristics of subsystems and equipment, as described in MIL-STD-461.

REQ-101 The AM3T shall meet Shielding Effectiveness as described in MIL-STD-285.

REQ-102 The AM3T system shall meet the environmental and durability requirements as detailed in MIL-STD-810G or MIL-STD-810H.

REQ-103 The AM3T shall be Joint Interoperability Test Command (JITC) certified for capabilities as mentioned in this PWS.

REQ-104 The AM3T shall be approved by NATO Military Committee Communications and Information System Security and Evaluation Agency (SECAN) as an approved cryptographic material handling system and/or device up to NATO Secret level.

REQ-105 The AM3T shall enable the protection of classified information up to NATO Secret (NS) level.

REQ-106 The AM3T shall use embedded CRYPTO for securing voice, data, transmit/receive.

REQ-107 The AM3T shall be capable of operating in DAMA and IW modes of operation while simultaneously allowing the user to use an effective encoding algorithm for high quality voice communications with the entire circuit encrypted via the embedded COMSEC device.

REQ-108 The AM3T shall use embedded TRANSEC to protect the control order- wire channel that controls DAMA and IW accesses.

REQ-109 The AM3T shall have embedded Type-A encryption and use NATO approved CRYPTO for all voice and data circuits. The following CRYPTO is embedded into the UHF TACSAT terminals:

(1) KY-57 (VINSON)
(2) KYV-5 (ANDVT)
(3) KG-84C

(4) MEDLEY

REQ-110 To support potential future narrow-band waveforms and cryptographic algorithms, the AM3T radios shall be capable of software/firmware upgrades without the need for hardware modification. If hardware, in addition to software, modifications are required, this shall be identified as a future cost and included in the price proposal at the time the requirement is identified. Such upgrades and modifications shall be aligned with approved crypto-core modernization, to include but not limited to:

(1) Suite A support
(2) Suite B Support
(3) NATO NINE
(4) Link Encryptor Family (LEF)

REQ-111 Embedded COMSEC devices will host legacy KEESEE cryptographic algorithms as well be software upgradeable to algorithms in accordance with (IAW) the Thornton TRANSEC Algorithm Modernization (TTAM) framework endorsed by the US National Security Agency (NSA). The upgrade will be compatible with the NSA Specification 90-2A (DS101 Thornton Smart Fill) for the filling device.

REQ-112 The AM3T shall allow future upgrades to support Secure Communications Protocol – Tactical Secure Voice Cryptographic Interoperability Specification (SCIP-TSVCIS) Secure Tactical Communications Interoperability Specification (STaC-IS). This upgrade shall be included in the offer price of the terminal.

A7. AM3T ENVIRONMENT REQUIREMENTS

REQ-113 The equipment shall meet or exceed the requirements below for operation, transport and storage.

REQ-114 The environmental conditions that the AM3T will operate in may be extremely harsh with extreme temperature fluctuations, airborne dust particles and heavy winds. All delivered equipment must be able to continue to operate effectively within these conditions for an extended period.

REQ-115 The equipment shall comply with the following environmental MIL-STD's:

(1) MIL-STD-810G or MIL-STD-810H – Shock and vibration for shipboard, tracked vehicles and wheeled based vehicles.
(2) MIL-STD-461F – Electromagnetic Interference and Radio Frequency Interference
(3) MIL-STD-810G or MIL-STD-810H – Environmental Conditions

A8. AM3T ELECTRICAL POWER REQUIREMENTS

REQ-119 The AM3T AC-DC/DC-DC power supplies shall accept AC 110-240 VAC / 50/60 Hz (nominal 230VAC 50Hz input) or DC (12-24 VDC) providing requisite terminal voltage as supplied. The power supply shall provide a DC power port for external speakers or other accessories as supplied.

REQ-120 The AM3T shall also operate from either an external AC/DC power source or from attached rechargeable battery

REQ-121 The AM3T shall have an internal battery to maintain terminal configurations and cryptographic fills when removed from all power sources or turned off.

B. MAN PORTABLE KIT - Each Man Portable Kit consists of a Man Portable Hard Side Wheeled Ancillary Case and the below listed ancillary items. All items shall be delivered in standard packaging.

B1. MAN PORTABLE KIT DELIVERABLES

B1.1 MAN PORTABLE HARD SIDE WHEELED ANCILLARY CASE. The Man Portable Hard Side Wheeled Ancillary Case shall have rigid foam cutouts to accommodate below listed equipment.

Description	QTY
Dismounted UHF Foldable SATCOM Antenna System (240 MHz – 400 MHz)	1
Dismounted VHF/UHF LOS Antenna Systems (30 MHz-225 MHz) includes:	
Dismounted VHF-Low LOS Antenna	1
Dismounted VHF-High/UHF LOS Antenna	1
Dismounted GPS Antenna System	1
Antenna cables: three RF (each min 3 meters), one GPS (min 1 meter)	4
PTT Handset	1
PTT Headset	1
Dual PTT and Lowering Cord Interface	1
AC/DC - DC/DC Power Supply Attachment (i.e. “battery eliminator”)	1
Reference Satellite Chart	1
Backpack/Carry Bag	1
Speaker	1

B1.2 8-BAY BATTERY CHARGING SYSTEM. The 8 Bay Battery Charging System shall be a separate item from the Man Portable Kit and have its own carrying case. One (1) 8 Bay Battery Charging System shall be delivered for quantity eight (8) Man Portable Kits rounded to the nearest whole number (i.e. ten (10) in batch 1, eleven (11) in batch 2, and eleven (11) in batch 3.)

Description	QTY
Battery Charging System (8 Bay – 1 for every 8 OTP systems)	1/8

B2. MAN PORTABLE KIT FUNCTIONAL REQUIREMENTS

REQ-18 Man Portable Kit equipment kits shall support the mode of operations required for AM3T as listed in paragraph A2. AM3T FUNCTIONAL REQUIREMENTS, as applicable.

B3. MAN PORTABLE KIT PERFORMANCE REQUIREMENTS

REQ-47 Man Portable Kit shall include one (1) Foldable SATCOM antenna, with the following performance characteristics:

(1) Frequency range of 240-380 MHz with STANAG receive 243-270 MHz and transmit 291-318.3 MHz
(2) Polarization: Right Hand Circular
(3) Nominal impedance of 50 ohms
(4) Gain: minimum of +9.5 dBi (+/- 1 dB)
(5) High Angle: minimum +8 dBi (Circular)
(6) Power handling of 50 watts Continuous Wave (CW)

REQ-48 Man Portable Kit shall include two (2) (one VHF low, one VHF-High/UHF) LOS Antenna, with the following performance characteristics:

(1) The combination of these two antennas shall support Frequency Ranges of 30-225 MHz
(2) Vertical Polarization
(3) Omni-Directional Radiation Pattern
(4) Nominal impedance of 50 ohms
(5) Gain:
- Low Angle: minimum - 1 dBi (Linear)
- High Angle: minimum + 3 dBi (Circular)

(6) Power handling of 20 Watts CW
(7) Connectors: TNC Male

REQ-49 Man Portable Kit shall include one (1) GPS Antenna, with the following performance characteristics:

(1) Supporting Frequency Ranges:
- L1: 1575.42 MHz ± 15 MHz
- L2: 1227.6 MHz ± 15 MHz

(2) Right Hand Circular Polarization
(3) Hemispheric, Isotropic Radiation Pattern
(4) Nominal Impedance of 50 Ohm
(5) Gain (@ 90 Degrees Elevation):
- L1 band: 4 dBi circular at 1575.42 MHz
- L2 band: 4 dBi circular at 1227.6 MHz

(6) VSWR less than 2.0:1; relative to 50 Ohms
(7) Operating in an active or passive configuration to match the AM3T terminal
(8) If required, a minimum of 1 meter cable length.

REQ-50 Man Portable Kit shall include two (2) RF cables, connecting antennas to terminal minimum 3 meters in length; additional crimp-style connectors shall be included to support re-termination or routed cables.

REQ-51 Man Portable Kit shall include Terminal Power Supply(s), with the following performance characteristics:

(1) Shall support power requirements of the terminal as supplied
(2) Shall attach directly to the rear of the terminal chassis directly opposite the front

panel controls
(3) Able to accept power ranging from 110-240 50/60Hz (230 VAC 50 Hz nominal), and 12-24 VDC
(4) Supports additional DC output for Terminal Speakers and additional accessories as supplied
(5) Allows for operation of terminal when main power is disconnected from primary power for 15 minutes.

REQ-54 Man Portable Kit shall include one (1) each minimum 8 bay BB-2590/U charger per 8 Terminals (quantities rounded up).

REQ-56 Man Portable Kit shall include push to talk (PTT) Handset, conforming to MIL-PRF-49078, using a standard NATO 6-Pin interface connector (U-229/U) with terminal interface adapter (as required).

REQ-57 Man Portable Kit shall include Headset, with the following characteristics:
(1) Dual Communication Supported
(2) Over Head Mount
(3) Adjustable to fit
(4) Compliant with MIL-STD-461E
(5) Compliant with MIL-STD-810G or MIL-STD-810H
(6) Integrates active Noise Cancellation
(7) Compatible with Advanced Combat Helmet (ACH) or Modular Integrated Communication Helmet (MICH)
(8) Ambidextrous Boom Microphone, with MP-101/MJ-102 connector interfaces
(9) A Low-Impedance U94 interface plug(s)

REQ-58 Man Portable Kit shall include Dual PTT and Lowering Cord Interface, with the following characteristics:
(1) Two button PTT, to enable keying of two separate channels.
(2) A Low-Impedance U94 interface receptacle(s).
(3) Cable(s) shall be average of 0.6 meters in length.
(4) A breakout of two or one connectors as needed, in order to interface the terminal, and support dual channel communication.
(5) Terminal side of PTT cable(s) shall conform with MIL-C-55116, NATO 6-Pin connector (with adapter as required).

REQ-59 Man Portable Kit shall include a Reference Satellite Chart, for estimating proper azimuth and elevation of a selected UHF/TACSAT antenna, based upon satellite orbital position and user location.

REQ-60 Man Portable Kit shall include a backpack for terminal and critical operation ancillaries (that will allow to operate the radio with voice and/or data applications) and a hard side wheeled ancillary case with custom foam to carry non-essential items.

B4. MAN PORTABLE KIT PHYSICAL REQUIREMENTS

REQ-86 The OTP Kit shall not exceed the dimensions of the current fielded OTP kit which are 40 cm (H) x 70 cm (W) x 65 cm (D) and weight 50 kg.

REQ-87 The Man Portable Kit shall be comprised of:

(1) The AM3T OTP configured kit shall be supplied with a durable military style (Multicam) backpack, capable of holding all the required equipment for short duration, dismounted missions. The backpack shall be specifically designed to support terminal operation while the terminal is protected inside.
   (a) A Multi-Cam styled Terminal Pouch (backpack), with Molle Compatible mounting straps, to support vertical/"face-up" terminal operations.
   (b) The backpack shall have an antenna port with cover.
   (c) The backpack shall include an internal protective soft case specifically designed for the terminal with Molle Compatible integration straps.
   (d) A pouch or mounting bracket for the amplifiers, with Molle Compatible mounting straps.
   (e) The backpack shall have Molle Compatible external integration straps.

(2) A Multi-Cam ruggedized ancillary wheeled mounted case, to hold and organize the antennas, batteries, and other ancillaries.

B5. MAN PORTABLE KIT OPERATIONAL REQUIREMENTS

REQ-97 The OTP equipment shall be built in a ruggedized manner to facilitate employment in harsh and austere field environments.

B6. MAN PORTABLE KIT SECURITY REQUIREMENTS. Man Portable Kit does not have security requirements

B7. MAN PORTABLE KIT ENVIRONMENTAL REQUIREMENTS

B8. MAN PORTABLE KIT ELECTRICAL POWER REQUIREMENTS

REQ-126 Man portable kit shall operate from external AC/DC power sources as well as attached rechargeable batteries. The attachable AC-DC/DC-DC power supply shall provide organic uninterruptable DC power to the terminal for fifteen (15) minutes when disconnected from AC or DC input.

C. MOBILE KIT - Each Mobile Kit consists of a Mobile Kit Integrated Hard Side Mount Storage and Transit Case and the below listed ancillary items. All items shall be delivered in standard packaging.

C1. MOBILE KIT DELIVERABLES

C1.1 INTEGRATED HARD SIDE MOUNT STORAGE AND TRANSIT CASE. The Mobile Kit Integrated Hard Side Mount Storage and Transit Case shall have rigid foam cutouts and pockets to accommodate:

Description	QTY
Rugged Shock Absorbing Vehicular Terminal Mounting Assembly and associated cables (at least 3 meters) (Note that rugged shock mounts	1

are required for end item components within the transit case.) The Terminal Mounting Assembly shall include:

-RF amplifier	1
-Terminal AC/DC – DC/DC Power Supply	1
-Terminal Speaker	1
Handset	1
Toggle Switch	1
Reference Satellite Chart	1

C1.2 MOBILE KIT STANDARD PACKAGING. Other Mobile Kit deliverables which are not included in the Mobile Kit Integrated Hard Side Mount Storage and Transit Case, shall be delivered in this Standard Packaging:

Description	QTY
Vehicular Mounted SATCOM Antenna System (240MHz - 400MHz)*	1
Vehicular Mounted GPS Antenna System	1
Vehicular Mounted LOS Antenna System (30 - 512 MHz)	1
Man Portable LOS Antenna System (30 - 512MHz)	1
Terminal to Antenna RF cables, min. 5 meters	2
RF Cable for GPS Antenna (4 meters)	1
Coax Retermination Kit	1

*The SATCOM antenna must close the link for IW operations in the Northern hemisphere.

C2. MOBILE KIT FUNCTIONAL REQUIREMENTS

REQ-19 Mobile kit equipment kits shall support the mode of operations required for AM3T as listed in paragraph A2. AM3T FUNCTIONAL REQUIREMENTS, as applicable**.**

C3. MOBILE KIT PERFORMANCE REQUIREMENTS

REQ-34 Each mobile Kit shall be supplied with a rugged hard side suitcase style (ex. Pelican type) enclosure to protect the Vehicle Mounting kit, amplifies and power supplies as supplied.

REQ-35 Each Mobile Kit (vehicular) shall include one (1) SATCOM antenna, with the following performance characteristics:

(1) Frequency range of 240-380 MHz with STANAG receive 243-270 MHz and transmit 291-318.3 MHz

(2) Polarization:

- Vertical, linear, at low angles; if equipped
- Right hand circular, at high angles (above 45 degrees)

(3) Nominal impedance of 50 ohms

(4) Gain:

- Low Angle: minimum - 1 dBi (Linear); if equipped
- High Angle: minimum + 3 dBi (Circular)

(5) Power handling of maximum 200 watts continuous wave (CW)

(6) Connectors:
- Low Angle, TNC Female; if equipped
- High Angle, N-type Female

(7) The antenna must support fixed mobile integration, and function at sustained speeds of up to 120km/h.
(8) X-Wing and ground-plane (such as RAMI) type antennas are not acceptable.

REQ-36 The SATCOM antenna shall have a magnetic mounting base (option), and mounting riser (option), using an installation kit including bolts.

REQ-37 Each Mobile Kit (vehicular) shall include one (1) vehicle (mobile) LOS Antenna, one (1) man portable LOS Antenna, with the following performance characteristics:

(1) Supporting Frequency ranges of 30-512 MHz
(2) Vertical Polarization
(3) Omni-Directional Radiation Pattern
(4) Nominal impedance of 50 ohms
(5) Gain:
- Low Angle: minimum - 1 dBi (Linear)
- High Angle: minimum + 3 dBi (Circular)

(6) Power Handling of minimum 50 Watts CW
(7) Connectors: Low loss, waterproof
(8) Voltage Standing Wave Ratio (VSWR) less than 3.5:1; relative to 50 Ohms

REQ-38 The LOS Antenna must support fixed vehicle integration with the Mobile Kit, and function at sustained speeds of more than 120 km/h.

REQ-39 Each Mobile Kit (vehicular) shall include one (1) GPS Antenna, with the following performance characteristics:
(1) Supporting Frequency ranges:
- L1: 1575.42 MHz ± 15 MHz
- L2: 1227.6 MHz ± 15 MHz

(2) Right Hand Circular Polarization
(3) Hemispheric, Isotropic Radiation Pattern
(4) Nominal Impedance of 50 Ohms
(5) Gain (@ 90 degrees Elevation):
- L1 Band: 4 dBi Circular at 1575.42 MHz
- L2 Band: 4 dBi Circular at 1227.6 MHz

(6) VSWR less than 2.0:1; relatives to 50 Ohms
(7) Operating in an active or passive configuration to match the AM3T.
(8) A minimum of 4-meter cable length; an additional crimp-style connector shall be included to support re-termination or routed cables.

REQ-40 Each Mobile Kit (vehicular) shall include RF cables, connecting Antennas to Terminal (supporting LOS antenna relocation and extension), five (5) meters in length; additional crimp-style connectors shall be included to support re-termination or routed cables.

REQ-41 Each Mobile Kit (vehicular) shall include one (1) RF amplifier, fitted within a vehicle mounting tray, with the following performance characteristics:

(1) Each capable of at least 50W output power in the SATCOM frequency band (244-318 MHz) UHF TACSAT and (280-380 MHz)
(2) Less than 1.5db insertion loss.
(3) 50 Ohm Nominal Impedance
(4) Less than 1.5:1 VSWR
(5) Less than or equal to 35dB out of band rejection/isolation
(6) Support AM, FM, and Tactical Waveforms
(7) Shall include cables to connect to terminal(s).

REQ-42 Each Mobile Kit (vehicular) shall include Terminal Power Supply(s) fixed to the mounting assembly, with the following performance characteristics:
(1) Shall support power requirements of the terminal and amplifiers as supplies
(2) Connects directly to the back of the terminal
(3) Able to accept power ranging from 110-240 50/60Hz (230 VAC 50 Hz nominal), and 12-24 VDC
(4) Supports additional DC output for Terminal Speakers as supplied

REQ-43 Each Mobile kit (vehicular) shall include one (1) Rugged Shock Absorbing Vehicular Terminal Mounting Assembly, integrating the Amplifier(s), Power Supply, Speakers, and Terminals; integrated power/ground isolation. Vehicular Mounting Tray shall include a rugged shock absorbing mechanism to ensure shock and vibration characteristics of MIL-STD-810G or MIL-STG-810H are met. Vendor Supplied cables for vehicle integration, shall have minimum 3-meter length(s) fused cable, and associated termination ends.

REQ-44 Each Mobile Kit (vehicular) shall include Terminal Speaker(s), with the following performance characteristics:
(1) Powered by supplied terminal power supply, conforms to MIL-STD-1275 power protection requirements.
(2) Audio input 1.6 VRMS nominal.
(3) Audio band pass: 300 Hz to 3,000 Hz minimum.
(4) Able to support H-250/u or similar Push to Talk (PTT) handset.
(5) Adjustable volume control(s).
(6) Audio pass-through capable, when power is not applied.

REQ-45 Each Mobile Kit (vehicular) shall include one (1) Push To Talk (PTT) handset, conforming to MIL-PRF-49078, with an average two (2) meter length cable (extended), using a standard NATO 6-Pin interface connector (U-229/U) with terminal interface adapter (as required).

REQ-46 Mobile Kit shall include a Reference Satellite Chart, for estimating proper azimuth and elevation of a selected UHF/TACSAT antenna, based upon satellite orbital position and user location.

C4. MOBILE KIT PHYSICAL REQUIREMENTS

REQ-84 The OTM Kit shall not exceed the dimensions of the current fielded OTM kit which are 60cm (H) x 57cm (W) x 60 cm (D) and weigh 60 kg (excluding radio).

REQ-85 The OTM Omni-directional SATCOM antenna dimensions shall not exceed 50cm H and 50cm maximum tip-to-tip, with a weight of 5 kg.

C5. MOBILE KIT OPERATIONAL REQUIREMENTS

REQ-95 The Reliability for each Mobile kit including Power Amplifier and antenna, when expressed as MTBCF must be at least 15,000 operational hours (Ground Fixed environment IAW MIL-HDBK-217F), encompassing both HW and SW/FW and including power source, antenna and cabling.

REQ-96 The Mobile Kit equipment shall be built in a ruggedized manner to facilitate employment in harsh and austere field environments.

C6. MOBILE KIT SECURITY REQUIREMENTS. Mobile Kit does not have security requirements

C7. MOBILE KIT ENVIRONMENTAL REQUIREMENTS

C8. MOBILE KIT ELECTRICAL POWER REQUIREMENTS

REQ-123 The Mobile Kit shall be powered from vehicle per MIL-STD 1275E.

REQ-124 The Mobile Kit shall be supplied with requisite DC power cabling to connect to vehicle power.

REQ-125 The Mobile Kit shall be supplied with attachable rechargeable Batteries for dismounted operations.

D. DEPLOYABLE HQ KIT – Each Deployable HQ Kit consists of a Deployable HQ Kit Integrated Deployable Transit, Storage, and Operations Case and the below listed ancillary items. All items shall be delivered in standard packaging.

D1. DEPLOYABLE HQ KIT DELIVERABLES.

D1.1. DEPLOYABLE HQ KIT INTEGRATED DEPLOYABLE TRANSIT, STORAGE, AND OPERATIONS CASE. The Deployable HQ Kit Integrated Deployable Transit, Storage, and Operations Case is identical to the Mobile Kit Integrated Hard Side Mount Storage and Transit Case, each consisting of:

Description	QTY
Rugged Shock Absorbing Vehicular Terminal Mounting Assembly and associated cables (at least 3 meters) (Note that rugged shock mounts are required for end item components within the transit case.) The Terminal	1

Mounting Assembly shall include:

-RF amplifier	1
-Integrated Terminal AC/DC - DC/DC Power Supply	1
-Terminal Speaker	1
PTT Handset	1
RF Toggle Switch	1
Reference Satellite Chart	1

D1.2 DEPLOYABLE HQ KIT STANDARD PACKAGING. The standard package is identical to the Man Portable Hard Side Wheeled Ancillary Case except for an additional dismounted UHF Foldable SATCOM antenna, PTT Handset and PTT Headset, each consisting of:

Description	QTY
Dismounted UHF Foldable SATCOM Antenna System (240 MHz – 400 MHz)	2
Dismounted VHF/UHF LOS Antenna Systems (30 MHz-225 MHz) includes:	
Dismounted VHF-Low LOS Antenna	1
Dismounted VHF-High/UHF LOS Antenna	1
Dismounted GPS Antenna System	1
Antenna cables: three RF (each min 3 meters), one GPS (min 1 meter)	4
PTT Handset	1
PTT Headset	2
Dual PTT and Lowering Cord Interface	2
Backpack/Carry Bag	1

D1.3 8-BAY BATTERY CHARGING SYSTEM. The 8 Bay Battery Charging System shall be a separate item from the Deployable HQ Kit and has its own carrying case. One (1) 8 Bay Battery Charging System shall be delivered for quantity eight (8) Deployable HQ Kits rounded to the highest number (i.e. one (1) in batch 1, one (1) in batch 2, and one (1) in batch 3.)

Description	QTY
Battery Charging System (8 Bay – 1 for every 8 HQ systems)	1/8

D2. DEPLOYABLE HQ KIT FUNCTIONAL REQUIREMENTS

REQ-20 Deployable HQ Kit equipment shall support the mode of operations required for AM3T as listed in paragraph A2. AM3T FUNCTIONAL REQUIREMENTS, as applicable**.**

D3. DEPLOYABLE HQ KIT PERFORMANCE REQUIREMENTS

REQ-61 Deployable HQ Kit shall include two (2) foldable SATCOM antennas, with the following performance characteristics:

(1) Frequency range of 240-380 MHz with STANAG receive 243-270 MHz and transmit 291-318.3 MHz
(2) Polarization: Right Hand Circular.
(3) Nominal impedance of 50 ohms.
(4) Gain: minimum of +9.5 dBi (+/- 1 dB).
(5) High Angle: minimum+8 dBi (Circular)

(6) Power Handling minimum of 50 Watts CW.

REQ-62 Deployable HQ Kit shall include two (2) (one VHF low, one VHF-High/UHF) LOS Antennas, with the following performance characteristics:

(1) The combination of these two antennas shall support frequency ranges of 30-225 MHZ be mountable on a masts and building.
(2) Vertical polarization.
(3) Omni-directional radiation pattern.
(4) Nominal impedance of 50 ohms
(5) Gain:
- Low Angle: minimum - 1 dBi (Linear)
- High Angle: minimum + 3 dBi (Circular)

(6) Power handling of minimum 20 watts CW.
(7) Connectors: TNC Male

REQ-63 Deployable HQ Kit shall include one (1) GPS Antenna, with the following performance characteristics:

(1) Support frequency ranges:
- L1: 1575.42 MHz ± 15 MHz
- L2: 1227.6 MHz ± 15 MHz

(2) Right Hand Circular Polarization
(3) Hemispheric, Isotropic Radiation Pattern
(4) Nominal impedance of 50 Ohm.
(5) Gain (@90 Degrees Elevation)
- L1 Band: 4 dBi Circular at 1575.42 MHz
- L2 Band: 4 dBi Circular at 1227.6 MHz

(6) VSWR less than 2.0:1: relative to 50 Ohms.
(7) Operate in an active or passive configuration to match the AM3T terminal.
(8) A minimum of 1 meter cable length.

REQ-64 Deployable HQ Kit shall include RF cables, connecting Antennas to Terminal minimum five (5) meters in length; additional crimp-style connectors shall be included to support re-termination or routed cables.

REQ-65 Deployable HQ Kit shall include one (1) RF amplifier(s), with the following characteristics:

(1) Each capable of at least 50W output power in the SATCOM frequency band (244-318MHz) UHF TACSAT and (280-380MHz)
(2) Less than 1.5db insertion loss
(3) 50 Ohm Nominal Impedance
(4) Less than 1.5:1 VSWR
(5) Less than or equal to 35DB out of band rejection/isolation
(6) Support AM, FM, and Tactical Waveforms
(7) Shall include Cables to connect to Terminal(s), minimum of 1 meter in length; additional crimp-style connectors shall be included to support re-termination or routed cables.

REQ-66 Deployable HQ Kit shall include one (1) RF two-way toggle switch.

REQ-67 Deployable HQ Kit shall include Terminal Power Supply(s), with the following performance characteristics:

(1) Shall support power requirements of the terminal as supplied.
(2) Shall attach directly to the rear of the terminal chassis directly opposite the front panel controls.
(3) Able to accept power ranging from 110-240 50/60Hz (230 VAC 50 Hz nominal), and 12-24 VDC.
(4) Supports additional DC output for Terminal Speakers and additional accessories as supplied.

REQ-69 Deployable HQ shall include one (1) each minimum 8 bay BB-2590/U charger per 8 Terminals (quantities rounded up).

REQ-71 Deployable HQ Kit shall include 2 Push to Talk (PTT) Handsets, conforming to MIL-PRF-49078, using a standard NATO 6-Pin interface connector (U-229/U) with terminal interface adapter (as required).

REQ-72 Deployable HQ Kit shall include two (2) Headsets, with the following characteristics:

(1) Dual communication supported
(2) Over Head Mount
(3) Adjustable to fit
(4) Complaint with MIL-STD-461E
(5) Complaint with MIL-STD-810G or MIL-STD-810H
(6) Integrates active noise cancellation
(7) Compatible with Advanced Combat Helmet (ACH) or Modular Integrated Communication Helmet (MICH)
(8) Ambidextrous Boom Microphone, with MP-101/MJ-102 connector interfaces
(9) A Low-Impedance U94 interface plug(s)

REQ-73 Deployable HQ Kit shall include two (2) Dual PTT and Lowering Cord Interface, with the following characteristics:

(1) Two button PTT, enabling keying of two separate channels or two (2) one button PTTs
(2) Cable(s) shall be average of 0.6 meters in length
(3) A breakout of two or one connectors as needed, in order to interface the terminal, and support dual channel communication
(4) Terminal side of PTT cable(s) shall conform with MIL-C-55116, NATO 6-Pin connector (with adapter as required)
(5) Shall allow the interface of hearing protection equipped with speakers and microphone, with a male U94 Nexus connector.

REQ-74 Deployable HQ Kit shall include a UHF/TACSAT Satellite Slide Chart, for estimating proper azimuth and elevation of a selected UHF/TACSAT antenna, based upon satellite orbital position and user location.

REQ-75 Deployable HQ Kit shall be mounted in a modular and scalable, hard case with access to the front and rear of the terminal; and include a backpack and an ancillary case.

REQ-76 The Deployable HQ kit shall be fully integrated and configured in such a way as to require rapid, minimal setup by the operator. The operator shall connect external antenna and data cables. The unit shall provide limited DC power. If required, the operator shall only need to connect the kit to AC or DC external power source.

D4. DEPLOYABLE HQ KIT PHYSICAL REQUIREMENTS

REQ-88 The weight of Deployed HQ Kit shall not exceed 45 kg including ancillaries, cases etc.

D5. DEPLOYABLE HQ KIT OPERATIONAL REQUIREMENTS

REQ-98 The Deployed HQ equipment shall be built in a ruggedized manner to facilitate employment in harsh and austere field environments.

D6. DEPLOYABLE HQ KIT SECURITY REQUIREMENTS. Deployable HQ Kit does not have security requirements

D7. DEPLOYABLE HQ KIT ENVIRONMENTAL REQUIREMENTS

D8. DEPLOYABLE HQ KIT ELECTRICAL POWER REQUIREMENTS

REQ-127 Deployed HQ Kit shall operate from external AC/DC power sources.

REQ-128 The attachable AC-DC/DC-DC power supply shall provide organic uninterruptable DC power to the terminal for fifteen (15) minutes when disconnected from AC or DC input with 10% TX, 10% RX and 80% STBY usage.

APPENDIX A

SECTION 2 – PROJECT MANAGEMENT REQUIREMENTS

All Project Management requirements specified in this appendix are preceded by specific prefix PM. The prefix requirement numbers (PM- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

PM-2 Where requested, the contractor shall ensure that certified installation and professional services engineers with NATO security clearance are used from the equipment manufacturer/vendor support organization to install and commission equipment to comply with support/warranty requirements.

PM-3 All NATO CLASSIFIED material entrusted to the Contractor shall be handled and safeguarded in accordance with the applicable security regulations. The Contractor shall be required to possess a Facility clearance of "NATO SECRET" for those sites in which he intends to handle and store NATO classified material in the conduct of work under this Contract.

PM-4 The Contractor shall ensure that all Contractor and Sub-Contractor personnel working at NATO facilities are in possession of, at a minimum, a NATO SECRET security clearance confirmed to the Purchaser by the relevant National Security Authority as required by NATO policy. Personnel security clearance shall be valid for at least three months from the Effective Date of Contract, providing evidence/proof prior to contract award.

PM-6 The Purchaser's PM will be supported by specialists in certain areas who may, from time to time, be delegated to work with the contractor on PM's behalf in their area of expertise.

PM-7 The Contractor shall provide all necessary suitably qualified manpower and resources to conduct and support the project and shall as a minimum include:

(1) Project Manager who will direct and co-ordinate the activities of the Contractor's project team. The Contractor's PM shall be the primary contact for the Purchaser's PM and shall chair all project meetings. Purchaser appointed PM shall have an experience and knowledge in project management supplemented with a formal certificate in Project Management such as Prince2 Practitioner, PMP or equivalent.

(2) Technical Lead who leads the analysis, design, development, integration, testing and follow-on enhancement efforts of the contractor. The technical lead shall have document experience and knowledge in the field of TACSAT communication.

PM-8 The Contractor shall submit a Project Implementation Plan (PIP, CDRL B001) which clearly describes how he intends to implement the totality of the project in compliance with the contractual requirements and the following specific requirements.

PM-9 The draft PIP shall be provided to the Purchaser for review and acceptance within

two (2) weeks after EDC. The PIP will be reviewed by the Purchaser and comments submitted to the Contractor no later than ten (10) working days after receipt.

PM-10 The approval of the PIP by the Purchaser signifies only that the Purchaser agrees to the Contractor's approach in meeting the requirements. This approval in no way relieves the Contractor from its responsibilities to meet the requirements stated in this PWS.

PM-11 The final PIP Document reflecting Purchaser's comments shall be provided to the Purchaser within eight (8) weeks after EDC.

PM-12 The PIP is a living document during the whole lifecycle of the project therefore shall be kept up to date throughout the project, and shall be subject of review at each Project Review Meeting (PRM), until and including Final System Acceptance (FSA).

PM-13 The PIP (CDRL B001) shall include:

(1) Project Overview, which shall provide an executive summary overview of the offered equipment and services.
(2) Project Management Plan which clearly describes the implementation of the project.
(3) Configuration Management Plan as described in Appendix A, Section 7 (CDRL C007)
(4) Quality Assurance Plan as described in Appendix A, Section 7 (CDRL C009)
(5) The Project Master Schedule (PMS, CDRL C010) that shall contain all contract events and milestones for the Project.
- The PMS shall show all contractual deliverables, their delivery dates, and the tasks associated with them.
- The PMS shall for each task identify the start and finish dates, duration, predecessors, constraints, and resources.
- The PMS shall provide network, milestone, and Gantt views, and identify the critical path for the overall project.
- The PMS shall be provided in Microsoft Project format.

(6) Project Personnel, which shall include the curriculum vitae and security clearance information for the personnel proposed in PM-3 and PM-4.

PM-14 Except where otherwise stated in the contract, the following provisions shall apply to all meetings to be held under the contract.

PM-15 The Contractor shall take meeting minutes, submit them within three working days of the meeting in draft version to the Purchaser for approval.

PM-16 The participants shall not regard these minutes as a mechanism to change the terms, conditions or specifications of the Contract, or as a vehicle to alter the design or configuration of equipment or systems. Any such changes shall only be made by agreement, amendment or by authorized mechanisms as set forth in the contract.

PM-17 Any documentation, even in draft format, that may be useful to the Purchaser in

preparing for meetings and ensuring efficient discussions during the meetings shall be provided to the Purchaser no later than 5 working days before the meeting.

PM-18 The Contractor shall coordinate and hold the following Project Review Meetings (PRMs) with the Purchaser:

(1) PRM 1 includes Project Kick-off meeting,
(2) PRM 2 includes System Design Review (SDR) Meeting,
(3) PRM 3 includes First Article System Test (FAST) Meeting,
(4) PRM 4 after 1st Batch Delivery Acceptance,
(5) PRM 5 after 2nd Batch Delivery Acceptance,
(6) PRM 6 after 3rd Batch Delivery Acceptance,
(7) PRM 7 includes Final Systems Acceptance (FSA) Meeting.

PM-19 One week before each PRM, except the 1st PRM - Kick-off, the Contractor shall provide a Project Status Report (PSR, CDRL B003), with the status of all on-going tasks, the status of the Contract deliverables, and identifying any changes to the System Design Specification (SDS), Risk Log and Issue Log.

PM-20 Problems shall be identified and discussed with the Purchaser Project Manager promptly, and shall not be held over until the next PRM. Problems should not remain undisclosed between meetings.

PM-21 The location of PRM 1, PRM 4, 5 and 6 shall be at the Purchasers premises in Brussels (BEL) or Mons (BEL) and when possible, it shall be scheduled with other project meetings. When deemed necessary by the Purchaser the PRM shall be held in an alternate location.

PM-22 The location of PRM 3 shall be at the contractor’s premises.

PM-23 The Purchaser shall host all other meetings unless there is a specifically agreed need to review material, witness technical demonstrations or testing, or perform any other activity outside of the Purchaser’s premises, as part of the meeting.

PM-24 Upon approval by the Purchaser’s PM, the Contractor shall schedule, organize, and conduct such meetings.

APPENDIX A

SECTION 3 – SYSTEM DESIGN REQUIREMENTS

The System Design shall be such that all system-level and functional requirements as stated in this Section and in the Appendix A – Section 1, System Requirements can be met.

All System Design (SD) requirements specified in this appendix are preceded by specific prefix SD. The prefix requirement numbers (SD- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

SD-1 The Contractor shall design the system based on hardware (HW) and software (SW) products that are considered as available Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) products at the start of the Contract. This implies that no major design or re-design activities for any HW or SW are expected. Minor adjustments to meet specific requirements can still be accepted.

SD-2 The Contractor shall establish and maintain the System Design Specification (SDS, CDRL B004). The SDS shall be delivered in six (6) weeks after EDC.

SD-3 The System Design Specification (SDS) shall include the following information:

(1) Physical breakdown of the system into Hardware, Software and Firmware Configuration Items (CI) demonstrating meeting the Functional Requirements (Appendix A, Section1 - A2, B2, C2 & D2) and Performance Requirements (Appendix A, Section 1 – A3, B3, C3 & D3), including a brief motivation for the selection of the components, a description of the components with their settings, and a network diagram.

(2) Physical design that meets the requirements for Packaging, Installation and Size and Weight (Appendix A, Section1 – A4, B4, C4 & D4).

(3) Manufacturer datasheets of all equipment, demonstrating compliance with the Environmental Requirements (Appendix A, Section1 – A7, B7, C7 & D7) and the Electrical power Requirements (Appendix A, Section1 – A8, B8, C8 & D8).

SD-4 The Contractor shall conduct PRM 2/ System Design Review Meeting with the Purchaser, at eight (8) weeks after EDC.

SD-5 During the System Design Review, the Contractor shall cover the following topics:

(1) System Design, as presented in the System Design Specification (SDS), including any change request, or off-specification.

(2) Draft System Test and Acceptance Plan (STAP, CDRL B005).

(3) Project Management topics identified in Appendix A, Section 2.

SD-6 The duration of the review period of the SDS by the Purchaser will be two (2) weeks, i.e. will be finished eight (8) weeks after EDC.

SD-7 The Final SDS Document reflecting Purchaser's comments shall be provided to the Purchaser within sixteen (16) weeks after EDC.

SD-8 A second System Design Review may be conducted if the changes are requested after the first meeting require the Contractor to re-engineer the solution in any way.

SD-9 Purchaser review and acceptance of the SDS does not imply Purchaser acceptance of the system design. It remains the sole responsibility of the Contractor to prove the design through the regime of testing set forth in the contract. It will be the sole responsibility of the Contractor in the event that the system proves deficient in meeting the contractual requirements.

SD-10 The Contractor shall update the SDS and STAP, in order to reflect changes, if any, and present it to the Purchaser two weeks in advance of each of the following major milestones:

(1) The second System Design Review (SDR), if required.
(2) First Article System Test (FAST).
(3) The Final System Acceptance (FSA).

APPENDIX A

SECTION 4 – SYSTEM TESTING AND ACCEPTANCE REQUIREMENTS

The Purchaser requires a set of testing activities to verify the equipment delivered through this contract complies with the requirements of this PWS.

All System Test and Acceptance requirements specified in this appendix are preceded by specific prefix TA. The prefix requirement numbers (TA- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

TA-1 The Contractor shall have overall responsibility for test execution. This includes the development of all test documentation required under this contract, the conduct of all testing except Batch Delivery Acceptance (BDA), and the evaluation and documentation to be delivered.

(1) An access to live UHF channels to be used for testing (FAST, BDA and FSA) will be borne by the Purchaser. The Purchaser may decide to use a satellite simulator instead of real UHF Satellite Channel for some test.

(2) The testing phases will comprise of:

- First Article System Test (FAST). The testing location is at Contractor's premises
- Batch Delivery Acceptance (BDA). The testing location is at NCIA
- Final System Acceptance (FSA). The testing location is at NCIA

TA-2 During the testing the Contractor shall prove full compliance with the requirements of Appendix A, Section 1 to this PWS through any combination of the following as agreed by the Purchaser:

(1) Testing
(2) Demonstration and documentation
(3) Provision of Certificates of Compliance and/ or equipment specifications
(4) Inspection
(5) Analysis

The Purchaser has the right to observe the FAT, FAST testing, and to have the Contractor perform additional selected testing tasks, to confirm compliance.

TA-3 All testing except BDA shall be the responsibility of the Contractor, who shall provide the personnel, documentation, equipment, and facilities, as required for the installation, commissioning and execution of the test.

TA-4 The Contractor shall be responsible for the coordination and performance of tests, and shall ensure that an adequate number of the Contractor's engineers and technicians are present to ensure the timely completion of all tests.

TA-5 The Contractor shall provide the necessary duly calibrated test equipment, tools and any other items required for the satisfactory completion of all tests, and the recording of their results.

TA-6 The test equipment shall remain the property of the Contractor, with the exception of those test items provided by the Purchaser on loan to support some of the tests.

TA-7 The Contractor shall be responsible for the shipment (transport costs) of any test equipment provided on loan, from the Purchaser's premises (in Europe) to the Contractor's premises.

TA-8 The Contractor shall assign and provide a Test Director and Test Operators for the entire duration of the testing phase/s.

TA-9 The Contractor shall grant access to the Contractor's facilities for the Purchaser and/or his Designated Representative to attend FAST.

TA-10 The Contractor shall provide Test Reports (CDRL B007) following the completion of each test (refer to TA-48, TA-49 and TA-50).

TA-11 The Contractor shall make available to the Purchaser, all required Contractor facilities, information and assistance necessary to permit a valid interpretation of the test results.

TA-12 The Test Environment at the Contractor's facility shall be under the control of the Contractor during the testing period. Prior to the commencement of the tests, the Contractor's Test Environment shall be baselined and no changes to hardware, software, firmware and/or configuration shall be introduced by the Contractor, unless explicitly authorized in writing by the Purchaser. Failure to do so by the Contractor shall render the complete testing null and void.

TA-13 Within six (6) weeks from Effective Date of Contract, the Contractor shall provide a System Testing and Acceptance Plan (STAP) that addresses, in detail, the proposed test concepts and test activities that shall be undertaken to prove the system meets the specifications set forth in this PWS.

TA-14 The STAP shall also indicate the stages and approximate dates at which the different tests as referred to in this section will be conducted.

TA-15 The STAP shall indicate which method of verification will be selected for each of the tests of the test plan (CDRL B005). This shall be captured in a Requirements Traceability Matrix that shows all requirements of Appendix A and how this will be verified.

TA-16 The Purchaser has the right to observe the tests, and to have the Contractor perform additional selected testing tasks, to confirm compliance.

TA-17 The Contractor shall develop "Test Procedures" (CDRL B006) as the supporting documentation for each of the test phases.

TA-18 The STAP shall document how the Contractor plans to verify that the equipment meets the PWS requirements.

TA-19 As a part of the STAP, for each requirement to be tested the Contractor shall provide a Test Procedure with the following information:

(1) Its objective, by clearly identifying the SDS requirement to be demonstrated by the test procedure.
(2) The location, facilities and test equipment involved.
(3) Any preliminary conditions that shall be satisfied prior to application of the test.
(4) The test setup.
(5) The data to be collected.
(6) The sequence of testing steps in the procedure, to a level of detail that enables full understanding by the Purchaser of the purpose and effect of each test step.
(7) The expected outcome.
(8) The means of measurement or assessment for the test.

TA-20 The results of each test called for in the STAP shall be recorded in test results sheets incorporated in the relevant test procedures and provided as part of the Test Report.

(1) Each test will only be declared 'passed' if the entirety of the expected results were obtained when running the test.
(2) The Purchaser will review the Contractor's STAP for correctness, completeness, and acceptance, as part of the PIP acceptance. The Contractor shall provide the completed final Test Procedures not later than 21 calendar days prior to any scheduled test events. The Purchaser will provide comments to the final Test Procedures within 2 weeks after receipt.

TA-21 After approval of the Test Procedures by the Purchaser, the Test Readiness Review (TRR) meeting shall be held, to discuss and finalize questions and points identified in the test procedures requiring clarification and decide to proceed with testing.

TA-22 The Contractor shall conduct a Test Readiness Review (TRR), as a part of the each test event, prior to the start of any of the tests. The TRR shall identify if all systems and or sub-systems to be tested are ready according to the acceptance criteria as identified in the System Testing and Acceptance Plan.

TA-23 At all Test Phases, the Contractor shall prove that proposed equipment meets the SRS requirements stated in Appendix A, Section 1 to this PWS in the following areas:
(1) Functional Requirements,
(2) Performance Requirements,
(3) Physical Requirements, and
(4) Environmental Requirements.

TA-24 The First Article System Test (FAST) is a system-level factory acceptance test of the first complete UHF TACSAT system in man portable, mobile and deployable HQ configurations (1 each).

TA-25 The FAST shall verify that the first fully integrated man portable, mobile and deployable HQ systems provided by the Contractor, meet the requirements stated in this PWS.

TA-26 The Contractor shall conduct FAST at their premises.

TA-27 The FAST shall be conducted 6 months from EDC.

TA-28 Demonstration of compliance of Functional and Performance Requirements shall be performed as testing between two UHF systems, other requirements (VHF) may be demonstrated on a single unit.

TA-29 The Contractor shall document the FAST results in a FAST Test Report, this report is part of the deliverables.

TA-30 The Purchaser has the right to include deficiencies in the FAST Test Report, also if outside the scope of the areas as defined in TA-24 or not part of the FAST Test Plan.

TA-31 The following configurations shall be demonstrated and tested:
(1) Man portable to Mobile
(2) Man portable to Deployable HQ
(3) Mobile to Deployable HQ

TA-32 Before each batch delivery is accepted, the Purchaser will conduct a Built in Test (BIT) or equivalent to prove the basic functionality of each terminal.

TA-33 Before each batch of man-portable and mobile systems are accepted, the Purchaser will conduct 100% test to verify the radio and ancillary equipment meet the system requirements stated in Appendix A, Section 1 of this PWS.

TA-34 The Purchaser will conduct the BDA at their premises. The Contractor is required to provide a representative during the BDA.

TA-35 The Purchaser will document the results of the BDA in a test report.

TA-36 Upon delivery of each batch, the completeness of the equipment, documentation, identification and its conformity with the PWS shall be verified.

TA-37 During the delivery inspection the Purchaser will verify:
(1) All deliverables associated with the relevant batch are delivered;
(2) The requirements have been fulfilled by the provision of Certificate of Conformance for delivered equipment.

TA-38 The Final System Acceptance (FSA) is defined as the act by which the Purchaser accepts the final and complete system provided by the Contractor.

TA-39 The FSA is the act by which the Purchaser has evaluated all delivered equipment, services and documentation that there are no non-conformities that would prevent full operational use of equipment by the Purchaser personnel. At FSA there shall be no outstanding deficiencies present.

TA-40 The system shall receive final acceptance (FSA completion) after the successful completion of the following phases:

- Successful completion of the System Design Specification.
- Successful completion of the FAST tests.
- Successful delivery of the equipment batch 1, 2, 3 confirmed by Batch Delivery Acceptance tests conducted by the Purchaser.
- Successful provision of all supplies and services in accordance with PWS.

TA-41 Upon delivery of all deliverables included in the PWS, the Purchaser shall issue a FSA certificate to the Contractor.

TA-42 The FSA certificate shall be granted if all deficiencies registered during previous tests have been corrected.

TA-43 The FSA shall be achieved at maximum 39 months from EDC.

TA-44 Should a failure occur during testing, a failure report shall be raised by the Contractor and a preliminary investigation shall be immediately carried out in order to classify the failure as one of the following:

(1) Class “A”: there is evidence that the cause was an external or transient condition;
(2) Class “B”: there is mutual agreement that the cause was an inherent design or manufacturing deficiency in the unit under test; or
(3) Class “C”: When the specific nature of the cause cannot be immediately determined and a more detailed investigation is required before a conclusion can be drawn.

TA-45 The Contractor shall be responsible for all costs related to the rectification of deficiencies or failures and subsequent re-testing caused by the design or production of the deliverables identified during the verification and/or testing cycles. The Contractor shall be responsible for any travel, subsistence and other incidental expenses incurred by the Purchaser as a result of the requirement for the re-performance of tests necessitated by test failures.

TA-46 After remedial action has been taken by the Contractor, the test may be resumed at the step during which the deficiency or failure was identified, however, the Purchaser shall have the right to require that re-testing includes all the tests related to the verification of that particulate requirement.

TA-47 The Contractor shall seek the Purchaser's agreement of a mutually suitable time when testing shall be resumed, subsequent to the Purchaser having accepted the contents of a formal submission by the Contractor providing full details describing the cause of the failure and the recommended remedial actions to be taken.

TA-48 The Contractor shall document the Test results in a Test Report. The Test Report cover sheet shall clearly show whether the test passed, failed, or was not run, and for what reasons.

TA-49 The Test Report shall include:

(1) Test procedures;
(2) Test result for each test procedure (Pass, Fail, Not run);
(3) Test summary, indicating which test procedures resulted in Fail or Not Run.

Any annotations by the Purchaser's representative Comments

(1) Contractor representative signature;
(2) Purchaser representative signature.

TA-50 On completion of the Tests, the Contractor shall forward the Test Report to the Purchaser for review and approval. Purchaser approval of Test Report is a condition for the FSA as defined from TA-38 to TA-43.

APPENDIX A

SECTION 5 - INTEGRATED PRODUCT SUPPORT (IPS) REQUIREMENTS

This section addresses the Integrated Product Support (IPS) requirements of the project. The purpose of this section is to ensure that the Contractor uses sound best practices to plan, implement, integrate, continuously measure and fine tune the IPS activities, as well as to ensure timely and correct delivery of the project.

All Integrated Product Support (IPS) requirements specified in this appendix are preceded by specific prefix IPS. The prefix requirement numbers (IPS- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

IPS-1 The Contractor's internal Life Cycle Management (LCM) process and system shall comply with STANAG 4728 "System Life Cycle Management (SLCM)".

IPS-2 The Contractor shall manage the IPS activities within this Contract by:

(1) Providing evidence that the designed system solution is for a service life of at least fifteen (15) years, assuring and managing the supportability of the solution (i.e.: availability for supply of spare parts and/or the relevant repair services).

(2) Providing evidence that for a period of five (5) years following the successful completion of the Final System Acceptance (FSA) of the last batch by the Purchaser, the contractor's equipment will remain fully operational and free of obsolescence. Any restrictions or limitations imposed by the OEM shall be documented in the Integrated Product Support Plan (IPSP, CDRL C001) and the Obsolescence Report (CDRL C004) as outlined below. The contractor shall ensure the availability of all necessary spare parts and components, including replacements that maintain form, fit, and function compatibility. Additionally, the Purchaser shall have access to technical expertise for routine maintenance and standard repairs, ensuring that the equipment continues to meet its design performance parameters when operated under the specified design conditions.

(3) Appointing an IPS manager for the entire duration of the contract to conduct the IPS Program that shall:
   a. Be at a level commensurate with systems engineering and software engineering managers;
   b. Be point of contact to interface with the Purchaser on IPS matters.

(4) Providing all relevant IPS deliverables (documents, data and activities) as a result of all IPS processes.

IPS-3 The Contractor shall provide the IPS deliveries listed in paragraph 3.3.5 of PWS with the schedule that shall be included in the contractor's Project Master Schedule (PMS) of the PMP in the PIP.

IPS-4 The Contractor shall apply and refer to the documents below in the execution of the IPS activities.

Abbreviation	Full document Name and Reference
[STANAG 4728, Ed.2]	System Life Cycle Management. Ed.2, 2015
[AAP-20, Ed.C, Ver.1]	NATO Program Management Framework (NATO Life Cycle Model). Ed.C, Ver.1, 2015.
[AAP-48, Ed.B, Ver.1]	NATO System Life Cycle Processes. Ed.B, Ver.1, 2013.
[ALP-10, Ed.C, Ver.1]	NATO Guidance on Integrated Logistics Support for Multinational Armament Programmes. Ed.C, Ver.1, 2017.
[STANAG 6001, Ed.5]	Language Proficiency Levels. Ed.5, 2014.
[ISO/IEC 15288, 2015]	Systems and software engineering - System life cycle processes
[ISO/IEC 12207, 2008]	Systems and software engineering - Software life cycle processes
[ISO/IEC 25010, 2011]	Systems and software engineering - Systems and Software Quality Requirements and Evaluation (SQuaRE) - System and software quality models
[IEC 60050]	International Electro-technical Vocabulary (IEV). (www.electropedia.org)
[AIA/ASD SX000i, 2016]	International guide for the use of the S-Series Integrated Logistic Support (ILS) specifications. Issue 1.1, 2016.
[AIA/ASD S3000L, 2014]	International Specification for Logistics Support Analysis – LSA. Issue 1.1, 2014.
[AIA/ASD S2000M, 2017]	International Specification for Material Management. Issue 6.1, 2017
[AIA/ASD S1000D, 2016]	International Specification for Technical Publications. Issue 4.2, 2016
[SD-22]	Diminishing Manufacturing Sources and Material Shortages (DMSMS). 2016
IEC 60812:2018	Failure modes and effects analysis (FMEA and FMECA)
SAE AS1390A	Level of Repair Analysis (LORA)
AI 16.31.03	Requirements for the Preparation of IPSP
AI 16.31.07	GD for ASD-AIA-ATA S1000D TechPubs
AI 16.31.12	WSG for ASD-AIA-ATA S1000D TechPubs
AI 16.31.03	ISG for ASD-AIA-ATA S1000D TechPubs
MIL-HDBK-338B	Electronic reliability design handbook
MIL-HDBK-217F	Reliability prediction of electronic equipment
MIL-HDBK-470A	Design and developing of maintainable products and systems
MIL-STD-1629A	Procedures for performing a Failure Mode, effects and Criticality Analysis
MIL-HDBK-29612	Guidance for Acquisition of Training Data Products and Services
MIL-STD-1390	Level of Repair Analysis (LORA)
(FMD)-2016	Failure Mode / Mechanism Distributions
(EPRD)-2014	Electronic Parts Reliability Data
(NPRD)-2016	Non-electronic Parts Reliability Data Publication
CEI/IEC 61078:2006	Analysis techniques for dependability – Reliability block diagram and Boolean methods

IPS-5 The Contractor shall establish, provide, execute and maintain an effective Integrated Product Support Plan (IPSP) in accordance with ASD SX000i issue 3.0 and instruction provided in AI 16.31.03. The IPSP is the primary document that details the approach to IPS, tailored to meet the needs of a specific product or service. The IPSP includes detailed information for the planning, implementation and co-ordination of the IPS program, together with element plans detailing how the appropriate IPS elements are addressed. The IPSP is integrated and consistent with other program documentation. The IPSP is a living document and therefore the content will vary depending on the type and phase of any program or project.

IPS-6 The IPSP shall:

(1) Describe the Contractor's plans for management control, interface, and integration of all elements of the Contractor's Integrated Product Support with the system engineering and design processes;
(2) Establish/describe the policies, procedures, and methodologies to ensure the logistic requirements are achieved and to refine the support to the system;
(3) Document the Contractor's plans, organizational structure, procedures and activities implemented, followed and performed to ensure that product support elements influence and interface with system design and other functional areas, to satisfy supportability criteria;
(4) Incorporate Purchaser-approved changes, additions and deletions.

IPS-7 The IPSP shall describe the Contractor's approach and plans for each applicable logistic element:
(1) Reliability Availability Maintainability and Testability (RAMT) and Failure Mode Effect and Criticality Analysis (FMECA);
(2) Logistics Support Analysis (LSA) including Product Support Data and Database, Supply Support, Packaging Handling Storage and Transportation (PHST);
(3) Parts Obsolescence Management;
(4) Technical Publications;
(5) Training;
(6) Support during Warranty and Post Warranty.

IPS-8 The Contractor shall provide the IPSP detailing the relevant content to cover the structure and information required in AI 16.31.03 (Requirements for the preparation of IPSP).

IPS-9 The Contractor shall enable the Purchaser to perform Hardware Level 1 / Software Level 1 (HL1/SL1) , HL2/SL2 and HL3/SL3 maintenance tasks, through a combination of instructions (manuals, training), tools (commercial, special-to-type, facilities, ancillaries, Automated Test Equipment) and spares (LRUs, consumables, SRUs) as part of this contract. Repairs permitted to be performed by the Purchaser shall not violate U.S. National Security Agency (NSA) limitations on repair of Cryptosecurity Controlled Items (CCI) outside the U.S. There are four (4) levels of maintenance to ensure the highest possible availability of the Product.

(1) Level 1 maintenance: Implies a fast and easy exchange of LRUs and consumables performed on the product by organizational personnel when a malfunction occurs.

(2) Level 2 maintenance: Implies exchange of LRUs and/or the replacement of modules, performed on the product by organizational personnel when a malfunction occurs.

(3) Level 3 maintenance: Implies the repair of subassemblies, modules and LRUs after their replacement at maintenance Level 1 and Level 2. Testing on test-benches or integration tests can be included. Level 3 maintenance can be performed either on product or at specific repair shops and can imply the replacement of SRUs.

(4) Level 4 maintenance: All repairs and overhaul activities beyond Level 1 to Level 3 capabilities must be ensured. Generally, this maintenance level is carried on at OEM premises.

IPS-10 The Contractor shall provide the Product Support Data Package (CDRLS C002 and C003) in accordance with the following content and structure. Artifacts to support the data shall be appendices of the document.

Structure	Content
1	Introduction
2	Documents and Acronyms
2.1	List of Applicable Documents
2.2	List of Reference Documents
2.3	List of Acronyms
3	System Breakdown Description
4	Reliability, Availability, Maintainability and Testability data
5	Failure Mode Effects Analysis (FMEA)
6	Maintenance Tasks data
7	Level of Repair data
8	Repair Price List

IPS-11 The Contractor shall provide RAMT data (CDRL C003) as one .xlsx spreadsheet as annex of the Product Support Data Package in accordance with the following content and structure.

- Product Breakdown
  - Level
  - Description
  - Cage Code
  - Part Number
  - Quantity
  - Quantity per End Item (QEI)
- Reliability
  - Critical item (Y/N)
  - Source data (Calculated / Predicted / Estimated / Supplier evidence)
  - Failure rate (fpmh)
  - MTBF (h)
  - Redundancy model
  - MTBCF (h)

- Maintainability
  - MTTR (h)
  - MTTRS (h)
  - MTBPM (h) [Mean Time Between Preventative Maintenance]
  - Mpt (h) [Mean Preventative maintenance time]
- Testability
  - Fault Detection rate (FD%)
  - Fault Isolation rates:
    - FI(1LRU)%
    - FI(2LRU)%
    - FI(3LRU)%
    - FI(>3LRU)%

IPS-12 Mean Time Between Failures (MTBF) shall represent the Basic Reliability measure, where 'failure' is understood to mean any condition in which an item, assembly, unit or the entire system is not fully operational, independently from the failure criticality.

IPS-13 Mean Time Between Critical Failures (MTBCF) shall represent the Mission Reliability, where 'critical failure' is understood to mean any condition in which the entire assembly/unit is not operating according to specifications (not delivering its essential functions or delivering them in degraded mode).

IPS-14 Mean Time To Repair (MTTR) shall be provided for all kinds of failures (Critical and noncritical) and shall include fault isolation, access, disassembly, remove and replace, reassembly, alignment (setting/configuration), check-out and start-up, and to exclude administrative and logistics delay times (times for spare part retrieval, preparation of tools, availability of technicians etc.).

IPS-15 Mean Time to Restore the System (MTTRS) shall be provided for critical failures only and shall include fault isolation, access, disassembly, remove and replace, reassembly, configuration, check-out and start-up, and to exclude administrative and logistics delay times.

IPS-16 Fault Detection (FD) shall be provided to include Built-In Test (BIT) and/or Built-In Test Equipment (BITE) is capable of on-line detection of failure modes (Fault Detection rate).

IPS-17 Fault Isolation (FI) shall be provided to include Built-In Test (BIT) and/or Built-In Test Equipment (BITE) capable of isolating the detected failure (Fault Isolation rates) with or without ambiguity.

IPS-18 The Contractor shall provide for the FMEA one .xlsx spreadsheet as annex of the Product Support Data Package in accordance with the following content and structure and using MIL-STD-1629A or IEC 60812:2018.

- Product Breakdown
  - Level
  - Description
  - Cage Code

    - Part Number
- Failure Mode Effects Analysis (FMEA)
    - Failure Modes
    - Mission Phase / Operational Mode
    - Failure effects
        - Local Effects
        - Next Higher Level
        - End Effect
    - Failure Detection Method
    - Compensating Provisions
    - Severity Classification
    - Remarks

IPS-19 The Contractor shall provide Operation and Maintenance Tasks data in one .xlsx spreadsheet as annex of the Product Support Data Package with the following tables in:

- Logistic Breakdown Report – LBR : worksheet that hierarchically lists the logistic breakdown and the link with the PBL containing at least the following information:
    - Indenture level, Breakdown Element Identifier, Cage code, Part Number, Breakdown Element Name, Part as Designed Name, SMR Code, Qty, Qty per End Item, Unit of Measure (UM), MTBF (in hours), MTTR (in hours)
- Maintenance Index Report – MIR : worksheet that lists all maintenance action (scheduled and unscheduled) containing at least the following information:
    - Indenture level, Breakdown Element Identifier, Cage code, Part Number, Breakdown Element Name, Part as Designed Name, SMR Code, Task Identifier, Task Name, Type, Task Frequency, UM, Task Duration, UM, MTBF, UM, MTTR, UM, Task Labor Time, UM
- Maintenance Report – MR : worksheet that details all maintenance (scheduled and unscheduled) including all resources details (materials, personnel, facilities) with subtasks and duration details per skill and per subtask.
- Material Resource Report – MRR : shall include the following vistas:
    - Material Resource List : the list of all the resources with associated type (e.g.: spare, consumable, common tools, special tools);
    - Material Resource Utilization: the list of all the resources with associated maintenance where the resource is used;
    - Material Resource Annual Use: the list of all the resources with the calculated annual use based on the task frequency.
- Personnel Report – PR : shall include the following vistas (same as MRR but for personnel): Personnel List, Personnel Utilization, Personnel Annual Use
- Facilities Report – FR : shall include the following vistas (same as MRR but for facilities): Facilities List, Facilities Utilization, Facilities Annual Use

IPS-20 The Contractor shall provide for Maintenance Tasks data the following summary tables as annex of the Product Support Data Package:

- Quantity of maintenance

Level of Maintenance	Scheduled			Unscheduled			Total		
	HW	SW	Sum	HW	SW	Sum	HW	SW	Sum
HL1/SL1									
HL2/SL2									
HL3/SL3									
HL4/SL4									
Total									

- Mean Annual Downtime and Mean Annual Workload (one table for HW+SW Maintenance, one table for HW Maintenance, one table for SW Maintenance)

Level of Maintenance	Scheduled		Unscheduled		Total	
	Elapsed Time(h)	Man Workload (h)	Elapsed Time(h)	Man Workload(h)	Elapsed Time (h)	Man Workload (h)
HL1/SL1						
HL2/SL2						
HL3/SL3						
HL4/SL4						
Total						

- Scheduled maintenance grouped by periodicity using as many columns as periodicity defined (one table for HW+SW maintenance, one table for HW maintenance, one table for SW maintenance)

Level of Maintenance	Quantity	(e.g.: daily) Mean Elapsed Time (h)	Mean Man Workload(h)	Total Elapsed Time (h)	Total Man Hours (h)
HL1/SL1					
HL2/SL2					
HL3/SL3					
HL4/SL4					
Total					

IPS-21 The Contractor shall provide a Product Support Database in .xlsx that shall match the PBL and shall include information fields required for each HW and SW (including Firmware) item to be provided/updated as annex of the Product Support Data Package:

- Indenture level: Level of indenture starting from the system that is the first level and classified as End Item
- Breakdown Element Identifier (BEI): String of characters used to uniquely identify a Breakdown Element and to differentiate it from other Breakdown Elements that comprise a product. Note: used to establish a hierarchical structure of the technical system.
- Reference Designator;
- Subsystem;
- Breakdown Element Name: Word or phrase by which the breakdown element is known and can be easily referenced;
- Part Logistic Category: A classification that defines an item (HW or SW) as designed in the context of product support. These identifications can be used:

  - EI - End Item and SS – System Subsystem
  - Hardware (HW) Maintenance Significant/Relevant Items (MSI/MRI): LS - Statistical Life LRUs (e.g.: Computers, Power PCs, Switches, Routers, IF modules, RF modules, Breakers, Power Supplies, Monitors, Modems, Power Amplifiers); LL – Limited Life LRUs (e.g.: Batteries, flexible waveguides, oscillators); II – Insurance Items [e.g.: docking stations, Keyboards, Mice, Cables, mechanical parts (e.g. Racks, drawers), simple E/M parts (e.g. patch panels)]; C[T] – Technical Consumables (e.g.: fuse, gas discharger, surge protection devices, lamps, bulbs, led); C[NT] – Non-Technical Consumables [e.g.: POL (Petrol, Oils, Lubricants), water, gas]; C[G] – Generic Consumables (e.g.: printer cartridges, toners, printers' paper); AP – Attaching Parts [e.g.: washers, gaskets (not EMI), nuts, bolts, screws].
  - Software (SW): SWA – Application Software [e.g.: contractors' developed application SW, COTS application SW (e.g. MS Office, Adobe Acrobat)]; SWO – Software Operating Systems (e.g.: Linux, Unix, MS Windows, LynxOS, Android, IOS); FW – Firmware; DD – Device drivers.
  - Support equipment and tools: CHT (Common Hand Tool), CSE (Common Support Equipment), PSE (Peculiar Support Equipment);
- Manufacturer item data: Cage Code, Part Number, Part Nomenclature;
- Vendor/Contractor item data: Cage Code, Part Number, Part Nomenclature;
- Item characteristics:
  - LRU (Y/N), Serialized Item (Y/N); Mean Time Between Failure (MTBF) (in hours); Mean Time To Repair (MTTR) (in hours);
  - LRU Maintenance Level (HL/SL 1 to 3 included); HW part repairability (Y/N);
  - NATO Stock Number (NSN); Unit Price and Currency;
  - Provisioning Lead Time (PLT) (days); Repair Cycle Time (RCT) (days) if the item is repairable (in line with repairability and SMR code).
- Quantity: Qty per line item; Qty in Next Higher Assy; Qty in End item.

IPS-22 The Contractor shall provide the relevant Reliability, Availability, Maintainability and Testability data by providing:

- Data sheets and references (or any available study), clearly indicating reliability and maintainability characteristics used as data input to any of the RAMT activities;
- All draft and final calculations (ref MIL-HDBK-338B for models) or by actual data collected from already fielded systems for:
  - Reliability (MTBF and MTBCF),
  - Maintainability (MTTR and MTTRS),
  - Testability: Fault Detection (FD) percentage and Fault Isolation (FI), percentage with and without ambiguity, artifacts.

IPS-23 The Contractor shall provide the relevant Failure Mode Effect Analysis (FMEA) & Criticality Analysis (CA) down to the hardware LRU/SRU and firmware/software CSCI level in accordance with IEC 60812:2018 or MIL–STD–1629A.

IPS-24 The Contractor shall provide a functional FMEA & CA considering the effects of failure of hardware LRU/SRU and firmware/software CSCI level directly to the function(s) that can/will be lost or degraded.

IPS-25 The Contractor shall provide the relevant Operation and Maintenance Tasks data down to the hardware LRU and firmware/software CSCI level, detailing for each maintenance task: duration, maintenance level (as per appendix C), spares and consumables, tools and test equipment, facilities.

IPS-26 The Contractor shall provide the relevant Level Of Repair data, i.a.w. SAE AS1390A:2023 (or the old MIL-STD-1390) down to the hardware LRU/SRU and firmware/software CSCI level to recommend the most cost-efficient solution for the level at which each maintenance task should be performed and the decision to repair or discard unserviceable LRUs.

IPS-27 The Contractor shall provide the relevant Repair Price List (RPL) associated to all items and relevant Level Of Repair.

IPS-28 The Contractor shall provide the relevant Product Support Database down to the hardware LRU/SRU and firmware/software CSCI level to collect all data provided in the Product Support Data Package and to be coherent with the relevant information contained in the Technical Publications and Training materials.

IPS-29 The Contractor shall perform the Parts Obsolescence Management during the project execution up to the end of warranty period providing an Obsolescence Report to keep the Purchaser informed about any potential obsolescence problems or risks and the mitigation strategies, about any obsolescence related risk providing the end of sale, end of production, end of support, mitigation options.

IPS-30 The Contractor shall recommend, as part of the Obsolescence Report:

- A replacement (if available), when the designation of a replacement item becomes necessary due to discontinuation of support;
- Either to implement an Off-The-Shelf (OTS) solution and modify the requirement accordingly, or redesign a suitable alternative, when the recommended OTS item is not fully compliant with the Contract Requirements;
- Items with form, fit and function features will be given first preference to avoid development costs.
- The implementation of the above recommendations shall be in accordance with ECPs.

IPS-31 The Contractor shall provide an Obsolescence Report jointly with a .xls file that shall include information fields required for each HW and SW (including Firmware (FW)) item to be provided/updated:

- Breakdown Element Name: Word or phrase by which the breakdown element is known and can be easily referenced.
- Manufacturer item data: Cage Code, Part Number, Part Nomenclature;
- Vendor/Contractor item data: Cage Code, Part Number, Part Nomenclature;
- Quantity: Qty in End item;
- Product current status: Cancelled without alternative Form Fit and Function (FFF) replacement, Off production but on the stock (last buy), On production, Cancelled with alternative FFF replacement;

- Product current status rationale/evidences:
  - For HW [e.g.: production started in "year", last update in "year", support availability till "year" or End of life date (if any)]
  - For SW (e.g.: release date of the item, support of this version till "year")
- Warranty and Service:
  - For HW (e.g.: warranty duration granted when procured, Provisioning Lead Time, Repair cycle time)
  - For SW (e.g.: software community (shareware/freeware), open source, …)
- Risk - Item criticality: This risk category addresses the degree to which an item (whether it is an assembly, or a component used to repair an assembly) is critical to the functionality of the system and ultimately the operational readiness of the unit employing that system. (e.g.: from FMECA criticalities 2 - red, 3 - yellow, 4 - green). Please note that FMECA criticality 1 shall require Fault Tree Analysis
- Risk - Supply chain vulnerability: This risk category represents a key difference between electronic items and Materials and Structural, Mechanical and Electrical (MaSME) items.
  - Electronic items: often become obsolete because of technological changes (e.g.: red, yellow, green).
  - MaSME items: obsolescence is usually related to a source going out of business or changing its product line (e.g.: red, yellow, green).
- Risk - Time to implement a resolution: This risk category addresses how long it will take to implement a resolution to an Obsolescence issue for an item or material in comparison to the stocks that the program has on hand. If there is more than enough stock on hand and the time to implement is short, then the risk to the program would be viewed as lower; however, if there is a long lead time to implement a resolution and the stocks on hand are not sufficient, then this indicates high risk. (e.g.: red, yellow, green)
- Risk category rationale/evidence: Narrative for each risk category rank
- Risk Level: product of the above risk ranks
- Proposed mitigation: FFF alternative (ECP type 1), Function alternative (ECP type 2), Redesign of higher level, To Be Defined, Not Applicable, Other;
- Proposed mitigation rationale: Narrative for the proposed mitigation.

IPS-32 The Contractor shall detail its approach and plans for Technical Publications in the IPSP, describing how the information to be included in the manuals have been generated or extracted from and how they will be organized.

IPS-33 The Contractor shall provide Operation Manuals (OM, CDRL C005) [including Deployment Instructions that shall include the Loading Plan results and System Administrator Guide (SAG)] and Maintenance Manuals (MM, CDRL C005).

IPS-34 The Operation Manuals shall include all instructions to fully install, re-install, set-up, customize, troubleshoot, patch, update, upgrade, test and release and administer the delivered equipment (HW, SW and FW), including automation, scripting and adaptations and setting up/tuning/tweaking of functions that may be required in the use of the equipment throughout its life.

IPS-35 The Operation Manuals shall include the Reference Satellite Charts.

IPS-36 These manuals shall constitute the system technical publication, shall compliment each other with no conflicting information and shall include relevant information and instructions for all Contractor delivered Product (HW and FW/SW including COTS, Contractor customized items, modified items and fully developed items).

IPS-37 The Contractor shall provide Operation Manuals and Maintenance Manuals as per requirements of personnel operating and maintaining the equipment in accordance with the Maintenance Concept and the outcomes of Operation and Maintenance Task Analysis:

(1) Operation Manuals: is for the operation of the equipment and describes operation, settings and fine tuning of the equipment to achieve maximum performance including administration instructions (e.g.: guidance on how to show, edit and save the System Configuration Files on the respective devices, together with default user or administrator passwords, as required).

(2) Maintenance Manuals: is for the maintenance of the equipment for HL1/SL1, HL2/SL2 and HL3/SL3 including (but not limited to):

(a) Scheduled and Unscheduled Maintenance detailed instructions, Troubleshooting and fault-finding techniques (including descriptions of all indicators, switches, switch positions, displays, menu's, settings etc.), installation and dismantling of the equipment (including as applicable physical, electrical, software, safety, RF aspects etc.), repair and test procedures;

(b) Drawings of the mechanical, electrical and electronic assemblies and sub-assemblies that comprise the equipment in sufficient detail to allow technical staff to maintain the system at site level in accordance with the Maintenance Concept;

(c) As-built drawings (ABDs) for full details of how all the major assemblies of the supplied equipment have been or shall be physically installed and mechanically/electrically integrated (e.g.: drawings of intra-rack and inter-rack cabling);

(d) Detailed and lower-level repair and maintenance of subassemblies and components shall be addressed by the Original Equipment Manufacturer's (OEM's) manuals unless it has been agreed that specific activities are Purchaser maintenance tasks;

(e) Physical, functional, performance, environmental data and descriptions (including support equipment/tools and interfaces to external systems).

IPS-38 The Contractor shall provide Original Equipment Manufacturer (OEM) Technical Manuals for all the items from other manufacturers/vendors used in the system, equipment and test equipment assuring that they:

(1) Cover at least: Functional descriptions; Performance descriptions; Detailed specifications; Interfaces to external systems; Descriptions of all indicators, switches, switch positions, and displays; Installation instructions; Operating

instructions; Corrective and preventive maintenance instructions; Fault isolation and fault-finding techniques; Support equipment/tools description;

(2) Provide detailed information necessary to disassemble and assemble the units down to the lowest Line Replaceable Unit (LRU)/ Shop Replaceable Unit (SRU) level of maintenance (Levels 1, 2 and 3);

(3) Provide the necessary drawings/schematics, specifications, wiring diagrams, etc., to allow the operators to troubleshoot, and fully understand, the design and operation of the particular equipment;

(4) Supplement but do not substitute Operation Manuals and/or Maintenance Manuals and thus be expected to be referenced in the latter as a way of providing specific details on a particular piece of equipment; and

(5) Are amended by preparation of supplemental data to make them fully acceptable for Purchaser use.

IPS-39 The Contractor shall deliver the Manuals in electronic format (e.g. word, PDF etc.) without limitations for printing and editing for the Purchaser.

IPS-40 The Contractor shall conduct three (3) separate trainings for the Operator personnel.

IPS-41 The first training shall be done at contractor premises, the location of the second and the third training shall be in Europe.

IPS-42 The operator training shall cover all aspects required to configure and operate equipment and its software functionality.

IPS-43 The operator training courses shall include as necessary control aspects for all operational features of hardware, firmware and software of the system and be in line with the contents of the Operator Manual contents.

IPS-44 After the Operator training, the operators shall be able to operate the equipment at their intended use.

IPS-45 The Contractor shall conduct one (1) training for the Maintenance personnel at contractor premises.

IPS-46 The maintenance training shall cover all aspects required to configure, maintain and troubleshoot the equipment, its test equipment and any of its sub-systems/ elements at HW/SW Leve 1, 2 and 3 (HL1/SL1, HL2/SL2, HL3/SL3 as per IPS-9).

IPS-47 The maintenance training shall include as necessary control aspects for all hardware, firmware and software maintenance aspects.

IPS-48 After the training, the maintainers shall be able to install, configure, maintain and troubleshoot the respective hardware, firmware and software of the equipment and ancillaries at their intended use (man portable, mobile, deployable).

IPS-49 Courses dates shall be agreed by the parties and shall be consistent with PWS.

IPS-50 At the end of each training course the contractor shall deliver a training report (CDRL C011) including (but not limited to):

(1) Training title, date and duration
(2) Training syllabus
(3) Trainees list and attendance log
(4) Daily log (summary, remarks, comments, relevant information)
(5) Trainees' feedback, questions, comments, concerns
(6) Final test and results for each trainee
(7) Completion summary and signature of the Contractor instructor and purchaser representative

IPS-51 The Contractor shall prepare and submit to the Purchaser in advance all material (Training Package) that will be used for the training.

IPS-52 The Purchaser-approved training material shall be available before the courses start, in line with the PWS.

IPS-53 Training material is to be designed and developed in such a way as suitable for use during the Contractor-conducted training and for the training of all categories of future replacement personnel with Purchaser Instructors.

IPS-54 Training material shall include the following elements/ info as a minimum:

(1) Definition of the final training objectives;
(2) Emulation of real equipment behavior;
(3) Courses entrance tests;
(4) Choice between mandatory and optional lessons, steps and points as determined by course entrance tests;
(5) Topics to be covered for each lesson, step and point;
(6) Exercises for every lesson;
(7) Test at the end of every lesson;
(8) Results of the tests per lesson and per course;
(9) Evaluation of the quality of the course by relating the test results to the course objectives through cumulative statistical analysis.

IPS-55 The Contractor shall make maximum use of available technical manuals for the preparation of the training material.

IPS-56 The Training material shall not duplicate any information readily available in other documents unless justified by specific training needs and shall adhere to documentation standards.

IPS-57 The Training documentation shall provide the minimum documentation required to conduct and maintain the training program.

IPS-58 The Training documentation includes data in electronic format and hardcopy form, as appropriate, without limitations for printing and editing for the Purchaser.

IPS-59 The Contractor shall provide, to each of the trainees, printed and electronic copies of the training handbooks for each training course.

IPS-60 The training handbook shall be used as the student's main working document, in combination with the relevant operator and maintenance manuals.

IPS-61 The training handbook shall provide the student with the necessary information on all lesson objectives and contents, guidance for all course learning activities and cross-references to assist the students in achieving the course objectives.

IPS-62 An instructor guide shall be a complement to the training handbook.

IPS-63 The instructor guide shall contain all the necessary information to prepare, conduct and evaluate lessons, exercises and examinations.

IPS-64 The instructor guide shall include fault-finding or fault-isolation exercises and classroom or practical examinations with the associated answers.

IPS-65 The documentation shall contain sufficient instructions to guide students through all specified training.

IPS-66 Existing manufacturer's training and service manuals, preferably in electronic format, can be used in so far as they meet the specified course requirements.

IPS-67 The training documentation shall be for students with pre-requisite knowledge on similar equipment or relevant theory, use of general electronic test equipment and a basic knowledge of hand tools.

IPS-68 The Training documentation can be in Contractor's format upon discussion and approval by the Purchaser.

IPS-69 The material for each course or module shall include a table of contents including (but not limited to) a listing of all major subjects and the page number or image on which they appear, or instructions on how to electronically access the data.

IPS-70 For each course, the training documentation shall consist of course documentation for trainees and instructor material to support a training program. The training documentation shall cover, as a minimum, all the topics identified in the course syllabus.

IPS-71 The Contractor shall deliver the following documentation for each type of training to the Purchaser in advance and with sufficient time for review. This will allow for coordination and negotiation of any necessary changes in the early stages of development of the material:

(1) A representative lesson plan from each of the proposed training handbooks;
(2) The corresponding sections from the Instructor Guide;
(3) Any proposed teaching aids.

IPS-72 The Contractor shall submit two complete sets of Draft training material prior the start of the first training course to permit the Purchaser to review.

IPS-73 The Purchaser will review the material for no more than one (1) calendar month to complete and will provide the Contractor with comments and requests for amendments as appropriate.

IPS-74 The Contractor shall deliver the final version of the training material to the Purchaser prior to the start of the first training course.

IPS-75 In addition to paragraph 3.10 Requirements for Warranty of this PWS, the Contractor shall provide In Service Support (ISS) services starting at the acceptance of each batch and extending to FSA.

IPS-76 The Warranty period, for all batches, shall start upon acceptance by the U.S. Government for the duration of two (2) years (End of Warranty is U.S. Government acceptance + 2 Yrs).

IPS-77 The Contractor shall provide the following services as part of the In Service Support and Warranty periods:
Hardware:

- Repair and/or re-placement with new or as-new items of all defective technical installations/equipment/material;
- Correction and retrofit for all items/batches of any latent design defect discovered before and during the warranty period
- Validity and extension of HW licenses (if any) up to the end of the warranty period Software/Firmware:
- Remediation/resolution of all bugs, flaws, incompatibility, interoperability issues, loss of configuration etc. of all software/firmware applications/ components provided/ installed/ delivered as part of the contract deliverables
- Delivery and installation of software updates/upgrades, including the retrofit of already delivered items.
- Validity and extension of SW/FW licenses (if any) up to the end of the warranty period.

The Purchaser will be responsible (at its own expenses) for returning of failed items to the Contractor.

IPS-78 During the In-Service Support and warranty phases, the Contractor shall
(a) Repair repairable items received at the Contractor's plant in maximum Repair Cycle Time (RCT) of ninety (90) calendar days. This shall include in-processing, trouble shooting, repair, testing, check-out, packing and shipment to the Purchaser (i.e. to NATO CIS Sustainment Support Centre, at Brunssum, NL). RCT shall be counted from the incoming inspection of the defective material up to the end of the repair cycle and declaration of readiness by the Contractor for shipment back to the purchaser.
(b) Be responsible for returning repaired items to the Purchaser (i.e. to NATO CIS Sustainment Support Centre, at Brunssum, NL) at no cost for the Purchaser.
(c) Be responsible for the provision of any alternative or superseding items, should the original part be no longer available or be excessively damaged (BER, Beyond Economic

Repair), ensuring SRS (System Requirements Specification) compliance.

IPS-79 The Contractor shall submit at the end of the Warranty period a Warranty Report (CDRL C012) that documents all identified Warranty cases, affected CI's, corrective actions, costs and schedule.

IPS-80 During the in-service support and warranty phases, the Contractor shall:
(a) Be responsible for providing indications for HW and SW corrective/unscheduled and preventive/scheduled maintenance at HL/SL 2 included and onwards to ensure that the response times specified can be met (e.g. MTTR).
(b) Be responsible for the SW/FW corrective, adaptive and perfective maintenance or changes/updates to ensure that the response times specified can be met.
(c) Correct identified and/or reported SW/FW bugs/malfunctions by releasing a new SW/FW version or patches in no more than ninety (90) calendar days from the discovery of the bug/malfunction or reported information by the Purchaser.

IPS-81 In case of activation of the additional warranty option, the Contractor shall continue to deliver, without any interruption of service and degradation of performance, the same warranty services under the same conditions as stipulated in IPS -75 to IPS-80 as well as the “Warranty Requirements” under paragraph 3.10. The Purchaser reserves the right to initiate the procurement of Additional Warranty (2+1 years) services, not later than six (6) months before the end of the on-going warranty period.

IPS-82 In case of activation of the PWS option, the Contractor shall enter in a framework agreement with the Purchaser starting at the completion of the extended warranty and for the duration of up to 5 years (see IPS-2). The Purchaser reserves the right to initiate the procurement of Post Warranty Support (PWS) services, not later than six (6) months before the end of the extended warranty Period (see IPS -75 to IPS-80).

IPS-83 The Contractor shall be responsible for maintaining all stocks of spares, test and other maintenance equipment, Automated Test Equipment (ATE) facilities, and all repair documentation including product support databases, technical publications, skills and personnel required.

IPS-84 The Contractor shall guarantee the provision of equipment spares (SRUs, LRUs, Consumables), replacement items, repair services and the SW/FW updated/upgrades (HL4, SL4) in line with the requirements set in Section 6.8, in particular IPS-78 and c), throughout the stipulated PWS period(s).

IPS-87 The Contractor shall maintain comprehensive repair records to enable detailed fault analysis and early detection of failures/maintenance trends.

IPS-88 Periodically, the Contractor shall be required to forward the results of these analyses for review by the Purchaser.

APPENDIX A

SECTION 6 - CONFIGURATION MANAGEMENT (CM) REQUIREMENTS

All Configuration Management (CM) requirements specified in this appendix are preceded by specific prefix CM. The prefix requirement numbers (CM- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

CM-1 The Contractor shall be responsible for the project Hardware (HW) and Software (SW) Configuration Management.

CM-2 The Contractor shall be responsible for establishing and maintaining an effective CM organization to implement the CM program in accordance with STANAG 4427 and managing the CM functions:

(1) Configuration identification and documentation
(2) Configuration control
(3) Configuration status accounting
(4) Configuration audits

CM-3 The Contractor shall be responsible for the application of all necessary CM procedures, in accordance with the requirement and guidance stated below, throughout the life of Contract (including warranty phase).

CM-4 Whenever equipment is mentioned the definitions will also include its supporting systems provided by the Contractor (if applicable e.g.: antenna masts, test equipment, special tools, facilities, warning lights, lightning protection, and grounding).

CM-5 The documents are applicable for Configuration Management Plan as listed below.

Abbreviation	**Full document Name and Reference**
[STANAG 4427, Ed.3]	Configuration Management in System Life Cycle Management. Ed.3, 2014.
[ACMP-2000, Ed.A, Ver.2]	Policy on configuration management. Ed.A, Ver.2, 2017.
[ACMP-2009, Ed.A, Ver.2]	Guidance on Configuration Management. Ed.A, Ver.2, 2017.
[ACMP-2100, Ed.A, Ver.2]	The Core Set of Configuration Management Contractual Requirements. Ed.A, Ver.2, 2017.
[ISO 10007:2003]	Quality Management System – Guidelines for Configuration Management. Second edition, 2003.

CM-6 The Contractor shall provide a Configuration Management Plan (CMP) in accordance with ACMP-2009 NATO Guidance on Configuration Management, tailored to the requirements of the proposed technical solution. The CMP shall be periodically updated as required.

CM-7 In producing the CMP, the Contractor shall define the organization and procedures used to configuration manage the functional and physical characteristics of Configuration Items (CI), including interfaces and configuration identification documents. The contractor shall ensure that all required elements of CM are applied in such a manner as to provide a comprehensive CM program.

CM-8 The CMP shall address all disciplines within this PWS section and shall as a minimum include, but not be limited to the following CMP Sections:

(1) Introduction
(2) Organization
(3) Configuration Identification and Documentation (CID)
(4) Configuration Control (CC)
(5) Configuration Status Accounting (CSA)
(6) Configuration Audits

CM-9 The Contractor shall provide detailed proposals for the documents that shall comprise the above baselines to be included in the CMP for approval by the Purchaser.

CM-10 The Contractor shall propose in the CMP a Requests for Deviation (RFD) (s) and Requests for Waiver (RFW) format based on the requirements given in ACMP-2009 NATO Guidance on Configuration Management.

CM-11 The Contractor shall propose a deliverable version control system as part of the CMP detailed below. This version control system shall allow for the unique identification of all changes to the deliverables, no matter how minor the change. The version control system shall also identify a difference between major and minor changes. Any doubt as to whether a revision constitutes a major or minor change shall be referred to the Purchaser for decision.

CM-12 The Contractor shall provide structure, content and initial details for this plan in the proposal phase so to show the concept of the activity.

CM-13 The Contractor shall establish a configuration identification system. The system shall identify all documents necessary to provide a full technical description of the characteristics of the HW and SW Configuration Identification and Documentations (CIDs) that require control at the time each baseline is established and shall include the relevant deliverables in the contract.

CM-14 The Contractor shall propose appropriate CID(s) in the CMP including an explanation of the rational and criteria used in the selection process that shall be based on the criteria for selection of CID(s).

CM-15 The CID structure shall be in the form of a CI tree structure (an explicit part of the CMP) with the System being the top-level CID and shall show relationships between the lower levels CID.

CM-16 The Contractor shall describe the Configuration Control procedures in the Configuration Management Plan.

CM-17 The Contractor shall be responsible for issuing in a timely manner all approved changes and revisions to the functional, development and product baseline documents included in the Contract. This includes changes originated both by the

Contractor and the Purchaser copies of change pages or documented revisions shall be provided in accordance with the Schedule of Deliverables. Where a change affects more than one document, or affects documents previously approved and delivered, the Contractor shall ensure that the change is properly reflected in all baseline documents affected by that change.

The Purchaser must approve all changes prior to becoming effective.

CM-18 The Contractor shall be fully responsible for the Configuration Status Accounting (CSA) for all CID(s) in accordance with ACMP-2009 NATO Guidance on Configuration Management. This system shall consist of reports that shall be prepared and delivered in a manner, format and schedule that shall be proposed by the Contractor in his CMP and approved by the Purchaser.

CM-19 The Contractor shall develop and maintain a CSA Database using the appropriate database management and other related software tools for the entire period of the Contract.

CM-20 Configuration audits shall be established by the Contractor to verify compliance with the specifications and other Contract requirements in accordance with ACMP-2009 NATO Guidance on Configuration Management. The Contractor shall include in the CMP detailed proposals for the audits.

CM-21 The audits shall be carried out jointly by the Contractor and the Purchaser in accordance with the Contractor's approved CMP and shall consist of a Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA), see below.

CM-22 In this contract, the FCA shall primarily consist of reviews of all the component-based requirements of the Contract, Contract documentation, tests or test results where necessary, to demonstrate the full compliance of the functional requirements of allocated components delivered to the Purchaser.

CM-23 Functional Configuration Audit (FCA) is the formal examination of functional characteristics of a configuration item, or system to verify that the item has achieved the requirements specified in its functional and/or allocated configuration documentation.

CM-24 In this Contract the PCA shall consist of a review and verification of design documentation against the delivered system and individual system components. The PCA shall also include a review of system-wise functional and performance requirements that were not reviewed at FCA.

CM-25 Physical Configuration Audit (PCA) is the formal examination of the 'as-built' configuration of a configuration item and system against the technical documentation to verify the product baseline.

CM-26 The FCA and the PCA shall be conducted after FAST at the Contractor's site/factory and after RSAT at site respectively. The Contractor is to ensure that after

completion of the FCA and PCA Minutes of Meetings detailing these activities are published and distributed to the Purchaser for review.

CM-27 The various baselines referred in this section shall be established by the Contractor using automated tools**.**

CM-28 The Contractor's software tool shall be agreed with the Purchaser prior to Contract signature.

CM-29 The Contractor shall deliver the software tools and appropriate licenses to the Purchaser at the kick-off of the project.

CM-30 The Contractor shall maintain a CSA database using the agreed software tools for the entire period of the Contract.

CM-31 The Contractor shall transfer the current CSA database to the Purchaser upon request.

CM-32 All baselined documents created under this Contract shall be maintained by the Contractor in the CSA database using the agreed software tools to allow efficient update, automated tracking of changes through all affected CID(s) and baseline documents, and continued automated maintenance and printing of these documents, including tables, figures, and readings.

CM-33 Changes to baselined CID(s) shall be processed as either Class I or Class II Engineering Change Proposals (ECPs) as defined in ACMP-2009 NATO Guidance on Configuration Management.

CM-34 The Contractor shall use the template provided with AI 16.32.02 for the preparation and issuance of ECPs.

CM-35 The Contractor shall use the CC procedures specified in the CMP for the preparation, submission for approval implementation and handling of ECP(s) to baselined CID(s). When submitting ECP(s), the Contractor shall assign a priority rating of Emergency, Urgent or Routine. Extensions to the target times for processing Class I ECP(s) shall be mutually agreed upon by the Contractor and Purchaser. No Class I ECP shall be implemented until it has been approved by the Purchaser.

CM-36 Prior to implementation, all Class II ECP(s) shall be submitted by the Contractor to the Purchaser for review and classification concurrence. If the Purchaser's representative does not concur with the classification, Class I ECP procedures shall be applied and the ECP shall be formally submitted to the Purchaser for approval or disapproval.

CM-37 All design changes shall be appropriately reflected in the technical documentation by the issue of appropriate changes or revisions. The Contractor shall provide all such changes/revisions to the Purchaser.

CM-38 If required, the Contractor shall prepare, handle, and submit for approval, Requests for Deviation (RFD) (s) and Requests for Waiver (RFW) as defined in ACMP-2009 NATO Guidance on Configuration Management and using the template provided with AI 16.32.03.

CM-39 The Contractor shall be aware that permanent departures from a baseline shall be accomplished by ECP action, rather than by RFD.

CM-40 The Contractor's design in the Product Baseline (PBL) shall meet the functional and non-functional requirements allocated in the FBL and the design of the ABL. The PBL is a set of products and/or services, including supporting documents, which is used as the approved basis for comparison. The PBL starts to be developed at the beginning of the production phase. It is established and "frozen" at the end of the production phase (at factory integration/test) - it is also known as "as-built" baseline.

CM-41 The Contractor shall provide a PBL, with incremental contents, using its own template to be approved by the Agency, in line with req. CM -43.

CM-42 Each element of the PBL shall include as minimum (but not limited to) the following pieces of information (in accordance with the type of item):

(1) Position in the structure (hierarchical level or indenture code);
(2) Physical location (Reference Designator or similar positional code) coherent with the As-Built Drawings and manuals;
(3) Type of Configuration Item (CI, HWCI, CSCI, HWP, CSC);
(4) Type of MRI/MSI, coherent with the LBS/PBS;
(5) Item identifiers (Part Number – P/N, Cage Code, Nomenclature, revision/issue, release etc.) coherent with the Contractor's defined CM numbering system, including OEMs/COTS data and their propagation in the CM tree;
(6) Asset Data (SMR Code, Price, Price UOM, MOQ, start of warranty/license validity etc.);
(7) Inventory Data (Serial Number - S/N or License number if applicable etc.);
(8) CI documentation:
    (a) For HWCIs/HWPs: specifications, datasheet, Certificates of Conformity (CoC), Declaration of Conformity (DoC), Items Setting Documents (ISD – how to configure hardware, software and firmware) etc.;
    (b) For HWCIs/CIs: interconnection diagrams, interface specifications/control documents, test procedures, test records, integration data, customization/setting procedures etc.; and
    (c) For CSCIs/CSCs: software Release Notes (SRN), software test data records, software metrics (type of language, Line of Code, number of function points etc.), software source code (if specifically generated or modified/adapted/customized in the frame of the project), software installation files, software Version Description Documents (VDDs), software installation/customization procedures, software settings, software operating manual etc.
(9) Alternative (P/N, Cage Code, Nomenclature, revision/issue, release etc.);
10) NATO Stock Number (NSN).

CM-43 The Contractor shall provide the PBL with all related documentation, hardware, firmware/software, configuration files, services and any other related information or deliverable necessary to establish the PBL completely, in XLSX format, hierarchically structured, with hyperlinked documents as listed under CM-42.

CM-44 The PBL shall be provided with each batch and anytime a change occurs and is approved by the Purchaser prior to its implementation (ECP).

APPENDIX A

SECTION 7 – QUALITY ASSURANCE (QA) REQUIREMENTS

All Quality Assurance (QA) requirements specified in this appendix are preceded by specific prefix QM. The prefix requirement numbers (QM- #'s) are originated from the "Enclosure 3 LOR Annex D SOW SRS", date 08 June 2023.

Documents listed below are applicable for Quality Assurance requirements

Abbreviation	Full document Name and Reference
[STANAG 4107, Ed.11]	Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publications. Ed.11, 2019.
[AQAP-4107, Ed.A, Ver.2]	Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publications (AQAP). Ed. A, Ver.2, 2018.
[AQAP-2000, Ed.3]	NATO Policy on an Integrated System Approach to Quality Through the Life Cycle. Ed.3, 2009.
[AQAP-2070, Ed.B, Ver.3]	NATO Mutual Government Quality Assurance (GQA). Ed.B, Ver.3, 2015.
[AQAP-2105, Ed.C, Ver.1]	NATO Requirements for Quality Plans. Ed.C, Ver.1, 2019.
[AQAP-2110, Ed.D, Ver.1]	NATO Quality Assurance Requirements for Design, Development and Production. Ed.D, Ver.1, 2016.
[AQAP-2131, Ed.C, Ver.1]	NATO Quality Assurance Requirements for Final Inspection and Test. Ed.C, Ver.1, 2017.
[AQAP-2210, Ed.A, Ver.2]	NATO Supplementary Software Quality Assurance Requirements to AQAP-2110 or AQAP-2310. Ed.A, Ver.2, 2015.
[AQAP-2310, Ed.B, Ver.1]	NATO Quality Assurance Requirements for Aviation, Space and Defence Suppliers. Ed.B, Ver.1, 2017.

QM-1 The Purchaser shall apply STANAG 4107 and AQAP(s) specified above that the Contractor shall herewith accept and agree to.

QM-2 The Contractor shall establish, document and maintain an effective QC System in accordance with STANAG 4107, Ed.11 and/or equivalent to ISO 9000 Series Standards throughout the life cycle of the Contract.

QM-3 The Purchaser may delegate the Quality Assurance to the appropriate Government Quality Assurance Authority (GQAA) in accordance with STANAG 4107. The GQAA, when accepting the STANAG 4107 Request for GQAA Services, appoints his QA Representative(s) (QAR). The Purchaser, through their own Quality Assurance, however, will retain overall supervisory and liaison authority concerning all QA/QC matters, and for this purpose will use their own QA Personnel. The term "National QAR" (NQAR) shall apply to any of the Purchaser-appointed QARs, whether nominated by the GQAA or by Purchaser QA. During the entire Contract implementation, the NQAR(s) within their own rights, defined in the Contract applicable AQAPs, shall assure the Contractors and Sub-Contractor's compliance with all contractual requirements.

QM-4 The Contractor shall be responsible for the control of quality of all deliverables and associated contractual products throughout the life cycle of the contract.

QM-5 The QA Program shall ensure that procedures are developed, implemented and maintained to adequately control the development, design, production, testing and configuration of all deliverables. The QA Program will be described in the QA Plan outlined below. The program is subject to review and/or rejection by the Purchaser, or its delegated representative(s), whenever it does not meet the QA requirements. It will be subject to review for adequacy, compliance and effectiveness. The overall QA Program will adhere to the provisions of Appendix A Section 5 above Reference (a) and be consistent with the project philosophy of integrating COTS hardware and software as applicable.

QM-6 The QA program shall apply to all hardware, software and documentation being developed, designed, acquired, integrated, maintained, or used under the contract. This includes non-deliverable test and support hardware and software. Firmware shall be controlled in the same manner as software. The QA program shall also apply to CW throughout the life cycle of delivered infrastructure (with associated earth, electrical and ducting works, etc.) and systems (such as NB PSS, EPDP, HVAC, grounding, etc.). The QA program is also applicable to the whole package of documents, designs, plans and drawings pertaining to CW at any given stage of the project.

QM-7 The Contractor shall provide a Quality Assurance Plan (QAP, CDRL C009) to the Purchaser in accordance with the requirements of the above-mentioned AQAPs, and as amended herein. The QAP shall be submitted to the Purchaser for review as part of the PIP's Section 2. The QAP shall be structured as a living document subject to revision / update, as and when required.

QM-8 The QAP shall reference, and/or document, and explain the Contractor's QA procedures for analysis, software support, development, design, production, installation, configuration management, control of Purchaser furnished property, documentation, records, programming standards and coding conventions, library controls, reviews and audits, testing, corrective action and certification as specifically related to this project.

QM-9 The QAP shall be compatible and consistent with all other plans, specifications, standards, documents and schedules that are used under this Contract. All Contractor procedures referenced in the QAP shall either be submitted with the plan, or described in the plan and made available for review by the Purchaser upon demand.

QM-10 The Contractor shall provide a QAP to the Purchaser in accordance with the requirements of the above-mentioned AQAPs. The QAP shall be structured as a living document subject to revision / update, as and when required.

QM-11 The QAP shall reference, and/or document, and explain the Contractor's QA procedures for analysis, software support, development, design, production, installation, configuration management, control of Purchaser furnished property, documentation, records, programming standards and coding conventions, library controls, reviews and audits, testing, corrective action and certification as specifically related to this project.

QM-12 The QAP shall be compatible and consistent with all other plans, specifications, standards, documents and schedules that are used under this Contract. All Contractor procedures referenced in the QAP shall either be submitted with the plan or described in the plan and made available for review by the Purchaser upon demand.

QM-13 The Contractor's corrective action system shall ensure prompt detection, documentation and correction of problems and deficiencies. The corrective action system shall track all reported and recorded problems and deficiencies until their closure and clearance.

QM-14 In the event that the Contractor sub-contracts any of the work contained in this Contract, the Purchaser reserves the right to perform reviews and audits at any of the Sub-Contractor(s) facilities. Such reviews and audits shall not be used by the Contractor as evidence of effective control of Sub-Contractor's quality. The Contractor shall conduct periodic audits of the Sub-Contractors.

QM-15 When satisfied that the products and/or services provided by the Contractor are in conformance with the terms of this Contract, a CoC shall be countersigned and stamped by the cognizant NQAR(s). The preparation of the CoC(s) shall be the responsibility of the Contractor.

QM-16 CoC(s) shall be required for all quantities contained in each Contract line item. The Contractor shall submit copies of the CoC(s) to the Purchaser in quantities specified in the PWS on delivery of the equipment.

Appendix B - Certificate of Completion Template

To be placed on Company letterhead.

Date: _____
Subject: _____
Customer: _____
Contract Number: _____
Delivery Order Number: _____
FMS Case Designator: _____
Contract CLIN: _____
Period and service invoiced: _____
Include Class Roster: _____

Customer Comments: _____

_____

_____

_____

_____

_____

Contractor Representative	**Customer Representative**
Printed Name: _____	**Printed Name: _____**
Title: _____	**Title: _____**
Date: _____	**Date: _____**
_____	_____
Signature	**Signature**