JOINT AUTHORITIES FOR RULEMAKING OF UNMANNED SYSTEMS

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Secretary General JARUS

JARUS
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 52 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	29.	Malta
2.	Austria	30.	Montenegro
3.	Belgium	31.	Netherlands
4.	Brazil	32.	New Zealand
5.	Canada	33.	Norway
6.	China	34.	Poland
7.	Colombia	35.	Portugal
8.	Croatia	36.	Qatar
9.	Czech Republic	37.	Republic of Korea
10.	Denmark	38.	Republic of Macedonia
11.	EASA	39.	Republic of Serbia
12.	Eurocontrol	40.	Romania
13.	Estonia	41.	Russia
14.	Finland	42.	Singapore
15.	France	43.	Slovakia
16.	Georgia	44.	Slovenia
17.	Germany	45.	South Africa
18.	Greece	46.	Spain
19.	Ireland	47.	Sweden
20.	India	48.	Switzerland
21.	Israel	49.	Thailand
22.	Italy	50.	Trinidad & Tobago
23.	Jamaica	51.	Turkey
24.	Japan	52.	United Arab Emirates
25.	Kenya	53.	United Kingdom
26.	Latvia	54.	United States of America
27.	Luxembourg		
28.	Malaysia		

# 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 efforts.

WORKING GROUPS STRUCTURE

CONOPS

FLIGHT CREW LICENSING

SAFETY AND RISK MANAGEMENT

OPERATIONS

WG 6

WG 1

WG 2

WG 7

WG 5

WG 3

AIRWORTHINESS

COMMAND CONTROL & COMM

WG 4

DETECT & AVOID
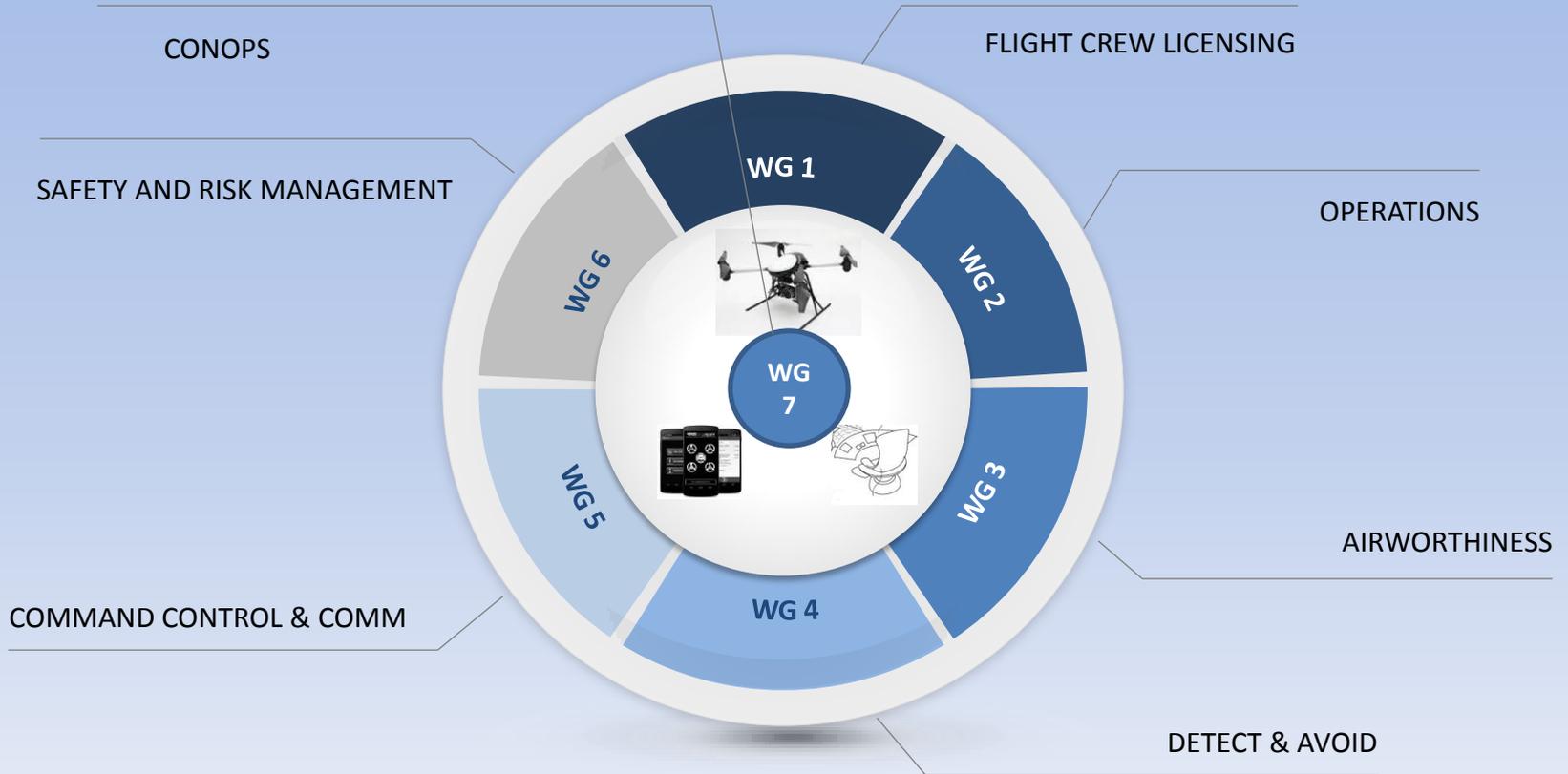
WORKING GROUPS (WGs) – 1/2

WG 1 – Flight Crew Licensing (FCL)
- o Requirements for licensing and competencies in RPAS activities
- o Pilot licensing and training

WG 2 – Operations
- o Operational requirements for access to airspace
- o Organizational requirements for RPAS operations

WG 3 – Airworthiness
- o UAS certification & airworthiness provisions/specifications for:
  - ✓ *Rotary wing, Light Unmanned Rotocraft System (CS-LURS)*
  - ✓ *Fixed wing, Light Unmanned Aeroplane System (CS-LUAS)*
  - ✓ *Very light UAS (VLUAS)*
  - ✓ *Airships, free/tethered balloons*

WG 4 – Detect and Avoid
- o Define performance provisions (operational/technical)
- o Establish safety objectives for the risk of collisions

WORKING GROUPS (WGs) – 2/2

WG 5 – Command, Control & Communications
- o Establish performance provisions (operational & technical) for C2

WG 6 – Safety and Risk Management
- o Create a methodology to assess the risks of «specific» RPAS operations and evaluate relevant mitigations
- o Define top level RPAS airworthiness, system safety objectives and guidance material (known as AMC RPAS.1309)
- o Establish UAS recommendations & conclusions on UAS failure classifications in terms of severity definition and probability requirements.

WG 7 – Concept of Operations (CONOPS)
- o Develop a classification scheme for RPAS
- o 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 are available at **http://jarus-rpas.org**

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*

- *SORA (specific Operational Risk Assessment) – July 2017*

http://jarus-rpas.org/publications

UPCOMING ACTIVITIES

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)

- Published

- Annex under development (Scenarios)

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
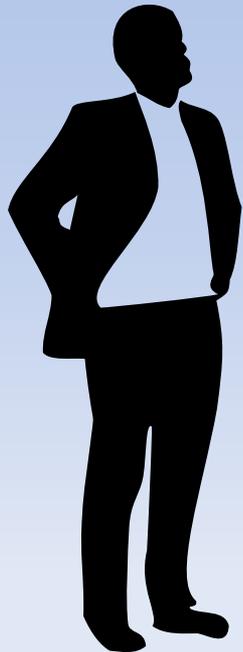
Questions **?**

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