

SESSION ELECTROMAGNETIC SPECTRUM DOMINANCE

INFODAY AND BROKERAGE EVENT
11 APRIL 2019

European Union's Preparatory Action on Defence Research - PADR programme has received Union's funding

This communication or publication related to the implementation of the entrusted tasks made by EDA reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains.



CALL TEXT PRESENTATION RA TOPIC TOPIC PADR-EMS-03-2019

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

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PADR-EMS-03-2019 – CHALLENGE (1/2)

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

- Smaller manned and unmanned platforms increasingly being used for ISTAR missions;
- Increasing range of multifunction RF systems and new EW threats appear rapidly.
- A strong need to design:
 - **Compact, highly performing and lightweight multifunction RF systems;**
 - Platforms **resilient** to operate in the presence, react to and suppress such systems and threats in military operations and in the battlefield.
- **European advanced Active Electronically Scanned Array (AESA)** technology allowing an optimal combination of:
 - radar
 - communication
 - EW functions

into a single multifunction RF system.

PADR-EMS-03-2019 – CHALLENGE (2/2)

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

- Risks for European Union regarding advanced military RF systems:
 - Becoming severely dependent on suppliers established in third countries;
 - Limiting the strategic autonomy of the Member States;
 - Security-of-supply risks due to end-user restrictions imposed by third countries (e.g. ITAR and EAR).

PADR-EMS-03-2019 – SCOPE (1/3)

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

- European multifunction RF systems should integrate **several functionalities in one system**.
 - New system design technologies, the use of new architectural frameworks, integration of electronic components;
 - Ensuring optimal performance of the overall system whilst keeping it modular and scalable.
- Requirements at **the component level**:
 - high-power, high-frequency, broadband components;
 - highly performant under harsh military conditions.
- Generic scenario wrt. technical and operational requirements is available (EUCI classified). Process described in General Annex J.

PADR-EMS-03-2019 – SCOPE (2/3)

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

R&D assessment

Target joint Union development programme for a multifunction RF system based on AESA technology (TRL 7 by 2027)

Perform SWaP-C and cooling analysis

System definition following technical requirements

Fully-electronic RF systems compliant with waveform and antenna pattern requirements

Criticality mapping

Identify materials, components, technologies that need priority support

Avoid end-user restrictions imposed by third countries

R&T activities

At system level

At component level

High-level description of KPIs

Assessment of proposed defence solutions/technologies for security and space domains

PADR-EMS-03-2019 – SCOPE (3/3)

Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

- The implementation of this topic is intended to target at least TRL 4.
- EU contribution: EUR 9 000 000 to 10 000 000.
- The lifetime of the proposed project should not exceed 30 months.
- **No more than one action will be funded.**
- **Deadline for applications: 28/08/2019.**

PADR-EMS-03-2019 – EXPECTED IMPACT

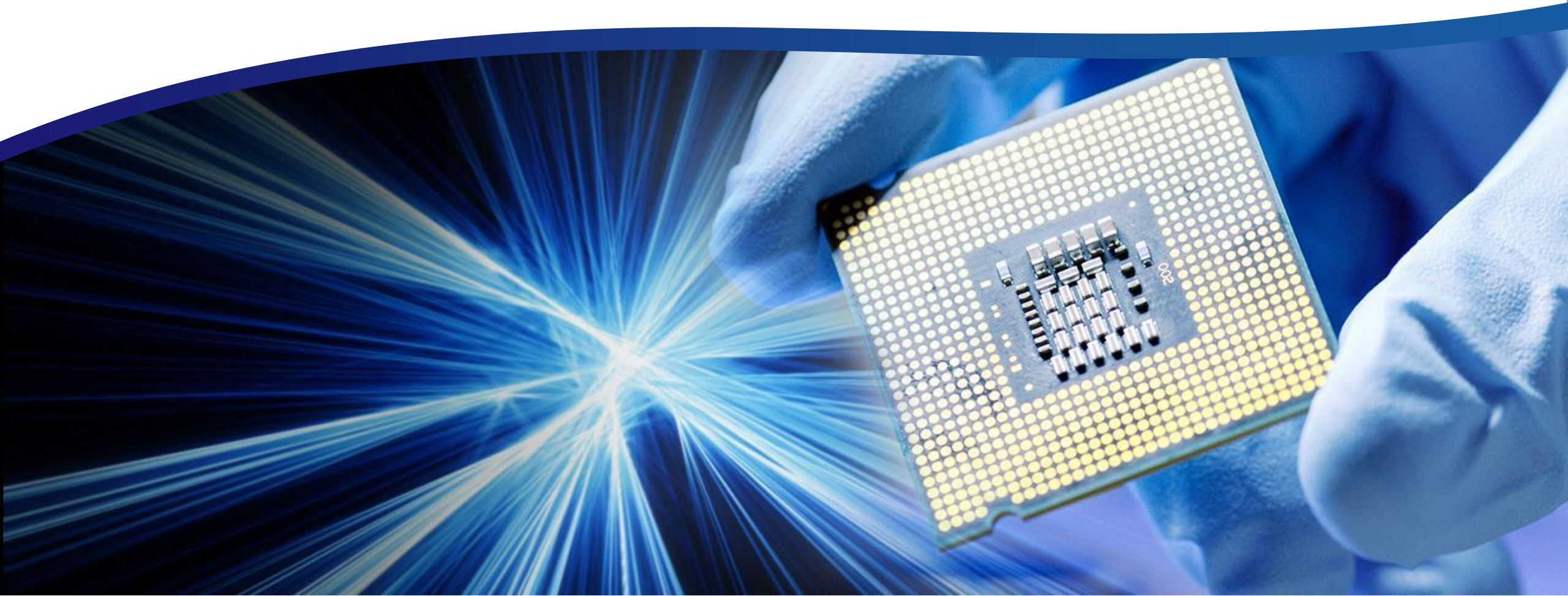
Combined radar, communications, and electronic warfare functions based on European Active Electronically Scanned Arrays for military applications

- Convincing demonstration of the **potential of Union funded research** in support of Union critical defence technologies, in particular in the domain of multifunction RF system;
- Establish a **R&D assessment** including a technology roadmap towards a joint Union development programme for a multifunction RF system based on AESA technology;
- Ensure **secure and autonomous availability** of multifunction RF systems to military end-users by 2027;
- Contribute to **strengthening the European industry** and help improve its global position through the implementation of innovative technologies along a new European manufacturing value chain.

Type of Action: Research Action (RA)



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THANK YOU – Q&A

PLEASE BE INFORMED THAT THE Q&A SESSIONS WILL BE AUDIO RECORDED, AND THE QUESTIONS AND ANSWERS WILL BE INCLUDED IN THE RELEVANT Q&A FILE, PUBLISHED IN THE CALL WEB. YOUR NAMES WILL NOT BE INCLUDED. HOWEVER, IF YOU HAVE ANY OBJECTION TO THIS, PLEASE AVOID TO STATE YOUR NAME BEFORE ASKING THE QUESTIONS