RPAS - Standardisation activities

ICAO
Remotely Piloted Aircraft Systems Symposium

23-25 March 2015, Montreal

Alexander Engel, EUROCAE
• About EUROCAE

• Relevant EUROCAE Activities
What is EUROCAE?

EUROCAE

- is the only European organisation exclusively dedicated to the development of technical standards in support of the aviation community
- produces since over 50 years standards used in the certification of avionics and approval of CNS and ATM equipment and applications
- provides all aviation stakeholders with a forum to work together to achieve an effective standardisation framework in Europe
- offers for many years a proven mechanism for the development of required aviation technical standards and other associated documents
- has over 160 members from 30+ countries in Europe and beyond representing all main stakeholder categories
EUROCAE is recognised by

- **the European Commission** as the competent body to collaborate with the European Standardisation Organisations (ESOs) in the preparation of European Standards (ENs) / Community Specifications (CS)


- **the European Aviation Safety Agency (EASA)** as a major European stakeholder in the development of Technical documents concerning Aviation safety (i.e. ETSO “European Technical Standard Order”)

- **the FAA** as having the right expertise to collaborate, when appropriate, with US organizations (RTCA, SAE, ARINC) in the development of specific standards related to Aviation

- **ICAO**
  - references EUROCAE Documents (EDs)
  - invites EUROCAE to participate in number of its Study Groups
  - involves EUROCAE in Aviation System Block Upgrade as the main standardisation body for Europe
EUROCAE Activities

• EUROCAE Technical Work Programme

  strategic vision of the activities in the context of the current environment
  → ICAO, EASA, SES and SESAR, FAA and NextGen, Industry, ...

• Work programme

  Published EDs 190
  EDs under development 60
  Active WG 32

• About 50% carried out jointly with RTCA, 10% with SAE
• About EUROCAE

• Relevant EUROCAE Activities
  • WG-73 and WG-93
EUROCAE RPAS Activities

• EUROCAE WG-73 ‘Unmanned Aircraft Systems (UAS)’
  • Created early 2007
  • Focus on operations in Airspace Classes A, B, and C

• EUROCAE WG-93 ‘Light Remotely Piloted Aircraft Systems Operations’
  • Created in 2012
  • Previously dealt with in WG-73 / Subgroup 4
  • Focus on VLOS operations (Visual Line of Sight)
  • Most RPAS in this category: below 25kg
WG-73 Unmanned Aircraft Systems

- WG73 is to **deliver technical standards** and **appropriate guidance material** to enable the safe operation of RPAS in all classes of airspace and in all operational environments.

- The work is to address the differences between RPAS and manned aviation and to deliver appropriate solutions for RPAS.

- **Key aspects** are RPAS airworthiness certification, command, control and communications (C3), and 'Detect & Avoid' (D&A).

- **Formally outside** the remit of WG-73: specification of safety objectives and criteria, regulatory rule-making and most matters associated with personnel.

- **Expected deliverables**: OSED, SPR, INTEROP; where necessary MASPS and MOPS
WG-73 Unmanned Aircraft Systems

Deliverables:

- MASPS / MOPS for RPAS C2 Datalink
- OSED/SPR/INTEROP for En-route flight in Class A, B, C BVLOS Operations in Class G Airspace Terminal Area and Aerodrome Operations Oceanic Operations
- Guidance Material: RPAS Classification Scheme Flight Operations Management Security Requirements
- Contribution to European RPAS Roadmap
• **Develop standards and recommendations** for guidance material for the safe operation of **Light RPAS**, sequenced in **order of priority** for the Light RPAS community, with output primarily directed towards **regulators**.

• **Focus on VLOS** and Initial work on BVLOS

• To actively **involve SMEs** in the regulatory process as **SMEs are key to short-term innovation**

• **Guided by regulators needs** and approval oversight such as EASA, JARUS, NAAs
EUROCAE activities: WG-73 and WG-93

Publications

- **ER-004**  A concept for UAS Airworthiness Certification and Operational Approval
  - Published Nov 2010
  - 5 Volumes + Supplement
- **ER-010**  UAS / RPAS Airworthiness Certification - “1309” System Safety Objectives and Assessment Criteria
  - Published Aug 2013
- **ER-012**  C3 CONOPS
  - To be published still in 2015
- **VLOS Operations – Guidance to Regulators**
  - To be published still in 2015
European RPAS Roadmap Contribution

• 2012-13, European Commission initiative leading to Road Map and 8 April 2014 communication to European Parliament

• EUROCAE contribution to development of European RPAS Roadmap / European RPAS Steering Group

• Almost 20 roadmap lines identified as EUROCAE activities in both WG-73 and WG-93

• WG-73 and WG-93 ToR updates to align activities

• Some deliverables already finalised; work ongoing on others

• Clear target timeframes for each deliverable
A Prominent Example for Cooperation
Interoperability of CA Systems

Current system: TCAS II

Future System: ACAS X

- ACAS $X_A$: active surveillance - replacing TCAS II
- ACAS $X_O$: operational for ASA applications
- ACAS $X_U$: Unmanned Systems
- ACAS $X_P$: passive surveillance, not yet started

→ Interoperability
Interoperability of CA Systems

EUROCAE

WG-75 <-> WG-73

RTCA

SC-147 <-> SC-228

ISRA

Interoperability & Coordination Requirements
Thank you for your attention!

EUROCAE

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