



EUROCAE BROADCAST

THE EUROPEAN ORGANISATION FOR CIVIL AVIATION EQUIPMENT
L'ORGANISATION EUROPEENNE POUR L'EQUIPEMENT DE L'AVIATION CIVILE
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WG AWARD NOMINATIONS
REQUESTED – RECOGNISE
EUROCAE EXPERTS



SYMPOSIUM & 53RD GENERAL
ASSEMBLY, VIENNA,
28TH – 29TH APRIL 2016



EUROCAE STANDARDS
FOR SYNCHRONISED
IMPLEMENTATION

We wish you a joyous holiday season and our sincere thanks for your cooperation and goodwill throughout the year.

Your EUROCAE Team



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Dear EUROCAE members, friends of EUROCAE and readers of our Broadcast, It is my honour to welcome you to the third edition of our "Broadcast", the EUROCAE magazine.

After the successful launch of the Broadcast, we have complemented the Magazine with a more frequent update called "NEWSblog". This EUROCAE online and email information tool is in place since July and is sent out every two weeks to keep you up to date on all our activities like the establishment of new Working Groups, calls for interest and participation, open consultations, training, publications and many more. If you do not receive the NEWSblog, let us know; we will put you on the distribution list.

In the same way as the Broadcast, the NEWSblog and all the other publications we have produced recently, we also changed the face of the Annual Report. You can read the online version by using the link in the NEWSblog or find it on our website at the download centre. We have published the Annual Report (2013-2014) this year in its new format. It has undergone an in-depth review to make the content more relevant for you and the presentation more reader-friendly. But we are

«Broadcast, NEWSblog, next project is the IT infrastructure and our Website.»

not there yet; another big project which is currently underway is the renewal of the IT infrastructure and with its implementation the same EUROCAE face will appear on the web. The aim of this project is to better serve Working

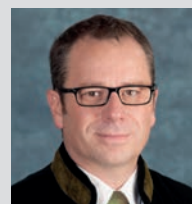
Groups and other bodies of the organisation, EUROCAE members and all stakeholders involved and interested in EUROCAE. We have started the project earlier this year and should be ready for the first implementation steps beginning to mid-2016.

With the third edition of the Broadcast we also started to invite partners of EUROCAE to address the EUROCAE community. We are very happy to welcome Margus Rahuoja from the European Commission and Margaret Jenny, RTCA as our special guests in this edition.

Mr. Rahuoja draws the picture from the Commission's perspective on how the Single European Sky initiative, further SESAR work and the ICAO activities are connected and what the role and expectations for Standard Developing Organisations (SDOs) are.

Mrs. Margaret Jenny has touched in her article on the many joint activities we are supporting together. I can only underline what she said, how well the two organisations are working together in order to serve the aviation community. Keeping the bigger picture

in mind and increasing the circle of attendees on both sides of the Atlantic in the development of a standard is enabling global harmonisation and prevents the two organisations from working in isolation. Regular coordination meetings between the two organisations ensure that we will continue in this successful way.



We have upgraded our cooperation agreement with SAE just recently to a full Memorandum of Cooperation (MoC), which was signed at the SAE AeroTech in Seattle, an impressive event with huge international attendance, so the perfect platform to sign our commitment to continue and improve our cooperation. With SAE we work in a slightly different area of activities compared to RTCA, so this is not in conflict, more the opposite, the SAE/EUROCAE activities complement the RTCA/EUROCAE work programme.

One more agreement is mentioned in this edition of the Broadcast. We signed an MoU with ASD-Stan. This is more on coordination to prevent overlapping activities and to ensure for our members, often the same industry members, that we use their resources efficiently and effectively.

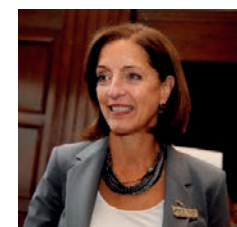
Please have especially a look at the Working Group (WG) reports and the new WG activities we have launched and will launch shortly. This will increase our active WGs to a number of 36, a record number for EUROCAE. Just ten years ago we had half this number of WGs, which is also a clear indication on how important Standards have become in the last decade. Margus Rahuoja in his article said it clearly; "Standards are becoming more and more important in the overall aviation structure. Performance-based regulations, complemented by "soft law" provided by SDOs are the future". EUROCAE has listened to the aviation community, their needs and demands and is working with the Council on a future structure, to be able to support and cope with the amount of work we have in front of us.

This brings me to my last point, the structure to support the activities. All our activities and their success rely on the participation of experts nominated by our members. You might remember that we have dedicated the year 2015 to our WG members; therefore together we decided to honour WG members for outstanding contribution in five different areas. Please take this opportunity and let us know your nomination for an award, which will be announced and handed over at the Award Night, as part of the next Symposium and General Assembly on 28 April in Vienna.

Enjoy reading

Christian SCHLEIFER-HEINGÄRTNER
Secretary General

RTCA Meeting the Challenges of building a Complex Global Air Transportation System: A Message from the President of RTCA

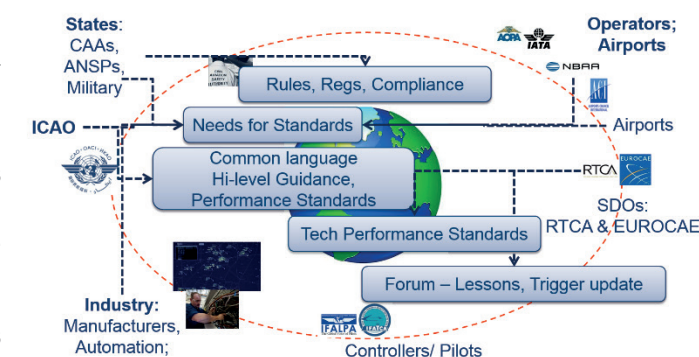


Let me start by thanking Christian for affording me the opportunity to address the members of EUROCAE. Over the years, RTCA and EUROCAE's collective members have come to rely on our cooperation in achieving the goal of international harmonized

standards for air transportation. You might think the focus of that endeavor is exclusively technical. It is true that the thousands of committee volunteers do indeed tackle an impressive array of sophisticated technical challenges as they produce minimum performance standards and guidance material. However, technical expertise is a necessary but not sufficient component of the formula for success at RTCA and EUROCAE. The production of timely, rigorous standards that withstand the test of time requires a keen attention to the operational context in which these system will operate, a willingness among committee members to find common ground, and most importantly, strong leadership skill for forging consensus among diverse and competing interests.

Air transportation is a global enterprise that millions depend upon to carry people and goods safely and efficiently. It is a system that is built on increasingly integrated systems, both in the cockpit and on the ground. Many stakeholders have a critical role to play in ensuring that the system can keep pace with the users' needs that are growing in size, complexity and diversity.

The states' Civil Aviation Agencies organizations are responsible for developing regulations to ensure safety, and for certifying systems against those regulations. The Air Navigation Service Providers (ANSPs) deliver air traffic management services and oversee the continued modernization of the ATM systems. ICAO provides high level performance standards, guidance and recommended practices to ensure a requisite level of safety around the globe. Standards Development Organizations (SDOs) such as RTCA and EUROCAE develop the consensus-based performance standards that facilitate innovation and provide a means of compliance with regulations.



Many stakeholders play a key role in developing robust standards, from the manufacturers who help develop the standards and design innovative compliant systems, to the controllers and pilots and dispatchers

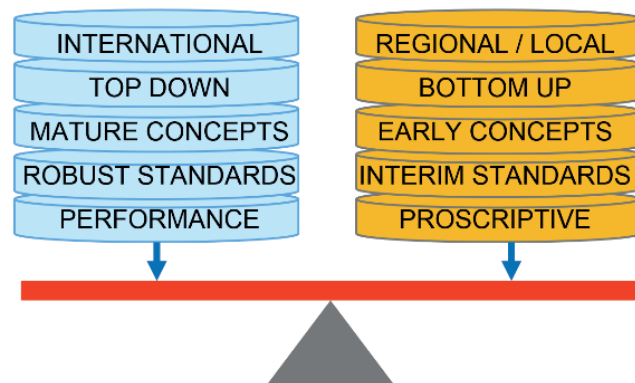
«RTCA is committed to cooperation in developing global standards.»

who influence the standards and provide services to those who fly, to the air carriers and general aviation operators who fly many varied operations in the system to the airports where all flights begin and end. The Federal Aviation Administration frequently refers to the standards in regulations, Technical Standards Orders and Advisory Circulars as a basis for meeting its requirements.

RTCA and EUROCAE are working closely with ICAO to define an effective process of leveraging the RTCA and EUROCAE standards within the framework of ICAO performance-based standards, guidelines and recommended practices. To that end, it is important that the standards we produce strike a healthy balance on numerous fronts.

- ▶ Scope: To be effective, standards should be globally harmonized but enable solutions that are tailored to local and regional needs.

Standards... a Matter of Balance



- ▶ Initiation: The need for a new standard can be driven from the top-down such as an ICAO panel, the FAA or EASA, and can be driven from a more bottom-up industry need.
- ▶ Ops Concepts Maturity: Finding a balance of just-in-time standards is also a difficult goal to achieve. To keep pace with the growing aviation system and with new technologies, standards must be available in a timely manner. This means we do not always have a fully validated concept before we start working on a standard. We must find an effective balance between starting too early which can lead to standards that will need to be updated based on lessons learned, and waiting until the concepts are fully validated and risking not having standards available when needed.
- ▶ V&V: We must find a viable approach to publishing interim standards that are finalized only after a verification and validation process with some real-world experience applying the standard.
- ▶ Level of Detail: Finally, to meet our objectives of encouraging innovation and expanding the market place of solutions, our standards should remain performance-based and avoid being too proscriptive.

RTCA is committed to a continued partnership with EUROCAE as we collectively hone our processes to strike the right balance and meet the needs of the global aviation industry that is growing in size, diversity and complexity.

SAE MoC signature

SAE International and EUROCAE Sign Updated Memorandum of Cooperation

On Tuesday, September 22, during the SAE Aerospace Council's 146th meeting, held in conjunction with the SAE 2015 AeroTech Congress, SAE International and EUROCAE signed an updated Memorandum of Cooperation (MoC), which further strengthens the cooperation between the two standards-developing bodies in providing necessary technical standards for the global aerospace industry.

The parties will continue working closely together, with their standards and other technical documents supporting the work of ICAO, EASA, FAA and other regulatory and certification bodies.

SAE International and EUROCAE have similar missions to support the global aerospace stakeholder community, predominantly to develop technical standards and guidance material to establish and promote global harmonization, interoperability and support certification.

This Memorandum of Cooperation (MoC) between EUROCAE and SAE is intended to set forth the parameters for the cooperation and collaboration on standardisation and related activities between the two organizations.

"We are extremely pleased to continue our collaboration with EUROCAE," said Ed Manns, Manager, Aerospace Standards, SAE International. "EUROCAE has been a leader in aviation standards for more than 50 years and we look forward to developing standards for the benefit of the entire aerospace engineering industry."

Christian Schleifer-Heingärtner, Secretary General of EUROCAE, added "Consensus standards play an extremely important role in proper aviation engineering. SAE International has played an important role in the development of global consensus aerospace standards for nearly 100 years. We are excited to continue this partnership with SAE International and look forward to the work we will do together."



The MoC covers the coordination and synchronization of collaborative standardisation activities, including initial development and maintenance of standard documents, administration of joint meetings, strategic planning of future cooperative standardisation efforts and the identification of additional areas of collaboration that could serve the aerospace industry.

Each organization will continue to publish and distribute the document in its own format and under its own reference. While the formats may differ, the documents will still be technically identical. An indication that the document has been jointly developed and published is noted in the Foreword or Rationale of each standard and includes the reference to the corresponding document.

SAE and EUROCAE committees responsible for the development and maintenance of the document attempt to have joint meetings and ensure sufficient levels of coordination through representation. Both organisations have a clear strategy to encourage virtual working meetings, especially for joint development of documents and the resolution of comments.

Both SAE International and EUROCAE are respected for their legacy and experience in developing consensus standards, leveraging the industry expertise to solve challenging problems and advance the aviation industry, particularly in the areas of safety assessment, lightning protection, aircraft hydrogen fuel cells, and icing protection for air data instruments.



ASD-Stan MoU signature

ASD-Stan and EUROCAE Sign a Memorandum of Understanding

In September 2015, ASD-STAN and EUROCAE signed a Memorandum of Understanding (MoU) in order to promote harmonised standards development throughout the Aerospace & Defence Industry of Europe, and to make optimal use of the resources.

ASD-STAN is the European Industrial Standardization Organization for Aerospace & Defence, providing an industrial forum for the development of Aerospace & Defence Standards which are published by ASD-STAN as prEN and which subsequently are transformed via CEN, European Standardization Organization recognized by the European Commission, into formal European EN Standards.

ASD-STAN and EUROCAE agree through cooperative effort between the working structures to cooperate within the terms of the Memorandum of Understanding we signed.

The MoU provides a basis for information exchange and further cooperation and coordination on subjects of common interest, such as external relations, standards development, studies, events and training, as far as both organisations are concerned and expect complementary activities and potential harmonisation.

Both organizations will investigate opportunities for future harmonization and in light of effective use of resources, to prevent overlapping activities through communications within the two organisations.

Andreas Jain, director at ASD-Stan, and his team, worked closely with EUROCAE to ensure we collaborate for the interests of our members in order to have an efficient and effective standardisation landscape, without overlaps of our activities.



ACAS Xu Workshop

More than 60 experts in the areas of Collision Avoidance (CA) and Remotely Piloted Aircraft Systems (RPAS) attended this Workshop which was hosted by EUROCONTROL at its Headquarters at Brussels. The Workshop was sponsored by the EUROCAE Working Groups 73 (Unmanned Aircraft Systems) and 75 (Traffic Alert and Collision Avoidance Systems - TCAS).

«ACAS Xu – a step towards safe integration of RPAS Operations»

NextGen. There will be a number of variants tailored to specific applications:

ACAS X, the Airborne Collision Avoidance System, is currently being developed as the successor of TCAS II for the air traffic environment envisaged by SESAR and

- ▶ ACAS XA (Active Surveillance) utilising Mode S transponder interrogations and replies to maintain independent surveillance;
- ▶ ACAS XO (Operational) shall be integrated into flight deck applications providing Aircraft Surveillance Applications (ASA). It will allow the flight crew to adapt sensitivity and alerting levels of ACAS X to the operational specificities of these airborne applications;
- ▶ ACAS XP (Passive Surveillance) will use passive surveillance only and is intended for installation on smaller aircraft and for General Aviation;
- ▶ ACAS XU (Unmanned Aircraft Systems) will be the variant developed for installation on so-called RPAS (Remotely Piloted Aircraft Systems).

The subject of this Workshop was ACAS XU.

The Workshop was organised in three segments:

- ▶ Presentation of technical and operational information by the ACAS X Program Office;
- ▶ the MIDCAS perspective (Midair Collision Avoidance System);
- ▶ General discussion.

After the welcome by Mike Lissone on behalf of EUROCONTROL, the Workshop was opened by Dewar Donnithorne-Tait, Chairperson of WG-73. He expressed his hopes that this workshop will be the first step on the way to "normalise" unmanned aircraft.

Tony Henley, leading the activities in the scope of Detect and Avoid (DAA) within WG-73, reported on the finalisation of the Operational Services and Environment Description (OSED) which will be submitted to Open Consultation soon in order to release it as a EUROCAE Document. He stressed the fact that such an OSED at European level had to be developed in order to consider differences in European and US airspace affecting the operation of RPAS.

The ACAS X Program Manager, Neil Suchy (FAA), presented ACAS X as the NextGen Collision Avoidance Capability replacing TCAS II. According to the current schedule, publication of the relevant EUROCAE/RTCA standards is planned for 2021. He explained the ACAS X architecture focusing on the specific parts for ACAS XU. In 2014 more than 50 hours of test-flights were already carried out. This activity will be further extended into the 2015 and 2016 timeframe. One of the goals achieved during the 2014 campaign was to prove the interoperability between ACAS XU and the current TCAS II.

In their presentation Walter Bender and Charles Leeper outlined the ACAS XU Concept for Use. They stressed the differences between the airspace structure and traffic behaviour in the US and Europe. Not only that: while in the US Self Separation is mandatory and Collision Avoidance is optional, in Europe it is the other way around. However, the development of ACAS XU is done in a way that these two functions are complementary and integrative. It will be ensured that they are implemented in a way that there is sufficient time for the flight crew to react to a Self-Separation message before actual Collision Avoidance kicks in.



Another very important issue is the compatibility of ACAS – and in particular ACAS Xu – with the existing Collision Avoidance systems (TCAS). To ensure this aspect, close cooperation is ensured between the RPAS related groups (WG-73/WG-93 and RTCA SC-228) and the TCAS groups (WG-75 and RTCA SC-147).

In his presentation, Michael Owen explained the development of the ACAS XU Threat Resolution Module (TRM). The design of the logic has faced multiple challenges that needed to be taken into account:

- ▶ State uncertainty
- ▶ Dynamic uncertainty
- ▶ Multiple existing objectives: safety and operational suitability

Wes Olsen reported about the operational validation of ACAS Xu. This has been based on the existing ACAS XA methods and intends – via flight testing – to validate the model. In particular the operational suitability was targeted in those tests: nuisance alerts shall be limited and the performance for vertical and horizontal manoeuvres has to be adequate. Also the proof of interoperability and compatibility with existing airspace users played a prominent role during the flight testing.

In the final presentation, Bengt-Göran Sundquist explained the activities in the scope of the MIDCAS project.

Development of the ACAS XU MOPS, a joint project of WG-75 and SC-147, is scheduled to start at the beginning of 2016.

EC, Deployment Manager

«An increasing role of standards for the Single European Sky» by Margus Rahuoja

The Single European Sky initiative and SESAR as its technology pillar

The implementation of the Single European Sky (SES) initiative is and remains a powerful response for delivering a more performing, sustainable, safe and competitive aviation in Europe.

While implementing the SES has been a challenge for more than 10 years, especially at political level, notably as regards the implementation of the Functional Airspace Blocks (the FAB's), some progress has been achieved recently in the deployment of SESAR, the SES technology pillar, with the establishment of the SESAR Deployment Manager and the selection of the first Pilot Common Projects (PCP) related projects under the Connecting Europe Facility (CEF) programme. By ensuring a synchronised deployment of ATM systems, built on, and relying on the necessary harmonised technical specifications and standards, the fragmentation of the European ATM system and its overall cost will be reduced and its overall performance will be increased.

The importance of standards in aviation and in ATM

Standardisation, while essentially an industry-driven activity, plays a crucial role in aviation: as of today here are today more than 240 references to European or international industry standards in European legislation. These references mainly describe technical specifications which manufacturers must meet in order to get their products approved and there is an evolution towards an increasing use of "standards" as

soft law, i.e. as recognition as a means of compliance or a certification scheme to a given regulation. This trend will eventually simplify the aviation regulatory system and further increase the use of standards.

For the modernisation of the European ATM network, and more particularly in the context of SES Interoperability and of SESAR, the role of standards and specifications in support of technical or procedural harmonisation and interoperability is even more prominent. Technical standards and specifications are notably referred to in the Single European Sky Interoperability Regulation (No 552/2004) as "community specifications" i.e. equivalent to means of compliance, and current SES Interoperability Regulations (e.g. on Data Link Services or on Aeronautical Data Quality) directly or indirectly refer to EUROCAE Documents, ETSI or ISO standards, or EUROCONTROL specifications. Moreover, standards and specifications are crucial pre-requisites for the deployment of SESAR, as was confirmed in the selection of the first six ATM functionalities to be deployed in the Pilot Common Project was further confirmed in the adoption of the Pilot Common Project. And in addition, in the global context, the role of industry standards and technical specifications and their possible referencing in Standards and Recommended Practices (SARPs), in support of the implementation of the Global Air Navigation Plan (GANP) and the related Aviation System Blocks Upgrade (ASBU), is currently being discussed at ICAO level in the so-called Standardisation Round Table, in support of a performance based approach in the implementation of the GANP.



The Role of EUROCAE in ATM standardisation

EUROCAE, as a leading European aviation "standard making organisations" has been active since 1963 to deliver industry standards for the European aviation system, and in particular for ATM. EUROCAE has been developing needed standards for the Single European Sky and required means of compliance and guidance material for EASA. EUROCAE, through its close cooperation with RTCA, has also contributed, in the context of SESAR, to global interoperability objectives. More recently, at the request of the Commission, EUROCAE has taken the responsibility to chair the newly created European ATM Standards Coordination Group (EASCG) with the aim to coordinate, at European level, the development of the needed ATM standards and specifications in support of SESAR Deployment and the modernisation of the European ATM system.

For many years, the Commission has been financially supporting EUROCAE's work through specific grants. This support has been substantially increased in the latest 2-year Commission grant (2015-2016), considerably raising the expectations on EUROCAE's contribution to a successful and modernised European ATM system.

Conclusion

The Commission's ambitions for EUROCAE are high, and it is expected that EUROCAE with all its members will lead the way, actively participate and fully commit to the development, support and effective use of the needed standards in Europe. Standardisation must not become a bottleneck for the deployment of SESAR and the implementation of the Single European Sky.

1. Commission Implementing Regulation (EU) No 409/2013

Annual RTCA-EUROCAE coordination meeting took place in Paris

The annual coordination and working meeting between the two partner organisations took place on 26 and 27 October and was hosted by EUROCAE in Paris. The RTCA team under the lead of President Margaret Jenny was supported by the two Program Directors, Jennifer Iversen and Karan Hofmann, as well as the Program Management Committee (PMC), Chair Chris Hegarty. EUROCAE's team was composed of Hugues Meunier, the Technical Advisory Committee (TAC) Chair, Anna von Groote, Technical Programme Manager (TPM) and Christian Schleifer-Heingärtner, Secretary General.

Whilst the first day was dedicated to general items as well as policy-related subjects, the second day focused on our standardisation activities. In the usual friendly atmosphere the two organisations exchanged views and updated each other on the current activities and developments in the respective standardisation domains. A big part of the meeting was dedicated to the work programme of the two standards developing organisations (SDOs), to strengthen our cooperation and as much as possible facilitating joint working group activities, to serve the aviation community and ensure global harmonisation and worldwide interoperability.

The two organisations also agreed on a coordinated way to contribute to ICAO's standards roundtable and as a result to the standardisation roadmap. Both, RTCA and EUROCAE, are "recognised international organisations" at ICAO, and for several years have been well recognised for supporting and providing reference material to ICAO SARPs and PANS. ICAO decided in their last General Assembly to make more use of standards developed by recognised SDOs, we have therefore developed and presented to ICAO a constructive way forward in support of their move towards performance based provisions.

«Together we serve the aviation community and therefore ensure global harmonisation and worldwide interoperability.»

In closing the meeting Margaret Jenny and Christian Schleifer-Heingärtner recognised the importance of coordination between RTCA and EUROCAE, also as a sign to the aviation community to demonstrate our continued efforts in working to achieve our common goals.



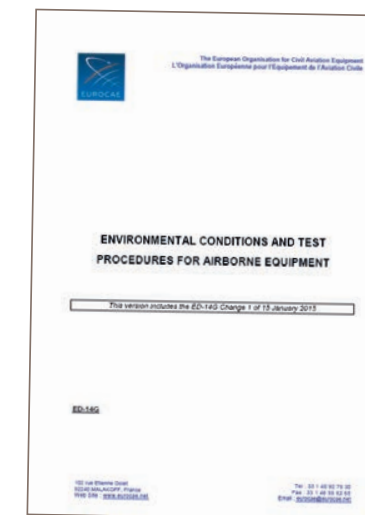
The Memorandum of Cooperation (MoC), signed in 2014, was reviewed and considered to be working well and serving perfectly its purpose. In addition, the group discussed potential collaboration in the area of IT, membership policy, events, such as the EUROCAE Symposium (see announcement page 28) and the associated Awards Night that will in particular see the first time a WG leader or member recognised for their contribution to international standards developing activities.

WG-14 "Environment"

WG-14, in collaboration with RTCA SC-135, finalized two documents:

- ▶ ED-14G Change 1 «Environmental Conditions and Test Procedures for Airborne Equipment»
- ▶ ED-234 «User Guide Supplement to ED-14G»

Change 1 to ED-14G removes current User Guide material from ED-14G. These User Guides are now placed in ED-234, which also provides new User Guide material to some additional sections of ED-14G.



WG-44 "Aeronautical Databases"

WG-44 together with their US equivalent, RTCA SC-217, finalised three major document revisions:

ED-98C User Requirements for Terrain and Obstacle Data

This document provides guidance for data gathering by data originators, for data processing by data providers, for implementation by application integrators, and for end use by the aviation community (e.g., air carriers, air traffic services, procedure designers). It is supplemental to the data processing requirements included in EUROCAE ED-76A/RTCA DO-200B and the exchange of data included in EUROCAE ED-119C/RTCA DO-291C.

The minimum set of user requirements applicable to terrain and obstacle data, from creation through the entire life cycle, are defined. Numerical requirements for source data necessary to accommodate the most stringent known application requirements are also defined. Collectively these define a set of requirements that satisfy this universal set of applications. It should be noted that the numeric requirements have been derived solely based on user requirements and not on the basis of acquisition cost. Types of errors associated with terrain and obstacles are identified and some means by which these errors may be mitigated are suggested. The accuracy, integrity, and resolution

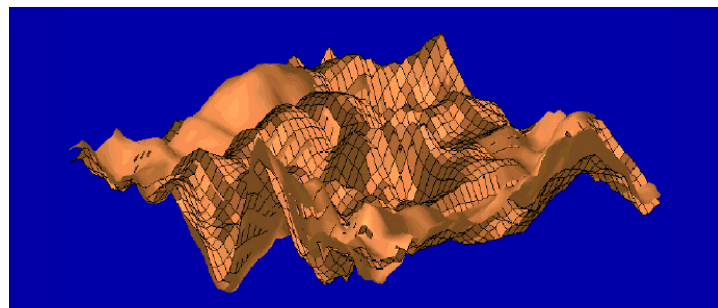
requirements for primary means of navigation have not been considered in this document.

Guidance for certification or approval of systems or procedures that use terrain and obstacle databases is also provided.

ED-99D User Requirements for Aerodrome Mapping Information

Operations at large aerodromes have become a complex combination of many activities being performed by many individuals, including pilots, air traffic controllers, apron controllers, surface vehicle operators, construction/maintenance crews, emergency/security personnel, commercial and cargo airline operations personnel, and general and business aviation operations personnel. All of these individuals must work collaboratively to ensure safe efficient flight operations at the aerodrome. Furthermore, all of these individuals, or users, require some knowledge of the aerodrome layout.

The information contained in this document has been compiled by industry for the purpose of stating surface mapping information requirements for users such as those described above. The requirements presented are not all-inclusive, but represent those of more immediate concern. Airworthiness authorities,



civil aviation authorities, and the aviation industry urge aerodrome mapping database (AMDB) originators and integrators to use this document when providing those data to system designers and users. In addition, this document provides guidance material on structure of AMDBs. Based on the availability of standardized current AMDBs, a variety of applications can be envisioned. Several are described in this document. This document has been written under the assumption that if all users are using consistent aerodrome mapping data, operations can be improved, and new capabilities can be realized.

ED-119C Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data

A common database interchange standard for terrain, obstacle, and aerodrome databases is a key success factor for the implementation of digital functions in the aviation domain. It will enable a common interchange between data originators, data integrators, and system designers. It increases efficiency and safety. In

addition to the RTCA/EUROCAE documents ED-99D/DO-272D and ED-98C/DO-276C, which specify the user requirements for terrain, obstacle, and aerodrome database content and quality, this document sets guidelines and requirements to develop a data interchange format for terrain, obstacle, and aerodrome data generated in compliance with ED-99D/DO-272D and ED-98C/DO-276C.

These documents have been updated to continue to reflect the state of the art. They are recognised internationally as reference documents and are widely used within the aviation community.

Earlier this year, WG-44 and RTCA SC-217 had finalized **ED-76A/DO-200B “Standards for Processing Aeronautical Data”**, which provides recommended minimum requirements for the processing of aeronautical data.

The WG and SC will now focus on revising ED-77 / DO-201 “Standards for Aeronautical information” in order to have a consistent set of EUROCAE standards covering aeronautical data.

Participation is still possible.

For further information or to participate please contact anna.vongroote@eurocae.net

WG-72 “Security”

Aeronautical Systems Security – Towards New Shores
By Jean-Paul Moreaux, WG-72 chairperson

Working Group 72, chartered with the development of standards and guidance with respect to Aeronautical Information Systems Security (AISS) topics, has successfully completed its 38th plenary meeting at EUROCONTROL in Brussels. After completion of 4 documents (ED-202 and its successor ED-202A, Airworthiness Security Process Specification; ED-203, Airworthiness Security Methods and Considerations; and ED-204, Information Security Guidance for Continuing Airworthiness) we have successfully addressed the comments received during the Open Consultation of ED-201, Aeronautical Information System Security (AISS) Framework Guidance. Its publication is expected before the end of 2015. We will also finalise the work on

the Aeronautical Information Security Glossary within the same time frame. During the same meeting we also initiated not only the work on the successor of ED-203 but also on a possible completely new subject, tentatively assigned to ED-205, Security accreditation of ATM systems.

When Working Group 72 was kicked-off on Friday, 13th of January 2006 it didn't seem to be a well selected date. And the subject was not well understood in civil aviation either, yet it was an incredibly broad one (and here, push came to shove, as it became also the title of the working group): Aeronautical Systems Security (ASS). So the more than 40 participants had



to discuss at first what their respective understanding of the subject was. It turned out that the expectations were very diverse and consequently the development of the Terms of Reference proved to be difficult. Almost 10 years later the dust has settled and the vision about what is needed in civil aviation in general – and not already covered by other organisations – is much clearer now. However, although the subject is gaining more and more visibility among aviation stakeholders and the public – often associated with the term “Cyber” – it is still alien to many. And so we are still challenged by the same original spirit of introducing considerations of Information Security to all necessary facets of our industry.

In developing Aeronautical System Security guidelines specifying security objectives rather than solutions in order to ensure their stability over time, WG-72 adopted a holistic approach. We are addressing security-related topics throughout the entire lifecycle of products, which are developed, manufactured and operated by many different civil aviation stakeholders. This naturally includes airborne systems and interfacing ground systems in their end-to-end relationship. It is quite obvious that such a transversal matter has its implications with almost all other engineering and operations disciplines, making WG-72 serve as a resource and coordinator for security-related matters with all EUROCAE Working Groups.

I would like to pick just one example of successful collaboration – which at the same time is probably

one with the most fundamental potential for conflict: WG-63, Complex Aircraft Systems. This group addresses similarly broad territory, primarily focusing on the long standing challenges and aspects of system design and assurance, mainly for the purpose of aircraft certification. Over the years both groups managed to establish a productive relationship, characterized by a high level of mutual respect and appreciation, and based upon an increasing level of understanding of the aspects and associated subtleties of the subject matter of either side. It would be beneficial to other groups and to EUROCAE members at large, if this example would find successors: Information Security is becoming an increasingly important property of every system in use in aviation and its interactions with other systems. In times of increasing network connectivity, nobody is an island anymore.

Since its creation, WG-72 has developed the following documents:

- ▶ ED-201 *Aeronautical Information System Security (AISS) Framework Guidance* (draft; publication expected before the end of the year)
- ▶ ED-202A *Airworthiness Security Process Specification* (2014)
- ▶ ED-203 *Airworthiness Security Methods and Considerations* (2015)
- ▶ ED-204 *Information Security Guidance for Continuing Airworthiness* (2014)

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



In accordance with the current Terms of Reference (ToR) Working Group 75 – in cooperation with RTCA Special Committee 147 –

develops Minimum Operational Performance Specifications (MOPS) for Airborne Collision Avoidance Systems (ACAS). One of the main aspects in the development of these systems is the tuning of the algorithms responsible for the generation of the Traffic Alerts and the Resolution Advisories towards the operational environment.

In order to have available the necessary operational expertise, WG-75 has decided to install an Operations Working Sub-Group (OWS).

The Kick-Off meeting for the OWS was held on 7 October 2015 hosted by EUROCONTROL at Brussels.

In their latest joint meeting on 22 to 24 September 2015 at the EUROCONTROL premises at Brussels, WG-75 and SC-147 declared the update of ED-221/DO-300 ready for publication following the resolution of comments raised during the Open Consultation procedure. The document will be submitted to Council/PMC approval in the coming weeks.

WG-78 Finalises Documents for Open Consultation

In its 23rd plenary meeting from 31 August to 3 September at the RTCA facilities at Washington, D.C., EUROCAE WG-78 (Standards for Air Traffic Data Communications Services) and RTCA SC-214 approved their set of deliverables for submission to Open Consultation.

The documents describe Safety and Performance Requirements (SPR) and Interoperability Requirements (INTEROP) for Baseline 2 ATS Data Communication.

In detail, the following documents were finalised:

- ▶ ED-228/DO-350 Revision A: Safety and Performance Standard for Advanced ATS Data Communication
- ▶ ED-229/DO-351 Revision A: Interoperability Standard for Baseline 2 ATS Data Communication via ATN
- ▶ ED-230/DO-352 Revision A: Interoperability Standard for Baseline 2 ATS Data Communication, FANS 1/A Accommodation
- ▶ ED-231/DO-353 Revision A: Interoperability Standard for Baseline 2 ATS Data Communication, Baseline 1 Accommodation

Revision A of these documents integrates requirements for the following applications: Advanced Interval Management (AIM), Dynamic RNP (D-RNP).

The Open Consultation ran from 15 September 2015 to 20 October 2015. This will be followed by the Comments Resolution Process resulting in a final version of the documents for approval by the EUROCAE Council and the RTCA Program Management Committee.

Expected publication date: March 2016.



WG-88 “Onboard Weight and Balance Systems (OBWBS)”

After a period of inactivity, EUROCAE WG-88 Onboard Weight and Balance Systems (OBWBS) is gaining speed again, and pursuing its objective to develop minimum operational performance specifications for onboard weight and balance systems.

In this effort, the WG will be led by a new chairperson: Kai Thraene, Airbus Helicopters.



In order to perform safe flight and landing, precise and accurate weight data is required in order to enable the crew to correctly carry out the calculation of the aircraft centre of gravity and weight. If an error in these calculations is made, for instance due to human error, the actual aircraft centre of gravity and weight can significantly deviate from the data entered in the aircraft systems leading to a potential hazard.

It has been noted by a number of accident and investigation teams that the current generation of aircraft are equipped with several safety systems that protect against hazards, such as stall speed warning system, ground proximity warning system (GPWS), landing gear warning systems, etc. However, there is no requirement for a system that provides actual weight and balance information and warnings to the flight crew. Such a system would result in a positive safety benefit.

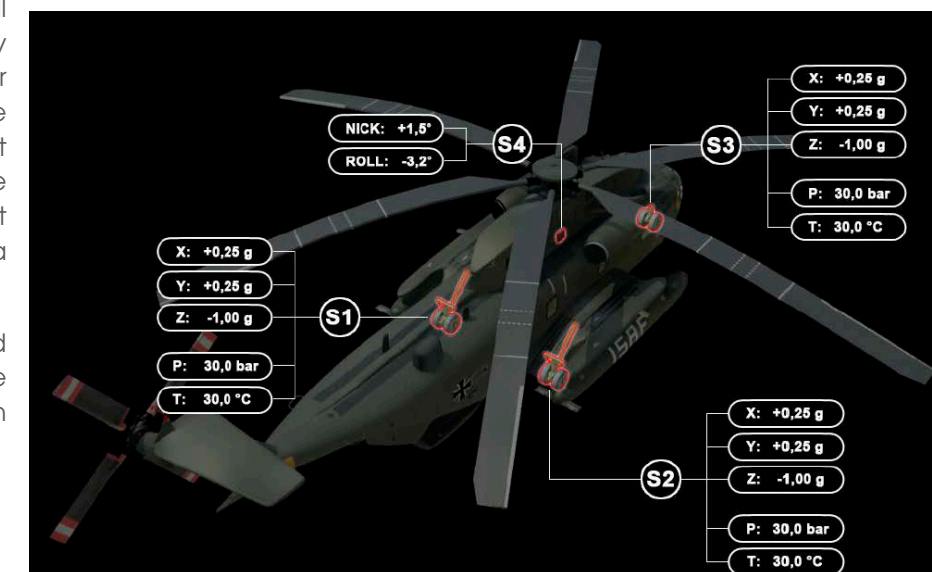
The WG had been created in 2011 and delivered a first report in 2013 on the feasibility of standardisation of such systems.

This report concluded that standardization of On-Board Weight and Balance Systems specification is feasible and recommended. This report does not provide such specification nor any requirement to install On Board Weight and Balance Systems on existing or future aircraft. Such MOPS is foreseen to provide a definition of the functions that must be performed by a OBWBS, the possible modes of operation and required accuracy and reliability, depending on the mode of operation, a means to determine the required accuracy, guidance to take into account the influence of wind, slope, temperature, and local gravity on the accuracy, and guidance on the display of information to the crew.

The next meeting of WG-88 will take place shortly (date to be confirmed).

A call for participation has been issued. Requests for participation should reach EUROCAE by 17 November 2015.

For further information or to participate please contact anna.vongroote@eurocae.net



WG-95 “In-Flight Icing Detection Systems (FIDS)”

By François Larue – ZODIAC Aerospace, Chairman EUROCAE WG-95

During the last three decades a number of In-service events or accidents occurred pointing out the existence of atmospheric conditions which are outside the regulatory icing envelope as defined by FAR/CS 25 Appendix C.



The Ice Protection Harmonization Working Group (ARAC/IPHWG) led by the FAA and involving most of the industry stakeholders have been working between 1998 and 2005, in order to define a new icing atmosphere and issued

a full set of recommendations in 2005. Following the IPHWG recommendations, several new NPRM / NPA were issued by the FAA and EASA having major impacts on the design and the certification of Ice Protection Systems and Ice Detections Systems.

In order to prepare the release of the new icing rules, in October 2012 EUROCAE created Working Group 95 with the objective to update ED-103 “MOPS for Inflight Icing Detection Systems” taking into account the preparation of the new rules and the recommendations of the IPHWG. This work is conducted jointly with the SAE AC9C committee.



The ultimate goal of ED-103 is to specify the performance and the design requirements of:

- ▶ sensors and systems able to detect the presence of ice on aircraft monitored surfaces,
- ▶ sensors and systems able to announce the presence and the nature of the atmospheric icing conditions encountered by the aircraft.

The Kick Off Meeting (KOM) was held in February 2013

and the Chairman and Secretary were appointed, François Larue from Zodiac Aerospace and Vince LoPresto from UTAS respectively.

Since the KOM, 32 months have passed and on October 5-8 the 13th meeting was held at Zodiac Aerospace Headquarters at Plaisir France. The current draft MOPS has now reached a good level of maturity with Chapters 1 to 5 now completed, although still with some comments/actions to be taken into account. The last chapter, Chapter 6 “Installed Equipment Performance Requirements” is still under construction/finalisation. It is expected the ED-103 MOPS will be submitted for Open consultation by mid-2016.

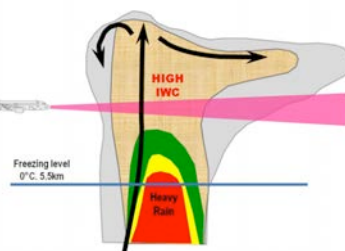
NEW - EUROCAE WG-95-Sub-Group “Long Range Icing Awareness”

Following an increasing number of engine in-service events when flying at high altitude over deep convective clouds, several Ice crystals Icing campaigns have been conducted and have shown the interest to take advantage of weather radar capabilities to indicate potential areas where High Ice Water Content can be found.

On June 17th 2015, the EUROCAE council approved the Terms of Reference of the new WG-95 sub-Group on “Long Range Icing Awareness” sub-Working group with the objectives to release after 12 months, a report on the feasibility to standardize In-Flight Ice Crystals Long Range Awareness capabilities by Weather Radar (WXR).

The KOM was held on October 5th in the frame of the 13th WG-95 meeting. Members who attended this KOM are Airbus, Boeing, Dassault, Rockwell Collins, Honeywell, Gosnias, FAA, EASA, and NASA.

Camille Caruhel from Airbus coordinated the discussions and the work during this first meeting but official Chairman and Secretary appointments are not yet confirmed.



WG-98 Finalises Document for Open Consultation

On 15 October 2015, EUROCAE WG-98 “Aircraft Emergency Locator Transmitters” finalised the draft ED-237 ‘MASPS for in-flight event detection and triggering criteria’ for submission to Open Consultation.

The document describes a minimum specification to be met for all aircraft required to carry a system which can be used to detect an in-flight event and to trigger the transmission of sufficient information for the purpose of locating an accident site. It specifies characteristics that should be useful as guidance material to regulatory authorities, designers, installers, manufacturers, service providers and users of systems intended for operation.

The Open Consultation runs from 22 October to 26 November 2015.



It will be followed by the Comments Resolution Process resulting in a final version of the documents for approval by the EUROCAE Council.

Expected publication date: Q1/2016.

WG-100 “Remote and Virtual Tower”



In accordance with its Terms of Reference (ToR), Working Group 100 submitted to the Technical Advisory Committee (TAC) a Technical Report outlining a future work programme on “Additional Standards for Remote and Virtual Towers”. This report contains the WG’s view on standards to be developed beyond its current deliverable, the ‘Minimum Aviation Systems Performance Specification (MASPS) for Remote and Virtual Towers Visual Surveillance Systems’.

As the title suggests, the MASPS in the first step shall focus on the end-to-end performance requirements of the visual presentation system. It can be expected, however, that in a fully operational remote tower additional elements will be integrated as well, requiring the extension of the current work.

In its report WG-100 discusses three different concept applications:

- ▶ The Remote Provision of ATS to a Single Aerodrome
- ▶ The Remote Provision of ATS to Multiple Aerodromes
- ▶ The Remote Provision of ATS in Contingency Situations

These concept applications were further detailed against three levels of technical equipage – Basic, Enhanced, and Advanced.

The group concluded that future standardisation should cover the following key themes:

- ▶ Visualisation
- ▶ Target Tracking, including the integration of other systems, such as radar or SMGCS
- ▶ Other Components, such as communication, meteorology, safety nets or navigation
- ▶ Multiple Remote Towers, a concept that is currently considered to be not mature enough to define discrete deliverables.

Around these themes, both MASPS and MOPS were proposed in the updated ToR that accompanied the Technical Report submitted to the TAC.

The TAC accepted the report and the updated ToR and submitted the ToR to the Council for approval which was given on 21 October 2015.

The next meeting of the group is scheduled for 3 to 5 November at Saarbrücken hosted by DFS.

WG-101 “Runway Overrun Awareness and Alerting System (ROAAS)”

The Kick Off Meeting of WG-101 “Runway Overrun Awareness and Alerting System” took place in Paris on 27 and 28 August.

Pierre GEORGES, Dassault Aviation, was confirmed as chairperson, and Logan JONES, Airbus, was elected as secretary of the WG.

Over 20 renowned experts from all over the world came together to initiate the work to develop minimum operational performance specifications for such systems and made extremely good progress.

Runway safety, global and European initiatives, supported by Industry and users, will be addressed by this group to reduce runway excursions and therefore fatalities.

Participation is still possible and additional expertise is in particular needed from operators and pilots.

For further information or to participate please contact anna.vongroote@eurocae.net



WG-102 “GEN-SUR SPR”

After the EUROCAE Council on 17 June 2015 approved the creation of this new Working Group, the Kick-Off meeting was held on 21 and 22 October 2015 at the EUROCAE premises at Malakoff, France. Roland Mallwitz from DFS was appointed Chairperson of the WG. A Secretary was not yet elected.

The purpose of this Kick-Off meeting was to review and – if required - clarify the Terms of Reference (ToR), establish the work programme and evaluate the available input material.

In line with the ToR the WG will further develop the Safety and Performance Requirements (SPR) document for a generic surveillance system.

Many ATC surveillance implementation plans are in place in Europe today, in particular targeting at combining a variety of co-operative airborne traffic surveillance techniques (ADS-B, Secondary Surveillance

Radar, WAM). Although a number of respective EUROCAE ADS-B standards and EUROCONTROL ADS-B and WAM Preliminary Safety Cases already exist, they typically address the use of surveillance data for ATC purposes from the specific perspective of the use of these “sensor” techniques and within a certain environment.

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

«GEN-SUR SPR – a standard for Performance Based Surveillance.»

operational environments and in particular 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.

These Performance Based Surveillance (PBS) requirements are allocated to the logical Ground ATC SUR sub-functions. This includes considerations on the fusion of surveillance data from multiple “sensor” data channels into a combined air situation picture. It is noted that the performance of the Aircraft ATC SUR sub-function is assumed to be in line with the respective provisions in EASA CS-ACNS.

The Working Group is expected to deliver the *Generic Surveillance Safety & Performance Requirements* by the third quarter of 2017.

For further information or to participate please contact alexander.engel@eurocae.net



WG-103 “Independent Non-Cooperative Surveillance (INCS) Systems”

On 04 September 2015 the Council approved the creation of Working Group 103 Independent Non-Cooperative Surveillance (INCS) Systems.

According to the ToR, the group will develop a Technical Specification for such systems, traditionally known as Primary Surveillance Radars. The WG will take a system agnostic approach resulting in generic performance requirements. If required, Annexes will contain technique and/or frequency specific aspects.

The Kick-Off meeting is scheduled for 30 November and 1 December at the EUROCAE premises at Malakoff, south of Paris.

Participation is still possible!

For further information or to participate please contact alexander.engel@eurocae.net

«INCS Working Group Kick-Off Meeting on 30 November and 1 December 2015.»

Working Group meetings

Working Group	Name	Date	Location
WG-14	Environment	25-26/11/2015	Malakoff, EUROCAE
WG-62	GALILEO	18-20/11/2015	Toulouse ENAC
WG-68	Altimetry	27-29/10/2015	Merignac Dassault Aviation
WG-72	Aeronautical System Security	30/11-4/12/2015	Cologne EASA
WG-73	Unmanned Aircraft Systems (UAS)	02-05/11/2015	Brussels, EUROCONTROL
WG-78	Standards for Air Traffic Data Communication Services	7-10/12/2015	Suresnes, AIRBUS Group
WG-81	Interoperability of ATM Validation Platforms	25-26/11/2015	Alicante, Airport
WG-96	Wireless On Board Avionics Network (WOBAN)	1-3/12/2015	Cologne, EASA
WG-98	Aircraft Emergency Locator Transmitters	15-17/12/2015	Paris/Neuilly, ICAO Office
WG-99	Portable Electronic Devices (PEDs)	20-22/01/2016	Washington, RTCA
WG-100	Remote and Virtual Towers (RVT)	3-5/11/2015	Saarbrücken DFS
WG-101	Runway Overrun Alerting and Avoiding System	2-4/12/2015	St Cloud, Dassault Aviation
WG-103	Independent Non-Cooperative Surveillance Systems	30/11-1/12/2015	Malakoff, EUROCAE

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.

For further information on EUROCAE publications, please go to: www.eurocae.net/publications/

Recent publications:

ED-14G Change 1 (WG-14/SC-135)

Environmental Conditions and Test Procedures for Airborne Equipment

ED-234/ DO-357 (WG-14/SC-135)

Supplement to ED-14G User's Guide

ED-129A (WG-51)

Technical Specification for a 1090 MHz Extended Squitter ADS-B Ground Station

ED-76A/DO-200A (WG-44/SC-217)

Standards for Processing Aeronautical Data

ER-006 (WG-31)

Intermediate Guidance Material for Compliance Demonstration Related to Lightning Protection of Fuel Tank Structure 25.981 Requirements

ER-012 (WG-73)

Command, Control and ATC Communications Operational Concept (C3 CONOPS) for Remotely Piloted Aircraft Systems (RPAS)

ED-203 (WG-72)

Airworthiness Security Methods and Considerations

ED-98C (WG-44/SC-217)

User Requirements for Terrain and Obstacle Data

ED-99D (WG-44/SC-217)

User Requirements for Aerodrome Mapping Information

ED-119C (WG-44/SC-217)

Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data

Training dates

ED-12C/DO-178C Training course

EUROCAE has teamed up with ACG to provide a training course on ED-12C "Software Considerations in Airborne Systems and Equipment Certification".

The ED-12C training course was held on 7-9 October 2015 at SECONDO MONA SpA facilities in Milan (Italy).

This three-day training course addressed the Software Aspects of certification ED-12C/DO-178C. The goal of this training was to provide all necessary knowledge to understand to develop the software of avionic equipment.

The training course was attended by 12 trainees. The feedback we received from the trainees and Seconda Mona as the host of the training was extremely positive.

For more information and details about the training activity of EUROCAE, please contact EUROCAE (eurocae@eurocae.net).







Welcome to the new EUROCAE members

EUROCAE currently has around 180 members worldwide, including industry, service providers, regulators, research institutes and international organisations.

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

EUROCAE welcomed the following new members:

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.

-  ANAC BRAZIL - Brazil
-  BUREAU D'ENQUETES ET D'ANALYSES (BEA) - France
-  CHELTON ANTENNAS - France
-  Conekt - UK

-  DAUtec GmbH - Germany
-  European Defence Agency - Belgium
-  Eventide Inc. - USA
-  Garmin Ltd. - USA
-  GIE/EIG EUMETNET - Belgium
-  Gulfstream Aerospace Corporation - USA
-  ISDEFE - Spain
-  Jaap Doornbos - The Netherlands
-  KONGSBERG Defence Systems AS - Norway
-  LSA Electromagnetics Ltd. - UK
-  Matan Edvy - Israel
-  ONUR Inc. - Turkey
-  Safegate International AB - Sweden
-  SILVER ATENA Electronic Systems Engineering GmbH - Germany
-  Thales Alenia Space S.p.A. - Italy
-  Ultra Electronics Surveillance & Security Systems - UK
-  United Technologies Corporation - USA

EUROCAE awards for 2016:

Call for nomination of the 5 categories

2016 EUROCAE Awards

EUROCAE's work is based on contribution from voluntary workforce nominated by our members. Those experts nominated by the members are the heart of the organization and are driving the standard developing process.

The EUROCAE Awards is intended to recognise excellence, leadership and hard work in EUROCAE WGs be it by the WG Chairperson, Secretary, or other key members of the group.

We therefore invite you to submit nominations for the following categories, which have been chosen based on key areas of importance to EUROCAE WGs.

The categories are:

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

Help us recognise excellent work by submitting a nomination. You could nominate yourself, a fellow WG member or a WG leader in any of the categories described above.

Please submit nominations by 31 January 2016, by sending an email to alexander.engel@eurocae.net including the name and contact details of the nominee, the proposed category of awards as well as a short justification statement.

The nominations will be evaluated by the EUROCAE award committee, composed of a member of the Council, the TAC and the Secretariat.

The awards event will take place during the EUROCAE symposium, more specifically during the award night, on 28 April 2016, in Vienna. Chosen nominees will be invited to attend the symposium and receive their award from high level representatives of the global aviation community.

Previous awards winners were:



Philippe Plantin de Hugues, WG-98, for outstanding leadership of several EUROCAE WGs in the area of flight recorders and emergency locator transmitters.



Laurent Azoulai, WG-62, for excellent contributions to the development of EUROCAE documents on GALILEO

SAVE THE DATE General Assembly & Symposium 2016



Vienna, 28TH - 29TH April 2016



TOPICS ARE:

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

