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

May 17-19, 2023

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, have taught the DO-254 practitioners course for RTCA in Washington, DC since 2006, 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: Regulatory background and reason for DO-254. Design assurance levels, what DO-254 is (and is not), what it takes to comply with DO-254, and what is in DO-254. Hardware life cycle and life cycle data.

Day 2: Life cycle data continued. Process Assurance. Configuration management. SOI audits. Requirements.

Day 3: Design processes. Engineering best practices for design and verification. Enhancing design assurance through traceability management tools and in-target testing tools.

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

ALDEC
THE DESIGN VERIFICATION COMPANY

$3,395
per attendee

$2,995 early bird promotion valid until March 31, 2023

Register today at www.aldec.com/events.
To learn more about this course or other upcoming course dates, contact Aldec Training at **(702) 852-4000** *or* **training@aldec.com.**

DAY 1
Wednesday

Agenda:
- Overview of Certification
- System Complexity
- System Safety
- Design Assurance Level
- Design Assurance
- Use of PLDs in Avionics
- Introduction to DO-254
  - What is DO-254?
  - What's in DO-254?
- Complying with DO-254
  - What do I have to do?
  - How much does it cost?
- 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 DO-254
- Appreciate what DO-254 is and is not, what is in DO-254, and what it takes to comply with DO-254
- Understand Appendices A and B, simple hardware, and the design lifecyle and lifecycle data
- 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 Compliance Reviews (SOI Audits)
- Requirements
  - Regulatory Background
  - Flow Down
  - Requirements for Airborne Electronic Hardware
  - Derived Requirements
  - Requirement Recommendations
  - PLD Requirement Examples

Objective:
- Understand the documents and data produced during the lifecycle
- Understand Process Assurance and Configuration Management
- Understand SOI audits
- Why requirements are important and how to write effective requirements

DAY 3
Friday

Agenda:
- Tool-Assisted Traceability Management
- Design Process Considerations
- Design Assurance Through Design Practice
- Verification Background
- Verification Considerations
- Verification Approach
- Verification
- Suggestions
- FPGA Level In-Target Testing for DO-254 Compliance
- Aldec CTS demo
- AC/AMC 20-152A and FAA Order 8110.105A
- IP Cores

Objective:
- Learn how DO-254 embodies industry best practices
- Learn various engineering best practices for hardware design and verification
- Learn about tool-assisted traceability management
- Learn about tool-assisted in-target testing

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, have taught the DO-254 practitioners course for RTCA in Washington, DC since 2006, 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 Jacksonville, Florida.

Seating is limited. Register today at www.aldec.com/events.
For more info please call **702.852.4000** or email **training@aldec.com**.

ALDEC
THE DESIGN VERIFICATION COMPANY