

LDRA Tool Suite Gives Edge to Esprit Lean Product Development

Static Analysis Proves IEC 62304 Compliance



Who are Esprit Lean?

Esprit Lean of Portet sur Garonne, France is a specialist company that provides custom electronic and software systems guiding production from concept and design through to market. With expertise in both hardware and software, Esprit Lean has developed systems used in satellites, automotive, medical and industrial control applications. As a company Esprit Lean is committed to implementing and applying the most stringent quality techniques and practices to its development processes. As part of this commitment, in addition to implementing an internal software control process, Esprit Lean is also ISO 9001 certified.

What was the challenge?

In working on a medical project to assist with cancer treatment, Esprit Lean was required to comply with the IEC 62304 standard. Although the Esprit Lean team was trained in the medical standard, they knew that a verification tool capable of implementing coding rule compliance would boost efficiency, provide a standardised style and a way to comment the code, and eliminate errors at the programming level.

“Knowledge of a standard isn’t enough when software complexity is high and people’s health and safety will be affected,” noted Frédéric Rabouin, embedded software developer at Esprit Lean. “A tool enforcing IEC

62304 mitigates risk and provides extra security and confidence that the software developed will meet standard requirements and be error free.”

How did LDRA provide a solution?

To maximise efficiency, tool configurability is essential. “We configured the LDRA tool suite to meet the company’s specific standard requirements as well as those of IEC 62304,” Rabouin confirmed. “LDRA’s standard-specific templates streamlines configuration, detailing the steps for process workflow and standards compliance.”

Working interactively, the development team applies the configured LDRA tool suite to the code. “When evaluating our code, we found that it was easier to use the LDRA’s graphical interface than that of our IDE,” noted Rabouin. “LDRA displayed all of the subfunctions it used in analysis as well as graphically representing the standard. A thorough analysis only took five minutes time, so it was easy for us to work iteratively with the tool.”

“A tool enforcing IEC 62304 mitigates risk and provides that extra security.”

What edge did you gain?

The clarity of the LDRA tool suite eased team communication and offered tangible proof-of-process for Esprit Lean.



Synchro Module: Radiation therapy system for cancer treatment

“Because all aspects of development are documented, project details are easily transferrable,” noted Rabouin. “LDRA’s documentation of the details facilitates communication within the team during a project as well as ensuring we don’t lose specific process details when an employee moves on.”

For Esprit Lean, LDRA’s ability to provide a real-time demonstration of how it caught errors in the Esprit Lean workflow was invaluable.

What’s next?

The LDRA tool suite has changed the way Esprit Lean does business. “We now have a sales quality argument that we can present for new contracts,” confirmed Rabouin. “The LDRA tool suite ensures that our products are compliant and that security is worth a premium for customers. They can rest assured that any code we provide has been rigorously reviewed, achieves standards’ compliance, and will be easier to maintain, reuse and add functionality to.”

Contact LDRA and discover how you too can harness the power of the LDRA tool suite and develop better, more reliable software.

Inside this Issue

*New Tool Suite Release
LDRA Certification Services
Tool Integration News
LDRA Newsroom*

“The LDRA tool suite ensures that our products are compliant and that security is worth a premium for customers”

LDRA Certification Services (LCS) – A division devoted to ensure customers develop certification-ready products

LDRA Certification Services (LCS), is a separate division devoted to helping customers develop certification-ready products. The LCS team includes Federal Aviation Administration (FAA) Designated Engineering Representatives (DERs) and safety engineering experts, who offer product certification solutions at a fixed price. They are able to offer this client-centered, risk-free approach, based on their vast experience.

The LCS team is also aligned with world-class product development and verification specialists, who use the LDRA tool suite and other tools to address critical project requirements at the highest design assurance levels. By guiding certification

applicants through the compliance process, the comprehensive LCS solution provides company management confidence that their certification efforts are accurate, complete and fully compliant.

LCS verification and certification services can be applied across industry standards in various vertical markets. Certification services include: avionics (DO-178B/C, DO-278A & DO-254), industrial safety (IEC 61508), automotive (ISO 26262), medical (IEC 62304), nuclear power (IEC 60880) and transportation (EN 50128) systems.

3 Easy Steps to Get Started:

Step 1

Receive a free consultation with Todd R. White, LCS team lead.

Step 2

Review your free Certification Roadmap prepared by the LCS team.

Step 3

Implement the Certification Roadmap.



“LDRA Certification Services has proved invaluable for a cargo handling and aerial delivery system on the Embraer KC-390 that DRS Defense Solutions must certify to Levels A and C. The delivery system provides troop and cargo transport, aerial delivery, in-flight refuelling and medical evacuations. LCS has helped us establish the correct process and methodology to ensure that our delivery system, which can involve complex parachute delivery and extraction, correctly complies with the structural specifications custom configured to meet stringent weight limitations.”

Devin Mosley, Software Engineer, DRS Training & Control Systems

Tool Integration News



LDRA and MathWorks Tool Integration Moves Unit Testing Upstream to the Model

The integration enables joint customers to benefit from full test reuse and bidirectional traceability throughout the software development lifecycle. By bringing all components of the development cycle into one workflow, project teams save time by reusing tests, and more easily track progress toward requirements fulfilment and certification readiness.

With automotive, medical and industrial markets following the gold-standard of the avionics community, industry trends suggest that all industries will soon formalise certification procedures for model-driven design similar to those outlined by DO-178C or ISO 26262. The integration enables verification and validation engineers to prove that the executable code meets design criteria, and that the underlying code is sufficiently exercised to the relevant standard.

LDRA Newsroom

LDRA Webinars

LDRA have created a series of web seminars to help current and future customers learn more about the LDRA tool suite and how it can assist in developing software quality and security through test, analysis and requirements traceability.

These web seminars can be viewed at: www.ldra.com/webinars

Events

LDRA will be participating in a number of trade events throughout the year. Come and talk to us. Existing customers are always welcome. Potential customers - find out how, by working together, we can substantially improve software safety and efficiency and achieve financial benefits.

These events can be viewed at: www.ldra.com/events

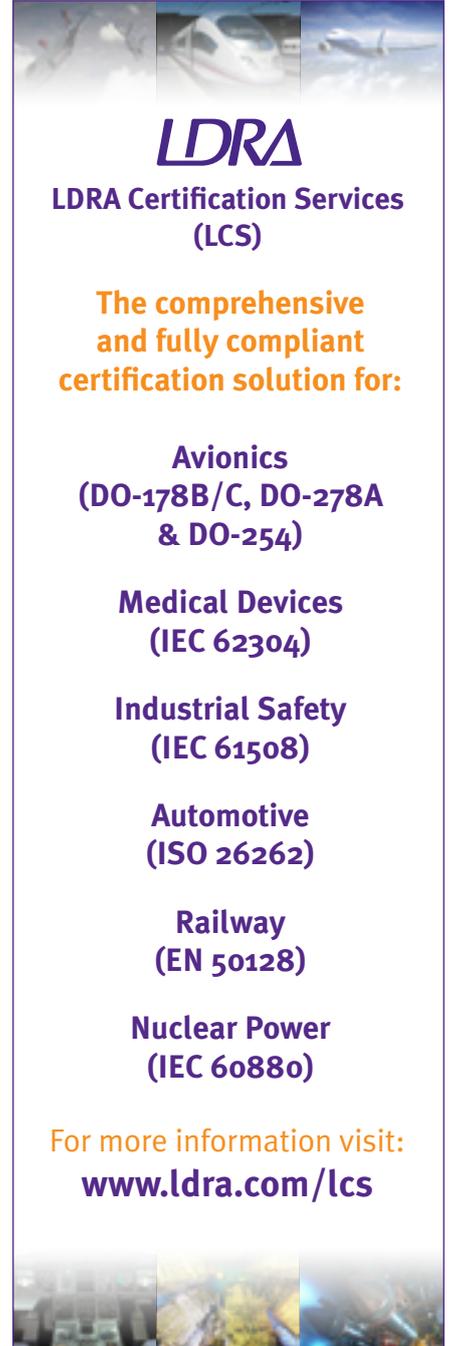
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 LDRA Software Technology

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LDRA Certification Services (LCS)

The comprehensive and fully compliant certification solution for:

- Avionics**
(DO-178B/C, DO-278A & DO-254)
- Medical Devices**
(IEC 62304)
- Industrial Safety**
(IEC 61508)
- Automotive**
(ISO 26262)
- Railway**
(EN 50128)
- Nuclear Power**
(IEC 60880)

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