



3-Day DO-254 Practitioner's Course

with *Randall Fulton, FAA Consultant DER,*
and *Roy Vandermolen, Hardware Design Engineer*

May 6 - 8, 2013
Chicago, IL

Trainers:



Randall Fulton has a BSEE from the Pennsylvania State University and earned his FAA Designated Engineering Representative (DER) credentials in software and programmable logic devices (PLD) while working at Boeing Commercial Aircraft.



Roy Vandermolen is an electronic hw design engineer, and mgr of certification and process integrity at a major aerospace co., where his resp. incl. DO-254 compliance, certification, training, design/verification of electronic hardware/PLDs, requirements, and electronic hw processes and standards.

Course Synopsis:

Designed to provide a comprehensive understanding of DO-254 specification, objectives and requirements for airborne electronic hardware development, and teach efficient, well-proven and compliant methods to enable a faster, easier and more cost-effective path to FAA certification.

Day 1: Understand DO-254 background, guidance and design assurance. Understand RTCA/DO-254, AC 20-152, Order 8110.105, CAST Papers and Job Aid.

Day 2: Understand the Hardware Design Life Cycle and learn how to write and optimize requirements. Understand the activities and data needed for IP Cores and COTS devices.

Day 3: Learn various engineering best practices for hardware design and verification. Apply course concepts to an example design.

Who Should Attend:

Hardware Design Engineers
Verification Engineers
Quality Assurance Engineers/Mgrs
Project/Program Managers

Daily Schedule:

8:00am Check-in
8:30am Seminar Begins
12:00pm Lunch Break
5:00pm Seminar Ends



\$1995*

Early Bird Rate

*\$2395 3-day Course
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Chicago, Illinois

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Aldec Training at (702) 990-4400 or training@aldec.com.

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DAY 1

Monday, May 6, 2013

○ Agenda:

- The FAA and How it Works
- Design Assurance Level
- Use of PLDs in Avionics
- Design Assurance
- AC 20-152
- RTCA/DO-254 Background
- RTCA/DO-254 Overview
- RTCA/DO-254 vs. RTCA/DO-178B
- CAST Papers
- Order 8110.105
- Job Aid
- Hardware Management Plans and Standards
- Plan for Hardware Aspects of Certification
- Plan for Hardware Aspects of Certification Example

○ Objective:

- Understand the regulatory background for DO-254
- Understand the guidance material for DO-254
- Learn the difference between various design assurance levels
- Appreciate the difference between DO-178B and DO-254
- Work on an example PHAC

DAY 2

Tuesday, May 7, 2013

○ Agenda:

- Hardware Design Plan
- Hardware Verification Plan
- Hardware Validation Plan
- Hardware Configuration Management Plan
- Hardware Process Assurance Plan
- Hardware Standards
- Hardware Life Cycle Data
- Hardware Design Representation Data
- Validation and Verification Data
- Process Data
- Hardware Accomplishment Summary
- Hardware Requirements
- Requirements Examples
- IP Cores
- Data for Commercial Off The Shelf Semiconductors

○ Objective:

- Understand the hardware design life cycle
- Understand the documents and data produced during the lifecycle
- Learn how to write requirements
- Understand activities needed for IP cores
- Understand the data needed for COTS devices

DAY 3

Wednesday, May 8, 2013

○ Agenda:

- Classic Design Process
- RTCA/DO-254 Design Process Considerations
- Design Assurance Through Design Practice
- Design Exercise
- Data Acquisition PLD
- Verification and Validation Considerations
- Verification Results for Baseline Design
- Traceability for Data Acquisition PLD
- Test Cases
- Considerations for Application of RTCA/DO-254 to complex electronic circuits
- Elemental Analysis LRU Example
- Recommendations

○ Objective:

- Learn how DO-254 embodies industry best practices
- Learn various engineering best practices for hardware design and verification
- Apply course concepts to an example design
- Learn how to use DO-254 at the system level

About Trainer, Randall Fulton

Randall Fulton has a BSEE from the Pennsylvania State University and earned his FAA Designated Engineering Representative (DER) credentials in software and programmable logic devices (PLD) while working at Boeing Commercial Aircraft. As a DER, Mr. Fulton has had approval authority for PLDs since 1997 and has worked numerous Part 23 and Part 25 certification programs with field programmable gate arrays (FPGA), application specific integrated circuits (ASIC) and software. Mr. Fulton co-taught the DO-254 practitioners course for RTCA in Washington DC from 2006 to 2009. Mr. Fulton is also an instructor for the Airborne Electronic Hardware Job Functions class for the FAA at the FAA Academy in Oklahoma City. Recent DO-254 projects include the primary flight controls actuation for the Boeing 787-8, lateral control electronics for the Boeing 747-8, spoiler and flap systems for the Learjet 85, input/output modules for Rockwell Collins ProFusion integrated modular avionics (IMA) and commercial off-the-shelf data packages for graphics processors used in display systems.

About Trainer, Roy Vandermolen

Roy Vandermolen is an electronic hardware design engineer, and manager of certification and process integrity at a major aerospace company, where his responsibilities include DO-254 compliance, certification, training, design and verification of electronic hardware and PLDs, requirements, and electronic hardware processes and standards. He co-taught the DO-254 class at RTCA with FAA DER Randall Fulton from 2006 to 2009. He has authored and/or presented over 30 technical papers on topics ranging from aircraft certification and design to radiation-hardened nuclear instrumentation. He has also authored numerous certification plans, as well as standards documents for electronics design, PLD design and coding, validation and verification, and requirements. Mr. Vandermolen attended the Massachusetts Institute of Technology (MIT), and started designing PLDs back in 1980 and has been designing them ever since. Recent DO-254 projects include the lateral control electronics for the Boeing 747-8 and 747-9, flight controls actuation for the Boeing 787-8, primary actuation for Airbus 350, high lift actuation for COMAC 919 and horizontal stabilizer trim, flaps and spoilers for Hawker Horizon.

Seating is limited. Register today at www.aldec.com/events.

For more info please call 702.990.4400 or email training@aldec.com.