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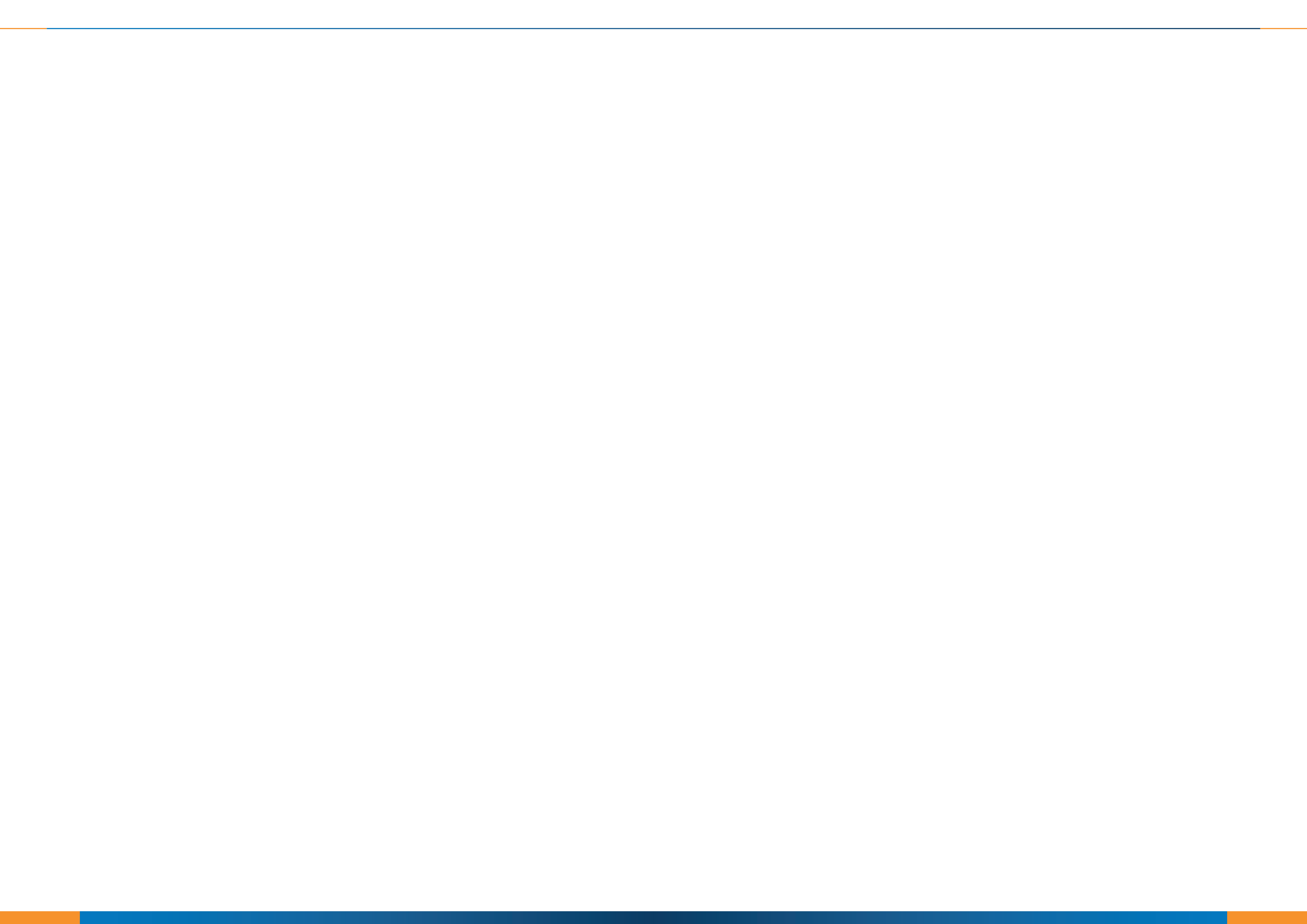
WORKING GROUP
HIGHLIGHTS

AI IN AVIATION
INTERVIEW WITH
WG-114 CO-CHAIRS

EUROCAE SYMPOSIUM
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LUCERNE

Contents

Dear EUROCAE members, partners and friends,

Welcome to the landmark 20th edition of our EUROCAE Broadcast - almost 10 years ago, in November 2014, we started our biannual magazine with the objective to broadcast our news and reports, transmit updates from the members and working groups. We invited all of you to "turn on your receivers" to make sure you capture our Broadcast when it is on air again.

And what a journey it has been. For 10 years now we have reported on EUROCAE standardisation activities, achievements and milestones reached by the WGs, new publications, new members who have joined us and of course on engagement with our partners through our own Symposium, conferences, events and bilateral meetings. All of this supplemented with our monthly NEWSblog and of course the Annual Report.

End of last year, we asked all of you as our readers for feedback on our communications and you gave us some great insights. But most importantly, over 80% of you told us you always or almost always read our publications! This is a great compliment and motivation for us to continue improving and adapting our communications to our members' and partners' needs. But for now, I would like to thank you for your continued interest and loyal readership over the last 10 years.In this 20th edition, I am very pleased to feature all of the above and to take you through the latest news of our organisation.

Within the our currently 48 active Working Groups, vibrant discussions and collaborative efforts continue to progress. WG meetings take place almost every day and as a result, so far, we have published 9 EUROCAE Documents in 2024, with many more to come, letting us expect another record year in terms of publications.

A significant highlight was the work of WG-63, which recently unveiled the much-anticipated ED-79B 'Guidelines for Development of Civil Aircraft and Systems' and ED-135 'Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment', developed together with SAE S-18. These standards are more than mere publications; they signify a quantum leap towards enhancing aviation safety. My recognition to the WG leaders and to all experts who made this and all the other publications possible!

The beginning of 2024 also sees the initiation of many new activities. I would like to mention specifically the new WG-128 on Airborne Electronic Hardware Design Assurance, created to prepare an update of ED-80. This standard, published in 2000 and technically equivalent to RTCA DO-254, has been widely used and has proven to be efficient as guidance for Airborne Electronic Hardware (AEH) certification. It is recognized as an Acceptable Means of Compliance by many aviation authorities around the world. It is now time to update the standard based on many years of experience through its application in the aviation industry. Together with its RTCA counterpart SC-243, the WG will start with a thorough analysis of the needs before embarking on the actual revision of the standards.

Together with the Council, we've outlined a strategic vision, positioning EUROCAE within the broader European and international context. Sustainability takes center stage, aligning seamlessly with the annual update of the Technical Work Programme (TWP). New horizons unfold in space, spectrum, Artificial Intelligence, future connectivity, remote towers, virtual centers, and standards for ATM ground equipment

A special focus of in this Broadcast is on Artificial Intelligence. AI is at the forefront of innovation in aviation. By exploring AI advancements in safety assessment as our Working Group 114 does, we can uncover new strategies to address existing challenges in validation and verification the AI/ML-based applications/systems and unlock opportunities for enhanced safety, capacity, and sustainability. With many evolutions in this exciting new domain, such as the publication of the EASA AI Roadmap 2.0 last year, we want to showcase the richness of WG-114, working jointly with G34. We have therefore launched an engaging video series featuring leaders and experts from WG-114. Each month we will delve into the intricacies of this evolving field, fostering knowledge-sharing and community engagement. Check our LinkedIn and YouTube channels for the latest episodes.

Furthermore, following the publication of the EASA/FAA/Airbus/Boeing Whitepaper on Future Connectivity, together with the involvement of all relevant stakeholders and WG leaders, we have initiated an analysis of all relevant standards to ensure the right standards are in place to support future connectivity needs and technologies. Whilst the community is still at the beginning of exploring future pathways of data link, we report on the initial work undertaken so far and will keep you updated of any outcomes and findings.

Our commitment to international collaboration remains unshakable. Annual coordination meetings with RTCA and SAE International showcase the strength of our partnerships, fostering interoperability through globally accepted industry standards. In the last Broadcast, the outgoing President & CEO of RTCA, Terry McVenes, reflected on our long-standing relationship. I am very pleased to welcome his successor, Carol Huegel, and look forward to continuing our common efforts towards international harmonisation and global interoperability together with her and our teams.

As our members continue expanding, we're poised for enhanced support. Excitement builds with the unveiling of our groundbreaking IT project. Following some difficulties encountered, we re-shaped our IT project and now have a great plan laid out moving us towards a new and enhanced platform after the summer of this year. This initiative is part of our commitment to driving positive change and aims to shape a future defined by reliable, accessible, and efficient aviation standards.

During the last months, EUROCAE activities took center stage at influential events worldwide. From Airspace World and Aerospace Tech Week to the ETSI Artificial Intelligence Conference, ICAO Drone Enable, ICAO Innovation Fair, and European Rotors – our standards continued to be a beacon in the evolving aviation landscape.

And speaking of events, I have to mention the EUROCAE Symposium 2024. This year's Symposium is more than an annual gathering; it's a return to our roots: Lucerne, Switzerland, where EUROCAE was founded in 1963, will host this pivotal event on 24-25 April. It promises to be a great experience, bringing together industry leaders to explore current advancements and envision the future of aviation with 7 panels on topics of current interest. We hope to welcome many of you there.

I am confident that with the support of our members and all the people who are part of our working groups, our Council, TAC and Secretariat team, we will be able to continue making a difference for the aviation community in the years to come.

As we celebrate the 20th edition of the EUROCAE Broadcast, I invite you to delve into this immersive journey. Let it be a testament to our collective dedication to shaping the future of aviation. Enjoy reading!

Best regards,

Anna von Groote
Director General

An Interview with WG-114 Co-Chairs

Unveiling the Future of Aviation with EUROCAE's AI Standard

WG-114 Chairs
◄ Christophe Gabreau and ▲ Fateh Kaakai

In the fast-evolving landscape of aviation, where technology continually pushes the boundaries of what's possible, artificial intelligence (AI) is poised to revolutionise the industry. EUROCAE's Working Group 114, in collaboration with SAE International, stands at the forefront of this transformation, developing standards to guide the safe and effective integration of AI into aeronautical systems. In this exclusive interview, we delve into the origins, challenges, and significance of EUROCAE's AI standard with the co-chairs of WG-114, shedding light on the pivotal role it plays in shaping the future of aviation safety and efficiency.

1. Could you tell us about the genesis of this working group?

The scope of the WG-114/G34 joint group is to produce guidance for the development and certification/approval of Airborne and ANS/ATM products implementing Machine Learning. Only the non-adaptive ML in supervised mode is addressed in the first issue of the standard.

The initial organisation of the WG-114/G-34 joint group was set up from the outcomes of our first deliverable "Statement of Concerns". As of today, we have four subgroups.

We quickly delivered the first document, which was the result of our initial work: aligning the whole industry on the concerns when introducing AI, published in 2021. We forecast to publish the three following documents, and the First issue of the ML standard is forecast by early 2025 and will be followed by a second issue addressing other ML techniques.

2. What limitations exist for the aviation industry's AI-based application certification process?

The current existing standards do not fit the paradigm changes of developing an ML-based function as part of the classical system. Indeed the complexity of the ML algorithms breaks the principles of requirement-based development. These limitations were detailed in a gap analysis of the whole panel of development standards that have been performed at the beginning of the group's existence and put together in the first delivered document.

3. Could you tell us about the alignment with the authorities? To what extent do the WG-114/G-34 work closely with them?

The authorities have been embedded since day 1 in the joint WG WG114/G34. The ML standard to come will be the fruit of a narrow collaboration between the aeronautical Industry and Authorities.

4. Could you share with us the significance of standardisation in AI for aviation safety and efficiency?

Standardisation is instrumental to the introduction of any disruptive technology in the field of safety-critical aeronautical products. The EUROCAE/SAE joint working group gathers more than 500 people, drawing its expertise from the whole aeronautical industry (e.g. Air framers, Airport services, aeronautical suppliers, tools providers) and Authorities (EASA, FAA, TCCA, ANAC, CAA), ensuring the same level of safety in the airborne and ANS/ATM domains and enforcing the level playing field.

5. Do we have use cases to demonstrate the application/products using the EUROCAE standard?

There is a forecast deliverable of the joint WG that will put together all the use cases that have been used by the subgroups all along the standard development to experiment with the new set of activities and objectives. This deliverable will illustrate the usability and the actionality of the guidance. It will be released right after the standard delivery milestone.

6. How could the new AI standards fit within the ecosystem of the existing standards such as ED-12C/DO-178C and its supplements, ED-79B/ARP4751B, ED-135A/ARP4761A, and ED-80/DO-254?

Harmonising ED-324/ARP6983 with the existing aviation standards referred to in the question has been a lengthy process, taking at least 3 years. Existing standards are based on fundamental principles that have guided the development of aeronautical products and systems for decades, and the introduction of AI/ML does not, fortunately, change everything. The main principles of systems engineering, safety risk assessment, and software & hardware development assurance remain applicable. What is changing is the intermediate level of engineering, increasingly referred to as algorithmic engineering, which lies between the system level and the item level (implementation). This algorithmic engineering, when driven by data and co-realised by the machine in supervised learning, requires new practices, new trustworthiness properties, a new type of assurance that we call "learning assurance", and therefore the new ED-324/ARP6983 standard.

7. During the development phase, what are the most challenging parts?

The main challenges are the specification and the validation of the functional intent captured in the data used for the learning phase. A new process is required to reconcile data and intent through the concept of operational design domain (ODD). Also, the verification of the data quality attributes such as data representativeness, data completeness, data sufficiency, data fairness, etc.

The characterisation of these attributes and the definition of concrete verification methods and metrics are not an easy task. In the case where synthetic data are also used the challenge is bigger since the semantic gap between synthetic and real data should be minimised.

Finally, the generalisation assurance of an ML constituent is its ability to compute the correct output on data belonging to the ODD but never seen before. The generalisation error is not easy to assess. It necessitates the combination of a good testing strategy to minimise the generalisation error in-sample (empiric error) and the development of sophisticated statistical methods to bound the true (expected) error out-of-sample.

8. What are you the most proud of?

What we are most proud of is having created and maintained the conditions for collaborative work that we knew would be long and difficult, with an interdisciplinary working group made up of the world's leading experts in AI/ML, certification, safety, and aeronautics. We have maintained close, ongoing relations with the competent authorities in charge of certification (ANAC, EASA, FAA, etc.), and we have ensured and continue to ensure that the future ED-324/ARP6983 standard is recognised as the official means of compliance by all authorities worldwide.

If you want to know more about WG-114, watch the video series we have prepared with the experts.

Avionics // WG-128

Time to update ED-80? Keeping convergence and consistence with aerospace standards

In April 2000, ED-80 / DO-254 "Design Assurance Guidance for Airborne Electronic Hardware", prepared by Working Group 46 Electronic Hardware, was published.

ED-80 has been widely used and has proven to be efficient as guidance for Airborne Electronic Hardware (AEH) certification. It is recognised as an Acceptable Means of Compliance by Airworthiness Authorities for a large number of projects, providing a process-oriented framework, and associated recognised guidance for multiple topics/activities such as requirement-based verification, safety, and development assurance approaches. Since its publication, specific Certification Review Items (CRIs) have been introduced by European Airworthiness Authorities to complement the guidance of those standards on a significant variety of programmes from many nations.

In 2005, FAA published Advisory Circular 20-152 officially recognising DO-254 as an Acceptable Means of Compliance and both, EASA and FAA refer to ED-80/DO-254 in their ETSO/TSO requirements. In 2020 EASA (also done in 2022 by FAA) published an acceptable means of compliance, AMC 20-152A (and AC 20-152A), complementing de facto ED-80/DO-254 and giving more guidance on topics (e.g. COTS device, COTS intellectual properties).

Thanks to this field exposition over the last years through its application on certified programmes, jointly with A(M)C 20-152A, several improvements, clarifications or complements to the ED-80/DO-254 standard were raised by Authorities or Industry that may need to be captured in a new version of the standard.

There is therefore a need to provide some clarifications to complement and improve the existing version of ED-80/DO-254 standard, while recognising that maintaining the harmonisation of certification requirements and guidance material among Authorities is a strong expectation from Industry members. In addition, as Airborne Electronic Hardware (AEH) technology is evolving quickly, some

topics of the original document may need to be clarified or updated or may even need additional guidance (new technologies to be integrated: multicores, model-based development).

Envisaging the industry need to update ED-80, the EUROCAE Council has approved the creation of WG-128 Airborne Electronic Hardware Design Assurance to work on an Internal Report that details the "Strategy for the updating of ED-80 Design Assurance Guidance for Airborne Electronic Hardware" which aims to clarify the scope of changes required to ED-80 and propose a strategy to update ED-80. The Internal Report is expected in September 2024. A posteriori, the EUROCAE TAC and Council will evaluate the need for reopening ED-80 based on the outcomes of the strategic report.

Nonetheless, the proposed update of ED-80 should be performed in close relationship with RTCA in order to ensure that no potential guidance gap (and consequently regulatory gap) emerges between Europe and the United States, especially on such a fundamental topic as airborne electronic hardware.

WG-128 is open to all EUROCAE members with an interest in this topic; members can join the Working Group directly via their online portal, or contact the Technical Programme Manager, esther.hoyas@eurocae.net for more information.

TPM: Esther Hoyas

Avionics // WG-118

A new MASPS for virtual flight recorder data recording (VFDR) solutions

Recovering flight recorders from aircraft involved in incidents or accidents can take a long time and considerable effort, and the recovery of useful data is not guaranteed. Where the flight ends away from an airfield, especially in remote, mountainous, or oceanic areas, finding the location of the flight recorder can be a challenge. Getting there is often further hampered by weather, vegetation, terrain, political tensions, or the depth of an ocean.

A significant increase in the data communication bandwidth available from a growing number of mobile satellite service networks has brought the price of satellite data connectivity down significantly, allowing a growing fleet of aircraft to be equipped with high-speed connectivity for their passengers and crew. With the volume of critical flight data being very small compared to the data volume required by most other users, even the continuous transmission of flight data for monitoring (FDM) and flight operations quality assurance (FOQA) becomes economically feasible and desirable. The benefits to the operator increasingly outweigh the costs incurred by the service.

A virtual flight recorder data recording (VFDR) service replicates the function of a traditional crash-protected flight recorder in a virtual, cloud-based environment by storing the data transmitted by an airborne aircraft in an assured, authenticated and provenance-controlled manner. This way, the VFDR service will be able to provide all functions

needed to enable Global Aeronautical Distress and Safety System (GADSS) compliance for suitably equipped aircraft. In case of an emergency, incident or accident, access to that data is available almost immediately.

To assess the suitability of data transmission systems as acceptable means of compliance with GADSS provisions, EASA commissioned a study known as the Quick Recovery Flight Recorder Data (QR-FRD) study, published in September 2023. The study identified and assessed "a series of candidate solutions for the wireless transmission of flight recorder data from commercial air transport aircraft in case of an accident in a remote land area or an oceanic area while considering thoroughly the challenges, constraints and limitations of each technical solution and the challenging conditions of an accident". The QR-FRD study concluded that the transmission of flight data offers the potential for GADSS compliance but found no currently existing data storage facility that can satisfy the impartiality and international reach required, addresses ethical and moral concerns around data access, and the regulatory requirements around holding data compliant with air accident investigation.

The EUROCAE TAC approved the creation of the new MASPS for virtual flight recorder data recording (VFDR) proposed by WG-118 Crash-Protected and Lightweight Flight Recorders, primarily expected to ensure that a globally trusted, secure, assured, authenticated and provenance controlled online flight recording system can be achieved, and that the related GADSS functions (such as distress triggering, distress tracking, anomaly alerting, and normal tracking), if provided through the virtual flight recorder service, are correctly implemented and fit for purpose. This document is expected to be published in March 2026. In parallel, WG-118 will develop an Internal Report to be presented to the TAC based on existing documentation and potentially taken into account by ICAO.

TPM: Esther Hoyas

Sustainability // WG-113

ED-321: A significant achievement on the journey towards Electric/Hybrid Propulsion System certification

Electric/Hybrid Propulsion Systems (EHPS) are regarded as key enablers for a future CO2-neutral aviation. Innovative EHPS and aircraft architectures bring new challenges such as new interfaces, new interactions, or new functions. It is considered challenging at this stage to provide a generic set of requirements for an EHPS that could encompass all possibilities.

EASA issued Special Condition E-19 which is providing the industry with a good EHPS certification basis. However, this document is a performance based rule document, and both industry and authorities are missing Means of Compliance for some of the requirements. Under this statement, standardisation organisations play a key role in the development acceptable means of compliance for certification of EHPS products.

Furthermore, with a focus on the most recent developments, ED-321, titled "Guidance material for endurance substantiation of Electric - Hybrid Propulsion Systems," was released in January 2024. This publication stands as a notable milestone in the progression towards EHPS certification within the aviation sector. Its aim is to serve as a recognized standard for compliance within EASA SC E-19 EHPS.420 Endurance demonstration requirements.

Given the rapid advancement of EHPS technology and the different aircraft type configurations, the initial revision of ED-321 may undergo necessary modifications coming from the industry usage and application of the standard in the future. It is therefore crucial for ED-321 users to actively engage with WG-113, providing feedback and addressing together key concerns that contribute to aligning the standard with the swift pace of technological progress.

At this stage, WG-113 has initiated the drafting of the "Guidance material for durability substantiation of EHPS" with the objective to provide additional Acceptable Means of Compliance for EASA SC E-19 on Durability demonstration. WG-113 is open to all EUROCAE members with an interest in this topic; members can join the Working Group directly via their online portal.

TPM: Esther Hoyas

Since the creation of WG-113 Hybrid Electric Propulsion back in 2019, the working group has developed two documents. First, ER-025 in May 2022, a "List of standardisation needs for Hybrid Electric Propulsion" comprised in a EUROCAE report identifying the standardisation needs for Hybrid Electric Propulsion including high voltage and high-power equipment design and qualification, electrical fire proofness, energy storage systems performance and release of products, protection for electrical shocks to persons, and substantiation for endurance, durability and operational demonstration at system, sub-system and component level.

Airports // WG-109

The Evolution of Runway Weather Information Systems by WG-109

WG-109 was established in 2018 and tasked to develop a MASPS for Runway Weather Information Systems (RWIS). This work was aligned with the planned implementation by ICAO of the 'Global Reporting Format' (GRF) which would integrate, amongst other things, formats and standards of communication of the characteristics of the runway surface. The GRF was implemented in Europe in August 2021, slightly ahead of the ICAO implementation date of November 2021. ED-292 'MASPS for Runway Weather Information Systems' was published by EUROCAE in December 2021.

WG-109 Chair
Bruno Bissigo-Boggio

With 2 years of in service application of ED-292 and the GRF, operational experience along with technology developments have increased the overall industry understanding of the topic of runway condition reporting. WG-109 is reconvening to update the MASPS and also to develop a guidance document for the implementation and operation of RWIS. The EUROCAE TAC and Council recently approved updates to the terms of reference and work programme for WG-109 and WG-109 has just held its first meeting.

The new WG-109 Chair, **Bruno Bissigo-Boggio**, from the French Service Technique de l'Aviation Civile within the French Direction Générale de l'Aviation Civile said: "Correctly interpreting the runway surface is key to aircraft safety both for landing and take-off performance, allowing the aircraft to adjust for optimal and safe performance. Bringing awareness to the crew and airport operators through a comprehensible translation of the sensors measurements, RWIS systems are virtually the "eyes" of the pilot and play a major role in their decision making. The Runway Weather Information Systems are a key input, and the standards developed by EUROCAE WG-109 ensure a common understanding of system requirements for all stakeholders. I am looking forward to collaborating with my Working Group colleagues to ensure the standards are up to date and meet industry expectations".

WG-109 is open to all EUROCAE members with an interest in this topic; members can join the Working Group directly via their online portal, or contact the Technical Programme Manager for more information.

TPM: Alex Milns

Scan to learn about the current EUROCAE Working Groups:

Connectivity

Exploring Initial Deployments and Future Pathways of Data Link

Data Link Services (DLS) refers to the aggregation of application, service, network and air-ground link required to implement an air ground datalink application. In this article we consider five distinct initial deployments and future connectivity, highlighting the current revisions of key EUROCAE documents.

Initial Datalink deployments

The first use of datalink in aviation was solely for Airline Operation Control (AOC) communications. The Airlines Electronic Engineering Committee (AEEC) developed the Aircraft Communications Addressing and Reporting System (ACARS) in the late 1970s. ACARs is a character-based communications protocol initially designed to operate over VHF Digital Link (VDL) Mode A/Mode 1. The initial application is now called POA or 'Plain Old ACARS' with AOA – 'ACARS over AVLC' being a newer version where the term AVLC refers to "Aviation VHF Link Control" – the bit-oriented protocol used over the VHF link in the VDL Mode 2 (VDL2) system.

The first use of datalink for Air Traffic Services (ATS) used the ACARS system. A set of character oriented applications covering Pre-Departure Clearances (PDC), Automated Traffic Information System (ATIS) and Oceanic Clearances (OCL) were developed. Moving to datalink reduced voice workload of controllers and increased safety due to a reduction in readback errors.

▶ ED-85A - Data-Link Application System Document (DLASD) for "Departure Clearance" Data-Link Service,

▶ ED-89A (plus Change 1) - Data Link Application System Document (DLASD) for the "ATIS" Data Link Service

▶ ED-106A - Data Link Application System Document (DLASD) for "Oceanic Clearance" Datalink Service.

Initial Future Air Navigation System (FANS 1) deployment utilised existing satellite based ACARS communications (Inmarsat Data-2 service) to enable ATS datalink messages designed for the operational use in oceanic and remote areas. FANS can be divided into two parts, Automatic Dependent Surveillance Contract (ADS-C) and Controller Pilot Data Link Communication (CPDLC).

▶ ED-100A - Interoperability Requirements for ATS Applications using ARINC 622 Data Communications.

The ATN or Aeronautical Telecommunications Network, was defined by ICAO to support digital air-ground telecommunications for all safety-related communications. The ATN network architecture is based on the International Standards Organisation (ISO) "Open Systems Interconnection (OSI) Information Processing Systems - Basic Reference Model" (ATN/OSI). A subset of ATN/OSI features, referred to as ATN Baseline 1 (ATN-B1), was defined for initial deployment in Europe using a mandate – Commission Regulation 29/2009 (and its amendments) (the "DLS Regulation") laying down requirements on data link services for the Single European Sky - which required Context Management (CM) (DLIC – Datalink Communication Initiation Capability) and CPDLC (ACM – ATM Communications Management, ACL – ATC Clearances and Information Service and AMC – ATC Stuck Mike Service) over VDL2.

▶ ED-110B (plus Change 1) - Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (Interop ATN B1)

▶ ED-120 (plus Changes 1,2 & 3) - Safety and Performance Requirements Standard for Air Traffic Data Link Services in Continental Airspace

▶ ED-154A - FANS 1/A - ATN B1 INTEROP Standard.

A broader set of features shall be enabled by the ATN Baseline 2 (ATN-B2) message set. Within Europe, Common Project One (CP1) calls for the rollout of the Extended Projected Profile (EPP) within the ADS-C application and therefore requires some elements of ATN-B2.

▶ ED-228B - Safety and Performance Standard for Baseline 2 ATS Data Communications

▶ ED-229B - Interoperability Requirements Standard for Baseline 2 ATS Data Communications

▶ ED-230B - Interoperability Requirements Standard for Baseline 2 ATS Data Communications, FANS 1/A Accommodation

▶ ED-231B - Interoperability Requirements Standard for Baseline 2 ATS Data Communication, ATN Baseline 1 Accommodation

EUROCAE **WG-78** Standards for Air Traffic Data Communications Services has recently finalised Revision B of these ATN-B2 documents, and is working on an ATS Data Communications Verification Test Standard.
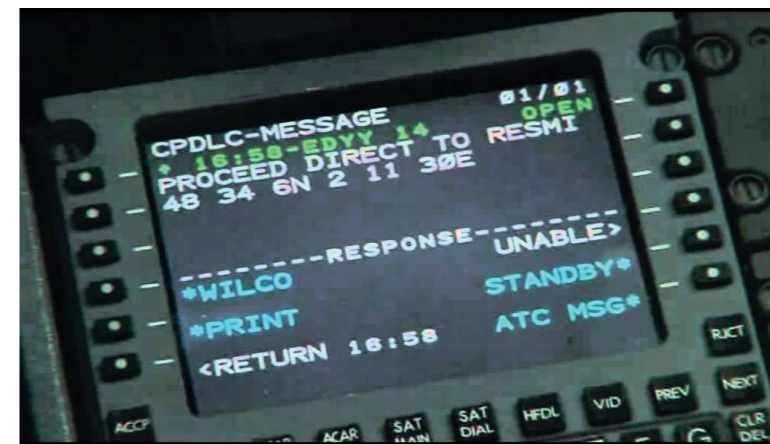
Currently, the predominant technologies are ACARS and ATN/OSI for aircraft equipage in different regions.

Future Connectivity

EUROCAE working groups, joint with RTCA, are working on the next generation DLS standards including new applications, network protocols and air-ground links in line with the European ATM Master Plan.

Aeronautical Information Services/Meteorological (AIS-MET) is an area where relatively large messages could be uploaded to cockpit with the latest aeronautical and meteorological information supporting flight efficiency.

▶ **WG-76** AIS/MET Datalink Services is working together with RTCA SC-206 on the next revision of the MASPS (ED-XXX/DO-364A).

The Internet Protocol Suite (IPS) is the set of standards and protocols that enable communication and data exchange over the internet. ATN-B2 over IPS (ATN/IPS), making use of VDL2 and SATCOM Class B, should be a convergence

▶ **WG-108** ATN/IPS has recently finalised the "MASPS for ATN/IPS End to End Interoperability" (ED-315), and is working on "Aviation Profiles for ATN/IPS" (ED-262A).

▶ **WG-92** VDL Mode 2 is working on "MOPS for VDL2 physical link and network layer" (ED-92D), "MASPS for advanced VHF digital data communications" (ED-xxx) and "Guidance on Air to Ground VDL2 interoperability" (ED-276A).

The existing SATCOM standards need to follow the ongoing evolution of the SATCOM systems towards ATN/IPS.

▶ **WG-82** 'New Air-Ground Data Link Technologies' is working on "MASPS for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP)" (ED-242D) and "MOPS for Avionics Supporting Next Generation Satellite Systems (NGSS)" (ED-243D).

A new air/ground link L-band Digital Aeronautical Communications System (LDACS) intends to provide a ground based wideband technology applicable for use for ATS and AOC.

▶ **WG-82** New Air-Ground Data Link Technologies is currently developing the MASPS and MOPS for LDACS for Data and Voice Communications.

The 'Hyperconnected ATM' concept assumes that it will become acceptable and beneficial to use public non-safety commercial communication systems as a component of aircraft safety communications. If the concept gets endorsed by the key stakeholders, the need for new MASPS and MOPS may arise. EUROCAE offers full support to European R&D projects towards future connectivity, in line with our members needs.

EUROCAE will monitor the evolution of the communication needs and requirements driven by the new Advanced Air Mobility concepts such as Unmanned Aircraft Systems (UAS).

▶ **WG-105** Unmanned Aircraft Systems (UAS) SG- 2 is working on the MASPS and MOPS for command and control (C2) links.

TPM: Mark Watson

Space // WG-62

Spoofing and Jamming risks to civil aviation

Global Navigation Satellite System (GNSS) refers to a constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers. Augmentation of a GNSS is a method of improving the navigation system's attributes, such as precision, reliability, and availability, through the integration of external information into the calculation process, such as Satellite Based Augmentation Systems (SBAS) on regional basis through signals provided by Geostationary satellites. The receivers then use this data to determine location with sufficient integrity.

Whilst GNSS interference, in the form of jamming to block a signal, may cause the loss of GNSS data and/or SBAS correction data, GNSS spoofing may cause, if not properly detected, the output of erroneous data by GNSS avionics, by using counterfeit signals, i.e. false information is sent to the receiver on board the aircraft.

In January 2024 the European Union Aviation Safety Agency (EASA) and the International Air Transport Association (IATA) announced the conclusions of a workshop jointly hosted at EASA's headquarters to combat incidents of GNSS spoofing and jamming. The workshop concluded

that "interference with satellite-based services that provide information on the precise position of an aircraft can pose significant challenges to aviation safety."

The loss of GNSS signals and/or SBAS correction data can cause a downgrade of the aircraft position computation capabilities. As such, GNSS shall be protected from harmful interference in accordance with ITU Radio Regulations. Yet, A recent spike in GNSS jamming and spoofing incidents are threatening the integrity of use of PNT services usage across Eastern Europe and the Middle East.

Industry is actively working with airworthiness authorities (EASA, FAA), international organisations (ITU, ICAO, EUROCONTROL, IATA, IFALPA) and standardisation bodies (RTCA, EUROCAE) to address the threat evolution in relevant regulations and standards, implementing if deemed necessary additional measures and mitigations on-board aircraft to avoid outputting hazardous misleading information.

EUROCAE ED-259A 'DFMC SBAS Airborne Equipment' standard provides robustness requirements against jamming and spoofing threats, including Radio Frequency Interference (RFI) detection. Revision B of the DFMC SBAS standard (ED-259B), being jointly developed by EUROCAE WG-62 / RTCA SC-159 WG2, will bring additional robustness against RFI and add new features to detect and report it to aviation stakeholders. Application of these novelties to existing GNSS receivers may be complemented by alternate means of navigation upon the loss of GNSS. Research is ongoing on enhanced or new terrestrial technologies as a back up to GNSS, e.g., Enhanced DME Network (DME-DME), wide area multi-lateration, and aircraft-based systems.

TPM: Mark Watson

Complex Aircraft Systems // WG-63

WG-63 Sets New Benchmarks in Aviation Safety with Publication of ED-79B and ED-135 Guidelines

Recently two fundamental documents were published, ED-79B "Guidelines for Development of Civil Aircraft and Systems" and ED-135 "Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment". Developed jointly by EUROCAE Working Group 63 "Complex Aircraft Systems" and SAE S-18 "Aircraft and Systems Development and Safety Assessment Committee," these documents represent a significant leap forward in aviation safety practices and standards.

ED-79B, the guideline for civil aircraft and systems development, stands as a testament to the collective expertise and industry insights gathered from diverse stakeholders. This revised document incorporates known errata and industry-specific comments, ensuring alignment with the latest industry advancements and state-of-the-art practices. It outlines the best practices necessary for the development of modern aircraft and their integrated systems, emphasising design discipline and systematic development to ensure safety and operational requirements are met.

Complementing ED-79B, ED-135 provides comprehensive guidelines for conducting safety assessments of civil aircraft, systems, and equipment. This document not only aids in compliance with certification requirements

but also serves as a valuable resource for internal safety assessment standards within companies. It delineates a systematic safety assessment process applicable to both new and existing designs affected by changes in design or operations, demonstrating the significance of safety in aviation systems.

Christopher Lacey, Safety Enhancement Engineer at Airbus and Chair of WG-63, expressed his pride in presenting these pivotal documents. "*Publication of these documents has only been possible thanks to the immense professional dedication and engagement from our committee members, past and present*", remarked Christopher. "I'm sure the processes and practices described in these documents will be of the utmost importance to the aviation industry".

Julien Chaou, Senior Expert Product Safety & Support at Liebherr and Co-Chair of WG-63, said: "*I am pleased to announce the culmination of a decade-long effort with the publication of two significant aerospace standards. These documents reflect a dedicated commitment to global safety standards, fostering innovation and promoting equitable competition within the aerospace industry*".

The publication of these standards represents the culmination of a robust collaboration between EUROCAE and SAE International, showcasing our enduring partnership focused on crafting standards that bolster global interoperability and enhance aviation solutions. Notably, approximately 10% of EUROCAE's active groups and ongoing developmental endeavours stem from this fruitful joint effort with SAE International.

The publication of ED-79B and ED-135 underlines EUROCAE's commitment to advancing aviation safety through cutting-edge standards and guidelines. This achievement underscores the diligent work of WG-63 and represents a meaningful progression for the entire aerospace community.

TPM: Javier Diana

UAS // WG-105

EUROCAE Commitment on UAS Standardisation

In the early 2000s, interest in Unmanned Aircraft Systems (UAS) began to emerge within the aviation technology spectrum as a significant area to explore for the latest innovative advancements. By 2007, EUROCAE commenced addressing this topic through Working Group 73 on UAV (Unmanned Aircraft Vehicle) Systems, marking the inception of standards-development on these technologies. This group became a benchmark in the standardisation of unmanned aircraft or operations. Since then, UAS have gained worldwide attention, ranging from consumer drones purchased at supermarkets to sophisticated military unmanned aircraft.

Working Group 105 is currently addressing six major UAS topics: Detect and Avoid, Command and Control (C2) Link, Unmanned Traffic Management, Airworthiness, Enhanced Remotely Piloted Aircraft Systems (RPAS) Automation, and Specific Operations Risk Assessment (SORA). It also anticipates future industry requirements, by working closely with the European Union Aviation Safety Agency (EASA) for Innovative Air Mobility (IAM) and ensuring compliance with the latest regulations in Europe and beyond.

WG-105 maintains strong coordination with Research and Development projects and other Standards Development Organisations globally. Moreover, EUROCAE actively participates in International Civil Aviation Organization (ICAO) activities, contributing to the development of standards through the RPAS Panel and the Drone Enable conference as well as for the whole topic of Advanced Air Mobility, participating actively in the AAM Study Group and relevant events.

Today, nearly two decades since the initiation of UAS-related activities, EUROCAE continues to lead in the UAS domain by developing and issuing valuable, fit-for-purpose and high-quality standards for the industry, as a global point of reference in the field. The standards produced by EUROCAE experts are crucial for the acceptance and implementation of these cutting-edge technologies.

TPM: Javier Diana

Building upon WG-73, and then WG-93 on Small UAS, Working Group 105 on UAS was established in 2016, enhancing EUROCAE's initial efforts. This new group aimed to tackle the Unmanned Aircraft Systems subject with a broader scope of activities aligned with the new European regulatory approach focusing on supporting industry needs.

UTM & AAM

EUROCAE in ICAO AAM Study Group

ICAO, the International Civil Aviation Organisation, spends a significant effort to support all the new innovative topics such as drones, air taxis, etc.. During the last years, ICAO addressed these topics through different initiatives: the RPAS Panel, a committee that covers the activities related to Remote Piloted Aircraft; Drone Enable, a one-week event with an objective to place in the same room UAS industry and stakeholders.

At the beginning of 2023, ICAO launched a new AAM 'Study Group' with the main objective of monitoring the Advanced Air Mobility developments during the following years. This group met two times at ICAO HQ in Montreal: May 2023 for the first time, and during the second week of December 2023, after the Drone Enable 2023, taking advantage of the huge mix of industry and civil aviation authorities congregated in Montreal.

EUROCAE, as with other Panels and ICAO activities, is strongly supporting the activities from the AAM Study Group, actively participating in the different working groups, and contributing to the first steps of this Panel.

The Advanced Air Mobility concept addresses disruptive innovations, from the little drones to the big air taxis who will deliver cargo and transport from cities much quicker than today. ICAO is preparing the first ICAO AAM Symposium to be held in September 2024, the biggest event in the history of Advanced Air Mobility. For the next few years, ICAO AAM SG plenary meeting will be held twice a year, covering the topics within the different workings' groups with a week of on-site working sessions.

The new concepts of Unmanned Traffic Management (UTM) and Advanced Air Mobility (AAM) have sparked significant interest and investment from industry, countries, and regulators. However, existing panels and events dedicated to these topics have not fully addressed the breadth and depth of this rapidly evolving field. As stakeholders continue to invest substantial efforts in developing and implementing these concepts in everyday life, there remains a need for comprehensive coverage and discussion.

These are the first steps in an innovative environment with huge challenges to address.

TPM: Javier Diana

EUROCAE Awards Winners

Celebrating Excellence: Announcing the Winners of the 2024 EUROCAE Awards

More than 5000 participants from about 500 member organisations are registered with EUROCAE. Each and every one of them is a valuable member of a community of aviation experts dedicated to writing standards with the sole purpose of making aviation safe and efficient.

We want to take this opportunity to recognise the exceptional individuals who went above and beyond what can be reasonably expected from a Working Group member. These experts assumed responsibilities and worked tirelessly to ensure the best possible outcome. It was these extraordinary members that EUROCAE recognised with the Awards presented each year.

We are grateful for the contributions of all our members and congratulate the 2024 EUROCAE Award winners for their exceptional work and dedication.

President Award: Patrick Souchu
From DSNA, for many years of excellent support and outstanding contributions and leadership in EUROCAE.

Lifetime Achievement Award: Luc Deneufchâtel
From Lima Delta Consulting, for a long career dedicated to aviation standardisation and to EUROCAE over many years.

Working Group Leadership Award: Roy Posern
From FRAPORT, for his commitment and leadership contribution to Working Group 41 "A-SMGCS".

Women in EUROCAE Award: Laure Baltzinger
From Thales LAS France, for her advocacy for gender equality and diversity within the aviation industry.

Global Harmonisation Award: Mikael Mabilleau
From EUSPA, for his commitment and excellent contribution to Working Group 62 "Galileo" joint with RTCA SC-159.

International Award: Hiroaki Nakata
From AeroVXR LLC, for his outstanding work withing WG-105 "UAS".

Best Contribution Award: Konstantin Dmitriev
From the Technical University of Munich, for his dedication and contributions to WG-114 "Artificial Intelligence".

EUROCAE President Award

An Exclusive Interview with Patrick Souchu

In the dynamic realm of aviation, certain individuals illuminate the path with their visionary leadership, dedication, and indelible contributions to shaping the future of aviation. As we bid farewell to one such person, Patrick Souchu, EUROCAE is privileged to embark on a journey of reflection and celebration. This exclusive interview serves as a poignant tribute to a distinguished career marked by unwavering commitment to aviation standards.

With an long-standing tenure at the Direction Generale de l'Aviation Civile (DGAC) and as the Director of the SESAR programme, Mr. Souchu's impact on the aviation industry has been nothing short of transformative. As he gracefully steps into retirement, EUROCAE recognises and honors his exceptional achievements (from Working Group chair to Council member) with the prestigious President Award.

Reflecting on your accomplished career, what inspired you to pursue a path in aviation, and how did you find your way to the Direction Generale de l'Aviation Civile (DGAC)?

When I was a child, I was already fascinated by flying machines. I also remember my first flight in a Caravelle in the mid-sixties thanks to my parents and I would have loved to be a professional pilot, but my eyesight was not good enough for this. So when I had to choose for an engineering school, ENAC seemed to be the best option with the opportunity of being civil servant in DGAC.

Looking back, can you recall a specific challenge you faced in promoting standardisation or implementing innovative solutions, and how did you navigate through it?

Promoting standardisation and innovative solutions were common challenges for at least 2 domains in which I have been particularly involved in the year 2000 : Air ground data-link and ADS-B. The emergence of new technologies, ie FANS1/A and ACARS or ATN, multiple ADS-B technologies such as 1090MHz, VDL Mode 4 or UAT really demonstrated the need for standardisation and harmonisation at a global level. Another challenge was to

convince people in my organisation on the tremendous potential improvement that these new technologies and new concepts could provide to Air Traffic Management with a global momentum for implementation.

SESAR has also been a major challenge. From the initial concepts of the SESAR definition phase, in particular the business trajectory and SWIM, to the current catalogue of more than 150 solutions, a lot of Research and Innovation activities have taken place and I think DSNA has played a significant role for many of them. There is still a lot to be done in Research and Innovation especially regarding TBO (Trajectory Based Operation) which must become a global concept. At the same time, deployment of existing SESAR solutions is also happening with other challenges in terms of standardisation, investment and time schedule.

As you transition into retirement, can you share some of the most rewarding experiences or projects that have left a lasting impact on you within the realm of aviation standards?

ATM systems development is considered as a long, costly and risky process as many systems have needed 10 to 15 years before moving to operations and cost 2 or 3 times more than initially planned. It has also been observed

in other areas than ATM, but in ATM, there is a general feeling that there are a lot of local specificities due to human aspects, airspace design, political environment, etc. In fact, there are also a lot of commonalities and the main functional requirement are the same. I experienced the purchase of a new system for Tahiti FIR (low traffic but an airspace larger than Europe and various operational environment such as oceanic, domestic, TMA and airport). We were mandated by the top management to purchase a system on the shelf as it looked feasible. The outcome of this process was the operational implementation of the TIARE system 4 years later at a very reasonable price with state-of-the-art functionalities. My conclusion from this experience is that standardisation of operational and technical requirements could significantly reduce cost and risks.

What legacy do you hope to leave behind in terms of advancements in aviation standards, and what contributions are you most proud of in your career?

I have been involved in EUROCAE for many years, I started my first participation in WG-78 with the standardisation of Departure Clearance and I am involved in the EUROCAE Council since about 20 years. I have been chairing this Council from 2011 to 2014 at a time when there was a lot of expectations for a strong European standardisation organisation for aviation, EUROCAE had already a positive history and a good recognition but was lacking of human and financial resources to satisfy all expectations. Since that time, with my Council colleagues and with the Secretariat, we have transformed this very small organisation into a modern structure with more than 450 members (5 times increase in 15 years), an appropriate budget and a very competent staff.

What advice would you offer to the next generation of professionals entering the aviation industry?

All these challenges have shown that the pace of innovation is often slow in Air Traffic Management for various reasons. So you often need to be patient and determined. But what you are designing today will often last for 30, 50 years or more. Do not think locally, consider the European or global dimension of new technologies and operational concepts in aviation with all the implication in terms of standardisation and transitions for all air or ground stakeholders.

It is clear today that new entrants would like to replicate the innovation pace of the IT domain in the aviation domains.

This is very positive to accelerate the transformation of aviation to new air mobility but they have to address safety and interoperability to make it successful.

As you embark on the next chapter of your life, how do you plan to stay connected with the aviation community, and do you have any aspirations for continued involvement or mentorship?

I will retire from DGAC on 1 May 2024 and this will be indeed a new chapter of my life. Nevertheless, I am so curious of the coming evolutions that I will try to keep in touch as much as possible with standardisation, with Air Traffic Management and more generally with the aviation domain. I will remain available for any additional advisory and consultancy activities as long as I can bring value to our business.

On a personal note, what are your plans and aspirations for your retirement, and do you have any messages or words of gratitude for your colleagues, collaborators, and the aviation community as a whole?

With retirement, I expect to get more free time and to use it for visiting France and the world (with some moderation regarding my environmental footprint) and for sailing, my favorite hobby definitely 99% carbon free. I know I will be able to fly safely with minimal impact on the environment thanks to the ongoing activities of my active colleagues and to the whole aviation community. I will also leave the EUROCAE Council with a lot of good souvenirs and I would like to thank all current and former Council members for their kindness and positiveness. I would address special thanks to Christian Schleifer, former Director General of EUROCAE and Anna von Groote, the current Director General for our excellent relationships.

"Thank you Patrick Souchu on behalf of the entire EUROCAE community for your important contribution all these years."

Anna von Groote, EUROCAE Director General

48 active Working Groups

+ 450 members

+ 5000 experts

+ 300 Standards Published

Together we are driving the standard for aviation

Airspace World

EUROCAE Joins 'Europe for Aviation' Partners at Airspace World 2024

The collaborative effort known as "Europe for Aviation", comprising nine European aviation organisations dedicated to advancing the modernisation, sustainability, and resilience of European aviation safety, convened at the Airspace World event held from 19 to 21 March 2024, in Geneva, Switzerland.

Throughout the duration of the 3-day event, these organisations demonstrated the power of collaboration by illustrating how they can collectively address the most pressing challenges encountered by the European aviation industry, thereby pushing the boundaries of progress even further.

The "Europe for Aviation" stand hosted a range of briefings, exhibits and demos illustrating collaboration in action between the European aviation organisations working to implement the Single European Sky - the European Commission, the European Union Aviation Safety Agency (EASA), the European Defence Agency (EDA), EUROCONTROL, the European Organisation for Civil Aviation Equipment (EUROCAE), the European Union Agency for the Space Programme (EUSPA), the European Climate, Infrastructure and Environment Executive Agency (CINEA), the SESAR 3 Joint Undertaking (SESAR 3 JU), and the SESAR Deployment Manager (SESAR DM).

In the ever-evolving landscape of the Air Traffic Management (ATM) industry, unprecedented advancements in technology, knowledge, and operational requirements have become more apparent than ever before. The dynamic nature of these changes underscores the critical importance of fostering a collaborative global community. It is through unified efforts and shared expertise that we can effectively navigate the complexities of the present and shape the trajectory of our future skies.

Promoting Standards

EUROCAE's Presence at Industry Events

In the dynamic realm of aviation standards and innovation, the importance of active participation in industry events cannot be overstated. EUROCAE recognises these gatherings as crucial platforms for promoting our standards, showcasing the impactful work of our diverse Working Groups, and fostering synergies within the global aviation community.

Attending industry events is not merely about our physical presence but a strategic commitment to exchange knowledge, build and maintain strong partnerships and networks, and contribute to the dialogue that propels the aviation industry forward.

Second EU-Asia Symposium on UAS and UAM
9-10 November 2023
Singapore

SESAR Innovation Days
27-30 November 2023
Sevilla, Spain

European Rotors
27-30 November 2023
Madrid, Spain

ICAO Drone Enable
5-7 December 2023
Montreal, Canada

Royal Aeronautical Society RPAAS Workshop
24 January 2024
London, United Kingdom

ETSI Artificial Intelligence Conference
5-7 February 2024
Nice, France

ICAO Innovation Fair
12-14 March 2024
Montreal, Canada

UAS ARF Event
13 March 2024
Prague, Czech Republic

EUROCAE's Next-Generation IT Platform

Organisations need to innovate and adapt to the constantly changing technological world in order to be competitive and relevant. Through a new IT project, EUROCAE has set out on a revolutionary path to reimagine its core platform. In partnership with an IT provider, EUROCAE aims to introduce a state-of-the-art workspace that promises to elevate user experience, streamline operations, and set new benchmarks for performance and stability.

The initiative to replace the existing platform with cutting-edge technology began at the end of 2023, which is when EUROCAE's new IT project came to be. This step demonstrates EUROCAE's steadfast dedication to quality and innovation in servicing its wide range of stakeholders and members.

The EUROCAE Secretariat has played a key role in shaping the direction of the IT project, working diligently to identify and address the evolving needs of both internal and external users. Through comprehensive analysis and consultation, EUROCAE has gained valuable insights into the requirements and expectations of its diverse membership base, ensuring that the new platform is designed to exceed their expectations.

One of the primary objectives of the new platform is to enhance both back-end workflows and front-end interfaces, thereby enhancing overall member services. By modernising and streamlining these critical components, EUROCAE seeks to offer members, WG participants and customers refreshed and secure member services, ensuring a more reliable and user-friendly experience across the board.

Importantly, the EUROCAE IT project is a multiphase, long-term project rather than just a one-time effort. The project, which started in December 2023 and be finished in Q4 of 2024, is a reflection of EUROCAE's long-term, unwavering dedication to quality and innovation.

Central to EUROCAE's vision is the integration of new features and functionalities designed to meet the diverse needs of its membership base. From individual participants to representatives of members and working groups, the platform offers a dynamic environment that fosters collaboration, innovation, and productivity. Users can expect a wealth of new features tailored to their specific roles in the workspace including comprehensive tools for document project environment, meeting attendance, and collaborative mode of working, and so on.

In conclusion, the EUROCAE IT project represents a bold leap into the future of aviation standards development. Through innovation, collaboration, and a relentless pursuit of excellence, EUROCAE is reshaping the landscape of member services, ushering in a new era of efficiency, reliability, and user satisfaction. As the project progresses, EUROCAE invites all stakeholders to join in this journey towards a future where innovation knows no bounds. Together, we will unlock the full potential of EUROCAE's next-generation IT platform and chart a course towards a brighter, more connected future.

TPM: Thuc Nguyen

Overview & Dates

Empower Your Team with our In-House Training Solutions

What is EUROCAE's In-House Training Programme?

EUROCAE In-House Training is a tailored and adaptable learning solution crafted to meet the distinct needs of your organisation. Instead of participating in public training sessions, In-House trainings deliver expertise and knowledge directly to your doorstep. Our team works closely with your organisation to pinpoint the most pertinent EUROCAE recognised training courses that align with your specific goals, challenges, and industry requirements.

Why In-House Training?

▶ **Tailored to your Needs:** Helps you identify training solutions to your business needs, ensuring your team receives training that addresses your challenges and goals.

▶ **Adaptable Scheduling:** Permits you to arrange sessions at your team's most convenient times, minimizing disruptions to daily operations and optimising their learning experience.

▶ **Team Cohesion:** Cultivates a sense of unity and shared learning experiences within your team. This fosters collaboration, allowing team members to collectively apply their newfound skills.

▶ **Cost-Effective:** Reduces expenses linked to sending employees for external training by eliminating travel, accommodation costs, or time away from the workplace.

What is the Next Step?

Start by exploring EUROCAE's training portfolio and see the training courses that we can tailor and organise for your organisation's needs. Contact trainings@eurocae.net to receive an offer.

"In-House trainings deliver expertise and knowledge directly to your doorstep."

Overview & Dates

Training Portfolio

EUROCAE provides a high-quality portfolio of aviation trainings based on our published standards. Our courses are tailored for aviation professionals across the globe. It aims to acquaint trainees with EUROCAE standards, which are drafted in response to industry demand for a consistent practice and aims to provide a harmonised approach in demonstrating compliance to new aviation rules.

Voice over Internet Protocol (VoIP)

With this course, trainees will obtain sufficient knowledge and comprehensive view of the different components of a VoIP ATM system and their mutual interfaces through a full overview of the worldwide recognised standards:

▸ ED-136 'VoIP ATM System Operational and Technical Requirement',

▸ ED-137 'Interoperability Standard for VoIP ATM Components – Radio & Telephone', and

▸ ED-138 'Network requirements and performances for VoIP Air Traffic Management'.

Next dates:

• 23-24 October (Paris)

Cyber Security Management for Aviation Organisations

This training gives a general overview of cyber security in aviation and teaches participants how to adopt a standards-led approach to cyber security. Trainees will be able to identify basic principles, their implementation, and effects of cyber security in the aviation environment, and understand how cyber security impacts different actors in this sector.

Next dates:

• 1-3 October (Paris)

Unmanned Aircraft Systems Airworthiness and Safety

The course covers the entire subject of UAS Airworthiness Certification (in EASA terminology, specific, and certified categories). Participants obtain an overall understanding of the field and a detailed knowledge on areas such as the safety assessment process and operational risk assessment. Trainees will be able to identify risks related to UAS operations and prepare inputs for risk assessments, in line with Specific Operations Risk Assessment (SORA) methodology.

Next dates:

• 17-19 June (Paris)
• 19-21 November (Paris)

Aircraft Cyber Security and Continuing Airworthiness

The training consists of two parts, a development part, and a continuing airworthiness part, which provides detailed information and insight into the current regulatory landscape surrounding cyber security. Participants can join either part or a combined training.

Next dates:

• 9-13 September (Online)
• 26-28 November (Paris)

Aviation Software Standards - Airborne

EUROCAE ED-12C (equivalent to RTCA DO-178C) has been the basis for airworthiness approvals of airborne software since almost 30 years and is recognised by all certification authorities. Knowlegde of this standard is a prerequisite for any person involved in the development or approval of airborne software. The objective of the course is to provide the basics to understand ED-12C principles and how to build a software design system capable of fulfilling ED-12C's objectives. The course also addresses tool qualification (ED-215) and introduces the technological supplements (ED-216, ED-217, ED-218).

Next dates:

• 18-19 September (online)
• 16-17 October (Paris)

Design Assurance Guidance for Airborne Electronic Hardware

EUROCAE ED-80 (technically equivalent to RTCA DO-254) is the standard applicable to the qualification of electronic hardware in airborne systems, and especially to complex electronic hardware (namely ASICs and FPGAs). The purpose of the training is to enable participants to understand ED-80 and how it is used and complemented by major certification authorities.

Next dates:

• 18-19 June (online)
• 13-14 November (Paris)

Cockpit Voice Recorder (CVR)

ED-112A MOPS for Crash Protected Airborne Recorder Systems is the standard applicable to the design / qualification of airborne crash recorders (CVR and DFDR) and are the AMC identified in AIR-OPS regulation. The purpose of the training is to enable participants to understand ED-112A application in the frame of CVR inspection.

Next dates:

• 29-30 May (Paris)
• 11-12 December (Paris)

Aviation Software Standards - ATM

The purpose of this training is to provide participants with an overview of relevant EUROCAE standards for systems and software development for ATM systems (ED-109A and ED-153). This course allows participants to identify basic principles, their implementation, and consequences of good software engineering practices in the aviation domain. Furthermore, a detailed description of how software safety regulations, standards, and certification affect different actors in aviation is provided, which allows participants to understand how standards can enable the effective management of software development costs in safety critical systems.

Next dates:

• 12-13 June (online)
• 6-7 November (Paris)

How to book trainings:

Places are limited, so interested persons are advised to book a spot as soon as possible using the registration forms that are available scanning this QR code:

For further information or requests, please contact us at trainings@eurocae.net.

EUROCAE
New Members

FULL MEMBERS:

AirDodge - Norway	AirDodge
Aura-Aero - France	AURA AERO
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Cert Center Canada - Canada	CERTCENTERCANADA
Crisalion - Spain	CRISALION MOBILITY
Croatia Control - Croatia	CROATIA CONTROL
CycloTech - Austria	CycloTech R.EVOLUTION OF MOTION
Direction de l'Aviation Civile Luxembourg - Luxembourg	LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG Ministère de la Mobilité et des Travaux publics Direction de l'aviation civile
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FlyFreely - Australia	FLYFREELY
Flynow - Austria	FLYNOW
GLVI - Germany	GLVI
Hellenic Drones - Greece	HELLENIC DRONES
Japan Aerospace Exploration Agency - Japan	JAXA Japan Aerospace Exploration Agency
Murzilli Consulting - Switzerland	MURZILLI CONSULTING
plc-tec - Switzerland	plc tec swiss innovation

Skypuzzler - Denmark	SKYPUZZLER ADVANCED AIR MOBILITY
SQAplus - Switzerland	SQA+ COMPLETE LIFE CYCLE SOLUTIONS
Vaeridion - Germany	VÆRIDION

LIMITED MEMBERS:

Applus+ Laboratories - Spain	Applus+ laboratories
Astronautics Corporation - United States	Astronautics Corporation of America
Cengiz Holding - Turkey	CENGIZ HOLDING
DMAP Consulting - France	DMAP CONSULTING
DragonFlyPads - France	dragonflypads
German Aerospace CentTurkeyer (DLR) - Germany	DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center
Helsing - Germany	Helsing
HHLA Sky - Germany	HHLA Sky
Hyundai Motor Company - South Korea	HYUNDAI
Monava - Sweden	MONAVA
Pipistrel Vertical Solutions - Slovenia	PIPISTREL

EUROCAE
Membership Benefits

AS FULL MEMBER OF EUROCAE, YOUR COMPANY WOULD RECEIVE:

▸ Privileged access to all the EUROCAE publications (ED an ER) relevant to your business today (ATM, Systems, Avionics).

▸ Regular information keeping you up to date with all the activities in standardisation from Europe and beyond.

▸ An invitation to and special rates for the EUROCAE Annual Symposium as well as information from other regional and global players in aviation.

▸ Special rates in EUROCAE trainings

AS FULL MEMBER OF EUROCAE, YOUR COMPANY COULD CONTRIBUTE TO:

▸ The work that leads to the introduction of new industry standards.

▸ The planning for new activities, potentially leading to new standards.

▸ The future direction of industry standards.

▸ The leadership of new activities under the EUROCAE banner.

▸ The governance of EUROCAE and be elected as Council member.

AS FULL MEMBER OF EUROCAE, YOUR COMPANY IS PART OF:

▸ The only European aviation standardisation body representing your interests and supporting you business opportunities today and tomorrow.

▸ Developing the Means of Compliance with European and global regulations.

▸ A network of partners - private and public - that are the key actors of future aviation changes

▸ A trusted group of professionals with a global reputation for setting the standard and leading developments, rather than following and living with the decisions of others.

**AS FULL MEMBER OF EUROCAE, YOUR COMPANY WOULD BENEFIT BY:**

▸ Having a clear understanding of the context behind relevant standards and the knowledge to exploit them to best effect.

▸ Being able to adjust and adapt your company's investments and developments early with well-informed knowledge of the latest trends.

▸ Achieving significant influence within the industry.

▸ Maintaining a reputation with my customers and suppliers as a leader in my field.

▸ Being better prepared to respond to customer's and regulator's expectations.

▸ Establishing a value for money investment both for now and for the future.

LIMITED MEMBERSHIP

Limited Membership may interest companies or organisations wishing to participate in a single Working Group. They are not entitled to be WG Chairperson or Secretary (except upon decision from the Council or the Director General). Limited Members are informed about ongoing activities of the specific WG, in which they participate, and benefit from free soft copies of any EUROCAE Document developed by this particular WG. They also benefit from 30% discount for the purchase of any EDs of the EUROCAE catalogue, and special rates in EUROCAE Trainings or Annual Symposium.

Shaping the Future of Aviation on a Global Scale

We take immense pride in our European identity, which serves as the cornerstone of our commitment to excellence in aviation standards. At EUROCAE, we are dedicated to upholding the highest standards not only within Europe but also on a global scale, contributing significantly to the worldwide advancement of aviation practices and protocols.

With 43 countries represented within our organisation, we embody a diverse and inclusive community that fosters collaboration, innovation, and mutual growth. Each represented nation brings its unique perspectives, expertise, and insights, enriching our collective efforts and ensuring that our standards reflect the global aviation landscape.

Australia	Estonia	Japan	Portugal	Sweden
Austria	Finland	Kazakhstan	Romania	Switzerland
Belgium	France	Luxembourg	Saudi Arabia	Taiwan
Brazil	Germany	Malta	Singapur	Turkey
Bulgaria	Hungary	Mexico	Slovak Republic	UAE
Canada	Iceland	Netherlands	Slovenia	United Kingdom
China	Ireland	New Zeland	South Africa	United States
Czech Republic	Israel	Norway	South Korea	
Denmark	Italy	Poland	Spain	
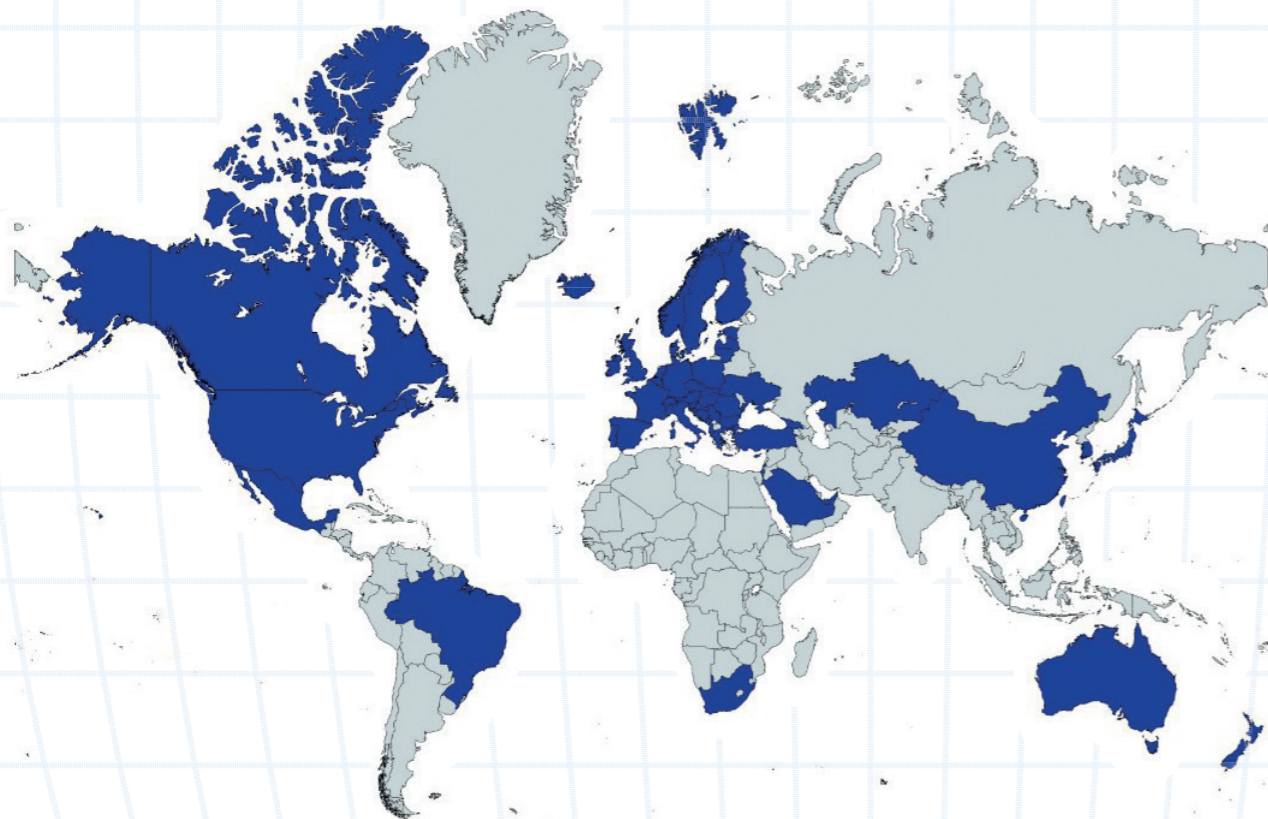
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ANZEN   SYSTEM SAFETY AND DIGITAL ENGINEERING
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EUROCAE
New Publications

EUROCAE Documents (ED) are developed by Working Groups bringing together renowned experts in their area, and following a well-established process.

They are often developed jointly with our international partners and recognised worldwide for their high quality and as state of the art technical specifications. These EDs can be system or equipment performance specifications, safety and performance require-ments, interoperability requirements, technical specifi-cations or guidance material. Some documents are dedicated to the airborne side, others to the ground side (mainly CNS and ATM), while others cover common air and ground requirements.

EDs are widely referenced as a Means of Com-pli-ance to regulatory documents by EASA, the European Commission, and ICAO.

All the documents are available in our eShop. Please scan this QR code:

ED reference	ED TITLE	PUBLICATION DATE
ED-318	Technical Specification for Geographical Zones and U-Space data provision and exchange	14/02/2024
ED-316	MOPS for Helicopter Terrain Awareness and Warning Systems (HTAWS) for Onshore Helicopter Operations	04/01/2024
ED-314	Compliance methodologies for VTOL certification in inadvertent icing and snow operation	14/02/2024
ED-321	Guidance material for endurance substantiation of Electric - Hybrid Propulsion Systems EHPS	10/01/2024
ED-322	System Performance and Interoperability Requirements for Non-Cooperative UAS Detection Systems	18/12/2023
ED-320	Aging mechanisms of electrical insulation materials in a high energy system	05/02/2024
ER-029	Taxonomy of Services for Virtual Centres	29/01/2024
ER-028	Survey of Radio Frequency (RF) Performance Standards for Aeronautical RF Systems	29/11/2023
ED-135	Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment	20/12/2023
ED-79B	Guidelines for Development of Civil Aircraft and Systems	20/12/2023
ED-137C_1 Ch. 2	Interoperability Standard for VoIP ATM Components - Volume 1 Radio - Change 2	05/02/2024
ED-230B	Interoperability Requirements Standard for Baseline 2 ATS Data Communication - FANS 1A Accomodation	08/03/2024
ED-231B	Interoperability Requirements Standard for Baseline 2 ATS Data Communication ATN Baseline 1 Accomm	08/03/2024
ED-228B Corr. 1	Safety and Performance Requirements Standard for ATS Data Communication - Corrigendum 1	04/12/2023
ED-229B Corr. 1	Interoperability Requirements Standard for Baseline 2 ATS Data Communications - Corrigendum 1	04/12/2023
ED-243C Ch.2	MOPS for Avionics Supporting Next Generation Satellite Systems (NGSS)	07/11/2023
ED-247B	TS of Virtual Interoperable Simulation for Tests of Aircraft Systems in virtual or hybrid bench	14/12/2023

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