

# JOINT AUTHORITIES FOR RULEMAKING OF UNMANNED SYSTEMS



**Christopher Swider**  
**JARUS Vice Chairman**

**ANSI**  
**UAS Standards**  
**Coordination Meeting**  
**19 May 2017**



Joint Authorities for Rulemaking of Unmanned Systems

# AGENDA

---



- JARUS Purpose
- JARUS Members
- Stakeholder Consultation Body (SCB)
- Working Groups
- JARUS Deliverables
- Upcoming activities

## JARUS PURPOSE

---



JARUS is a group of experts from 51 countries, representing NAAs, regional authorities, as well EASA and EUROCONTROL.

*JARUS members collaborate to recommend a single set of technical, safety and operational requirements for the certification and safe integration of UAS into airspace and at aerodromes.*

The Industry is represented through the Stakeholder Consultation Body (SCB).

# JARUS MEMBERS

---



1. Australia
2. Austria
3. Belgium
4. Brazil
5. Canada
6. China
7. Colombia
8. Croatia
9. Czech Republic
10. Denmark
11. EASA
12. Eurocontrol
13. Estonia
14. Finland
15. France
16. Georgia
17. Germany
18. Greece
19. Ireland
20. India
21. Israel
22. Italy
23. Jamaica
24. Japan
25. Kenya
26. Latvia
27. Luxembourg
28. Malaysia
29. Malta
30. Netherlands
31. New Zealand
32. Norway
33. Poland
34. Portugal
35. Qatar
36. Republic of Korea
37. Republic of Macedonia
38. Republic of Serbia
39. Romania
40. Russia
41. Singapore
42. Slovakia
43. Slovenia
44. South Africa
45. Spain
46. Sweden
47. Switzerland
48. Thailand
49. Trinidad & Tobago
50. Turkey
51. United Arab Emirates
52. United Kingdom
53. United States of America

# STAKEHOLDER CONSULTATION BODY (SCB)



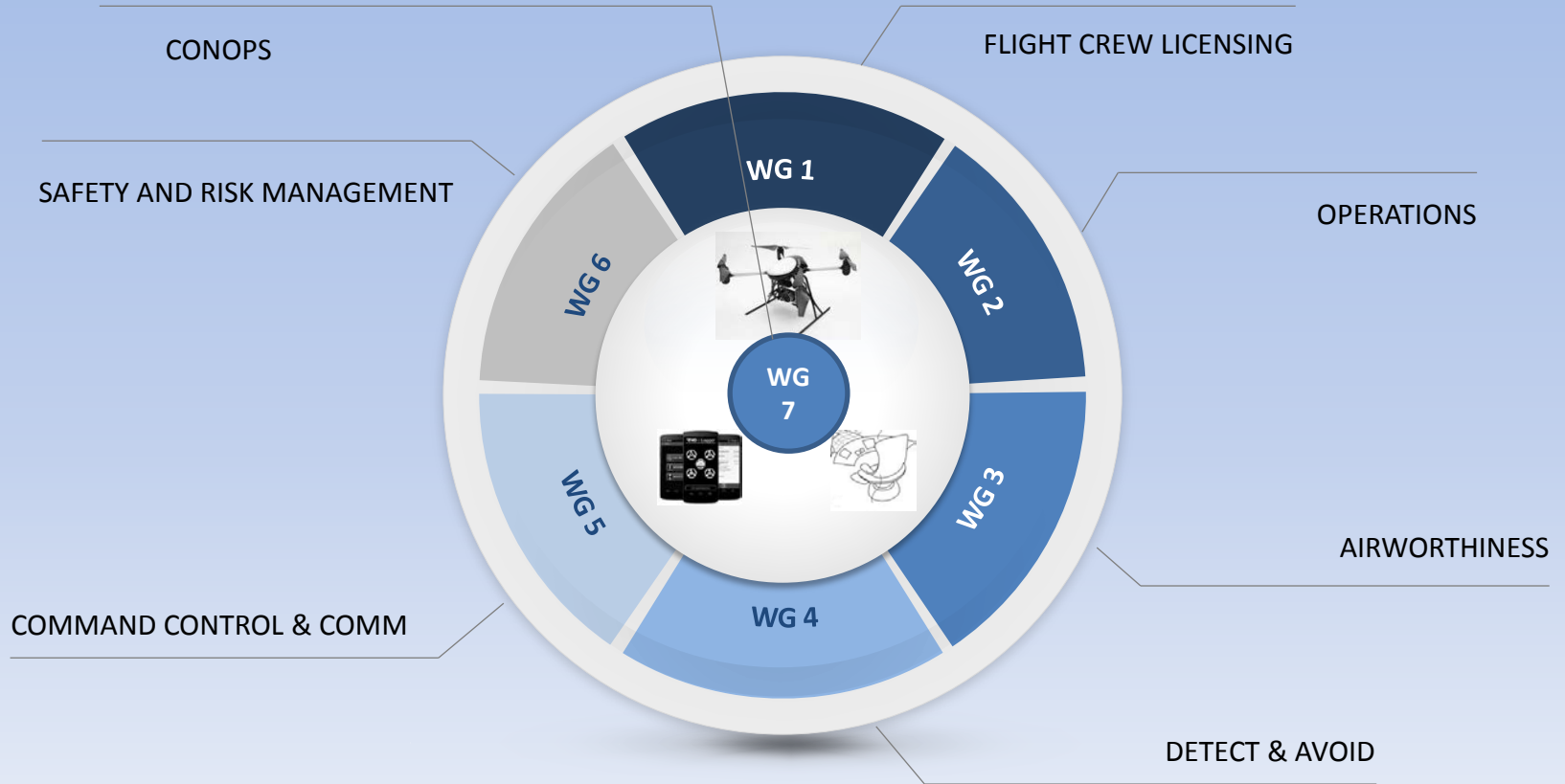
At the end of 2015, the SCB was established representing the Industry

- Aircraft Manufacturers (AIA and ASD)
- Unmanned System Industry (AUVSI, UVSI and small UAV Coalition)
- ANSPs (CANSO and COCESNA)
- Standardization Bodies (EUROCAE and RTCA)
- Operators and Pilots (IAOPA, IBAC, IFALPA, IFATCA, IATA)

Since 2016 representatives from these organisations join the JARUS Plenary Meetings.

Experts from the SCB have been contributing to the JARUS Working Groups.

# WORKING GROUPS STRUCTURE



# WORKING GROUPS (WGs) – 1/2

---



## WG 1 – Flight Crew Licensing (FCL)

- Requirements for licensing and competencies in RPAS activities
- Pilot licensing and training

## WG 2 – Operations

- Operational requirements for access to airspace
- Organizational requirements for RPAS operations

## WG 3 – Airworthiness

- UAS certification & airworthiness provisions/specifications for:
  - ✓ *Rotary wing, Light Unmanned Rotorcraft System (CS-LURS)*
  - ✓ *Fixed wing, Light Unmanned Aeroplane System (CS-LUAS)*
  - ✓ *Very light UAS (VLUAS)*
  - ✓ *Airships, free/tethered balloons*

## WG 4 – Detect and Avoid

- Define performance provisions (operational/technical)
- Establish safety objectives for the risk of collisions

# WORKING GROUPS (WGs) – 2/2

---



## **WG 5 – Command, Control & Communications**

- Establish performance provisions (operational & technical) for C2

## **WG 6 – Safety and Risk Management**

- Create a methodology to assess the risks of «specific» RPAS operations and evaluate relevant mitigations
- Define top level RPAS airworthiness, system safety objectives and guidance material (known as AMC RPAS.1309)
- Establish UAS recommendations & conclusions on UAS failure classifications in terms of severity definition and probability requirements.

## **WG 7 – Concept of Operations (CONOPS)**

- Develop a classification scheme for RPAS
- Considerations for RPS Certification, C2 & signal relay and launch and recovery equipment



## JARUS DELIVERABLES

---



- JARUS deliverables/products are recommended certification specifications and operational provisions made available to interested parties such as ICAO, NAAs and regional authorities for their consideration and use.
- JARUS does NOT develop law or mandatory standards.
- NAAs and regional authorities decide how to use the harmonized provisions from JARUS.
- Before publication the recommendations are also undergoing external consultation.
- JARUS deliverables at **<http://jarus-rpas.org/publications>**

# JARUS DELIVERABLES – OVERVIEW 2013-2017

- CS-LURS (Certification Specification for Light Unmanned Rotorcraft Systems) – *October 2013*
- RPAS C2 Link (required Communication Performance concept) – *October 2014*
- FCL (Flight Crew Licensing) Recommendations – *September 2015*
- AMC (Acceptable Means of Compliance) RPAS 1309 – *November 2015*
- RPAS “Required C2 Performance (RLP) concept” – *May 2016*
- Recommendations on the use of Controller Pilot data Link Communications (CPDLC) – *June 2016*
- CS - LUAS (Certification Specification for Light Unmanned Aircraft Systems) – *December 2016*
- Guidance Material to FCL Recommendations – *April 2017*

# UPCOMING ACTIVITIES

By 2017



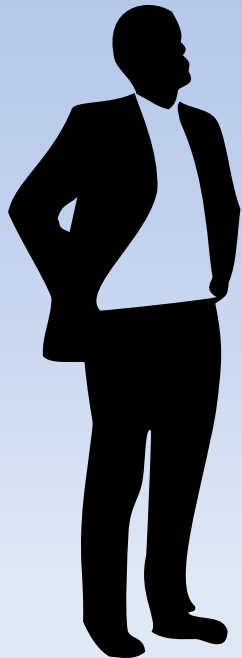
## **SORA - Specific Operations Risk Assessment**

A risk assessment methodology to establish a sufficient level of confidence that a specific operation can be conducted safely (WG-6)

### Currently under development

- OPS Cat A & B (WG-2)
- Design Objectives for Cat C Operations (WG-4)
- RPAS C2 Link CONOPS (WG-5)
- RPAS Operational Categorization (WG-7)

More information at:  
<http://www.jarus-rpas.org/who-we-are>



Questions ?

@ [contact@jarus-rpas.org](mailto:contact@jarus-rpas.org)



+32 2 729 3629  
+32 2 801 3902



<http://jarus-rpas.org/>



Joint Authorities for Rulemaking of Unmanned Systems