

Surveillance Criticality for Sense and Avoid

Purpose

- The research on Surveillance Criticality for Sense and Avoid (SAA) will:
 - Determine whether the current operational or technical performance requirements for a cooperative SAA solution based on Automatic Dependent Surveillance-Broadcast (ADS-B) Out and/or transponders should change for SAA functions
 - Determine whether Unmanned Aircraft Systems (UAS) SAA functions can be carried out by equipment standards using current surveillance equipment

Background

- SAA systems have significant issues in obtaining operational and airworthiness approval because these systems are new and their intended functions need to be defined in the context of the SAA system and associated UAS
- SAA systems must comply with Code of Federal Regulations (CFR) that apply to general operating and flight rules, 14 CFR 91
- A study is required on the capability of the existing airborne surveillance equipment for manned aircraft to provide separation provision and collision avoidance functions for UAS

Projected Benefit of Research

- Contribute to changes in airborne surveillance equipment standards and operational approval guidance

Research Approach

- Perform a safety assessment to quantify the pilot-controller contribution in terms of safety to the functions provided by airborne surveillance systems and equipment
- Perform analysis of equipment design, procedural changes and other provisions required for maintaining an acceptable level of safety for separation and collision avoidance functions in the NAS

Research Partners

- FAA William J. Hughes Technical Center
- The FAA's Center of Excellence for UAS Research, Alliance for System Safety of UAS through Research Excellence (ASSURE): North Carolina State University, Embry-Riddle Aeronautical University, Mississippi State University, The Ohio State University, Oregon State University, and University of North Dakota

Status

- Research began September 2015
- Final report delivered December 2016