

NCIA Request for Information (RFI)



DARS AND QRP CAPABILITY UPGRADE STAGE 2 RFI-189899

Monday, 13 July 2026

NCIA Request for Information (RFI)

To: Industry Partners

1. The NATO Communications and Information Agency (NCIA) is conducting market research to identify qualified vendors and gather information on potential solutions to support the upcoming acquisition of Deployable CIS (DCIS) elements in the context of the DARS capability upgrade. To that end, NCIA is issuing the attached Request for Information (RFI) 189899 to solicit feedback from capable and interested industry partners.
2. This RFI is issued for planning purposes only and is not a request for bids. It is part of NCIA's effort to ensure it has a clear understanding of the marketplace, available capabilities, and potential acquisition strategies.
3. We value your insight and invite you to:
 - a. Share relevant corporate capabilities and experience;
 - b. Review and comment on our draft requirements (Annexes A and B) with a view in providing recommendations for improving performance outcomes, competition, and efficiency; and identifying any risks or concerns that should be considered during planning.
4. Submission instructions and additional details can be found in the enclosure to this RFI.
5. Only companies from a NATO member country can participate in or respond to this RFI (https://www.nato.int/cps/en/natohq/nato_countries.htm).
6. Should you have any questions or need clarification, please contact Raymond Darnell at CO-423333-AirC2@ncia.nato.int.
7. We thank you in advance for your time and input, and we look forward to engaging with you as we shape this potential acquisition.

For the Chief of Acquisition:

Raymond Darnell
Senior Contracting Officer

Annexes:

Annex A - Distribution List

Annex B - Potential Industrial Suppliers

Annex C - Request for Information

Distribution List

1. NATO Delegation (Attn: Infrastructure Adviser)

- | | | |
|--------------------|----------------------------|---------------------------|
| 1. Albania | 12. Greece | 23. Poland |
| 2. Belgium | 13. Hungary | 24. Portugal |
| 3. Bulgaria | 14. Iceland | 25. Romania |
| 4. Canada | 15. Italy | 26. Slovakia |
| 5. Croatia | 16. Latvia | 27. Slovenia |
| 6. Czechia | 17. Lithuania | 28. Spain |
| 7. Denmark | 18. Luxembourg | 29. Sweden |
| 8. Estonia | 19. Montenegro | 30. Türkiye |
| 9. Finland | 20. Netherlands | 31. United Kingdom |
| 10. France | 21. North Macedonia | 32. United States |
| 11. Germany | 22. Norway | |

2. All NATEXs

Potential Industrial Suppliers

NCIA's initial market research indicates that this RFI may be of interest to the following companies. NATEX and National Delegations are requested to forward this RFI to the relevant points of contact within these companies, if available.

#	Country	Supplier Name
1	Canada	Marconi Technologies
2	France	Thales Group
3	France	Actia
4	France	Milexia
5	France	Airbus SE
6	Germany	Rheinmetall AG
7	Italy	Leonardo S.p.A.
8	Norway	Kongsberg Gruppen
9	Spain	Indra Sistemas
10	Sweden	Saab AB
11	Türkiye	Aselsan
12	United Kingdom	British Aerospace
13	United Kingdom	Spectra Group
14	United States	General Dynamics Mission Systems
15	United States	Tampa Microwave
16	United States	Comtech Systems

Table of Contents

REQUEST FOR INFORMATION 2

A. Introduction 2

B. Purpose..... 2

C. Background 2

D. Submission Instructions..... 2

E. Industry Engagement..... 3

F. Disclaimer 3

G. Use of Information Provided through Responses 3

H. RFI Point of Contact..... 4

Annex A – Requested Information 5

Annex B – Draft Requirements..... 6

Annex C – Technical Overview 8

Background..... 8

Capability level technical overview 9

WP 1 – Ground-Air-Ground Terminals 11

WP 2 – Ground-Maritime Terminals 12

WP 3 – SATCOM Flyaway 14

WP 4 – Troposcatter 15

WP 5 – Microwave DLOS 16

Annex D – Questionnaire..... 18

WP 1 – Ground-Air-Ground Terminals 18

WP 2 – Ground-Maritime Terminals 24

WP 3 – SATCOM Flyaways 30

WP 4 – Troposcatter 34

WP 5 – Microwave DLOS 38

REQUEST FOR INFORMATION

A. Introduction

1. The NATO Communications and Information Agency (NCIA) is conducting market research to identify potential sources and gather information regarding industry capabilities to support DARS Capability Replacement with additional DCIS elements. This Request for Information (RFI) is issued solely for informational purposes and does not constitute a Request for Proposal (RFP), Request for Quotation (RFQ), or invitation for bid.

B. Purpose

1. The purpose of this RFI is to obtain input from industry to help inform the NCIA's acquisition planning. Responses to this RFI will assist in refining requirements, identifying capabilities, and shaping the strategy for any future solicitation.

C. Background

1. NCIA provides the Communications and Information Systems (CIS) that support NATO operations and decision-making. As NATO increases its focus on readiness, mobility, and resilience in a more complex security environment, there is a growing need for deployable CIS capabilities that can be rapidly deployed and reliably operated wherever missions occur. This RFI seeks industry input on solutions that can help meet these evolving operational requirements.

D. Submission Instructions

1. Interested parties are invited to respond in accordance with the instructions below:
 - a. Submit responses via the email address in section H no later than **12:00 hours Central European Time (CET) on 30 September 2026**.
 - b. Responses should be submitted in PDF or Word format and must not exceed **50 pages**, including:
 - i. Responses to [Annex A](#) and comments on [Annex B](#) excluding:
 - i. Cover page
 - ii. Company brochures or product literature (if included)
 - iii. Attachments such as past performance references
 - c. Use the following subject line for submission
 - i. "Response to RFI 189899 – [Company Name]"
 - d. All responses should address the items listed in [Annex A](#) – Requested Information.
 - e. Respondents are also encouraged to review and comment on the draft requirements in [Annex B](#) – Draft Statement of Work (SOW)/Performance Work Statement (PWS).

E. Industry Engagement

1. To enable suppliers to tailor their RFI responses to NCIA areas of interest, suppliers may request a virtual or in-person meeting prior to the RFI Response Deadline, such requests should be submitted via email to the address in section H. Supplier are requested to indicate which Work Packages they would like to discuss in further detail and provide a short summary of their business.
2. NCIA will consider such requests at its sole discretion and reserves the right to determine whether meetings will be held and which suppliers, if any, will be invited to participate.

F. Disclaimer

1. This RFI is for planning and informational purposes only and shall not be construed as a solicitation or obligation on the part of the NCIA. NCIA does not intend to award a contract based on responses to this RFI. Respondents are solely responsible for all costs incurred in responding to this RFI. NCIA will consider and analyse all information received from this RFI and may use these findings to develop a future solicitation. NCIA will consider all responses as confidential commercial information and will protect it as such.
2. NCIA reserves the right, at any time, to cancel this market survey, partially or in its entirety. No legal liability on the part of NCIA for payment of any sort shall arise and in no event will a cause of action lie with any prospective participant for the recovery of any costs incurred in connection with the preparation of documentation or participation in response hereto. All effort initiated or undertaken by prospective market survey participants shall be done considering and accepting this fact.

G. Use of Information Provided through Responses

1. Confidentiality of Responses

NCIA may incorporate industry comments and responses, in part or in whole, into a future release of a solicitation. Should respondents include proprietary data in their responses that they do not wish to be disclosed to the public for any purpose, or used by NCIA (except for internal evaluation purposes), they must:

a. Mark the title page with the following legend:

This document includes data that shall not be disclosed outside NATO and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than for NCIA internal evaluation purposes, unless otherwise expressly authorised by [insert company name]. This restriction does not limit the NCIA's right to use information contained in this data without restriction if it is obtained from another source. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]

b. Mark each sheet of data it wishes to restrict with the following legend:

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this document.

H. RFI Point of Contact

1. Name: Raymond Darnell – Senior Contracting Officer
2. Email: CO-423333-AirC2@ncia.nato.int

Annex A – Requested Information

1. Respondents are encouraged to provide the following information as part of their response:

- a. **Company Information**

- i. Legal Business Name
 - ii. Address
 - iii. Website
 - iv. Primary Point of Contact
 - v. Email address

- b. **Technical Capability**

- i. Summary of relevant capabilities and past performance
 - ii. Indication of which Work Packages (1-5) they could deliver.

- c. **Feedback and Recommendations**

- i. Clarifications regarding the Technical Overview (refer to Annex C), preferably during one-to-one meetings
 - ii. Responses to the questions outlined in Annex D, where applicable, in accordance with the RFI instructions
 - iii. The assumptions and constraints underlying any Rough Order of Magnitude (ROM) inputs, where applicable

- d. **Questions or Concerns**

- i. Risks, concerns
 - ii. Suggestions for risk mitigation

Annex B – Draft Requirements

Note: This is a DRAFT and subject to change. NCIA is seeking industry feedback.

1. Background

The NATO Communications and Information Agency (NCIA) requires additional deployable CIS elements and communications bearers to augment the existing deployable communication pool in support of theatre connectivity based on operational requirements. This capability supports the NCIA's mission to ensure CIS support to NATO operations in any deployed setup.

2. Scope

The Contractor shall provide the following Deployable CIS elements and communication bearers including, but not limited to:

- a. Ground-Air-Ground (GAG) Terminals
- b. Ground-Maritime (GM) Terminal
- c. SATCOM Flyaway
- d. Troposcatter
- e. Microwave Direct Line-of-Sight (DLOS)

3. Objectives

- a. Deliver material and services for each applicable WP as per annex C
- b. Improve service efficiency and availability while in mission
- c. Ensure security compliance
- d. Provide scalable solutions

4. Performance Requirements

See Annex C

5. Deliverables

Deliverable	Description	Format	Quantity
WP 1	GAG	Equipment & Services	6-9
WP 2	GM	Equipment & Services	1-2
WP 3	SATCOM Flyaway	Equipment & Services	12-16
WP 4	Troposcatter	Equipment & Services	4-6 long haul, 2-3 short haul
WP 5	Microwave DLOS	Equipment & Services	6-8

6. Purchaser Furnished Equipment (PFE) / Information (PFI)

- a. VCS Radio Control Unit
- b. SATCOM antijam modem (future)
- c. Monitor & Control agents

- d. SDR spectrum monitoring kit
- e. Cryptos (IP and Voice)
- f. Link-16 and Link-22 suites (potentially)

7. Period of Performance

The anticipated performance period post implementation is the following:

- a. 1 year warranty
- b. 1 year extended warranty (optional)
- c. 5 years for Contractor Logistic Support

8. Place of Performance

- a. DACCC, Air Base Poggio Renatico, Italy

Annex C – Technical Overview

This Annex is intended to provide a technical and architectural overview of the Next Generation Deployable Air C2 Capability (Phase 2), together with a capability background and related projects.

The information detailed herein is designed to assist respondents in aligning their system designs with NATO's operational expectations.

Background

NATO is in the process of procuring the Next Generation Deployable Air C2 Capability providing several functions including:

- Control of air missions;
- Air traffic management and control;
- Air surveillance and production of a Recognized Air Picture (RAP).

When deployed in theatre the capability is integrated into the existing NATO Air Command and Control Structure.

In order to optimize delivery, the procurement has been split into several phases.

- Phase 1 will procure 3 shelter based Deployable CRC (DCRC) units and a Tactical Edge Deployable Unit (TEDU), providing AirC2 capability into a light package.
- Phase 2, which is the scope of the current RFI, will be delivering additional deployable elements supporting the DCRCs and TEDU. These elements include:
 1. Ground-Air-Ground terminals (additional to the existing ones);
 2. Ground-Maritime terminals (additional to the existing ones);
 3. SATCOM flyaway terminals;
 4. Troposcatter terminals;
 5. Microwave Digital Line of Sight (DLOS) terminals.

NATO is looking to acquire from industry integrated solutions for items 1 (GAG) and 2 (GM), while for items 3 to 5 is looking to acquire mainly COTS, already in service with NATO nations armed forces, which will require minimal modifications, if any.

All proposed solutions shall comply with applicable NATO standards and policies, particularly those related to deployable systems and security requirements.

Industry partners are encouraged to respond to one, several, or all five elements detailed in this RFI, depending directly on their core competencies, product portfolios, and manufacturing capabilities.

While meeting the technical and functional requirements is essential, companies are encouraged to propose innovative solutions or technical alternatives that offer superior performance and/or lower lifecycle costs.

NCIA strongly encourages the companies to reach out for any questions and discussions prior to submitting final technical proposal, price and schedule estimates.

Capability level technical overview

NATO Next Generation Deployable Air C2 system will replace the current systems in operation, will address obsolescence issues and will enhance the capability with additional functionality.

To mitigate risks and optimize delivery, the procurement program has been structured into successive phases:

Phase 1 (not part of the current RFI scope) will provide the three (3) main shelterized DCRC units composed of:

- Links Support Shelters (LSS) hosting CIS infrastructure in standard 19-inch racks.
- Operator Shelters, hosting operator work positions.

The DCRC solution is based on standard 20 feet containers, Biological and Chemical (BC) protected that can be rapidly deployed and transported by Air, Land and Sea at short notice.

In addition, it will provide a low foot print Tactical Edge Deployable Unit (TEDU), which is a reduced capacity DCRC, packed in transportable boxes that can be very quickly deployed as an advanced early capability on site, before main DCRC(s) units arrive.

DCRC(s) and/or TEDU are deploying to the area of interest together with other deployable components tailored for the specific mission to be fulfilled. Supporting deployable components will include:

- Ground-Air-Ground terminals;
- Ground Maritime terminals;
- Deployable Radars;
- Passive Sensors;
- Transportable Satellite Ground Stations and other communications bearers;
- Other support shelter and deployable command post.

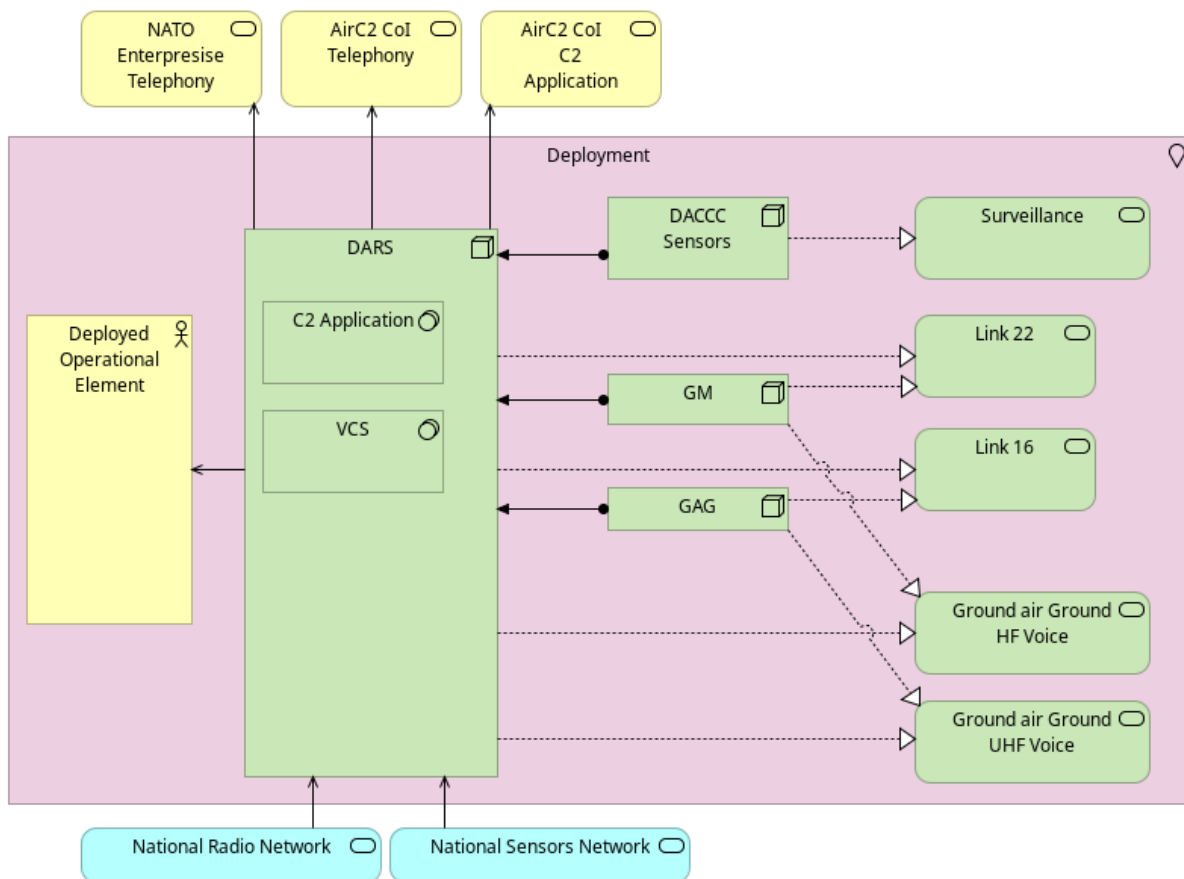
Some of these deployable components already exist, while others will be retrofitted as part of the Phase 1. Such retrofit activities fall outside the scope of the current market survey.

However, Phase 2 (current RFI) will deliver new Ground-Air-Ground terminals based on a different design, which will be integrated with the existing capability. It will also provide additional Ground-Maritime terminals and augment the pool of communication bearers.

While deployed, DCRC/TEDU is providing the following applications and services:

- Ground-Air-Ground UHF voice communication services, either directly or through GAG terminals;
- Ground-Air-Ground HF voice communication either directly or through GM terminals;
- Ground-Maritime HF voice communication either directly or through GM terminals;
- Link 22 coverage in order to communicate with maritime assets and certain airborne platforms;
- Link 16 coverage in order to communicate with air assets such as fighter planes and certain weapon systems;

- Passive and Active air surveillance sensors.



In theatre, the DCRC/TEDU will integrate with the NATO communications backbone, including the AirC2 Community of Interest (CoI) and NATO enterprise data and voice services. Additionally, DCRC/TEDU will integrate with national radio and sensor networks. To support these integrations, the enhanced communication pool will be employed to establish an “in theatre” Wide Area Network (WAN) based on the architecture defined in the Phase 1.

The Phase 2, covering additional GAG and GM terminal, plus additional comms elements is going to be delivered via 5 different Work Packages as described below.

NATO is looking, in the context of an open and modular architecture, to maximize standardization of hardware components, interfaces and use of COTS across the DACCC capability.

WP 1 – Ground-Air-Ground Terminals

NATO currently operates a legacy fleet of 3 Ground-Air-Ground (GAG) terminals in support of the current deployable AirC2 system. The existing GAG fleet will be upgraded as part of Phase 1 to act as a gap filler supporting the new DCRC units until the newly acquired GAGs will supplement the capability.

Under phase 2, which is the scope of the current market survey, it is intended to acquire an initial set of six (6) to nine (9) GAGs, with the option to potentially increase this number in the future to account for changes in NATO's concept of operations and Level of Ambition (LoA).

The new GAG terminals are not intended to replicate the exact technical configuration of the legacy fleet. Contractors are given the design flexibility to propose modern, open, and optimized solutions that satisfy the functional and technical requirements detailed below.

The GAGs are remote radio and Link 16 sites implemented in a ruggedized shelter infrastructure. GAGs are used to extend the DCRC unit operational capability and areas of radio and L16 coverage, as well as to provide in theatre redundancy.

As the GAG infrastructure will be enclosed in deployable shelters, the contractor will need to optimize the system and architecture to take into account the inherent constraints of power, cooling, weight and physical size of the equipment.

The GAG is intended to be based on a reduced height, ruggedized, ISO standard container, in order for it to be compatible with existing transport capabilities. It is intended that the GAGs shall be able to be transported by air (including helicopter, C-130 Hercules and C27J Spartan planes), land (on trailers) and sea (stacked). A completely equipped GAG needs to weigh no more than 3.6 tons so it can be lifted by a medium size helicopter.

The GAGs will need to be equipped with 6-8 SATURN capable VHF/UFH radios, in the 100W Tx range, a full Link-16 suite, network elements, cryptographic units for both voice and IP communications, and M&C agents.

The GAGs will be equipped with the associated antennas, including Link-16, VHF, and UHF telescopic antennas. The GAGs will be provided with pneumatic multi-mast UFH antenna supporting at least 4 independent and vertically stacked antenna elements.

GAGs will be connected to DCRC and/or TEDU units via the DACCC WAN network which is composed of and supported by organic means such as SATCOM, DLOS and/or Troposcatter terminals. Also, NATO Digital Backbone or National Defence Networks can be used as a transport layer.

It is expected that some of the GAG subsystem, mainly cryptographic material and specific Radio Control Units (RCUs) will be provided by NATO as PFE for the contractor to physically integrate them.

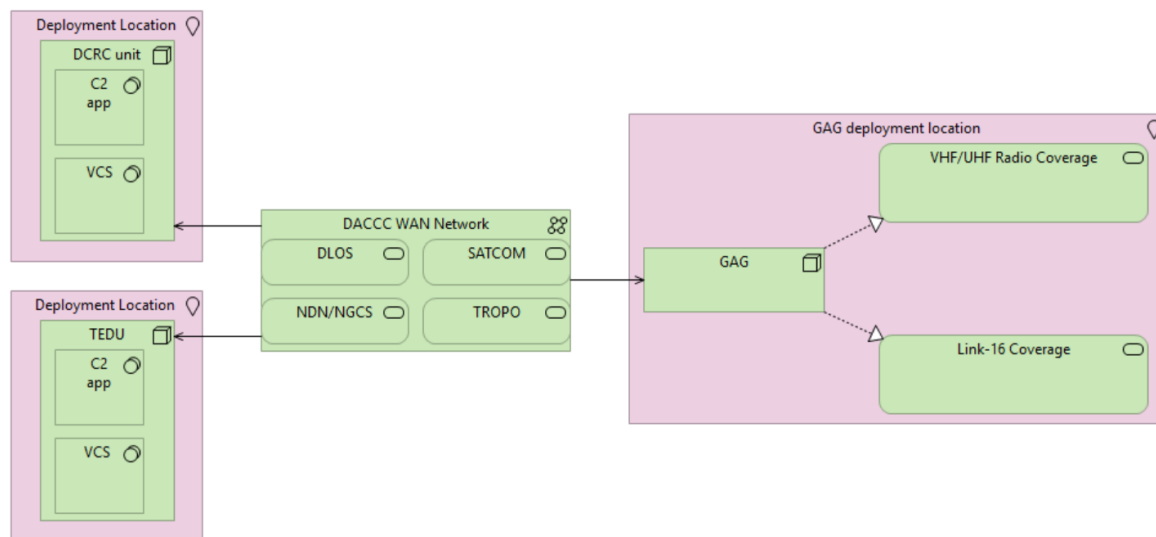
The GAGs are designed for unmanned operation and require minimal maintenance while they are deployed. GAG architecture shall minimize single points of failure for critical elements that may result a complete failure of the system.

The shelter solution shall be Chemically and Biologically (CB) protected and provide TEMPEST protection at the shelter level.

The GAG solution needs be compliant with NATO security policies and able to receive NATO security accreditation.

While deployed a GAG will provide:

- Ground-Air-Ground VHF/UHF voice communication services
- Link 16 coverage in order to communicate with air assets such as fighter planes and certain weapon systems;



WP 2 – Ground-Maritime Terminals

NATO currently operates a legacy fleet of 2 Ground-Maritime (GM) terminals in support of the current deployable AirC2 system. The existing GM fleet will be upgraded as part of Phase 1 one to act as a gap filler supporting the new DCRC units until the newly acquired GMs will supplement the capability.

Under phase 2, which is the scope of the current market survey, it is intended to acquire an initial set of one (1) to two (2) additional GMs, with the option to potentially increase this number in the future to account for changes in NATO's concept of operations and level of ambition. Because the intent is to purchase one or two GMs, the configuration of new GM should, as much as possible, match the configuration of the exiting upgraded GMs.

As the GM infrastructure will be enclosed in deployable shelters, the contractor will need to optimize the system and architecture to take into account the inherent constraints of power, cooling, weight and physical size of the equipment.

The GMs are remote radio and Link 22 sites implemented in a ruggedized shelter, and are used to extend DCRC operational capability and area of radio and L22 coverage. Link-22 coverage is provided in both UHF and HF bands. The GM provides both VHF/UHF and HF radio coverage. For HF radio coverage a high-power amplifier is used.

As with the GAGs, the GM is intended to be based on a reduced height, ruggedized, ISO standard container, in order for it use the existing transport capabilities. It is intended that the GM shall be able to be transported by air (including helicopter, C-130 Hercules plane and C27J Spartan), land (on trailers) and sea (stacked). A completely equipped GM needs to weigh no more than 3.6 tons so it can be lifted by a medium size helicopter.

The GM will contain 3-4 SATURN capable VHF/UHF radios (100W Tx range), 2-3 HF Radios using an HF high power amplifier in the range of 1KW, a Link-22 suite, network elements, cryptographic units for both voice and IP communications, and M&C agents. The GM will be equipped with the associated antennas (HF and VHF/UHF).

The GM are designed for unmanned operation and require minimal maintenance while they are deployed. GM architecture shall minimize single points of failure for critical elements that may result a complete failure of the system.

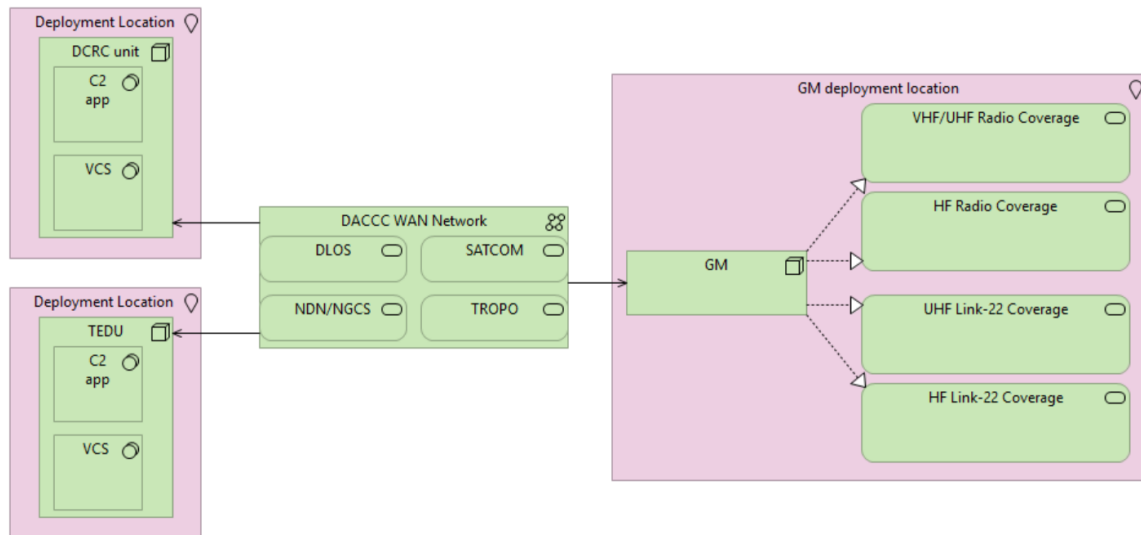
GMs will be connected to DCRC and/or TEDU units via the DACCC WAN network which is composed and supported via organic means such as SATCOM, DLOS and/or Troposcatter or using NATO Digital Backbone or National Defence Networks as a transport layer.

The shelter solution shall be Chemically and Biologically (CB) protected and provide TEMPEST protection at the shelter level.

The GM solution needs be compliant with NATO security policies and able to receive NATO security accreditation.

While deployed a GM will provide:

- Ground-Air-Ground VHF/UHF voice communication services
- Ground-Maritime VHF/UHF/HF voice communication services
- Link 22 coverage in both UHF and HF bands order to communicate with air or maritime assets.



WP 3 – SATCOM Flyaway

Currently NATO operates a legacy fleet of eight (8) large, truck mounted Transportable Satellite Ground Stations (TSGT), supporting the DACCC communication capability by providing in theatre and out of theatre resilient satellite communications.

Given the increase in the number of DCRC units, GAG terminals and GM terminals the current SATCOM terminal pool will need to be increased using military grade flyaway terminals. It is intended to acquire an initial set of twelve (12) to sixteen (16) SATCOM flyway terminals as part of the current scope, with the option to potentially increase this number in the future to account for changes in NATO's Concept of Operations (CONOPS) and Level of Ambition (LoA). Two models are considered:

- Medium size SATCOM flyaway of 1.5 to 1.8 meters aperture.
- Large size SATCOM flyaway of 2.4 meters aperture.

The SATCOM flyaway terminals will provide highly agile, tactical communication links deployed at forward positions or integrated as transport bearers for remote DACCC elements. The operational requirements dictate a system optimized for rapid tactical insertion, survivability in austere environments, and high-availability.

The SATCOM flyaway terminals are intended to fulfil the following criteria:

Performance:

- Medium size flyaway are intended to have 1.5m – 1.8m diameter, able to fit in 4 to 5 transportable cases and weigh less than 250kg, so that they can be easily transported.

- Large size flyaway are intended to have 2.4m diameter, able to fit in 6 to 8 transportable cases and weigh less than 750 kg, so that they can be easily transported.
- Medium flyaway terminals need to have in X-band at minimum a G/T of 18 dB/K at 20 degrees elevation and linear EIRP of 56 dBW.
- Large flyaway terminals need to have in X-band at minimum a G/T of 21 dB/K at 20 degrees elevation and linear EIRP of 64 dBW.

Baseband:

- Flyaway terminals will initially be equipped with DATUM M7XC ODU modem for compatibility with existing assets.
- The flyaway terminal needs to be able to be equipped, in the future, with an additional small format ruggedized antijamming modem that will be delivered as PFE in the future.

Space Segment:

- Flyaway SATCOM terminals will communicate using military GEO satellites operating in X-band.
- Flyaway terminals will also need to have modular design allowing them to be expandable in the future to Ku and mil-Ka bands through changing in the field of RF modules.
- Flyaway terminals are intended to support the integration of a motorized pointing and tracking module. Also, the ability to support in the future MEO or highly elliptical Molnya type orbits would be considered an advantage.

Field operations:

- The deployment profile of the SATCOM Flyaway Terminal must prioritize rapid tactical insertion and be able to setup by a single operator in less than 30 minutes.
- Flyaway terminals need to support the addition of a de-icing kit when needed.
- Flyaway terminals need to be ruggedized for operation in harsh environmental conditions and have a MTBCF of more than 10.000 hours is highly desirable.
- Flyaway terminals need be compliant with applicable NATO and military standards including Mil-STD-810H and STANAG 4370.

The flyaway terminal needs to be able to be monitored and controlled via standard industry protocols such as SNMP v3.

WP 4 – Troposcatter

In addition to the existing SATCOM services, it is intended to add Troposcatter communications capability to the DACCC in order to provide Beyond Line-of-Sight (BLOS) communications diversity to SATCOM, and mitigate for inherent propagation delay issues.

It is intended to acquire an initial set of four (4) to six (6) long haul Troposcatter communication sets and two (2) to three (3) short haul Troposcatter communications sets.

The Troposcatter capability is intended to cover two use cases:

- Long haul communications (+200Km) between DACCC elements, complementary to SATCOM capability.
- Short haul communications (~40-50Km) between different DACCC elements or network insertion points where Direct Line of Sight communications is not feasible due to terrain obstruction.

Short haul Troposcatter terminals need to fit in a maximum of 3 transport cases for ease of transport.

Troposcatter sets need to interface via Ethernet and be able to transport IP and transparent Ethernet traffic. IP QoS and 802.1p support is highly desirable in order to ensure prioritization of mission-critical data and Voice over IP (VoIP) traffic.

Troposcatter terminals shall be ruggedized for operation in harsh conditions.

Troposcatter terminals need to be compliant with applicable NATO and military standards including Mil-STD-810H and STANAG 4370.

The system design must facilitate complete link acquisition in less than 45 minutes for both short-haul and long-haul systems.

WP 5 – Microwave DLOS

Currently the DACCC has an organic microwave DLOS capability which is intended to be replaced.

It is intended to acquire an additional six (6) to eight (8) sets of ruggedized military long-haul microwave direct line of sight communications terminals operating in NATO band IV that has resilience to jamming.

The microwave DLOS terminal must maintain continuous, stable data communications under clear line-of-sight conditions over distances exceeding 50 km.

The system design must facilitate complete link acquisition in less than 20 minutes, including physical mast erection and antenna alignment verification.

The terminal must feature robust Electronic Protection Measures (EPM) to maintain link integrity within contested electromagnetic environments. Adaptive Coding and Modulation (ACM) schemes are highly desirable to throttle data rates dynamically based on link conditions, path loss, and electronic jamming.

IP QoS and 802.1p support is highly desirable in order to ensure prioritization of mission-critical data and Voice over IP (VoIP) traffic.

DLOS terminal needs to support link level FIPS 140-2 Level 2 validated or Type-1 equivalent 256-bit AES encryption for data.

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ANNEX C TO
NCIA/ACQ/2026/07422

Note: If the short-haul Troposcatter can act as a microwave DLOS terminal, microwave DLOS terminals could be replaced with Troposcatter terminals, if that proves to be a cost-effective solution.

Annex D – Questionnaire

This Annex contains detailed technical questionnaires structured individually by Work Package (WP 1 through WP 5). Responding companies are explicitly encouraged to review the full scope of this Market Survey and may choose to submit responses for a single, several, or all five Work Packages, depending directly on their product portfolios, technical competencies, and manufacturing capabilities. Partial responses focusing strictly on specific Work Packages will be evaluated with equal consideration, as NATO looks to maximize the integration of modular, non-proprietary COTS and integrated solutions across the entire capability framework.

WP 1 – Ground-Air-Ground Terminals

1. Company Overview

- a. **Ground-Air-Ground (GAG) Domain Experience:** Please describe your experience in designing and manufacturing deployable Ground-Air-Ground communications systems for military applications.
- b. **Large-Scale Systems-of-Systems (SoS) Integration:** Please describe your experience in integrating large System of Systems employed in military applications.
- c. **Prime Systems Integrator and Subcontractor Management:** Please describe your experience as a prime integrator for large military projects, including management of multiple subcontractors.
- d. **Industrial Scalability and Surge Capacity:** In the event that NATO raises its Level of Ambition (LoA) and would require more terminals please provide us with the assessment of your capacity to scale up capacity by delivering more GAG terminals in a time constraint period.
- e. **Purchaser Furnished Equipment (PFE) and Government Furnished Equipment (GFE) Integration:** Describe your experience in integrating PFE/GFE (such as specific NATO-controlled cryptographic modules and tactical data link terminals) into the systems to be delivered by you.
- f. **Contractor Logistics Support (CLS) & Operational Sustainability:** Detail your experience in providing Contractor Logistic Support (CLS) and providing support to operations in a military context, including field support.

- g. **Personnel and Facility Security Clearances:** Please provide information on the availability of engineering personnel relevant to this project who hold valid NATO or national S*E*C*R*E*T security clearances. In addition, confirmation that the company possesses the required Facility Security Clearances (FSCs) to handle, store, and test NATO-classified information and hardware up to and including the NATO or national S*E*C*R*E*T level.
- h. **Intellectual Property (IP):** Please clarify the Intellectual Property (IP) baseline of the proposed solution, including whether the GAG terminal is based on an open architecture and open standards or relies primarily on vendor-proprietary IP.

2. Deployable military shelter infrastructure

- a. **Reduced Height ISO Container:** Please describe your experience in designing and manufacturing deployable tactical military shelters. Include a brief overview of your relevant product range, with particular focus on 20-foot containerized shelters of reduced height. In your response, please detail how structural integrity is maintained in such designs, including relevant engineering approaches and any applicable standards or certifications.
- b. **Lightweight Construction and Transportability:** Describe your experience in engineering ruggedized, lightweight shelters optimized for rapid deployment. Specify materials and techniques employed by your company to minimize weight. Confirm and provide certification examples for transportability via:
 - i. *Air: Internal loading on tactical airlift (e.g., C-130, C-17, C-27J) and external rotary-wing sling-load operations (e.g., CH-47).*
 - ii. *Land: Standard military tactical trucks and trailers.*
 - iii. *Sea: Standard ISO stackability, corner-casting structural compliance, and marine corrosion resistance.*
- c. **Complex CIS and Power Infrastructure Integration:** Detail your experience acting as the hardware integrator for complex Communication and Information Systems (CIS) within deployable military shelters. Provide specific examples of deployments for armed forces where you successfully integrated high-density equipment racks, patch panels, internal climate control, power distribution units (PDUs), uninterruptible power supplies (UPS), and automated fire suppression systems within a confined shelter footprint.
- d. **CB Protection:** Describe your experience in the design, integration and deployment of Chemical and Biological (CB) protection systems for deployable shelters environments.

- e. **TEMPEST Shielding and Electromagnetic Security:** Describe your experience engineering TEMPEST protected shelter solutions. Specify the level of electromagnetic shielding effectiveness achieved and your experience with delivering systems certified to NATO SDIP-27 or national equivalents. Please provide information on the configuration, performance, and integration of your shielded entry points, waveguide air vents, and power/signal line filtering measures.

3. Ground-Air-Ground Radio Communications

- a. **Deployable VHF/UHF GAG Radio Experience:** Please describe your experience in implementing deployable VHF/UHF Ground-Air-Ground (GAG) military radio communications systems, including examples of systems delivered to military customers. In your response, please focus on rapidly deployable configurations, multi-channel capacity, and interface integration with external entities.
- b. **SATURN Waveform Integration and Co-Site Challenges:** Describe your experience integrating military SATURN (STANAG 4732) radios and other secure waveform. Detail specific engineering challenges you have encountered and mitigated regarding frequency-hopping in dense radio installations. If you manufacture your own proprietary or license-built SATURN compliant transceiver, please provide detailed technical specifications.
- c. **Segmented UHF Telescopic Multi-Mast Antenna Systems:** Describe your experience in providing and integrating UHF telescopic multi-mast antenna systems in deployable contexts. Where applicable, include detailed information on relevant solutions, including technical specifications of associated products. If you offer such a product, please provide full technical specifications. Of particular interest to NATO are UHF multi-mast systems that are segmentable for ease of transportation and that incorporate at least four independent antenna elements.
- d. **Antenna Safety, Grounding, and Lightning Protection:** Describe the lightning protection, electrostatic discharge (ESD) mitigation, and tactical grounding kits integrated into the antenna subsystem. Include details of design implementation, operational use in deployable environments, and any relevant technical specifications or standards compliance.
- e. **High-Power RF Amplification (HF/UHF):** Describe your experience integrating external High-Power Amplifiers (HPAs) for both HF and VHF/UHF radios. Specify the power handled (e.g., 100W to 1kW+), the underlying amplifier topology and thermal management requirements inside mobile shelters.

- f. **Link 16 Suite Integration:** Detail your experience with the integration of Link 16 tactical data link suites.

Note: The prime integrator is expected to perform the physical integration of the Link 16 suite (PFE). However, respondents may also propose a Link 16 suite. If so, please provide the relevant technical specifications together with a Rough Order of Magnitude (ROM) cost estimate.

4. Support and Maintenance

- a. **Lifecycle Support Experience and ILS/CLS Frameworks:** Please describe your experience in providing comprehensive Integrated Logistics Support (ILS) and maintenance for deployable military communications platforms. In your response, include details on sustaining multi-component deployable systems across their full lifecycle.
- b. **Technical Documentation:** Detail your capabilities in producing high-quality, military-grade technical documentation and IETM production.
- c. **Training Programs and Knowledge Transfer:** Describe your corporate framework for developing and delivering training programs for both operators, trainers and maintenance technicians.
- d. **Obsolescence Management:** Please describe how your company manages subsystem and component obsolescence. In your response, detail your methodology for monitoring component end-of-life (EOL), identifying form-fit-function (FFF) alternatives, and executing technology refresh programmes while minimizing disruption to the operational capability.
- e. **Field Support and Operational Sustainability (In-Theatre):** Describe your capabilities for providing forward-deployed Field Service Representatives (FSRs) and depot level maintenance support. In your response, include your standard Key Performance Indicators (KPIs), with particular reference to supply chain response times for critical spare parts, as well as any related performance measurement frameworks used to ensure operational availability.
- f. **Configuration Management:** Please describe how you maintain configuration control across a fleet of deployable systems when applying software patches, firmware updates, or hardware modifications.

- g. **Warranty:** Please detail your standard warranty provisions.

5. Case studies and roadmap for future evolutions

- a. **Case Studies:** Please provide case studies of recent and relevant system implementations delivered to military or international defence organizations.
- b. **Technology Roadmap and Future Evolutions:** Please provide a high-level overview of your product development roadmap over the next 5 to 10 years for relevant systems.
- c. **Technical Workshop and Product Demonstration Availability:** Please indicate whether your senior engineering and program management teams would be available to support a technical presentation, workshop, or live product demonstration for NATO stakeholders.

6. Costing estimations

Please provide a Rough Order of Magnitude (ROM) financial estimate for the items listed below, stating underlying technical and commercial assumptions, and any dependency on specific quantity baselines.

- a. **Shelter Infrastructure:** 20-foot reduced-height ISO shelter, including integrated HVAC, power distribution (PDU/UPS), CB Protection, TEMPEST shielding, and inner-rack physical integration hardware.
- b. **GAG Radios:** Transceiver suite assuming a deployment of six (6) to eight (8) radios per GAG, equipped with operational SATURN capability.
- c. **High-Power RF Amplification (optional):** Dedicated external High-Power Amplifiers (HPAs), if any, for HF/UHF.
- d. **Deployable Antenna Masts:** Telescopic mast subsystems. Please provide cost for pneumatic options.
- e. **Link 16 Tactical Data Link Suite:** Complete procurement cost of a turnkey Link 16 terminal/antenna suite (if proposed as an alternative to Purchaser Furnished Equipment).

- f. **Network Equipment:** Network equipment, including fully redundant routers, Layer 2/3 switches, and next-generation firewalls.
- g. **Initial Spares:** Recommended initial set of spares to guarantee autonomous field operation for a 90-day period.
- h. **ILS Documentation:** Production and delivery of operational manuals, troubleshooting guides, and Interactive Electronic Technical Manuals (IETMs).
- i. **Training Package:** Full training package delivery including Initial Operator Training, Train-the-Trainer, and Train-the-Maintainer.
- j. **Total Price per System:** Total turnkey price per system including all of the above elements. Separate the cost of first item and non-recurring costs from subsequent items.
- k. **Capability Integration Support:** Support to main capability integrator and NATO for the integration of the system into the DACCC capability.

7. Timeline estimations

Please provide a Rough Order of Magnitude (ROM) timeline estimate (expressed in months) from Contract Award (CA) for the execution of the project phases detailed below.

- a. **Design and Prototyping:**
 - i. Estimated timeline to reach the Preliminary Design Review (PDR).
 - ii. Estimated timeline to complete a prototype/demonstrator (if required).
 - iii. Estimated timeline to reach the Critical Design Review (CDR).
- b. **First Article Completion, Testing and Operational Handover:**
 - i. Estimated timeline to complete Factory Acceptance Testing (FAT) for the First Article Unit.
 - ii. Estimated timeline for Site Acceptance Testing (SAT) and subsequent formal handover of the First Article to operations.
- c. **Batch Rollout:**
 - i. Estimated production time for each subsequent system batch.

- d. **Final Program Deliverables and Closeout:**
 - i. Estimated timeline for the final delivery of all approved Interactive Electronic Technical Manuals (IETMs) and documentation.
 - ii. Estimated timeline for the completion of all training packages (Operator, Train-the-Trainer, and Maintainer).
 - iii. Total estimated timeline to reach Full Operational Capability (FOC) and formal project closeout.
- e. **Additional Quantities:**
 - i. Lead time should additional systems be requested by NATO.

8. Risks

Please identify at least the three (3) major technical or programmatic risks that you foresee as having the highest potential impact on this project's schedule, cost, or performance.

For each of the major risks identified, please detail your proposed engineering, management, or logistical mitigation measures.

WP 2 – Ground-Maritime Terminals

1. Company Overview

- a. **Ground-Maritime-Air-Ground (GM) Domain Experience:** Please describe your experience in designing and manufacturing deployable Ground-Maritime communications systems for military applications.
- b. **Large-Scale Systems-of-Systems (SoS) Integration:** Please describe your experience in integrating large System of Systems employed in military applications.
- c. **Prime Systems Integrator and Subcontractor Management:** Please describe your experience as a prime integrator for large military projects, including management of multiple subcontractors.
- d. **Industrial Scalability and Surge Capacity:** In the event that NATO raises its Level of Ambition (LoA) and would require more terminals please provide us with the assessment of your capacity to scale up capacity by delivering more GM terminals in a time constraint period.

- e. **Purchaser Furnished Equipment (PFE) and Government Furnished Equipment (GFE) Integration:** Describe your experience integrating PFE/GFE (such as specific NATO-controlled cryptographic modules and tactical data link terminals) into the systems to be delivered by you.
- f. **Contractor Logistics Support (CLS) & Operational Sustainability:** Detail your experience of providing Contractor Logistic Support (CLS) and providing support to operations in a military context, including field support.
- g. **Personnel and Facility Security Clearances:** Please provide information on the availability of engineering personnel relevant to this project who hold valid NATO or national S*E*C*R*E*T security clearances. In addition, confirmation that the company possesses the required Facility Security Clearances (FSCs) to handle, store, and test NATO-classified information and hardware up to and including the NATO or national S*E*C*R*E*T level.
- h. **Intellectual Property (IP):** Please clarify the Intellectual Property (IP) baseline of the proposed solution, including whether the GM terminal is based on an open architecture and open standards or relies primarily on vendor-proprietary IP.

2. Deployable military shelter infrastructure

- a. **Reduced Height ISO Container:** Please describe your experience in designing and manufacturing deployable tactical military shelters. Include a brief overview of your relevant product range, with particular focus on 20-foot containerized shelters of reduced height. In your response, please detail how structural integrity is maintained in such designs, including relevant engineering approaches and any applicable standards or certifications.
- b. **Lightweight Construction and Transportability:** Describe your experience in engineering ruggedized, lightweight shelters optimized for rapid deployment. Specify materials and techniques employed by your company to minimize weight. Confirm and provide certification examples for transportability via:
 - i. *Air: Internal loading on tactical airlift (e.g., C-130, C-17, C-27J) and external rotary-wing sling-load operations (e.g., CH-47).*
 - ii. *Land: Standard military tactical trucks and trailers.*
 - iii. *Sea: Standard ISO stackability, corner-casting structural compliance, and marine corrosion resistance.*
- c. **Complex CIS and Power Infrastructure Integration:** Detail your experience acting as the hardware integrator for complex Communication and Information

Systems (CIS) within deployable military shelters. Provide specific examples of deployments for armed forces where you successfully integrated high-density equipment racks, patch panels, internal climate control, power distribution units (PDUs), uninterruptible power supplies (UPS), and automated fire suppression systems within a confined shelter footprint.

- d. **CB Protection:** Describe your experience in the design, integration and deployment of Chemical and Biological (CB) protection systems for deployable shelters environments.
- e. **TEMPEST Shielding and Electromagnetic Security:** Describe your experience engineering TEMPEST protected shelter solutions. Specify the level of electromagnetic shielding effectiveness achieved and your experience with delivering systems certified to NATO SDIP-27 or national equivalents. Detail the design of your shielded entry points, wave-guide air vents, and power/signal line filters.

3. Ground-Maritime Communications

- a. **Deployable GM Radio Experience:** Please describe your experience in implementing deployable VHF/UHF and HF Ground-Maritime (GM) military radio communications systems, including examples of systems delivered to military customers. In your response, please focus on rapidly deployable configurations, multi-channel capacity, and interface integration with external entities.
- b. **SATURN Waveform Integration:** Describe your experience integrating military SATURN (STANAG 4732) radios and other secure waveform. Detail specific engineering challenges you have encountered and mitigated regarding frequency-hopping in dense radio installations. If you manufacture your own proprietary or license-built SATURN compliant transceiver, please provide detailed technical specifications.
- c. **HF Antenna Systems:** Please describe your experience in providing and integrating HF antenna systems in deployable contexts. In your response, include details of relevant projects and solutions, and, where applicable, provide full technical specifications of any associated products.
- d. **Antenna Safety, Grounding, and Lightning Protection:** Describe the lightning protection, electrostatic discharge (ESD) mitigation, and tactical grounding kits integrated into the antenna subsystem. Include details of design

implementation, operational use in deployable environments, and any relevant technical specifications or standards compliance.

- e. **High-Power RF Amplification (HF/UHF):** Describe your experience integrating external High-Power Amplifiers (HPAs) for both HF and VHF/UHF radios. Specify the power handled (e.g., 100W to 1kW+), the underlying amplifier topology and thermal management requirements inside mobile shelters. For HF +1KW power is desired.
- f. **Link 22 Suite Integration:** Detail your experience with the integration of Link 22 tactical data link suites

Note: The prime integrator is expected to perform the physical integration of the Link 22 suite (PFE). However, respondents may also propose a Link 22 suite. If so, please provide the relevant technical specifications together with a Rough Order of Magnitude (ROM) cost estimate.

4. Support and Maintenance

- a. **Lifecycle Support Experience and ILS/CLS Frameworks:** Please describe your experience in providing comprehensive Integrated Logistics Support (ILS) and maintenance for deployable military communications platforms. In your response, include details on sustaining multi-component deployable systems across their full lifecycle.
- a. **Technical Documentation:** Detail your capabilities in producing high-quality, military-grade technical documentation and IETM production.
- b. **Training Programs and Knowledge Transfer:** Describe your corporate framework for developing and delivering training programs for both operators, trainers and maintenance technicians.
- b. **Obsolescence Management:** Please describe how your company manages subsystem and component obsolescence. In your response, detail your methodology for monitoring component end-of-life (EOL), identifying form-fit-function (FFF) alternatives, and executing technology refresh programmes while minimizing disruption to the operational capability.
- c. **Field Support and Operational Sustainability (In-Theatre):** Describe your capabilities for providing forward-deployed Field Service Representatives (FSRs) and depot level maintenance support. In your response, include your standard Key Performance Indicators (KPIs), with particular reference to supply

chain response times for critical spare parts, as well as any related performance measurement frameworks used to ensure operational availability.

- d. **Configuration Management:** Please describe how you maintain configuration control across a fleet of deployable systems when applying software patches, firmware updates, or hardware modifications.
- e. **Warranty:** Please detail your standard warranty provisions.

5. Case studies and roadmap for future evolutions

- a. **Case Studies:** Please provide case studies of recent and relevant system implementations delivered to military or international defence organizations.
- b. **Technology Roadmap and Future Evolutions:** Please provide a high-level overview of your product development roadmap over the next 5 to 10 years for relevant systems.
- c. **Technical Workshop and Product Demonstration Availability:** Please indicate whether your senior engineering and program management teams would be available to support a technical presentation, workshop, or live product demonstration for NATO stakeholders.

6. Costing estimations

Please provide a Rough Order of Magnitude (ROM) financial estimate for the items listed below, stating underlying technical and commercial assumptions, and any dependency on specific quantity baselines.

- a. **Shelter Infrastructure:** 20-foot reduced-height ISO shelter, including integrated ECU/HVAC, power distribution (PDU/UPS), CB Protection, TEMPEST shielding, and inner-rack physical integration hardware.
- b. **GM Radios:** Transceiver suite assuming a deployment of six (3) to eight (4) VHF/UHF radios, equipped with operational SATURN and Link-22 capability, and two (2) to three (3) HF radios per GM.
- c. **High-Power RF Amplification:** Dedicated external High-Power Amplifiers (HPAs), if any, for HF/UHF.

- d. **Deployable Antenna Masts:** Mast subsystems VHF/UHF and HF antenna.
- e. **Link 22 Tactical Data Link Suite:** Complete procurement cost of a turnkey Link 22 terminal suite (if proposed as an alternative to Purchaser Furnished Equipment).
- f. **Network Equipment:** Network equipment, including fully redundant routers, Layer 2/3 switches, and next-generation firewalls.
- g. **Initial Spares:** Recommended initial set of spares to guarantee autonomous field operation for a 90-day period.
- h. **ILS Documentation:** Production and delivery of operational manuals, troubleshooting guides, and Interactive Electronic Technical Manuals (IETMs).
- i. **Training Package:** Full training package delivery including Initial Operator Training, Train-the-Trainer, and Train-the-Maintainer.
- j. **Total Price per System:** Total turnkey price per system including all of the above elements. Separate the cost of first item and non-recurring costs from subsequent items.
- k. **Capability Integration Support:** Support to main capability integrator and NATO for the integration of the system into the DACCC capability.

7. Timeline estimations

Please provide a Rough Order of Magnitude (ROM) timeline estimate (expressed in months) from Contract Award (CA) for the execution of the project phases detailed below.

- a. **Design and Prototyping:**
 - i. Estimated timeline to reach the Preliminary Design Review (PDR).
 - ii. Estimated timeline to complete a prototype/demonstrator (if required).
 - iii. Estimated timeline to reach the Critical Design Review (CDR).
- b. **First Article Completion, Testing and Operational Handover:**

- i. Estimated timeline to complete Factory Acceptance Testing (FAT) for the First Article Unit.
 - ii. Estimated timeline for Site Acceptance Testing (SAT) and subsequent formal handover of the First Article to operations.
- c. **Final Program Deliverables and Closeout:**
 - i. Estimated timeline for the final delivery of all approved Interactive Electronic Technical Manuals (IETMs) and documentation.
 - ii. Estimated timeline for the completion of all training packages (Operator, Train-the-Trainer, and Maintainer).
 - iii. Total estimated timeline to reach Full Operational Capability (FOC) and formal project closeout.
- d. **Additional Quantities:**
 - ii. Lead time should additional systems be requested by NATO.

8. Risks

Please identify at least the three (3) major technical or programmatic risks that you foresee as having the highest potential impact on this project's schedule, cost, or performance.

For each of the major risks identified, please detail your proposed engineering, management, or logistical mitigation measures

WP 3 – SATCOM Flyaways

1. Company Overview

- a. **STACOM Domain Experience:** Please describe your experience in providing deployable SATCOM solutions and services for armed forces.
- b. **Personnel Security Clearances:** Please provide information on the availability of engineering personnel relevant to this project who hold valid NATO or national S*E*C*R*E*T security clearances.

2. SATCOM flyaway terminals

- a. **COTS terminal availability:** Please describe your experience in supplying X-band military SATCOM flyaway terminal products currently in service with NATO member armed forces.

- b. **Medium flyaway specifications:** Please provide details of any X-band military SATCOM flyaway terminals in your portfolio featuring antenna diameters between 1.5 m and 1.8 m, transportable in five or fewer cases, with a linear EIRP greater than 56 dBW and a G/T at 20 degrees elevation greater than 18 dB/K. Include detailed technical specifications, transportability characteristics, and operational performance parameters.
- c. **Large flyaway specifications :** Please provide details of any X-band military SATCOM flyaway terminals in your portfolio featuring antenna diameters of approximately 2.4 m, transportable in ten or fewer cases, with a linear EIRP greater than 64 dBW and a G/T at 20 degrees elevation greater than 21 dB/K. Include detailed technical specifications, transportability characteristics, and operational performance parameters.
- d. **Deployment and setup time:** Please describe the deployment and setup characteristics of the SATCOM terminals described above. In your response, provide the Mean Time to Deploy (MTTD) when operated by one and two technicians, assuming manual antenna alignment.
- e. **Multiband support:** Please describe your multiband military flyaway SATCOM terminal capabilities regarding their upgradeability to support Ku, Ka, and Mil-Ka bands. In your response, detail the process for band conversion, including the use of swappable feeds, RF kits, or other mechanisms, and indicate whether conversion can be performed in the field without special tools.
- f. **Power consumption:** Please provide the power input requirements of your SATCOM flyaway terminals, including supported AC and DC voltage ranges. In addition, provide nominal and peak power consumption figures when transmitting at maximum linear EIRP in X-band.
- g. **3rd party modem integration:** Please describe your experience integrating third-party SATCOM modems with your flyaway terminal solutions. Include examples of supported modem types, integration approaches, and relevant operational deployments
- h. **2nd modem support:** Please describe the capability of your military SATCOM flyaway terminals to integrate two ruggedized SATCOM modems. Include details of supported architectures, implementation approaches, and relevant examples.

- i. **External modem integration:** In addition to internal/ruggedized modems, please describe the capability of your military SATCOM flyaway terminals to provide external baseband / IF interface ports (e.g. L-band, Rx/Tx, reference clock interfaces) to enable connection of separate, external, user-provided SATCOM modems.
- j. **Certifications:** Please describe the certifications, qualifications, and approvals applicable to your military flyaway SATCOM terminals. In your response, indicate any demonstrated compatibility or operational use with NATO satellite communications systems, including the Wideband Global SATCOM (WGS) constellation, and specify compliance with relevant NATO STANAGs and other applicable military standards.
- k. **Motorization, auto acquire and tracking:** Please describe the motorized pointing, auto-acquisition, and tracking capabilities available for your military flyaway SATCOM terminals. Include detailed technical specifications and quantify any associated impacts on system weight, transportability, deployment time, and power consumption.
- l. **NGSO upgradeability:** Please describe the capability of your flyaway SATCOM terminals to be upgraded to support non-geostationary satellite constellations, including Medium Earth Orbit (MEO) and Highly Elliptical Orbit (HEO) systems. In your response, detail any required hardware, software, or firmware modifications.
- m. **De-Icing:** Please describe the de-icing kit solutions available for your military flyaway SATCOM terminals. In addition, provide details of any alternative measures, design features, or operational procedures intended to maintain link availability and system performance in extreme cold-weather environments.
- n. **M&C:** Please describe the monitor and control (M&C) capabilities of your SATCOM terminal solutions. In your response, specify the supported management interfaces and protocols, including secure and industry-standard options such as HTTPS, SSHv2, and SNMPv3.

3. Support and maintenance

- a. Please describe your experience in providing support and maintenance services for military SATCOM terminals. In your response, include details of your capabilities in delivering technical documentation, training, support and maintenance of deployable military systems throughout their entire lifecycle, including your approach to obsolescence management and field support, technology refresh, field support, and long-term operational availability.

4. Future products

- a. Please provide an overview of your product roadmap for SATCOM flyaway terminals over the next 3 to 5 years.

5. Costing Estimations

Please provide a Rough Order of Magnitude (ROM) financial estimate for the items listed below, stating underlying technical and commercial assumptions, and any dependency on specific quantity baselines.

- a. **1.5m – 1.8m Military X-band Flyaway Terminal:** Transportable military X-band flyaway terminal 1.5 - 1.8m (manual pointing) delivering a linear EIRP of more than 56 dBW and a G/T @20 degrees of more than 18 dB/K. It must include the entire RF chain, modem integration and transport cases.
- b. **2.4m Military X-band Flyaway Terminal:** Transportable military X-band flyaway terminal 2.4 m (manual pointing) delivering a linear EIRP of more than 64 dBW and a G/T @20 degrees of more than 21 dB/K. It must include the entire RF chain, modem integration and transport cases.
- c. **RF conversion kits:** field-swappable, multiband RF expansion kits compatible with the 1.5 – 1.8m and 2.4m terminals. Specify costs separately for:
 - i. Ku-band expansion kit;
 - ii. Ka – mil Ka expansion kit;
- d. **Motorized Pointing and Tracking Upgrade Kit:** Integrated motorization module for automated satellite acquisition and active tracking;
- e. **De-Icing Kit:** Environmental protection kit designed to mitigate ice and snow accumulation on the reflector panels and feed assembly;
- f. **Initial Spares:** Recommended initial set of spares to guarantee autonomous field operation for a 90-day period.
- g. **ILS Documentation:** Production and delivery of operational manuals, troubleshooting guides, and Interactive Electronic Technical Manuals (IETMs).

- h. **Training Package:** Full training package delivery including Initial Operator Training, Train-the-Trainer, and Train-the-Maintainer.

6. Timelines

Please provide a Rough Order of Magnitude (ROM) timeline estimate (expressed in months) from Contract Award (CA) for the execution of the project phases detailed below.

- a. **First Article Completion, Testing and Operational Handover:**
 - i. Estimated timeline to complete Factory Acceptance Testing (FAT) for the First Article Unit.
 - ii. Estimated timeline for Site Acceptance Testing (SAT) and subsequent formal handover of the First Article to operations.
- b. **Batch Rollout:**
 - i. Estimated production time for each subsequent system batch.
- c. **Final Program Deliverables and Closeout:**
 - i. Estimated timeline for the final delivery of all approved Interactive Electronic Technical Manuals (IETMs) and documentation.
 - ii. Estimated timeline for the completion of all training packages (Operator, Train-the-Trainer, and Maintainer).
 - iii. Total estimated timeline to reach Full Operational Capability (FOC) and formal project closeout.
- d. **Additional Quantities:**
 - i. Lead time should additional systems be requested by NATO.

WP 4 – Troposcatter

1. Company Overview

- a. **Troposcatter Domain Experience:** Please briefly describe your experience in providing deployable Troposcatter communications solutions and services for armed forces.
- b. **Personnel Security Clearances:** Please provide information on the availability of engineering personnel relevant to this project who hold valid NATO or national S*E*C*R*E*T security clearances.

2. Troposcatter terminals

- a. **COTS terminal availability:** Please describe your experience in supplying Troposcatter communications products currently in service with NATO member armed forces.
- b. **Lightweight/Ultra-Portable Variant:** Please describe any lightweight transportable Troposcatter communication systems within your product portfolio that can be transported in three or fewer cases. In your response, provide detailed technical specifications, transportability characteristics, deployment concepts, and operational performance parameters.
- c. **Line-of-Sight (LOS) Mode:** Please describe the capability of your lightweight Troposcatter communication systems to operate in direct line-of-sight (LOS) point-to-point communication scenarios. Include any required hardware, software, or configuration changes, as well as any associated limitations or performance considerations.
- d. **Long-Range Transportable Variant:** Please describe any long-range transportable Troposcatter communication systems within your product portfolio capable of supporting communication links exceeding 200 km. In your response, provide detailed technical specifications, deployment concepts, and operational performance characteristics.
- e. **High-Power Amplifier (HPA) Technology:** Please specify the underlying technology used in your high-power transmitters (SSPA/TWTA). Detail the thermal cooling and operational lifecycle (MTBF) of the amplifier units.
- f. **Diversity Schemes:** Please describe the diversity techniques supported by your long-range Troposcatter communication systems, including any support for quad-diversity architectures. Include details of implementation, operational benefits, and associated performance characteristics.
- g. **Fleet Interoperability:** Please describe the interoperability between your lightweight and long-range Troposcatter communication systems. In your response, specify whether both systems can operate over the same RF link and detail any limitations, compatibility considerations, or configuration requirements.
- h. **Deployment and setup time:** Please describe the deployment and setup characteristics of your lightweight and long-range Troposcatter communication

systems. In your response, provide the Mean Time to Deploy (MTTD) when operated by one and two technicians under normal deployment conditions.

- i. **TRANSEC/NETSEC/COMSEC:** Please describe the Transmission Security (TRANSEC), Network Security (NETSEC), and Communications Security (COMSEC) capabilities implemented within your Troposcatter communication systems. Include details of relevant security features, architectures, certifications, and standards compliance.
- j. **Low Probability of Interception (LPI) / Low Probability of Detection (LPD):** Please describe the LPI/LPD capabilities of your Troposcatter communication systems. In your response, include details of the underlying techniques employed and their contribution to reducing detectability and interception risk.
- k. **Link Optimization (ACM and Advanced FEC):** Please describe the Adaptive Coding and Modulation (ACM) and Forward Error Correction (FEC) capabilities of your Troposcatter communication systems in order to maintain a working link in the presence of signal drops and interference. Specify the underlying standards and how rapidly the modem reacts to deep atmospheric fading or multipath interference to prevent link dropouts.
- l. **Transport and QoS:** Please describe the transport services supported by your Troposcatter communication systems, including support for IP and transparent Ethernet transport. In addition, detail any native Quality of Service (QoS) capabilities, including support for mechanisms such as DSCP, IEEE 802.1p, traffic prioritisation, and bandwidth management
- m. **Radio Aware Routing:** Please describe the radio-aware routing capabilities of your Troposcatter communication systems. Include details of support for standards and protocols such as Dynamic Link Exchange Protocol (DLEP) and RFC 5578.
- n. **Link Planning & Simulation Software:** Please describe any predictive link planning, modelling, and simulation tools provided with your Troposcatter communication systems. In your response, specify whether the tools can ingest standard digital terrain data, compute atmospheric scatter angles, and generate link budget, performance, and availability profile predictions prior to deployment.

3. Support and maintenance

- a. Please describe your experience in providing support and maintenance services for military Troposcatter communication systems. In your response, include details of your capabilities in delivering technical documentation, training, support and maintenance of deployable military systems throughout their entire lifecycle, including your approach to obsolescence management and field support, technology refresh, field support, and long-term operational availability.

4. Future products

- a. Please provide an overview of your product roadmap for troposcatter systems over the next 3 to 5 years.

5. Costing Estimations

Please provide a Rough Order of Magnitude (ROM) financial estimate for the items listed below, stating underlying technical and commercial assumptions, and any dependency on specific quantity baselines.

- a. **Lightweight Troposcatter Terminal:** Complete, transportable Troposcatter communications terminal optimized for rapid deployment. Footprint must fit within three (3) or fewer ruggedized transit cases. Cost must include the antenna assembly, Troposcatter modem, integrated SSPA and transit cases.
- b. **Long-Haul Troposcatter Terminal:** High-power, transportable Troposcatter communications terminal capable for sustaining links over ranges exceeding 200km. Cost must include the antenna assembly, Troposcatter modem, integrated SSPA(s) and transit cases.
- c. **Link Planning and Simulation Tool:** Software costs and licensing for link planning and simulation software.
- d. **Initial Spares:** Recommended initial set of spares to guarantee autonomous field operation for a 90-day period.
- e. **ILS Documentation:** Production and delivery of operational manuals, troubleshooting guides, and Interactive Electronic Technical Manuals (IETMs).

- f. **Training Package:** Full training package delivery including Initial Operator Training, Train-the-Trainer, and Train-the-Maintainer.

6. Timelines

Please provide a Rough Order of Magnitude (ROM) timeline estimate (expressed in months) from Contract Award (CA) for the execution of the project phases detailed below.

- a. **First Article Completion, Testing and Operational Handover:**
- i. Estimated timeline to complete Factory Acceptance Testing (FAT) for the First Article Unit.
 - ii. Estimated timeline for Site Acceptance Testing (SAT) and subsequent formal handover of the First Article to operations.
- b. **Batch Rollout:**
- i. Estimated production time for each subsequent system batch.
- c. **Final Program Deliverables and Closeout:**
- i. Estimated timeline for the final delivery of all approved Interactive Electronic Technical Manuals (IETMs) and documentation.
 - ii. Estimated timeline for the completion of all training packages (Operator, Train-the-Trainer, and Maintainer).
 - iii. Total estimated timeline to reach Full Operational Capability (FOC) and formal project closeout.
- d. **Additional Quantities:**
- i. Lead time should additional systems be requested by NATO.

WP 5 – Microwave DLOS

1. Company Overview

- a. **DLOS Domain Experience:** Please briefly describe your experience in providing deployable microwave DLOS solutions and services for armed forces.
- b. **Personnel Security Clearances:** Please provide information on the availability of engineering personnel relevant to this project who hold valid NATO or national S*E*C*R*E*T security clearances.

2. Microwave DLOS

- a. **COTS terminal availability:** Please describe your experience in supplying long-haul deployable military Direct Line-of-Sight (DLOS) communication systems operating within NATO Band IV. In your response, provide examples of systems currently in service with NATO member armed forces and include detailed technical specifications of the relevant products
- b. **Long-Range performance:** Please describe the long-range performance characteristics of your DLOS communication systems. In your response, specify whether communication ranges in excess of 50 km can be achieved and provide detailed technical specifications, maximum supported data rates (Mbps), representative link budget examples for typical European/NATO operational environments, and the minimum antenna size required to achieve such ranges.
- c. **Tactical masts and structural stability:** Please describe the integrated tactical mast solutions available for your DLOS communication systems. Include details of maximum deployment height, payload capacity, mast erection mechanism (e.g., manual, pneumatic, motorised winch), deployment footprint, and transportation characteristics. Additionally, specify the maximum operational and survival wind speeds and describe any design features used to ensure structural stability in adverse environmental conditions
- d. **Transport and QoS:** Please describe the transport services supported by your DLOS communication systems, including support for IP and transparent Ethernet transport. In addition, detail any native Quality of Service (QoS) capabilities, including support for mechanisms such as DSCP, IEEE 802.1p, traffic prioritisation, and bandwidth management
- e. **Deployment and setup time:** Please describe the deployment and setup characteristics of your DLOS communication systems. In your response, provide the Mean Time to Deploy (MTTD) when operated by a single technician under normal deployment conditions. Additionally, describe any automated pointing, tracking, beam-steering, or rapid link acquisition capabilities available within the system.
- f. **TRANSEC/NETSEC/COMSEC:** Please describe the Transmission Security (TRANSEC), Network Security (NETSEC), and Communications Security (COMSEC) capabilities implemented within your DLOS system. Include details of relevant security features, architectures, certifications, and standards compliance

- g. **Link Optimization (ACM and Advanced FEC):** Please describe the Adaptive Coding and Modulation (ACM) and Forward Error Correction (FEC) capabilities of your DLOS communication systems in order to maintain a working link in the presence of signal drops and interference. Specify the underlying standards and how rapidly the modem reacts to deep atmospheric fading or multipath interference to prevent link dropouts.
- h. **Low Probability of Interception (LPI) / Low Probability of Detection (LPD):** Please describe the LPI/LPD capabilities of your DLOS communication systems. In your response, include details of the underlying techniques employed and their contribution to reducing detectability and interception risk.
- i. **Electronic Counter-Countermeasures (ECCM):** Please describe the ECCM capabilities implemented within your DLOS communication systems to defeat active jamming. In your response, detail support for techniques such as Fast Frequency Hopping (FFH), Direct Sequence Spread Spectrum (DSSS), or automated dynamic interference avoidance.
- j. **Radio Aware Routing:** Please describe the radio-aware routing capabilities of your DLOS communication systems. Include details of support for standards and protocols such as Dynamic Link Exchange Protocol (DLEP) and RFC 5578.

3. Support and maintenance

- a. Please describe your experience in providing support and maintenance services for military DLOS communication systems. In your response, include details of your capabilities in delivering technical documentation, training, support and maintenance of deployable military systems throughout their entire lifecycle, including your approach to obsolescence management and field support, technology refresh, field support, and long-term operational availability.

4. Future products

- a. Please provide an overview of your product roadmap for military DLOS systems over the next 3 to 5 years.

5. Costing Estimations

Please provide a Rough Order of Magnitude (ROM) financial estimate for the items listed below, stating underlying technical and commercial assumptions, and any dependency on specific quantity baselines.

- a. **Military DLOS Communications Terminal:** Complete, long-haul Digital Line-of-Sight (DLOS) microwave terminal operating in NATO Band IV for links exceeding 50K. Price must include the tactical radio assembly (all outdoor), automated pan-and-tilt tracking/beam-steering alignment head, baseband and transit cases.
- b. **Initial Spares:** Recommended initial set of spares to guarantee autonomous field operation for a 90-day period.
- c. **ILS Documentation:** Production and delivery of operational manuals, troubleshooting guides, and Interactive Electronic Technical Manuals (IETMs).
- d. **Training Package:** Full training package delivery including Initial Operator Training, Train-the-Trainer, and Train-the-Maintainer.

6. Timelines

Please provide a Rough Order of Magnitude (ROM) timeline estimate (expressed in months) from Contract Award (CA) for the execution of the project phases detailed below.

- e. **First Article Completion, Testing and Operational Handover:**
 - i. Estimated timeline to complete Factory Acceptance Testing (FAT) for the First Article Unit.
 - ii. Estimated timeline for Site Acceptance Testing (SAT) and subsequent formal handover of the First Article to operations.
- f. **Batch Rollout:**
 - i. Estimated production time for each subsequent system batch.
- g. **Final Program Deliverables and Closeout:**
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ANNEX C TO
NCIA/ACQ/2026/07422

h. **Additional Quantities:**

- i. Lead time should additional systems be requested by NATO.