3-Day
DO-254 Practitioner's Course
(Online Training)

September 15-17, 2021

Trainer:

Roy Vandermolen is an electronic hardware design engineer and certification manager 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 is also an airborne electronics hardware unit member with Level A approval authority for a major aircraft manufacturer, and has been involved in the design, verification, and certification of numerous Level A flight control systems.

Roy, along with FAA DER Randall Fulton, taught the DO-254 practitioners course for RTCA in Washington, DC from 2006 to 2009, and the Aldec DO-254 class since 2012. Roy and Randall also co-authored the CRC Press book, "Airborne Electronic Hardware Design Assurance: A Practitioner's Guide to RTCA/DO-254."

Who Should Attend:
Hardware Design Engineers
Verification Engineers
Quality Assurance Engineers/Mgrs
Project/Program Managers

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

Day 2: Understand the hardware design life cycle. Understand the documents and data produced during the lifecycle. Learn how to write requirements.

Day 3: Learn how DO-254 embodies industry best practices. Learn various engineering best practices for hardware design and verification. Understand the impact of AC 20-152A and FAA Order 8110.105A

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

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$1500
per attendee

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To learn more about this course or other upcoming course dates, contact Aldec Training at **(702) 990-4400** *or* **training@aldec.com**.

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DAY 1
Wednesday

○ **Agenda:**
- Overview of Certification
- System Safety
- Design Assurance Level
- Design Assurance
- Use of PLDs in Avionics
- Introduction to DO-254
- Complying with DO-254
- DO-254 Additional Considerations
  - Previously Developed Hardware
  - Commercial Off The Shelf (COTS) Components Usage
  - Product Service Experience
  - Tool Assessment and Qualification
- Simple Hardware
- Appendix A
  - Independence
  - Life Cycle Data
- Appendix B
  - Functional Failure Path Analysis
  - Additional Design Assurance Methods
  - Elemental Analysis
- Hardware Life Cycle
- Hardware Life Cycle Data
- PHAC Example

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

DAY 2
Thursday

○ **Agenda:**
- Hardware Life Cycle Data (Continued)
  - Design Standards
  - Top Level Drawing and Hardware Configuration Index
  - Hardware Life Cycle Environment Configuration Index
  - Hardware Design Representation Data
  - Validation and Verification Data
  - Process Data
  - Hardware Accomplishment Summary
- Process Assurance
- Configuration Management
- Hardware Reviews
- Requirements

○ **Objective:**
- Understand the hardware design life cycle
- Understand the documents and data produced during the lifecycle
- Learn how to write requirements

DAY 3
Friday

○ **Agenda:**
- Design Process Considerations
- Design Assurance Through Design Practice
- Verification Background
- Verification Considerations
- Verification Approach
- Verification
- Suggestions
- FAA Order 8110.105A
- FAA Advisory Circular 20-152A
- CAST Position Papers
- IP Cores

○ **Objective:**
- Learn how DO-254 embodies industry best practices
- Learn various engineering best practices for hardware design and verification
- Summarize class
- Understand the impact of AC 20-152A and FAA Order 8110.105A

About Trainer, Roy Vandermolen

Roy Vandermolen is an electronic hardware design engineer and certification manager 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 is also an airborne electronics hardware unit member with Level A approval authority for a major aircraft manufacturer, and has been involved in the design, verification, and certification of numerous Level A flight control systems. Roy, along with FAA DER Randall Fulton, taught the DO-254 practitioners course for RTCA in Washington, DC from 2006 to 2009, and the Aldec DO-254 class since 2012. Roy and Randall also co-authored the CRC Press book, "Airborne Electronic Hardware Design Assurance: A Practitioner's Guide to RTCA/DO-254."

Mr. Vandermolen attended the Massachusetts Institute of Technology (MIT), and started designing PLDs back in 1980 and has been designing them ever since. 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, configuration management, and requirements. Roy currently lives in Salt Lake City, Utah.

Seating is limited. Register today at www.aldec.com/events.
For more info please call **702.990.4400** or email **training@aldec.com**.

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