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CONFERENCE OF NATIONAL ARMAMENTS DIRECTORS

Proposed NIAG study on Recording of multi-static (MS) acoustic parameters on different platforms and replay of such MS scenarios

Note by the Vice Chair

References:

a. AC/259-D(2021)0068 – Proposals for Advisory Studies by the NIAG in 2022 dated 06 December 2021 and action sheet dated 12 January 2022
b. NIAG-N(2022)0011 – Agenda for the Exploratory Group meeting, dated 16 May 2022

1. Background

1.1. Due to increased submarine threat and reduced submarine signatures, multi-static acoustic operations gain importance. Therefore, the recording, replay and analysis based on data from various platforms (air, surface, subsurface) require suitable standards. STANAG 4283 provides the downstream data format for the information required for further use.

1.2. NIAG Study Group (SG) 226 - Validation of the proposed NATO standard on Multi-Static and Low Frequency Active Sonar Common Standards – provided a comprehensive definition of data messages to by exchanged in order to coordinate MS operations. This proposed study will take the next step and build on SG 226 results to provide recommendations for the practical use of MS standards to share data between air, surface and subsurface platforms.

2. Objectives of the Study

2.1. The proposed study will increase the interoperability capabilities between various air, surface and subsurface platforms for the use and exploitation of multi-static acoustics.

2.2. The objectives of the study are to:

- Assess the necessary parameter sets required for recording in order to replay and perform analyses of operational scenarios with multi-static acoustic processing. It builds on the results of SG 226 and takes it to the next operational phase: the recording, replay and analysis activities on multiple ASW platforms;
- Identify and shape the development of interoperability requirements for all MS recording solutions identified above to enable MS acoustic parameters on different platforms to be replayed and analyzed to increase interoperability;
- Identify potential opportunities (from an industry perspective) for collaborative development or even procurement between NATO nations.

2.3. The scope of study is to:

- Deliver a Final Report, releasable to NATO that covers all of the above;
- Provide a way forward to increase the interoperability between multiple ASW platforms utilizing multi-static acoustics.

2.4. The study will:

- Determine which type of data is absolutely necessary or otherwise usable for the analysis, the replay and the associated tactical development of ASW and ACINT in the MS environment;
- Identify the minimum requirements of the functions (such as static, dynamic, topography) for current and future underwater situation imaging systems.

2.5. The following is a preliminary list of the operational scenarios that would be supported by this study, multi-statics is a major priority for NATO in support of Anti-Submarine Operations. Each of the scenarios would be looked at from the view of single nation’s assets and multiple NATO nation’s assets conducting the MS ASW. Additional scenarios may be added as the study progresses:

- Several Maritime Patrol Aircraft (MPAs) conducting Multi-Statics (MS);
- Several Helicopters (HCs) / Unmanned Air Vehicles (UAVs) conducting MS ASW;
- Several MPAs and several surface ships conducting MS ASW;
- Several HCs / UAVs and several surface ships conducting MS ASW;
- MPA(s) and subsurface units conducting MS ASW;
- Subsurface units and surface ships and Unmanned Underwater Vehicles conducting MS ASW.

Study Report

2.6. The output from this study shall be in the form of a written report that documents the assumptions, inputs, methodologies, assessments and analyses by the study team to reach its conclusions and recommendations.

2.7. The study is open to industries from NATO nations and will be conducted up to NATO SECRET level.

2.8. The study should also produce an unmarked executive summary (one page maximum) that, subject to validation by the sponsor, is made publicly available for NIAG promotion and visibility purposes. Additionally the report will include a list of minimum ten keywords that will be used as metadata for future NIAG reference. The keywords will be strictly specific to the study, and will not include obvious elements such as NATO, NIAG, CNAD.

3. THE STUDY ORGANISATION

3.1. Industrial experts met virtually as a NIAG Exploratory Group, under the Chairmanship of the NIAG Vice-Chair, Mr. Pablo Gonzalez, on 14 Jun 2022 to address the study requirements with representatives of the study sponsor and agreed to form a NIAG Study Group, to be designated **SG283**, to carry out the study.

3.2. The Exploratory Group noted that the final report is expected by June 2023.

3.3. The Exploratory Group elected the Study Management team as follows:

Chair	Schwarz Jan-Philip (Atlas Elektronik, Germany)
Vice-Chair	Englen Doug (Bell, United States)
Rapporteur	Canovas-Carrasco Sebastian (SAES, Spain)

3.4. Subject to CNAD approval, the Exploratory Group will hold a kick-off meeting, to be arranged by the newly elected Study Group Management Team, on 06 Sep 2022.

3.5. The sponsor advised that the Quick Reaction Team to support the study was led by Mr Christopher Strode (NNAG/Maritime Air Syndicate).

4. THE STUDY BUDGET

4.1. NIAG studies budgets are determined considering length/complexity of the study but also the number of participants to ensure a fairly comparable level of effort per participant across the NIAG study portfolio. Considering the number of participants at the Exploratory Group meeting and expected participants at the study kick-off meeting, it is proposed to allocate a budget of €275,000.

4.2. The Exploratory Group noted that the study budget was equivalent to 613 ‘person-days’ contribution, and estimated that the Industry involvement would be in the order of 27 experts from 13 participating countries.

5. RECOMMENDATIONS

5.1. The CNAD is invited to approve this study on Recording of multi-static (MS) acoustic parameters on different platforms and replay of such MS scenarios, under the sponsorship of the NNAG/Maritime Air Syndicate as proposed and to a cost of €275,000.

5.2. **Unless I hear to the contrary by 17:30 hrs on 13 July 2022**, I shall consider paragraph 5.1 approved. The Study Order will be issued accordingly.

(Signed) Holger ZIEGLER

Action Officer: JS VAUTIER (+6924)

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