

## FOREWORD

# Federal Aviation Administration

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Within the field of aviation, interest in using Unmanned Aircraft Systems (UAS) for a broad range of purposes is growing rapidly, making UAS access to the National Airspace System (NAS) a top priority. Current UAS access to the NAS is restricted by specific operational limitations and hindered by a lack of validated operational procedures, standards, and policies for UAS operations. As the demand throughout the UAS community increases, by government agencies and civil users alike, so does the need for reduced restrictions and routine access.

The mission of the Federal Aviation Administration's (FAA) Unmanned Aircraft Program Office (UAPO) is to safely integrate UAS into the U.S. NAS. The UAPO is responsible for meeting the technical, operational, and regulatory challenges that UAS operations face today while ensuring that UAS operations can meet future demands.

The UAPO is involved in several endeavors to accomplish these goals:

### Standards Development

The UAPO plays a key role in the development of UAS standards and its staff serves as active participants and leaders within standards organizations. One such organization, RTCA Special Committee 203 (SC-203), is committed to the development of minimum aviation system performance standards for UAS through the cooperation of both public and civil UAS users and manufacturers. This committee has identified Control and Communications Systems and Sense and Avoid Systems for UAS as priority areas for recommended standards.

The UAPO recognizes that international coordination of standards is a critical facet to ensure harmonization and participates in several international forums including EUROCAE Work Group-73 and the International Civil Aviation Organization. The UAPO relies upon the dedication of UVS International to facilitate international coordination and to promote the exchange of UAS information on a global scale.

### Rulemaking

The UAPO recently wrapped up an Aviation Rulemaking Committee (ARC) on small UAS (sUAS). This committee, composed of government agencies and UAS manufacturers, was responsible for drafting recommendations for the FAA to consider as part of their overall rulemaking process for sUAS. The recommended operating rules, procedures, and requirements developed by the sUAS ARC brings the UAS community one step closer to fewer restrictions on UAS access to the NAS.

### Certification Efforts

Currently, operators of UAS in the NAS must apply to the FAA for specific authorization to engage in flight operations. This authorization is obtained by securing a Certificate of Authorization or Waiver (COA) or a Special Airworthiness Certificate, Experimental Category (SAC-EC). The COA and

SAC-EC are exception processes and may require extensive planning and lengthy lead time for approval to ensure UAS operations, regardless of size, will not compromise safety for other NAS users and the public and property on the ground. There are several efforts underway to develop more efficient certification guidance and regulations.

The UAPO leads a team of FAA Certification experts in the areas of rotorcraft, small airplanes, transport aircraft, and engine and propellers. This team is responsible for reviewing current Federal Aviation Regulations to determine their applicability to UAS. The team is also performing a gap analysis to identify the areas where more stringent UAS regulations are required.

### Research & Development

The UAPO has partnered with the FAA's Air Traffic Organization and several Industry Partners to investigate UAS-NAS integration issues. This includes examining potential concepts and technologies for advancing integration of UAS into the Next Generation Air Transportation System (NextGen).

This team has planned a series of research and development activities using multiple platforms and methods. The initial validation activities planned over the next two years include UAS flight tests and demonstrations, constructive modeling and simulation, human-in-the-loop virtual simulation, and analytical assessments. The primary objectives of the evaluations and demonstrations are to advance integration of UAS operations in the NAS, provide the FAA confidence in the safety case for UAS, provide a platform for validation of RTCA SC-203 UAS performance requirements now under development, and utilize the advanced capabilities of the UAS community to serve as a test bed for exploring future concepts for 4-dimensional trajectory-based operations, a cornerstone of NextGen.

The above efforts are just a few of the ongoing activities the FAA is pursuing through the UAPO and their partners that will meet the demands of the UAS community while maintaining the highest level of safety characteristic of the NAS. As the airspace system evolves to its next generation, it is our duty to support the integration of UAS without causing delays, capacity reduction, or placing current airspace users at increased risk. This must be accomplished on a domestic level as well as an international level, and we are privileged to work with organizations that share our dedication and mission.

