



DIGITAL INDUSTRIES SOFTWARE

# FAQs about aircraft certification for aerospace and defense

Answering common questions about managing and improving the aircraft certification process

## 1. What domains of aircraft certification benefit from digital solutions?

All domains of aircraft certification can benefit from digital solutions, including type design compliance, procurement conformance, production conformance and airworthiness sustainment.

## 2. How can I increase the chances that my aircraft will be type certified?

A successful aircraft program manages the business, customer and regulatory requirements, with the design and engineering being driven by all, and the regulatory requirements serving as the minimum acceptable in terms of safety and performance. The Siemens Xcelerator solution helps connect the digital thread running through regulatory requirements, design, test and certification documentation, increasing the chances of regulatory approval.

### **3. How can I accelerate the aircraft certification process?**

You can accelerate the aircraft certification process by doing the following:

- Efficiently and quickly understanding and deriving business, customer and regulatory requirements, then assigning them to the appropriate subsystems and components
- Designing and simulating those subsystems virtually to minimize risk to “for credit” certification tests
- Verifying those subsystems and components meet those requirements

### **4. How can I get through aircraft certification minimizing cost, resources, time and risk?**

Enable all teams to be cognizant of and responsible for airworthiness. Just as quality should be built into every step of your processes, by incorporating airworthiness into all parts of a program from the beginning, you can achieve aircraft certification while minimizing costs, resources, time and risk.

### **5. How can we trace means and methods of compliance through the certification process, from conceptual design through to the certification report?**

Requirements and design start at a very high level, then those requirements are derived into more detailed requirements, which are then allocated downstream. Our solutions allow all stakeholders to evolve the high-level requirements, then enable updating of the derived requirements, so they robustly proliferate throughout the entire program.

### **6. How can I easily gather and understand certification requirements for my aircraft program?**

The verification management solutions within the Siemens Xcelerator portfolio can help engineers and other stakeholders consume, analyze and manage all requirements, including any applicable federal aviation regulations (FARs), regulatory guidance/advisories, and applicable industry/trade and professional society specifications.

### **7. How can I derive and distribute certification requirements to subsystems and components?**

The verification management process and solutions within the Siemens Xcelerator portfolio facilitate each individual requirement being assigned a means and method of certification and process by which to prove the product design is compliant to the requirement, as well as traces the relationships of all the associated data.

## 8. Why is traceability important in aircraft certification?

From a design compliance demonstration standpoint, traceability is necessary as a legal regulatory requirement. It enables the ability to track both up and down and across hierarchies—from requirements to physical parts to supporting data elements—to understand when changes are necessary, what are all the things affected and how it impacts the function/performance of the engineered system.

For production conformity and aircraft airworthiness, traceability in aircraft certification is important for safety and quality reasons. Should an issue be encountered during any phase of the manufacture or operation of an aircraft, traceability provides a means to research the root cause of the problem and identify the affected aircraft.

## 9. How can I achieve robust configuration management for my aircraft?

The Siemens Xcelerator portfolio configuration control capabilities are world class and can maximize traceability of design data, in addition to robust quality and manufacturing processes. This results in minimizing the chances of configuration escapes, to improve customer-felt quality and safety.

## 10. How can I ensure that my test articles conform to the design?

Having a strong configuration management foundation in your design and engineering organization helps you establish disciplined procedures in your quality and production management system. Doing so will ensure that all your stakeholders are on the same page with respect to the configuration of your production and test articles as well as test facility, setup and instrumentation. The Siemens Xcelerator portfolio can help you establish that robust configuration management foundation.

## 11. How can Siemens solutions for connected verification and certification help my aerospace and defense company?

From the most recognizable names in aerospace and defense to new startups entering the industry, we are helping them successfully manage their programs. The Siemens Xcelerator portfolio has the breadth and depth of solution capabilities to help you with every part of your program – requirements, conceptual design, preliminary design, critical design, final design and across the rest of the product lifecycle.

## 12. How can I iterate aircraft design more in less time, without jeopardizing airworthiness certification?

By using digital tools like those in the Siemens Xcelerator portfolio, you can manage the complexity of requirements, means and methods of compliance, and test articles showing compliance. With the digital tools helping to keep the focus on requirements, you are able to iterate more and faster.

## Siemens Digital Industries Software

Americas: 1 800 498 5351

EMEA: 00 800 70002222

Asia-Pacific: 001 800 03061910

For additional numbers, click [here](#).

## About Siemens Digital Industries Software

Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet tomorrow. Siemens Xcelerator, the comprehensive and integrated portfolio of software, hardware and services, helps companies of all sizes create and leverage a comprehensive digital twin that provides organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit [siemens.com/software](https://www.siemens.com/software) or follow us on [LinkedIn](#), [Twitter](#), [Facebook](#) and [Instagram](#).

[siemens.com/software](https://www.siemens.com/software)

© 2023 Siemens. A list of relevant Siemens trademarks can be found [here](#). Other trademarks belong to their respective owners.

TAC\_015.001 4/18