



FROM INNOVATION TO SOLUTION

SESAR Initiatives for RPAS Integration

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SESAR Joint Undertaking

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founding members



Single European Sky and SESAR JU

Five pillars



founding members



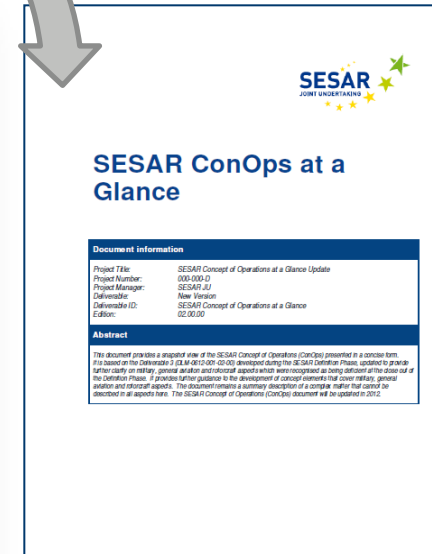
Members



SESAR ConOps and RPAS

SESAR ConOps fully recognises RPAS:

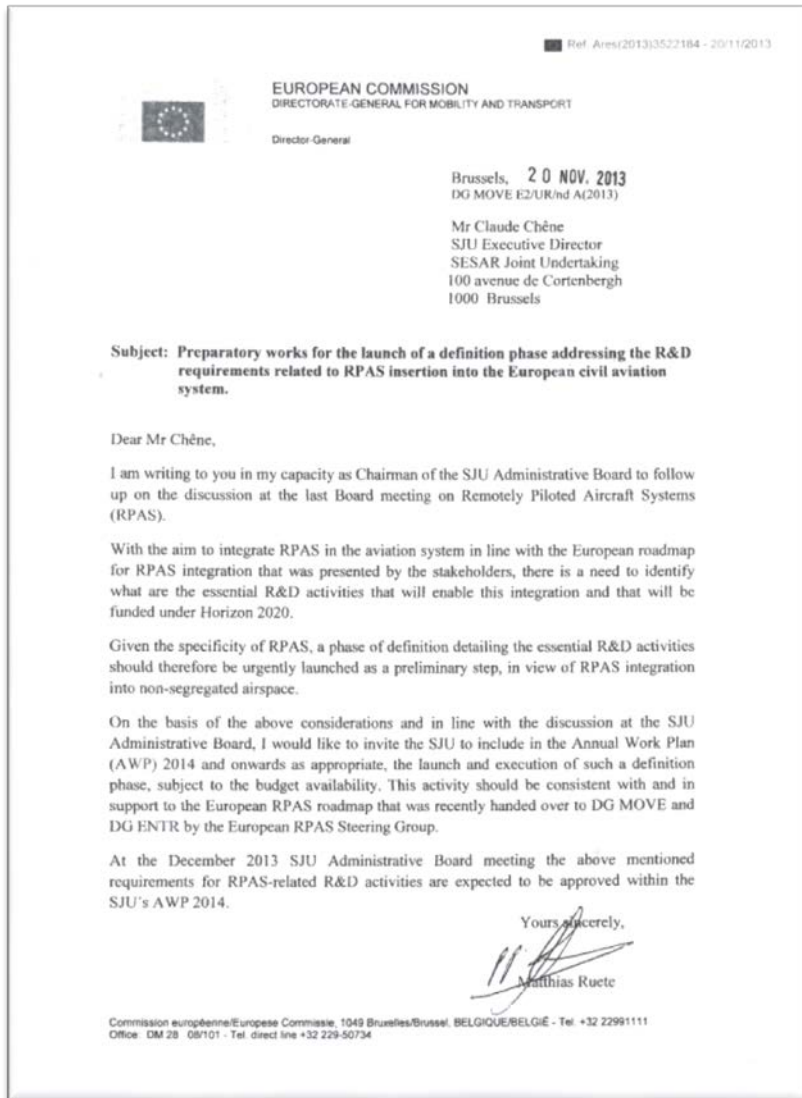
“The Concept of Operations at a Glance” updated to solve deficiencies in relation to Military and GA/Rotary operational needs and constraints



SESAR ConOps responds to the operational vision and operational objectives developed by the airspace users with due regard to the evolving capabilities and requirements of service providers and airports, whilst considering the characteristics of every type of aircraft that requires access to the airspace



Mandat



- Aim: Integrate RPAS in the aviation system
- In line with the EU Roadmap for RPAS integration
- Identify what are the essential R&D activities
- Funded under Horizon 2020



R&D effort identified to RPAS Operations

IFR/VFR

- Detect & avoid
- Airspace and Airports access
- C2 communications
- Human factors
- Contingency
- Security
- SESAR compliance

500 ft.-----500 ft.

VLL

- Detect & avoid - replicate the human ability to see & avoid
- C2 communications
- Human factors - including mixed fleet compatibility
- Contingency
- Security
- SESAR compliance

B-VLOS below 500ft is completely new to aviation



RPAS in a Nutshell

- Emergence of a new service sector
- Limited by flight authorisations
- Need to develop a regulatory framework and to coordinate on-going R&D initiatives
- Enhance coordination between regulatory, R&D and others
- Gradual and subsequently alleviated integration linked to regulation, technology and societal acceptance progress



The *Easy Way*

The *Hard Way*

... or how do we get there?

Technical outcomes of the RPAS Definition Phase

- Integration must be linked to the EU ATM Master Plan and the ICAO Global Plan/ASBU timeline
- RPAS has to fit into the ATM system with adaptations to enable a safe integration
- RPAS has to prove to be as safe as current manned vehicle operations and their behavior to be equivalent to manned aviation



Technical outcomes of the RPAS Definition Phase

- EU RPAS roadmap is the foundation for the Definition Phase, further reduced to 6+1 activities (IFR/VFR and B-VLOS)
- Link with the SESAR solutions and related OIs/ENs based on technical information or on best judgment
- Further work require to provide the connection with the ATM Master Plan structure and to the so-called “Essentials”
- Relationship with SESAR 2020 projects has been identified



Requirements to cover the RPAS integration

■ Full Civil RPAS integration

- As defined in the EU RPAS roadmap
- Ensure efficient and safe integration
- Remove the obstacles to operate in airspace either as IFR or VFR
- VLL operations like B-VLOS could be considered in various ATM and airspace environments
- Synergies with Military and GA/Rotary operations and enabling technology

■ IFR and partial B-VLOS and pre-industrial maturity target

- First developments as identified in the EU RPAS roadmap
- IFR integration in airspace class A-C and partial B-VLOS integration
- Dependency on other non-specific RPAS technology (e.g. CNS) are essential
- Enables full maturity level but on a limited range of RPAS operations

■ Initial & partial integration and low level of maturity target

- Focus on IFR in class A-C airspace
- Low level of maturity target (case study, basic prototyping)
- No “system of systems approach”, limiting SESAR / RPAS synergies on CNS



Wherefore an RPAS Market View

- Complement the work being performed in the Definition Phase
- Establish the market, the industry approach and the needs in terms of institutional framework
- Develop an in-depth understanding of the RPAS value chain
- Provide a systemic view of safety, economic efficiency, capacity, human performance, security, environmental impact





Thanks for your attention

