NORWEGIAN DEFENCE
MATERIEL AGENCY

To: See Distribution List at Annex A

Subject: Notification of Intent to Invite Bids for International Competitive Bidding (NOI).

Replace Radar Test System (RTS) and Electronic Support Measure (ESM) Test System at NATO Sensor and Weapon Accuracy Check Ranges (SWACR) in Norway, Greece and USA

Reference: DL-2024020610

References:
A. AC/4-D/2261 (1996 Edition)
B. C-M(2002)49 – (NATO Security Policy)
C. PO(2024)0102-AS1 (NAC approval of MFCPP)

1. Norwegian Defense Materiel Agency CIS Division (NDMA CIS) acting as Host Nation for subject projects, is hereby issuing the Notification of Intent (NOI) to Invite Bids in accordance with the NATO-document at reference A. The projects will replace Radar Test Systems (RTS) with NATO serial numbers 2024/2NB11149, 2024/8NB25001 and 2024/3NB06190, restoring existing obsolescent RTS at SWACRs in Norway, USA and Greece. Furthermore, the projects will replace Electronic Support Measures (ESM) Test System with NATO serial numbers s 2024/2NB11151, 2024/8NB25003 and 2024/3NB06192, and restore existing obsolescent ESM capabilities at the same three SWACR facilities mentioned above.

2. An overview of the requirements, but not limited to these, for this Invitation for Bids (IFB) is summarized in Annex B hereto.

3. The estimated investment cost for the services and deliverables is € 14 170 000.

4. This will be a single turnkey contract with an expected duration of approximately **2 years**. It is planned to place a single contract with one Contractor. No partial bidding shall be allowed. The Contractor will be able to use sub-contractors. The Contractor is encouraged to provide an option within the procurement contract to provide additional equipment sets so that other Allied Nations establishing SWACR capabilities can procure the same equipment should they so wish. However, such option will not be considered a criterion for contract award.

5. Following the authorization by NATO on 30. April 2024, the IFB is planned to be issued by late **August 2024** with a Bid Closing Date in **November 2024**, and an anticipated Contract Award in **December 2024**. A Bidders Conference will be held *physically* in the **Stavanger-area in Norway 16.-17. September 2024**. More information about the Conference will be available as part of the IFB. The Purchaser reserves the right to amend these dates at their discretion.

6. Pursuant to Paragraph 6 of Reference A, National Representatives are kindly requested to provide NDMA CIS with a Declaration of Eligibility (DoE), not later than **August 16th, 2024**, of qualified and certified firms, which are interested in bidding for this project. In addition to the certifications required under this NOI, the Declarations of Eligibility shall include the following information for each of the nominated firms: name of the firm, telephone number, e-mail address, and Point of Contact. This information is critical to enable smooth communication with prospective Bidders and should be sent to the following address:

7. Norwegian Defense Material Agency CIS Division
Attention: **Kjølv Eikeland Fossum**, Contracting Officer.
Telephone number: +47 48 99 82 67
E-mail: kjfossum@mil.no

8. It is emphasized that requests for participation in this competition received directly from individual firms cannot be considered.

9. Bidders will be required to declare a bid validity of twelve (12) months from closing date for receipt of bids.

10. National Authorities are advised that the IFB Package will be NATO UNCLASSIFIED. However, execution of the proposed contract will require access and work of Contractor personnel at a classified site, and such personnel of the winning bidder may be required to hold individual security clearances of "NATO SECRET". This also applies to sub-contractors or any other individual for which the Contractor will request access. Only companies maintaining appropriate personnel clearances will be able to perform the resulting contract. Contractors must apply for security clearances for applicable personnel through their National Security Authorities.

11. All prospective Bidders will be invited to participate in the Bidders Conference.

12. The reference for the IFB is **DL-2024020610**, and all correspondence concerning this IFB should reference this number.

13. Your assistance in this procurement is greatly appreciated.

FOR THE DIRECTOR OF ACQUISITION:

Kjølv Eikeland Fossum
Contracting Officer

Enclosures:

Annex A (Distribution List for Official Notification of Intent to Call for Bids)
Annex B (Work Summary Description of Project Scope)

Annex A

Distribution List for Official Notification of Intent to Call for Bids

DL-2024020610

NATO Delegations (Attn: Investment Committee Adviser):

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Croatia	1
Czech Republic	1
Denmark	1
Estonia	1
Finland	1
France	1
Germany	1
Greece	1
Hungary	1
Iceland	1
Italy	1
Latvia	1
Lithuania	1
Luxembourg	1
Montenegro	1
Netherlands	1
North Macedonia	1
Norway	1
Poland	1
Portugal	1
Romania	1
Slovakia	1
Slovenia	1
Spain	1
Sweden	1
Türkiye	1
United Kingdom	1
United States	1

Forsvars- og sikkerhetsindustriens forening, Norway (FSI) 1

Embasies in Norway

Albania	1
Belgium	1
Bulgaria	1
Canada	1
Croatia	1
Czech Republic	1
Denmark	1
Estonia	1
Finland	1
France	1
Germany	1
Greece	1
Hungary	1
Iceland	1
Italy	1
Latvia	1
Lithuania	1
Luxembourg	1
Montenegro	1
Netherlands	1
North Macedonia	1
Poland	1
Portugal	1
Romania	1
Slovakia	1
Slovenia	1
Spain	1
Sweden	1
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Distribution for information:

NATO HQ

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Capability Implementation Branch – Attn: Deputy Branch Chief	
National Technical Experts (NATEXes)	

Annex B

Reference number DL-2024020610

Description of Project Scope

1. Background

The NATO Sensor & Weapon Accuracy Check Ranges (SWACR) supports the creation of the Alliance's Maritime Situational Awareness (MSA) by providing facilities to determine the baseline accuracy of the various sensor, weapon and combat systems of ships, submarines, and maritime aircraft. Reducing system inaccuracies improves the operational capability of maritime units and task groups, facilitating increased interoperability and combat effectiveness.

A key element of the SWACR's capability lies in assessing the range and bearing accuracy of maritime radars. Identifying and addressing such errors brings significant operational benefit, from improving the provision of effective target cueing to defensive and offensive weapons systems to ensuring navigational safety. The present Radar Test System (RTS) is now due for replacement.

Another of the reference systems used by the SWACRs is the Electronic Support Measure (ESM) Test system. ESM systems detects potentially hostile electro-magnetic emissions. A key element of the SWACR capability lies in assessing the bearing accuracy of ESM systems. Identifying and addressing the errors in such systems brings significant operational benefit, including improving the provision of effective target cueing to defensive and offensive weapons systems. The ESM Test System is also due for replacement.

2. Potential scope of contract

The aim of the project is to replace the SWACR RTS and ESM Test Systems for the three NATO SWACRs in Norway, Greece, and USA.

The scope of this project includes the design and delivery of new technical solutions for:

- Three Radar Target Simulators (one per each Test Range)
- Three ESM Test sets (one per each Test Range)

The high-level composition of each Radar Target Simulator shall include, but is not limited to:

a. Accurate Radio Frequency Sources with Digital Radio Frequency Memory capability
b. Power Amplification
c. Pointing Pedestal(s) with suitable interface with the SWACR geospatial reference (GNSS) network

d. Antenna set
e. Human-Machine Interface (HMI) for programming and monitoring the test scenario

The high-level composition of each ESM Test set shall include, but is not limited to:

a. Accurate Radio Frequency Sources for the emulation of Radar Emitters
b. Power Amplification
c. Pointing Pedestal(s) with suitable interface with the SWACR geospatial reference (GNSS) network
d. Antenna set
e. Human-Machine Interface (HMI) for programming and monitoring the test scenario

The systems will be shipped to multiple locations; hence the design shall take into account such need in terms of robustness of the components.

Radar Target Simulator main functionalities

The main purpose of the RTS the simulation of Radar Targets with high accuracy across the full range envelope of the radar system under test. The System will in fact be used in order to test the Radar Range and bearing accuracy.

In order to have the Radars Under Test accepting the simulated targets as valid, the requirements of the systems will be aimed at maximizing the target(s) likelihood.

The RTS shall allow the simulation of steady and moving targets (e.g., missiles) without compromising the delay accuracy.

The RTS shall also enable the simulation of weather-related atmospheric conditions (e.g., clutter) and disturbance (Jamming).

Since the modern platforms integrate the contribution of all radar sensors, the RTS must be capable of generating the same synthetic target for more than one radar simultaneously. This will maximize the likelihood of target detection and highlight any issues related to data fusion in the Combat Management System.

The RTS will have to support the Radar testing when the platform is stationary (dockside) and when the platform is moving (on Range).

The HMI will be used for programming and monitoring the test scenario. This will enable full integration of the RTS capability into the Ranges' wider Anti Air Warfare (AAW) or Anti Surface Warfare (ASuW) test capabilities.

ESM Test Set main functionalities.

The main purpose of the ESM Test set is the simulation of Radar emissions.

The System will in fact be used in order to test the ESM bearing accuracy and its capability to measure the waveform parameters.

In order to test the accuracy of the measurement performed by the ESM under test, a high degree of accuracy will be required in producing the simulated emissions required.

The ESM Test Set shall allow the simulation of scanning and lock on emitters, low duty and CW.

Due to the constraints related to the platform time, several lock-on emitters, centered at different frequencies, will have to be simulated simultaneously across the operational frequency range of the ESM system under test.

The ESM Test Set shall also enable the simulation of EM disturbance (i.e., Jamming).

The HMI will be used for programming and monitoring the test scenario. This will enable full integration of the ESM test capability into the Ranges' wider Anti Air Warfare (AAW) or Anti Surface Warfare (ASuW) test capabilities.

Output power and sensitivity (ESM and Radar)

The power amplification and the antenna set shall allow the Platform Under Test (PUT) to be tested using equipment located ashore, while performing other tests (e.g., Electro Optic, Sonar accuracy) at sea.

The requirements in terms of output power, sensitivity and tracking capabilities will be defined following an analysis of SWACR test procedures and geometries, as well as an estimation of the Radar and ESM detection sensitivities and Radar EIRPs.

It is accepted that, due to the largely different requirements in terms of EIRP, the Antenna(e) and power amplification stage might be different for the RTS and ESM Test Set.

The test geometry for the Radar Testing may vary significantly between the dockside phase (RTS installed close to the Platform Under Test (PUT)) and the "on-Range" phase (RTS installed ashore, while Platform maneuvering at sea); for this reason, it is accepted that a different set of Antenna(e) may be provided in order to cope with the large variation of dynamic range of the impinging signal.

For the same reason, the RTS might be provided with a different set of power amplifiers or with the capability to by-pass the power amplifiers.

Tracking (ESM and Radar)

The pointing pedestals are an essential part of the systems since they allow continuous tracking of the PUT, optimizing the testing process. The pedestals will replace the current one, which has passed its lifetime cycle and will normally be placed within or in proximity of the radar dome at the Range. Due to need to deploy the system, all the pedestal(s) should be designed for such purpose.

The pedestals should be driven on the base of the position (and attitude) of the PUT that will be available to the system(s) as a stream of Ethernet data packages.

A video tracking capability shall provide a necessary back-up solution for tracking the PUT in the event of GNSS denial adversely impacting upon the Range's own (GNSS based) geospatial reference system, or in case of difficulties in instrumenting the PUT with the Ranges' geospatial reference equipment (e.g., during the tests of maritime aircraft and helicopters, with attendant flight safety constraints).

Commonalities

The core of the systems consists of Radio Frequency Sources (RFS).

For Radar testing applications, these include a Digital Radio Frequency Memory (DRFM) that allows the RTS to receive, store, manipulate and transmit a delayed replica of the received radar signals, simulating a target.

For ESM testing application, the RFS shall include the capability to simulate Radar Emissions.

For redundancy purposes, it is required that the RFS will be able to accomplish both the Radar and ESM testing tasks. It will be accepted the need to change Software/Firmware configuration.

Each System (RTS and ESM Test set) shall have the capability to be operated independently, however the combination of the two systems (RTS and ESM Test set) shall enable the generation of a synchronized Radar and ESM scenario controlled via the HMI.

Such scenarios (Radar tracks and EW Tracks) will be used for assessing the data fusion accuracy of PUT Combat Management Systems and identifying timing issues (latencies) between the sensors which adversely affect maritime picture accuracy. This reinforces the rationale for pursuing a common technological approach between the RTS Capability and the parallel restoration of the Ranges' ESM Test Capabilities.

Additional services

The scope of the contract will include, in addition to the design of the technical solution, also the following activities:

- Delivery of new equipment
- Installation in Ranges' facilities
- Acceptance Testing
- Training
- Delivery of the documentation
- System certification (including J/F12 form issued by the US Navy and Marine Corp Spectrum Office)

All procurement elements including installation, cabling, software, installation, configuration, testing, documentation, warranty support and other services as specified shall be part of the scope of the project.

The installation of new equipment will take place at the different SWACR Ranges in Norway, Greece and USA.

An option for other Allies to procure the same systems for national SWACRs.