EUROCAE

ANNUAL REPORT

MAY 2022 – APRIL 2023

THE EUROPEAN ORGANISATION
FOR CIVIL AVIATION EQUIPMENT

L'ORGANISATION EUROPEENNE
POUR L'EQUIPEMENT DE L'AVIATION CIVILE

Content

Dear EUROCAE members,

On behalf of the EUROCAE Council, it is my privilege to present to you this Council Chair report for the year 2022.

I will begin this report by thanking the entire EUROCAE team, the Director General and the Secretariat, as well as all the experts contributing to the Technical Advisory Committee and the Working Groups, who contributed during the year to the success of the association.

44 Working Groups were active at the end of 2022, and 34 standards published during the year, showing a stable upwards trend of the number of standards published each year. While the number of standards published is increasing, the quality remains very high, as well as the timely delivery. Close to 90% of the standards are published according the planned schedule.

The Technical Work Programme gives the strategic outlook and direction for the standardization activities. It has now a strong focus on sustainability, space, the single value chain for ATM R&D, and ATM Ground Equipment within the new EASA framework. As every year, the Technical Work Programme is available publicly through the EUROCAE e-Shop, and I encourage all of you to consult it and provide any feedback you might have to the Secretariat.

I have to highlight the essential role of the Technical Advisory Committee, defining the Technical Work Programme and monitoring its deployment within the various Working Groups, under the leadership of Eric Bouchard (Dassault Aviation) as Chair and Roy Posern (Fraport) as Vice-Chair.

Improving EUROCAE's communication strategy was a key objective of last year, and indeed we see the results. The Association is now very visible on key social media, such as LinkedIn (where we just hit 5,000 followers in early April of this year) and Twitter. Our website is kept up to date and will be further improved in the next months. Furthermore, as is now well established, we have continued to inform our members and partners via our monthly NEWSblog, biannual Broadcast magazine and of course the Annual Report and public Technical Work Programme.

The Quality Management System (QMS), which in a first instance had been developed with a focus on the core process of standards development, is gradually being extended to cover more and more of our supporting processes, providing the organisation with a robust and streamlined operating system.

The training activity is progressing well. In 2022, we added a new course to our portfolio on Voice over IP for ATM (ED-137). With this, we offered 7 different courses and held 15 sessions with 96 participants in total. Very positive feedback from attendees in general terms (more than 95% of the participants would recommend the training). In 2023, we will continue on this positive trend and will add even a new course to focus on Cockpit Voice Recorders (ED-112) to start in the fall.
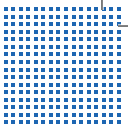
In 2022 we have also initiated a large project to improve our IT and process automation system. The improvements are based on experience and feedback of the users of the current system, and will be rolled out later in the year to further streamline processes and enhance automation, being able to serve members even better. We will continue to inform you via our regular channels.

Membership is still strong and continued to grow despite the still difficult context. At the end of 2022, we had 301 full members and 127 limited members, which is a net increase of 7% compared to end 2021; 61% of our members are based within the EU.

According to Article 4.3 of the EUROCAE Constitution, complemented by paragraph 1.5.5 of the Handbook "Loss of Membership", I have to report that 14 members did not pay their annual membership fee and where therefore removed from the list of EUROCAE members in 2022 based on the Council #318 (June 2022) decision.

As regards the membership payments for 2023, I am pleased to report 93.22% of members have already paid their dues. The Council and Secretariat will monitor the situation and the Council will proceed according to the approved procedures for non-paying members.

With regards to the situation in Ukraine, the measures decided by the Council, and reported to the 2022 General Assembly, remain in force: suspension of the member-

ship of all EUROCAE members based in Russia and related restrictions (access to e-Shop, website and workspace).

In addition to the membership, EUROCAE believes in strong collaborations with our partner Standards Development Organisations (SDOs). In this context, collaboration with RTCA remains strong with about 50% of our work programme carried out jointly and joint events like the Spectrum Summit held in December 2022. To foster and reinforce, we will sign an updated Memorandum of Cooperation at our 60th Symposium & General Assembly. I would like to thank Terry McVenes and his team for this excellent collaboration. Equally, the collaboration with SAE Aerospace remains important, at around 10-15% of our work programme being joint, based on the updated Memorandum of Cooperation signed at the 59th GA in 2022. Moreover, we are entering into partnerships with R&D projects as well as initiatives like the Alliance for Zero Emission Aviation (AZEA) to support them from a standardisation perspective.

Moreover, I would like to inform you that, in 2022, EUROCAE has been approached by a long-standing SDO partner, ASD-Stan, to initiate a discussion on an even closer collaboration in the future. This discussion is ongoing, and we will come back to you as our members in due course, if needed through an extraordinary General Assembly meeting to be called in line with the EUROCAE Constitution's provisions.

EUROCAE continue to work closely with partner organisations at the international level, notably ICAO, and in Europe, to note mainly the European Commission and EASA, as well as the SESAR 3 Joint Undertaking, where we are now an observer at the Governing Board, and the SESAR Deployment Manager. In line with the Single Value Chain approach, EUROCAE updated our cooperation agreements with both of them and signed in a joint even during the Airspace World in Geneva in March 2023.

The Secretariat team, under the leadership of Anna von Groote as Director General now for over a year, has seen several renewals, and is working as a strong team on the day-to-day management of the Association. I would like to take this opportunity to thank Anna and her team for their dedication and efforts to make 2022 another successful year for EUROCAE.

The financial situation of the Association will be presented in detail during the General Assembly by the Treasurer, but I am pleased to report a very stable and healthy situation as per the end of 2022. The Grant Agreement with the European Commission for 2021-2022 has been successfully closed and will be continued for 2023-2024, with a similar scope in relation to the EU Aviation and Space policies and the ongoing support to EASA. The full legal audit has been completed successfully, and as in the last years, concluded without any findings, showing the robust financial processes in place.

I would like to note a serious issue regarding the management and protection of intellectual property rights (IPRs). We had been informed that a member had issued a patent that is considered to be essential to the implementation of one of our standards, several years after that standard had been published by EUROCAE. Whilst we were able to negotiate a commitment to license on fair, reasonable and non-discriminatory terms with that member, this poses a fundamental issue to the integrity of the EUROCAE standards and the fairness between members. At the Council, we take this very seriously and as a consequence will update the EUROCAE IPR Policy to help prevent such a situation in the future. At the same time, we count on all members to stand by their engagements towards the EUROCAE IPR Policy.

This concludes the Council Chair report for the year 2022. Looking at 2023, the main elements of EUROCAE strategy are set by the Council through the Business Plan. The BP 2023 was approved in December 2022, and was streamlined to a new format to facilitate traceability between strategy lines and more concrete objectives.

The overall vision, slogan and mission for the organisation remain unchanged:

EUROCAE Vision

The European leader in the development of worldwide recognised industry standards for aviation.

EUROCAE Slogan

DRIVING THE STANDARD FOR AVIATION

EUROCAE Mission

Take an active role in the coordination of European and global standardisation activities to develop high-quality standards that:

- build upon state-of-the art expertise of its members
- are fit for purpose and adopted internationally
- support operations, development and regulations
- address global aviation challenges.

The Strategy Lines remain largely stable as well and the strategic targets are clearly linked:

A Strengthen a European leading role of EUROCAE as an international aviation standardisation organisation
  1. Execute the activities according to the Technical Work Programme (TWP)
  2. Increase the global footprint and recognition of EUROCAE EDs to ensure international harmonisation and global interoperability
  3. Build a strong relationship and long-term cooperation with key partners
  4. Grow membership in line with the growing demand of aviation standardisation needs

B Be a leading European Standards Development Organisation (SDO) responding to its membership's needs in support of the European aviation framework
  1. Pursue a EUROCAE leading role in aviation standardisation in Europe and secure EUROCAE's position within the evolving European aviation landscape
  2. Align EUROCAE with the European strategies and priorities
  3. Actively contribute to the innovation lifecycle and support R&D projects/programmes towards the implementation and deployment of R&D results
  4. Play a key role in a collaborative European standardisation framework

C Maintain the high quality and robustness of EUROCAE standards by continuously improving the effectiveness of EUROCAE processes
  1. Ensure efficient and effective ED development process to deliver robust standards of the required quality level
  2. Make available the standards in line with members' and community's needs and demands
  3. Pursue a quality management approach and process management structure
  4. Provide tools and procedures to support an efficient standards development process

D Ensure EUROCAE's sustainability and independence
  1. Ensure robust and transparent financial management and reporting
  2. Negotiate and execute grants and other contracts
  3. Increase the income of EUROCAE's RGA (e.g., sales, events, training)
  4. Ensure robust and resilient Secretariat team

All these objectives are underpinned by a series of concrete actions and deliverables, and at the Council level we will keep monitoring progress on a regular basis.

Another new policy adopted by the Council addresses the Council itself: A Code of Conduct for Council members was initiated. EUROCAE Council members and their alternates are responsible for adding value to the organisation and contributing to its overall success and safeguard and enhance its reputation. Following thorough review of the policy, the Council approved this Code of Conduct, which will be applied as of the 60th General Assembly.

As I am now at the end of my third term as President of EUROCAE, and I will soon hand over to a new President, I would like to thank the members and the team for their ongoing support over this period. It has been an extreme honour to serve the Association in this role.

Looking back at our 60-year long history, we are a well-established and strong organisation, fit for the next years and I am confident for the future of aviation standardisation under the leadership of a new President.

As EUROCAE members, you are invited to vote on the 2022 EUROCAE Council report and on the strategy proposed by the Council for 2023 and beyond.

Thank you for your attention.

Bruno Ayral
EUROCAE President
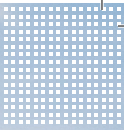
**Dear EUROCAE members,
partners and friends,**

As the Director General of EUROCAE, I am pleased address you in this editorial of the Annual Report 2022-2023, in the year of our 60th anniversary.

Since 1963, EUROCAE brings together manufacturers, operators, regulators, and other aviation stakeholders to develop and promote standards for aviation equipment and systems. These standards support international harmonisation and global interoperability for the entire aviation community. As we look back on the past 60 years, we see how EUROCAE has played a vital role in supporting the aviation industry. Through the development of technical standards, always keeping safety and security at the centre of our work, we have been at the forefront of innovation and progress and accompanied the industry over the decades moving towards an ever more integrated, digital and sustainable aviation. From 23 members at the beginning in 1963, we have grown to over 450 members from all over the world, which bring together close to 5,000 experts.

The last years have been a challenge for the global aviation community, but activities at EUROCAE have not come to a halt during these unprecedented times. I am very pleased to see the efficiency and effectiveness of our standardisation process maintained, and even increasing, with around 50 active Working Groups (WG), which are busy developing high-quality standards in support of European and global priorities.

In the past year, we published 26 standards and kicked off three new WGs:

- WG-125 Next Generation Aviation Professionals (NGAP) Programme
- WG-126 VCS-ATC Systems Integration for ATM Information Exchange
- WG-127 Lower Risk Software Applications.

I would like to point out specifically the new WG-125 on NGAP. It may not be the 'traditional' topic for EUROCAE to work on, but it is a very important subject and we see a role to bring together the community to exchange best practices to support building the next generation of leaders. The industry is changing rapidly and it is important to ensure that sufficient qualified and competent aviation professionals would be available to operate, manage, and maintain the future international air transport system. By working together we can make our industry fit for the future and ensure that we have a strong and capable next generation of aviation professionals.

The last year followed the trend of previous years and we registered another increase in membership. At this stage I would like to highlight the outstanding contributions and dedication of close to 450 members to EUROCAE and our activities, and I would like to thank each and every member for their support.

In addition to our members, we value partnerships, such as with other standards-developing organisations (SDOs). Today, those partnerships with RTCA and SAE International stand stronger than ever. More than half of our activities are pursued jointly, resulting in technically identical standards. Synchronised procedures keep the administrative overhead to a minimum, whilst enabling members of each organisation to contribute to the development of globally applicable standards. In addition, this year we continued to create new synergies with new partners and strengthened cooperation with others such as through updated Memoranda of Cooperation with the SESAR 3 Joint Undertaking (SESAR 3 JU) and SESAR Deployment Manager (SESAR DM). These will be very helpful to bring the various stages of the single value chain closer together, connecting R&D to deployment. The alignment with the regulatory frame is of prime importance for such new and innovative subjects, and we are working closely with EASA and other regulators to achieve this.

A major highlight was the EUROCAE Symposium and General Assembly 2023, which took place in Paris, France on 26-27 April 2022. This event was attended by 150 participants on site and up to 200 experts joined the live streaming and discussions virtually. The event fea-

tured several sessions, with the first day focusing on our history, the digital European sky, ATM ground system certification, and the road to zero emission aviation. And the second day consisting of a varied programme, discussing the challenges in advanced and innovative air mobility, the importance of collaboration between military and civilian stakeholders, spectrum, and artificial intelligence. EUROCAE will evaluate the conclusions of these discussions and reflect with the Council and Technical Advisory Committee on possible future standardisation activities. It was a great opportunity to meet our members and partners again and engage in lively exchanges during the Symposium sessions, as well as enjoy our traditional Gala Dinner and honour special contributors during the Award Night.

Together with the Council we have defined our strategy and targets to support the aviation community address these new challenges and opportunities. It takes into account EUROCAE's position within the European and international context and defines our priorities for 2023. As an SDO, our top priority has always been and remains the development of relevant standards – by the members, for the members and the entire aviation community, whose needs are reflected in the annual update of the Technical Work Programme TWP. This year, there is a clear focus on sustainability, and we will proactively work relevant stakeholders to identify standardisation needs and develop and execute a work programme that will support the community in its endeavours towards a zero emission aviation. Other new areas of activities – such as space, spectrum, artificial intelligence, future connectivity, remote towers and virtual centres, or standards for

ATM ground equipment – also continue to grow. All of our activities are described in greater detail later in this annual report.

All these achievements are intrinsically linked to the valuable activity of the EUROCAE Secretariat, who has worked actively with the Council and the TAC to achieve the efficiency gains promised to all our members a few years ago. This stands as tangible proof that our small but very efficient Secretariat team is dedicated and committed to the objectives of the organisation. The team is growing in line with the increase in activities and membership, and we are proud of the competencies of our team members and the great collaborative spirit within the team and with our members and partners.

On behalf of the entire team, I would like to take this opportunity to thank again all members, experts in the WGs, the members of the Council and TAC for your continued support and I wish you a successful continuation of this year.

I hope you will enjoy reading our Annual Report, and your feedback is, as always, highly welcome.

With best regards,

Anna von Groote
Director General

EUROCAE is…

… a non-profit organisation with 60 years of excellence in the development of aviation standards (Airborne, Ground Systems and Equipment) and related documents, as required for use in the regulation of aviation equipment and systems.

EUROCAE is a membership-based organisation, and it gathers over 450 members from leading aviation organisations and companies in the world under its logo.

EUROCAE works to…

…develop standards to suit the needs of the aviation industry, while supporting European and global regulations. Our standards, referred to as EUROCAE Documents (EDs), aim to increase safety and market potential, facilitate interoperability, encourage technological development, and accelerate the introduction of innovative technology.

To develop standards, we offer a collaboration system (EUROCAE Workspace), which is organised by Working Groups (WGs), where our members contribute on a voluntary basis. Over 4,500 experts are collaborating in around 50 active WGs to develop future EDs or maintain existing standards.

The development of EUROCAE Documents is governed by an established process that promotes teamwork, excellence, industry collaboration and is based on openness, transparency, and consensus.

To date, EUROCAE has published more than 300 EDs, which are recognised worldwide as high quality and state-of-the-art standards.

To further support industry and aid understanding of the existing standards and regulations, EUROCAE offers training courses in cooperation with appropriate experts.

EUROCAE has…

…a unique structure, the Technical Advisory Committee (TAC), which unites leading experts from various stakeholder categories in aviation. The role of the TAC is to monitor the consistency and coherence of the EUROCAE strategic work programme and to advise on ongoing and future activities.

EUROCAE currently has over 450 members, including manufacturers, service providers, regulators, research institutes, and international organisations.

EUROCAE membership is available to organisations and industries worldwide.

EUROCAE offers and manages…

- EUROCAE Documents (EDs), Reports (ERs), which are recognised globally for their high quality and relevance
- Contracts with external companies (covering engineering studies and services in relation to EUROCAE's domains of activities, etc.)
- Dedicated technical workshops, symposia (such as the EUROCAE annual Symposium, usually accompanying the General Assembly), and conferences
- Trainings, in cooperation with experts in their fields to provide high-quality training courses
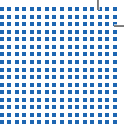
COUNCIL May 2022 – April 2023

COUNCIL OFFICERS

- President / Bruno AYRAL / THALES LAS France
- Vice-President / Michael HOLZBAUER / FREQUENTIS
- Vice-President / Guillaume ROGER / DGAC / DTA / STAC
- Treasurer / Philip CHURCH

ORGANISATION	REPRESENTED BY
AIRBUS Operations	Jean-Christophe ALBOUY
COLLINS AEROSPACE	Marc VENIER
DASSAULT AVIATION	Eric BOUCHARD
DFS	Frank ZETSCHE
DGAC / DTA / STAC	Guillaume ROGER
DSNA	Patrick SOUCHU
EASA	Maria ALGAR RUIZ
EGIS	Philip CHURCH
EUROCONTROL	Philip HUGHES
FRAPORT AG	Thorsten ASTHEIMER
FREQUENTIS	Michael HOLZBAUER
HONEYWELL AEROSPACE	Stéphane MARCHÉ
INDRA SISTEMAS	Francisco SANCHEZ ROMERO
LEONARDO	Giuliano D'AURIA
NATS	Andrew LEESON
SAFRAN	Benoit GADEFAIT
SESAR 3 Joint Undertaking	Peter HOTHAM
SKYGUIDE	Thomas BUCHANAN
THALES LAS France	Bruno AYRAL
THALES GROUP	Bernard FABRE

COUNCIL May 2023 – April 2024

The Council is made up of not less than 8 members, and not more than 20 members. For 2023–2024, 20 Council members were elected by EUROCAE Full Members at the General Assembly.

The Director General is the Council Secretary.

At its first meeting (usually immediately after the General Assembly), the Council elects the President, who also chairs the Council, two Vice-Presidents, and the Treasurer.

The responsibilities of the Council are to:

- define the overall vision, mission and policy of EUROCAE and propose EUROCAE's strategy to the General Assembly
- elect the President, Vice Presidents and the Treasurer
- select and decide on the hiring and dismissal of the Director General (DG)
- approve the business plan and associated annual budget, as well as any additional expenses
- appoint the chair and members of TAC, set its objectives and approve its outputs
- approve the creation and disbandment of WG and their ToR, supervise the WG activities via a report at each Council meeting, and approve the publication of EUROCAE documents
- approve contracts and agreements with third parties beyond the powers of DG
- approve the arrangements for the annual GA and Symposium
- may delegate additional functions and responsibilities to DG.

60ᵗʰ GENERAL ASSEMBLY

The Council normally meets 4 times per year, either at the EUROCAE premises in Saint-Denis or virtually.

The EUROCAE General Assembly was held on 26 April 2023, during the Symposium. Representatives of 45 member organisations and 2 observers joined the meeting. The EUROCAE General Assembly approved the activity report and strategy proposed by the Council, approved the accounts, and elected the Council members for the next term. This was also the opportunity to thank Bruno Ayral, Thales LAS, for his support and dedication as EUROCAE President.

On 27 April, the newly elected Council met for the first time and elected Guillaume Roger, DGAC/DTA/STAC France, as the new President. Guillaume Roger will bring his experience and leadership to the role and continue the organisation's work to advance aviation standards.

"I am very pleased and honoured to succeed Bruno Ayral as EUROCAE President. I would like to thank the members and the council for their trust. Together, with the newly elected council and council officers, we are dedicated to continue leading EUROCAE on the successful pasth that has made it Europe's leading Standards Development Organisation f or aviation", says Guillaume Roger, President at EUROCAE.

Technical Advisory Committee (TAC)

The Technical Advisory Committee (TAC) advises the Council on technical, operational and, on request, on policy matters. TAC is a specific body, composed of 12 specialist members representing different stakeholder groups. The Secretariat is a key participant in the TAC, complementing the overall perspective and ensuring a tight link with the Working Groups. TAC ensures that prospective work aligns with EUROCAE members' interests from the outset, guaranteeing a high technical quality of the standards, fit for purpose and available when needed.

TAC gives advices to the Council and provides technical recommendations on standardisation activities.

It elaborates and maintains the EUROCAE Technical Work Programme, as the core guideline for future EUROCAE activities.

As it includes representatives of key European aeronautical organisations, TAC is well placed to ensure alignment of EUROCAE activities with external entities and regulatory bodies. It places activities within the context of European aviation developments such as the Single European Sky (SES), EASA, SESAR, CleanAviation, and other programmes and initiatives, and coordinates standardisation efforts with our main partner organisations in support of international harmonisation and global interoperability.
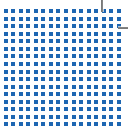
| TAC members	ORGANISATION	Representing
Hette HOEKEMA	EASA	Regulatory Authority
Sasho NESHEVSKI	EUROCONTROL	European ATM Organisation
Laurent AZOULAI	AIRBUS	Aircraft Manufacturers – Commercial aviation
Eric BOUCHARD	Dassault Aviation	Aircraft Manufacturers – Business aviation
Denis RICAUD	Thales Group	Equipment manufacturers – Avionics
Jean-Luc FAILLOT (since Nov. 2022)	SAFRAN	Equipment manufacturers – Aircraft Non Avionic
Pascal ROHAULT (since Nov. 2022)	Thales Air Systems	Equipment manufacturers – Ground Equipment
Siegfried SCHÄFER	DFS	Air Navigation Service Providers
Jaime del MOLINO (since Nov. 2022)	IATA	Airspace users
Robin GARRITY	SESAR JU	European R&D community
Roy POSERN	Fraport	Airports
Sylvain POUILLARD	Safran Electronics & Defense	UAS
Anna von GROOTE	EUROCAE	

EUROCAE Partners

At EUROCAE, our goal is to maintain a relevant and dynamic standardisation process, aligned with the latest developments in the industry and in support of our stakeholder community. To achieve this goal, we work closely with our European and international partners for a consistent approach to standardisation.

Furthering our outreach and building strong relationships and long-term cooperation with key partners are part of our strategic goals.

Implementing this strategic target given by the Council in the Business Plan, EUROCAE concluded the following agreements:

- Memorandum of Understanding between EUROCAE and Korean Institute of Aviation Safety (KIAST), signed in November 2022

- Updated Memorandum of Cooperation between EUROCAE and SESAR 3 Joint Undertaking (SESAR 3 JU), signed in March 2023

- Updated Memorandum of Cooperation between EUROCAE and SESAR Deployment Manager (SESAR DM), signed in March 2023

- Updated Memorandum of Cooperation between EUROCAE and RTCA, signed in April 2023

All our cooperation agreements are regularly reviewed, and if necessary, updated to ensure their continued relevance.
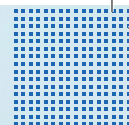
EUROCAE maintains agreements with the following organisations:

- Airports Council International Europe (ACI Europe)
- Japan Aviation Innovation Development Association (AIDA)
- ASD-STAN
- ASTM International
- Civil Air Navigation Services Organisation (CANSO)
- Confiance.AI
- EUROCONTROL
- European Committee for Standardisation (CEN, ESO*)
- European Committee for Electrotechnical Standardisation (CENELEC, ESO*)
- European Aviation Safety Agency (EASA)
- European Cockpit Association (ECA)
- European Telecommunications Standards Institute (ETSI, ESO*)

- General Aviation Manufacturers Association (GAMA)
- Global UTM Association (GUTMA)
- International Council of Aircraft Owner and Pilot Associations (IAOPA)
- International Air Transport Association (IATA)
- International Civil Aviation Organisation (ICAO)
- International Federation of Air Traffic Controllers' Associations (IFATCA)
- Korean Institute of Aviation Safety (KIAST)
- RTCA
- SAE
- SESAR 3 Joint Undertaking
- SESAR Deployment Manager
- Standards R&D Centre

* | ESO: European Standardisation Organisation

EUROCAE Signs Memorandum of Understanding with KIAST

The South Korean aviation industry has been increasingly active, especially in the Unmanned Aircraft Systems (UAS) and Vertical Take-Off and Landing (VTOL) domain. Worldwide interoperability and global harmonisation need international inputs to develop globally accepted and applicable standards. This is an aspect that EUROCAE aims to achieve through its standards, and this goal can only be met if standards are developed in a collaborative manner.
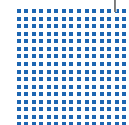
In view of the successful collaboration between EUROCAE and Standard R&D Center of Sejong University, a Memorandum of Understanding (MoU) was signed between EUROCAE and the Korean Institute of Aviation Safety Technology (KIAST) on 10 November 2022. EUROCAE and KIAST agreed on ways to enhance collaboration among these two organisations to support further development of standardisation activities in aviation. The MoU establishes a framework for cooperation through which the organisations will exchange information, share best practices, and participate in each other's activities. It also intends to increase visibility of EUROCAE standardisation activities in South Korea, especially in the domains of UAS and VTOL.

EUROCAE Director General, Anna von Groote, said, "KIAST has been an active EUROCAE member since the establishment of the VTOL Working Group and we are glad to have signed this MoU with them. Developing domains such as UAS and VTOL require inputs from stakeholders across the world, and we are elated to welcome South Korean stakeholders in EUROCAE and to support the aviation community with relevant, globally applicable standards."

Strengthening cooperation with other regions of the world is one of EUROCAE's key objectives, as it supports the development of internationally recognised standards.

EUROCAE and SESAR strengthen cooperation to accelerate the delivery of the Digital European Sky

EUROCAE signed two cooperation agreements with the SESAR 3 Joint Undertaking (SESAR 3 JU) and SESAR Deployment Manager (SESAR DM). Those agreements are aimed at strengthening cooperation and accelerating the delivery of the Digital European Sky as one team.

The cooperation agreements were signed on 9 March 2023 on the occasion of Airspace World (Geneva, Switzerland), the annual gathering of the global air traffic management industry. The memoranda of cooperation between EUROCAE and the SESAR DM, and between EUROCAE and the SESAR 3 JU, both aim to enhance collaboration on standardisation activities in aviation, and speed up the industrialisation and deployment of SESAR Solutions.

The cooperative arrangements will ensure that standardisation requirements are embedded at every stage of the SESAR lifecycle (i.e. definition, research and development, and deployment) and that standards-making is done collaboratively as one team between all industry stakeholders.

Anna von Groote, EUROCAE Director General, said, "The SESAR 3 Joint Undertaking and SESAR Deployment Manager are active EUROCAE members. Innovative and developing domains such as ATM require inputs from stakeholders across the innovation cycle, and we are glad to see this synchronised effort in Europe and for EUROCAE to be an integral part of the innovation pipeline. All together we can support the aviation community with robust, relevant and timely standards."

Andreas Boschen, Executive Director, SESAR 3 Joint Undertaking, said, "Standardisation is critical to ensuring

MOC SIGNING CEREMONY
9 March 2023 – Airspace World (Geneva, Switzerland)

that the outcomes of SESAR research and innovation become an operational reality in line with the performance needs of the aviation industry. This new collaborative arrangement with EUROCAE sets us firmly on the path to delivering an inclusive and sustainable Digital European Sky."

Mariagrazia La Piscopia, SESAR Deployment Manager Executive, said, "I am delighted to sign this memorandum today. Through this reinforced cooperation between SESAR Deployment Manager and EUROCAE we can be even more successful in ensuring stakeholders have the right tools, references, and standards to implement the SESAR Deployment Programme. This arrangement facilitates the continuation of the European journey of ATM modernisation and digitalisation through SESAR as one strong team".
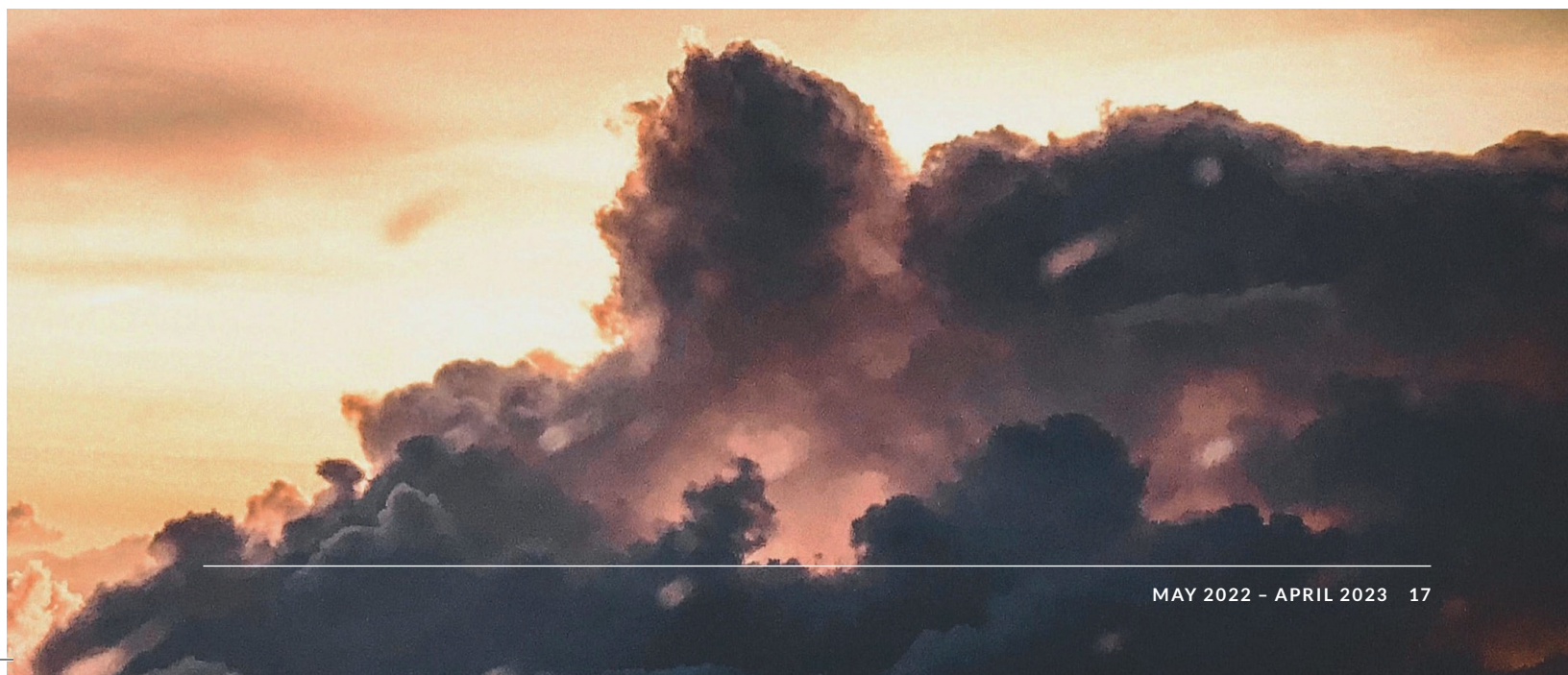
Advancing Aviation Standards: EUROCAE and RTCA Renew Commitment through Updated Memorandum of Cooperation

MEMORANDUM OF COOPERATION
SIGNING CEREMONY
26 April 2023 – EUROCAE Symposium (Paris, France)

RTCA and EUROCAE renewed their commitment of cooperation in the development of joint standards for aviation systems. During the annual EUROCAE Symposium held at the National Air & Space Museum in Paris, France, RTCA President Terry McVenes and EUROCAE Director General Anna von Groote signed an updated Memorandum of Cooperation (MoC). The MoC renews the agreement for both organisations to continue working together for the development of aviation standards.

The cooperative arrangements will enable the development of timely, reliable and effective standards to support interoperability and sustainability in an increasingly complex, global environment that these standards are developed collaboratively as one team between all industry stakeholders.

Anna von Groote, EUROCAE Director General, said, "Our partnership with RTCA has been long-standing and has contributed to strengthening our standards, aligning them with international harmonization and promoting global interoperability. This collaboration has been highly regarded by key stakeholders, including the industry and regulators such as EASA, FAA, and ICAO. The recently updated agreement forms a strong foundation for on-going successful cooperation, encompassing a wide range of topics from shared processes to prospective joint initiatives".

Terry McVenes, President and CEO of RTCA, said, "The renewal of this agreement underscores the commitment of RTCA and EUROCAE towards promoting a culture of international cooperation and teamwork in the creation of standards that enhance safety and efficiency in the aviation industry. We are delighted to continue our collaborative efforts in this regard".

This MOC reinforced the good relationship between EUROCAE and RTCA and the strategic partnership between the two organisations.

EUROCAE / RTCA collaboration over time:

- 1963: Collaboration is established with RTCA right from EUROCAE's creation.
- 1975: First publication of a joint Document RTCA/EUROCAE (ED-14/DO-160).
- 1996: First recognition by ICAO that existing standards, such as EUROCAE and RTCA MOPS, can be used as a basis for SARPs.
- 2014: Signature of a Memorandum of Cooperation MoC between EUROCAE and RTCA.
- 2023: Signature of an updated MoC to reinforce cooperation.
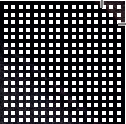
Domains of Activity

EUROCAE activities are classified in 11 domains.

AVIONICS

This domain encompasses all standardisation activities which are related to equipment and systems on board aircraft. It also covers all on-board systems contributing to the CNS (Communication, Navigation and Surveillance) capability. In addition, this domain encompasses standardisation activities related to the various system development activities.

AIR TRAFFIC MANAGEMENT (ATM)

This domain addresses various standardisation activities that concern ATM functions and components and contribute to the safe and efficient movement of aircraft during all phases of operations and to global interoperability. It also covers ground systems providing CNS capability and specific topics related to specialised services (e.g., meteorological, aeronautical data exchange).

AIRPORTS

This domain addresses standardisation activities related to airport systems and equipment, as they are not only important stakeholders in the ATM system, but also key economical players in their region where modernisation of infrastructure is expected together with their expansion.

SPACE

This domain includes all standardisation activities related to space-based solutions, either for providing CNS capability in all phases of operations, or for proposing ATM and Space Traffic Management (STM) capacities. STM is a new concept, which is understood in Europe as relating to the means and rules to access, conduct activities in, and return from outer space safely, sustainably, and securely.

ADVANCED AIR MOBILITY (AAM)

This domain, named Innovative Air Mobility (IAM) in the EU, encompasses emerging concepts such as piloted, unmanned or uncrewed aircraft systems, namely UAS, RPAS, and VTOL, for which a set of standards are needed to support their safe integration in the airspace. It also covers related topics, like UAS Traffic Management (UTM) or U-space in Europe, and ground infrastructure, that are necessary for global integration in the operational environment. New concepts for general aviation will also fall in this domain.

AIR MEDICAL (AIRMED)

Air Medical is a new domain in the EUROCAE portfolio. It addresses measures to support in ccountering the current COVID-19 pandemic or future public health situations. Common guidance and guidelines are needed for the safe detection, handling, and transportation of infectious passengers, aircraft cleaning, disinfection, and similar topics.

SUSTAINABILITY

This domain aims to provide support in building a greener aviation. Standards related to technological and operational measures, such as new energy sources, improved
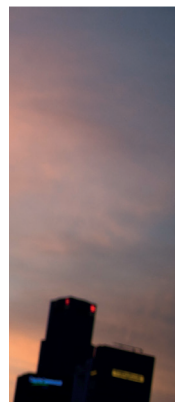
airframes, optimised operations, and other relevant areas are clearly in the scope of this domain. The human pillar of sustainability is also addressed via the Next Generation Aviation Professional (NGAP) Programme.

RF SPECTRUM

This domain encompasses various aspects linked to the use and management of the Radio Frequency Spectrum, and the interoperability issues between aviation systems or functions and their environment, either on-board or in the open.

IT & SOFTWARE

This domain covers initiatives to guarantee the safe design, development, and qualification of aviation software, both for on-board and in ground systems. It also covers the specific topic of artificial intelligence applied in aviation, and more globally the autonomy topic.

SECURITY

The Aeronautical Information Systems Security (AISS) activity addresses security concerns for Aeronautical Information Systems (AIS) within aircraft, as well as their supporting infrastructure and supply chain.

SYSTEM ENGINEERING

The scope of this transversal domain is to accommodate activities on transverse topics that are clearly within the scope of EUROCAE, but do not solely fit within a single domain, such as Environmental Qualification, Aeronautical Database Management, Quality and Safety Design.
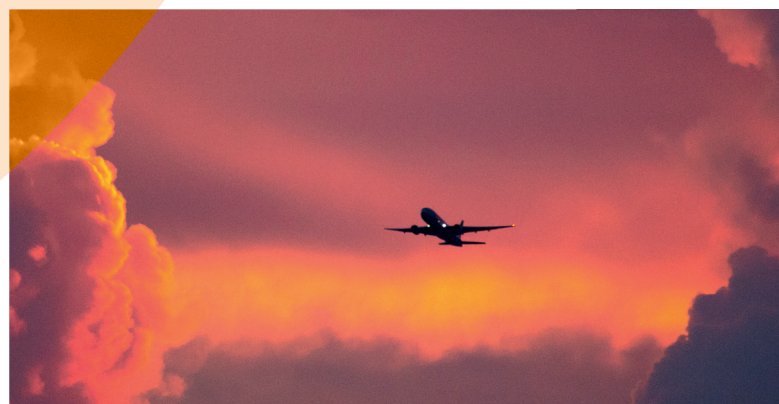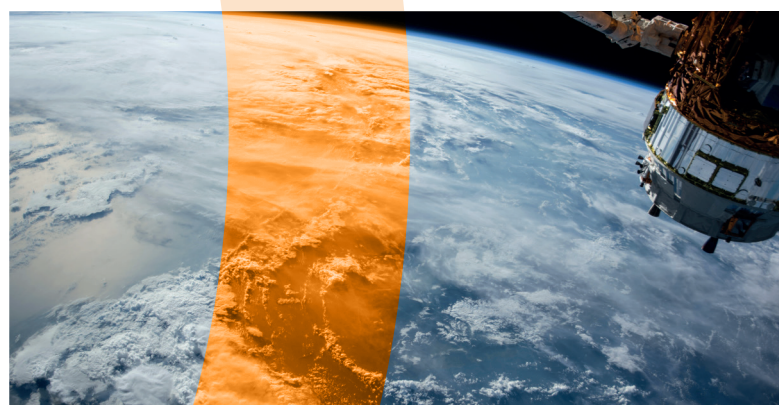
Standards Development – Working Group Activities

EUROCAE's core activity is the development of internationally recognised aviation standards in support of:

- Regulatory requirements (e.g., ICAO, EASA, EU, FAA),
- Research and Development in Europe and globally,
- Industrialisation and deployment of future solutions,
- European and global aeronautical industry.

The number of EUROCAE Working Groups (WG) has grown steadily, expanding into new technical domains.

Since the last annual report, 4 WGs were declared 'dormant' by the Council, recognising they had completed their Work Programme but that new activities may still appear in the near term. Without expected future activities, WG-88 "On-board Weight and Balance Systems" was disbanded by the Council in October 2022.

In January 2023, a new WG was created on a rather different type of activity. WG-125 "Next Generation Aviation Professionals Programme (NGAP)" is due to address the issue of personnel shortages in the aviation industry. Through this WG, EUROCAE aims to engage with members in the aviation industry, universities and students, organisations that work on a similar topic, and act as facilitator in encouraging industry-university collaboration.

At the end of April 2023, around 50 Working Groups (WG) are active.

International collaboration is extremely valuable for the quality, global recognition, and applicability of our standards. Over 5000 experts from almost 50 nations contribute to developing standards in our WGs. This wealth of knowledge is a crucial factor for the high quality of our standards, and we thank every expert for their contribution.

22 of our WGs are joint with Special Committees (SC) from RTCA, our partner Standard Developing Organisation (SDO) based in the US, and 6 WGs work jointly with SAE committees. Joint activities have the objective of developing technically identical standards in a coordinated and timely process.

For each WG, and according to the Terms of Reference approved by the Council, a Work Programme is agreed on by the TAC. This Work Programme defines the activities to be performed by the WG and its Sub-Groups (SG) and the expected standards to be developed. At the end of April 2023, more than 150 deliverables (EUROCAE Documents-ED and EUROCAE Reports-ER) are in the development process.

Details on each WG and their activities are provided in the following pages.
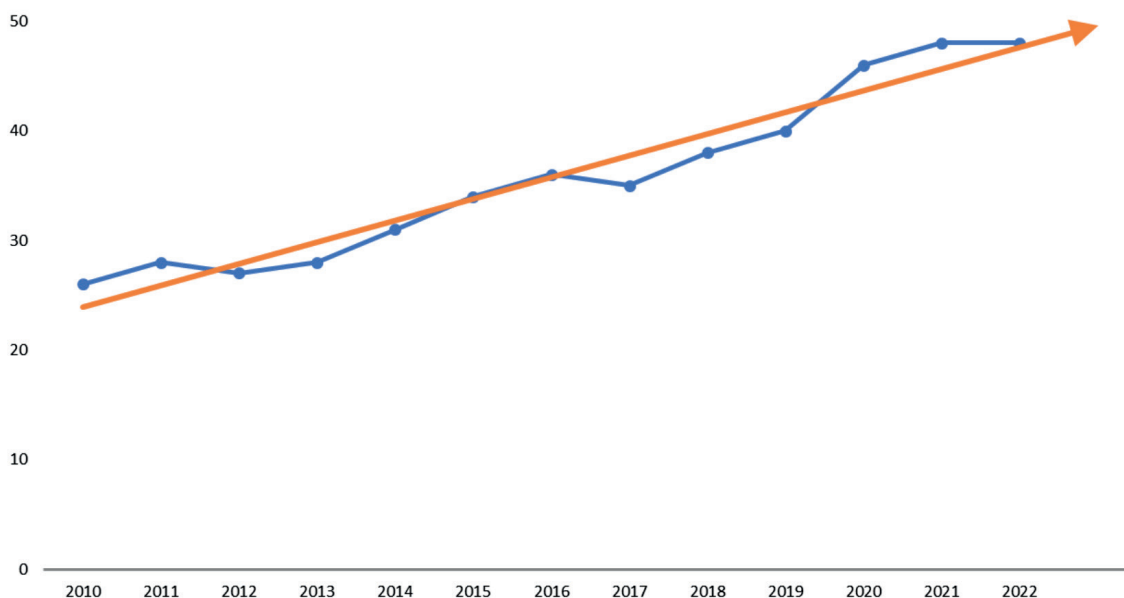
Active Working Groups

The increasing number of WGs also results in an ever-growing number of publications. Around 30 deliverables are published every year, once again with an upward trend.

Regulators and industry alike have expressed their appreciation of the open, transparent and consensus-based process of developing EUROCAE standards. They acknowledge the high quality of our work and the fact that our standards are recognised and applied worldwide.

This development process is documented in the EUROCAE Quality Management System (QMS), through procedures and instructions that are implemented by the EUROCAE Secretariat and WGs. Procedures, work instructions and templates are available to all WG participants in the collaboration system (EUROCAE Workspace).

Procedures and work instructions are regularly updated from return of experience, to improve the quality of the overall process and to optimize implementation by all actors. In 2022, the Open Consultation and the Dissenting Opinion processes were substantially updated.
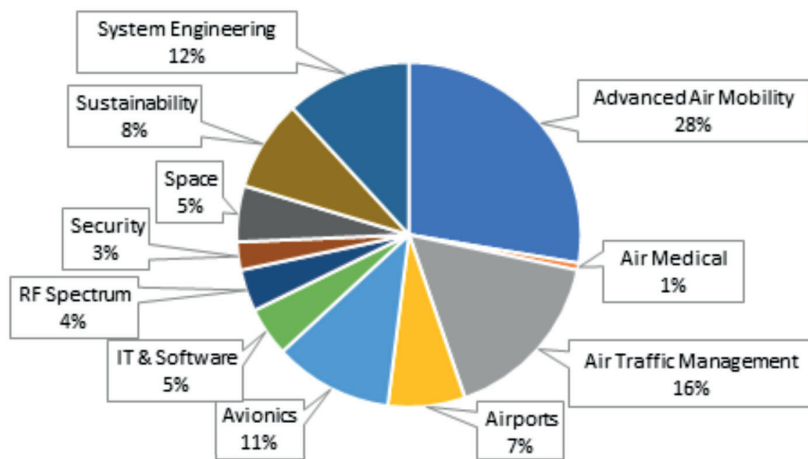
Volume of Activity by Domain
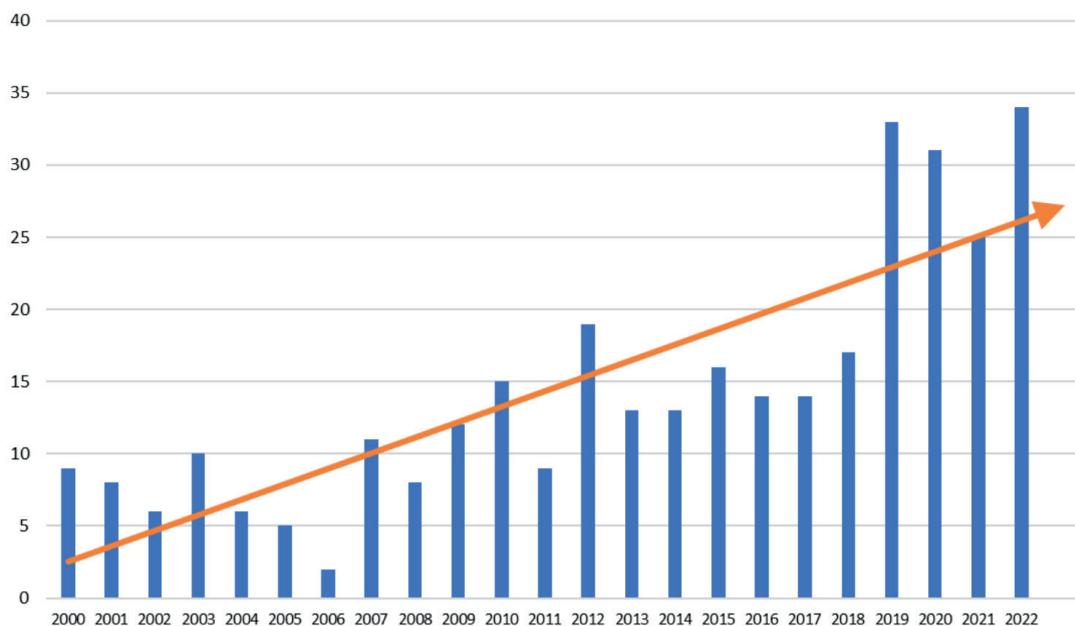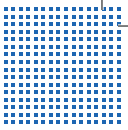
Publications per year

List of Working Groups, organised by domains of activity

Domain	Reference	Title
Avionics	WG-49	Mode S Transponders
	WG-51	Automatic Dependent Surveillance – Broadcast (ADS-B)
	WG-75	Traffic Alert and Collision Avoidance Systems (TCAS)
	WG-79	Enhanced Vision Systems (EVS), Synthetic Vision System (SVS)
	WG-98 *	Aircraft Emergency Locator Transmitters
	WG-110	Helicopter Terrain Awareness and Warning Systems (HTAWS)
	WG-118	Crash-Protected and Lightweight Flight Recorders
Advanced Air Mobility (AAM)	WG-105	Unmanned Aircraft Systems (UAS)
	WG-112	Vertical Take Off and Landing (VTOL)
Airports	WG-41	A-SMGCS
	WG-83	Airport Foreign Object Debris (FOD) Detection Systems
	WG-100	Remote & Virtual Tower (RVT)
	WG-109	Runway Weather Information Systems
	WG-111	Airport Collaborative Decision Making (A-CDM)
	WG-115	Counter UAS (C-UAS)
Space	WG-28	Ground Based Augmentation Systems (GBAS)
	WG-62	GNSS
	WG-82	New Air-Ground Data Link Technologies
Air Medical (AirMED)	WG-123	Infectious passenger handling in air ambulance operations
RF Spectrum	WG-96	Wireless On-Board Avionics Networks
	WG-99 *	Portable Electronic Devices
	WG-119	Radar Altimeters
	WG-124	Spectrum
Security	WG-72	Aeronautical Systems Security

* | Dormant Working Group

Domain	Reference	Title
Air Traffic Management (ATM)	WG-59	Flight Data Processing (FDP) Interoperability
	WG-67	Voice on Internet Protocol (VoIP) for ATM
	WG-76	AIS/MET Datalink Services
	WG-78	Standards for Air Traffic Data Communications Services
	WG-81	Interoperability of ATM Validation Platforms
	WG-85	4D Navigation
	WG-92	VDL Mode 2
	WG-102 *	GEN SUR SPR
	WG-103	Independent Non-Cooperative Surveillance System (INCS)
	WG-104 *	SWIM Services
	WG-107	DME Infrastructure supporting PBN Positioning
	WG-108	ATN/IPS
	WG-122	Virtual Centre
System Engineering	WG-14	Environment
	WG-31	Electromagnetic hazards
	WG-44	Aeronautical Databases
	WG-63	Complex Aircraft Systems
IT & Software	WG-97	Interoperability of virtual avionic components
	WG-114	Artificial Intelligence
	WG-117	Topics on Software Advancement
Sustainability	WG-80	Hydrogen and Fuel Cell Systems
	WG-113	Hybrid Electric Propulsion
	WG-116	High Voltage Systems and Components in Aviation
	WG-125	Next Generation Aviation Professionals (NGAP)

* | Dormant Working Group

WG-49 Mode S Transponder

CHAIRPERSON: Eric Potier, EUROCONTROL
TPM: Alexander Engel

After publishing Revision F of ED-73/DO-181 'Minimum Operational Performance Standards (MOPS) for Secondary Surveillance Radar Mode S Transponders' in December 2020 and Change 1 to the same document in January 2022, the only deliverable contained in the Work Programme of WG-49 is ED-115A 'Minimum Operational Performance Standards for Light Aviation Secondary Surveillance Radar Transponders'. Work on this deliverable has not yet started and it will be evaluated with the members of the Working Group if this deliverable is required at all. A decision about the continuation of the work will then be subject to TAC approval.

WG-51 Automatic Dependent Surveillance-Broadcast (ADS-B)

CHAIRPERSON: Johann Martensson, EUROCONTROL
SECRETARY: Jörg Steinleitner, EUROCONTROL
TPM: Alexander Engel

WG-51 had created four subgroups, two of which have completed their Work Programme and are in dormant state. Sub-Groups 3 and 4 are still active:

■ **Subgroup 1**

This subgroup developed and published ED-102B/DO-260C 'Minimum Operational Performance Standard for 1090 MHz Extended Squitter Automatic Dependant Surveillance – Broadcast (ADS-B) & Traffic Information Services – Broadcast (TIS-B)' including Change 1. The work in SG-1 was performed with EUROCAE WG-49 and RTCA SC-186/SC-209 ADS-B.
Currently, the subgroup is dormant.

■ **Subgroup 2**

Maintains its dormant status.

■ **Subgroup 3**

In the course of 2023 WG-51 SG-3 jointly with SC-186/WG-4 developed an Internal Report titled 'Summary of Activities and Proposed Changes to ED-194B and ED-236A'.
Currently SG-3 is working on a second version of this report to be available by the end of 2023.

■ **Subgroup 4**

SG-4 is responsible for the development of ED-129C 'Technical Specification for an ADS-B Surveillance System'. ED-129C will also contain a partial implementation of ADS-B Version 3 as defined in ED-102B/DO-260C.
ED-129C was submitted to Open Consultation on 16 December 2022 which finished on 21 February 2023. It is expected that the document will be submitted to the Council for approval.
As a follow-up activity, WG-51/SG-4 will develop Revision D of ED-129 for the integration of the complete scope of ADS-B Version 3 as defined in ED-102B/DO-260C.

■ **Additional Activities**

WG-51 is also tasked to develop Revision A to ED-142 'Technical Specification for a Wide Area Multilateration System with Composite Surveillance Functionality'. In line with the latest version of the Terms of Reference, this document is scheduled for publication by June 2025.

WG-75 Traffic Alert and Collision Avoidance Systems (TCAS)

CHAIRPERSON: Guido Manfredi, VOLOCOPTER
SECRETARY: Garfield Dean, EUROCONTROL
TPM: Alexander Engel

WG-75, working jointly with RTCA SC-147, has developed several documents describing various variants of the Airborne Collision Avoidance System (ACAS):

- ED-256/DO-385 'MOPS for Airborne Collision Avoidance System X (ACAS X) (ACAS Xa AND ACAS Xo)', published in October 2018.
- Following the publication of ED-256/DO-385, early work on the implementation of the system led to several observations, which were corrected by publishing Change 1 to ED-256/DO-385 on 17 September 2019.
- Revision A to ED-256/DO-385, consolidating ED-256/DO-385 with their change 1, was developed in the course of 2022 to provide a single reference document for the ETSO.. EASA wanted to use a single reference document for the E-TSO rather than having to reference ED-256 plus the Change 1. Open Consultation on ED-256A/DO-381A took place from 27 November 2022 until 28 February 2023. Comment Resolution Meeting was held on 07 March 2023 and publication of the document is imminent.

- ED-275/DO-386 'MOPS for ACAS Xu', the ACAS variant for Unmanned Aircraft Systems, published on 21 December 2020.
- As different types of collision avoidance systems will simultaneously fly in the airspace in the future, interoperability between these systems is paramount. WG-75 and SC-147 developed ED-264/DO-382 'MASPS for the Interoperability of Collision Avoidance Systems', published on 11 September 2020.

WG-75 is fully involved in the drafting of the document addressing ACAS Xr, which is titled 'MOPS for Rotary Aircraft' and is expected to be published in 2025. Given the expertise available in WG-105 UAS and WG-112 VTOL, members of these working groups were invited to join the activity. What is challenging is the fact that WG-105 is not working joint with their RTCA counterpart SC-228, but the underlying documents to ACAS Xr, like a CONOPS or the OSED are laying the foundation for the ACAS Xr work. This requires close coordination between the groups involved so that also the various environments (airspace, traffic patterns, flight procedures) are properly considered.

WG-75 and SC-147 are also working on a "MOPS for Active Surveillance", publication of which is scheduled for the third quarter of 2025.

WG-79 Enhanced Vision Systems (EVS), Synthetic Vision Systems (SVS)

CHAIRPERSON: Carlo Tiana, COLLINS AEROSPACE
TPM: Esther Hoyas

WG-79 has been assigned the responsibility of creating regulatory guidance documents that encompass all aspects of airborne vision systems. The group is also tasked with harmonising guidance between US and European regulators by joining efforts with RTCA SC-213.

In 2019, the group published ED-255, which sets out the Minimum Aviation System Performance Standard (MASPS) for a Combined Vision Guidance System for Rotorcraft Operations. The focus of this standard was to provide situational awareness operational benefits for a Combined Vision System (CVS) for Helicopter Operations. The group is now working on expanding this document to define vision systems operational credit, with an initial focus on MASPS for Offshore Helicopter Low Visibility Operations, proposed to be ready for Open Consultation by May 2024, with caveat that it can be completed earlier.

In 2021, to support the demonstration of a visual advantage using an Enhanced Flight Vision System (EFVS), WG-79 published ED-291 'Test Procedures for Quantified Visual Advantage'. This publication provides a consensus standard for a method via flight test to measure and quantify the visual advantage performance of an installed EFVS.

The recent publications of ED-255 and ED-291 are significant achievements of the group, and they continue to work towards expanding these documents and harmonising related regulations. The WG-79 jointly with RTCA SC-213 is currently working on MASPS for Enhanced Vision Systems and Enhanced Flight Vision Systems, and MASPS for Synthetic Vision Systems, Synthetic Vision Guidance Systems and Combined Vision Systems, both documents aiming to open consultation in the upcoming months.

In addition, WG-79 works closely with EASA and FAA to understand in what conditions and direction the European specification could evolve, and to support regulatory authorities in this process.

WG-98 Aircraft Emergency Locator Transmitters

CHAIRPERSON: Philippe Plantin de Hugues, BEA
SG-1 CHAIRPERSON: Christophe Chatain, ECA
SG-1 SECRETARY: Carmen Aguilera, EUSPA; Manuel Lopez-Martinez, EUSPA
TPM: Anna Guégan

Created in July 2013, WG-98 is tasked with improving performance standards for Emergency Locator Transmitters (ELTs). In recent years, several aircraft disappearances have occurred over water, including Malaysia Airlines Flight 370. In a number of these occurrences, it was not possible to recover persons on board, major portions of wreckage, or flight recorders. These shortcomings were a direct result of not knowing the location of the missing aircraft. WG-98 has developed standards for the carriage and operation of ELTs to improve emergency response time and activities associated with post-accident recovery processes.

■ **WG-98, jointly with RTCA SC-229 developed:**
ED-62B Change 1 'Minimum Operation Performance Standard (MOPS) for Aircraft Emergency Locator Transmitters 406 MHz' (5 June 2020)

■ **WG-98 SG-1** *ELT Return Link Service (RLS)* **published:**
ED-277 'Minimum Aviation Systems Standards for Aircraft Emergency Locator Transmitter Return Link Service' (February 2021)

These standards address the function of triggering ELT transmissions from the ground. The use of new generation ELTs triggered from the ground through RLS will solve the issue of localisation of non-cooperative aircraft and of general aviation aircraft that have crashed with no ELT activation.

Following the completion of their work programme, WG-98 was set dormant in February 2023.

WG-110 Helicopter Terrain Awareness and Warning Systems (HTAWS)

CHAIRPERSON: Yasuo Ishihara, HONEYWELL INTERNATIONAL
SECRETARY: Mark Prior, UK CAA/SRG
TPM: Esther Hoyas

In response to a series of accidents during offshore helicopter operations, it became apparent that Helicopter Terrain Awareness and Warning Systems (HTAWS) were necessary.

For Class A Helicopter Terrain Awareness and Warning Systems (HTAWS) is mandated for new aircraft first registered after 31 December 2018 under Commission Regulation (EU) 2016/1199 of 22 July 2016 (SPA. HOFO.160(c)). The MOPS are required to form the basis of a technical standard to support the air operating rule mandate. In addition, it has been demonstrated that Class A HTAWS can provide a significant and very cost-effective improvement in the safety of offshore helicopter operations and would address a number of UK AAIB Safety Recommendations.

In order to develop Minimum Operating Performance Standards (MOPS) for these systems to be utilized in offshore helicopter operations, EUROCAE WG-110 was created. WG-110 was assigned the task of creating and publishing the aforementioned MOPS in conjunction with RTCA SC-237.

On 22 March 2021, ED-285/DO-376 'Minimum Operational Performance Standard for Offshore Helicopter Terrain Awareness and Warning System (HTAWS)' was published, with an additional Change 1 document published in May aiming to correct minor graphical errors in ED-285.

Currently, the working group is finalising the development of the second deliverable, ED-xxx 'Minimum Operational Performance Standard for Helicopter Terrain Awareness and Warning Systems (HTAWS) for Onshore Helicopter Operations'. The standard is expected to be published in September 2023.

The primary objective of these MOPS is to ensure that HTAWS used in offshore and onshore helicopter operations meet the highest standards of operational performance and safety. Through the development of these guidelines and standards, the aviation industry can implement HTAWS systems with greater confidence, reducing the likelihood of accidents and improving overall safety measures.

The development of HTAWS standards is just one example of EUROCAE's commitment to contribute to the continuous improvement and safety, demonstrating the industry's proactive approach to mitigating potential risks and protecting its passengers and crew, through the development of valuable industry standards.

WG-118 Crash-Protected and Lightweight Flight Recorders

CHAIRPERSONS: Hannes Griebel, CGI
Jennifer Weiss, ACR ELECTRONICS
SECRETARY: Robin Hudson, DRS
TECHNOLOGIES CANADA LTD
TPM: Esther Hoyas

Several investigations of incidents and accidents involving commercial air transport operations have revealed a need to improve the quality of recorded information, specifically the quality of voice recordings. As a result, accident investigation authorities have issued safety recommendations to consider whether a repeatable and objective analysis technique can be applied to audio recordings to establish consistent performance of cockpit voice recorder (CVR) systems. In addition, the ICAO flight recorder specific working group (FLIREC-SWG) recommended an update and the inclusion of crew-machine interface recording as required by ICAO Annex 6 provisions.

To address these recommendations, EASA recommended an update to the European Technical Standard Order (ETSO-C124b), which refers to EUROCAE standards, ED-112A 'Minimum Operational Performance Standard (MOPS) for Crash Protected Airborne Recorder Systems', and ED-155 'MOPS for Lightweight Recording Systems'. The aim of the update was to include several technical sections directly in the performance standard.

Acknowledging these facts, the Technical Advisory Committee (TAC) recommended the establishment of a new WG, called WG-118 'Crash-Protected and Lightweight Flight Recorders'. The WG was tasked with updating ED-112A to address recording of the information displayed to the flight crew from electronic displays, operation of switches and selectors by the flight crew, voice recorder audio quality assessments, and development in deployable recorders. In January 2023, the ED-112B entered in the open consultation phase.

In addition to the revision of ED-112A and ED-155, the Working Group is presently engaged in the development of a Minimum Aviation System Performance Standard (MASPS) for Crash Protected Recording Systems applicable to Unmanned Aircraft Systems (UAS) and Remotely Piloted Aircraft Systems (RPAS). It is necessary to establish recording system requirements that are commensurate with the scale and complexity of the UAS/RPAS in question, owing to their unique characteristics and considerable variations in system size. The UAS/RPAS recordings will take into account data recording requirements and necessary equipment for the Remotely Piloted Aircraft (RPA), the recording of C2-link, and the data recording and equipment requirements in the Remotely Piloted Station (RPS).

The Working Group has been actively working in these activities through three separated Sub-Groups on SG-1 'Crash Protected Airborne Recorder Systems' focusing on the update of ED-112A; SG-2 'Recording Systems for AAM' focusing on MASPS for Crash Protected Recording Systems applicable to UAS; and SG-3 'Lightweight Flight Recording Systems' focusing on ED-155 update.
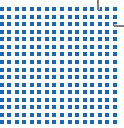
WG-105 Unmanned Aircraft Systems (UAS)

CHAIRPERSONS: Alexandra Florin, Wing,
and Maurizio Goiak, Leonardo
SECRETARY: Akaki Kunchulia, Iris Automation
TPM: Alain Vallée

WG-105 is tasked to develop the necessary standards to enable safe integration of UAS, or Remotely Piloted Aircraft Systems (RPAS) when controlled and monitored from a Remote Pilot Station (RPS), into all classes of airspace. Due consideration is given to emerging European regulations, which are built on a risk-based approach, depending on the category of operation (open, specific, or certified) and industry requirements.

WG-105 is organised in six Subgroups (SGs), and the work performed by these SGs are coordinated by a Steering Committee, which comprises of the chairpersons, secretary, TPM, subgroup leaders and invited stakeholder representatives, to ensure developmental consistency.

The subgroups are working on several deliverables in the following areas:

■ **Detect and Avoid (DAA)**
 DAA against conflicting traffic for RPAS operating under IFR in all airspace classes
 DAA for UAS operating in Very Low Level (VLL)

■ **Command, Control, and Communication, Spectrum, and Security (C3&S)**
 RPAS C2 Datalink
 UAS Communications by Cellular Networks
 C2 MASPS European Stakeholders Report

■ **UAS Traffic Management (UTM)**

WG-112 VTOL

CHAIRPERSONS: Oliver Reinhardt, Volocopter, and Lionel Tauszig, EASA
SECRETARY: Tom Gunnarson, Wisk
TPM: Alain Vallée

WG-112 was created as a reaction of a joint EUROCAE/EASA workshop and held its first meeting on 27 June 2019. WG-112 is tasked to develop industry standards to complement EASA's SC-VTOL with Means of Compliance (MoC). WG-112 set an ambitious timeframe by publishing the first related documents as soon as possible. EUROCAE supports ambitious publishing targets with the introduction of a lean process, using WG-112 as a pilot project. This lean process helped to gain valuable time, minimizing administrative efforts whilst maintaining the core principles of EUROCAE and the goal of publishing high quality standards.

The WG is structured in nine working subgroups:

- SG-1 Electrical Systems
- SG-2 Lift/Thrust
- SG-3 Safety
- SG-4 Flight
- SG-5 Ground infrastructure
- SG-6 Avionics
- SG-7 ConOps
- SG-8 Seats (joint with SAE Seat committee)
- SG-9 Electromagnetic Hazards

The Steering Committee (SG-0) is the coordinating body, composed of the chairpersons, secretary, TPM, sub-group leaders and EASA. SG-0 current work is on defining new tasks to support EASA's fourth priority list of MoC complementing the SC-VTOL. Currently, nineteen standards are under development in WG-112.

Latest publications:

- ED-299 | Guidance for Vertiport Operators and Operations, published on 22 June 2022
- ED-304 | MOPS on Crashworthy Seat Systems for Advanced Air Mobility (AAM) Aircraft, published on 07 October 2022
- ED-306 | Guidance for Rotorburst Analysis for VTOL Enhanced Category, published on 21 October 2022
- ED-300 | Guidance on Conducting Safety Assessments for a VTOL Aircraft, published on 07 November 2022
- ED-307 | Guidance on the Demonstration of Acceptable Occupant Safety – Injury Prevention Measures, published on 07 November 2022
- ED-309 | Guidance on VTOL Energy Level Information Provided to the Crew, published on 02 February 2023
- ED-308 | Guidance on VTOL Charging Infrastructure, published on 24 February 2023
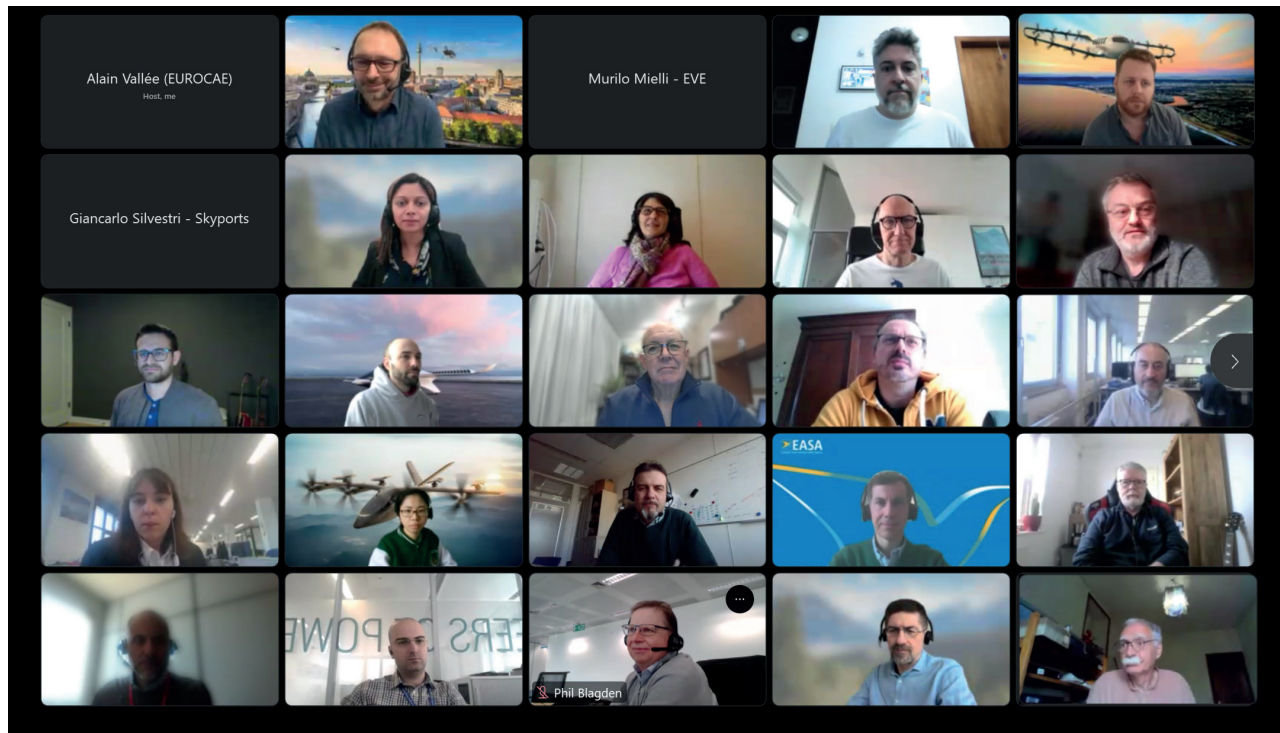
WG-59 Flight Data Processing (FDP) Interoperability

CHAIRPERSONS: Andrés Grijalba, ENAIRE, and Patrick Souchu, DSNA
SECRETARY: Manuel Benitez, INDRA
TPM: Alexander Engel

Based on experience acquired during the implementation of this specification and driven by requirements in the scope of the Pilot Common Project (PCP), WG-59 was reactivated to produce Revision A of ED-133 'Flight Object Interoperability Specification'. Because of technical and interoperability issues it was decided that further validation work is required to develop a stable set of technical and operational requirements.

ED-133A was submitted to Open Consultation from 26 July 2022 to 21 October 2022. In the subsequent Comment Resolution Process it was not possible to resolve all Non-Concur comments. Consequently, the Dissenting Opinion Procedure was invoked was not yet completed.

WG-67 Voice over Internet Protocol (VoIP) for ATM

CHAIRPERSON: Liviu Popescu, EUROCONTROL
SECRETARY: Roberto Weger, SITTI
TPM: Alexander Engel

WG-67 was born following the path to a converged telecommunications network carrying IP-only traffic for data as well as voice communications emerged the reality of an international standard for Voice over IP for the ATC environment.

WG-67 has published three deliverables:

- ED-136B 'Voice over Internet Protocol (VOIP) Air Traffic Management (ATM) System Operational and Technical Requirements'
- ED-137C 'Interoperability Standard for VOIP ATM Components' (published in 4 volumes), including Change 1 documents for Volumes 1, 2, and 4.
- ED-138B 'Network Requirements and Performance for VoIP ATM Systems' (published in 2 parts)

Following the publication of ED-137C (including the Change 1 documents), WG-67 is currently working in line with its updated Terms of Reference (ToR) on Revision A of ED-136 to be published end of 2023.

The Revision of ED-138 will be launched by middle of 2023.

WG-67 is also working on a Change 2 document to ED-137/1C and a Change 1 document to ED-137/5C, both of which are expected to be published by the end of 2023.

WG-76 AIS/MET Datalink Applications

CHAIRPERSON: Vacant
SECRETARY: Macarena Martin Viton, AIRBUS
TPM: Alexander Engel

Together with RTCA SC-206, WG-76 is developing specifications for AIS/MET Datalink Services. The intention of these services is to improve situational awareness for the flight deck by making up-to-date information available using datalink. The number of services has been reduced to nine by consolidating overlapping information. Following the finalisation of the Service Descriptions, work was performed on the Operational Safety Assessment (OSA) and Operational Performance Assessment (OPA). The groups are currently reviewing the complete document. Submission to Open Consultation is scheduled for the end of 2023.
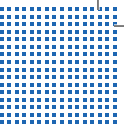
WG-76 has been tasked also to develop a Change 1 to ED-89A 'Data-Link Application System Document (DLASD) for the "ATIS" Data-Link Service' to overcome limitations in the Standard preventing the application for the new Global Reporting Format (GRF) for Runway Condition Reporting as published by ICAO and adopted by EASA. ED-89A imposes a limit on the length of the D-ATIS messages of 800 characters which is not sufficient to include the GRF information for complex runway. layouts. In a first version of Change 1 to ED-89A just a note was added to indicate that the messages may exceed the limit of 800 characters. At that time no test results from communication service providers were available to confirm the feasibility of this implementation.

This version was submitted to Open Consultation from 13 December 2022 to 26 January 2023. Only a single comment was received and the WG-76 approval for publication was sought for during the Plenary meeting on 17 March 2023. During this meeting information was received that some tests had been performed by a communication service provider indicating that it is feasible to transmit those longer messages via the ACARS link. This requires an update to Change 1 to ED-89A which delays publication. It is now expected to have a second Open Consultation during May/June of 2023 with subsequent publication of the document. This work is performed as a EUROCAE WG-76 only activity.

Originally it was planned to develop Revision B of ED-89 making the specification technology agnostic. With the work progressing well, the decision was taken to integrate the D-ATIS service into DO-364A/ED-XXX rather than publish it as a stand-alone document.

In line with the latest update to the ToR, WG-76 is also working with SC-206 on a review of DO-370 'Guidelines for In Situ Eddy Dissipation Rate (EDR) Algorithm Performance', an RTCA only document. Since its publication end of 2017, the technology for the detection and reporting of turbulence has made quite some progress. The Internal Report summarises the changes required to DO-370 in order to align it with the latest technology. The IR will not be published but will be the source for additional activities on a Revision of DO-370 or a complementary separate document. The IR was completed in March 2023. It proposes to develop a "MASPS for Automated Atmospheric Turbulence Derivation Techniques". This will be proposed to TAC decision by June 2023. To achieve a harmonised global implementation the work will be performed jointly by EUROCAE and RTCA with a publication planned for Q2/2025.

WG-78 Standards for Air Traffic Data Communications Services

CHAIRPERSON: Luc Emberger, AIRBUS
TPM: Alexander Engel

To advance Communication, Navigation, Surveillance/ Air Traffic Management (CNS/ATM) concepts and support data communication developments for the Next Generation Air Transportation System and the Single European Sky ATM Research initiatives, WG-78/ SC-214 shall develop guidance material to define the safety, performance and interoperability requirements for Air Traffic Services (ATS) supported by data communications.

WG-78/SC-214 developed the following documents, published in April 2016:

- ED-228A/DO-350A 'Safety and Performance Requirements Standard for Baseline 2 ATS Data Communication'.
- ED-229A/DO-351A 'Interoperability Requirements Standard for Baseline 2 ATS Data Communications'.
- ED-230A/DO-352A 'Interoperability Requirements Standard for Baseline 2 ATS Data Communication – FANS 1A Accommodation'.
- ED-231A/DO-353A 'Interoperability Requirements Standard for Baseline 2 ATS Data Communication ATN Baseline 1 Accommodation'.

The groups were reactivated in 2021 to revise the above documents in order to reflect experience gained during validation exercises. Specifically, a Very Large Scale Demonstration, involving revenue flights equipped with certified B2 avionics, has been executed and has delivered a comprehensive demonstration report.

These initiatives provided crucial validation feedbacks that require a thorough assessment in order to define appropriate updates to the B2 standards, both for Safety and Performance Requirements (with proper consideration to Security risks) and for Interoperability Requirements.

- WG-78/SC-214 developed Revision B of the documents in the course of 2022 and 2023.
- ED-228B/DO-350B and ED-229B/DO-351B were submitted to Open Consultation from 25 March 2023 to 08 May 2023 and are in Comment Resolution.
- ED-230B/DO-352B and ED-231B/DO-353B will be submitted to Open Consultation during the second half of 2023.

WG-81 Interoperability of ATM Validation Platforms

CHAIRPERSON: Thomas Damm, DFS
SECRETARY: Jose Manuel Cordero, ENAIRE
TPM: Alex Milns

Established in 2008, Working Group 81 is tasked to analyse the means, opportunities and technical challenges to enhance the functionality and behaviour of ATM simulation platforms, linking different real-time platforms and
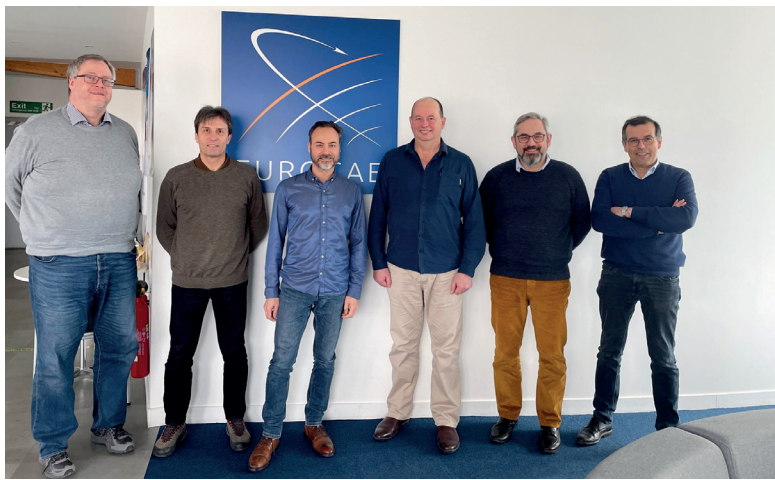
by incorporating fast-time models and tools. WG-81 also looks into study requirements for this interoperability and examines the requirements for common data interchange standards, data preparation facilities and high-level exchange protocols.

WG-81 developed ED-147B 'ATM Validation Platforms Interoperability Specification', as well as the associated ED-148A 'Guidance to Achieve ATM Validation Platforms Interoperability' which were published in November 2021. The Working Group is currently developing a supplement to ED-147B which will provide implementation rules for the application to run time infrastructure of the widely used High Level Architecture (HLA as per IEEE 5116).

SESAR projects need to perform verification and validation exercises at the level of ATM Services in order to sustain the development of the ATM concepts and systems throughout the research and development life cycle. The validation of SESAR concepts requires the support of integrated validation/verification infrastructures for research, development and training defined and organised at the European level. The deliverables of WG-81 support this R&D activity through the provision of interoperability standards for ATM Validation Platforms.

WG-85 4D Navigation

CHAIRPERSON: Okuary Osechas, DLR
SECRETARY: Ricardo de Sousa, NATS
TPM: Alexander Engel

This working group develops navigation standards intended for designers, manufacturers, and installers of avionic equipment; airspace managers and service providers; and the users of these navigation systems for world-wide operations. The new MASPS will provide guidance for the development of airspace and operational concepts needed to obtain the benefits of enhanced navigation capability in the aircraft.

WG-85 developed ED-75D 'Minimum Aviation System Performance Standards: Required Navigation Performance for Area Navigation' in October 2014, as a joint document with RTCA SC-227 (the equivalent RTCA reference is DO-236C plus Change 1), which was subsequently published.

On 9 June 2020, the Council approved the reactivation of WG-85 *4D Navigation*.

The group, in a joint effort with RTCA SC-227, is revising ED-75/DO-236 to "ensure more robust support for implementation of PBN operations relying on the RNP system by offering new minimum performance standards

to provide resilient RNP capability through DME naviga-tion". The committee will also address PBN lessons learned as applicable to the material in the RNP MASPS and MOPS and offer ancillary improvements to the standards.

The work on ED-75/DO-236 is complimentary to current activities in WG-107. The MASPS that is being developed by WG-107 focuses on infrastructure re-quirements as a complement to the aircraft-focused ED 75/DO-236. WG-85/SC-227 are in coordination with WG-107 regarding assumptions about aircraft behaviour when navigating using DME as an area navigation sensor. WG-107 will support WG-85/SC-227 concerning assumptions about DME infrastructure performance.

ED-75E/DO-236C was published on 24 June 2022.

On 27 July 2021, the TAC approved an update to WG-85's ToR by adding a new deliverable to its Work Programme, ED-xxx 'MOPS for Required Navigation Performance for Area Navigation'. This document thus far was an RTCA only deliverable (DO-283). Since the implementation of the MOPS should be harmonised globally, it was agreed to perform the revision of DO-283 as a joint activity. Publication of the standard is foreseen for Q1/2024.

WG-92 VDL Mode 2

CHAIRPERSON: Stephane Pelleschi,
COLLINS AEROSPACE
TPM: Alexander Engel

WG-92 is working jointly with RTCA SC-214 VDL sub-group and in close coordination with AEEC Datalink Committee. With the introduction of Aeronautical Tele-communications Network/Internet Protocol Suite (ATN/IPS) and the related need for security, there is an oppor-tunity to update VDL Mode 2, such that will optimise ATN/IPS operations.

After ED-92C was published in 2018, WG-92 continues its effort on:

- Collecting and resolving the comments from implementers of ED-92C and
- Providing inputs to other VDL Mode 2 standards ac-tivities in order to ensure their consistency with ED-92C,
- Support the European DLS-IR and the US DATA-COM deployments and review the recommendations for standards improvements.

In line with the current version of the Work Programme, the groups a currently working on:

- ED-92D: Minimum Operational Performance Stand-ards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer – Publication End 2023
- ED-XXX – Signal-in-Space Minimum Aviation Sys-tem Performance Standards (MASPS) for Advanced VHF Digital Data Communications – Publication End 2023

WG-102 GEN-SUR SPR

CHAIRPERSON: Roland Mallwitz, DFS
SECRETARY: Jörg Steinleitner, EUROCONTROL
TPM: Alexander Engel

The development of the GEN-SUR SPR follows a top-down, operationally driven approach, in line with operational ICAO material (in particular PANS-ATM) and in line with the existing European regulations. ATC SUR Function requirements are established on the provision of Air Traffic Control services within various typical operational environments and with respect to the separation of aircraft. This is assessed from both a nominal and non-nominal performance perspective, for a range of reference ATC Sector types covering the en-route, TMA and approach flight phases.

After publishing ED-261 on 12 April 2022, WG-102 is 'dormant'.

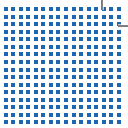# WG-103 Independent Non-Cooperative Surveillance (INCS) System

CHAIRPERSON: Javier Ceballos-Gutierrez, EUROCONTROL
SECRETARY: Hannes Stahl, Hensoldt
TPM: Alexander Engel

Mitigating clutter originating from wind farms and detecting small Remotely Piloted Aircraft are new demands being placed on new sensor designs. WG-103 is tasked to develop a Technical Specification for an INCS System.

It was established in recognition that the design of Non-Cooperative Sensors is undergoing a renaissance. The sensors that traditionally fulfilled this need, rotating Primary Surveillance Radars, are now supplemented by a host of new designs made possible through technical advancements that have occurred in recent years. As technologies develop, operational requirements have similarly adapted to meet evolving environments.

The lack of a common technical specification, upon which to base the designs of emerging sensors, threatened to lead to a plethora of sensor types with the potential risk that none met the operational needs of the end user. The WG has made significant progress on assembling a balanced specification that is agnostic enough so as not to unnecessarily constrain designs, yet precise enough to ensure that systems produced in accordance with it are interoperable and capable of meeting user requirements. The WG comprises a diverse mix of sensor manufacturers and ANSPs. Whilst the participation is largely European, there are also representations from America and Asia.

ED-288 was submitted to Open Consultation in December 2020. Comment resolution proved to be very complex (also because of the Non-Concur Comments), is still ongoing, and the changes applied are such that a second Open Consultation will be required.

WG-104 System Wide Information Management (SWIM)

Chairperson: Oliver Krüger, DFS
Secretary: Eric Roelants, EUROCONTROL
TPM: Alexander Engel

The System Wide Information Management (SWIM) concept consists of standards, infrastructure and governance enabling the management of ATM related information and its exchange between qualified parties via interoperable services.

WG-104 has developed the following SWIM related documents:

- ED-254 'Arrival Sequence Service Performance Standard', published on 3 July 2018
- ER-018 'SWIM Service Standardisation Package', published on 11 July 2018
- ED-294 'SWIM Service Specification Template and Methodology', published on 9 December 2021
- ER-024 'Final Report on the Activities Undertaken by WG-104', published on 11 January 2022

After publication of ED-294 and ER-024, WG-104 was set dormant.

WG-107 DME Infrastructure supporting PBN Positioning

CHAIRPERSON: Gerhard Berz, EUROCONTROL
SECRETARY: Maurizio Scaramuzza, SKYGUIDE
TPM: Alexander Engel

The 12th ICAO Air Navigation Conference recognised the continued need for terrestrial-based reversion capabilities to guard against the risks associated with GNSS outages. Currently, GPS is the enabling infrastructure for all PBN navigation applications, both Area Navigation (RNAV) and Required Navigation Performance (RNP). DME/DME is considered to only support RNAV applications. This leads to the perception that in case of loss of RNP capabilities based on GPS, reversion to a lower performing navigation capability and associated mitigation measures become necessary. An analysis conducted by EUROCONTROL, AIRBUS and other partners (SESAR 15.3.2 D12) has concluded that RNP1 performance can be ensured based on DME/DME, provided that the ground transponder can be relied on for part of the integrity budget. Without such reliance, the on-board reasonableness checks cannot detect all identified possible faults. Fortunately, current equipment readily meets this integrity requirement despite not being specified in Annex 10.

The support to PBN encompasses the following Working Group objectives:

- Improve the robustness of DME infrastructure supporting RNAV specifications to ensure reliable performance, in case of a GNSS outage.
- DME infrastructure requirements to permit prolonged support to PBN operations requiring an RNP1 navigation specification in case of a GNSS outage (also called RNP reversion).
- DME infrastructure requirements and assessment means to fully support RNP operations, including as a minimum (but not limited to) the RNP1 navigation specification. This will include guidance for States to approve RNP operations based on DME.

For ground functions, the objective is to revise ED-57 to reflect current equipment performance. To provide clearly documented means for Air Navigation Service Providers to offer an RNP reversion mode based on DME/DME positioning, a separate MASPS is being developed that explains the overall concept and describes the various system elements and allocations to both the ground and the airborne segment. The MASPS is envisioned to be a standalone document, while ensuring consistency with the complementary document, ED-75/DO-236. While WG-107 focuses on ground equipment, WG-85 together with RTCA SC-227, has developed a revision of ED-75D/DO-236C Change 1, which improves the behaviour of the airborne components. To ensure consistency of WG-107 deliverables with ED-75E/DO-236D, close cooperation between WG-107 and WG-85/SC-227 has been established. WG-107 is expected to complete this work by the first quarter of 2024.

WG-108 ATN/IPS

CHAIRPERSON: Stephane Pelleschi,
COLLINS AEROSPACE
TPM: Alexander Engel

This WG determines what exactly is needed to ensure the deployment of ATN/IPS, providing guidance to ensure a consistent end-to-end deployment. WG-108, jointly with RTCA SC-223, published ED-262/DO-379 'Technical Standard of Aviation Profiles for Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)' in September 2019. A revision of the standard is ongoing following the ATN/IPS standards development work carried out by ICAO. ED-262A/DO-379A is expected for Open Consultation in the course of 2023.

In addition, ED-315/DO-404 'Minimum Aviation System Performance Standard (MASPS) on ATN/IPS end-to-end interoperability and certification' in support of the certification of the avionics systems and deployment and implementation of the ATN/IPS network is being developed by the group. ED-316/DO-404 was in Open Consultation from 05 April 2023 to 20 May 2023 and is expected to be ready for publication in the course of 2023.

The work is performed in close coordination with ICAO and Airlines Electronic Engineering Committee (AEEC) of ARINC as well as the entire community, to align the content and availability date of all standards.

WG-122 Virtual Centre

CHAIRPERSON: Nicolas Suarez Tetzlaff, ENAIRE
SECRETARIES: Ben Stanley and
Isabel Franke-Chaudet, EGIS AVIATION UK
TPM: Alex Milns

Working Group 122 was established on 2020 and is closely aligned to the SESAR projects focussed on development of the Virtual Centre concept, and the different service architecture models being proposed theough that work.

The Working Group produced its initial deliverable, ER-026 on 'Virtual Centre - Strategy for Standardisation - Phase 1' in January 2022.

The report outlines the context of the Virtual Centre concept and proposes a detailed work programme for Virtual Centres services standardisation. It provides a comprehensive review of the current context and a detailed work programme for future standardisation activities, while taking the status of R&D activities, industrialisation, and stakeholders' needs into account. It aims to develop a performance-based approach to the Virtual Centres services standards, while remaining focused on the outcomes in terms of perceived benefit (or need) and feasibility. The roadmap for standardisation of Virtual Centres services follows a phased approach, with priorities laid out and dependencies understood. ER-026 is the foundation for the future work programme of standards to be developed.

WG-122 is now developing a taxonomy of services for Virtual Centres, specifically focusing on service identification and interfaces between entities. This deliverable is expected to be finalised and issued as a EUROCAE Report in Q4/2023.

WG-41 Advanced Surface Movement Guidance and Control System (A-SMGCS)

CHAIRPERSON: Roy Posern, FRAPORT
SECRETARY: Vasileios Stefanioros, EASA
TPM: Alex Milns

WG-41 addresses functionalities of Advanced Surface Movement Guidance and Control Systems (A-SMGCS) for airports, taking into account the latest developments on A-SMGCS resulting from SESAR projects and relevant current activities in other bodies, such as EUROCONTROL.

In April 2022, Working Group 41 published ED-87E 'Minimum Aviation System Performance Standard (MASPS) for Advanced Surface Movement Guidance and Control Systems (A-SMGCS)', updating ED-87D and extending it with functional descriptions and performance requirements of the Guidance Service as defined by EUROCONTROL and develop appropriate test procedures.

During the remainder of 2022 and into 2023, WG-41 continued the development of an Interoperability document for A-SMGCS, where the range of system interfaces needed to support optimal airport operations and latest SESAR project outcomes will be defined. WG-41 has also commenced a review of ED-128, to be renamed

'Guidelines for the Implementation and Operation of A-SMGCS' reflecting the broader scope with the incorporation of routing and guidance functions into the scope of the document. Members of WG-41 maintain close liaisons with EUROCONTROL and ETSI, ensuring the technical specifications in the EUROCAE documents remain aligned with the related EUROCONTROL Specifications and ETSI Community Specifications (CS) and European Norms (EN).

WG-83 Foreign Object Debris Detection (FOD)

CHAIRPERSON: Stephane Larose, THALES LAS
SECRETARY: Arthur Ni, FLYINSTINCT
TPM: Alex Milns

Created in 2010, WG-83 Airport Foreign Object Debris (FOD) Detection Systems is tasked with developing guidance documents to support airports in implementing systems that deal with FOD detection.

After developing ED-235 'Minimum Aviation System Performance Specification for Foreign Object Debris Detection System' in 2016, the WG proceeded with the

definition of the associated OSED to help airports in defining their CONOPS using a FOD detection system. ED-274 'OSED for Aerodrome Foreign Object Debris Detection Systems' was published in August 2020

WG-83 is currently updating ED-235 to take account of latest technologies such as sensors and artificial intelligence for FOD identification and classification. ED-235A 'Minimum Aviation System Performance Specification for Foreign Object Debris Detection System', is expected to be released for Open Consultation later in 2023.

WG-100 Remote and Virtual Tower

CHAIRPERSON: Jörn Jakobi, DLR
SECRETARY: Mark Edry, RAYTHEON
TPM: Alex Milns

WG-100 *Remote and Virtual Tower* was launched in June 2014. The group has been developing the MASPS for Remote Tower Optical Systems (ED-240) in parallel with the technology developments in this emerging field, in alignment with SESAR projects and operational trails and implementation of Remote Tower technology.

The first edition of ED-240 was released in September 2016; since then ED-240A (2018) and ED-240A Ch1 (2021) have progressively increased the scope of the document to cover more functionalities that can be optionally implemented for Remote Tower Optical Systems. In particular, ED-240A Ch1 featured a refurbishment in terms of improved user-friendliness and readability, a better explanation of developing and measuring Detection and Recognition Range Performance (DRRP) requirements, and more consistent verification and validation procedures. It also includes material on how the document can be addressed by different stakeholders, augments the material to give additional guidance and incorporates the latest developments and experience of the WG members as they are involved in new Remote Tower installations in Europe, North America, and Asia.

Currently, WG-100 is developing ED-240B, which adds the processing and integration of information produced by existing or emerging surveillance systems/sensors, such as Primary Surveillance Radar (PSR), Secondary Surveillance Radar (SSR), Surface Movement Radar (SMR), Wide Area Multilateration/Airport Surface Multilateration (WAM/MLAT), Automatic Dependent Surveillance Broadcast (ADS-B), and/or other sensors. Open Consulation for ED-240B closed in early June 2023, and the Working Group is planning to publish the document later in 2023.

In 2023, Jörn Jakobi, chair of WG-100 was awarded the EUROCAE Working Group Leadership Award for his remarkable leadership of the group since it began. Also, from WG-100, Mark Brown, from ENRI in Japan, was awarded the EUROCAE International Award, recognising his long-standing commitment to WG-100, most recently as document editor for ED-240B, as well as his earlier contributions to WG-78.

WG-109 Runway Weather Information Systems

CHAIRPERSON: Guillaume Roger,
DGAC STAC (until March 2023)
Bruno Boggio, DGAC STAC (since May 2023)
TPM: Alex Milns

With the implementation of the Global Reporting Format (GRF), ICAO emphasised the importance of runway condition assessment. To assess aircraft landing and take-off performance on a given runway, aerodrome operators need to evaluate the meteorological contamination of pavements. Runway Weather Information Systems (RWIS) are intended to help the aerodrome operator in assessing and evaluating the runway condition.

To support the GRF, EUROCAE established WG-109 in 2018 with the task to develop minimum requirements for RWIS, define the performance expected from the systems, and a way of verifying that the latter is achieving the performance expectations.

In December 2021, ED-292 'Minimum Aviation System Performance Standard for Runway Weather Information Systems' was published, which is one of the first standards to specify the minimum performance requirements to support airports in implementing the relevant ICAO Standards and Recommended Practices and EASA regulation related to GRF. Currently, the group is observing the application of the standard and gathering inputs for future activities.

WG-111 Airport Collaborative Decision Making (A-CDM)

CHAIRPERSON: Segun Alayande, HEATHROW AIRPORT on behalf of ACI EUROPE
SECRETARY: Ieyasu Sugimoto, ADB-SAFEGATE
TPM: Alex Milns

A-CDM is a programme aimed at improving operational performance at airports. The programme involves not only the airport operators but also other stakeholders such as ANSPs, aircraft operators, ground handlers, de-icing companies, and supporting services.

Many airports have already implemented and benefited from the efficiencies of A-CDM programmes. This is not a new topic for EUROCAE, as the first A-CDM standards were published in 2008. Since 2008, the Airport CDM community has continued to update A-CDM procedures and system features. This functional evolution of A-CDM and requirements derived from the European Pilot Common Project (PCP) or other domains with close connections to A-CDM triggered the need to update related EUROCAE documents.

On 26 February 2019, the EUROCAE Council approved the creation of a new Working Group to update existing EDs on A-CDM and to take requirements on A-CDM in the appropriate context of A-SMGCS into account, regarding routing and dynamic taxi times, and SWIM A-CDM Service definition, providing requirements for the interoperability between the ATM and airport domain. The work programme of WG-111 consists of four deliverables:

- ED-141A Minimum Technical Specifications for A-CDM Systems
- ED-145A A-CDM Data Model Specification
- ED-146A Guidelines for Test and Validation Related to A-CDM Interoperability
- ED-xxx A-CDM SWIM Interface Specification

WG-111 members represent over 15 organisations, including regulators, airports, ANSPs, aviation consultancy services and manufacturers, among others. The group is coordinating its efforts and expertise to develop and share best practices for A-CDM implementation. The participants emphasised the importance of this activity and the need to ensure proper information exchange for each phase of aircraft operation, such that other users can access this information and plan appropriately. WG-111 coordinates its work with other relevant initiatives for the benefit of the A-CDM user community, in particular with EUROCONTROL which is developing A-CDM Functional Specifications; these will be complemented by the more technical focus of the EUROCAE Working Group.

WG-115 Counter UAS (C-UAS)

CHAIRPERSON: Philippe Robin,
CS GROUP (until January 2023) and
Assaf Monsa Chermon,
D-FEND SOLUTIONS (since March 2023)
SECRETARY: Juan Lopez Campos, INDRA
TPM: Alex Milns

EUROCAE WG-115 was created in 2019, and it is tasked with developing standards for the management of unauthorised Unmanned Aerial Systems (UAS) operations around airports. The Working Group focuses on the development of performance and interoperability requirements for Counter UAS operations. WG-115 works jointly with RTCA SC-238, with members of both organisations working closely together to develop standards in this relatively new technology area.

The use of unauthorised UAS (popularly known as 'drones') in the vicinity of major airports has significantly impacted airport and flight operations. Many close UAS encounters have been reported during approach, landing, and take-off of conventional aircraft, and this has an impact on flight safety. These occurrences regularly lead to the suspension of flight operations and have a significant impact on the airport, airlines, and the flying public.

In 2021, WG-115 published ED-286 'Operational Services and Environment Definition (OSED) for Counter-UAS in Controlled Airspace', which introduces the overall capability of a C-UAS System, including the detection capabilities of unauthorised UAS in a protected area of influence around an airport, and it address the resulting hazard or threat in a risk-based balanced manner.

The group is working towards the publication of a new document 'System performance and interoperability requirements for non-cooperative UAS detection systems' to provide a baseline standard for the detection component of the Counter UAS system. The next step for the group will be to review the OSED in light of more recent developments, in both the available technology and a better understanding of the operational scenarios for Counter UAS deployments. The topic of interoperability of the Counter UAS with existing airport and other systems will be a further topic for standards development, particularly to ensure the neutralization or disruption functions of a Counter UAS do not adversely existing systems.

WG-28 Ground Based Augmentation System (GBAS)

CHAIRPERSON: Linda Lavik, INDRA
TPM: Anna Guégan

WG-28's activities are driven by the objective of developing standards for GBAS ground sub-systems. This includes multi-constellation multi-frequency concepts based on Galileo.

Since its creation in December 1985, WG-28 has worked on the maintenance of ED-114, 'Minimum Operational Performance Standards (MOPS) for Global Navigation Satellite Ground Based Augmentation System (GBAS) Ground Equipment to support Precision Approach and Landing'.

ED-114B Change 1, 'MOPS for GNSS GBAS Ground Equipment to Support for Precision Approach and Landing' was published in November 2022. ED-114B Change resolves issues and reflect changes in the
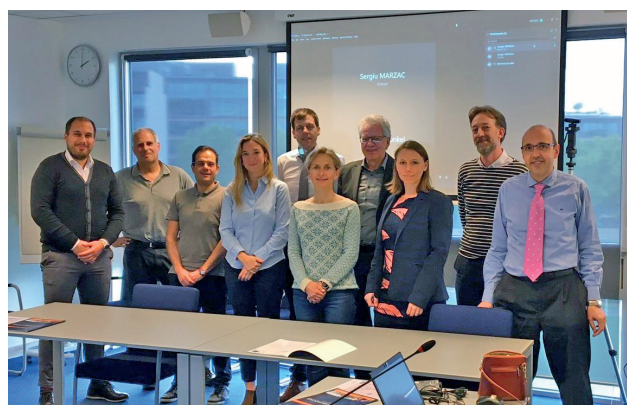
ICAO Standards and Recommended Practices (SARPs) and RTCA airborne MOPS on the topic of Very High Frequency Data Broadcast (VDB). ED-114B Change 1 also identifies dependencies between ground and airborne elements of GBAS for consideration in equipment approval.
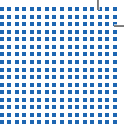
The WG is now working on Preliminary material for future Multi-Constellation Multi-Frequency GBAS MOPS. The target date for the submission to TAC of this Internal Report is December 2024.

WG-28 is collaborating with ICAO Navigation System Panel (NSP) in the context of GBAS Dual Frequency Multi-Constellation (DFMC) developments. The group also continues to monitor activities within WG-62 GALILEO and RTCA SC-159 Global Positioning System. These groups are developing airborne MOPS that will be relevant for GBAS DFMC operation.

WG-62 GNSS

CHAIRPERSON: Pierre Bouniol, THALES GROUP
SECRETARY: Mikael Mabilleau, EUSPA
TPM: Anna Guégan

Galileo is providing initial operational capability since 2018 and will reach full operational capability (FOC) in the coming years. Global Positioning System (GPS) L5 FOC is also planned by 2028 with more and more dual frequency satellite in operation while the GPS III satellites are put in operation. The European Geostationary Navigation Overlay Service (EGNOS) is modernising its infrastructure to augment GPS and Galileo by 2028.

In this context, the work of WG-62 is focused on the development of the Satellite-Based Augmentation System (SBAS) Dual Frequency Multi Constellation (DFMC) receiver Minimum Operational Performance Standard (MOPS). A first version of the document ED-259 was published in February 2019. A second version, developed jointly with RTCA SC-159 WG2, is expected by September 2023. This document is a major part of the regulatory framework, leading to the certification of the new generation of GNSS equipment.

ED-259A has been developed putting on equal relevance GPS and Galileo constellations and maximising the capabilities of a combined GPS and Galileo airborne receiver, without prioritizing the use of one core constellation over the other, based on their committed performances in the SARPs. ED-259A allows NAV modes making use of Galileo-only measurements allowing the possibility to define specific classification of equipment to support standalone constellation receiver (GPS-only or Galileo-only receiver). To limit the effort in standard configuration control and management of evolution, the WG-62 removed from its workplan the development of Galileo only MOPS.

The objective of WG-62 will focus on the integration of Advanced Receiver Autonomous Integrity Monitoring (ARAIM) and management of possible institutional constraints in a revision of the MOPS for 2024, in cooperation with RTCA.

WG-62 members are actively solicited. In 2022, four Plenary meetings took place, joined with RTCA (SC-159 SG-2). In addition, SBAS DFMC MOPS Authors' and Editors' groups are regularly holding progress meetings. A subgroup has been set up to deliver an internal report link to BeiDou (BDS) to initiate technical activities toward integration of BDS in ED-259 standard.

WG-82 New Air-Ground Data Link Technologies

CHAIRPERSON: Armin Schlereth,
DFS (until February 2023)
Radek Zaruba, HONEYWELL
SECRETARY: Martina Angelone, ESA
TPM: Anna Guégan

WG-82 is tasked to develop standards related to new air-ground data link technologies involving airport surface, satellite, and en route/Terminal Manoeuvring Area (TMA) L-band systems. The documents under development are intended to be used in the context of ICAO Standards and Recommended Practices (SARPs) development or as a Means of Compliance (MoC).

WG-82 is currently drafting the following documents, in coordination with RTCA SC-222 *AMS(R)S*. The publication is expected in Q2/2024:

- ED-242D 'Minimum Aviation System Performance Standard (MASPS) for Aeronautical Mobile Satellite Radiocommunication Services AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP)'

- ED-243D 'Minimum Operational Performance Standards (MOPS) for Avionics Supporting Next Generation Satellite Systems (NGSS)'

WG-82 works in coordination with RTCA SC-223 *Aeronautical Mobile Airport Communication System (AEROMACS)*. The following joint document was published in June 2022:

- ED-xxx 'Minimum Operational Performance Standards (MOPS) for the Aeronautical Mobile Airport Communication System (Aeromacs)'

WG-82 has also launched a new activity on L-band Digital Aeronautical Communications System (LDACS). The target date for publication for the following documents is Q4/2024.

- ED-xxx 'MASPS for L-band Digital Aeronautical Communications System (LDACS) for Data and Voice Communications'
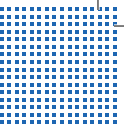- ED-xxx 'MOPS for L-band Digital Aeronautical Communications System (LDACS) for Data and Voice Communications'

WG-123 Infectious Passenger Handling in Air Ambulance Operations

CHAIRPERSON: Walter Klimscha, UNICAIR GMBH
SECRETARY: Dr. Cai Glushak, EUROPEAN
AERO-MEDICAL INSTITUTE
TPM: Esther Hoyas

Air ambulance operations play a vital role in the healthcare system by providing emergency medical transport to patients in need. However, handling infectious patients during air ambulance operations poses a significant challenge and requires clear guidelines to protect patients and healthcare providers. Unfortunately, there is currently little alignment between national organisations, and there is no government-driven initiative to create a framework for disease control in aviation.

To address this issue, it is crucial to have comprehensive guidelines that consider infection control, risk assessment, personal protective equipment (PPE), and decontamination procedures. Additionally, air ambulance operations should have protocols in place for responding to infectious patients, including communication with healthcare facilities and transport destinations to prevent the spread of disease. Proper training for healthcare providers and air ambulance crew members is also crucial to respond effectively to infectious patients during transport.

The COVID-19 pandemic has highlighted the importance of air ambulance services, and the need for clear and comprehensive guidelines to ensure the safe transport of infectious patients. EUROCAE has identified the

need for a standardised framework for disease control in aviation and established WG-123 Infectious passenger handling in air ambulance operations. This working group includes field experts on aeromedical industry that have been actively developing a guidance document for aeromedical handling and transport of infectious passengers since September 2021, and it is expected to be published in the fall of 2023.

The guidance document specifies a framework that includes all measures related to prevention, management of incidents, training, and tracking on an international level. This framework will ensure that air ambulance services are prepared for future public health emergencies and that the safety and well-being of patients and healthcare providers are prioritised during the transport process of infectious passengers.

WG-96 Wireless On-Board Avionics Networks (WOBAN)

CHAIRPERSON: Uwe Schwark, AIRBUS
TPM: Anna Guégan

WG-96 was established in 2013 to produce guidance material for the certification of Wireless On-Board Avionics Networks (WOBAN). This work was completed in 2017. WG-96 has since started a joint activity with RTCA SC-236 to develop standards for Wireless Avionics Intra-Communications (WAIC) systems.

The Radio Regulations were changed in 2015 to allow WAIC systems to share the band, 4200 – 4400 MHz with Radio Altimeters. WAIC systems must be able to share the band with Radio Altimeters and WAIC systems on other aircraft in a way that ensures that the safe operation of Radio Altimeters is not compromised, and the worst-case performance of a WAIC system can be predetermined. These two aspects are major prerequisites for proof of airworthiness for future WAIC systems.

ED-260A 'Minimum Aviation System Performance Specification (MASPS) for Coexistence of Wireless Avionics Intra-Communication Systems within 4200-4400 MHz' was published on 26 July 2022.

The WG is currently developing ED-xxx 'Minimum Operational Performance Specification (MOPS) for a Wireless Avionics Intra-Communication System' which is planned for publication in Q3/2023.

WG-99 Portable Electronic Devices (PEDs)

CHAIRPERSON: Robert Kebel, AIRBUS and Stephan Schulte, LUFTHANSA
TPM: Anna Guégan

WG-99, now dormant, is responsible for developing and maintaining standards for Portable Electronic Devices (PEDs).

The WG is tasked to develop the following documents jointly with RTCA SC-234:

- ED-130B 'Guidance for the Development of Portable Electronic Devices (PED) Tolerance for Civil Aircraft'

- ED-239A 'Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance'

Both documents are revisions of standards considering the current radio frequency spectrum environment which is marked by new usage of radio spectrum from 5G and other technology as well as PEDs.

Reactivated in November 2021, it is remarkable that within 6 months, the WG successfully prepared a first draft, submitted it for Open Consultation (OC), and resolved the comments received on both documents. ED-130B and ED-239A were both published on 29 June 2022.

WG-119 Radar Altimeters (RA)

CHAIRPERSON: Jean-Luc Robin, AIRBUS
TPM: Anna Guégan

WG-119 is addressing Radar Altimeters robustness against the Radio Frequency (RF) environment. Since its kick-off meeting in May 2020, the joint WG-119/SC-239 has met regularly.

The future RF environment concurrently combines the following interferences:

- Interferences at the edges of the RA band (3.800-4.200MHz) and (4.400-5.000MHz), including anticipated future modulations and signal strength,
- Interferences within the RA band (4.200-4.400MHz),
- Out of RA band interferences that could potentially have an indirect effect on the RA due to level of signal, modulation, potential harmonics, RA antenna potential weakness (susceptibility) or RA design potential weakness (resonance).

WG-119 is finalising the comment resolution of ED-310 Standard Guidance Document on Radar Altimeter RF Interference Rejection and Tolerance.

In parallel, and as WG-119's primary objective, the WG is currently working on ED-30A 'Minimum Operation Performance Standard (MOPS) for Low Range Radar

Altimeters'. This MOPS will address RA robustness against existing RF environment and planned future RF environment. The environment taken into consideration includes any impact related to the development and deployment of 5G technology. The target date for publication of this deliverable is Q3/2024.

WG-119 is jointly working with RTCA SC-239. The current ED-30 and DO-155 are not technically identical. The main aim of this revision is to align these documents and to develop technically identical documents (ED-30A/DO-155A), which will supersede ED-30 and DO-155.
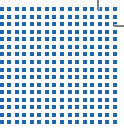
WG-124 Spectrum

CHAIRPERSON: John Micallef, EUROCONTROL
TPM: Anna Guégan

WG-124 was established to provide guidance to ensure that radio frequency (RF) characteristics of aeronautical Communications, Navigation and Surveillance (CNS) systems use the spectrum efficiently while respecting the necessary safety margins. The guidance will facilitate any future evaluation of compatibility with other systems and ensure that usage of the allocated spectrum is as efficient as possible, fully considering the specificities of aeronautical CNS systems. The deliverables are envisaged to be referenced by EASA, other CAAs, ICAO, and national/international spectrum regulators, as appropriate, in guidance material for aviation systems.

The first meeting, jointly with SC-242, took place virtually in March 2022. The WG/SC has been regularly meeting since at EUROCONTROL, RTCA and AIRBUS in Toulouse.

WG-124 is tasked with the development of the following documents:

- Spectrum Guidance for the Developers of Standards for Aviation Wireless Systems (target publication date Q3/2024)
- Survey of Radio Frequency (RF) Performance of Standards for Aeronautical RF Systems (target publication date Q1/2024)
- Report for Aeronautical Radio Frequency (RF) Systems, their Regulatory Framework, and Operational Considerations(target publication date Q1/2024)

In order to achieve its ambitious objective, WG-124 is coordinating with other WGs and RTCA SCs whose documents include RF spectrum aspects through a survey. These exchanges are very important to ensure that the specific needs of the different domains are addressed.

WG-72 Aeronautical Systems Security

CHAIRPERSON: Cyrille Rosay, EASA
SECRETARY: Theodore Kalthoff, NIAR
TPM: Anna Guégan

Created in December 2005, WG-72 was tasked to establish process specifications, guidelines, and means of compliance to address security concerns for aeronautical systems. This includes the entire lifecycle of aeronautical systems. It ensures safe, secure and efficient operations, amid growing use of highly integrated electronic systems and network technologies onboard aircraft.

Published EUROCAE cyber security standards are regularly referenced by regulators.

■ WG-72 activity, joint with RTCA SC-216, is structured around four subgroups developing two revisions and two new documents.

WG-72 SG-3

WG-72 SG-3 is focusing on organisational aspects of information security in a revision of ED-206 published last year: a guidance on information security event management (ISEM). This standard is targeting organisations that need to manage information security events that can affect aviation safety.

ED-206A/DO-392A – Guidance on Information Security Event Management (target publication date Q4/2024)

WG-72 SG-4

WG-72 SG-4 is working on the adaptation of information security management system (ISMS) to aviation. EASA published new regulations including requirements on the management of cybersecurity risks for approved organizations and competent authorities in aviation. Requirements in this regulation are asking organisations and competent authorities to implement and maintain an ISMS. The document is intended to be used by organisations and authorities subject to the new EASA regulation in a standardised way to implement, maintain and improve an ISMS in the aviation framework and as a baseline for auditing by certified organisations.

ED-xxx/DO-xyz – Information Security Management System for aviation organisations (target publication date Q3/2024)

WG-72 SG-5

WG-72 SG-5 addresses end to end security for data. The resulting standard is expected to ensure that the data having an impact on aviation safety is secured during production, transport, storage and usage, this may include, airborne software, databases, production and maintenance data, and possibly data used in end-to-end digital communication. The assurance of data and

information security for aviation demands a holistic approach across all the involved sub-sectors and in particular the ground segment, e.g., airports and air navigation services/air traffic control. Data security can be approached from an aircraft-centric view; however, one must consider all the supporting functions – in the form of an aviation functional chain – that contribute to safe and secure flight operations.

ED-xxx/DO-xyz Standard on Aviation Data Security (target publication date Q1/2025)

WG-72 SG-6

WG-72 SG-6 is working on an update of ED-202A 'Airworthiness Security Process Specification' with improvement on change impact analysis related to information security of embedded systems. EASA has provided some guidance in part 21 A.91 for classification of minor / major change and the update of the standard could improve this guidance material. The revision is intended to identify minimum set of activities required to demonstrate compliance of the change, provide some guidance for the authority involvement on the compliance demonstration, and the implementation of security update on certified products.

WG-72 SG-6 is aligning guidance for performing Change Impact Analysis with respect to security with the process found in another technical disciplines and to better integrate with the process for managing changes to a certified product. The new Change Impact Analysis guidance will also provide more support for securely managing Supplemental Type Certificates. SG-6 will also use this opportunity to align the complementary documents ED-202 and ED-203 Airworthiness Security Methods and Considerations'.

ED-202B/DO-326B Airworthiness Security Process Standard (target publication date Q2/2024)

In addition to its own activities, WG-72 provides its expertise to support activities in other working groups. WG-72 is collaborating for example with WG-96 *Wireless On-Board Avionics Networks*, WG-105 *Unmanned Aircraft Systems*, WG-114 *Artificial Intelligence* or WG-63 *Complex Aircraft Systems*.

WG-14 Environment

CHAIRPERSON : Marc Ponçon,
AIRBUS HELICOPTERS
SECRETARIES: Julien Floch, EMITECH
Philippe Chenebault, DASSAULT AVIATION
TPM: Alex Milns

Created in September 1970, Working Group 14 continues to review and update ED-14G 'Environmental Conditions and Test Procedures for Airborne Equipment', including the related user guide material in ED-234 'User Guide Supplement to ED-14G'.

ED-14/DO-160 initially was a set of simple procedures and limits that were used to guarantee a minimum qualification level regarding the ability of airborne equipment to function in the on-board aircraft environment. Since the creation of WG-14, the purpose has evolved, and many sections aim to provide guidance on environmental stress, which is as similar as possible to actual in-flight conditions.

WG-14 works jointly with RTCA SC-135 and together are working towards the publication of ED-14H and the technically equivalent DO-160H. ED-14H will take into account the latest technologies and testing protocols to ensure continued applicability to modern aircraft designs. During 2022 a substantial number of change proposals were reviewed and agreed, and will be incorporated into the updated document.

WG-14 also operates a sub-group 1, developing a new document to support the UAS community, titled 'Minimum Standard Environmental Test Conditions for Ground Based Equipment'. This sub-group will produce a consolidated set of environmental qualification standards for the ground segment of UAS Detect and Avoid (DAA), Command, Control, Communications (C3), and Control Station Equipment.
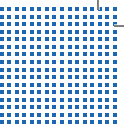
WG-31 Electromagnetic Hazards

CHAIRPERSON: Franck Flourens, AIRBUS
SECRETARY: Dan Morgan, ELEMENT
TPM: Alex Milns

Created in February 1987, WG-31 is tasked to prepare technical standards, specifications, guides and any other material required to support the development of regulation and the certification of aircraft in relation to electromagnetic hazards such as lightning protection, electromagnetic compatibility (EMC), and high intensity radiated fields (HIRF). WG-31 works in liaison with SAE AE2 Lightning Committee and SAE AE4 Electromagnetic Compatibility Committee.

WG-31 has a broad programme of work, with 5 documents currently in review and another 2 new documents under development. The key topics are fuel tank protection against ignition risks, test methods for supporting lightning certification, guidance for demonstrating compliance to HIRF, lightning test methods for equipment, and guidance for use of simulation in support of compliance processes. The WG is divided into five subgroups to deal with these matters in parallel with equivalent SAE AE2 and SAE AE4 subgroups. WG-31 maintains good group dynamics to address its current deliverables, while ensuring convergence with SAE on topics of common interest.

In April 2023, ED-303 'User Guide for Lightning Protection of Fuel Tank Structures and Systems' was published.

WG-44 Aeronautical Databases

CHAIRPERSON: Stephane Dubet, DSNA
SECRETARY: Sasho Neshevski, EUROCONTROL
TPM: Alex Milns

WG-44 was created in 1997, and it has developed several standards to cover the processing of aeronautical data (ED-76A), navigation (ED-77A), terrain and obstacles (ED-98C, ED-119C), and aerodrome mapping (ED-99D, ED-119C). WG-44 works closely with RTCA SC-217 with equivalent documents being published by RTCA.

In June 2022, ED-302 'Considerations for Aeronautical Data Alteration' was published. This document constitutes a guidance document that clarifies and expands on the criteria and processes associated with the alteration of aeronautical data, in support of the requirements defined in EUROCAE ED-76A/RTCA DO-200B. ED-302 is technically equivalent to RTCA DO-394.

WG-44 are currently working on updates to the following documents with deliverables expected as follows:

- ED-76B 'Standards for Processing Aeronautical Data' – publication in Q2/2024
- ED-77B 'User Requirements for Navigation Data' – publication in Q3/2025

Members of WG-44 and SC-217 are also becoming involved in the establishment of contingency response frameworks for the management and distribution of aeronautical data in the event of significant disruptions to normal operations. While not yet part of the current work programme, this exploratory work may lead to the development of new or updated standards to support service continuity.

WG-63 Complex Aircraft Systems

CHAIRPERSON: Christopher Lacey, AIRBUS
CO-CHAIRPERSON/SECRETARY: Julien Chaou, LIEBHERR AEROSPACE
TPM: Anna Guégan

WG-63, jointly with SAE S-18, is tasked to provide industry with guidelines relating to the development and safety of aircraft, systems, and equipment. To this end, the WG develops standards reflecting industrial practices that relate to both Safety and Development Assurance. The WG is developing the following documents:
- ED-79B: Guidelines for Development of Civil Aircraft and Systems
- ED-135: Guidelines and methods for conducting the safety assessment process on civil airborne systems and equipment

- ED-79B and ED-135 are in comment resolution process and are in the pipeline to be published in 2023.

WG-63 is also working on the following reports:
- Using STPA During Development and Safety Assessment of Civil Aircraft
- Applicability of Existing Development Assurance and System Safety Practices to Unmanned Aircraft Systems and Vertical Take-Off and Landing systems

WG-97 Interoperability of Virtual Avionic Components

CHAIRPERSON: Olivier Fourcade,
AIRBUS GROUP
SECRETARY: Virgine Froute,
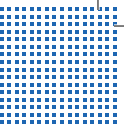DASSAULT AVIATION
TPM: Thuc Nguyen

Physical test benches used in aircraft development are complex platforms that require substantial initial and recurring costs. They are an essential part of the development process and cannot be easily replicated or deployed to increase the validation capacity. As a result, Virtual and Hybrid Testing has emerged as a promising solution to alleviate these issues, given its demonstrated benefits in other industries such as cell phones. The avionics, on the other hand, presents obstacles with virtual and hybrid testing, such as sophisticated distributed systems, hardware heterogeneity, and multiple supplier infrastructures.

To address these challenges, a globally recognised guidance material is required to provide a framework that supports the interoperability of virtual avionic components and eases the exchange and integration of virtual equipment within virtual or hybrid test benches. This guidance material is necessary to ensure the interoperability and exchangeability of virtual avionics equipment across different systems and suppliers, ultimately leading to reduced development costs, increased testing efficiency, and enhanced product quality.

To achieve this goal, WG-97 is currently working on revision B of the Technical Standard of Virtual Interoperable Simulation for Tests of Aircraft Systems in virtual or hybrid benches. The ED-247 B aims to extend the technical perimeter of revision A and attain the necessary level of fidelity required to claim certification credibility. This effort will enable more comprehensive testing capabilities, improved simulation accuracy, and reduced testing timeframes, ultimately benefiting the avionics industry as a whole. With the high solidarity from the experts, the publication is expected to be available in Q4/2023.

WG-114 Artificial Intelligence (AI)

CHAIRPERSON: Christophe Gabreau, AIRBUS and Beatrice Pesquet, THALES (until March 2023)
Fateh Kaakai, THALES (since March 2023)
SECRETARY: Radek Zakrzewski,
COLLINS AEROSPACE
TPM: Thuc Nguyen

The joint group, known as EUROCAE WG-114/SAE G-34, was formed in June 2019 as a collaborative standardisation endeavour to coordinate the development of a common standard. The scope of this new standard is to provide guidelines for the certification/approval of safety-critical aeronautical products using Artificial Intelligence/ Machine Learning technologies. Theultimate goal is to have this new standard recognized as an Acceptable Means of Compliance (AMC) by the Competent Authorities.

In the beginning, the joint group was structured around 7 subgroups but the merging of some of them was witnessed to accelerate toward the main scopes defined by the Term of Reference.

- SG-1: Airborne & Ground Applications
- SG-23: Machine Learning Development Lifecycle
- SG-4: Machine Learning Constituent Implementation & Verification
- SG-57: System & Safety Consideration for Machine Learning

ER-022: AI Considerations for Development and Certification/Approval of Aviation Safety-Related Products: Statement of Concerns was the first published EUROCAE Report created by WG-114 in 2021. This work examined existing standards and performed a gap analysis to understand how and why the current standards cannot be directly applied to safety-critical aeronautical products using Artificial Intelligence/ Machine Learning technologies.

During 2022, the group focused on technical work related to machine learning specificities in aeronautical development processes and started the redaction of the standard document. In particular, it revised the traditional engineering process workflow (system/subsystem/item) by creating the concept of an ML constituent that interfaces both current system and item layers and introducing a new engineering phase called the Machine Learning Development Lifecycle of the ML Constituent. With this direction, the group is working toward the two EUROCAE reports (ER) in the pipeline to be published before the main technical standard, EUROCAE Document (ED).

- ER-xxx: Taxonomy (early Q3/2023).
- ER-xxx: Use Cases Consideration (Q4/2024)
- ED-xxx: Process Standard for Development certification/approval of Aeronautical Products Implementing AI (Q4/2024)

The main technical standard, ED-xxx, will establish industrial best practices for the development and certification/approval of AI/ML in safety-critical aeronautical products.

WG-117 Topics on Software Advancement

CHAIRPERSON: Burak Ata, VOLOCOPTER
SECRETARY: Andy Hoag, AIREON.
TPM: Thuc Nguyen

In 2019, the Forum on Aeronautical Software (FAS) Ad Hoc Unmanned Aircraft System (UAS) report identified the need to create additional guidance in the areas of Commercial off-the-shelf (COTS), Open Source and Service History for all users of ED-12C (DO-178C). While this additional guidance could apply to all aviation software, it is seen as especially useful for stakeholders focused on the development of lower-risk applications.

The EUROCAE Council approved the creation of WG-117 in February 2020. The activity is co-organised with RTCA SC-240 and focuses on the document 'Process Standard for the Integration of COTS Open Source and Service History into Software', which is developed under the COTS Open Source and Service History subgroup (SG).

To deliver the highest quality standards for the aviation industry, the group has successfully completed the first Peer Review with significant contributions from the participants from both EUORCAE and RTCA members. The second Peer Review helps the draft deliverable more mature before entering Open Consultation toward publication at the end of 2023.

WG-127 Lower-risk Aviation Applications

WG-127 has recently transitioned from its previous affiliation with joint RTCA working group WG-117, Topic on Software Advancements, to become a standalone EUROCAE working group, placing a dedicated focus on lower-risk aviation applications. With the aim of establishing a robust framework for the minimum required development process and verification boundaries, WG-127 is poised to provide essential guidance to the industry, ensuring safety and efficiency. Another crucial aspect of WG-127's mission is to define a simplified methodology for Software Development specifically tailored to the evolving domains of electric Vertical Take-Off and Landing (eVTOL), Unmanned Aircraft Systems (UAS), and General Aviation (GA) industries.

The response to the call for participation has been remarkable, with nearly 70 participants from the industry demonstrating their commitment to this pivotal initiative. Moreover, the kick-off meeting on 6 July witnessed the active engagement of 30 participants, both in-person at EUROCAE Headquarters and through hybrid mode, marking the enthusiastic start of this vital collaboration.

The accomplishments of WG-127 are set to transform the lower-risk aviation sector, leaving a lasting impact on the future of the industry.

WG-80 Hydrogen Fuel Cell Systems

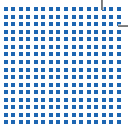**CHAIRPERSON:** Olivier Savin,
BLUE SPIRIT AERO
TPM: Esther Hoyas

WG-80 was established in 2008 with the responsibility of developing operational guidelines, best practices, and standards that support the certification of hydrogen fuel cells in aircraft. To ensure that their activities are aligned with other relevant organisations, the committee performs its work in coordination with SAE AE-7F.

The WG-80 committee has achieved significant milestones in recent years for the introduction of hydrogen technologies in the aviation sector. In early 2013, the WG delivered its first publication, ED-219/AIR6464, a standard on aircraft fuel cell safety guidelines. In 2017, the committee published ED-245/AS6858, which set out the Minimum Aviation System Performance Standard (MASPS) for the installation of fuel cell systems on large civil aircraft. In December 2019, EUROCAE published ER-020/AIR7765, which outlines considerations for hydrogen fuel cells in airborne applications.

Over the past year the WG focused on the development of two main standards aiming to define technical guidelines for the safe development, testing, integration, validation, and certification of hydrogen fuel cells onboard aircraft. The first of the standards focuses on liquid hydrogen, while the second on gaseous hydrogen. Additionally, driven by the need felt by the aviation industry for starting a new standard for hydrogen fuel cells for aircraft as primary power source

for propulsion, a new activity kicked off in May 2023 on Minimum Aviation System Performance Standard (MASPS) for Hydrogen Fuels for Propulsion.

There are several proposals of usage of fuel cells for generation of power onboard aircraft to supply electrical propulsion systems and existing standards are not adequate. Therefore, the WG identified the need to address this kind of application through a new standard.

Hydrogen fuel cells can help the aviation industry achieve Zero Emission Aviation targets and the work is crucial in ensuring that the aviation industry can adopt hydrogen fuel cells safely and efficiently.

WG-113 Hybrid Electric Propulsion

CHAIRPERSONS: Sylvain Clary, SAFRAN, and Eleni Vorgia, ROLLS ROYCE
TPM: Esther Hoyas

The aviation industry is currently undergoing a significant transformation with the integration of electricity to power aircraft. This shift is largely driven by environmental constraints, as studies have shown that electrification of aircraft propulsion has the potential to reduce carbon emissions by 50 % between 2005 and 2050, thereby supporting ACARE goals. However, this new technology requires a collaborative effort among airframers, engine manufacturers, and system suppliers to address regulatory frameworks and ensure compliance for these new architectures. Hybrid/Electric Aircraft are expected to play a vital role in achieving the goals set out in ACARE Flightpath 2050, and their development will require innovative approaches to collaboration and technology integration.

Following this industry need, WG-113 *Hybrid Electric Propulsion* was created and first published an Internal Report identifying the standardisation needs for Hybrid Electric Propulsion. Conclusive remarks highlighted the need for new efforts on 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.

Currently, the main focus of WG-113 is to address endurance based on new publication of SC-EHPS, and by defining Means of Compliance for SC-EHPS endurance substantiation and issue an EUROCAE Guidance document for EHPS endurance AMC. WG-113 has been actively working in the finalization of the development of the EUROCAE Document expected to be published in the fall of 2023.

A similar document is expected to kick off after the publication of the first guidance material, focusing on durability substantiation of Electric/Hybrid Propulsion Systems EHPS.

Intensifying environmental concerns are driving significant technological advancements in electric aviation which require an evolution of the regulatory framework to ensure their safe deployment. WG-113 identified the difficulty of establishing and maintaining an up-to-date oversight on this global network of new standardisation activities in the topic, and a potential risk of overlap or duplication of efforts. During the completion of these tasks, the WG-113 identified the need to determine synergy with SAE and other EUROCAE WG as appropriate for future standards development on hybrid electric propulsion technologies.

WG-116 High Voltage Systems and Components in Aviation

CHAIRPERSON: Rémy Biaujaud, SAFRAN
SECRETARY: Thierry M. Lebey, SAFRAN
TPM: Esther Hoyas

As electrical power requirements in the aeronautics industry continue to rise and the need to reduce equipment weight becomes more critical, there is a growing demand for higher voltage levels in electrical systems. However, this shift comes with a set of new risks and technical problems, including the need for new interface specifications, protection, and safety measures.

To address these challenges, WG-116 was created with the task of developing new standards to help mitigate risks and assist the industry and certification authorities in designing and certifying new electrical and hybrid aircraft models.

Since its establishment in March 2020, WG-116 has been working closely with experts representing legacy aircraft manufacturers, aircraft engine manufacturers, electrical equipment and system manufacturers, and civil aviation authorities. WG-116 is also collaborating with WG-112 *VTOL* and WG-113 *Hybrid Electric Propulsion* and coordinating its activities with SAE AE11.

The current deliverables of WG-116 include several technical specifications and guidance documents related to high voltage electrical systems for aircraft. These include:

- ED-xxx Technical Specification for interface characteristics and power quality of aircraft high voltage propulsive electrical systems
- ED-xxx Guidance document for high voltage risk mitigation at EWIS and human safety level
- ED-xxx Aging mechanisms of electrical insulation materials in a high energy system
- ED-xxx Test guidelines for electrical insulation materials and components for a high voltage system
- ED-xxx Electrical insulation aging and life models for a high energy system.

The last three documents are being developed jointly with SAE AE11.

By defining these new standards and developing guidelines for risk mitigation and safety, WG-116 is helping the aviation industry move toward the use of high-voltage systems in aircraft, paving the way for the development of new hybrid and electric aircraft designs. These new designs will not only address environmental concerns by reducing carbon footprints but will also enable the industry to meet the increasing power demands of advanced aircraft systems.

WG-125 Next Generation of Aviation Professionals (NGAP)

CHAIRPERSONS: Antonio Gonzalez Gomez, EASA, and Cate Brancart, GAMA
SECRETARY: Julija Razmislaviciene, FOXATM
TPM: Esther Hoyas

In 2009, the International Civil Aviation Organization (ICAO) introduced the Next Generation Aviation Professionals (NGAP) Programme to ensure that the aviation industry has a sufficient number of qualified and competent professionals to operate and maintain the future international air transport system. However, the COVID-19 crisis has exacerbated the industry's personnel shortage, which is causing delays, cancellations, and increased operating costs, especially as many of the current generation aviation professionals are nearing retirement. In addition, the industry faces increasing competition from other sectors for highly skilled workers, including pilots, air traffic controllers, and maintenance technicians.

EUROCAE conducted a stakeholder analysis form in 2021 to gather feedback on hiring, retention, and attracting talent, gender equality, and education and training for future technologies in aviation. Responses were received from a diverse set of stakeholders, and a series of workshops were held to discuss the terms of reference and potential tasks for the EUROCAE NGAP Programme. A feasibility analysis was conducted, and the outcomes and proposals for future activities were discussed at the Technical Advisory Committee and Council, which determined that a new working group supporting the aviation industry in addressing this issue should be created within EUROCAE.

WG-125 *NGAP* was created to engage with members in the industry, universities, and students and to encourage industry-university collaboration. The NGAP working group aims to develop the next generation of aviation professionals through education, training, and mentoring. During the Kickoff Meeting on 11 January 2023, over 50 participants discussed how mentoring can greatly influence the attraction and retention of students and youth in the aviation industry. They also identified key competencies and skills needed for future aviation professionals and developed a plan to create a mentoring program to support the next generation of leaders.

WG-125's main activities will include developing best practices, identifying key competencies and skills, and creating a mentoring program to support the next generation of leaders. They plan to publish ER-xxx Best practices for mentoring students and young professionals and ER-xxx Guidelines and techniques to foster cooperation and collaboration among aviation stakeholders by January 2024.

It is essential that the aviation industry continues to address the personnel shortage issue, particularly as technological advancements continue to occur, and personnel must be trained to cope with these changes. The NGAP programme is particularly important at this time, as access to affordable training and education is increasingly problematic, and the aviation industry must compete with other less polluting industries to attract new talent. The creation of WG-125 is a positive step towards addressing the personnel shortage issue and ensuring the aviation industry's continued growth and success.
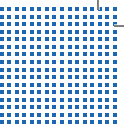
Around 50 active Working
Groups in 2023

More than 450 members

4500+ experts

**Together we are driving
the standard for aviation**

ExSCG Insights Dashboard, A User-friendly Visual Tool

Introduced in March 2023, the Rolling Development tool is a game-changer that is transforming the way we work with data. With its user-friendly interface, automatic updates, and streamlined data management, it's no wonder that EUSCG, EASCG, and ECSCG are excited to have it in place. We look forward to seeing the continued positive impact that RDP will have on our organisation.

One of the most significant advantages of the RDP tool is its ability to show the latest database directly as a table on each website. This feature allows for real-time updates and eliminates the need for manual data entry. Technical Programme Managers are able to manage the data on the back-office platform, ensuring that all information is up-to-date and accurate, it saves time and reduces the risk of human error.

Furthermore, the RDP tool provides end-users with the ability to download any type of filter they focus on. This feature allows for customised reports that cater to the needs of individual users. This flexibility ensures that everyone can access the data they need to make informed decisions.

European Cyber security for aviation Standards Coordination Group (ECSCG)

The European Cyber security for aviation Standards Coordination Group (ECSCG) is a joint coordination and advisory group established to coordinate cyber security in aviation related standardisation activities. Its purpose is to coordinate the cyber security-related standardisation activities across Europe to ensure that necessary and appropriate standards are available in due time.

ECSCG also acts as a bridge for similar international developments outside the region. Considering that finite resources are available, it is important to limit overlaps between different initiatives. It is also important to ensure system interoperability and compatibility of relevant standardisation activities in Europe and globally.

ECSCG gathers experts from European regulators (European Commission and EASA), European organisations active in cyber security, and international SDOs to discuss the terms of reference for the coordination group with the goal to define a way to streamline standards developing activities in Europe.

The main deliverable of the ECSCG is the European Cyber security for aviation Standardisation Rolling Development Plan (C-RDP). The C-RDP lists and categorises standardisation and regulatory activities, providing a method to identify and discuss overlaps and gaps. The first version of the ECSCG RDP was published in 2019. The C-RDP is now moving to a more dynamic, accessible version which can be accessed on the ecscg.eu website.

European ATM Standards Coordination Group (EASCG)

Since its creation in 2015, the European ATM Standards Coordination Group (EASCG) has developed and maintained the ATM Rolling Development Plan (A-RDP), the value of which is well recognised, and is often used by the ATM community in Europe and beyond.

The EASCG met several times over the year and developed A-RDP v19. The A-RDP connects all relevant standardisation activities that are ongoing or planned within various Standard Developing Organisations (SDOs). It is updated twice a year to maintain visibility and awareness of the progress. The A-RDP is moving to a more dynamic, accessible version which can be accessed at eascg.eu.

The focus of the EASCG discussion is on new standardisation activities that are needed to support the community in implementing the outcomes SESAR R&D activities and enabling accelerated market uptake. The

EASCG also monitors the review of existing standards related to ATM systems.

The EASCG updated its terms of reference during 2022 to reflect the evolving needs for standardisation for ATM and the tracking of activity in the various SDOs.

European UAS Standards Coordination Group (EUSCG)

The EUSCG is a joint coordination and advisory group established to coordinate UAS-related standardisation activities across Europe, essentially stemming from the EU regulations and EASA rulemaking initiatives. The EUSCG provides a link to bridge the European activities to those at international level. EASA functions as the chair of this group, and EUROCAE provides the secretariat role, which ensures coordination between the regulator and participating Standard Developing Organisations (SDOs).

The key task of the EUSCG is to develop, monitor, and maintain an overarching European UAS standardisation Rolling Development Plan (U-RDP), linked to the standardisation roadmap developed by EASA and other

organisations. Inputs from the EUSCG members, and where needed, other key actors in the aviation domain were used to develop the eighth version of the U-RDP. Published in April 2023, U-RDP V8.0 is available on the dedicated website www.euscg.eu.

The EUSCG also facilitates the sharing of work among the regulator and SDOs, thus avoiding the risk of overlapping developments and gaps.

For more information and to download the latest version of the RDP, please visit:
- www.eascg.eu
- www.euscg.eu
- www.ecscg.eu

EUROCAE Trainings

EUROCAE provides a high-quality portfolio of aviation trainings based on our standards. Our courses are tailored for aviation professionals across the globe. The trainings 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.

Unmanned Aircraft
Systems Airworthiness
and Safety

REGISTER

Unmanned Aircraft Systems Airworthiness and Safety Training

This training course aims at familiarising the audience with issues related to UAS Airworthiness and Safety. It presents the essential tools to conduct System Safety and Operational Risk Assessment, based upon design and operational risk mitigation measures, which is a key element in getting flight authorisation from Civilian Aviation Authorities (in the framework of Specific and Certified Categories, as per EC regulation 2019/947).

With this training, participants will be able to identify risks related to UAS operations and prepare inputs for risk assessments, in line with SORA methodology.

Voice over Internet Protocol (VoiP) Training

Two sessions are scheduled in September and December 2022 for this new course that enables participants to get a sufficient knowledge and comprehensive view of the different components of a VoIP ATM system and their mutual interfaces through a full overview of the latest updated ED-136, ED-137, ED-138 (18 EDs).

Anyone involved in ATM VoIP development and implementation of ATM VoIP design, manufacturing, and operations should attend this course. This includes managerial, technical and operational people (ATM VoIP suppliers, users, and authorities)

ED-80 DESIGN ASSURANCE GUIDANCE FOR AIRBORNE ELECTRONIC HARDWARE
TRAINING

EUROCAE
AVIATION SOFTWARE STANDARDS - ATM
TRAINING

ED-80 Design Assurance Guidance for Airborne Electronic Hardware

The purpose of the training is to enable participants to understand ED-80 standard and how it is used and complemented by major Certification Authorities. This course explores the qualification of electronic hardware in airborne systems. The target audience is anyone working in aviation and regulatory or industrial audiences.

ATM Software Training

The purpose of this training is to provide participants with an overview of relevant EUROCAE standards to apply for systems and software development in aviation (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.

ED-12C AVIATION SOFTWARE STANDARDS - AIRBORNE
TRAINING

ED-12C Airborne Training

EUROCAE ED-12C has been the basis for airworthiness approvals of airborne software for 30 years and is recognised by all certification authorities. Knowledge of this standard is a prerequisite for all persons involved in the development or approval of airborne software. The objective of this course is to provide the basics to understand the principles of ED-12C and how a software design system must be built to fulfil the objectives listed therein.

The target audience is anyone involved in the development or qualification of airborne software, including developers, project managers, persons in charge of quality assurance or supplier monitoring, and compliance verification engineers. A prior knowledge of software engineering is expected, however, a prior knowledge of ED-12C is not required.
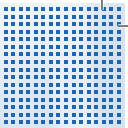
Cyber Security Management for Aviation Organisations

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 describe how cyber security impacts different actors in this sector.

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 either join a single part or a combined training.

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.

How to book trainings:

Places are limited, so you are advised to book early online through our registration forms you will find on our website:

www.eurocae.net/training

For any further information or request, please contact trainings@eurocae.net

Financial Report

EUROCAE Organisation is composed of the non-for-profit organisation.

EUROCAE income

- Main income:
  - Membership fees.
  - Biennial EC Grant.

- Other revenue mainly results from:
  - Sales of EUROCAE Documents (EDs).
  - Training sessions.
  - Events & RGAs
  - Contract agreements.

EUROCAE operating expenses:

- Premises.
- Staff salaries and related costs.
- Social security contributions.
- Taxes and charges.
- Service provisions and various purchases (*).
- Travels (*).

Statutory audit:

As every year, EUROCAE fiscal year were audited:

- EUROCAE's accounts ending 31st December 2022:
  - Audit report delivered on 15th April 2023.

EUROCAE operating income:

Membership fees 57 %
EC Grant 27 %
Training 7 %
Events & RGAs 2 %
ED sales 3 %
other operating income 3 %

EUROCAE operating expenses:

Others 5 %
Subcontracting 6 %
Depreciation 5 %
Service supplieres 9 %
Salaries and related costs 51 %
Rental and services 16 %
Travels 6 %
Taxes & related payments 4 %
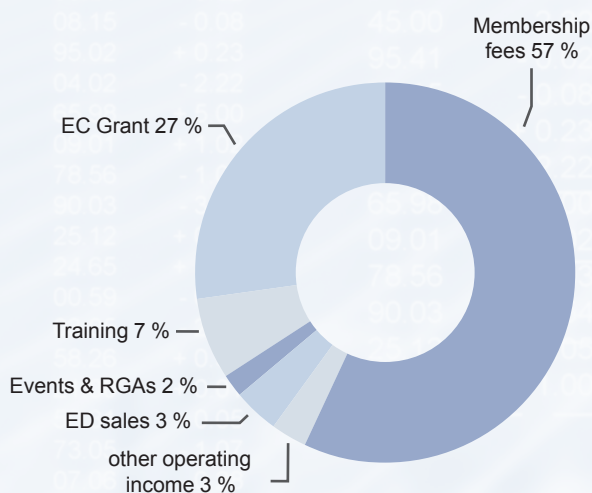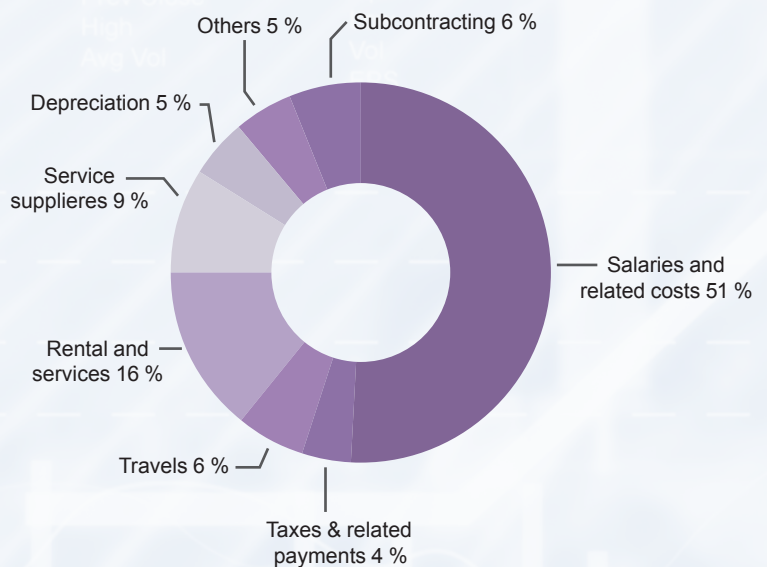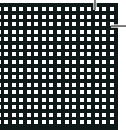
EUROCAE 60th Anniversary

60 years driving the standards for aviation

The 60th anniversary of EUROCAE is a significant milestone for the organisation, as it has played a vital role in shaping the safety and efficiency of air transportation in Europe over the past six decades.

EUROCAE was formed at Lucerne, Switzerland, in 1963, as a European forum focusing on electronic equipment for air transport. Over the years, EUROCAE has made significant contributions to the aviation industry through its work on a wide range of standards: Air Traffic Management, Airports, Space, Avionics, Advanced Air Mobility, Air Medical, RF Spectrum, Security, System Engineering, IT & Software, and Sustainability.

Recently, EUROCAE has also focused on emerging technologies, such as electric and hybridelectric aircraft, unmanned aircraft systems, and connected aircraft. These efforts have helped to ensure that the aviation industry is well-equipped to meet the challenges of the 21st century and beyond.

EUROCAE currently has over 450 members, including industry, service providers, regulators, research institutes and international organisations, becoming the European leader in the development of worldwide recognised industry standards for aviation

As EUROCAE celebrates its 60th anniversary, it is worth noting the organisation's invaluable contributions to the aviation industry and its ongoing commitment to advancing the safety and efficiency of air transportation.

Milestones of EUROCAE's history:

1960s
- **1963:** Collaboration established with RTCA in December
- **1965:** First published document: Achievement of Reliability by use of Redundancy Techniques
- **1966:** First CAA becomes member: French DGAC
- **1966:** ECAC recommends EUROCAE Specifications to be used by National Authorities as basis for regulatory purposes

1970s
- **1972:** EUROCAE publishes its first set of standards for avionics, covering topics such as airborne radio communications and navigation equipment
- **1973:** EUROCONTROL joins as a member
- **1976:** First publication of a joint RTCA/EUROCAE document: ED-14/DO-160 Environmental Conditions and Test Procedures for Airborne Equipment
- **1978:** Creation of a WG on ground equipment (DME)

1980s
- **1980:** First non-European members join
- **1981:** Adoption of ED-14 as approved ISO Standard (ISO 7137)
- **1982:** Publication of ED-12/DO-178: Software considerations in airborne systems and equipment certification
- **1986:** Creation of a WG on GPS
- **1989:** Extension of activities to non-electronic equipment and new name & logo: The European Organisation for Civil Aviation Equipment
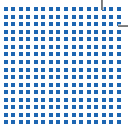
1990s

- **1991:** First JTSO with reference to EDs
- **1994:** Publication of ED-200: SMGCS
- **1995:** JAA joins as a full member
- **1996:** Signature of MoU with JAA, recognising EUROCAE as preferable body to develop specifications for airborne equipment.
- **1996:** Recommendation by ICAO to use EUROCAE & RTCA Standards as inputs to SARPs
- **1996:** First joint EUROCAE-SAE Document: ED-81 / ARP 5413 Certification of aircraft electrical/electronic systems for the indirect effects of lightning
- **1998:** First EC agreement to support 7 tasks
- **1999:** Extension of activities to ATM-related subjects

2000s

- **2000:** Creation of Technical Advisory Committee
- **2002:** Creation of WG-62 Galileo
- 2004: Single European Sky Interoperability Regulation 552/2004
- **2005:** Creation of the ATMSCG
- **2006:** Creation of WG-73 UAV
- **2006:** Framework Contract signed with EASA
- **2006:** EUROCAE moves to Malakoff
- **2009:** Signature of a MoU with ICAO and first meeting of Standards Round Table

2010s

- **2011:** First Asian member joins
- **2012:** EASA joins as a full member
- **2014:** Creation of the 100th WG: Remote & Virtual Tower
- **2015:** Creation of EASCG, followed in 2017 by EUSCG and 2018 by ECSCG
- **2015:** Release of first standard for UAS
- **2016:** 200th EUROCAE member
- **2017:** Move to current HQ in Saint-Denis
- **2018:** Recognition by WTO
- **2019:** WG-112 VTOL & the lean process
- Many cooperation agreements signed

2020s

- **2020:** 50 active WGs
- **2021:** New legal structure and updated Constitution
- **2022:** EUROCAE becomes observer at SESAR GB
- **2022:** WG-125 NGAP
- **2022:** Publication of ED-300
- Many cooperation agreements signed

2023

- 450 members from 41 countries
- 44 active Working Groups
- +4500 experts

EUROCAE Symposium 2023

Aviation Leaders from Across the Globe Gathered at the EUROCAE Symposium for Insightful Discussions

EUROCAE organised its 2023 Symposium on 26 and 27 April in Paris, France (National Air and Space Museum of France). This event was attended by 350 participants on site and online, which gathered participation from highly specialised experts and top industry leaders from Europe and globally, in a special edition for the 60th anniversary of the organisation.

"The aim of the event is to gather the priorities, strategies and the vision from all relevant aviation stakeholders, bringing together key experts and representatives from European and international institutions, as well as from the different industry sectors. We had prolific discussions and conclusions to shape, tailor and guide EUROCAE´s strategy on how to support aviation developments and achieve the overall targets", says Anna von Groote, Director General at EUROCAE.

Summary of the sessions:

- **EUROCAE, 60 years driving the standards for aviation:** Panelists discussed the growth of the organization over the last 60 years and the role of collaboration with regulatory bodies such as EASA and international cooperation with organizations like ICAO. They emphasized how this collaboration had helped the organization to enhance safety standards and ensure compliance with regulations. The panelists also highlighted the significance of ongoing collaboration with such bodies to sustain the organization's growth trajectory and drive innovation in the aviation industry.

- **The Digital European Sky. From R&D to Reality:** The European ATM Master Plan (2020), and the Airspace Architecture Study (2019) envisage a future reliant on digitalisation and information sharing to manage future traffic growth. Focusing on remote towers and virtual centres, the panelists discussed the R&D underway via the SESAR 3 JU's programmes

and some of the outcomes of that work to date. These innovations are proving to offer new ways of providing ATM services in an efficient and scalable way, supported by standards and regulations to ensure interoperability and service outcomes.

■ **ATM Ground System Certification: A New Regulatory Environment:** The new ATM/ANS conformity assessment framework is in its final development phase, ahead of introduction on 12th September 2023. During this session, EASA described how the draft Certification Specifications will align the airborne and ground based regulatory systems and improve the workflow for OEMs and ground equipment manufacturers. Panelists from ANSPs, ATM/ANS equipment suppliers and a National Aviation Authority reflected on the transition from existing processes to the new framework, including some of the challenges to be overcome during implementation.

■ **The Road to Zero Emission Aviation:** Initiatives in the aviation sector aim to introduce new technologies like hydrogen and electric aircraft, as well as data and AI to optimize flight paths, improve ground operations, and reduce taxi times. Achieving net-zero aviation is the ultimate goal, but there are several challenges such as infrastructure, cost, availability, and new regulations/safety standards to implement these technologies. Despite these challenges, there is a significant interest in the development and implementation of hydrogen/electric aircraft, and regula-

tory frameworks can support their adoption and help achieve zero-emission aviation.

■ **Implementation and safe integration of Advanced Air Mobility:** Europe has established regulation processes to support the implementation of Advanced Air Mobility (AAM) and vertical take-off and landing (VTOL) operations. However, improvements in Air Traffic Management are necessary to ensure safe and efficient integration with existing aviation. VTOL operations from vertiports, airports, or heliports require attractive and performant services, harmonization, interoperability, and addressing peculiar characteristics of VTOL concepts. Practical and innovative solutions are necessary to cope with the growing traffic.

■ **As civil as possible, as military as necessary:** The panel emphasized the importance of collaboration between military and civilian stakeholders in developing aviation standards. Applying civil standards to military organizations when applicable can enhance global interoperability, optimize resource utilization, and reduce procurement costs by avoiding duplication of effort. Civil aviation stakeholders can benefit from military projects such as trials, research, development activities, and return from experience to support and validate standards.

■ **The Future of Spectrum:** ICNSS activities set the context for discussion of the panelists, representing various stakeholders, from ANSP to Airlines and

manufacturers. Spectrum is an essential resource to support aviation but other users, from other industries as well as new aviation entrants, are increasingly needing RF Spectrum. In this context, this type of discussion is essential for aviation stakeholders to collaborate and exchange on their need and use of spectrum while keeping on the table that safety shall never be at risk.

■ **Cooperative Advancements in Artificial Intelligence:** The acceptance of AI in certain industries has been only partly due to concerns regarding its maturity in some areas and it has consequently led to hesitancy toward complete adoption. To facilitate the advancement of AI in terms of its reliability, acceptance, and innovation, this requires a high level of cooperation and collaboration between stakeholders across all sectors, from industry leaders to academics or policymakers, to ensure the responsible and sustainable development of AI technologies.

"EUROCAE will evaluate all these conclusions and reflect with the Council and Technical Advisory Committee on possible future standardisation activities resulting from these discussions", concludes Anna von Groote, Director General at EUROCAE.

The companies and organisations that participated were: ADP, ADR, AIRBUS, ASD, BAF, Blue Spirit Aero, Boeing, Collins Aerospace, DGAC, DLR, EASA, EDA, ENAIRE, EUROCONTROL, European Commission, Frequentis, Honeywell, IATA, ICAO, IFATCA, Indra, K-AST, Keyvan Aviation, NATO, RTCA, Safran, SESAR 3 JU, Skyguide, Skyports, Startical, Thales, Volocopter.

Highlights from the Symposium: Electing New EUROCAE President, Renewing Commitment with RTCA, and Announcing Award Winners

The EUROCAE General Assembly was held on 26 April 2023, during the Symposium. Representatives of 45 member organisations and 2 observers joined the meeting and approved the activity report and strategy proposed by the Council, the accounts, and elected the Council members for the next term. This was also the opportunity to thank Bruno Ayral, Thales LAS, for his support and dedication as EUROCAE President.

In addition, the event offered a great opportunity to see the signature of the Updated Memorandum of Cooperation between EUROCAE and RTCA.

2023 EUROCAE Awards:

During the Symposium EUROCAE recognised the participation of experts for their invaluable contributions to standarisation activities in support of aviation. The 2023 award winners were:

■ Lifetime Achievement Award: Roland Mallwitz
■ WG Leadership Award: Jörn Jakobi
■ Best Contribution Award: Clive Goodchild
■ International Award: Mark Brown
■ Global Harmonisation Award: Eric Asselin
■ Women in Aviation Award: Julia Sanchez
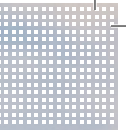
JOINT SUMMIT ON SPECTRUM COMPATIBILITY

EUROCAE AND RTCA

More than 400 attendees around the world joined the Global Aviation Spectrum Summit on 13-14 December 2022 for interactive discussions on how aviation can best prepare for the future global environment as technology moves towards more efficient and effective usage of spectrum.

Hundreds of aviation professionals heard from regulators from around the world discussing - the options of shortening avionics lifecycle through adaptation, situational awareness in a changing regulatory environment, the C-band 5G roll out and the conflicting messages reported in the press and the public confusion about the level of risk. Also covered were future spectrum needs and applications and how standards can evolve to meet future needs.

"Frequency spectrum is a vital, dynamic, and versatile resource pushing new frontiers in the 21st century. Available spectrum bands are scarce, but new technologies are enabling access by the public to new benefits available from the connectivity spectrum. This Spectrum Summit helped us to steer our standardisation activities to remain on the forefront of aviation, ensuring up to date, future proof and -essential standards contributing to safety in aviation", says Anna von Groote, Director General at EUROCAE.

"The event created an opportunity to hear directly from and collaborate with spectrum experts and professionals from around the world to ensure our standards development efforts continually evolve to represent the industry's needs", says Terry McVenes, President and CEO of RTCA. "Looking towards the future, it will be imperative that the aviation industry come together collaboratively with other non-aviation spectrum users to ensure the safe integration of new technologies that are so important to the advancement of our collective industries."
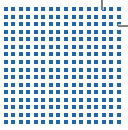
The companies and organisations that participated were: AIA, AIRBUS, ALPA, American Airline, ASRI, Boeing, Dassault Aviation, EASA, Eurocontrol, European Commission, FAA, Flyvercity, Honeywell, ICAO, ITU, MITRE, NASA, Reliable Robotics, T-Systems, and UAVionix.

GLOBAL AVIATION SPECTRUM SUMMIT

Fully Virtual
December 13-14, 2022

A EUROCAE/RTCA joint event

RTCA | EUROCAE

**Summary of the sessions:**

Situational Awareness in a Changing Regulatory Environment: Aviation Spectrum is regulated by both Aviation and Telecommunication authorities. This session brought together both sides to discuss spectrum regulations as they exist in the United States, in Europe, and in a global context. The recent developments are inspiring innovation in the regulatory process, and the speakers wondered what spectrum stakeholders can expect in the future.

- Lessons Learned and Moving Forward: With the C-band 5G roll out and the conflicting messages reported in the press, there was public confusion about the level of risk. The intersection of diverse industries in the spectrum domain, with vastly different approaches to operations, has resulted in more interaction across formerly unrelated industries.

- Shortening Avionics Lifecycle through Adaptation: Changes in technology and development tools have enabled much shorter lifecycles, even for avionics providing safety critical functionality. New aircraft use cases, such as UAS and AAM, are taking advantage of these capabilities with the goal of bringing lifecycles down to less than 5 years. Panelists discussed the technologies that are making this possible, the challenges to this paradigm shift, and the impact on safety and regulatory requirements.

■ Future Spectrum Needs and Applications: As new entrants push the boundaries in existing industries, there is a greater demand for spectrum to enable operations. Existing spectrum users need to make room to expand bandwidth to allow for innovation. Regulators around the world will continue to make adjustments to allocations in spectrum bands.

■ Working Together on Spectrum / What's Next?: Now that we have identified the current and future environment aviation is facing in utilizing spectrum for safety critical functions, this session explored how we can work together to provide the best path forward. Panelists shared the vision for future spectrum planning.

■ How Standards can Evolve to Meet Future Needs: EUROCAE and RTCA align the development and structure of their documents to directly meet FAA's, EASA's and other aviation regulatory needs. There are improvements and developments to be considered in the structure and content of the documents that will make the use of spectrum more robust by the aviation community. Panelists discussed how EUROCAE/RTCA can be responsive to the industry's needs.

"Frequency spectrum is a vital, dynamic, and versatile resource pushing new frontiers in the 21st century"
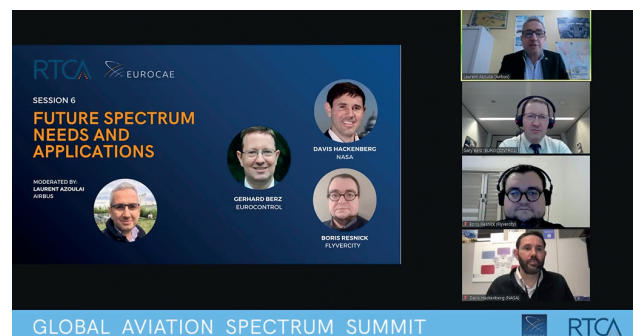
SAFIR-MED Executive Medical Drone Event

2 June 2022 / Antwerp, Belgium

On 2 June 2022, EUROCAE Director General Anna von Groote joined the SAFIR Med Executive Medical Drone Event in Antwerp Port Authority HQ in Antwerp, Belgium.

SAFIR Med is a SESAR project, coordinated by Helicus, looking at the safe and flexible integration of advanced U-Space services focusing on medical air mobility. It aims at demonstrating ways to achieve safe, sustainable, socially accepted and socially beneficial urban air mobility which will contribute to the EU health-care system, by ensuring that future generations will continue to democratically have access to the best cure and care.

In her keynote to the event, Anna discussed the essential link between innovation, R&D, standards and deployment as well as EUROCAE's long-standing relationship with SESAR, which has led to many successful examples showing the key role of standards as enablers and a key factor for successful deployment. Building on these experiences, EUROCAE supports many R&D projects to facilitate the broad uptake of innovation and facilitate the implementation and safe integration of new concepts and technologies in the aviation domain.

2022 EASA-FAA International Aviation Safety Conference

14-16 June 2022 / Washington D.C., United States

The joint European Union Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA) 2022 International Aviation Safety Conference took place in Washington, D.C., June 14-16, 2022.
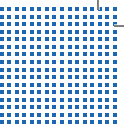
The conference brought together regulators, aerospace industry representatives, and other stakeholders from around the world to share aviation safety information, address current areas of mutual concern, and identify future collaborative opportunities with the global community.

EUROCAE Director General Anna von Groote joined leaders from the FAA, EASA, RTCA and industry on a panel on Developing International Standards at the Speed of Change, moderated by Lirio Liu, Executive Director, FAA Aircraft Certification Service. The panel discussed how regulators and industry can coordinate and collaborate on the development and implementation of international standards to support the increased introduction of innovative new technology and how past experiences can help to address future challenges.

The event was an excellent opportunity to engage with partners from Europe and the US and allowed for many interesting conversations.

The event showed once more the need for coordination and harmonisation between FAA and EASA but also between the Standards Development Organisations (SDOs), which is key to advance aviation safety and to support the introduction of new technologies.

EUROCAE Leadership Summit on World Standards Day

14 October 2022 / Paris, France

As World Standards Day was celebrated on 14 October 2022, EUROCAE brought leaders of many of our WGs together to discuss matters of common interest, exchange views, and learn from each other. Every year, it is a great opportunity for WG leaders to engage with each other and with the EUROCAE Secretariat team. The agenda focused on EUROCAE updates, sessions on GNSS and spectrum in EUROCAE standardisation activities, best practices pertaining to leading a WG, and areas in which EUROCAE Secretariat could provide further support.

The EUROCAE Secretariat would like to acknowledge the crucial role played by our WG chairs and secretaries and thank them for their support. We are pleased to see a growing number of experts contributing to the development of EUROCAE standards within this voluntary framework, and we would therefore like to thank every member for their effort!

Keynote Speech at IWAC Japan

25 October 2022 / Tokyo, Japan

EUROCAE Director General, Anna von Groote, visited Tokyo in October to meet with our friends and partners in Japan. On 25 October, she addressed the International Workshop on ATM/CNS (IWAC) in a keynote speech.

This workshop, organised by the Electronic Aviation Research Institute (ENRI), a long-standing partner of EUROCAE and active contributor to many standardisation activities, was a great opportunity to understand more on the current activities and projects in Japan and the region.

In her keynote, Anna spoke about recent developments in European and international standardisation, including on advanced air mobility, digitalisation of ATM, innovations at airports, sustainability, and many more. Globally recognised standards need international contributions, and the event was an occasion to invite the Japanese community to join these efforts.

During her visit to Japan, Anna also met with the Narita Airport Corporation, Japanese Civil Aviation Bureau (JCAB), Japanese Space Agency (JAXA), as well as the Japan Aviation Innovation Development Association (AIDA). As always, the visit to Tokyo bore many fruitful discussions and is a key event in our international outreach activities.

Aerospace Tech Week 2023

29-30 March 2023 / Munich, Germany

The EUROCAE Team joined the Aerospace Tech Week, which was held on March 29–30 in Munich. EUROCAE's Director General, Anna von Groote, joined the opening session as a keynote speaker to emphasise the importance of standardisation to support the aviation industry address emergent challenges and embrace innovation.

The first panel on the future of EVTOLs, air taxis, and drones and their impact on airspace and air traffic management, moderated by Anna von Groote, related to our working groups WG-105 and WG-112 and highlighted the need and the benefits of close collaboration between the industry and authorities.

In the second panel, Innovative Data Management and Its Challenges, Anna Guégan addressed the utilisation of flight data generated by modern aircraft to comply with standards and regulations such as EUROCAE ED-204A.

The third panel, with the participation of Thuc Nguyen, highlighted the role of technology in the aircraft cockpit and cabin, with a focus on the integration of systems and apps that generate increasing amounts of data, as well as the significant importance of AI standards, where the WG-114 intensively develops the standard guidance for the industry.

FlyAI Forum

20-21 April 2023 / Brussels, Belgium

EUROCAE Director General, Anna von Groote, was part of the first FlyAI Forum, organised by EUROCONTROL, dedicated to exploring the latest developments and deployments of artificial intelligence and machine learning in aviation.

On the panel "Data & AI – From Regulation to Implementation" she focused on the standardisation development ments in the domain of AI and data in Europe and discussed its relevance to the aviation sector. The other speakers on the panel were: Alain Siebert (SESAR 3 Joint Undertaking), Antoine-Alexandre Andre (European Commission), Patrick Bezombes (CEN CENELEC), and Romaric Redon (AIRBUS).
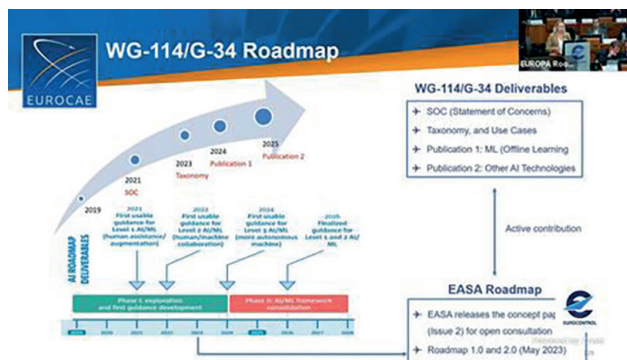
EUROCAE was also present at:

- ENAC Alumni (Paris, 14 September 2022)
- ICAO Assembly (Montreal, 27-30 2022)
- SJU3 Annual Conference
  (Brussels, 12 October 2022)
- RAes (Virtual, 11-12 October 2022)
- EU-Asia Symposium on UAS/UAM
  (Virtual, 18 October 2022)
- Regional Conference Europe of IFATCA
  (Brussels, 19 October 2022)
- IWAC (Tokyo, 25-27 October 2022)
- RPAS and AI in Aviation
  (Rome, 3-4 November 2022)
- Frequentis Open Day (Vienna, 7 November 2022)
- European Drone Forum (Koln, 7-10 November 2022)
- ICAO RPAS Symposium
  (Montreal, 7-10 November 2022)
- ICAO Drone Enable
  (Montreal, 14-16 November 2022)
- EASA Workshop on Inclusion and Diversity in ATM
  (Amsterdam, 16-17 November 2022)
- ACDM Conference (London, 23-24 November 2022)

- EU Drone Days (Brussels, 29-30 November 2022)
- Drone Protection Summit (Paris, 29 November 2022)
- EASA Annual Safety Conference
  (Prague, 30 November 2022)
- EASA Certification Conference
  (Cologne, 7 December 2022)
- ICNSS TF (Montreal, 17-19 January 2023)
- SESAR PG32 (Brussels, 26 January 2023)
- AZEA (Cologne, 26 January 2023)
- EDSMG (Brussels, 1 February 2023)
- ENISA-ESOs Cybersecurity Standardisation
  Conference (Brussels, 7 February 2023)
- Counter UAS Homeland Security
  (Arlignton, 8-9 February 2023)
- NATO NSSG (Brussels, 15 February 2023)
- Airspace World (Geneve, 8-10 March 2023)
- ICAO RPAS (Montreal, 13-17 March 2023)
- Clear Aviation Annual Forum
  (Brussels, 22-23 March 2023)
- ASTM F-44 (Prague, 28 March 2023)
- AeroTechWeek (Munich, 29-30 March 2023)
- FlyAI Forum (Brussels, 20-21 April 2023)

EUROCAE PUBLICATIONS

EUROCAE Documents (EDs) are developed by Working Groups bringing together renowned experts in their area and following a well-established process. EUROCAE has published more than 200 documents, all of them addressing various domains in aviation. Several documents were jointly developed with US partners and many documents are referenced in ETSO/TSOs, ICAO SARPs, EUROCONTROL ESARRs, and FAA standards. They are recognised worldwide for their high quality and as state-of-the-art technical specifications.

These EDs cover system or equipment performance specifications, safety and performance requirements, interoperability requirements, technical specifications, or guidance material.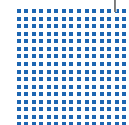 Some documents are dedicated to the airborne side, others to the ground side (mainly CNS and ATM), while others cover common air and ground requirements.

EUROCAE Reports (ER) describe results of Working Groups, which are of general interest but not appropriate to publish in the form of a specification or other type of ED.

All full members are entitled to consult our whole catalogue for free. EDs are available for download via our e-shop, https://eshop.eurocae.net. Other members and non-members may buy EUROCAE Documents from our eShop,www.eurocae.net/eshop/catalog.

New EDs published from May 2022 to May 2023 are marked with this sign: ●

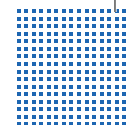| ED ref.	ED title	Identifier
ED-12C Corr 1	Software Considerations in Airborne Systems and Equipment Certification Corrigendum 1	WG-71
ED-94C Corr 1	Supporting Information for ED-12C and ED-109A Corrigendum 1	WG-71
ED-73F	MOPS for Secondary Surveillance Radar Mode S Transponders	WG-49
1/WG7/70	MPS for airborne 75 MHz marker beacon receiving equipment	WG-7
1/WG7C/1-74	MPS for airborne Doppler radar ground speed and/or drift angle measuring equipment	WG-7
1/WG7C/2-74	MPS for airborne automatic dead reckoning computer equipment utilising aircraft heading and Doppler obtained velocity vector data	WG-7
ED-12C	Software considerations in airborne systems and equipment certification	WG-71
ED-14G	Environmental Conditions and Test procedures for airborne equipment	WG-14
ED-14G Change 1	Environmental Conditions and Test procedures for airborne equipment	WG-14
ED-18	Audio systems characteristics and MPS aircraft microphones (except carbon), aircraft headsets, handsets and loudspeakers, aircraft audio selector panels and amplifiers	WG-18
ED-22	MPS for airborne VOR receiving equipment	WG-7
ED-22A	MPS for airborne VOR receiving equipment	WG-7
ED-22B	MPS for airborne VOR receiving equipment	WG-7
ED-23B	MOPS for airborne VHF Receiver-Transmitter operating in the frequency range 117.975 – 136.975 MHz	WG-7

ED ref.	ED title	Identifier
ED-23C	MOPS for airborne VHF Receiver-Transmitter operating in the frequency range 117.975 – 137.000 MHz	TF-Climax
ED-24	MPS for airborne VHF communications equipment operating in the frequency range 118.000 – 135.975 MHz (Part 2 – transmitter)	WG-7
ED-25	Performance Specification for experimental aerosat L-BAND avionics	WG-15
ED-26	MPS for airborne altitude measurements and coding systems	WG-9
ED-27	MOPR for airborne area navigation systems based on VOR and DME as sensors	WG-13
ED-28	MPS for airborne area navigation computing equipment based on VOR and DME as sensors	WG-13
ED-29	MPS for airborne omega navigation equipment	WG-16
ED-30	MPS for airborne low range radio (radar) altimeter equipment	WG-6
ED-31	MPS for ground distance-measuring equipment (DME)	WG-17
ED-36	MOPS for Microwave Landing System (MLS) (Airborne Receiving Equipment)	WG-19
ED-36B	MOPS for MLS Airborne Receiving Equipment	WG-28
ED-38	MPS for airborne weather ground mapping and assisted approach pulse radars	WG-3
ED-39	MOPR for airborne area navigation systems, based on two DME as sensors	WG-13
ED-40	MPS for airborne computing equipment for area navigation system using two DME as sensors	WG-13
ED-41	MPS for airborne fuel quantity gauging systems	WG-22
ED-42	MPS for a fuel flowmeter to aircraft standards	WG-22
ED-43	MOPR for the SSR transponder and the altitude measurement and coding systems	WG-9
ED-46B	MOPS for airborne ILS receiving equipment	WG-43
ED-47B	MOPS for airborne ILS glidepath receiving equipment	WG-43
ED-51	MPS for airborne automatic direction finding equipment	WG-7
ED-52	MPS for ground conventional and doppler VHF omni range (CVOR and DVOR) equipment	WG-23
ED-53A	MOPR for microwave landing system (MLS) (ground equipment)	WG-32

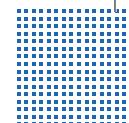| ED ref.	ED title	Identifier
ED-54	MOPR for distance measuring equipment interrogator	WG-25
ED-55	MOPS for flight data recorder systems	WG-21
ED-56A	MOPS for cockpit voice recorder system	WG-18
ED-57	MPS for distance measuring equipment	WG-25
ED-58	MOPS for area navigation equipment using multi-sensor inputs (airborne equipment)	WG-13
ED-62B	MOPS for Aircraft Emergency Locator Transmitters 406 MHz	WG-98
ED-62B Change1	MOPS for Aircraft Emergency Locator Transmitters 406 MHz – Change	WG-98
ED-64	Changes to be applied to FAA Advisory Circular No. 25-11 "Transport category airplane electronic display systems" for adoption as JAR AC	WG-24
ED-65	MOPS for passenger protective breathing equipment	WG-36
ED-67	MOPS for devices that prevent unintentional or continuous transmissions	WG-38
ED-68	MOPS for devices that prevent simultaneous transmissions	WG-38
ED-69	MOPS for wheels and brakes on JAR part 25 civile aeroplanes	WG-40
ED-73E	MOPS for SSR Mode S Transponders	WG-49
ED-74	MOPS for combined ILS and MLS airborne receiving equipment	WG-13
ED-75D	MASPS Required Navigation Performance for Area Navigation	WG-85
ED-75E	Minimum Aviation System Performance Standards – Required Navigation Performance for Area Navigation	WG-85
ED-76A	Standards for Processing Aeronautical Data	WG-44
ED-78A	Guidelines for Approval of the Provision and Use of Air Traffic Services supported by Data Communications	WG-53
ED-79A	Guidelines for Development of Civil Aircraft and Systems	WG-63
ED-80	Design assurance guidance for airborne electronic hardware	WG-46
ED-81	Certification of aircraft electrical/electronic systems for the indirect effects of lightning	WG-31
ED-82A	MOPS for Mode S aircraft data link processors	WG-49
ED-83	Recommendations on ground collision avoidance systems	WG-44
ED-84A	Aircraft Lightning Environment and Related Waveforms	WG-31
ED-85A	Data-Link application system document (DLASD) for the "Departure Clearance" Data-Link service	WG-45
ED-86	Equipment characteristic for Mode S transponders with extended interface functions (mark 4 transponder)	WG-49

ED ref.	ED title		Identifier
ED-87D	MASPS for A-SMGCS including new Airport safety Support Service Routing Service and Guidance Service		WG-41
ED-87E	MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service	●	WG-41
ED-88	MOPS for multi-mode airborne receiver (MMR) including ILS, MLS and GPS used for supplemental means of navigation		WG-43
ED-89A	Data-Link application system document (DLASD) for the "ATIS" Data-Link service		WG-45
ED-91A	Lightning Zoning		WG-31
ED-92C	Minimum Operational Performance Standard (MOPS) for an Airborne VDL Mode-2 System Operating in the Frequency Range 118-136.975 MHz		WG-92
ED-93	MASPS for CNS/ATM message recording systems		WG-50
ED-94C	Supporting Information for ED-12C and ED-109A		WG-71
ED-96	Requirements specification for an avionics computer resource (ACR)		WG-48
ED-98C	User Requirements for Terrain and Obstacle Data		WG-44
ED-99D	User Requirements for Aerodrome Mapping Information		WG-44
ED-100A	Interoperability Requirements for ATS Applications using Arinc 622 Data Communications		WG-53
ED-102A	MOPS for 1090 MHz Extended Squitter Automatic Dependant Surveillance – Broadcast (ADS-B) & Traffic Information Services – Broadcast (TIS-B)		WG-51
ED-102A Corrigendum 1	MOPS for 1090 MHz Extended Squitter Automatic Dependant Surveillance		WG-51
ED-102B	MOPS for 1090 MHz Extended Squitter ADS-B and TIS-B		WG-51 SG-1
ED-103A	MOPS for Inflight Icing Detection Systems		WG-95
ED-104A	MOPS for ground ice detection systems		WG-54
ED-106A	Data-Link application system document (DLASD) for the "Oceanic Clearance" Data-Link service		WG-45
ED-107A	Guide to certification of Aircraft in a High Intensity Radiated Field (HIRF) Environment		WG-31
ED-108A	MOPS for VDL Mode 4 Aircraft Transceiver		WG-51
ED-109A	Guidelines for CNS/ATM Systems Software Integrity Assurance		WG-71
ED-109A Corr 1	Software Integrity Assurance Considerations for Communication, Navigation, Surveillance and Air Traffic Management (CNS/ATM) Systems		WG-71

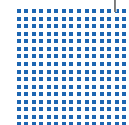| ED ref.	ED title	Identifier
ED-110B Change 1	Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1	WG-78
ED-111	Functional specifications for CNS/ATM Recording	WG-50
ED-112A	MOPS for Crash Protected Airborne Recorder Systems	WG-90
ED-113	Aircraft lightning direct effects certification	WG-31
ED-114A Change 1	MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment To Support Category I Operations	WG-28
ED-114B	MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment To Support Precision Approach and Landing	WG-28
ED-114B change1	MOPS Global Navigation Satellite GBAS Ground Equipment to support Precision Approach and Landing	WG-28
ED-115	MOPS for light aviation secondary surveillance radar transponders	WG-49
ED-116	MOPS for surface movement radar sensor systems for use in advanced surface movement guidance and control systems (A-SMGCS)	WG-41
ED-117A	MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS)	WG-41
ED-119C	Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data	WG-44
ED-120 Change 3	Safety and Performance Standard for Air Traffic Data Link Services in Continental Airspace Change 3	WG-78
ED-121	MOPS for Trolleys, Containers and Associated Equipment Components	WG-65
ED-122 Change 1	Safety and Performance Requirements (SPR) for ATS Oceanic	WG-78
ED-123	MOPS for Flight Deck Door Monitoring System	WG-66
ED-124	Integrated Modular Avionics (IMA) Development, Guidance and Certification Consideration	WG-60
ED-125	Process for Specifying Risk Classification Scheme and Deriving Safety Objectives in ATM	WG-64
ED-126	SPR/Interop document for NRA ADS-B application	WG-51
ED-128	Guidelines for Surveillance Data Fusion in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Levels 1 and 2	WG-41
ED-129B	Technical Specification for a 1090 MHz extended Squitter ADS-B ground station	WG-51
ED-130A Change 1	Guidance for the Use of Portable Electronics Devices (PEDs) On Board Aircraft – Change 1	WG-99
ED-130B	Guidance for the Development of Portable Electronic Devices (PED) Tolerance for Civil Aircraft	WG-99

ED ref.	ED title	Identifier
ED-132	ATC System Architecture Model Specification	WG-61
ED-133	Flight Object Interoperability Specifications (FOIS)	WG-59
ED-136	VoIP ATM System Operational and Technical Requirements	WG-67
ED-137/1B	Interoperability Standards for VoIP ATM components – Volume 1: Radio	WG-67
ED-137/2B	Interoperability Standards for VoIP ATM components – Volume 2: Telephone	WG-67
ED-137/3B	Interoperability Standards for VoIP ATM components – Volume 3: European Legacy Telephone Interworking	WG-67
ED-137/4B	Interoperability Standards for VoIP ATM components – Volume 4: Recording	WG-67
ED-137/5B	Interoperability Standards for VoIP ATM components – Volume 5: Supervision	WG-67
ED-137A	Interoperability Standards for VoIP ATM Components	WG-67
ED-137C/1	Interoperability Standard for VOIP ATM Components – Volume 1: Radio	WG-67
ED-137C/1 Change 1	Interoperability Standard for VOIP ATM Components – Volume 1 Radio – Change 1	WG-67
ED-137C/2	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone	WG-67
ED-137C/2 Change 1	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Change 1	WG-67
ED-137C/2-1	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 1	WG-67
ED-137C/2-2	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 2	WG-67
ED-137C/2-3	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 3	WG-67
ED-137C/2-4	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 4	WG-67
ED-137C/2-5	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 5	WG-67
ED-137C/2-6	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 6	WG-67
ED-137C/2-7	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 7	WG-67
ED-137C/2-8	Interoperability Standard for VOIP ATM Components – Volume 2 Telephone – Addendum 8	WG-67

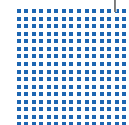| ED ref.	ED title	Identifier
ED-137C/4	Interoperability Standard for VOIP ATM Components – Volume 4: Recording	WG-67
ED-137C/4 Change 1	Interoperability Standard for VOIP ATM Components – Volume 4 Recording – Change 1	WG-67
ED-137C/5	Interoperability Standard for VOIP ATM Components – Volume 5 Supervision	WG-67
ED-138 Part 1	Network requirements and performances for voice over internet protokol (VOIP) air traffic managemen	WG-67
ED-138 Part 2	Network requirements and performances for voice over internet protokol (VOIP) air traffic managemen	WG-67
ED-140A	Minimum Operational Performance Standard for Air Data Modules	WG-68
ED-141	Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems	WG-69
ED-142	Technical Specification for Wide Area Multilateration (WAM) Systems	WG-70
ED-143 Change 2	Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance (TCAS II)	WG-75
ED-145	Airport CDM Interface Specification	WG-69
ED-147A	ATM Validation Platforms Interoperability Specification	WG-81
ED-147B	ATM Validation Platforms Interoperability Specification	WG-81
ED-148	Guidance to Achieve ATM Validation Platforms Interoperability	WG-81
ED-148A	Guidance to Achieve ATM Validation Platforms Interoperability	WG-81
ED-151	Operational Services and Environment Definition (OSED) for Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services	WG-76
ED-152	Aircraft Precipitation Static Certification	WG-31
ED-153	Guidelines for ANS Software Safety Assurance	WG-64
ED-154A	Future Air Navigation System 1/A – Aeronautical Telecommunication Network Interoperability Standard (FANS 1/A – ATN B1 Interop Standard)	WG-78
ED-155	MOPS Lightweight Flight Recording Systems	WG-77
ED-156A	ADS-B Application Interoperability Requirements for VDL Mode 4	WG-51
ED-158	User Manual for certification of aircraft Electrical and Electronic systems for the indirect effects of lightning	WG-31
ED-159	Safety, Performance and Interoperability Requirements Document for ATSA-ITP Application	WG-51
ED-159 Supplement	Safety, Performance and Interoperability Requirements Document for the In-Trail Procedure in Oceanic Airspace (ATSA-ITP) Application	WG-51

ED ref.	ED title		Identifier
ED-160	Safety, Performance and Interoperability Requirements Document for Enhanced Visual Separation on Approach (ATSA-VSA)		WG-51
ED-161	Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application		WG-51
ED-163	SPR and Interop for ATSA ADS-B-APT		WG-51
ED-164	Safety, Performance and Interoperability Requirements Document for Enhanced Traffic Situational Awareness During Flight Operations (ATSA-AIRB)		WG-51
ED-165	ATSA SURF SPR and Interop		WG-51
ED-175	SPR and Interop for aeronautical information and meteorological data link services		WG-76
ED-179B	MASPS for enhanced vision systems synthetic vision systems combined vision systems and enhanced fl		WG-79
ED-181	Guidance for the Development of Airborne Collision Avoidance Systems		WG-79
ED-194A	Automatic Dependent Surveillance – ADS-B		WG-51
ED-194A Change 1	Minimum Operational Performance Standards (MOPS) for Aircraft Surveillance Applications (ASA) System		WG-51 SG-3
ED-194A Change 2	Minimum Operational Performance Standards (MOPS) for Aircraft Surveillance Applications (ASA) System – Change 2		WG-51 SG-3
ED-194B	Minimum Operational Performance Standards (MOPS) for Aircraft Surveillance Applications (ASA) System		WG-51 SG-3
ED-195A	Safety, Performance and Interoperability Requirements Document for Aircraft Spacing Flight-deck Interval Management (ASPA-FIM)		WG-51
ED-195B	Safety and Performance and Interoperability Requirements Document for Airborne Spacing Flight-deck Interval Management (ASPA-FIM)		WG-51 SG-3
ED-200A	Surface Movement Guidance and Control Systems Report of EUROCAE WG-41; Vol I + Vol II		WG-41
ED-201	AISS Framework Guidance Document		WG-72
ED-201A	Aeronautical Information System Security (AISS) Framework Guidance		WG-72 SG-4
ED-202A	Airworthiness Security Process Specification		WG-72
ED-203A	Airworthiness Security Methods and Considerations		WG-72 SG-1
ED-204	Information Security Guidance for Continuing Airworthiness		WG-72
ED-205	Process Standard for Security Certification and Declaration of ATM ANS Ground Systems		WG-72 SG-2
ED-205A	Process Standard for Security Certification and Declaration of ATM ANS Ground Systems	●	WG-72 SG-2
ED-206	Guidance on Security Event Management	●	WG-72 SG-3

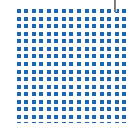| ED ref.	ED title		Identifier
ED-215	Software tool qualification considerations		WG-71
ED-215 Corr 1	Software Tool Qualification Considerations Corrigendum 1		WG-71
ED-216	Formal methods supplement to ED-12C and ED-109A		WG-71
ED-217	Object-oriented technology supplement to ED-12C and ED-109A		WG-71
ED-218	Model-based development and verification supplement to ED-12C and ED-109A		WG-71
ED-219	Aircraft Fuel Cell Safety Guidelines		WG-80
ED-220	Guidelines for the Verification and Validation of AMDB ASRN for routing applications		WG-44
ED-221A	MOPS for TCAS II Hybrid Surveillance		WG-75
ED-222	Technical Specification: Aeronautical Mobile Airport Communications System (AeroMACS) Profile		WG-82
ED-223	MOPS for the Aeronautical Mobile Airport Communication System (AeroMACS)		WG-82
ED-223A	Minimum Operational Performance Standards (MOPS) for the Aeronautical Mobile Airport Communication	●	WG-82
ED-224	MASPS for Automatic Flight Guidance and Control System coupled to TCAS		WG-75
ED-225	Ice and Rain Minimum Qualification Standards for Pitot and Pitot-Static Probes		WG-89
ED-227	MASPS for AeroMACS		WG-82
ED-228A	Safety and Performance Standard for Advanced ATS Data Communication		WG-78
ED-229A	Interoperability Standard for Data Communication via ATN		WG-78
ED-230A	Interoperability Standard for Data Communication via a Mix of ATN and FANS-1 A		WG-78
ED-231A	Interoperability Standard for Baseline 2 ATS Data Communication – Baseline 1 Accommodation		WG-78
ED-232	SPR for Traffic Situational Awareness with Alerts (TSAA)		WG-51
ED-233	Safety and Performance Requirements Document for CDTI Assisted Visual Separation (CAVS)		WG-51
ED-234	User Guides Supplement to ED-14G		WG-14
ED-235	MASPS for Foreign Object Debris Detection Systems		WG-83
ED-236	MOPS for Flight-deck Interval Management (FIM)		WG-51
ED-236A	Minimum Operational Performance Standards (MOPS) for Flight-deck Interval Management (FIM)		WG-51 SG-3

ED ref.	ED title		Identifier
ED-236A Ch. 1	Minimum Operational Performance Standards (MOPS) for Flight-deck Interval Management (FIM) Change 1		WG-51 SG-3
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ED-259	Minimum Operational Performance Standards for Galileo – Global Positioning System – Satellite-Based Augmentation System Airborne Equipment	WG-62
ED-260	MASPS for Coexistence of Wireless Avionics Intra-Communication Systems within 4 200-4 400 MHz	WG-96
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ED-271 Corr 1	MASPS for DAA (Traffic) for Remotely Piloted Aircraft Systems in Airspace Classes A-C under IFR	●	WG-105 SG-1
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As the industry recognises standards as a strategic tool, we are proud to provide a platform that facilitates the development and implementation of these crucial benchmarks. Our members, representing a diverse range of stakeholders, contribute their expertise and insights to shape these standards, ensuring they address the needs and challenges faced by the industry as a whole.

We place great importance on achieving a balanced representation within our membership. This not only encompasses the various sectors within Europe but also extends to an international dimension. We believe that embracing a global perspective is essential to foster collaboration, drive innovation, and address the increasingly interconnected nature of our industry.

The support and involvement of our members remain integral to our success. We are truly grateful for their active engagement, which strengthens our ability to develop robust and effective standards. Together, we are shaping the future of our industry, promoting excellence, and driving positive change.

As we continue to move forward, we look forward to further expanding our membership base, welcoming new members who share our commitment to standardization and its transformative power. Together, we can unlock new opportunities and overcome the challenges that lie ahead.

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2019	314
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2021	401
2022	427
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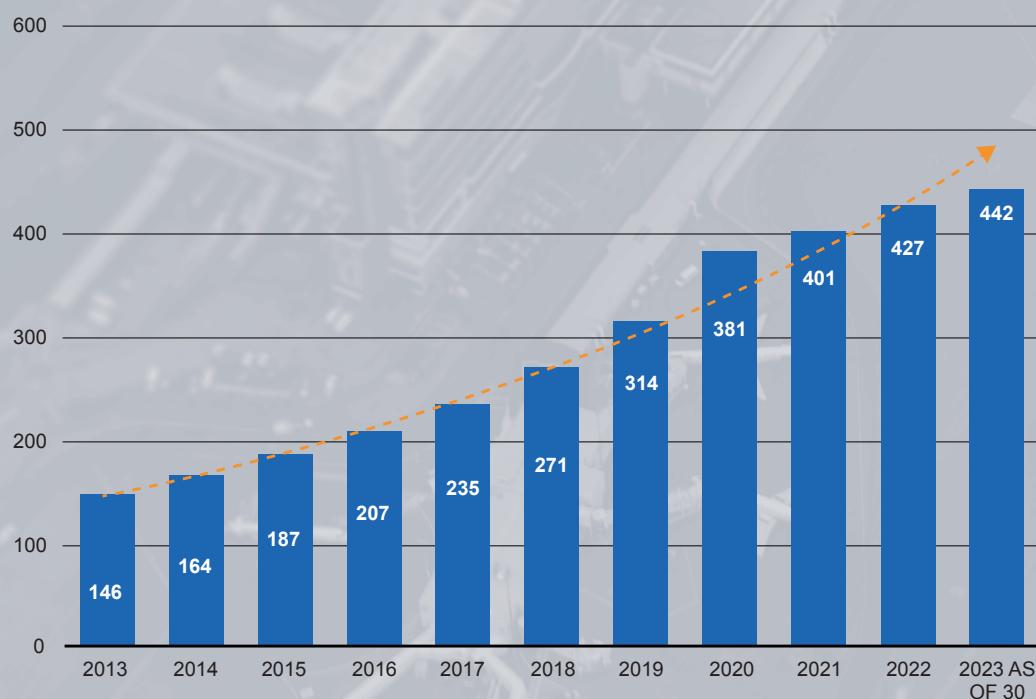
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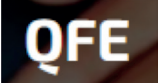
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Fundacion Para El Fomento de la Innovación Industrial	F²I² FUNDACIÓN PARA EL FOMENTO DE LA INNOVACIÓN INDUSTRIAL
GE Aviation	
Genesys Aerosystems	GENESYS AEROSYSTEMS a Moog Company
German Military Aviation Authority	

GKN – Fokker Elmo		MedCareProfessional GmbH	
GL Communications Inc.		MEP	
GRADIANT		Météo-France	
GuardREC AS		MT Aerospace AG	
HeliOffshore Limited		MTU Aero Engines AG	
Hitachi Energy Ltd		Munich Airport	
Hitachi Europe		Northvolt	
Industrieanlagen-Betriebsgesellschaft mbH		NTSB (EUROCAE)	
Instituto Nacional de Técnica Aeroespacial		NUAIR Alliance	
Isavia ANS		OMB Saleri	
ISDEFE		OTT HydroMet Fellbach GmbH	
Kanematsu GmbH		Overair	
Kappa optronics		ParaZero Technologies Ltd	
KLAAT		Phoenix Recording Systems Limited	
Kongsberg Defence and Aerospace		Pilatus Aircraft	
Leichtwerk AG		politecnico di torino	
LSA Electromagnetics Limited		QFE	

qualcomm technologies incorporated		TOPVIEW SRL	
Rheinmetall Italia S.p.A.		Transportation Safety Board of Canada	
Royal Flying Doctor Service		TTTech Computertechnik AG	
RUAG AG		Tyrol Air Ambulance	
Saft		UASolutions N.Apter	
Saint-Gobain		UNICAIR GmbH	
SCALIAN		United Nations	
Schiebel Elektronische Geräte		Universal Avionics Systems Corporation	
SERMA INGENIERIE		Vaisala	
Shenyang AeroTech Co.,Ltd		Vector Informatik	
SkyFive AG		Wake Engineering Sl.	
Sopra Steria		Weibel Scientific	
Spaceopal GmbH		Wingtra AG	
Swiss FOCA		XTE Ltd	
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Many thanks,

EUROCAE Communication Team

LUCERNE, SWITZERLAND - 24 & 25 APRIL 2024

EUROCAE SYMPOSIUM & 61st GENERAL ASSEMBLY

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MORE INFORMATION AT WWW.EUROCAE.NET

Our Team

Director General

- Anna von Groote
  anna.vongroote@eurocae.net

Communication and Training Manager

- Yago Grela
  yago.grela@eurocae.net

Administrative and Accounting Manager

- Madhvee Jha
  madhvee.jha@eurocae.net

For further information on EUROCAE, and to participate in our activities, please visit our website or contact us via email!

Senior Technical Programme Manager

- Anna Guégan
  anna.guegan@eurocae.net

Technical Programme Managers

- Alain Vallée
  alain.vallee@eurocae.net
- Alex Milns
  alex.milns@eurocae.net
- Tri Thuc Nguyen
  trithuc.nguyen@eurocae.net
- Esther Hoyas
  esther.hoyas@eurocae.net
- Mark Watson
  mark.watson@eurocae.net
- Javier Diana
  javier.diana@eurocae.net

EUROCAE Liaison

- Alexander Engel
  alexander.engel@eurocae.net