

Checkride

To maintain a quality and high reliability, the Airliner ecosystem is developed to a process documented in the [Software Test Plan](#) which is part of the Windhover Checkride software certification program. The [Checkride Software Test Plan](#) explains how the various products in the Windhover ecosystem are tested and used for certification.

The Checkride standards are based on the NASA [NPR 7150.2B](#), Software Engineering Requirements and the FAA [DO-178C](#), Software Considerations in Airborne Systems and Equipment Certification. These standards start with classifying software and then outlining process requirements commensurate with the classification. The UAS software universe presents some new challenges for these classification systems so we created a new classification approach that incorporates the special circumstances that the UAS software universe presents. The Software Test Plan defines software safety requirements, discusses safety related software architecture features, and then ties these into the classification process. Each classification of software was then mapped to processes requirements of the NASA [NPR 7150.2B](#).

The Software Test Plan shows how the software and tools in the Windhover ecosystem will meet the Checkride standards. Each product in the Windhover software ecosystem is taken through a test progression showing what techniques and tools will be utilized at each level as well as what artifacts and reviews will be conducted. Coding standards and peer review checklists are also provided.

This [Checkride Software Test Plan](#) will be the basis for the test program that will be executed to certify the products within the Windhover ecosystem software. Our goal is that this approach, or one very similar, will be used by the FAA to certify software for autonomous use in the national airspace. Software earns certification as it becomes compliant with all the processes applicable to its classification. The [Scorecard](#) shows where each product is in this process. An application might start out at a very basic level and mature into a full Checkride certification as it is subjected to higher standards and more specific testing. Each piece of software in the Windhover ecosystem gets a Checkride compliance rating based on its acceptance data package. This documented evidence of requirements, design, and test artifacts for each flight, ground and user application as well as peer review checklists. These acceptance data packages will be made available along with the actual products in the Windhover Hangar. Windhover users can easily determine the classification and pedigree of components in the ecosystem by viewing their Checkride compliance [Scorecard](#). This helps them make informed decisions about which applications to integrate into their UAS missions.