Leading Global Aviation Contractor Aero Ice Free Gains Critical Business Assurance with DO178 Compliance

Challenge

Developing a licensed ice removal system that meets commercial aviation standard DO178.

Comply with requirements for DO178 DAL B certification without having the proper expertise or experience.

Solution

Business Assurance process model, with two clear, well-defined, and parallel paths.

Qualitest provided a Business Assurance work process as well as technical solutions and project support.

Results

Aero Ice Free (AIF) is now completing the DO178 certification successfully.

AIF gained considerable flexibility that enabled them to complete activities and deliver on time.

Client Overview

Aero Ice Free (AIF) was founded in early 2016 as a subsidiary of GNS (founded 2009) and Marsys (founded 2014).

The AIF team has a deep knowledge of all military and civilian platforms from the avionics world, in both manned and unmanned aircraft, and has accumulated decades of experience in the field of aviation in the electronics world. The company's managers are Air Force veterans and have a wealth of experience in the field of development, system engineering and maintenance of avionics, intelligence and telecommunications systems.

The company has spent many years honing end-to-end engineering and providing comprehensive solutions in the field of flying avionics. Their engineering solutions include upgrading and installation, a long-term maintenance solution for the systems and their components, as well as licensing of systems in accordance with aviation standards and aviation environmental conditions.

The Challenge: Complete a Project as Cool as Ice

AIF won an ice removal system development project - the development of a licensed ice removal system that meets commercial aviation standard DO178.

The Client wanted to:

- Implement a Business Assurance work process and services.
- Comply with commercial aviation license standards DO178 at a DAL B level.

> **Qualitest implemented a Business Assurance process model, with two clear, well-defined, and parallel paths.**

- Perform all SOI (Stage of Involvement) steps and end-client audit sessions.
- Adhere to a very challenging schedule.
- Meet the requirements of qualification tools.
- Comply with customer requirements for engaging with an independent provider of Quality Assurance services.

A Cutting-Edge Solution to Break the Ice

This was the first engagement between Qualitest and AIF, resulting from the satisfaction of a third-party customer who recommended Qualitest's DO178 team to AIF.

Qualitest implemented a Business Assurance process model, with two clear, well-defined, and parallel paths:

- **Path 1** – Business Assurance work process
- **Path 2** – Technical solutions and project support

Path 1- Business Assurance work process

- Consultation sessions on DO-178 topics that included guidance on defined work stages in the correct order, definition of required materials, definition of required tests, familiarity with various concepts, assistance in evaluating a schedule and more.

- A structured procedures compound of a dynamic checklist to pass DO178 audits.

- QA services: Supported concrete control over the DO178 life cycle, monitor every development stage, and provided reliable indicators regarding the quality of the certification process.

- SOI#1 document approval by SQA, Audits and sessions with AIF.

- SOI#4 conformity review: Best practices, data review, certification credit, software life cycle data review, problem report review.

Path 2 – Technical solutions and project support

- Software testing services were completed by the testing experts of Qualitest's DO178 team, experienced in aviation product software testing at all required test levels (DAL).

- SOI#2 testing process included: HLR Verification, LLR Verification, TLD Verification, Code Verification.

- LLRs Development and traceability to HLR, Data Dictionary Development (as part of the response to verifications in SOI # 2).

- SOI #3 overall: Test development, test verification.

- Mapped and provided a gap analysis regrading functions versus requirements.

- Provided a gap analysis regarding essential components in the process e.g. Data dictionary, LLR development.

Key Benefits

- As a result of the engagement with Qualitest, AIF is now successfully completing the DO178 certification for the ice removal system.

- AIF gained considerable flexibility that enabled them to complete activities and deliver on time and avoid delays that would have otherwise occur due to lack of the right manpower and expertise.

- DO178 guidelines consultations enabled AIF to better prepare for delivery, both of this project and future projects.

- AIF was able to produce high level requirements for the system, an expertise they were missing prior to the engagement.