



EUROCAE BROADCAST

THE EUROPEAN ORGANISATION FOR CIVIL AVIATION EQUIPMENT
L'ORGANISATION EUROPEENNE POUR L'EQUIPEMENT DE L'AVIATION CIVILE
EDITION 4 / 2016



GSA AND EUROPEAN SPACE
AGENCA: ON THE ROAD
TOWARDS EGNOS V3



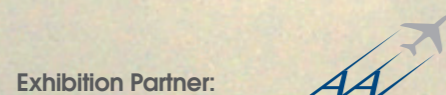
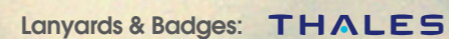
SESAR DEPLOYMENT MANAGER
AND EUROCAE SIGNED A MEMO-
RANDUM OF COOPERATION



EUROCAE UAS WORKSHOP:
EUROCONTROL, 4 MARCH 2016



WE PROUDLY PRESENT THE SPONSORS OF THE EUROCAE SYMPOSIUM 2016:



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Dear EUROCAE members, friends of EUROCAE and readers of our Broadcast, it is my honour to welcome you to the fourth edition of our "Broadcast", the EUROCAE magazine where we enter now the second year of the magazine.

The **NEWSblog** has now developed as the main information stream where we share actual information with our stakeholders, posting what new activities are launched, which new EDs are published, announcing the open consultation process, links to the Broadcast and Annual Report and other documents available online, event details and many, many more topics. Brief and precise, tailored information for a quick EUROCAE update **twice a month**. With this magazine we go into more detail and tell you the full story of EUROCAE highlights. But we are happy to invite more and more partners to contribute to the Broadcast and provide us with interesting articles, like in this edition the **European Navigation Satellite Systems Agency GSA** and the **SESAR Deployment Manager SDM**. We welcome two important partners but completely different in the way we are partnering with them. GSA a very active member to develop standards in support of satellite based solutions, primarily for EGNOS and Galileo. The SDM a key "customer" of EUROCAE ATM standards, which are essential to deploy SESAR projects.

We just came back from the World ATM Congress **WAC in Madrid**, where we had our first public rollout of the EASCG, the European ATM Standardisation Coordination Group. A group we as EUROCAE are chairing and managing, which became a good reference for other coordination activities in Europe but also globally. The EASCG model was also an essential input to the ICAO standardisation roundtable. The WAC was the perfect platform to share with the stakeholders what is behind the acronym EASCG and what we are doing. We had in our last edition an article, where we went into more detail and explained the Terms of Reference. But now the EASCG is ready and has developed the European ATM Standardisation Rolling Development Plan, which will be shared publicly shortly. We also participated in other workshops and interesting discussions, met our members, stakeholders and potential new members, interested in developing standards with us.

Just a week before the WAC, EUROCAE invited the RPAS community to discuss with us what standards need to be developed by EUROCAE in this discipline and what is the best structure to do so. Our members and experts are the ones contributing time, money and expertise to do so and are deciding at the end on the work programme.

The Council tasked us to organise this workshop to get a broader perspective of our members and the RPAS community to give the strategic direction in this fast moving and emerging domain. We have included an article in this edition of the Broadcast, about the valuable inputs we got at the workshop and the outcomes.

The next big event is just ahead of us, the **EUROCAE Symposium**. Please do not miss the opportunity to meet us in Vienna, discuss with us on five different topics, Runway Safety, Cyber Security, Flight Tracking, RPAS and Space Travel and listen to our distinguished **high level keynote speakers**. Use this perfect opportunity for networking and participate at the "**Award Night**" where we will honour experts for their outstanding contribution to our standard development activities.

One highlight hits the other, but beside all this, regular work is moving on more than ever before, so we have kicked off the 36th active working group (WG), **WG-104 on SWIM**. This is not only the highest number of active working groups ever at EUROCAE, WG-104 opens also a new area of standardisation. This is the first time we develop **standards for services**. Please read more inside the Broadcast.

Please allow me to use this opportunity also to explain our **membership policy**. Very often I'm confronted by members and candidate members saying that they are contributing resources, time, effort and travel expenses to develop EUROCAE standards and on top of this we ask for a membership fee. This might sound really curious, but EUROCAE as an organisation is based on membership, meaning that only members are permitted to contribute to and benefit from the activities and output of the Working Groups. Membership fees are our main source of revenue, this revenue is used to keep EUROCAE running, provide meeting facilities and all in-house resources and processes to support WG activities, from the establishment of a WG to the publication of a standard. Our processes are well proven and accepted, which also result in globally recognised standards at the end of the process. We are a member driven organisation, working for our members, meaning we work on a work programme which is approved by the Council, representing the members and only after we have enough participation from our members ensured (Call for Participation).

I'm very happy to see a lot of articles in this edition, allowing us to look deeper into the different Working Group activities and learn from the experts, first hand.

Enjoy reading, I look forward to talk to you in Vienna.

Christian Schleifer-Heingärtner
Secretary General



In my Chair of Council report to the General Assembly last year, I explained that the council intended to complete a thorough review of the Constitution, Governance documents and other arrangements.

The Council have thoroughly reviewed all the governance documents and arrangements and will be making proposals to the General Assembly to make some changes that we feel are necessary to ensure they are consistent with current good practice for Associations and will meet the future needs of EUROCAE and its members.

Any changes to the Constitution require approval from the General Assembly. A detailed briefing pack will be provided to members ahead of the meeting but I thought it would be useful to provide a little advanced notice of the areas that the Council propose should be changed.

The main changes are:

▶ **a) Changes to the Quorum required at the General Assembly.**

At present the requirement is for at least 50% of Full members to attend, or be represented at, the General Assembly. The increase in EUROCAE members from around the world has meant that this has been very difficult to achieve over the last few years. The Council is therefore proposing that the quorum requirement be removed and also to allow electronic voting for those not physically present at the General Assembly.

▶ **b) Clarifying the Legal Responsibility for EUROCAE Associations**

The current arrangement is that the President has legal responsibility for the Association. The Council (with the involvement and agreement of the current President) propose that a more appropriate arrangement is for the Council Chair to fulfil this role.

▶ **c) Permitting a defined number of members from non-ECAC states to be represented on EUROCAE Council.**

The current Constitutions specifies that only full EUROCAE members who are based in ECAC states can be members of the Council. The Council feel that this is overly restrictive and so propose that a limited number of members from non-ECAC states should be permitted to be elected as Council members.

Separately from the Constitution, the Council have reviewed the way EUROCAE is funded with a view to ensuring that EUROCAE is able to meet members needs effectively and also that it is consistent with similar standards organisations. As a result of this review, some changes are to be proposed to the General Assembly for agreement. The key change is that subscription levels will vary according to the published annual revenues of member organisations. We recognise that this will result in some members subscriptions increasing, however this is justified by savings that members will see as a result of better meeting arrangements including the ability to hold virtual meetings and electronic collaboration hosted by EUROCAE. Further details will be provided to members ahead of the General Assembly.

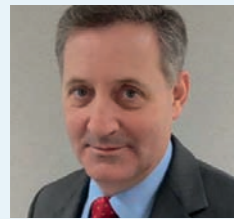
The Council believe that the proposed changes to be presented to the General Assembly will secure and enhance EUROCAE's ability to meet future needs of its members and specifically:

- enable EUROCAE to have a heightened influence in standards making
- to have stable and sustainable sources of funding that do not give any one organisation undue influence on priorities or approaches
- invest appropriately to improve the efficiency and effectiveness of work group meetings and related arrangements for members

As a closing remark, can I encourage you to sign up to attend the Symposium and General Assembly – the agenda shows that the presentations and discussions will be topical, relevant and result in some lively debate that I am sure will be of interest to everyone in our industry. I look forward to seeing you there.

David Hawken
EUROCAE Council Chair

The Council is committed to ensure benefits and efficiency savings for members are delivered in a measurable way and these will be reported to members in future editions of Broadcast.



Peter Green, **EUROCAE Treasurer** complemented: David Hawken alludes to the changes in funding structure that will be proposed to the next General Assembly for agreement. The intention then is that the new rates will come into force in the 2017 financial

year. Rather than go into too much detail on the proposals that will be submitted in advance to all EUROCAE members, I would like to complement his contribution by elaborating a little more on the need to stabilise EUROCAE Secretariat resources overall. This requirement will be the subject of Council and Secretariat priority focus in the immediate future.

One of EUROCAE's greatest assets is the voluntary participation by its members in the standards development process. This provides a systematic sanity check in that industry will not support something, the need for which is not clearly justified. So the EUROCAE mantra 'standards by industry for industry' is no exaggeration. However, organising a voluntary engagement by industry demands a strong and competent Secretariat, and a process with the necessary support tools, to function efficiently.

The EUROCAE Secretariat is understaffed. Detailed calculations show that technical staff demand to fulfil today's tasks, duties and activities would require some 11 Full Time Equivalents (FTE) but as of the date of writing this article, there are only 5.7 FTE available. Some of the shortfall is made up by use of secondment and contractors but this does not provide for the stability needed to grow an efficient and functioning team.

Increasing resources is one way of improving performance, another way is to become more efficient overall and, in the case of EUROCAE, the Council and Secretariat are indeed looking at a mixed solution. EUROCAE's infrastructure is ripe for updating across the board. To achieve this, a number of key investment needs have been identified. Firstly, the IT infrastructure is subject to a major overhaul, which will deliver significant new benefits, including a new Website, Working Group workspace, automation of administrative and technical processes, remote participation and video conference. A new location for the HQ is being sought to improve access by stakeholders and to offer more meeting rooms and better working conditions. All of these initiatives cost money but will deliver significant efficiencies in the longer-term. They will also provide a sound basis from which EUROCAE can grow to meet the increasing demand for standards against the global evolution to performance-based regulations and, more locally, SESAR deployment.

Peter Green
EUROCAE Treasurer

GSA

On the road towards EGNOS V3



Carlo des Dorides,
Executive Director

Following the European Commission's adoption of Implementing Act EU2015/1183 in June 2015, the European GNSS Agency (GSA), in collaboration with the European Space Agency (ESA), is developing the next generation of the European Geostationary Navigation Overlay Service EGNOS.

Whereas EGNOS and other Satellite-Based Augmentation Systems (SBAS) currently provide messages to augment the global positioning system (GPS) in only one frequency (L1), EGNOS V3 will provide messages in two frequencies (L1 and L5), thus augmenting both GPS and Galileo. L5 is part of the aeronautical safety navigation band, a protected band of the radiofrequency spectrum reserved for aviation safety systems.

The advantage of dual frequency

This capability, known as Dual-Frequency Multi-Constellation (DFMC), is the guiding principle in the evolution of SBAS systems and provides clear advantages over a single frequency.

For example, when using only a single frequency, ionospheric storms can cause outages in the precision approach services offered by EGNOS and similar SBAS systems. With DFMC however, SBAS users will no longer suffer from these outages, as the user will be able to directly measure the ionosphere-induced path delay to each GPS and/or Galileo satellite, avoiding the performance penalty caused by the spatial decorrelation that is inherent in ground-based ionosphere corrections. In other words, a dual-frequency user will be able to achieve a higher level of availability and increased protection at lower approach levels than a single-frequency user can.

Furthermore, dual frequency SBAS provides a powerful reversionary mode against interference from radio frequencies. Thus, even in the event that the L5 frequency is lost, the legacy L1 service remains available. The definition of the operational modes of future DFMC receivers is in the process of being finalised by an International Civil Aviation Organisation (ICAO) working group (WG).

Up next

Both the European Organisation for Civil Aviation Equipment (EUROCAE) and its US equivalent, the Radio Technical Commission for Aeronautics (RTCA), are in the process of developing DFMC Minimum Operational Performance Standards (MOPS). The terms of reference have recently been updated to define the roadmap for developing the next set of standards. EUROCAE will initiate DFMC SBAS MOPS, with the objective of delivering a first draft by the end of 2018 and a joint final version with RTCA by the end of 2020.

A MOPS progress update is planned for June 2016 during the EUROCAE WG-62 meeting. The preliminary draft of the future DFMC SBAS MOPS will be presented during the working group's second annual meeting, to be held in November 2016 at GSA headquarters in Prague.



Deployment -

A daily reality in Europe



Massimo Garbini,
Managing Director

The Deployment Programme (DP) explains how Europe's Air Traffic Management (ATM) industry shall get organized to fully and timely implement the Pilot Common Project (PCP), a European law covering 6 ATM functionalities that have to be deployed by European Union's Member States. It leads investment plans by Civil and Military European Air Navigation Service Providers, Airports Operators, Airspace Users and the Network Manager to achieve Europe's ATM infrastructure modernization, as required to ensure a safe and efficient continental air transport system in support of our economy and the creation of jobs.

The **SESAR Deployment Manager** coordinates and monitors the realization of all implementation projects that contribute to PCP implementation whilst benefiting from significant EU co-funding through the Connecting Europe Facility (CEF) managed by the European Commission (EC).

With the previous DP, version 2015, the industry already showed the maturity and commitment to deliver this Programme together. Since March 4th, the 2016 Consultation Campaign, where SDM is consulting all involved stakeholders, has started again. Deployment Programme 2016 (DP 2016) builds on the DP 2015, where the 6 ATM functionalities and 20 sub-functionalities contained in the Pilot Common Project (PCP) have been turned into 44 families of implementation projects enabling the full PCP implementation. The DP translates the priorities defined in the European ATM Master Plan's planning view and selected to be part of the Pilot Common Project into a coherent and coordinated project view. The DP 2016 is highlighting the most urgent initiatives and activities to be undertaken in order to ensure an effective and synchronized deployment of PCP throughout Europe and to avoid significant gaps in the Programme's deployment and shall be delivered by SESAR Deployment Manager to the European Commission by 30th September 2016.

Facts & figures

The Deployment Programme progress, which refers to the Implementation projects of the CEF Transport Call 2014 is on track. The activities performed by the Implementing Partners, within the respective projects, led to the achievement of actual results which are expected to bring tangible benefits to the aviation sector and, in general, to the community. There are 84 implementation projects by 45 partners already running in 23 EU Member States and also 2 neighboring States. The 45 Implementing partners consist of 26 Air Navigation Service Providers, 13 Airport Operators, 5 Airspace Users and 1 MET Service Provider. All this is the true demonstration of Europe's ATM industry willingness to invest in modernization and meet Single European Sky challenges.

For the **CEF Transport Call 2015**, SESAR Deployment Manager submitted a total of **223 implementation projects**. 83 partners are representing the whole ATM community: Air Navigation Service Providers, Airlines, Airports Operators, Meteorological Service Providers, the Network Manager, Eurocontrol, the Military and the European Manufacturing Industry. The Call covers 31 States, including 27 EU Member States and 4 Neighbouring States. This means a total potential investment of €2.4 billion. It is foreseen that the European Commission will take a decision on the awarding of these projects by the beginning of July 2016.

Between the CEF Transport Call 2014 and the Call 2015, the SDM measures a progression of +255% of the requested co-funding at the time of submission.

SESAR Deployment manager and EUROCAE sign MoC

On the 8th of March, the SESAR Deployment Manager (SDM) and EUROCAE signed a Memorandum of Cooperation. Massimo Garbini, Managing Director SESAR Deployment Manager: "This formalisation of the continuous dialogue between the SDM and EUROCAE will help reduce significantly the risk of non-timely availability or lack of necessary standards, we are very happy to officially welcome EUROCAE into SESAR Deployment"

► www.sesardeploymentmanager.eu



EASCG Workshop:

Coordinating ATM Standardisation in Europe

On 8 March 2016, during the World ATM Congress (WAC), the European ATM Standardisation Coordination Group (EASCG) held a Workshop providing stakeholders with a perfect opportunity to learn more about the EASCG, its role and activities, and the European ATM Standardisation Rolling Development Plan.

Furthermore the Workshop discussed the essential link between research, development, standardisation and deployment and took a look at the place of the European coordination activities within the global framework.



Christian Schleifer,
EASCG Chair

More than 50 delegates attended this Workshop, including some non-European representatives (e.g. Aeronautical Radio of Thailand Limited -AEROTHAI-). It was also an occasion to understand the coordination needs from a Working Group's perspective, and to see how the European ATM Standardisation Rolling Plan was built and how it will be maintained in future.

During the first part of the Workshop, various speakers highlighted the essential link between standardisation, the notification of standards as Acceptable Means of Compliance and deployment, placing the European coordination activities within the global perspective. They noted the important role the EASCG plays in coordinating standardisation activities in Europe and building a coherent European perspective that can be communicated to and used by stakeholders at European and international level.

The second part of the Workshop took the form of a panel session chaired by **Mr. Maurizio Castelletti** from the European Commission (DG MOVE). The panel involved representatives from the SJU, EASA, EUROCONTROL, ASD, EDA, the ESOs and EUROCAE. The panelists underlined the importance of the work of the EASCG as an important bridge between R&D, industrialisation and deployment.

Furthermore two important points were strongly supported by all panelists:

1 | The European ATM Standardisation Rolling Development Plan should be the sole reference

regarding the standardisation and regulatory activities thanks to its links towards the institutional enablers defined in the European ATM Master Plan and to the families and sub-families defined within the Deployment Plan developed and maintained by the SESAR Deployment Manager.

2 | The EASCG should also address validation issues

during its next working sessions. This should cover the pre-validation step performed within the SESAR R&D activities as well as the full validation ensuring that the published standards are fit for purpose.



The current version of the European ATM Standardisation Rolling Plan will be made available shortly. It is foreseen that stakeholders can register for an automatic notification of the availability of an update of the Rolling Plan for download.

In the coming weeks more information will be communicated to indicate how to download this document and on the registration mechanism for the automatic download notification.

EUROCAE UAS Workshop

EUROCONTROL, 4 March 2016

More than 70 participants followed the open invitation and attended the EUROCAE UAS Workshop on 04 March 2016 at the EUROCONTROL Headquarters in Brussels. The goal of the Workshop was to determine the future working arrangements and a work programme for RPAS related activities within EUROCAE.

In his opening presentation, the EUROCAE Secretary General **Christian Schleifer-Heingärtner** stressed the basic principles of EUROCAE: voluntary work force based on EUROCAE membership. This policy has been reinforced by the Council in one of its recent sessions and will be a guiding principle for the determination of the tasks to be executed by the Working Groups.

The first part of the Workshop provided the EUROCAE stakeholders with an opportunity to develop their view on future activities to be performed.

In his presentation, **Koen de Vos**, European Commission outlined the "EU Approach to Drone Rules". These rules shall be embedded in the EU Safety Rules rather than exist as a separate initiative. Rulemaking shall be operation centric and risk based. Proportionality shall ensure that the type, scale and complexity of an activity are taken into consideration instead of applying a rather arbitrary weight limit - which will be removed. The performance based approach with the appropriate means of compliance will give industry standards an important role in the implementation of the policy.

RPAS will also play a role in the SESAR 2020 activities, including research on the need to integrate them into the IFR environment. Currently an Exploratory Research Call is in preparation focusing on VLL operations (Very Low Level).

Stefan Ronig presented EASA's need for Standards and AMC for Unmanned Aircraft. The strategy is based on three pillars: operation centric, risk based

and smooth (meaning that implementation will not cause any undue burden on the aviation system). To implement this concept three levels of operation have been defined: Open (low risk), Specific (increased risk) and Certified (similar to manned aviation). For EASA, standards supporting the Open category have highest priority but they play a role as Acceptable Means of Compliance (AMC) and guidance material in any category. In his summary Stefan stressed that EASA is committed to working with all stakeholders.

In a larger block of presentations, other standardisation development organisations provided their view on future working arrangements and tasks.

ASTM with their committee F38 focuses on small RPAS. The goals are routine, safe operations in civil airspace through standardisation. It was pointed out that global harmonisation is key and that a possible Memorandum of Understanding with EUROCAE could be beneficial.

ASD is targeting all types of RPAS and operation. For them, coordination amongst the various stakeholders is a prerequisite for safe integration of RPAS into the airspace. In their view, EUROCAE in future shall follow a work package based approach and overlap with other organisations has to be avoided by detailed coordination.

ASD-STAN currently works mainly in the area of Terminology, Taxonomy and Requirements for UAV Pilots. Identification and registration is another area of current activities. Just like the other presenters, coordination and harmonisation was mentioned as a cornerstone of future standards development.

The JARUS representative pointed to the fact that the RPAS environment differs substantially from manned aviation. The business is mainly driven by small companies with limited resources and is highly dynamic. The structure implemented for the development of standards will have to reflect these specific characteristics.



During the second part of the Workshop details were discussed on the "What?" and the "How?" What should EUROCAE get involved in? How shall these activities be organised?

Naturally the perspective of the current Working Group Leadership of WG-73 and WG-93 are very important to determine the future activities.

WG-73 stated that the changing environment also required EUROCAE to adapt. In particular the risk-based, operation centric approach pursued by EASA requires the work program to be shaped accordingly. What has to be prevented are overlaps, as well within EUROCAE as also with other organisations. In their view, EUROCAE should focus on operations beyond visual line of sight (BVLOS) which mainly includes the Specific and Certified categories. What was flagged as an area of concern is the limited participation of "the authorities" in the WG-73 work. EUROCAE should build a unified and consistent development environment where the organisation of work is structured around the deliverables.

For the WG-93 leadership there are still valid reasons to keep the group as a separate entity. In particular the fact that the stakeholders of this group mainly consist of small enterprises requires a different approach. The deliverables envisaged by WG-93 are standards for current and future light RPAS operations focusing on the Open and Specific categories. It is acknowledged

that there will be some areas of overlap with WG-73, but they are considered to be solvable by appropriate coordination.

Common to both groups is the fact that excellent cooperation and coordination will be needed both within and beyond EUROCAE to prevent overlaps, duplication of work and gaps.

During the discussion amongst the audience, common understanding was achieved on the organisation of the work around the planned deliverables with a matrix coordination mechanism to reflect on the operational and risk based approach the RPAS rulemaking will follow.

The EUROCAE Secretariat in cooperation with the current Working Group leadership will now initiate the development of the Terms of Reference for the future activities along the lines discussed during the Workshop. It is expected that this can be finalised before summer 2016.

As it was agreed during the Workshop, any of the activities listed in the future ToR will be submitted to a Call for Participation to ensure stakeholder engagement for the successful finalisation of the deliverable. Only if sufficient support is available amongst the EUROCAE members, an activity will actually be launched.

The EUROCAE Symposium

Vienna, 28 - 29 April 2016



Building on feedback received and experience gained from the last events, the 2016 EUROCAE Symposium will provide a series of educational sessions, giving insights into current topics. In several sessions, high level representatives will discuss the following topics:

▶ Flight tracking

Following the disappearance of Malaysia Airlines Flight 370 (MH370) in March 2014 and AF447 accident over the Atlantic in 2009, the global aviation community had to reconsider thoroughly the way aircraft are tracked. The session will provide an overview of the latest developments, lessons learned, challenges and opportunities towards a Global Aeronautical Distress and Safety System (GADSS). It will discuss the challenges to global aircraft tracking as well as the possible future solutions and capabilities, using both ground-based and space-based technologies.

▶ Runway Safety

Runway safety-related incidents and accidents remain one of the most frequent types of accidents in international aviation. Initiatives have been launched at international and regional levels to enhance runway safety using a collaborative approach including regulators, aircraft operators, aerodrome operators, and air navigation service providers to prevent and mitigate the effects of runway excursions, incursions and other related occurrences. This session will cover

initiatives to reduce and prevent runway safety-related incidents and accidents and present perspectives of international and European authorities, airplane manufacturers, airlines and operators.

▶ Cyber Security

System Wide Information Management (SWIM) and other Automation and Networking programmes, state of the art aircraft and avionics technology will form the basis for a shared situational awareness demanding a new holistic approach as an answer to increased security threats. Critical assets and processes will have to be secured against crime, sabotage and attacks. The vast scope of cyber threats requires active engagement of all stakeholders across the aviation industry. This session will discuss how Cyber Security threats affect already today the aviation environment from various perspectives, and will look also into other safety critical domains learning how they address the increased demand of measures against cyber threats.

▶ RPAS

The UAS - RPAS market is growing faster and faster with many new entrants into the traditional aviation industry. This session will provide an insight on the progress of the regulatory environment as well as the progress of convergence and complementarity towards a safe and secure co-existence with manned aviation. We will learn of the various initiatives of the non-traditional aviation industry where new business opportunities drive the evolution of new and adapted tools and technical systems as well as the views from Professional Staff Associations like pilots and controllers on how they see the challenges and opportunities ahead.

▶ Space Travel

Already today a number of projects exist aiming at the commercialisation of space travel. It can be expected that in the coming years traffic to outer space will increase. Speakers will provide an overview of some existing projects, will give an outlook to future activities and at the same time provide a first set of answers to the question "What could EUROCAE's role be in Space Travel"?

EUROCAE Awards 2016

EUROCAE's work is based on contributions from voluntary workforce nominated by our members. These experts are the heart of the organisation and are driving the standard development process. The EUROCAE Awards are intended to recognise excellence, leadership and hard work in EUROCAE WGs by the WG Chairperson, Secretary, or other key members of the group.

«The Symposium is an excellent opportunity for EUROCAE to celebrate outstanding contributions to our activities.»

The categories, which have been chosen based on key areas of importance to EUROCAE WGs, are:

- ▶ **WG Leader:**
To recognise excellent leadership of a WG or activity
- ▶ **Best contribution:**
To recognise outstanding contributions to a WG
- ▶ **Global harmonization:**
To recognise joint WGs activities and to support worldwide interoperability and global harmonisation
- ▶ **Innovation:**
Contribution in WGs dealing with highly innovative subjects.
- ▶ **International contribution:** To recognise specifically participation from non-European stakeholders.

The presentation of the Awards will take place during the Gala Dinner & Award Night.



Further information on the programme and venue is available at: www.eurocae.net/events/symposium

SDM MoC signature

Madrid, 8 March 2016

Memorandum of Cooperation between SESAR Deployment Manager and European Organisation for Civil Aviation Equipment was signed at the World ATM Congress in Madrid.

On Tuesday 8 March 2016, the SESAR Deployment Manager (SDM) and EUROCAE signed a Memorandum of Cooperation at the World ATM Congress in Madrid right after the EASCG workshop.

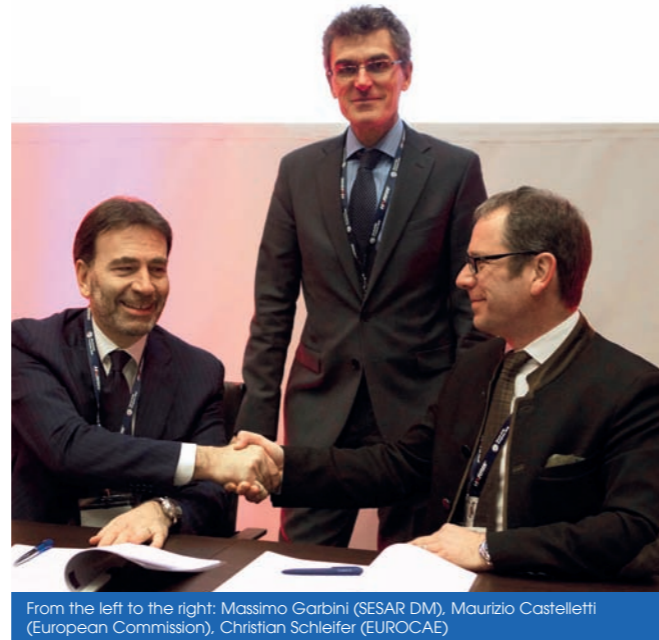
The MoC provides the principles and sets a framework for efficient cooperation and communication between the SDM and EUROCAE with regard to SESAR deployment, in light of Regulation 409/2013.

It is essential that EUROCAE and the SDM are closely coordinating and exchanging information on the standards development process and progress of relevant activities within EUROCAE on the one hand, but also for the SDM to provide information to EUROCAE on relevant developments regarding the deployment programme that could impact the standardisation activities. In this respect the MoC is already reflecting a practice we have used for nearly a year in coordinating the deployment programme development and the EUROCAE technical work programme. The MoC coordination is complementary to the coordination that will also take place in the European ATM Standardisation Coordination Group (EASCG) and the results will be reflected in the EASCG Rolling Plan.

EUROCAE Standard developments and activities are specifically recognised as an essential element in support of SESAR deployment.

EUROCAE plays a key role on the European scene for the development of standards for Aviation, including Air Traffic Management. Through this cooperation, the SDM and EUROCAE will contribute to the provision of the required standards for a successful deployment of SESAR.

Massimo Garbini, Managing Director SESAR Deployment Manager, noted: "This formalisation of the continuous dialogue between the SDM and EUROCAE will help reduce significantly the risk of non-timely availability or lack of necessary standards, we are



From the left to the right: Massimo Garbini (SESAR DM), Maurizio Castelletti (European Commission), Christian Schleifer (EUROCAE)

very happy to officially welcome EUROCAE into SESAR Deployment today."

Christian Schleifer, Secretary General EUROCAE, added that "EUROCAE provides the essential bridge between research and development to deployment by offering a platform for voluntary experts to develop technical standards. The MoC is a significant milestone for EUROCAE to ensure consistent and efficient development of standards thanks to close coordination with the SDM."

The SDM is the industrial partnership that synchronises and coordinates the modernisation of Europe's air traffic management system under the political oversight of the European Commission. Its main task is to develop, submit to the European Commission for its approval and execute the Deployment Programme, a project view strictly drawn from the Pilot Common Project (PCP). Through the Deployment Programme, the SDM will ensure efficient synchronization and coordination of implementation projects required to implement the PCP, as well as the related investments. Awareness and coordination of standardisation activities in support of deployment is therefore essential both for the SDM and EUROCAE.



Training 2016

EUROCAE does not offer any training classes this year, instead **we are analysing the needs of our members and stakeholders** for training courses in the area of Software Certification and Environmental Qualifications and possible other areas based on EUROCAE publications.

This should help us to structure which training courses we will offer next year, how to tailor them to fulfil the needs of the trainees and to select the right partner to conduct the training.

We will soon come back to you with a questionnaire via the NEWSblog to analyse the training demand.

If you, in the meantime, have any questions or feedback, inputs or comments, please contact us via eurocae@eurocae.net.



Enhancing the airports' perspective in EUROCAE – Michael Mowinski appointed as new TAC member

The Technical Advisory Committee (TAC) advises the Council on technical, operation and, on request, policy matters.



Michael Mowinski

It is composed of 11 specialist members, selected in order to achieve a balanced representation of EUROCAE interests. The updated EUROCAE Handbook, which was approved by the Council at its last meeting, introduced a new TAC member to represent the airport perspective.

The new airport seat on the EUROCAE TAC is a reflection of the airport-related activities in the

EUROCAE technical work programme and is intended to enhance the understanding and consideration of the airport perspective in our work.

Following a call for nominations issued through the Newsblog, Fraport nominated Mr. Michael Mowinski for this position. He was formally appointed by the EUROCAE Council on 24 February 2016.

In addition to his work at Frankfurt Airport, Michael Mowinski has been working since a long time in the SES framework at European level through ACI Europe, and has been a long-standing and keen supporter of standardisation activities and of EUROCAE. His experience and expertise will bring much value to the TAC discussions and allow the TAC to effectively consider the unique perspectives of airports.

Chairperson Club

Achievements & policy changes

The Chairpersons' Club is a gathering of WG Chairs and Secretaries at Malakoff, to exchange views on progress in the WGs, identify common issues and for the Secretariat to keep the Chairs up to date with policy issues and plans for the development of EUROCAE as a whole.

It is not always possible for the Technical Programme Managers to get to each meeting, as there are now 36 active WGs (a record), so the meeting at Malakoff gives another chance to get together and focus on those topics.

The most recent Chairpersons' Club on 11th March highlighted several achievements, forthcoming developments and policy changes.

► EUROCAE role

The recognition of EUROCAE's role as an International Organisation has led to other developments with ICAO, internationally and in Europe. Notably, EUROCAE is one of the key members at the ICAO standardisation roundtable and now takes also a central role in chairing the European ATM Standards Coordination Group (EASCG), a main output of which is the Standardisation "Rolling Development Plan".

MoC and MoU have been signed: with the SESAR Deployment Manager - complementary to the coordination activities in the EASCG - as well as with SAE and ASD-STAN.

The central role that EUROCAE takes with WG-73 and WG-93 on RPAS has been recognised with a seat on the ICAO RPAS Panel. (RPAS activities are reported separately in this edition of "Broadcast".)



► New process automation and IT system

The IT system and Workspace facilities hosted by EUROCAE are showing their age. A new IT system with modern data sharing facilities is now under development. Amongst other facilities it will give more responsibility and capability for WGs to issue their own calling notices and minutes, without having to go via the Secretariat; access to a more comprehensive workspace also managed by the WGs themselves, and in a next step a new facility to manage Open Consultation comments more flexibly. The Chairpersons' Club in 2015 was instrumental in defining the facilities of most value to WGs.

► EUROCAE membership and IPR (Intellectual Property Rights)

EUROCAE depends on its members. The technical expertise of more than 1400 experts contributes to the development of EUROCAE documents that are used world-wide in support of aviation standardisation from ICAO down. In return, WG experts benefit significantly from the exchange of information in the WGs and from use of the published documents. Christian Schleifer and the Secretariat coordinate the processes that ensure these publications are coordinated, robust and widely accepted.

To carry out such coordination costs time and effort, which do not come free; a significant part of the EUROCAE membership fee goes towards the office and staff costs. EUROCAE cannot, therefore, afford that non-members take part in WG activities. EUROCAE has to ensure that WG participation and access to the Workspace is reserved only for members. However, so that potential members can properly understand the work of a WG before committing, free access to WGs is allowed for an initial three months. Our sister organisation RTCA applies a similar policy.

The pros and cons of this, stricter, membership policy which has been reinforced by the Council recently, were also discussed during the Chairpersons meeting. There is now a requirement for the policy to be announced at the start of every WG meeting.

Intellectual Property Rights (IPR) are another important issue in the development of technical documents. As all EUROCAE published documents are openly available, care must be taken that no IPR material is included. WGs are now formally reminded of this at the start of each meeting.

► Working Group highlights and general discussion

Despite the wide ranging and valuable discussion and feedback from the WG leaders present, less than half of the active WGs were represented. Nevertheless, there were interesting presentations from WGs and a free-for-all discussion on a wide range of topics such as the upcoming EUROCAE Symposium in Vienna, the World Avionics Conference, Avionics Europe in Munich, as well as suggestions for workshops and information days on new techniques and technologies such as the Independent Non Cooperative Surveillance Systems, covered elsewhere in this edition of "Broadcast".

WG-14

"Environment"



EUROCAE WG-14 is tasked to review ED-14 "Environmental Conditions and test procedures for airborne equipment"

WG-14 has been working collaboratively with SC-135, the RTCA committee producing DO-160, which is technically identical to ED-14.

ED-14 and DO-160 have existed for a long time and were initially a set of simple procedures and limits that were used to guarantee a minimum quality level regarding the ability of airborne equipment to function in the environment produced on-board aircraft.

Since the creation of WG-14 in 1970, the purpose has evolved and many sections aim to provide guidance on environmental stress, which is as similar as possible to actual inflight conditions, in particular when systems providing safety related functions are concerned, and considering relevant endurance aspects. This resulted in more complex considerations and consequently a need to provide more guidance to the user. In order to keep the main requirement section limited in volume, it was decided to provide this guidance as appendices, finally gathered in a separated ED-234/DO-357 document, "Supplement to ED-14G User's Guide".

Due to technology evolution, equipment level tests and procedures need to be periodically updated, so that ED-14/DO-160 is now published as edition G, and although the document has reached a high maturity level, it is likely that it will continue to evolve on a regular basis.

ED-14/DO-160 is referenced in a wide range of specifications and standards. EUROCAE/RTCA Working Groups reference ED-14/DO-160 in minimum operational performance standards (MOPS). Regulatory authorities throughout the world, such as FAA or EASA, refer to ED-14/DO-160 in standards, (European) technical standard orders ((E)TSOs), and advisory circulars (ACs). Aircraft, avionics, and equipment manufacturers refer to ED-14/DO-160 in their equipment specifications. Test laboratories rely on ED-14/DO-160 for standard test procedures.

WG-14, together with RTCA SC-135, will update ED-14 sections and associated user guide ED-234 sections for revision H with regards to the following considerations:

- ▶ A general principle is to consider procedures present in some other standards since moving toward a unique set of procedures is a way to reduce cost of the equipment qualification for aeronautical industry as a whole. This will be the case for Sand and Dust, Audio Frequency Susceptibility and Induced Signal Susceptibility sections which may benefit from last MIL-STD evolutions.
- ▶ Electrical power, Section 16, should propose test conditions for 540 volt dc generators. Also, as it has become more and more complex, it may be reorganized in order to make it easier to sort out requirements needed for equipment as a function of the electrical power system that equip the aircraft the equipment is developed for.

- ▶ Audio Susceptibility requirements, Section 18, should be completed to bridge the frequency gap between audio frequency susceptibility and RF frequency susceptibility.
- ▶ Radio frequency Susceptibility, Section 20, will try to elaborate a faster method for the current reverberation chamber uniformity calibration.
- ▶ Emission of Radio frequency energy, Section 21, may be updated to better account for evolution toward a more general use of Global Positioning System (GPS), which will require coordination with RTCA SC-159, and consider new frequency bands to include the new GPS L5 signal.

Working Group 14 will also coordinate with the EUROCAE WG-31 "Lightning", to address hybrid shielded/unshielded wire bundle testing and with EUROCAE WG-99 "Portable Electronic Devices" on investigating whether new requirements are needed for higher frequency to address new WiGig tests for RF Susceptibility.

A number of very new and specific issues have been brought to the committee's attention by various stakeholders of the aeronautic world such as need for volcanic ash qualification or aspect of carbon dust (conductivity) which is now widely present in the aircraft industry.

Associated to the more general use of Carbon Fibre Reinforced Composite for Aircraft structure combined with the replacement of hydraulic power by electrical power, the effect of Ground Reference Fluctuation is also under evaluation, which is a phenomenon generated when significant current circulates into a ground plane with non-negligible impedance.

Another new technology which challenges the efficiency of ED-14/DO-160 procedures is Integrated Modular Avionics. As being versatile platforms for which the supplier may only provide for generic hardware and firmware, with the intent that the end user will implement its own hardware configuration and application software, the hardware and software configuration issues question the ability of the supplier to claim for ED-14/DO-160 compliance.

EUROCAE WG-14 meets twice a year, usually for 2 days, mostly in Paris, at EUROCAE premises.

WG-44

"Aeronautical Databases" reactivation



EUROCAE WG-44, together with their partner committee, RTCA SC-217 have successfully kicked off the update of ED-77/DO-201 'Standards for Aeronautical Information' during a joint plenary meeting on 9 - 11 February 2016, in Neu-Isenburg (Germany), bringing together almost 30 renowned experts from the worldwide community.

The activity is targeted towards data supporting new airborne and ground navigation applications, but it does not aim to standardise the applications themselves. ED-77/DO-201A will be updated to be in line with the developments in the navigation domain over the past 15 years in general, and in particular with the Performance Based Navigation principles. The update will consider the requirements of the new ATM application - with inputs from SESAR and NextGen - (e.g. 4D trajectory, Advanced PBN, SWIM, etc.) as well as changes suggested by industry and derived from authorities experience feedback.

The update will aim at ensuring consistency with ICAO, ARINC and other related EUROCAE and RTCA standards in terms of standards for data processing, in particular data quality (ED-76A/DO-200B, published in 2015).

The target date for publication of the revised **ED-77/DO-201** is 2018.

Available publications developed by WG-44:

- ▶ **ED-76A** Standards for Processing Aeronautical Data
- ▶ **ED-98C** User Requirements for Terrain and Obstacle Data
- ▶ **ED-99D** User Requirements for Aerodrome Mapping Information
- ▶ **ED-119C** Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data
- ▶ **ED-220** Guidelines for the Verification and Validation of AMDB ASRN for routing applications
- ▶ **ER-009** Guidance material for the generation of aerodrome mapping database

For information, please contact the EUROCAE Secretariat at anna.vongroote@eurocae.net

WG-49

"Mode S Transponder"

WG-49 developed ED-73 MOPS for Secondary Surveillance Radar Mode S Transponders and ED-115 MOPS for Light Aviation Secondary Surveillance Radar Transponders. After the publication of ED-73E in May 2011 the group was put in the dormant state and monitored since then developments in this area with respect to a potential re-activation for the revision of the standards.

RTCA DO-181E is the equivalent of ED-73E. It is technically not identical but rather shows some minor technical differences. There is no equivalent document to ED-115 on the RTCA side.

After collecting a series of problem reports and change requests and in view of the upcoming activities related to ADS-B and ACAS Xu, WG-49 was re-activated in late 2015 with new Terms of Reference approved by the EUROCAE Council on 20 November 2015. The work is to be performed jointly with RTCA SC-209 which was re-activated for the same reason.

After the Kick-Off Meeting of WG-49 on 14 and 15 December 2015, the joint groups met for their first meeting from 01 to 05 of February 2016 at RTCA in Washington DC. This meeting was not only a WG-49/SC-209 meeting but during the second half of the week they were joined by WG 51/SC-186 (ADS-B) to discuss the ADS-B related aspects of the work.

As stated in the Terms of Reference, WG-49 has the following tasks with respect to the maintenance of ED-73E and ED-115:

- ▶ Resolving errors reported by transponder manufacturers when using existing transponder MOPS. This will start with an existing list of points already reported by manufacturers and will be complemented by other issues reported during the session



- ▶ Ensuring that the test cases do not introduce further requirements
- ▶ Resolving misalignments between EUROCAE MOPS and RTCA MOPS to ensure easy equivalence of TSO C112 and ETSO C112 (e.g. reply delay jitter specification)
- ▶ Reflecting the latest minor amendments of ICAO Annex 10 and Doc 9871
- ▶ Investigating and defining necessary additional requirements (e.g. Mode S limiter) to cope with increased RF environment to avoid loss of detection as encountered in Central Europe in June 2014
- ▶ Clarifying the definition of data to be used in registers 40₁₆, 62₁₆
- ▶ Reviewing the definition of data provided in registers 41₁₆ and 42₁₆ (weather data) and possibly in other registers which might be defined to support Wake Vortex applications
- ▶ Ensuring Mode S transponder MOPS support new ADS-B ES 1090 MOPS (new ED-102 to be developed by WG-51)

- ▶ Aligning ED-115 and ED-73 and investigating whether TABS/LPAT or other options need to be incorporated
- ▶ Incorporating hooks to support new ACAS Xu requirements for Interoperability of Airborne Collision Avoidance Systems (depending on availability of the requirements from ACAS Xu on data to be transmitted by Mode S transponders by end 2017)
- ▶ Investigating the opportunity to incorporate new phase modulation on 1090 MHz as discussed in ICAO forum

Because ED-73E and DO-181E are equivalent - although not identical - documents, the work has to be performed as a joint activity with RTCA SC-209. In particular the intention to further align ED-73 and DO-181 require the close cooperation between those two groups. Face-to-Face Meetings will be arranged as joint meetings and will - as far as possible - be synchronized with meetings of the ICAO Surveillance Panel or its sub-groups in order to minimize travel.

Now, if this looks like a challenging work program - it sure is. It is, however, complicated further by the fact that some of these activities require additional coordination with other WGs/SCs:

In parallel EUROCAE WG-51 *ADS-B* has activated its sub-group 1 with the intention to revise ED-102A/DO-260B *MOPS for 1090 MHz Extended Squitter ADS-B and TIS-B*. This group works jointly with RTCA SC-186. The update of ED-102A/DO-260B is expected to introduce requirements for adaptations to ED-73E/DO-181E to ensure that additional functionality can be properly implemented.

Finally, WG-75/WG-73 in cooperation with SC-147/SC-228 will develop the MOPS for ACAS Xu, the variant of the Collision Avoidance system for Unmanned Systems. It is expected that this work will also create requirements for the work of WG-49/SC-209

These conditions create a very challenging environment for the management of the work program of WG-49/SC-209 and WG-51/SG-186. For the first joint meeting alone, 38 Working Papers were submitted.

For EUROCAE WG-49 the Chairman Eric Potier, EUROCONTROL, opened the meeting and in particular he pointed out that the transponder MOPS in Europe and the USA are slightly different which creates a number of challenges for the groups.

Mr. Potier explained in his opening presentation the reasons for reactivating the groups and why ED-73E/DO-181E need to be maintained. And the list is long:

- ▶ Improve the clarity of some points and correct editorial errors detected during the development of new transponders by manufacturers.
- ▶ Improve or correct existing test procedures that are unclear or incorrect
- ▶ Resolve misalignment between EUROCAE MOPS and RTCA MOPS in order to have a harmonized US/ Europe TSO/ETSO and obtain an easy equivalence
- ▶ Reflect the latest amendment to ICAO Annex 10 and Doc 9871 and investigate actions set by ICAO Surveillance Panel
- ▶ Take into account operational issues encountered in real environment including:
 - » Incorrect management of Comm-B broadcast resulting in Aircraft Identification instability on controller working positions,
 - » Loss of aircraft identification on the ground,
 - » Investigate necessary requirement (e.g. Mode S limiter) to cope with increased RF environment to avoid loss of detection as encountered in Central Europe in June 2014;

- » Unexpected high level of spurious replies (wrong detection of long P4).

- ▶ Clarify and simplify the requirements for Mode S ELS (only) transponders.
- ▶ Investigate the possibility to remove functions which are no longer foreseen to be implemented in Mode S Transponders, such as datalink interface.
- ▶ Ensure traceability between requirements and tests to facilitate the demonstration of compliance when different standards are used (ICAO, Military standard)
 - » Some requirements seem to not be associated with a test;
 - » Ensure the test cases do not introduce further requirements.
- ▶ Investigate the possibility to add tests representing real environment (e.g. sequence of interrogations as used by Mode S ground stations).
- ▶ Support new ED-102 ADS-B MOPS capability
- ▶ Clarify and possibly incorporate new additional information to be handled by the transponder
 - » Clarifying the definition of data to be used in registers 40₁₆, 62₁₆;
 - » Reviewing the definition of data provided in registers 41₁₆ and 42₁₆ (weather data) and possibly in other registers which might be defined to support Wake Vortex applications
- ▶ Investigate the opportunity to incorporate a new modulation scheme to improve throughput (e.g. phase modulation on 1090 MHz Extended Squitter as discussed in ICAO forum).
- ▶ Incorporate hooks to support new ACAS Xu requirements for Interoperability of Airborne Collision Avoidance Systems and improve ACAS

downlink data report to allow a better monitoring and support of new ACAS X modes of operation.

It was remarked that some issues to be discussed during the work will have to be submitted to ICAO for international approval.

During the discussions on the intended Work Programme, a few issues were highlighted:

- ▶ If the removal of functions is discussed based on the fact that currently no implementation is known for Europe and the USA it has to be very carefully evaluated whether this is indeed true globally;
- ▶ When implementing additional functionality care has been taken that spectrum related issues are being properly evaluated
- ▶ In order to prevent a case like in June 2014 (loss of tracks on ATCO Working Positions due to transponder overload) a "Mode S Limiter Function" was proposed. It was questioned by industry whether such a single occurrence justifies the effort to be invested in such a functionality. However, it was agreed that it is definitely worth investigating the possibilities.
- ▶ Since there is a direct link between the provisions in the transponder MOPS and the certification activities by EASA and FAA, any modification in the MOPS has to be crosschecked with the respective E-TSO/TSO to ensure they stay aligned

Days 3 to 5 of the meeting were joint with WG-51/SG-1 and SC-186/WG-3

WG-51/SG-1 and SC-186/WG-3 were reactivated to revise ED-102A/DO-260B, the ADS-B/TIS/B MOPS. The target is to correct mistakes and to add new things that came up during initial implementations. Furthermore, possible upgrades in the data rate via various technologies shall be investigated.

Also a number of proposed changes result from activities performed in ICAO Panels.

During the meeting, a few issues were highlighted:

- ▶ It is proposed to add a phase modulation technique to the 1090MHz Extended Squitter. This would allow to increase the amount of data that can be transmitted without increasing the use of the spectrum. What still has to be done is a detailed investigation of the compatibility with the military Mode 5 implementation.
- ▶ Working Paper WP01-13_C presented the results of a spectrum forecast for the period between 2020 to 2035 taking into account ADS-B, TCAS, SSR and Multilateration. The final version of the report is expected for April 2016. An important role for the future spectrum use will be the way RPAS are treated. Currently there are ideas within the FAA to establish different rules for different types of operations. This would – according to current plans – result in the fact that low end applications (Visual line of sight, below 55 pounds, below 500 feet) will not be allowed to occupy protected spectrum. IFR type traffic will be required to have equipment similar to manned aviation on board. What is currently unclear are the requirements for the operations in-between.
- ▶ Another issue with high priority for the future will be the interoperability between different Collision Avoidance (CA) Systems (i.e. TCAS II and ACAS). In a joint effort EUROCAE WG-75 and WG-73 together with RTCA SC-147 and SC-228 have already developed a document discussing this issue. WG-75 will lead the activity to transform it into a fully accepted MASPS that will be the basis for the certification of future systems. This will also apply to ACAS Xu, the variant for Unmanned Systems. Since this will require coordination between systems on board of aircraft, the required functionality will have to be integrated into the transponder and the impact on the spectrum will have to be considered.

- ▶ The implementation of functions to uplink/downlink/crosslink meteorological and environmental data was discussed as well. Collaboration may be required with EUROCAE WG-76/RTCA SC-206 on this subject.
- ▶ A very interesting presentation was provided by the FAA Commercial Space Organisation on the issues of the use of ADS-B at altitudes above 60.000 feet. These will have to be evaluated (and solved) in order to safely allow such operations which are expected to increase significantly over the next years (multiple launches per day in specific areas).

During the meeting a total of 62 actions were recorded which gives a hint on the complexity of the issues to be solved.

Next Meetings:

The next face-to-face meeting has been scheduled for **20 to 24 June 2016** hosted by EUROCONTROL.

Follow-up meetings are currently scheduled for **17-21 October 2016**, most likely Washington, DC (to be confirmed)
23-27 January 2017, Melbourne, Florida

Regular WebEx meetings will be organised between those meetings as required.

- ▶ **Participation in the activities of WG-49 is possible for EUROCAE members.**
- ▶ In case of interest in joining the group, please contact Alexander Engel: alexander.engel@eurocae.net

WG-73

"Unmanned Aircraft Systems"



The picture shows Dewar Donnithorne-Tait (center), Alain Vallee (left) and Michael Allouche following the transfer of leadership on 25 February.

The plenary meeting of EUROCAE Working Group 73 (Unmanned Aircraft Systems) on 25 February 2016 marked a milestone for the group.

It was the last meeting for **Dewar Donnithorne-Tait** as Chairman – after more than three years of responsibility for the work of this group. Before that he has already served four years as Secretary, from 2006 until 2010.

WG-73 acts in a very demanding, fast growing and increasingly complex environment. Dewar led the group with diplomatic skills, outstanding subject matter expertise and – above all – a good sense of humour.

He will be followed by **Michael Allouche** and **Alain Vallee** as Co-Chairmen of this Working Group.

The EUROCAE Secretariat would like to express its appreciation for the dedication Dewar showed during his term as WG-73 leader, says "Thank You" for his support to EUROCAE and wishes him a long, happy and healthy retirement.

We wish Michael and Alain "Good Luck" for the upcoming challenging task and say "Thank You" for volunteering to take over such responsibility.

WG-78

"Standards for Air Traffic Data Communication Services"

With the approval of their deliverables by the EUROCAE Council and the RTCA Program Management Committee (PMC) on the 18. and 17. March 2016 respectively, EUROCAE Working Group WG-78 and RTCA Special Committee SC-214 have finalised 7 years of extremely challenging standards development work.

Created in 2008, the joint group was tasked to develop standards to facilitate the provision of Air Traffic Services (ATS) supported by data communications to be implemented in Europe as part of the Single European Sky operational improvements and in the United States of America (USA) by their Next Generation Air Transportation System (NextGen) Data Communications Program.

The four documents recently approved provide the minimum requirements for ATS Data Link Communication:

- ▶ **ED-228 A/DO-350 A:**
Safety and Performance Standard for Baseline 2 ATS DATA Communication (Baseline 2 SPR Standard)
- ▶ **ED-229 A/DO-351 A:**
Interoperability Requirements Standard for Baseline 2 ATS DATA Communication (Baseline 2 Interop Standard)
- ▶ **ED-230 A/DO-352 A:**
Interoperability Requirements Standard for Baseline 2 ATS DATA Communication, FANS 1/A Accommodation (FANS 1/A - Baseline 2 Interop Standard)
- ▶ **ED-231 A/DO-353 A:**
Interoperability Requirements Standard for Baseline 2 ATS DATA Communication, ATN Baseline 1 Accommodation (ATN Baseline 1 - Baseline 2 Interop Standard)

Initially the set of documents was published in March 2014 with the intention to facilitate early implementation of the data link services mainly in European airspace.



Following a request from the Federal Aviation Administration (FAA), the scope of the group was extended in order to implement into the standard additional requirements for three new functions: Dynamic RNP (D-RNP), Advanced Flight Interval Management (FIM) and ATC Winds. This resulted in the publication of the current revision A of the document set.

The development of the standards had to be executed in a very complex environment as the work was linked to a number of other EUROCAE and RTCA entities, such as WG-51/SC-186 (ADS-B) for the development of the requirements for Advanced FIM, WG-85/SC-227 to ensure compatibility of the data link services with the requirements for the D-RNP function and with WG-76/SC-206 for the implementation of the ATC Winds service.

During the work, WG-78/SC-214 encountered numerous challenges, both technical and political in nature. To overcome those challenges, the group in general and the Leadership in particular needed to show technical experience, negotiation skills and a lot of diplomacy. In the end all hoops were jumped and the finish line was reached.

WG-78/SC-214 clearly can serve as an example for the difficulties that may be encountered in the work of EUROCAE and RTCA, but also how the joint effort of the members of the group can overcome these difficulties in the interest of achieving a common goal.

The release of the Baseline 2 Standards marks another milestone in the cooperation between EUROCAE and RTCA in the development of global standards.

WG-98

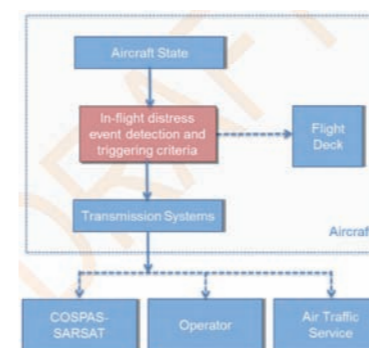
"Aircraft Emergency Locator Transmitters (ELT)"

A number of fatal accidents have occurred over water, including to Air France flight AF447, in which the search for flight data and cockpit voice recorders took a very long time and were expensive to recover. At the time of writing, 2 years after the disappearance of Malaysia Airways flight MH370, the aircraft and the flight recorders have not been yet localized.

ED-237 specifications for Criteria to Detect In-Flight Aircraft Distress Events to Trigger Transmission of Flight Information

As the slow or non-recovery of recorders greatly reduces the likelihood of the actual cause of these accidents being discovered, and in order to improve the recovery of wreckage and flight recorders following an accident or incident, the ED-237 MASPS (Minimum Aviation System Performance Specification) for Criteria to Detect In-Flight Aircraft Distress Events to Trigger Transmission of Flight Information have been developed. This document defines the minimum specification to be met for criteria which can be used to detect an in-flight aircraft distress event and to trigger the transmission of sufficient information for the purpose of locating an accident site.

At international level, Working Groups led by the French BEA (Bureau d'Enquêtes et d'Analyses) in the framework of the AF447 investigation demonstrated that triggered transmission of flight data, when an emergency situation is detected in flight, is a good solution to localise the position of an accident. During this WG's activities, official Accident Investigation Authorities provided a database of 68 datasets from real commercial air transport aeroplane accidents and incidents.

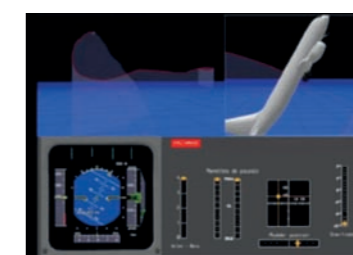


The MASPS ED-237 defines the specifications covering the logic that would trigger the transmission of sufficient information to locate the aircraft in distress, and defines high level concepts and typical functional interface requirements between the transmission system and the emergency triggering element.

The overall objective of this specification is to make sure that the criteria used to trigger in-flight transmission

maximizes the probability of in-flight detection of an upcoming catastrophic event and minimises the probability of nuisance activation.

A list of 40 potential triggers were analysed by WG-98. From this list only 4 scenarios for triggers (unusual attitude, unusual speed, collision with terrain, total loss of thrust/propulsion on all engines) were selected to indicate that the aircraft is in a distress situation.



The scenarios were developed based on analyses that included reviews of previous events and represent the minimum set which should be detected by the logic.

They are identified by conditions which, if left uncorrected, are likely to result in an accident. Manufacturers may include additional scenarios or combine scenarios, provided that they do not impair the overall efficiency and/or reliability of the triggering logic.

One means to verify the event detection rate is to run the logic on the flight data database of real accidents and incidents made available by Accident Investigation Authorities. The database is available upon request at the BEA to help with qualification of the logic.

Reference o ED-237

It is expected that ICAO will publish, end-2016, amendments to ICAO Annex 6 Operation of Aircraft in order to produce standard and recommended practices (SARPs) for the location of an aeroplane in distress. Future SARPs will mandate that autonomous transmission of position information shall be active when an aircraft is in a distress condition. These distress conditions are defined using criteria that may vary as a function of aircraft position and phase of flight and that further guidance regarding in-flight event detection and triggering criteria can be found in the EUROCAE MASPS ED-237.

The initial Terms of Reference were approved by the EUROCAE Council on 5 July 2013 and the Kick-Off was held at EUROCAE on 27 and 28 November 2013. ED-237 has been published on 11 March 2016.

WG-103

"Independent Non Cooperative Surveillance (INCS)"

WG-103, on Independent Non Cooperative Surveillance Systems (INCS), held its first meeting in late 2015. Tim Quilter of Aveillant is the Chairman and he describes below the essentials of the new technologies as well as the challenges facing the WG

Non-Cooperative Surveillance (NCS) systems or **Primary Surveillance Radar (PSR)** are an important component of the ground surveillance infrastructure especially in busy terminal airspace. For many years both the user requirements and the technology providing this capability have remained unchanged. In the last few years this situation has shifted significantly. Their operational environment is evolving rapidly and a range of new non-cooperative technologies are becoming available. The 1997 EUROCONTROL Standard for Radar Surveillance in En-Route Airspace and Major Terminal Areas provided a solid technology based standard for the specification and acceptance of traditional PSR systems but with the changing user needs and new technologies it is not suitable for many of the newer systems.

Cooperative surveillance systems with position, identity, altitude and a range of aircraft derived data provide the mainstay of ATC surveillance. NCS systems add resilience to this core cooperative infrastructure improving integrity and safety. Not all air-space users carry transponders and those that do can be switched off or fail. Transponder failure is possible not only due to an avionics fault but also through overload of the uplink due to over-interrogation. The ability for a controller to detect aircraft infringing controlled airspace and to maintain situational awareness in the event of loss of the cooperative function is an important capability in busy airspace.

NCS systems use reflected energy off the body of the aircraft for detection. Traditional PSR systems were designed to detect a small, moving, metal bodied aircraft but both the radar environment and the aircraft themselves are changing. A number of modern aircraft are now made from composite materials that are not as reflective to radar. New airspace users such as Remotely Piloted Air Systems (RPAS) are physically much smaller than manned aircraft making them difficult to detect. Infringement from small RPAS has caused a number of major international airports to halt operations in recent months. Wind turbines are now widely deployed to generate renewable energy and traditional radars find it difficult to distinguish the large moving turbine blades from an aircraft. Each traditional PSR installation requires its own frequency allocation and radio spectrum is a precious resource, with some governments planning to charge for spectrum use or even sell off aviation spectrum to other users.

In the last few years a number of innovations are paving the way for new NCS systems that can overcome some of the limitations of traditional PSRs. High speed digital electronics, accurate timing systems and powerful computers means that many of these limitations can now be overcome. The equipment manufacturers involved in the group have a mixture of solutions from rotating radars to staring and distributed systems. They have taken a variety of technical approaches each with their own advantages. Radars that operate in

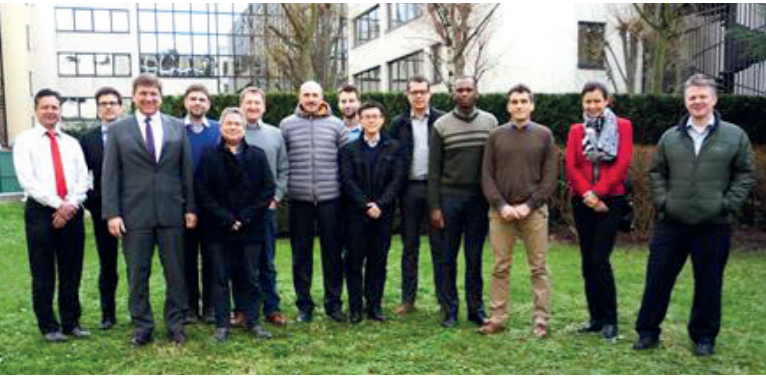


the less congested X-band can achieve very high resolutions. The Holographic Radar does not use a scanning beam but has an array that forms multiple simultaneous beams in all directions at the same time whilst solving the detection challenges with processing power. Multi Static Primary Surveillance Radar (MSPSR) systems use a transmitter that is physically separated from the receiver. Some of these systems operate passively relying on opportunity signals such as TV or radio transmitters to light up the target but work on developing dedicated transmitters is also being conducted.

The challenge for WG-103 is to develop a technical specification that supports users with their changing non-cooperative surveillance needs and provides a performance based standard for a range of very different technologies that can provide solutions. We plan to build on the work being carried out on Generic Surveillance in WG-102 to provide a top down approach to NCS requirements.

WG-104

"SWIM Services"



In January 2016 the new working group WG-104 was setup by EUROCAE aiming to elaborate a concept for future standardisation of services. The services, which are considered for being standardised, will be taken from the deliverables of SESAR and will be based on SWIM (System-Wide Information Management).

The service for Arrival Management (AMAN) extended Horizon will serve as a first example for gaining experience in the area of standardising services.

► System Wide Information Management - A new Paradigm for managing Air Traffic Information

SWIM is frequently positioned as an enabler that facilitates interoperable information exchange in the European ATM system, in support of many operational improvements identified in the ATM Master Plan. The definition of SWIM is as follows: "SWIM consists of standards, infrastructure and governance enabling the management of ATM information and its exchange between qualified parties via interoperable services".

Information exchange between parties requires interoperability on various levels. Organisational alignment and process alignment are out of scope of SWIM, and are addressed by operational improvement studies, amongst others also within SESAR. Semantic and technical interoperability, syntax and interaction are addressed by the envisaged SWIM standards like the AIRM¹, the AIXM/FIXM/WXXM²,

the ISRM (Information Service Reference Model) and the SWIM Technical Infrastructure Profiles. Defining an information exchange service compliant to standards ensures interoperability beyond the boundaries of an individual ATM stakeholder, ensuring both an increased cost-efficiency and future agility and initiates the introduction of an Open Architecture based on the use of a Service Oriented approach.

The implementation of SWIM is not a big-bang replacement of the existing ATM environment, but rather an evolutionary process based on a gradual transition towards a service-oriented European ATM system. The adoption of SWIM will be flexible, fostering increased levels of collaboration within business domains and enabling supporting systems to interact in an interoperable and standardised way.

► SWIM ready for deployment

Within the SESAR programme, activities on SWIM have reached a sufficient maturity level to be ready for standardisation.

The European Commission has adopted the Pilot Common Project (PCP) regulation, which includes, among others, provisions for the deployment of initial SWIM using the related and validated SESAR Programme findings as inputs. The rule was published on 27 June 2014 in the Official Journal of the European Union. It aims to ensure that the ATM functionalities developed within the SESAR Programme are deployed in a timely, coordinated and synchronised way. It is expected that this will contribute to cost benefits for Europe's aviation and air transport sectors.

► Arrival Management SWIM service

In the area of extending the horizon of Arrival management (AMAN) a relevant SWIM service has been identified, designed and validated according to a published and applied "SESAR Working Method on Services (WMS)".

EUROCAE Working Group WG-104 will use the results of this particular SESAR activity as a candidate to standardise the first SWIM service.

Extended AMAN has the additional advantage that it is a functional component of the Pilot Common Project mandated by Commission Implementing Regulation (EU) No 716/2014. It must be deployed in support of AMAN system at 24 major European airports.

The implementing regulation requires the upgrade of existing AMAN to provide connection with cooperative En-Route Air Traffic Service Units (ATSUs). In order to get the best and most efficient arriving flight sequence at the relevant airports the AMAN proposes actions to be taken by the cooperative ATSUs to make the correct time adjustment to flights under their control. One way to implement the necessary coordination between AMAN system entities and cooperative ATSUs is to implement a dedicated SWIM service between these entities. This service can be implemented without requiring the involvement of Flight Data Processing system (and hence no modification of FDP) to manage such coordination.

Another way would be to exchange the necessary information by means of shared flight objects, which requires adaptation of FDP systems in concerned ATSUs. The necessary standard to do this is currently under development by EUROCAE WG-59.

This non-FDP approach has the advantage of being independent of FDP upgrades and could be implemented with less risk compared to a major critical change in the ATM system that would take a longer time for implementation as well as for test and validation.

The "SWIM service approach" offers the advantage of using the so called "Yellow Profile", which is a collection of technical choices for the implementation of services with reduced technical requirements. This comes along with a reduction of implementation cost compared to the usage of the extensive "Blue Profile" which would be mandatory for the exchange via the Flight Object.

► The challenge of WG-104

The main task is to transfer the results obtained in SESAR, for example the "Arrival Management Information Service", in a standardised service description referencing the already defined standards on semantic, syntax, and interaction interoperability layers.

This first SWIM service description should be such that it can be re-used for standardisation of other SWIM services in the future. Existing guidance material for service development, specification and

documentation from SESAR should be used as far as possible.

In this respect it is worth noting, that there must be a close relationship to the successor of SESAR in terms of SWIM governance, the INEA funded iSWIM Governance deployment project. As WG-104 will be the body to standardise the service designs for the service instances, which are managed by that new governance framework, the designs need to be technical implementable and include all information to be compliant with the rules stipulated by the new governance authority.

As this is the first time EUROCAE has initiated the standardisation of a SWIM service, the group shall provide a report capturing the lessons learned from their work and provide recommendations regarding the methodology for further SWIM service standardisation. This report will also contain a Work Programme for future EUROCAE activities regarding the standardisation of ATM SWIM services (e.g.: Integrated Digital Briefing Service, etc.), which will be available beginning of 2017.

As such, the WG-104 plays an important role in paving the way to the future way of standardizing ATM services based on SWIM principles. The future impact may be expected to go well beyond the current scope of WG-104.

► Working Group 104

WG-104 interlinks the know-how of experts from various organisations with heterogeneous focus like ANSPs, ATM-industry, Airspace Users, Airports, EASA, Eurocontrol and SJU.

Further members who are interested in participating in the pioneer work of standardising services are still welcome.

In case you are interested in joining the WG-104 please contact the EUROCAE Technical Programme Manager Alexander Engel: Alexander.Engel@eurocae.net

The meeting schedule for 2016 is as follows:

- April, 12th - 14th Madrid
- July, 11th - 13th Langen
- October, 11th - 13th Rome
- December, 6th - 7th Cologne

¹ AIRM = ATM Information Reference Model

² AIXM = Aeronautical Information Exchange Model, FIXM = Flight Information Exchange Model, WXXM = Weather Information Exchange Model

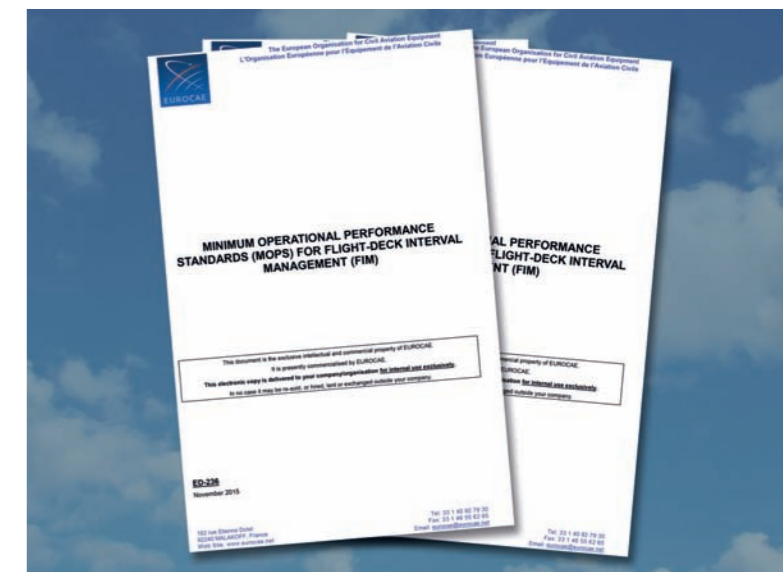
Working Group	Name	Date	Location
WG-14	Environment	03-04/05/2016	Malakoff, EUROCAE
WG-28	GNSS	20-23/09/2016	Bretigny, EUROCONTROL
WG-41	Advanced Surface Movement Guidance & Control System	20-22/06/2016	Luxembourg, EUROCONTROL
WG-44	Aeronautical Databases	18-22/07/2016	Seattle, BOEING
WG-49	Mode S Transponder	20-23/06/2016	Brussels, EUROCONTROL
WG-51/SG-4	ADS-B and WAM Ground Surveillance	19-21/04/2016	Madrid, AENA
WG-62	Galileo	28-30/06/2016	Toulouse, DSN
WG-63	Complex Aircraft Systems	25-29/04/2016	Bordeaux, Mercure hotel
WG-72	Aeronautical System Security	06-09/06/2016	Hamburg, GE Aviation
WG-75	Traffic Alert and Collision Avoidance System (TCAS)	20-22/06/2016	Washington DC, RTCA
WG-79	Enhanced Vision Systems/ Synthetic Vision Systems	10-12/05/2016	Bordeaux, Thales
WG-80	Hydrogen Fuel Cell Systems	18-22/07/2016	Atlantic City
WG-82	New A-G Datalinks	08-09/06/2016	Noordwijk, ESA
WG-92	VDL Mode 2 Airborne MOPS implementation Support	26-28/07/2016	Brussels, EUROCONTROL
WG-95	In-flight Ice Detection Systems	29-30/06/2016	Paris, Zodiac
WG-96	Wireless On Board Avionics Network	10-12/05/2016	Malakoff, EUROCAE
WG-97	Interoperability of Virtual Avionics Components	04-05/04/2016	Toulouse, Airbus
WG-100	Remote and Virtual Towers (RVT)	26-28/04/2016	Ottawa, Searidge
WG-101	Runway Overrun Alerting and Avoiding System	21-23/06/2016	Malakoff, EUROCAE
WG-102	GEN-SUR SPR	25-27/04/2016	Langen, DFS
WG-103	Independent Non-Cooperative Surveillance Systems (INCS)	24-25/05/2016	Prague, ANS Czech Republic
Forum for Aeronautical Software (FAS)		24-26/05/2016	Washington, RTCA

Latest publications

EUROCAE Documents (ED) are developed by Working Groups bringing together renowned experts in their area, and following a well-established process. They are often developed jointly with our international partners and recognized worldwide for their high quality and as state of the art technical specifications.

These EDs can be system or equipment performance specifications, safety and performance 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.

EDs are widely referenced as a means of compliance to regulatory documents by EASA, EUROCONTROL, the European Commission and ICAO.



Recent publications:

- ▶ **ED-236/DO-361 (WG-51/SC-186)**
Minimum Operational Performance Standards (MOPS) for Flight-deck Interval Management (FIM)
- ▶ **ED-195A/DO-328A (WG-51/SC-186)**
Safety, Performance and Interoperability Requirements Document for Airborne Spacing Flight-deck Interval Management (ASPA-FIM)
- ▶ **ED-221revA/DO-300revB (WG75/SC-147)**
Minimum Operational Performance Standards (MOPS) for Traffic Alert and Collision Avoidance System II (TCAS II) Hybrid Surveillance
- ▶ **ER-013 (WG-72)**
Aeronautical Information System Security Glossary
- ▶ **ED-201 (WG-72)**
Aeronautical Information System Security (AISS) Framework Guidance
- ▶ **ED-237 (WG-98)**
Minimum Aviation System Performance Specification for In-Flight Event Detection and Triggering Criteria
- ▶ **ED-235 (WG-83)**
MASPS for Foreign Object Debris Detection System
- ▶ **ED-225 (WG-89)**
Ice and Rain Minimum Qualification Standards for Pitot and Pitot-Static Probes

"Welcome"

to the new EUROCAE members

EUROCAE currently has close to 200 members worldwide, including industry, service providers, regulators, research institutes and international organisations.

Participation to EUROCAE activities is an opportunity to be aware of and to work on the most recent technologies, systems and/or equipment as well as to be informed about the latest regulatory evolutions and requirements.

EUROCAE Membership offers a number of benefits (depending on membership category).

Full Members have the right to receive, free of charge, a copy of published EUROCAE documents, and

- ▶ have voting rights at the General Assembly,
- ▶ may participate in as many EUROCAE WGs or Task Forces as they desire,
- ▶ have access to all WG documents,
- ▶ actively participate in defining the strategic orientation of EUROCAE and in the decision making,
- ▶ can be (based on some conditions):
 - elected to the EUROCAE Council
 - appointed to the EUROCAE Technical Advisory Committee
 - elected as Working Group Chairperson.

Limited Membership is suited for Companies, Individuals or Organisations wishing to participate in a single Working Group.

Limited Members may select a specific Working Group they are interested in as far as they have the right competence. They are in principle not entitled to be WG Chairperson or Secretary (except upon decision from the Council or the Secretary General).

Limited Members are informed about ongoing activities of the specific WG, in which they participate, and benefit from free soft copies of any EUROCAE Document developed by this particular WG.

Also, they may benefit from 30% discount for the purchase of any EDs of the EUROCAE catalogue.

EUROCAE welcomed the following new members:

Full members:

APSYS	France	
ASELSAN	Turkey	
ATR-GIE Avions de Transport Régional	France	
ATRiCS GmbH	Germany	
European Satellite Services Provider (ESSP)	Spain	
Israel Aerospace Industries (MALAT)	Israel	
Liebherr Aerospace and Transportation	France	
TriaGnoSys GmbH - Zodiac Inflight Innovations	Germany	

Limited members:

EMCCons DR. RAŠEK GmbH & Co. KG	Germany	
GERAC	France	
GMV	Spain	
MEP	The Netherlands	
SILKAN	France	
Telespazio	Italy	

VIENNA, 28 - 29 APRIL 2016

THE EUROCAE SYMPOSIUM & 53RD GENERAL ASSEMBLY

GALA DINNER & AWARD NIGHT 28 APRIL AT 20.00 AT THE PALAIS PALLAVICINI



TOPICS ARE:

- ✈ Flight tracking
- ✈ ROAAS (Runway Safety)
- ✈ Cyber security
- ✈ RPAS
- ✈ Space travel

