

**Office of the Secretary of Defense (OSD)**  
**Request for Information on Technologies and Processes to Reduce Cost, Size, Weight, and Power to Accomplish Unmanned Aircraft Systems (UAS) Sense and Avoid (SAA)**

1. Introduction

This is a Request for Information (RFI) only and does not constitute a commitment, implied or otherwise, that OSD will take procurement action in this matter. Further, neither OSD nor the Government will be responsible for any cost incurred in furnishing this information.

The UAS Executive Committee (EXCOM) is a partnership between the Department of Defense (DoD), the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA) and the Department of Homeland Security (DHS). The UAS EXCOM was formed by Congressional direction in 2009 to “act as a focal point for resolution of issues on matters of policy and procedures relating to UAS access to the NAS,” and to “identify solutions to the range of technical, procedural, and policy concerns arising in the integration of DoD UAS into the NAS in order to achieve the increasing, and ultimately routine, access of such systems into the NAS.”

The UAS EXCOM recognizes that a key challenge to integrating UAS into the National Airspace System (NAS) is a means for UAS to sense and avoid other aircraft. To ensure sound technical approaches to overcome this challenge the UAS EXCOM Senior Steering Group (SSG) sponsors a Science and Research Panel (SARP) composed of experts from organizations performing SAA research. One of the SARP’s primary purposes is to promote partnerships between U.S. Government agencies and the broader academic and science community on UAS NAS Integration science and research initiatives. These agencies benefit from these partnerships through a broader range and depth of scientific expertise applied to challenges that affect all aspects of potential UAS operations. The science and research community benefits from advocacy of potential solutions and through evaluation, test, and implementation of viable approaches. These partnerships are critical to SAA science and research efforts to positively inform and influence SARP recommendations to the UAS EXCOM SSG.

2. Request for Information

To better inform SAA research needs and to understand ongoing investigations of potential solutions, the SARP is currently requesting informational briefs on several topics related to technologies and processes that can reduce cost, size, weight, and power of systems that can perform SAA for both fixed wing and rotorcraft UAS. Specifically, the SARP desires information on ongoing research and science efforts in the following areas:

- Technologies that reduce cost, size, weight, and/or power for onboard detection of non-cooperative aircraft (e.g., radar, LIDAR, optical, etc.)
- Modification of design and/or performance standards for cooperative surveillance technologies to accommodate UAS (e.g., antenna standards appropriate for UAS)
- Application of detection technologies from other industries (e.g., automotive) that may be adapted to UAS SAA

- Surveillance technologies and processes (ground-based or airborne) that may accomplish SAA for beyond line of sight small UAS operations at low altitudes
- Processes that can reduce certification costs of hardware and/or software for small UAS equipped with SAA with emphasis on accommodating software of unknown pedigree
- Technologies and processes that provide a means of reliably fusing data from multiple dissimilar reduced cost, size, weight, and power surveillance sources

### 3. Consideration

The SARP plans to receive selected presentations on these topics during an Open Day Meeting in the Washington, DC area on Tuesday and Wednesday 28-29 October 2014. A key objective of the Open Day Meeting is to inform SARP research recommendations to the UAS EXCOM SSG for the topics addressed in this RFI. The SARP will accomplish this objective through evaluation of the state of the art, awareness of ongoing science and research initiatives, identification of areas where industry and the research community desires government guidance, and promotion of collaboration and partnerships in the SAA technical community. Submissions will be selected for presentation based on technical merit, ingenuity, practicality of use in the NAS (e.g., certification considerations), potential to improve affordability, and the degree to which the presentation reflects the intent of the RFI.

Also at the Open Day Meeting, the SARP plans to update the community on recent SARP activities, including research efforts on SAA algorithm metrics and defining Well Clear for UAS. The Open Day Meeting will be open to all parties, subsequent to facility capacity and access restrictions. Therefore, presentations submitted for consideration must not contain release restrictions. Participation in the Open Day Meeting is on a voluntary basis, and no compensation will be provided to interested parties. If you or your organization is interested in providing one or more presentations to the SARP on one or more topics in this RFI, please provide the following information:

- Name of organization
- Point of contact information (name, phone, e-mail)
- Identification of the specific research question(s) addressed
- Presentation in Adobe PDF format, not to exceed 25 slides per presentation

Please provide this information no later than COB Friday 22 August 2014 to SARP co-chairs Dr. Stephen Cook ([scook@mitre.org](mailto:scook@mitre.org)) and Mr. Dallas Brooks ([dbrooks@psl.nmsu.edu](mailto:dbrooks@psl.nmsu.edu)). **All submissions must be unclassified and must not contain release restrictions.** You will be contacted no later than 12 September 2014 as to whether your briefing topic has been selected for presentation to the Panel.

Thank you for your interest in the SARP.

Best regards,

Steve Cook and Dallas Brooks  
Co-chairs, OSD UAS Sense-and-Avoid Science and Research Panel