

# DO-178B FAA

# Standard Software

Certification Services



# DO-178B Software In Airborne Systems And Equipment Certification service

## Independent expertise to ease the complexity and speed-up the process

Established by the Federal Aviation Administration (FAA) and developed jointly by the Radio Technical Commission for Aeronautics (RTCA) and EUROCAE as a guideline for determining the safety and reliability of software used onboard aircraft, the FAA DO-178B Software Considerations in Airborne Systems and Equipment Certification serves as the de facto standard for avionics software systems.

## Serving a critical need

**There are five decreasing order levels of software criticality - (A) catastrophic, (B) hazardous, (C) major, (D) minor, and (E) no effect - each describes potential software failure consequences.**

Every requirement must pass through a safety assessment process and hazard analysis to examine the effects of a software failure in the flight system, and thus avoid the introduction of software with potential adverse effects.

Today, the avionics industry requires any onboard flight software be rigorously reviewed and tested to the exacting DO-178B certification guidelines before **being used in commercial aircraft. Thus, a complex** set of review processes and validation techniques has evolved to achieve this safety-critical software certification.

## Easier and faster software certification

**To assist you in understanding and complying with** the many aspects of DO-178B, ThoughtFocus has marshalled a talented team of aerospace and avionics engineers, software developers, and quality assurance experts who shepherd projects through from planning to certification, providing a clear separation between software development and the certification process.

Our responsive multi-disciplinary team conduct requirement analysis, top-level and detailed design

analysis, code-level, test, and change analysis. We document variances and exceptions, draft recommendations, and work with you to assure successful compliance with DO-178B.

## Independent review, analysis, and testing

Our comprehensive DO-178B services and solutions include:

- Creating the master plan for certification, development, design, review, validation, and quality assurance
- Safety assessment and hazard analysis to determine design safety features, redundancy, and hazard mitigation needs
- Reviewing/defining development standards for software requirements, design, and code
- Software architecting and design
- Software implementation source code and integration
- Verification and validation of test processes and results - high and low-level testing, static, and dynamic analysis, system integration/acceptance, and traceability analysis



- Automated test tools qualification
- Configuration management
- Defect tracking and analysis
- Certification support and Stages of Involvement (SOI) audits

## State-of-the-art certification infrastructure

ThoughtFocus is uniquely qualified to spearhead your DO-178B certification from inception to successful completion, having invested heavily in next-generation development tools and certification platforms to assure your software and hardware products meet the stringent standards required of mission-critical flight-ready equipment.

- SCADE software verification tools
- **Entrenched knowledge of industry standards** including DO-178, ARP-4754, ARINC, and AS-9100
- **Long track record of successful verification** projects with positive DER feedback on software driven systems
- Fuel gauging
- Power management
- Air data computing
- Fire protection
- Engine vibration monitoring
- Extensive experience with development and verification tools, software languages, target processors, and protocols
- Certified automatic code generation
- Traceability and audit logs
- Qualified Test Environment (QTE) test execution engine automatically produces a compliance testing report

## A nimble cost-effective solution

Turn to our team for your DO-178B software certification when you lack time, have prior resource commitments, need additional expertise, or desire to separate certification from preparation. Regardless of the reason for retaining our services, you share the same critical benefits:

- **Tightly focused certification process - we do not let the desire for additional functionality delay progress**
- Round-the-clock availability - whether onsite or offshore, **our team is always on the dark, moving the project toward successful certification**
- Budget disciplined - our certification projects are delivered on time and on budget; no delays, no surprises

## The ThoughtFocus product delivery

ThoughtFocus' client-focused solutions, backed by a thorough understanding of the aerospace and defense marketplace, afford you incomparable value across the aviation systems and serviceable parts spectrum.

**We stand ready to advise, lead or support your** systems development and certification effort in whatever way necessary. From avionics to aircraft structures, though power plant and electrical/electronic systems, including pneumatic and hydraulic systems, interior and inflight entertainment design, ThoughtFocus offers complete, nose-to-tail product engineering, design, manufacturing, testing, and certification.

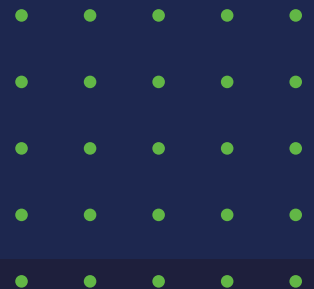


Offering agility, scalability, and speed of delivery, our many engineering, product development, and verification services:

- Industrial engineering
- Reverse engineering
- Software development, testing, Verifications and certification
- Hardware design
- Human-Machine Interface
- GUI prototyping, modeling, simulation, testing and verification
- Manufacturing

Our sophisticated engineering capabilities and tools:

- Computational dynamics
- Detailed statistical, thermal, structural, frequency, and finite elements analysis
- Drawings and blueprinting
- Industrial engineering time studies
- Value stream mapping
- Manufacturing layout, design, and simulation
- 3D mechanical component modeling
- Broad-based simulation capabilities



ThoughtFocus helps forward-looking companies and organizations in the financial services, manufacturing, and higher education/public services sectors innovate and achieve a better future faster. ThoughtFocus' innovative and cutting-edge technology solutions enable its customers to deploy new capabilities faster, deliver better user experiences, and drive operating efficiencies. We do this through executional excellence and mitigating the risk of change. With headquarters in the U.S., the Company has more than 2,100 employees in locations spread across five countries.

For more information, please visit the company website [www.thoughtfocus.com](http://www.thoughtfocus.com).

