

SAFE SKIES.
SUSTAINABLE
FUTURE.





# ICAO ESAF/WACAF Regional Office UAS/RPAS Workshop

Nairobi, Kenya June, 2025



## ICAO Standard and Recommended Practices for Remotely Piloted Aircraft Systems (SARPs - RPAS)

## **Objectives**

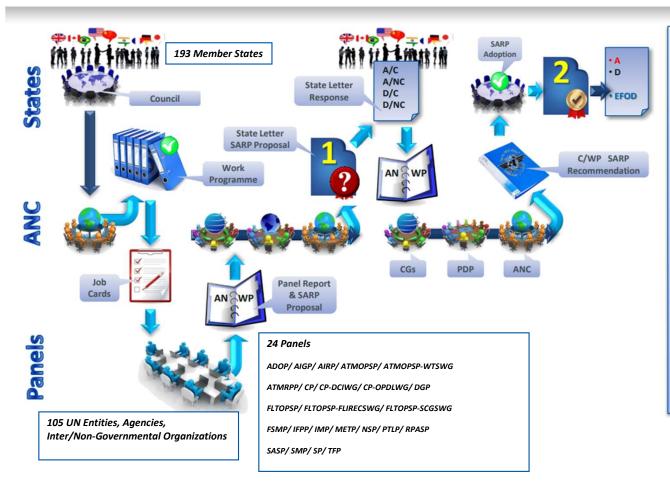
- ➤ Understand SARPs RPAS Scope;
- Understand SARPs RPAS Importance; &
- ➤ Understand the stakeholders' part in implementing and benefiting from SARPs RPAS.

Disclaimer:
This presentation doesn`t substitute the necessity to read and adopt what is in the Annexes.





#### Standard and Recommended Practices - RPAS



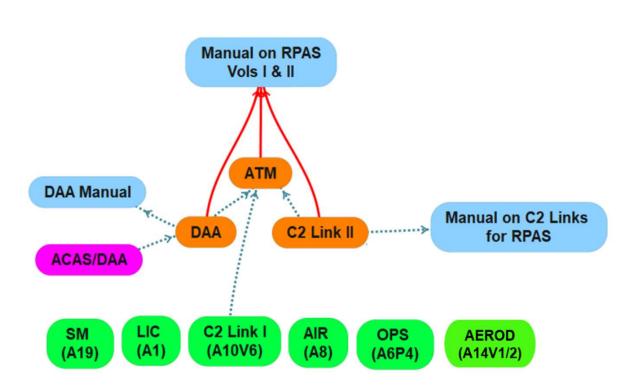
- Council reviews ANC proposal. Adopts if 2/3 support.
- Within 2 weeks of adoption, interim edition sent to States
- 3 months to indicate disapproval of adopted amendments
- Effective Date approximately 4 months after adoption by Council
- 4 months between Effective Date and Applicability Date
- Provided a majority of States have not registered disapproval, the amendment becomes Effective
- One month prior to the Applicability Date, States must notify the Secretariat of any differences.
- Differences published in supplements to Annexes.

05 March 2018

#### Standard and Recommended Practices - RPAS



### Dependencies in the RPAS work

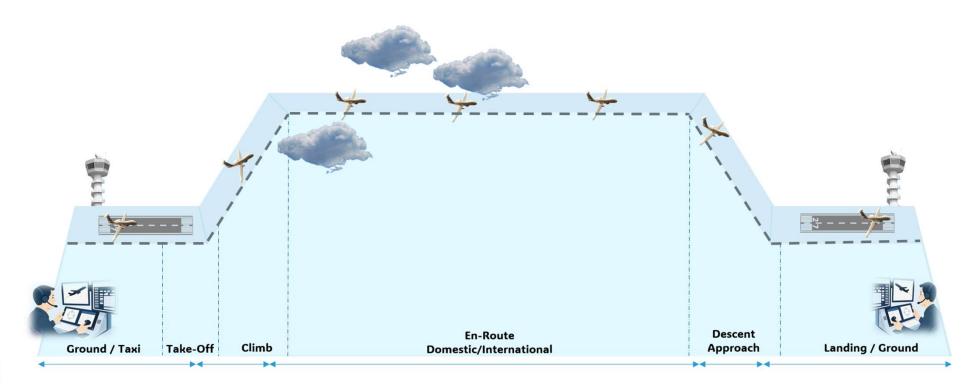


# Completed (adopted) packages

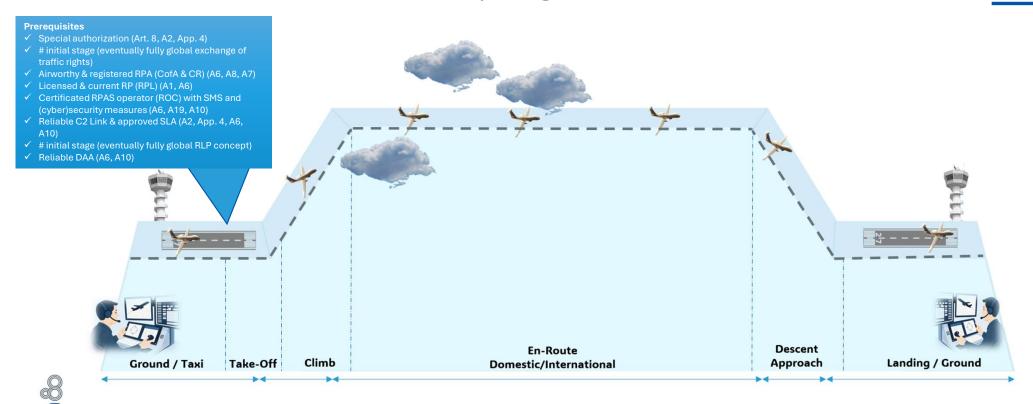
Packages under development

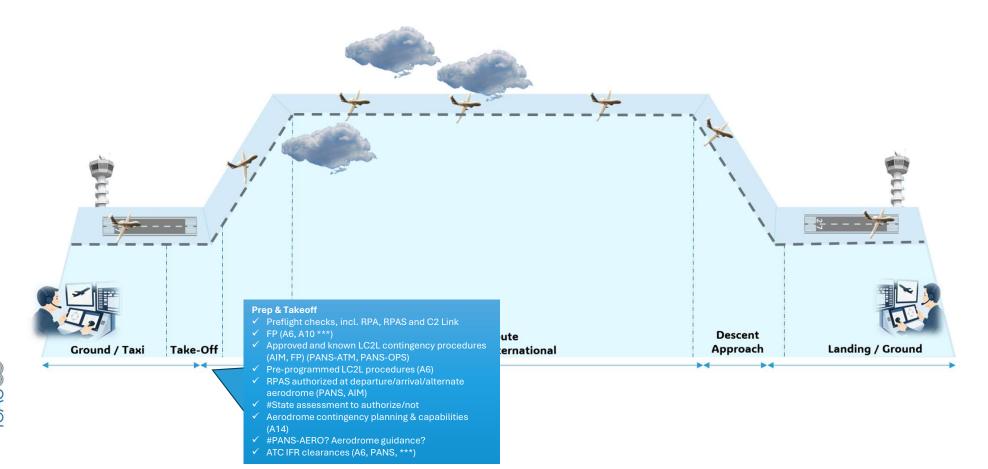
# Dependencies are between:

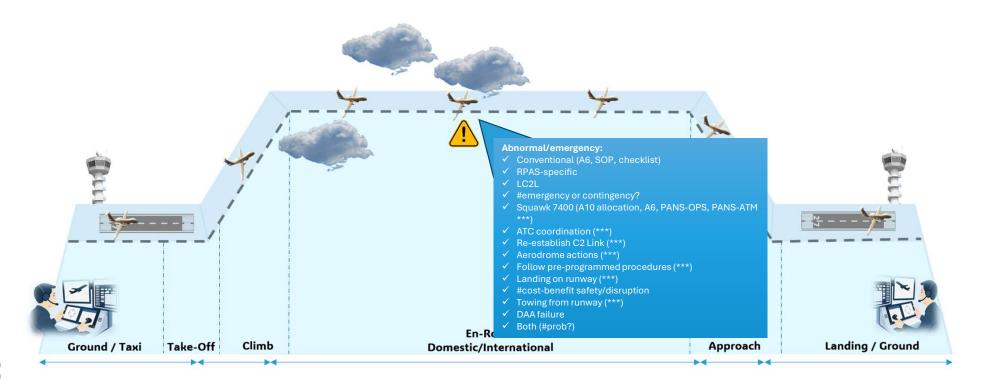
- 1. Technical areas SARPs/PANS
- 2. SARPs/PANS other SARPs/PANS
- 3. SARPs/PANS guidance



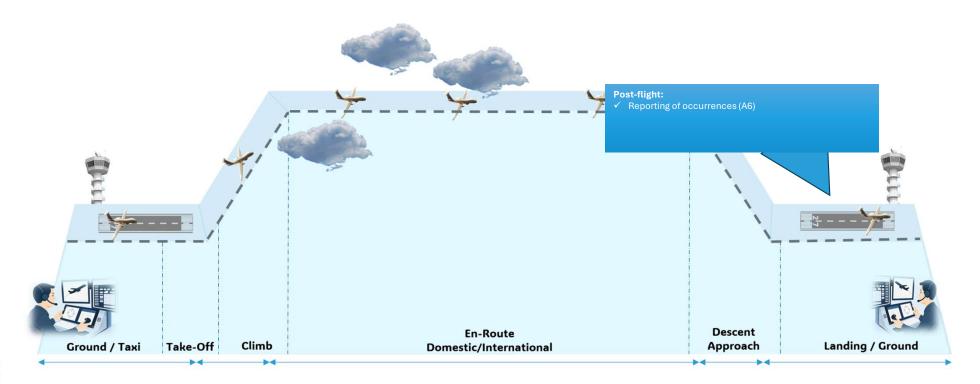














# ICAN ®

#### ANNEX 2 – Rules of the Air



Annex 2 – Rules of the Air

Sets the "general" rules for the aviation to fly, such as:

- ➤ Flight Rules, VFR or IFR;
- **➤ Collision Avoidance**;
- **➢ Signals**;
- **➤ VMC/IMC Parameters; ...**

**Appendix 4 – Remotely Piloted Aircraft Systems** 

- ➤ General Operating Rules;
- > Certificates and Licensing;
- > Request for Authorization.



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Appendix 4 – Remotely Piloted Aircraft Systems

- **➤** General Operating Rules;
- > Certificates and Licensing;
- > Request for Authorization.

Currently, RPASP Task Force on Interception (RPASTF-I) works on PfA related to RPA Interception.

**PfA: Proposal of Amendments** 



# CAO

#### ANNEX 2 – Rules of the Air

RPA shall not be operated across the territory of another State without special authorization issued by each State in which the flight is to operate [...].



RPAS engaged in international air navigation shall not be operated without appropriate authorization from the State from which the take-off of the RPA is made.



RPA shall not be operated over the high seas without prior coordination with the appropriate ATS authority.

Flight plans shall be submitted [...] of this Annex or as otherwise mandated by the State(s) in which the flight is to operate

RPAS shall meet the performance and equipment carriage requirements for the specific airspace in which the flight is to operate



Shall be obtained prior to take-off if there is reasonable expectation, when planning the operation, that the aircraft may enter the airspace concerned. Request made at least 7 days before the flight (or specified by State).



#### ANNEX 2 – Rules of the Air

rate [...].

Annex 2 also refers to CofA (Annex 8) and ROC (Annex 6)

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CofA – Certificate of Airworthiness ROC – RPAS Operator Certificate e operated over the high seas without prior ith the appropriate ATS authority.

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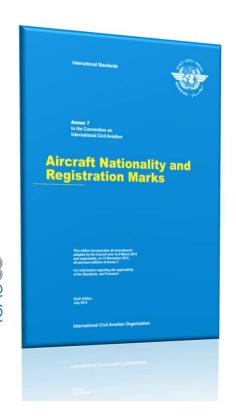
RPAS shall meet the performance and equipment carriage requirements for the specific airspace in which the flight is to operate

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ICAO

Rules of the

# ANNEX 7 – Aircraft Nationality and Registration Marks



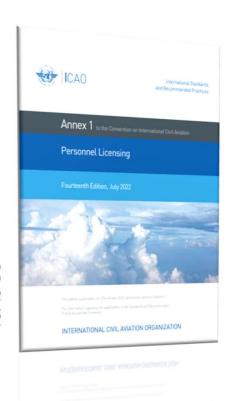
Annex 7 – Aircraft Nationality and Registration Marks
Sets the minimum Standards for the display of marks to indicate
appropriate nationality and registration which have been determined to
comply with Article 20 of the Convention [Standards for Aircraft
Nationality and Registration Marks].

- Classification of Aircrafts;
- > Nationality & Registration Marks:
  - Location;
  - Measurements;
  - > Type of Characters;
  - Register.
- Certificate of Registration;
- Identification Plate;
- **>** .

# ANNEX 7 – Aircraft Nationality and Registration Marks



## ANNEX 1 – Personnel Licensing



#### Annex 1 – Personnel Licensing

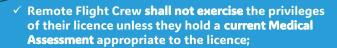
Sets Standards and Recommended Practices adopted by the International Civil Aviation Organization as the minimum standards for personnel licensing pursuant to provisions of Article 37 of the Convention. The Annex is applicable to all applicants for and, on renewal, to all holders of the licences and ratings.

- Licences and Ratings for Remote Pilots;
- Medical Provisions for Licences;
- Proficiency in Languages;
- > Approved Training Organizations



## ANNEX 1 – Personnel Licensing

The applicant for the issue of the remote pilot licence shall not be less than 18 years of age & the applicant shall have completed an approved training course.



✓ [...] applicant shall hold a current Class 3 Medical Assessment or a current Class 1 Medical Assessment.

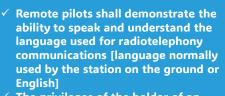
√ valid from the date of the medical examination for a period not greater than 48 months for RPL:

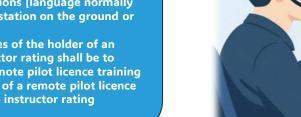
√ > 40 yrs old - 24 months;

 $\checkmark$  > 50 yrs old – 12 months

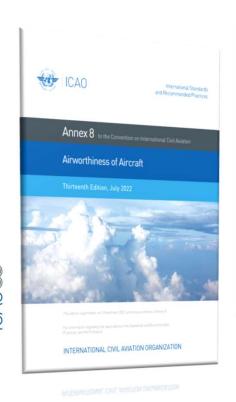
The privileges of the holder of an RPAS instructor rating shall be to carry out remote pilot licence training for the issue of a remote pilot licence and an RPAS instructor rating

For the purpose of training, testing, or specific special purpose nonrevenue flights, special authorization may be provided in writing to the remote pilot licence holder by the Licensing Authority in place of issuing the class or type rating in accordance with 2.11.4.1. This authorization shall be limited in validity to the time needed to complete the specific flight.









#### Annex 8 – Airworthiness of Aircraft

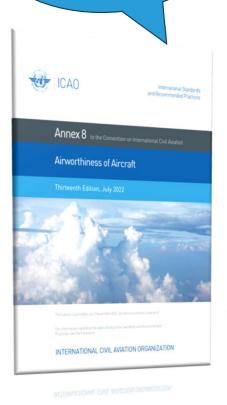
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- > Type Certification;
- Production;
- Certificate of Airworthiness;
- Part VIII Remotely Piloted Aeroplanes;
- Part IX Remotely Piloted Helicopters (RPH)
- Part X Remote Pilot Station (RPS)
- *>* ..





RPAS-related SARPs are included in Annex 8 Amendments 108 and 110 applicable in November 2026



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- Part VIII Remotely Piloted Aeroplanes;
- Part IX Remotely Piloted Helicopters (RPH)
- Part X Remote Pilot Station (RPS)
- *>* ..







As of 26 November 2026, the State of Design, upon receipt of satisfactory evidence that the aircraft, remote pilot station, engine or propeller type if certificated separately is in compliance with the design aspects of the appropriate airworthiness requirements, shall issue a Type Certificate to define the type design and to signify its approval of the design of the aircraft type.

Type Certification of the remotely piloted aircraft shall include the Remote Pilot Station and the C2 Link as defined in the appropriate parts.



Certificate of Airworthiness (CofA) issued to a remotely piloted aircraft shall convey evidence of the airworthy status of the remotely piloted aircraft system (RPAS), as a complete system, to ensure it conforms to the type design and is in a condition for safe operation.

It is necessary to be able to define the complete configuration of the RPA against which the CofA is issued, including all components constituting the RPAS. The configuration management record should therefore contain sufficient detail to describe all components of the RPAS



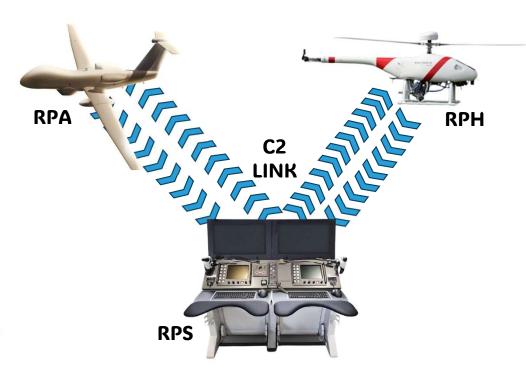
Airworthy - the status of an aircraft, remote pilot station, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

| *  | State of Registry Issuing Authority   | *                                       |
|--|---|---|
| Nationality and registration<br>marks    | Manufacturer and manufacturer's designation of remotely piloted aircraft (RPA)**  | Remotely piloted aircraft serial number |
|  |   |   |
| 4. Remote pilot station (RPS) type(s) ar | 5. Link(s) for RP   | A (C2 Link(s))***                       |
| 7 December 1944 and †                    | ssued pursuant to the Convention on Internum in respect of the above-mentioned ted and operated in accordance with the fo | remotely piloted aircraft which is      |
| † Insert reference to appropriate Airv   |   |   |
| 8. *****                                 |   |   |

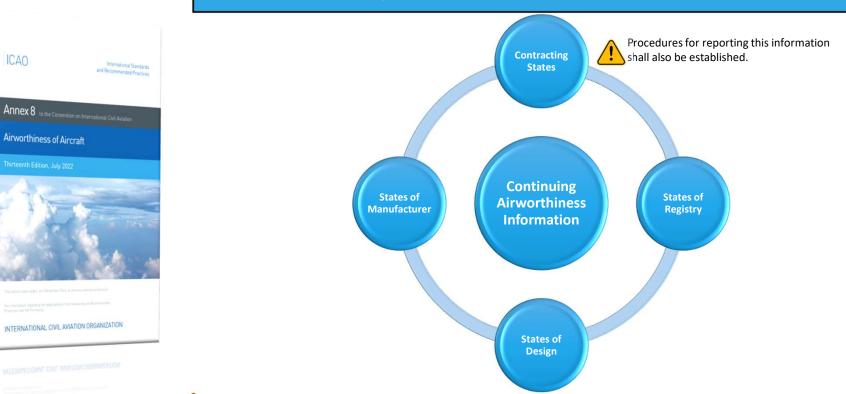
- For use of the State of Registry.
- \*\* Manufacturer's designation of remotely piloted aircraft (RPA) should contain the RPA type and model.
- \*\*\* This space should contain identification of the C2 Link(s) permitted for the command and control of the RPA to comply with the certification code and to operate in accordance with specified operating limitations.
- \*\*\* This space is normally used to indicate the certification basis, i.e. certification code, with which the particular RPA complies and/or its permitted operational category, e.g. commercial air transportation, aerial work or private.
- \*\*\*\*\* This space shall be used either for periodic endorsement (giving date of expiry) or for a statement that the RPA is being maintained under a system of continuous inspection.

#### Annex 8 - Figure 2

The Certificate of Airworthiness for all RPA shall contain the information shown in Figure 2 and shall be generally similar to it.



As of 26 November 2026, the Continuing Airworthiness Standards of are applicable to all aircraft, remote pilot stations, engines, propellers and associated parts.





The Continuing Airworthiness of Aircraft in Service (Cir 95) provides the necessary information to assist Contracting States in establishing contact with competent authorities of other Contracting States for the purpose of maintaining continuing airworthiness of aircraft in service.

#### ANNEX 10 – Aeronautical Telecommunications



#### **Annex 10 – Aeronautical Telecommunications Vol. VI**

Sets the Standards for the Communication Systems and Procedures Relating to Remotely Piloted Aircraft Systems C2 Link:

- > C2 Link Procedures:
  - Contingency and Emergency Procedures;
  - Security;
  - **>** ...
- **C2 Link System:** ▶ C2 Link System:
  - System Description;
  - Data Trasnmission;
  - > Spectrum;
  - Security;
  - > ....

Annex 10 Vol. V

CHAPTER 5. Utilization of frequencies for RPAS C2 Link communication services

# ANNEX 10 – Aeronautical Telecommunications Vol. VI

**C2CSP - C2 Link Communication Service Provider** 

An entity which provides a portion of, or all of, the C2 Link service for the operation of an RPAS.

Note - RPAS operator may also be its own C2CSP

C2 Link Specification. The minimum performance to be achieved by the C2 Link equipment in conformity with the applicable airworthiness system design requirements.

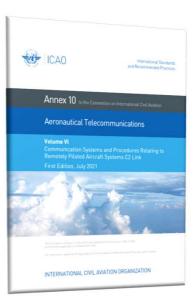
Nominal C2 Link State. The state of the RPAS when the C2 Link performance is sufficient to allow the remote pilot to actively manage the flight of the RPA in a safe and timely manner appropriate to the airspace and operational conditions.

The C2CSP shall ensure that the QoSD is at any time meeting the QoSR

The RPAS operator shall establish a service level agreement (SLA) with one or more C2CSPs concerning the C2 Link service provision.



QoSD - Quality of service delivered QoSR - Quality of service required



# ANNEX 10 – Aeronautical Telecommunications Vol. VI

When a portion of, or all of, the C2 Link(s) is under the operational control of a C2CSP, the operator shall establish an SLA with the C2CSP prior to commencing operations. SLA shall be approved by State of the Operator.

The C2CSP shall conduct, with RPAS operators, real time interference monitoring, estimation and prediction of interference risks, and planning solutions for potential harmful interference scenarios under the oversight of the competent authority.

The C2CSP shall have the qualified resources and adequate documentation that will allow competent authorities to perform their oversight.



The Service Level Agreement (SLA) details (non-exhaustive list) description.



# ANNEX 6 – Operation of Aircraft Part IV



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Chapter 1 – Definitions
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**Chapter 2 – Applicability** 

**Chapter 3 – General and Operator Responsibilities** 

**Chapter 4 – Flight Operations** 

**Chapter 5 – RPAS Performance Operating Limitations** 

Chapter 6 – RPAS Instruments, Equipment and Flight Documents

Chapter 7 – RPAS Communication, Navigation and Surveillance Equipment

**Chapter 8 – RPA Continuing Airworthiness** 

**Chapter 9 – Remote Flight Crew** 

**Chapter 10 – Flight Operations Officer/Flight Dispatcher** 

Chapter 11 - Manuals, Logs and Records

**Chapter 12 – Cabin Crew (***Reserved for future use***)** 

**Chapter 13 – Security** 

Chapter 14 – Dangerous Good

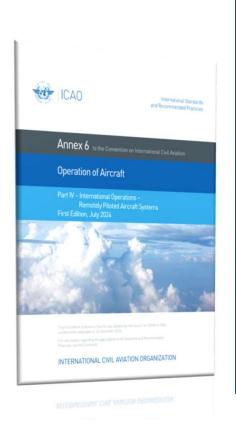
**Chapter 15 – Cargo Compartment Safety** 

**10 Appendixes** 

**12 Attachments** 

198 pages

# ANNEX 6 – Operation of Aircraft Part IV



Chapter 1 – Definitions Chapter 2 – Applicability

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198 pages



**State Letter** 

AN 11/61.1-24/37 19 Apr. 2024



#### **Categories of operation**

The operation of unmanned aircraft (UA) should be regulated in a manner that is proportionate to the risk of the particular operation. Considering the broad range of operations and types of UA, it is appropriate that categories for operations and an associated regulatory regime covering the whole range of possible operations be established by <u>States</u>. Such a categorization scheme is outlined below:

(xviii)

- a) Open (low risk). For this category, provided that operations are conducted within defined limitations (e.g. visual line-of-sight (VLOS) only, specified distances from aerodromes and persons, maximum height above ground level (AGL)), flights can take place without the need for an authorization from the appropriate authority.
- b) Specific (medium risk/regulated lower risk). This category of operation would require an operational authorization from an appropriate authority prior to the flight(s) taking place; appropriate limitations/restrictions would be applied based on the type of operation, complexity of the UAS and the specific qualifications and experience of operating personnel. Approval for the operation would be based on analysis of a safety risk assessment and any mitigations employed to reduce any risks to an acceptable level. This category encompasses operations where the risk to persons being overflown is greater than what would be permitted in category a), or involves sharing the airspace with other manned or unmanned aircraft, but is at a level below that where the full application of manned aviation principles would be warranted.
- c) Certified (certified airworthiness approach). This category utilizes the same method used for regulating manned aviation, because the aviation risks, and hence the aviation safety requirements, associated with the operation have increased to an equivalent level. Operator certification, remote flight crew licensing and RPA certification will be required due to the higher associated risk. Operations in this category are primarily considered to be flown beyond visual line-of-sight (BVLOS), however portions of the flight (i.e., launch and recovery) may operate within VLOS.

"OPEN"

"SPECIFIC"

"CERTIFIED"

#### **PART 101**

Regulated low-risk Visual Line-of-sight Weight limits (<25kg) Altitude (<500ft)

- Photography;
- > Inspections;
- Reeational;...



#### **PART 102**

Operations centric-risk based
Visual Line-of-sight or
Beyond Visual Line-of-sight
Greater weights
Higher altitudes

- Long route inspections
- Deliveries

#### ICAO SARPs

Traditional approach
Integrated operations
International/IFR
Certificated aircraft, pilots, and operators

Similar to manned aviation



CAO

- ✓ Annex 6 Part IV **International RPAS Operations**, IFR, Remote Pilot and RPA Certified
- ✓ Establishes The Necessity For A **RPAS Operator** Certificate (ROC) By States (Layout Appendix 6)

"[...] for the conduct of international operations, Annex 2, Appendix 4 requires that in order to operate RPAS certificated in accordance with Annex 8, operators have an RPAS operator certificate issued in accordance with the provisions of Annex 6, Part IV and that remote pilots be licensed, or have their licences rendered valid, in accordance with the provisions of Annex 1".



#### **✓** RESPONSIBILITIES FOR:

- ✓ OPERATOR,
- ✓ STATE OPERATOR,
- ✓ STATE OPERATION OCCURS,
- ✓ STATE RPS LOCATE/OPERATE,
- **✓** REMOTE PILOT & CREW.

States involved in the operation could include the State of Registry, the State where the RPA departed, the State of intended landing and any States that are overflown.



✓ RPA Shall Be Registered IAW Annex 7.



- ✓ DIRECTIVES FOR (OPERATIONS SCOPE):
  - ✓ RPA AIRWORTHINESS (IAW ANNEX 8),
  - ✓ REMOTE PILOT CERTIFICATE (IAW ANNEX 1),
  - ✓ C2 LINK OPERATION (IAW ANNEX 10 Vol. VI),
  - ✓ RPS (LOCATION, DATA MANAGEMENT,
  - **✓ REMOTE FLIGHT CREW,**
  - ✓ OTHER OPERATIONAL ISSUES (FLIGHT PLAN, HANDOVERS, AERODROMES, CONCEPTS,...)
    - ✓ VISUALLY CAN REFER VLOS OPERATION.....
  - ✓ EMERGENCIES (LOST C2 LINK, ENGINE FAILURE, FUEL RESTRICTION,...),
  - ✓ INVESTIGATION OF ACCIDENTS/INCIDENTS.



- ✓ C2 LINK (SLA Service Level Agreement):
  - **✓** OPERATOR
  - √ C2CSP (C2 Communications Service Provider)
- **✓ DETECT & AVOID SYSTEM:** 
  - ✓ IAW ANNEX 10, Vol. IV, Parts 1 & 2 (Conflicting Airborne Traffic).
- ✓ **ELT** RPA Configure to Carry Persons On Board.



- **✓ DOCUMENTS PREVISION:** 
  - **✓ RPA**
  - **✓ RPS**



# Annex 14 to the Aerodromes

INTERNATIONAL CIVIL AVIATION ORGANIZATION

#### ANNEX 14 – Aerodromes

#### Annex 14 - Aerodromes

**Vol. I - Aerodrome Design and Operations** 

#### Vol.II – Heliports

Sets forth the minimum aerodrome specifications for aircraft which have the characteristics of those which are currently operating or for similar aircraft that are planned for introduction.

- > Certification;
- ➤ Data;
- > Specifications;
- **➢Obstacles**;
- ➤ Visual NavAids;
- **➢ Maintenance**;
- >...

Doc 9981 Aerodromes

## ICA0

#### ANNEX 14 – Aerodromes



Automation of RPA operations and a reliable C2 Link are designed to integrate the RPA and its remote pilot in the aerodrome environment safely and efficiently [...] compliance with operational procedures that exist for conventional aircraft ... must not present an undue hazard or burden ... must not degrade the current level of aviation safety or efficiency ...

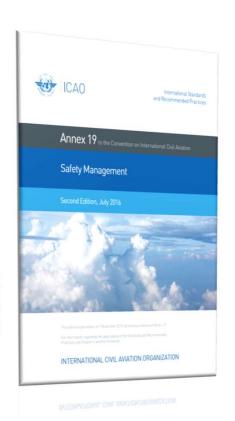


The location of the camera for RPA, vis-à-vis pilot's eye height for conventional aircraft has an impact on certain visual aids and ground movements. [...]. In this regard, the location of the camera installed on an RPA vis-a-vis a pilot's eye height in conventional aircraft may equally have important considerations on sight distance.



For operations from and to established aerodromes, the original equipment manufacturer of the RPAS may be consulted for detailed operational requirements such as launch and recovery equipment. The location areas for the launch and recovery of RPA would need to be coordinated with the aerodrome operator and other appropriate services such as ATS.

## ANNEX 19 – Safety Management



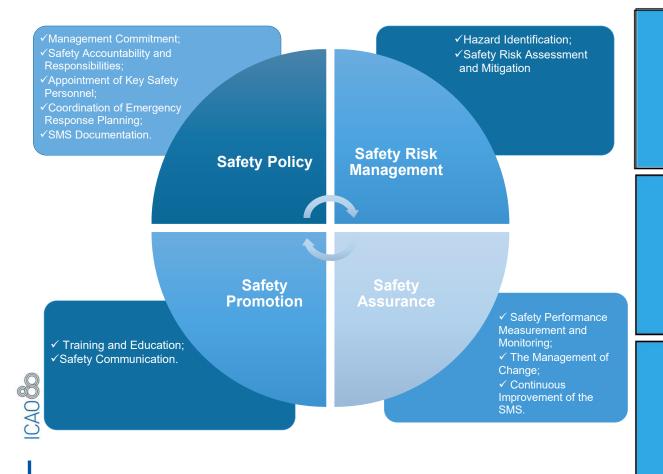
#### Annex 19 – Safety Management

this Annex are intended to assist States in managing aviation safety risks. Given the increasing complexity of the global air transportation system and its interrelated aviation activities required to assure the safe operation of aircraft, this Annex supports the continued evolution of a proactive strategy to improve safety performance. The foundation of this proactive safety strategy is based on the implementation of a State safety programme (SSP) that systematically addresses safety risks.

- States` Responsibilities;
- > Safety Management System (SMS);
- > State Safety Oversight (SSO);
- > System Critical Elements (CEs);
- >...



## ANNEX 19 – Safety Management



States shall require [...] under their authority implement an SMS:

[...] operators holding a RPAS operator certificate and authorized to conduct international operations in accordance with Annex 6, Part IV;

SMS of a certified remotely piloted aircraft system (RPAS) operator authorized to conduct international operations, in accordance with Annex 6, Part IV, shall be made acceptable to the State of the Operator.

SMS of an approved maintenance organization providing services to operators authorized to conduct international RPAS operations in accordance with Annex 6, Part IV, shall be made acceptable to the State(s) responsible for the organization's approval.

