NATO NORTH ATLANTIC COUNCIL
OTAN CONSEIL DE L'ATLANTIQUE NORD

NATO UNCLASSIFIED
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NATO ARMY ARMAMENTS GROUP (NAAG)

Standardization Proposal and Standardization Task STANREC on Land Defensive Aid Suite (DAS) Architecture

Note by the NAAG Secretary

1. NAAG Land Capability Group Land Engagement developed the attached Standardization Proposal (SP) in response to the LAMP 2016-18 focus area objectives LE-003 and LE-005.

2. The SP and ST are submitted to the consideration of the NAAG under a silence procedure **until 17 August 2018, 15H30**.

3. If the NAAG Secretariat does not receive objections from NATO Nations by the end of the silence period, NAAG approval of the Standardization Proposal (SP) and issue of the corresponding Standardization Task (ST) for the STANAG on Land Defensive Aid Suite Architecture will be communicated to NSO and LCGLE.

(Signed) O. TASMAN

2 Annexes

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Original: English

ANNEX 1
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STANDARDIZATION PROPOSAL

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Originator:	United Kingdom [Dstl Active Integrated Protection System (AIPS) Project]	August 2016
To:	Land Capability Land Engagement/NATO Army Armaments Group	
Cc:	NSO	

STANDARDIZATION PROPOSAL

Subject:	STANAG on Land Defensive Aid Suite (DAS) Architecture
Reference(s):	STANAG 4754 AEP-4754 NATO Generic Vehicle Architecture
Enclosure(s):	

A. DESCRIPTION OF PROPOSAL

Background

The benefits of standardized Air domain open architectures for DAS have been recognized and are being developed in the NATO DAS (NDAS) STANAG under the NATO SCI-260 panel. International efforts are underway to develop and procure land domain DAS systems, where similar requirements exist for common, well understood architectures and interfaces.

The adoption of an Open System Architecture (OSA) is considered a key enabler in the protection of national sovereignty interests, whilst reducing the barriers to market competition and therefore reducing the cost of acquisition. This approach allows acquisitions that aim to maximize commonality and coherence to the benefit of capability, responsiveness and cost avoidance by applying and implementing a technical solution that is based upon an OSA approach.

The UK Defence Science and Technology Laboratory (Dstl) Active Integrated Protection System (AIPS) research project is conducting research into Active Protection System architectures that follow OSA principles. The Icarus Technology Demonstrator Programme (TDP) has the following core aim:

“To demonstrate at TRL 5 a UK developed layered Active Protection System (APS) (also known as a Defensive Aid Suite [DAS]) incorporating open interface standards and architecture definitions that supports the UK MOD vision for Active Protection capability. The technical concept is the Modular Integrated Protection System (MIPS) “.

The MIPS architecture standards will be developed to ensure that a MIPS will be able to fully integrate with a UK Generic Vehicle Architecture (GVA) standard (DefStan 23-09) compliant host platform. The TDP, in addition to its core aim of developing the MIPS architecture standards, will also aim to address the wider issue of platform survivability

architectures and the current shortfalls of the UK GVA standard that relate specifically to safety and security. This aspect of the research will be exploitable through any further development of STANAG 4754 (NATO Generic Vehicle Architecture).

Proposal

The proposal is to develop a STANAG that standardizes Land platform Active Protection System (APS) architectures.

The UK Dstl AIPS project is proposing that the outputs of the UK APS architecture research form the basis for the development of the new STANAG.

APS is widely recognised as a potential solution to providing protection to Land platforms against extremely challenging threats such as Anti-Tank Guided Munitions (ATGM), Man Portable Un-Guided (MPUG) munitions and tank fired Chemical Energy (CE) munitions.

Commercial Off The Shelf (COTS) APS is increasingly becoming the focus of national research and acquisition projects. UK led research has highlighted the risks and performance limitations associated with the acquisition and integration of COTS APS. In order to keep pace with a rapidly evolving threat environment, a common and open architecture with well-defined interfaces is required to support the rapid evolution of technology.

Without a STANAG to define and control the architecture definitions, NATO communities will be unable to exploit and coordinate national research or acquisition efforts, leading to:

1. Reduced technology interoperability;
2. Increased cost of ownership;
3. Reduced Operational interoperability;
4. Increased performance risk;
5. Reduced agility in response to changes in the threat environment.

The objectives for the development of the STANAG will be to:

High Level Objectives:

1. Enable NATO Land Operations in complex threat environments through increased platform survivability;
2. Assist in the development of a trusted NATO industrial community for APS.

Low Level Objectives:

1. Standardise the mechanical and electrical interfaces between system components;
2. Standardise the data model to ensure that information interoperability is achieved;
3. Standardise the functional requirements of the architecture components to ensure that subsystems can be developed to a common understanding of function;
4. Standardise open software architectures to facilitate the integration of software that results from collaborative research or development.

A similar project within Dstl, the Common Defensive Aide Suite (CDAS) project (conducted between 2012 and 2015) completed a TDP for the Air Domain, the outputs of which have been submitted to the NATO Air Force Armaments Group (NAFAG) for the development of NDAS. The AIPS project currently intends to align to this architecture standard to promote interoperability between Air and Land DAS. It may be an option to unify both Air and Land DAS architectures under a single STANAG (with Air and Land components as applicable).

B. JUSTIFICATION

a. *How was the requirement identified?*

National research efforts into currently available Commercial Off The Shelf (COTS) Active Protection Systems (APS) have identified key performance and interoperability risks. The standardization of an open architecture will enable “best of breed” components and subsystems to be integrated to form a cohesive capability.

The dynamic threat environment and the diverse nature of land platforms require an agile capability. This level of agility would be facilitated by a modular system design, and therefore a common understanding of how modules are to be integrated. To prevent vendor lock-in and to reduce the cost of acquisition the common architecture also has to be commercially open.

b. *Describe the detrimental effects of the identified shortfall in standardization, also assessing their significance (medium, major, intermittent?)*

Major:

1. Uncertainty in the level of performance offered by COTS systems;
2. No unified approach to enable collaborative development of capability;
3. Coalition Operational interoperability not achievable. This includes the integration to national Wide Area Network (WAN) and Local Area Network (LAN) communication systems.
4. The ability to maintain Operational Advantage (OA) will be impacted due to:
   4.1. Potential national security breaches as a result of no common approach to maintaining information security;

4.2. Lack of knowledge regarding a procured COTS capability;
4.3. National Capability Assurance strategy non-compliance;
4.4. Lack of interoperability and exchangeability of Electronic Warfare threat signatures.

Medium:

1. High cost procurement and vendor lock-in

c. *How will the proposal improve future operations or overcome any shortfalls identified? Did you use "quick fixes"? If so could they be used as a permanent solution?*

The standardization of the architecture will provide a common and open framework that will enable Coalition wide collaborative development of Active Protection capabilities. The common architecture will also expose open interfaces and data models to national external systems such as platform mission systems and communication networks.

By standardising data interfaces to external systems, NATO wide intelligence can be exploited to ensure that information relating to threats and specifically threat signatures, can be rapidly transferred to the capability.

ANNEX 2
AC/225-D(2018)0012

STANDARDIZATION TASK

Originator: NATO Army Armaments Group (NAAG) AC/225

To: NAAG Land Capability Group Dismounted Soldier Systems (LCGDSS)

Cc: NSO for NSP update

STANDARDIZATION TASK

Subject: STANAG on Land Defensive Aid Suite (DAS) Architecture

Reference: Associated Standardization Proposal

Enclosure(s): None

A. CAPABILITY

The task is to define a standard architecture for the Land Defensive Aid Suite (DAS)
The capability will support the implementation of the NATO Defence Planning Process Target L3208.

B. STANDARDIZATION REQUIREMENTS

- *Field of standardization:*
  Materiel.
- *Operational domain:*
  Army
- *Services/formations:*
  Mainly Mechinized Infantry and Armored formations but also other domaoins employing armored vehicles.
- *External forum where the task also have application: Interoperability Partnership.*
  Military or civilian standards already in existence or being prepared which could be appropriate for the Alliance
  NA.
- *How large a requirement is it?*
  All Nations developing and employing land vehicles and DAS will benefit.

C. MILITARY REQUIREMENTS

To allow better survivability

D. TECHNICAL REQUIREMENTS

Baseline for developing protection systems new generation vehicles, and as applicable implementation into the legacy platforms

E. SCHEDULE AND PRIORITY

Medium

F. OTHER RELEVANT INFORMATION

See the associated Standardization Proposal for more details

G. INTENDED CLASSIFICATION OF STANDARD

No classification marking

H. RELATED DOCUMENTS

STANAG 4754

I. INTEROPERABILITY REQUIREMENT AND PARTNER INVOLVMENT

Partners are invited to contribute to the effort and adopt the standard

J. PROMULGATION CRITERIA

Ratification of 10 nations (more than half of NATO Nations estimated to employ such platforms)

K. NATO EFFECTIVE DATE (NED)

On promulgation

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