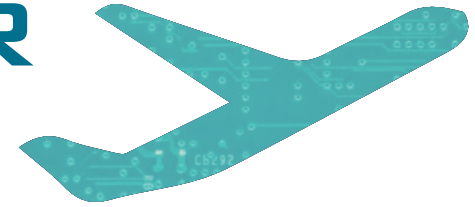


IQPC's International Conference

# SOFTWARE SAFETY FOR AIRBORNE SYSTEMS



*Join this technical conference focusing on RTCA's DO-178C/EUROCAE ED-12C best practice implementation, migration from DO-178B and benefit from collective knowledge exchange between OEMs, suppliers and academia for a complete guide to the avionics development ecosystem.*



**Chairman:**  
Prof. Dr. Stefan Leue,  
Chair of Software Engineering  
Computer Information Science,  
**University of Konstanz**, Germany



Jörg Wolfrum,  
Head of System Engineering  
Aircraft Systems,  
**Diehl Aerospace GmbH**, Germany



Vance Hilderman,  
CEO,  
**Afuzion Inc.**, USA



Tugba Sarac,  
Software Airworthiness and  
Certification Specialist,  
**Turkish Aerospace Industries**, Turkey

# SOFTWARE SAFETY FOR AIRBORNE SYSTEMS



18-20 July 2016 | Berlin, Germany

Dear Colleague,

As its chair it is my great pleasure to welcome you to the **Software Safety for Airborne Systems Conference**. I am very excited about an interesting and very relevant conference program on the DO-178C / ED-12C standard, its **adoption** in industry and its **future development**. My personal research interest is devoted to the development of **design and analysis methods** for **complex cyber-physical systems**. I am hence looking forward to, amongst others, presentations addressing formal methods, model-based development and **tool qualification**, areas in which the DO-178C standard is reflecting **the state of the art** in research and practice. I wish you an excellent conference stay in this fascinating city, Berlin.



Prof. Dr. Stefan Leue,  
Conference Chairman

• **3 Full Days** • **13+ Case Studies** • **13+ Speakers** • **Interactive Round Tables** • **3 Workshops**

Dear Colleague,

We are now at a point in time in which DO-178 requirements have been successfully implemented around the world. However, the increasing electrification of more and more safety-critical tasks in avionics, and the complex methodology of the DO-178C guideline are major challenges in the successful implementation and application of reliability in safety-critical systems.

Join experts from the Airbus Group, Liebherr, Diehl, Pratt and Whitney, Turkish Aerospace Industries, B/E, Thales and many more to this three day interactive conference and get to know how to advance your product to the next level.

I look forward to meeting you in July.

Litsa Paraskeva  
Program Director  
**IQPC GmbH**

## Key themes to be discussed:

- Evaluate how **DO-178C** fits into **your organization's avionics development ecosystem**
- Develop **concrete software planning** based on **available standards**
- Implement **cost reduction techniques** of **software development** in avionics by looking into **process improvements of DO-178C**
- Identify **software requirements, design, code, and testing for avionics**
- **Mitigate DO-178C risks and minimize threats** without **unnecessary costs**







08:30 Registration and welcome coffee



## Who is Who

Discover who else is participating in the conference. The matchmaking picture wall will help you identify who you want to meet at the conference. In cooperation with **FUJIFILM**

09:00 Opening remarks by the conference chairman



Prof. Dr. Stefan Leue,  
Chair of Software Engineering Computer Information Science,  
**University of Konstanz**, Germany

09:10 **Speed Networking**



Break the ice and get to know your industry peers in these fast-paced one-to-one meetings. Greet each participant in this series of brief exchanges and share your professional background. Every time the bell rings, move along and make one more new business contact. Introduce yourself - make acquaintances - create new contacts. And don't forget your business cards!

## DO-178 and cost reduction: From system design to software life cycle and development

This module will focus on analyzing the long term opportunities of the de-facto standard for all commercial and military avionics.

09:40 **Keynote opening presentation:  
Influence of system design on software development cost**

- How does ARP4754A influences SW
- Impact of distributed versus federated systems design
- Impact of hardware related versus control law related solutions



Jörg Wolfrum, Head of System Engineering Aircraft Systems,  
**Diehl Aerospace GmbH**, Germany

10:20 **Deeper understanding of DO-178C to improve the software life cycle and reduce the development costs**

- Software processes definition and transition criteria
- Level of requirements and tests
- Certification credit when using non-conventional methods

*Based on the principles used to produce the DO-178C text, this talk desacralizes the standard and provide keys for a better understanding of the guidance material. 10 items, often ignored or misinterpreted, will be discussed to identified the room for software process improvements.*



Frederic Pothon, Expert Software Certification, **ex- RTCA/EUROCAE DO178C/ED12C subcommittee leader**, France

11:00 Networking break

## Looking into your toolset: Model-based design and formal methods for the avionics industry

This module focuses in the design of avionics using model-based development as well as formal methods and DO-333

11:30 **Model-based functional safety for complex embedded and cyber-physical systems**

- Model-based safety engineering
- SysML/UML
- Automated FTA

*Ensuring the functional safety of and compiling safety cases for complex embedded and cyber-physical systems is a prime engineering challenge and will, with ever increasing system complexity, not be feasible without the use of models and automated analysis tools. I will introduce into automated model analysis using causality checking and present the QuantUM methodology for automated safety analysis of UML, SysML and Stateflow models that we have developed.*



Prof. Dr. Stefan Leue, Chair of Software Engineering Computer Information Science, **University of Konstanz**, Germany

12:10 **Towards a more modular certification using model-based safety cases**

- Assurance / safety cases
- Model-based development
- Model-based safety argumentation

*To argue about the safety of software-intensive systems, safety cases are a proven technique that allow a systematic argumentation. This presentation illustrates how a model-based system design can be tightly integrated with safety case arguments, to demonstrate both how safety cases link safety-specific analysis techniques as well as how safety cases can be directly applied to efficiently guide the construction of the system architecture w.r.t. the claims given in the safety case.*



Dr. Sebastian Voss, Research Group Leader Software and Systems Engineering, **fortiss GmbH**, Germany

12:50 Networking luncheon

14:20 **DO-331 model-based development**

- Introduction to model-based design
- Model-based development and verification supplement to DO-178C and DO-278A
- When does a system become applicable to the development and verification of DO-331?



Prof. Dr. Holger Schlingloff, Chief Scientist of the System Quality Center, **Fraunhofer Institute FOKUS**, Germany

# Conference Day One | Monday, 18 July 2016

## 15:00 DO-178C/ED-12C formal methods supplement (DO-333/ED-216)

- Industrial applications of formal methods in replacement of test
- Overview of existing methods and tools
- Going through the verification process and setting the objectives

*This talk will present the Formal Methods supplement of DO-178C/ED-12C and industrial applications of such methods in replacement of test.*



Dr. Virginie Wiels, Director Modelling and Information Processing Department, **ONERA**, France

15:40 Networking coffee break

## 16:10 Round Table Discussions

Choose your main discussion topic and deepen your knowledge in close dialogue with experts by pointed questions, with focus on:



**A: European Certification and EASA questions**

**B: USA Certification and FAA questions**

## 17:00 Final Q&A of the day

Make your topic part of the agenda and pose the question you are currently most concerned with. Submit your questions in advance via [yourquestions@iqpc.de](mailto:yourquestions@iqpc.de) or anonymously on the day.



17:30 Closing remarks by Prof. Dr. Stefan Leue

## 18:30 Evening Event

Join us to enjoy a relaxing get-together with drinks for rounding up the first day of the conference. Take this opportunity to network and make new business contacts.



**Be more than a name on a business card.  
Take the leap from attendee to business partner.**

A 'must-attend' event for businesses which have a service or solution that would bring benefit to the audience. To find out more about the outstanding sponsorship and exhibition opportunities available, please contact

**Andreas Wibowo on:  
+49 (0)30 20 91 32 12 or email [Andreas.Wibowo@iqpc.de](mailto:Andreas.Wibowo@iqpc.de)**





09:00 Registration and welcome coffee

09:20 Opening remarks by Prof. Dr. Stefan Leue

## IDAL, documentation and auditing

This module will focus on reaching the desired IDA Level and how to manage software architecture based on your required necessities.

09:10 **Setting your goal: How to determine the optimal IDAL for maximum development ROI**

- SAE ARP4754A – Introduction to FDAL and IDAL
- Best practices, heuristics, and decision making principles regarding the selection of System Architecture
- Business impact of wrong IDAL decisions
- How to reduce system/software development costs by architectural means: Functional Failure Sets (FFS) and independence
- Caveat on IDAL E allocation: How a “no safety impact” software development may result in severe budget overruns

*Exercising judgement on System Architecture Design is a crucial skill both for business and technical decision makers in the aerospace industry. This presentation outlines the key principles of rigorous system architecture selection, which, in turn, yield confidence that stringent system safety goals have been met whilst adhering to the goals set in programme business case calculations.*



Ivan Rajkovic, Global Certification Manager, **B/E Aerospace**, Germany

09:50 **Planning and controlling: Costs and risks with DO-178C and ARP-4754A**

- Controlling engineering cost for long term development
- Challenges in securing a safety process as part of an integrated development process
- Determining your Development Assurance Level (DAL) development and verification activities

Ulrich Zanker, Head of Electronic Software, **Liebherr-Aerospace Lindenberg GmbH**, Germany

10:30 Networking break

11:00 **Lessons learned about software airworthiness and certification in DO-178B projects**

- Lessons learned from DO-178B projects
- COTS software compliance demonstration process
- Feedbacks from applicants related to SOI questions and improvement suggestions

*The purpose of this presentation is to share lessons learned gained from projects including software airworthiness and certification with DO-178B applications.*



Tugba Sarac, Software Airworthiness and Certification Specialist, **Turkish Aerospace Industries**, Turkey

11:40 **Best practices and cost reduction for migrating from DO-178B to DO-178C**

- Moving forward to DO-178C for your upcoming developments
- Changes between the two versions that will influence your work
- Relate the DO-178C life cycle processes to required objectives



Vance Hildermann, CEO, **Afuzion Inc.**, USA

12:20 Networking luncheon

## Dealing with advanced complexity in the avionics

This module will look into the implications that the newly developed system complexity of new products can be dealt with as well as looking retrospectively to legacy products and the added complexity of re-engineering

14:10 **Legacy Products: Reverse engineer your 20+ year old product**

- Arising challenges of reverse engineering in certification projects
- Deal with complex and poorly documented source code before submitting to the FAA
- How do you handle the lack of the original developers?



Rishi Badiani, DO-178 Certification Expert, **Thales**, UK

14:50 **Case study: Civil software certification for commercial avionics using DO178B**

- Upbringing concerns with validation and certification for embedded systems
- Plans, process and activities to comply with the DO-178B
- Meeting DO-178B in multiple projects



Daniel Vaknin, Software Certification Manager, Commercial Avionics, **Elbit Systems**, Israel

15:10 **Open Mic**



Address your current challenges or questions to the audience and discuss collectively possible approaches and solutions.

15:50 Closing remarks by Prof. Dr. Stefan Leue

# Interactive Workshops | Wednesday, 20 July 2016

**“You can succeed on your own terms but you can't succeed alone”**

Join our interactive **workshops** and benefit from **in-depth sessions**, hosted by selected **industry experts**. In our unique workshops, industry **experts** will share their expertise with a **limited group of peers**. Our workshop leaders provide **in-depth knowledge** and will actively **foster open exchange** and **discussion** to help you **face challenges**, **discover solutions**, and **make decisions** crucial to **business excellence**.

08:30 Registration and welcome coffee

## Workshop A 09:00 – 11:30

### DO-330 TOOL QUALIFICATION

After a short presentation of the tool qualification principles, this workshop will be a unique opportunity to share experiences on tool qualification, possible certification credit claimed and technical issues.

- Clarifications on the tool qualification criteria and tool qualification levels
- COTS tool qualification aspects
- Qualification and use of an autocode generator



Frederic Pothon, Expert Software Certification,  
**ex- RTCA/EUROCAE DO178C/ED12C subcommittee leader**, France

11:30 Networking luncheon

## Workshop B 12:30 – 15:00

### DO-333 FORMAL METHODS - A PRACTICAL GUIDELINE

This workshop will present the Formal Methods supplement of DO-178C/ED-12C and industrial applications of such methods in replacement of test. Join this discussion forum if you are interested in

- Guidance to model-based development and verification
- The impact when replacing testing with formal methods
- Model simulation, constraints and opportunities



Prof. Dr. Holger Schlingloff, Chief Scientist of the System Quality Center,  
**Fraunhofer Institute FOKUS**, Germany

## Workshop C 15:15 – 17:45

### DO-331 MODEL-BASED DEVELOPMENT

In this sessions you will have the opportunity to gain further insights into the DO-331 supplement of DO-178. Take advantage of the 2.5 hours long session to discuss your challenges in

- Familiarizing yourself to model-based design
- Transitioning to model-based design
- Guidance through DO-331



Vance Hilderman, CEO,  
**Afuzion Inc.**, USA

17:45 End of workshop day

**Refreshments and coffee will be served during the workshops**



# SOFTWARE SAFETY FOR AIRBORNE SYSTEMS



Conference Packages	Early Bird Book & pay until 13 May 2016	Early Bird Book & pay until 24 June 2016	Standard Price
<input type="checkbox"/> <b>Bronze Package</b> 2 day conference	<b>Save € 100,-</b> € 2.599,- +VAT	<b>Save € 100,-</b> € 2.599,- +VAT	€ 2.699,- +VAT
<input type="checkbox"/> <b>Silver Package</b> 2 day conference + 1 workshop	<b>Save € 300,-</b> € 2.899,- +VAT	<b>Save € 200,-</b> € 2.999,- +VAT	€ 3.199,- +VAT
<input type="checkbox"/> <b>Gold Package</b> 2 day conference + 2 workshops	<b>Save € 400,-</b> € 3.099,- +VAT	<b>Save € 300,-</b> € 3.199,- +VAT	€ 3.499,- +VAT
<input type="checkbox"/> <b>Platinum Package</b> 2 day conference + 3 workshops	<b>Save € 500,-</b> € 3.299,- +VAT	<b>Save € 400,-</b> € 3.399,- +VAT	€ 3.799,- +VAT

## Interactive Workshop

Please indicate your choice of workshop on **Wednesday, 20 July 2016**

- Workshop A:  
DO-330 TOOL QUALIFICATION
- Workshop B:  
DO-333 FORMAL METHODS
- Workshop C:  
DO-331 MODEL-BASED DEVELOPMENT

## THE DELEGATE FEE INCLUDES THE FOLLOWING SERVICES:

<b>Access to the purchased conference packages</b>	<b>Conference documentation</b>
<b>Catering during the entire conference</b>	<b>Evening Event</b>

## 4 Ways to Register

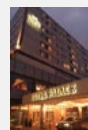
Fax: +49 (0)30 20 91 32 40  
 Post: IQPC Gesellschaft für Management Konferenzen mbH  
 Friedrichstraße 94  
 10117 Berlin, Germany  
 Online: [www.avionics-system-safety.com](http://www.avionics-system-safety.com)  
 Email: [silva.certan-mallmann@iqpc.de](mailto:silva.certan-mallmann@iqpc.de)

## For further information

Phone: +49 (0)30 20 91 34 17

## Venue and Accommodation

**Hotel Palace Berlin**  
 Budapester Straße 45,  
 10787 Berlin, Germany  
 Phone: +49 30 25020  
[www.palace.de/en/hotel-palace.html](http://www.palace.de/en/hotel-palace.html)



**Accommodation:** A limited number of reduced rate rooms are available at the conference hotel. Accommodation can be booked by calling the central reservation number. Please always quote the booking reference **IQPC-Berlin**. Hotel accommodation and travel costs are not included in the registration fee.

Only one discount applicable per person.

- CAN'T MAKE IT TO THE CONFERENCE? PURCHASE THE 2-DAY DOCUMENTATION FOR € 990,- +VAT.**  
 Documentation will be sent 6 weeks after the event

## Delegate Details

Please fill out in Capitals!

DELEGATE  Mr  Mrs  Ms  Dr

Family Name ..... First Name .....

Position ..... Email .....

Telephone ..... Fax .....

Organisation .....

Address .....

Postcode/Town .....

Approving Manager: .....

Signature .....

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