EUROCAE Presentation

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EUROCAE

Worldwide interoperability and global harmonisation need international inputs to develop globally accepted and applicable standards

50% joint WGs

10% joint WGs

WTO OMC

R&D

Industrialisation

Deployment

Regulation

Standardisation

Regulations
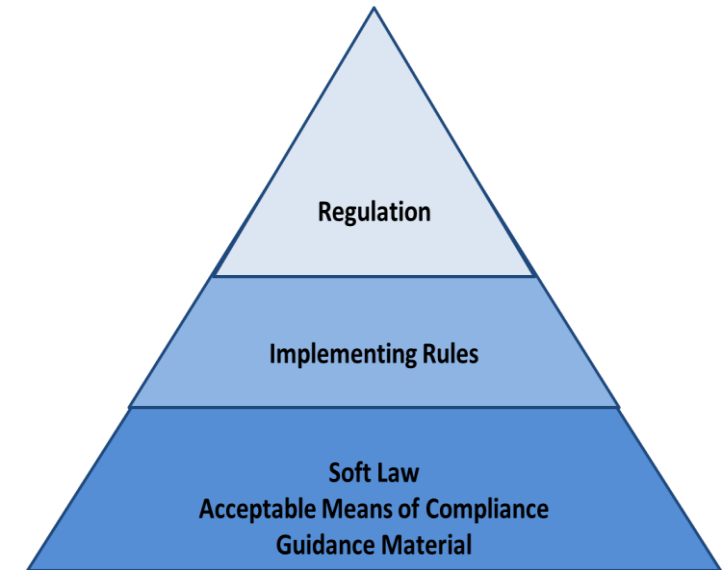   ICAO, EASA, FAA, national CAAs

Reference to industry standards
   (E)TSO – MOPS, SW, Environment

Standards reaction to regulation

Forward looking
   In anticipation of regulatory requirements

Regulation

Implementing Rules

Soft Law
Acceptable Means of Compliance
Guidance Material

Standards   Law   Regulations
Policies   COMPLIANCE   Transparency
Requirements   Rules   Business

11 DOMAINS OF ACTIVITY AND 47 ACTIVE WGS

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ATM
13 WGs

Airports
6 WGs

Avionics
7 WGs

IAM
2 WGs

Space
3 WGs

Air Medical
0 WG

IT & Software
4 WGs

Sustainability
4 WGs

Security
1 WG

RF Spectrum
3 WGs

System Eng
4 WGs

47 Active WGs & Domains

	Title	Domain	Joint
WG-14	Environment	System Engineering	RTCA SC-135
WG-28	Ground Based Augmentation Systems (GBAS)	Space	RTCA SC-159
WG-31	Electromagnetic hazards	System Engineering	SAE AE2
WG-41	A-SMGCS	Airports	ETSI TC AERO
WG-44	Aeronautical Databases	ATM	RTCA SC-217
WG-49	Mode S Transponders	Avionics	RTCA SC-209
WG-51	Automatic Dependent Surveillance - Broadcast (ADS-B)	Avionics	RTCA SC-186
WG-59	Flight Data Processing (FDP) Interoperability	ATM	
WG-62	GNSS	Space	RTCA SC-159
WG-63	Complex Aircraft Systems	System Engineering	SAE S-18
WG-67	Voice on Internet Protocol (VoIP) for ATM	ATM	
WG-72	Aeronautical Systems Security	Security	RTCA SC-216
WG-75	Traffic Alert and Collision Avoidance Systems (TCAS)	Avionics	RTCA SC-147
WG-76	AIS/MET Datalink Services	ATM	RTCA SC-206
WG-78	Standards for Air Traffic Data Communications Services	ATM	RTCA SC-214
WG-79	Enhanced Vision Systems (EVS), Synthetic Vision System (SVS)	Avionics	RTCA SC-213

47 Active WGs & Domains

	Title	Domain	Joint
WG-80	Hydrogen and Fuel Cell Systems	Sustainability	SAE AE-7A
WG-81	Interoperability of ATM Validation Platforms	ATM	
WG-82	New Air-Ground Data Link Technologies	Space	RTCA SC-223, SC-222
WG-83	Airport Foreign Object Debris (FOD) Detection Systems	Airports	
WG-85	4D Navigation	ATM	RTCA SC-227
WG-92	VDL Mode 2	ATM	
WG-96	Wireless On-Board Avionics Networks	RF Spectrum	RTCA SC-236
WG-97	Interoperability of virtual avionic components	IT & Software	
WG-100	Remote & Virtual Tower (RVT)	Airports	
WG-103	Independent Non-Cooperative Surveillance System (INCS)	ATM	
WG-105	Unmanned Aircraft Systems (UAS)	AAM	
WG-107	DME Infrastructure supporting PBN Positioning	ATM	
WG-108	ATN/IPS	ATM	RTCA SC-223
WG-109	Runway Weather Information Systems	Airports	
WG-110	Helicopter Terrain Awareness and Warning Systems (HTAWS)	Avionics	RTCA SC-237
WG-111	Airport Collaborative Decision Making (A-CDM)	Airports	

47 Active WGs & Domains

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	Title	Domain	Joint
WG-112	Vertical Take Off and Landing (VTOL)	AAM	SAE Seats
WG-113	Hybrid Electric Propulsion	Sustainability	SAE E-40
WG-114	Artificial Intelligence	IT & Software	SAE G-34
WG-115	Counter UAS (C-UAS)	Airports	RTCA SC-238
WG-116	High Voltage Systems and Components in Aviation	Sustainability	SAE AE-11
WG-117	Aviation Software Standards	IT & Software	RTCA SC-240
WG-118	Crash-Protected and Lightweight Flight Recorders	Avionics	
WG-119	Radar Altimeters	RF Spectrum	RTCA SC-239
WG-122	Virtual Centre	ATM	
WG-124	Spectrum	RF Spectrum	RTCA SC-242
WG-125	Next Generation Aviation Professionals (NGAP)	Sustainability	
WG-126	VCS - ATC Systems Integration for ATM Information Exchange	ATM	
WG-127	Lower-risk Aviation Applications	IT & Software	
WG-128	Airborne Electronic Hardware Design Assurance	System Engineering	RTCA (TBD)
WG-129	Take-off Performance Monitoring System	Avionics	

DELIVERABLES

✈ EUROCAE DOCUMENT - ED

- ✈ Minimum Aviation Systems Performance Standard (MASPS)
- ✈ Minimum Operational Performance Standard (MOPS)
- ✈ Operational Services and Environment Definition (OSED)
- ✈ Safety and Performance Requirements Standard (SPR)
- ✈ Interoperability Requirements Standard (INTEROP)
- ✈ Process Standard
- ✈ Technical Standard
- ✈ Guidance Document

✈ EUROCAE REPORT - ER

✈ INTERNAL REPORT - IR

WWW.EUROCAE.NET

ED-102B

MINIMUM OPERATIONAL PERFORMANCE STANDARDS (MOPS) FOR 1090 MHZ EXTENDED SQUITTER AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B) AND TRAFFIC INFORMATION SERVICES-BROADCAST (TIS-B)

DECEMBER / 2020
SUPERSEDES ED-102A

MEMBERSHIP

✈ 470+ Member Organisations

- ✈ Annual growth approx. 10% per annum
- ✈ Non-European membership = 23%
- ✈ Members achieve significant influence within the industry.
- ✈ Members develop a reputation with customers and suppliers as a leader in their field.
- ✈ Members can be better prepared to respond to customer's and regulator's expectations.

✈ 5000+ Registered Experts

- ✈ Contribute to, or monitor, any or all Working Group activities.

✈ Full Membership

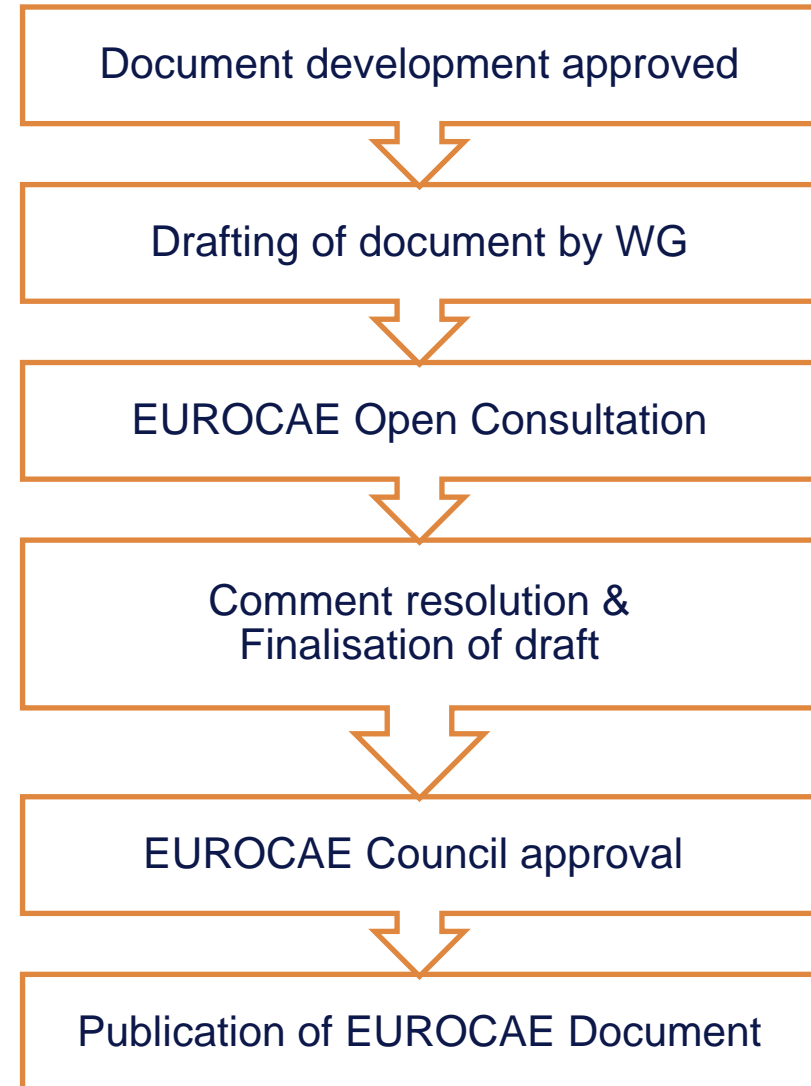- ✈ Contribute to all working groups, and free access to all standards.

✈ Limited Membership

- ✈ Contribute to, or monitor, one Working Group, with free access to its standards.

EUROCAE Process
- Transparent and open
- Consensus driven
- Open consultation
- Efficient and continuously improved
- Cooperation with partner organisations
  - With some different processes

EUROCAE Standards
- Worldwide recognition
- Worldwide application
- Open for worldwide participation
- By the industry – for the industry

Document development approved

Drafting of document by WG

EUROCAE Open Consultation

Comment resolution &
Finalisation of draft

EUROCAE Council approval

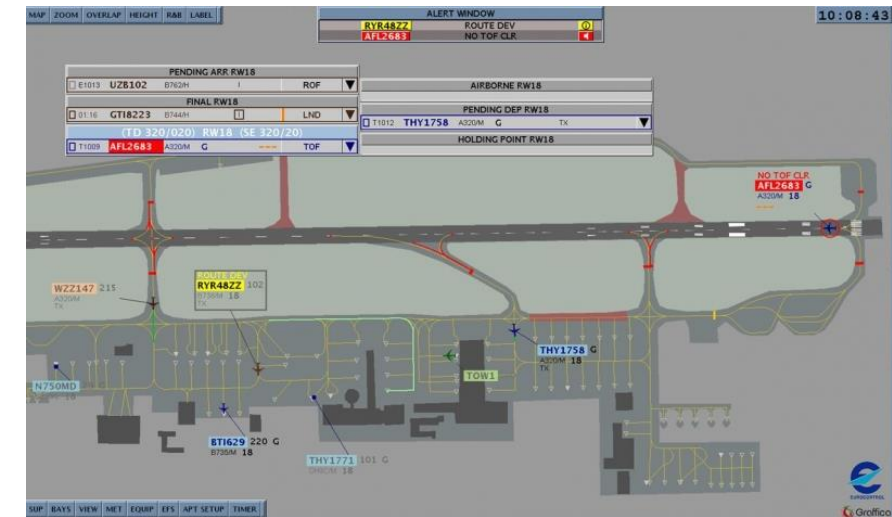Publication of EUROCAE Document

ATM focussed Working Groups

✈ WG-41: A-SMGCS

✈ Scope

✈ Development of standards for A-SMGCS in alignment with EUROCONTROL operational concepts and requirements, SESAR, EASA and ICAO provisions

✈ Deliverables:

ED-87E	MASPS for A-SMGCS	2022
ED-116	MOPS for SMR for use in A-SMGCS	2004
ED-117A	MOPS for MLAT for use in A-SMGCS	2016
ED-xxx	Interoperability Standard for Data Exchange for A-SMGCS	Target 2024
ED-128A	Guidelines for the implementation and operation of A-SMGCS	Target 2025

✈ WG-44: Aeronautical Databases　　　　Joint with RTCA SC-217

✈ Scope

✈ Develop standards for the processing and exchange of Aeronautical Data and associated user requirements for navigational data, terrain and obstacle data, aerodrome mapping and surface routing.

✈ Deliverables:
　✈ ED-76B: Standards for Processing Aeronautical Data (June 2024)
　✈ ED-77B: User Requirements for Navigation Data (target Q3/2025)

✈ Publications
　✈ 7 other publications covering the range of the WG scope

WG-59: Flight Data Processing (FDP) Interoperability

✈ Scope

✈ WG-59 is developing an update to ED-133 Flight Object Interoperability Specifications to define the interface between different instances of civilian ATC Flight Data Processing Systems (FDPS) and between those ATC, in support of En-route and TMA ATC Operations.

✈ FO-IOP is a concept aimed at achieving a continuum of operations as a flight crosses ATC systems without enforcing uniformity across systems

✈ Deliverables

  ✈ ED-133A: Flight Opject Interoperability Standard

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WG-67: Voice over IP

✈ Scope

✈ Maintain and update, as required, the widely used (globally) VoIP standards described in the Volumes of ED-136, ED-137 and ED-138.

✈ Publications:

   ✈ ED-136 Parts 1 and 2: VoIP ATM System Operational and Technical Requirements

   ✈ ED-137C Volumes 1 - 5: Interoperability Standard for VOIP ATM Components

   ✈ ED-138 Parts 1 and 2 Network requirements and performances for voice over Internet Protocol (VOIP) air traffic management

WG-81: Interoperability of ATM Validation Platforms

✈ Scope

✈ WG-81 is tasked to examine the requirements for common data interchange standards, data preparation facilities and high-level exchange protocols, and to develop standards to enhance the functionality and linking of different ATM simulation platforms.

✈ Publications:

   ✈ ED-147B: ATM Validation Platforms Interoperability Specification - 2021

   ✈ ED-148A: Guidance to Achieve ATM Validation Platforms Interoperability - 2021

✈ Deliverable

   ✈ Supplement to ED-147B – Technology Mapping for HLA – target during 2024

WG-100: Remote and Virtual Towers

✈ Scope

- ✈ WG-100 is tasked to develop standards for Remote and Virtual Towers, with a focus on those capabilities that support or enhance the visual display.

- ✈ Publication:
  - ✈ ED-240B: MASPS for Remote Tower Optical Systems - 2023

- ✈ Deliverable
  - ✈ ED-240C: MASPS for Remote Tower Optical Systems – target date 2026
    - ✈ Additional content including AI/ML, cybersecurity, technology advancements

WG-122: Virtual Centres

✈ Scope

✈ WG-122 is tasked to develop standards to support separation of ATM capabilities across sites/organisations, building on and supporting a range of SESAR projects exploring different aspects of Virtual Centre operations and scenarios.

✈ Publications:

  ✈ ER-026: Virtual Centre – Strategy for Standardisation – Phase 1 – 2022

  ✈ ER-029: Taxonomy of Services for Virtual Centres - 2024

✈ Deliverable

  ✈ Virtual Centres - Guidelines for Implementation

Courtesy of SESAR Project PJ-16

WG-126: VCS-ATC Systems Integration for ATM Information Exchange

✈ Scope

✈ WG-126 is developing standards for interoperability of ATM and VCS systems for the exchange of ATM related information. This shall improve situational awareness for the ATCO and facilitate the provision of information.

✈ Deliverables:

   ✈ OSED for ATC Systems-VCS Interoperability for ATM Information Exchange

   ✈ ATC Systems-VCS Interoperability Standard for ATM Information Exchange

✈ 5 Datalink Working Groups   Joint with RTCA

- ✈ WG-76 – AIS/Met Datalink applications
  - ✈ MASPS for AIS/MET Datalink Services
  - ✈ Aircraft Based Observations
  - ✈ Turbulence Derivation Algorithms

- ✈ WG-78 – Standards for Air Traffic Data Communication Services
  - ✈ SPR and INTEROP documents for ADS-C and CPDLC Air/Ground applications

- ✈ WG-82 – New Air-Ground Datalink Technologies
  - ✈ e.g., AeroMACS, LDACS, AMS(R)S, Next Gen Satellite Systems

- ✈ WG-92 – VDL Mode 2
  - ✈ Maintain ED-92 (MOPS for Airborne VDL Mode 2 System)
  - ✈ Maintain ED-276 (Guidance on Air to Ground VDL Mode 2 Interoperability)

- ✈ WG-108 – ATN/IPS
  - ✈ Standards to facilitate implementation and use of ATN/IPS

- ✈ 27 EUROCAE Standards currently published

Other Working Groups

Surveillance related Working Groups

- WG-49 – Mode S Transponders
  - Review and update existing transponder MOPS
- WG-51 – ADS-B
  - Developing standards for airborne and ground segments of ADS-B and WAM
- WG-75 – TCAS
  - WG-75 is tasked to develop Airborne Collision Avoidance Systems (ACAS) X() MOPS Focus is on airborne equipment.
- WG-102 – GEN-SUR Safety and Performance Requirements
  - Developed ED-261 for generic surveillance systems as used for ATM services.
- WG-103 – Independent Non-Cooperative Surveillance
  - Develop a system agnostic Technical Specification for non-cooperative surveillance sensors

Summary

EUROCAE

✈ EUROCAE has a large programme of work across many areas.

✈ The Working Group structure is key to engaging with industry to develop standards.

✈ Strong partnerships with RTCA and SAE.

✈ EUROCAE has some unique competencies particularly in ATM related standards, as well as some SUR standards.

✈ EUROCAE standards are globally recognised, and we welcome greater participation from organisations in the Asia Pacific region

THANK YOU