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SAFE SKIES.
SUSTAINABLE FUTURE.

ICAO APAC Regional Office
Workshop on Unmanned Aircraft System Integration in National and High Seas Airspace

Bangkok, Thailand

November, 2025

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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.

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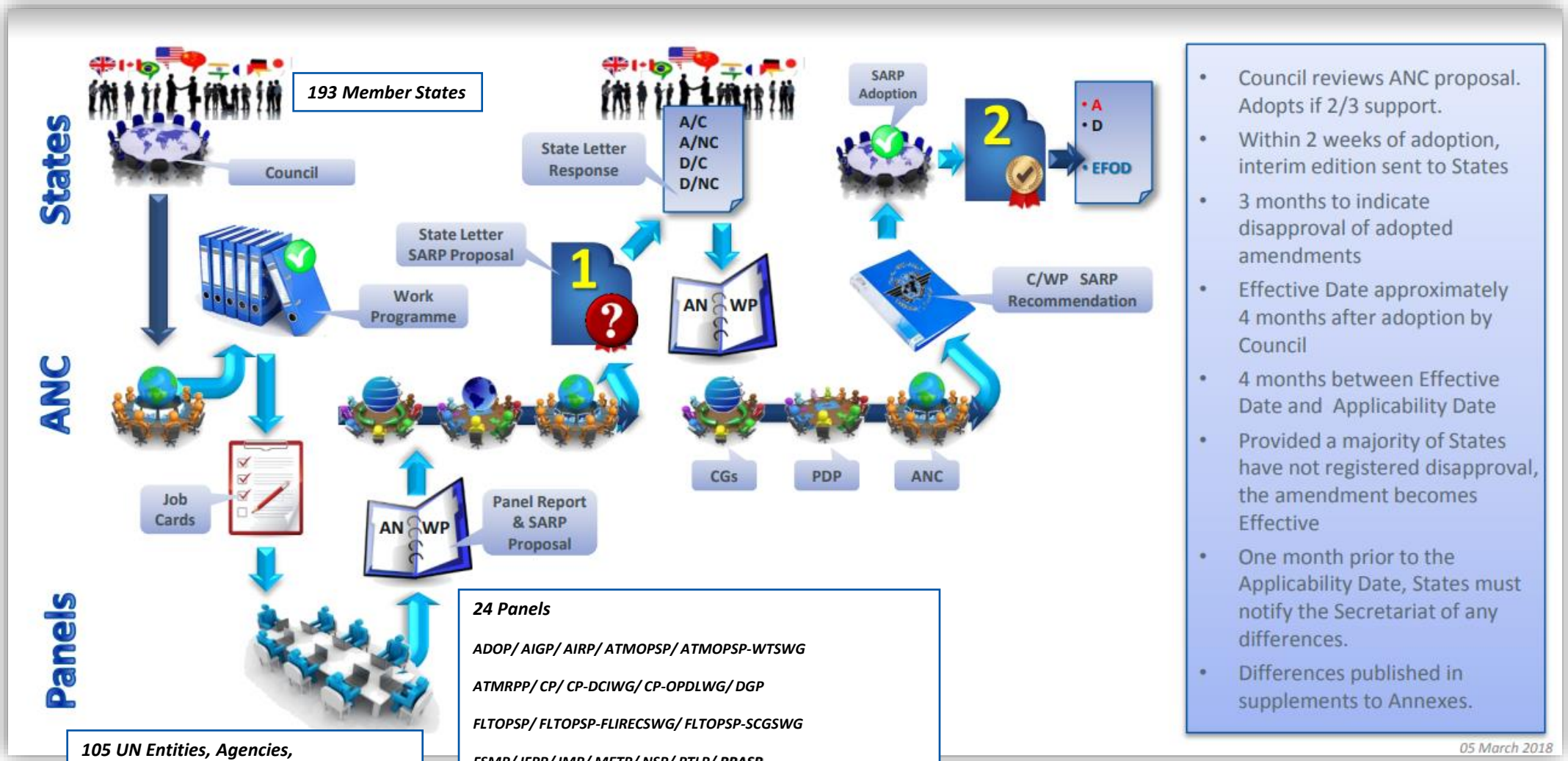
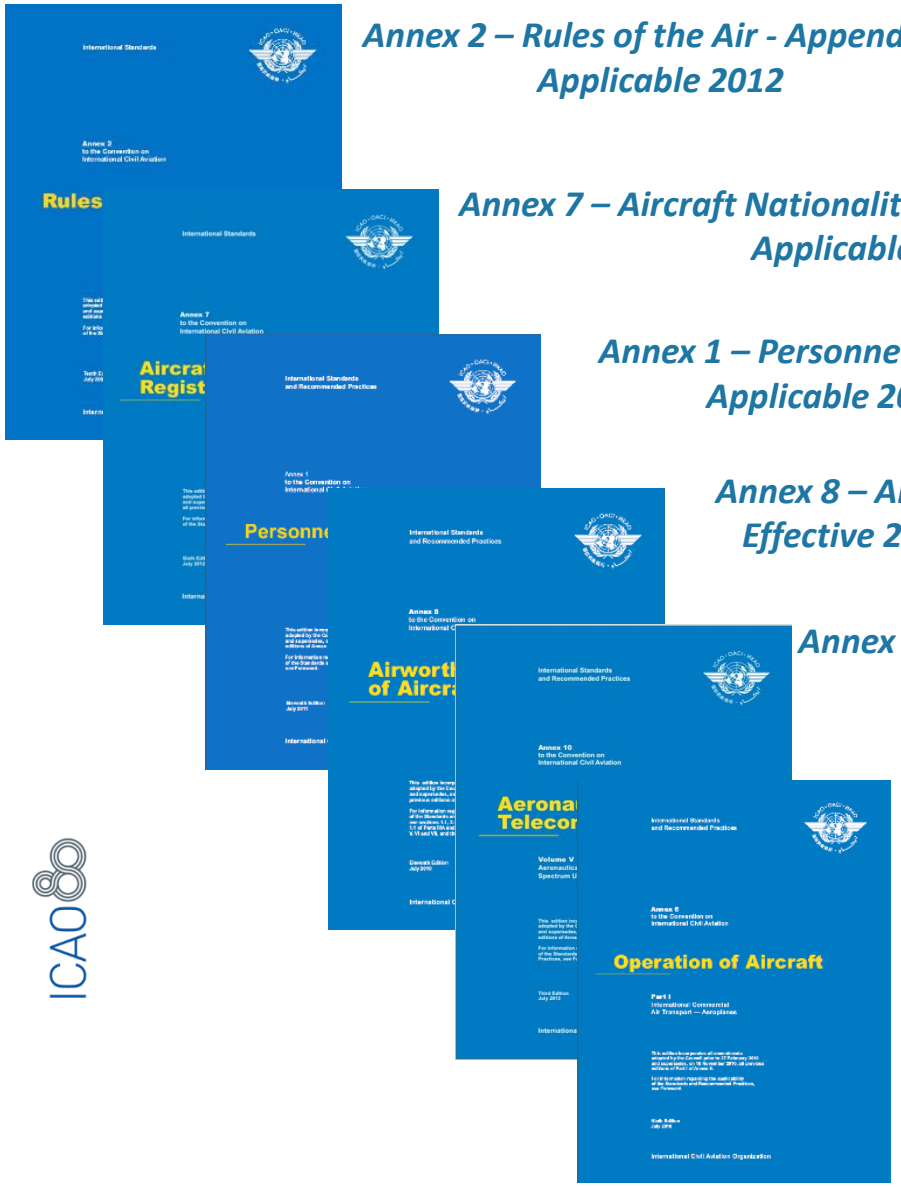
Benefits
Scalability
Reduced Oversight Burden
Simplified RPAS Operator Approvals
Simplified and Improved Performance Monitoring
Oversight at Appropriate Level
Also...

Standard and Recommended Practices - RPAS



Standard and Recommended Practices - RPAS



Annex 2 – Rules of the Air - Appendix 4
Applicable 2012

Annex 7 – Aircraft Nationality and Registration Marks
Applicable 2012

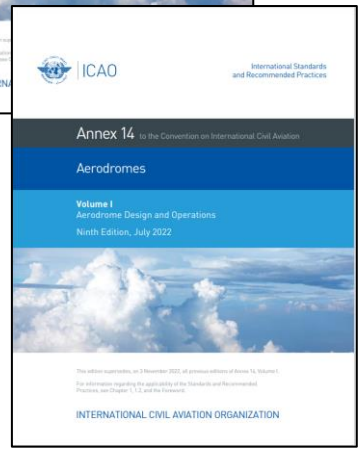
Annex 1 – Personnel Licensing
Applicable 2022

Annex 8 – Airworthiness of Aircraft
Effective 2021/ Applicable 2026

Annex 10 – Aeronautical Telecommunications - Part VI
Effective 2021/ Applicable 2026

Annex 6 – Operation of Aircraft - Part IV
Effective 2024/ Applicable 2026

Review Process
Annex 19 – Safety Management
Applicable 2026



In Progress
Annex 14 – Aerodromes
Applicable 2026

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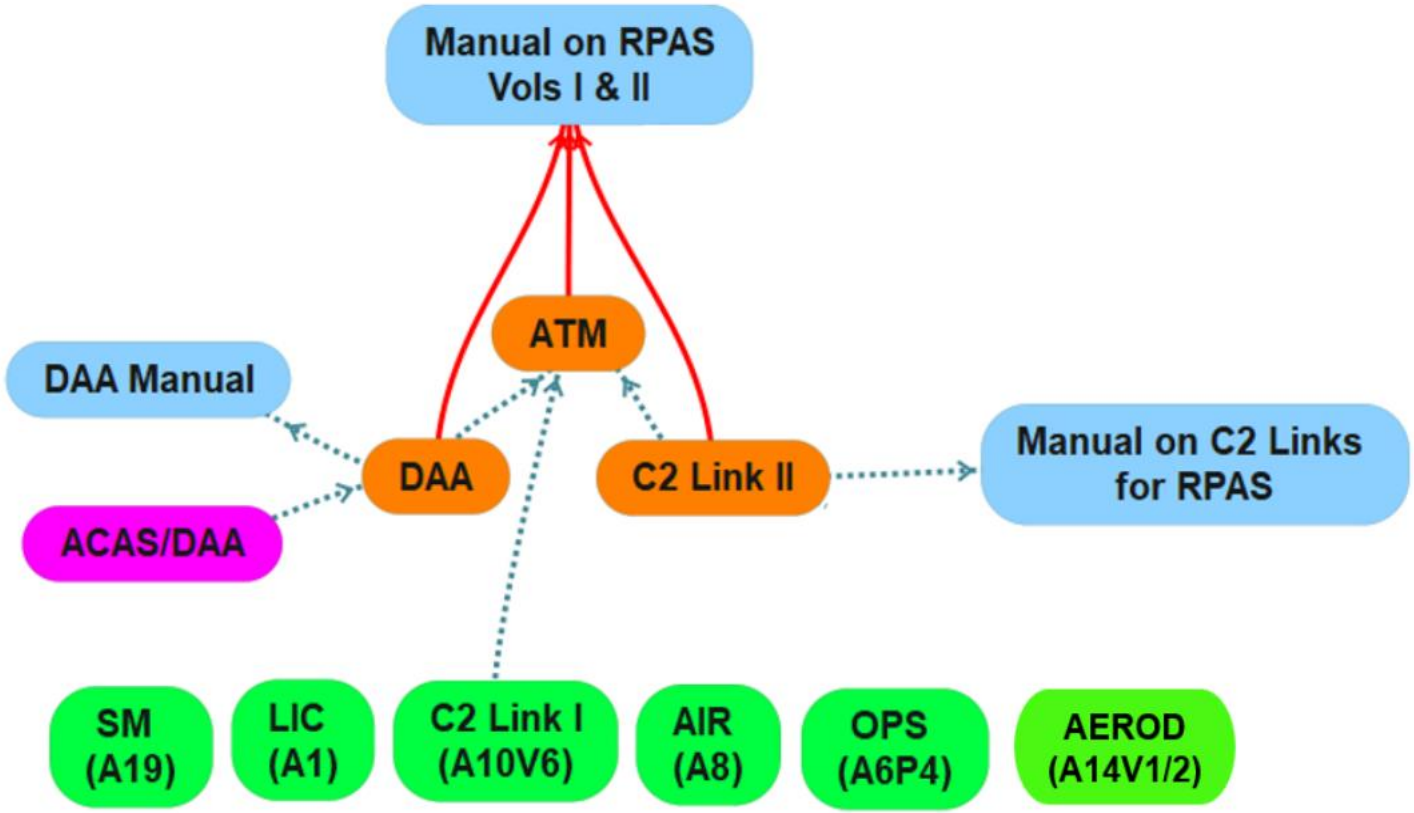
Dependencies in the RPAS work



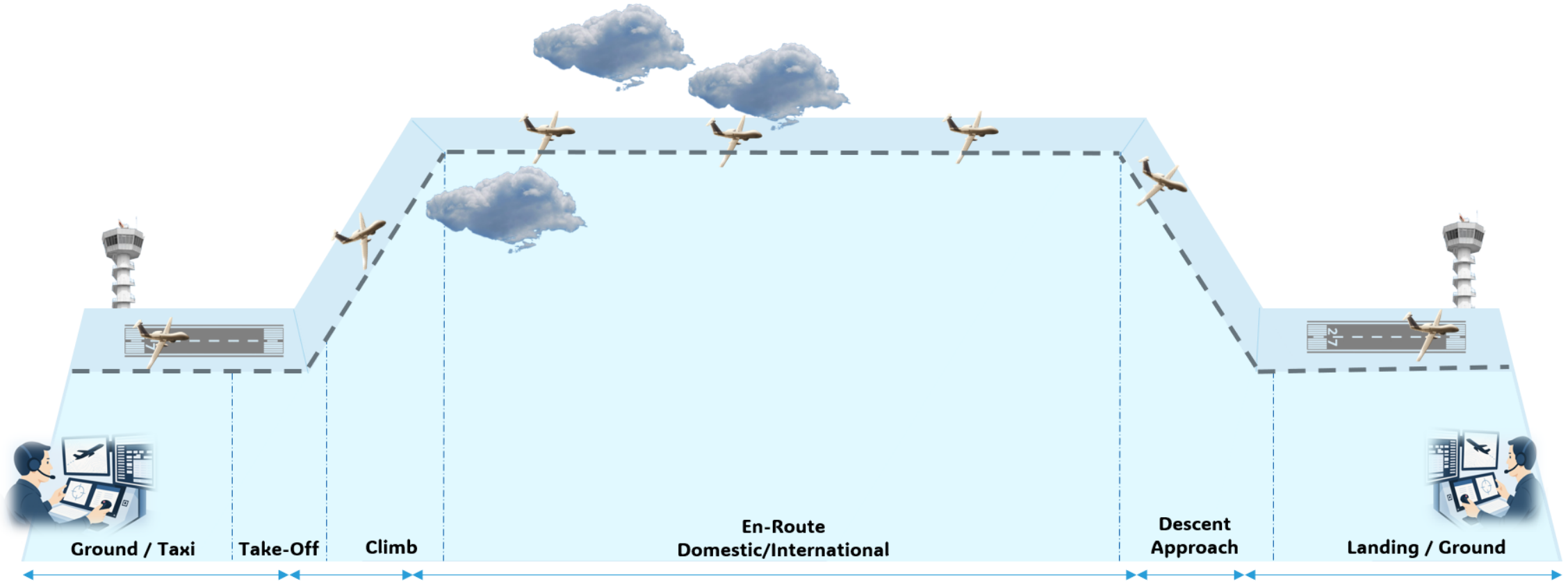
Completed (adopted) packages

Packages under development

Dependencies are between:

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

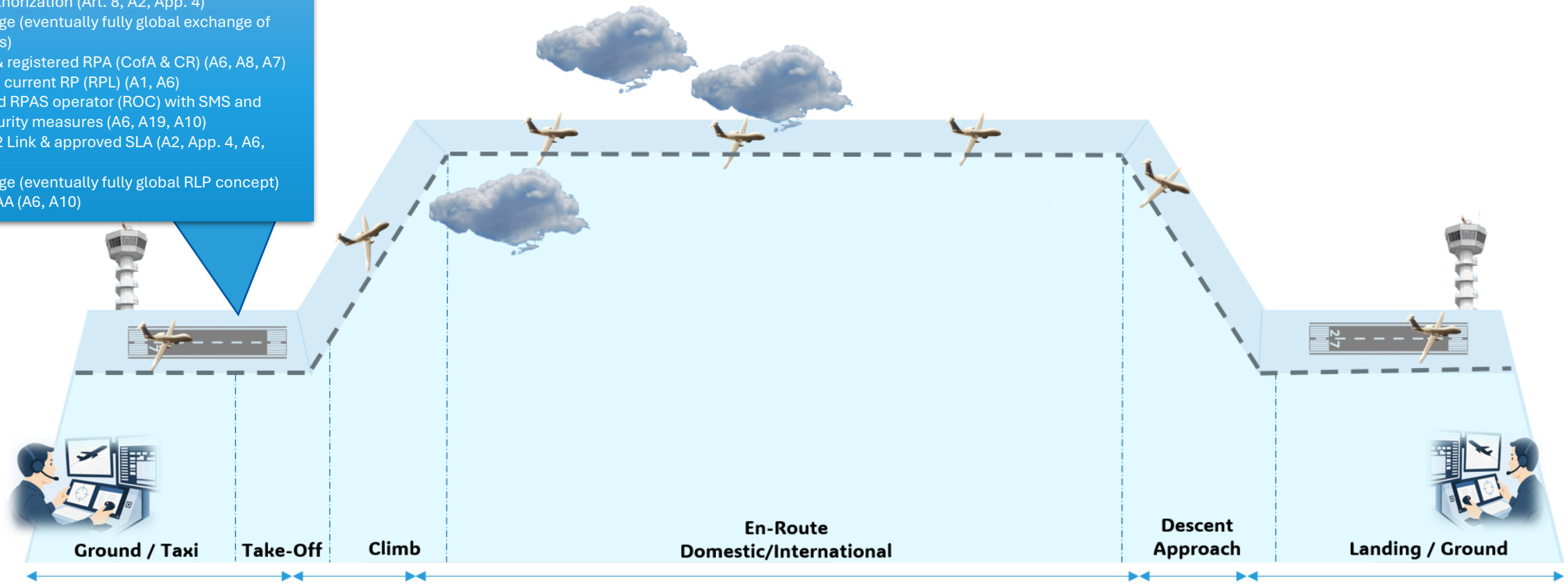
SARPs By Flight Phases



SARPs By Flight Phases

Prerequisites

- ✓ Special authorization (Art. 8, A2, App. 4)
- ✓ # initial stage (eventually fully global exchange of traffic rights)
- ✓ Airworthy & registered RPA (CofA & CR) (A6, A8, A7)
- ✓ Licensed & current RP (RPL) (A1, A6)
- ✓ Certificated RPAS operator (ROC) with SMS and (cyber)security measures (A6, A19, A10)
- ✓ Reliable C2 Link & approved SLA (A2, App. 4, A6, A10)
- ✓ # initial stage (eventually fully global RLP concept)
- ✓ Reliable DAA (A6, A10)



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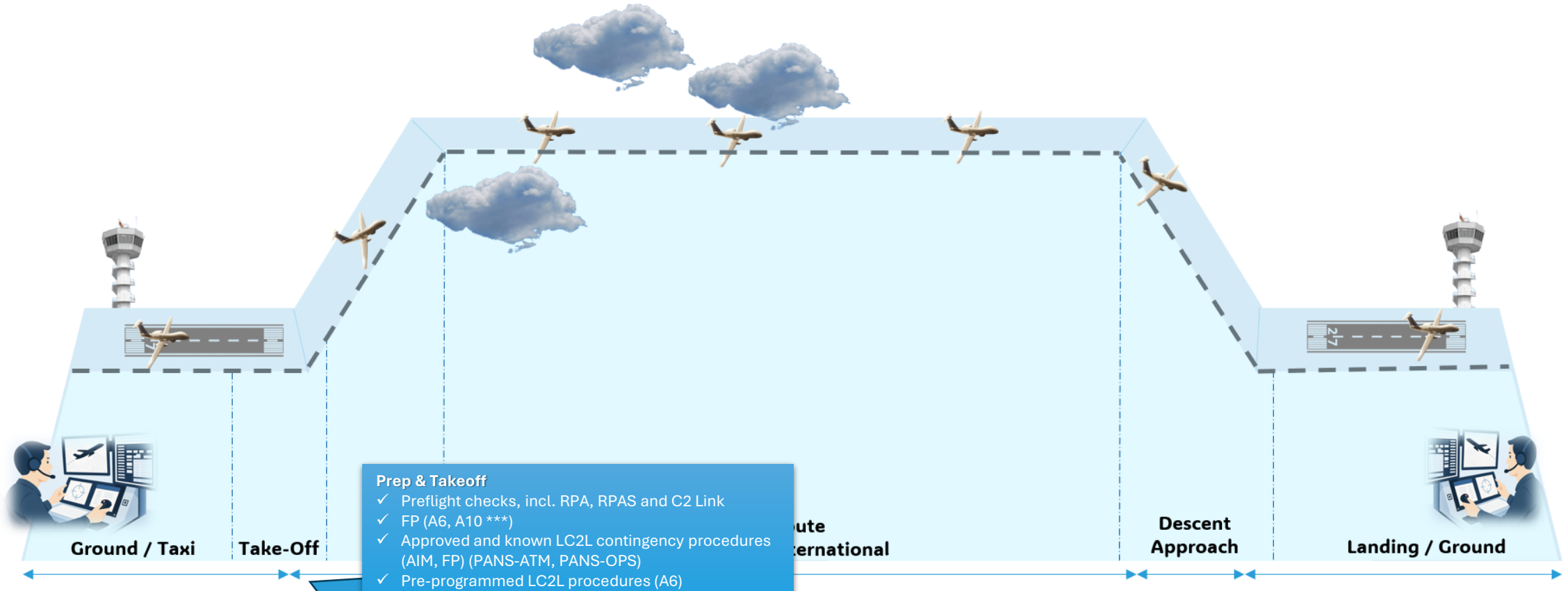
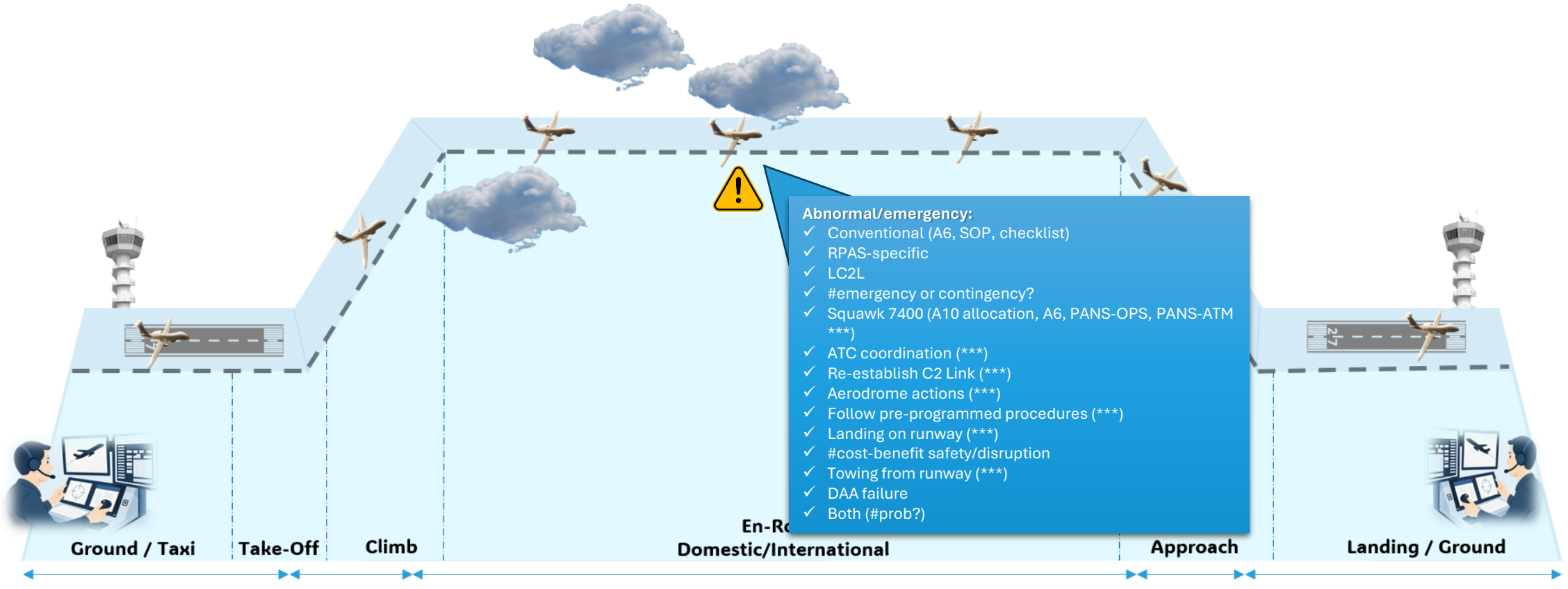
SARPs By Flight Phases



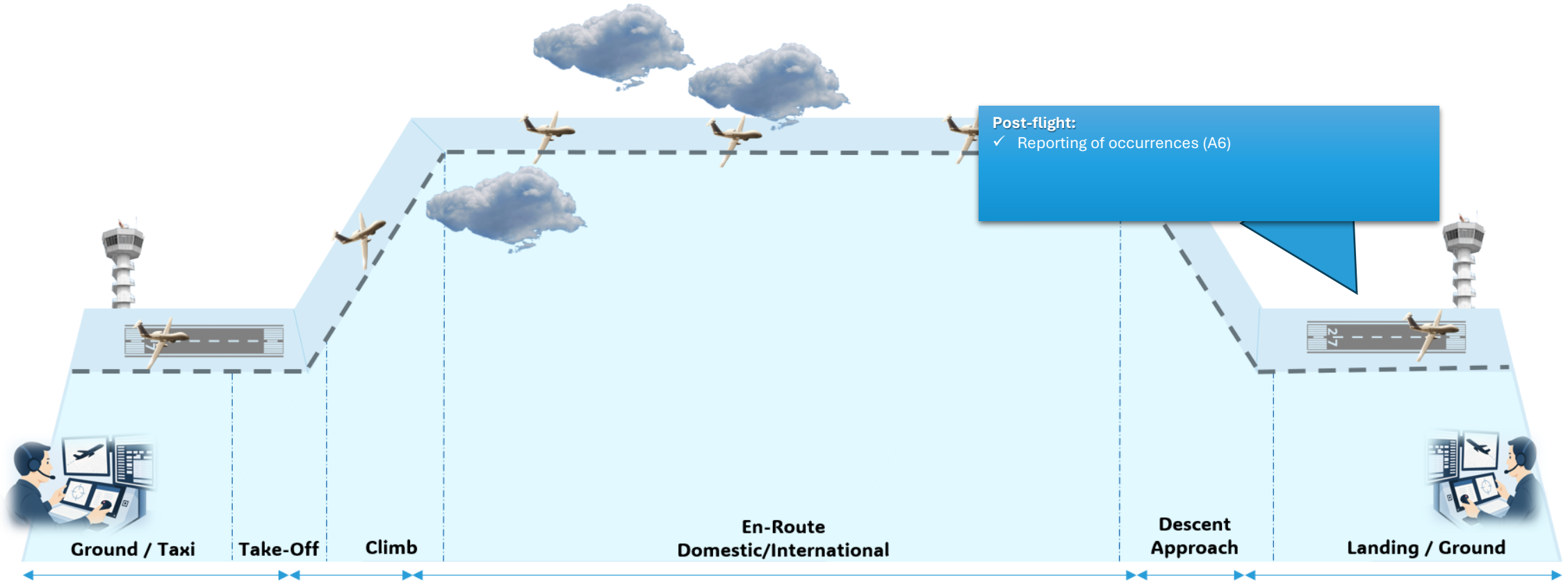
Prep & Takeoff

- ✓ Preflight checks, incl. RPA, RPAS and C2 Link
- ✓ FP (A6, A10 ***)
- ✓ Approved and known LC2L contingency procedures (AIM, FP) (PANS-ATM, PANS-OPS)
- ✓ Pre-programmed LC2L procedures (A6)
- ✓ RPAS authorized at departure/arrival/alternate aerodrome (PANS, AIM)
- ✓ #State assessment to authorize/not
- ✓ Aerodrome contingency planning & capabilities (A14)
- ✓ #PANS-AERO? Aerodrome guidance?
- ✓ ATC IFR clearances (A6, PANS, ***)

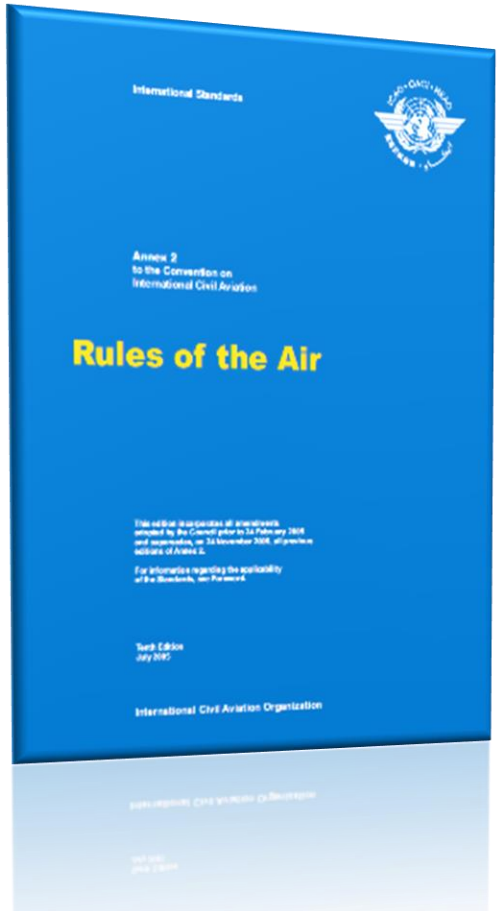
SARPs By Flight Phases



SARPs By Flight Phases



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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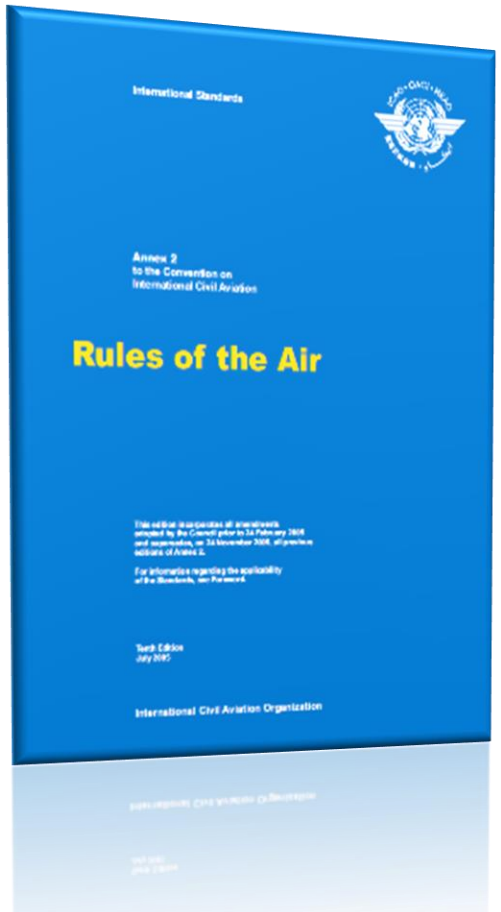
ANNEX 2 – Rules of the Air



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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

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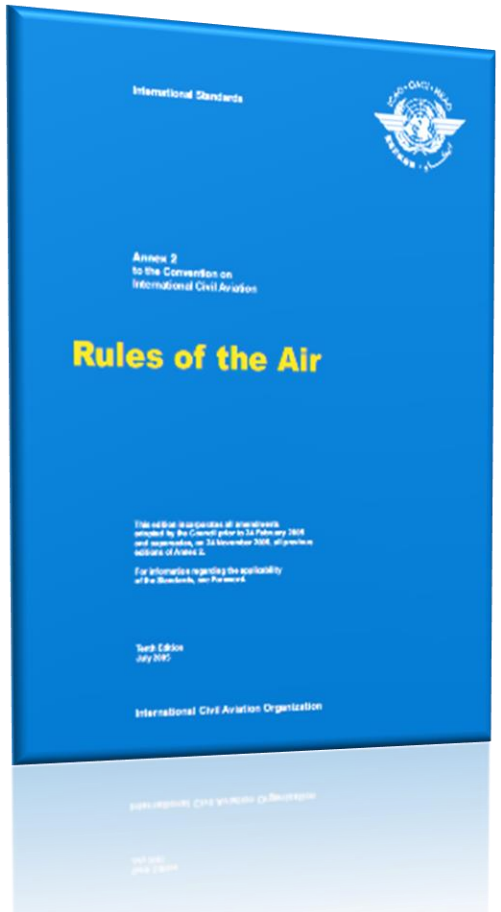
ANNEX 2 – Rules of the Air



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.

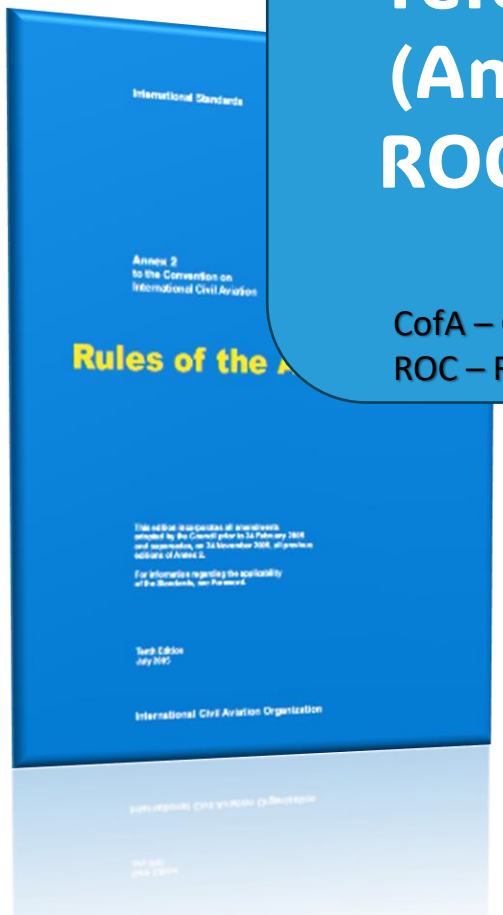
⚠ RPA shall not be operated over the high seas without prior coordination with the appropriate ATS authority.

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



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

CofA – Certificate of Airworthiness
ROC – RPAS Operator Certificate

RPA shall not be operated across the territory of another State ial authorization issued by each State in which the rate [...].

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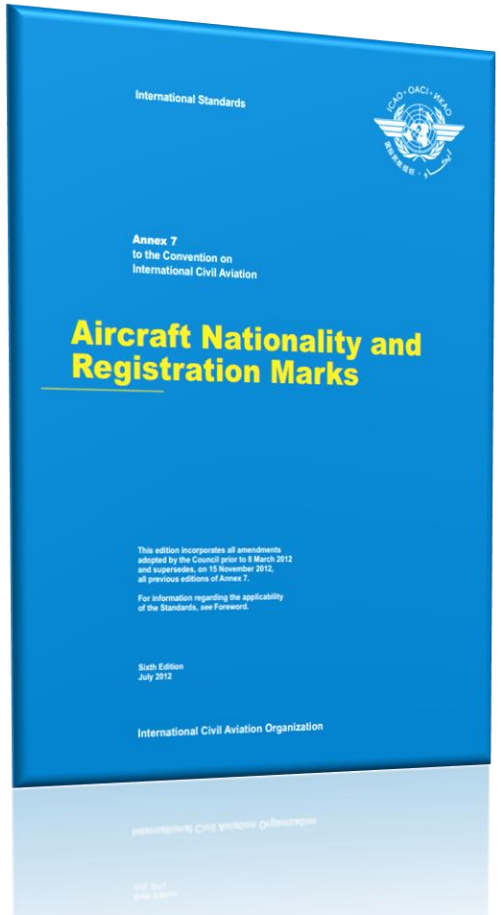
ANNEX 7 – Aircraft Nationality and Registration Marks



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;**
- **…**

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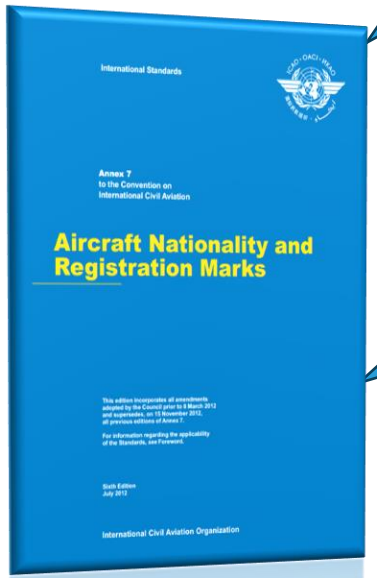
ANNEX 7 – Aircraft Nationality and Registration Marks

Unmanned Aircraft shall include Unmanned Free Balloons and RPA.

Identification Plate
secured in a prominent position near the **main entrance** or compartment or **affixed conspicuously to the exterior** of the aircraft **if there is no main entrance or compartment**



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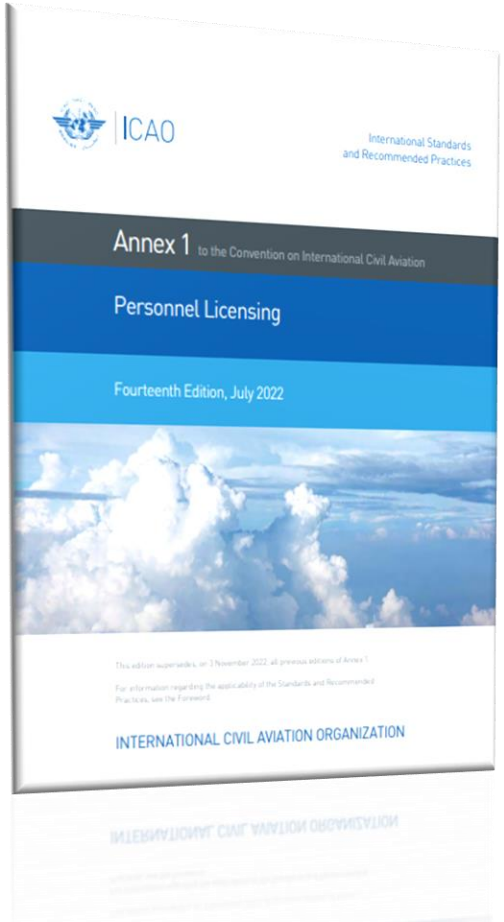
ANNEX 1 – Personnel Licensing

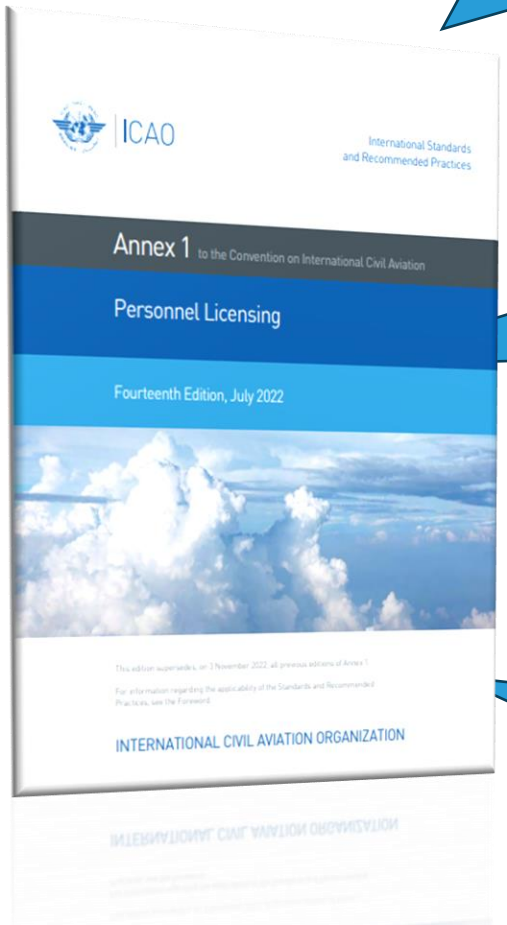


Annex 1 – Personnel Licensing
Sets Standards and Recommended Practices adopted by the International Civil Aviation Organization as the minimum standards for personnel licensing pursuant to provisions of Article 37 of the Convention. The Annex is applicable to all applicants for and, on renewal, to all 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.

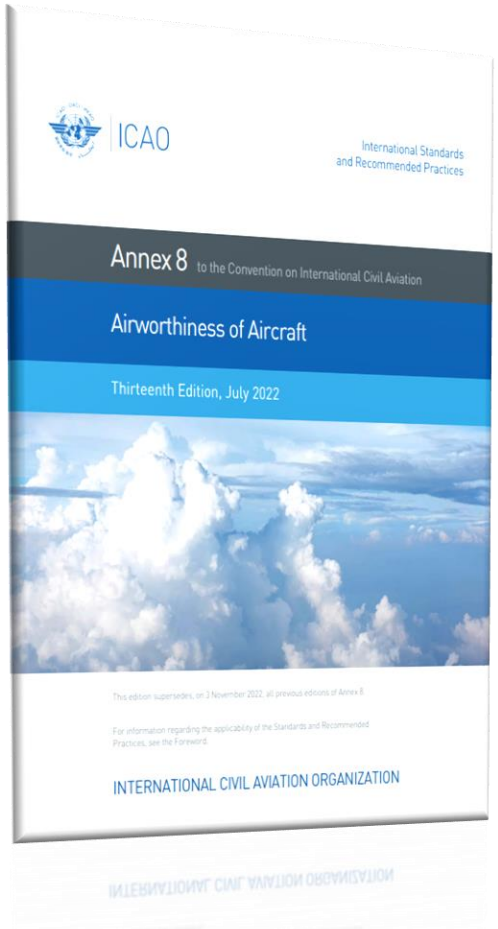


- ✓ **Remote Flight Crew shall not exercise the privileges of their licence unless they hold a current Medical Assessment appropriate to the licence;**
- ✓ **[…] applicant shall hold a current Class 3 Medical Assessment or a current Class 1 Medical Assessment.**
- ✓ **valid from the date of the medical examination for a period not greater than 48 months for RPL:**
  - ✓ **> 40 yrs old - 24 months;**
  - ✓ **> 50 yrs old – 12 months**

- ✓ **Remote pilots shall demonstrate the ability to speak and understand the language used for radiotelephony communications [language normally used by the station on the ground or English]**
- ✓ **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 non-revenue 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

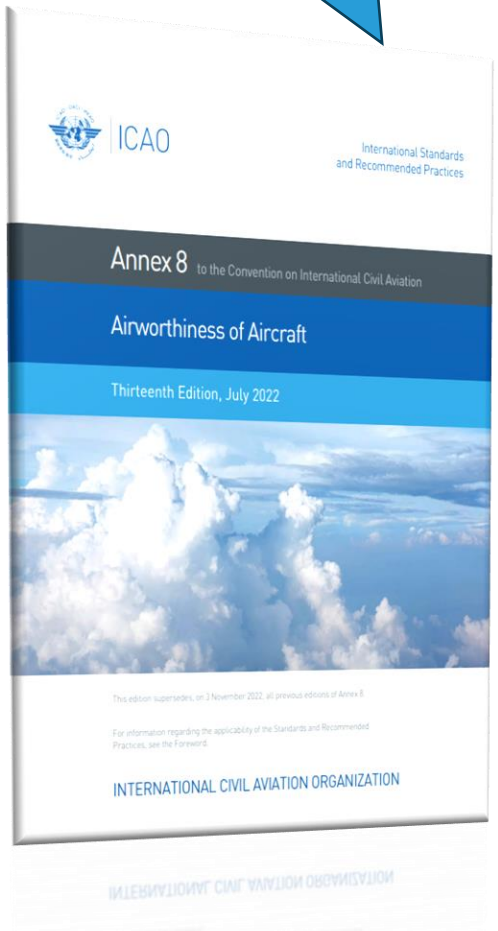


Annex 8 – Airworthiness of Aircraft
Sets Standards and Recommended Practices adopted by the International Civil Aviation Organization as the minimum standards for personnel licensing pursuant to provisions of Article 37 of the Convention. The Annex is applicable to all applicants for and, on renewal, to all holders of the licences and ratings.

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

ANNEX 8 – Airworthiness of Aircraft

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



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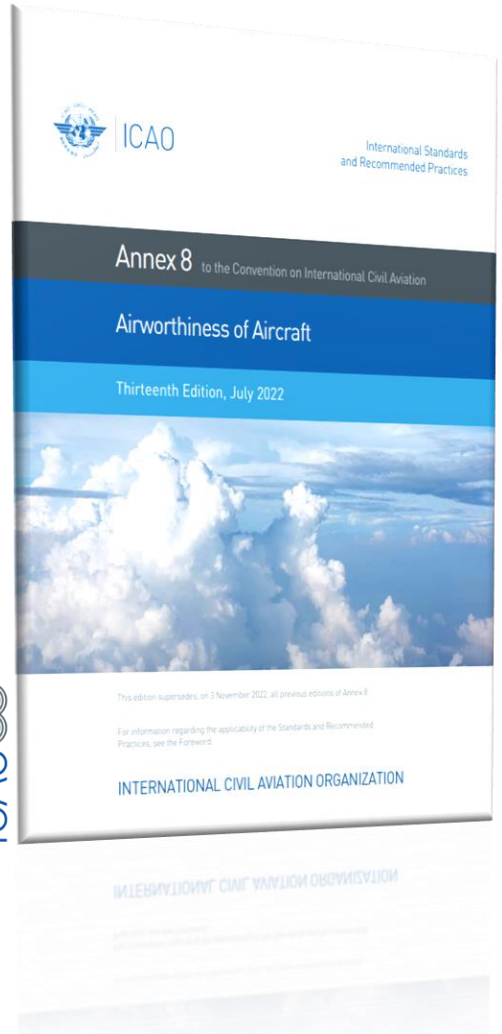
ANNEX 8 – Airworthiness of Aircraft



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.

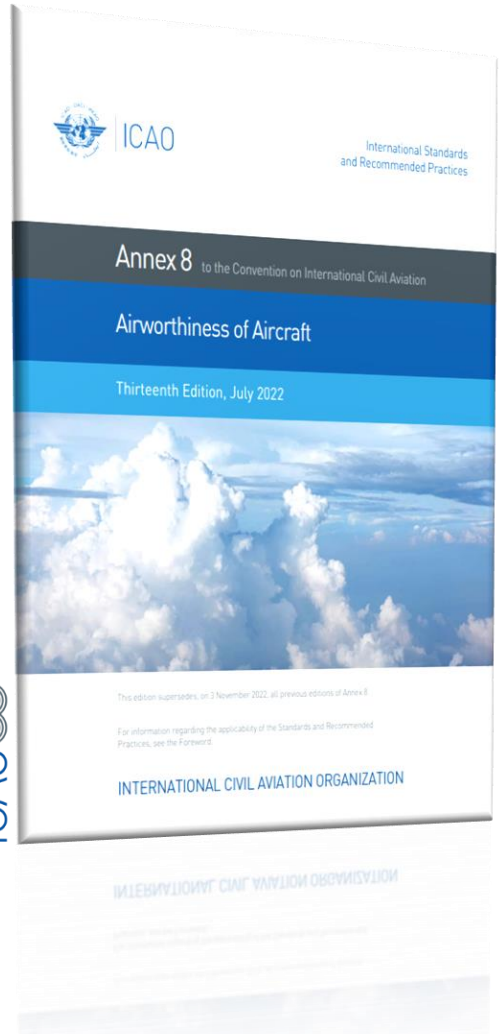
Type Certification of the remotely piloted aircraft shall include the Remote Pilot Station and the C2 Link as defined in the appropriate parts.

⚠ 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.

ANNEX 8 – Airworthiness of Aircraft



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It is necessary to be able to define the compl… RPA against which the CofA is issued, includi… constituting the RPAS. The configuration ma… therefore contain sufficient detail to describe … RPAS

Doc 9760

Airworthiness Manual – It is a good source for understanding the technical requirements of Annex 8.

⚠ Airworthy - the status of an aircraft, remote pilot station, engine, pro… approved design and is in a condition for safe operation.

ANNEX 8 – Airworthiness of Aircraft

*	*State of Registry* *Issuing Authority*	*

CERTIFICATE OF AIRWORTHINESS — RPA

1. Nationality and registration marks	2. Manufacturer and manufacturer's designation of remotely piloted aircraft (RPA)**	3. Remotely piloted aircraft serial number
.....	.....	.....
.....	.....	.....

4. Remote pilot station (RPS) type(s) and/or model(s)	5. Link(s) for RPA (C2 Link(s))***
.....	.....
.....	.....

6. Categories and/or operation****

7. This Certificate of Airworthiness is issued pursuant to the Convention on International Civil Aviation dated 7 December 1944 and †..... in respect of the above-mentioned remotely piloted aircraft which is considered to be airworthy when maintained and operated in accordance with the foregoing and the pertinent operating limitations.

Date of issue ..... Signature .....

† Insert reference to appropriate Airworthiness Code.

8. *****

* For use of the State of Registry.

** Manufacturer's designation of remotely piloted aircraft (RPA) should contain the RPA type and model.

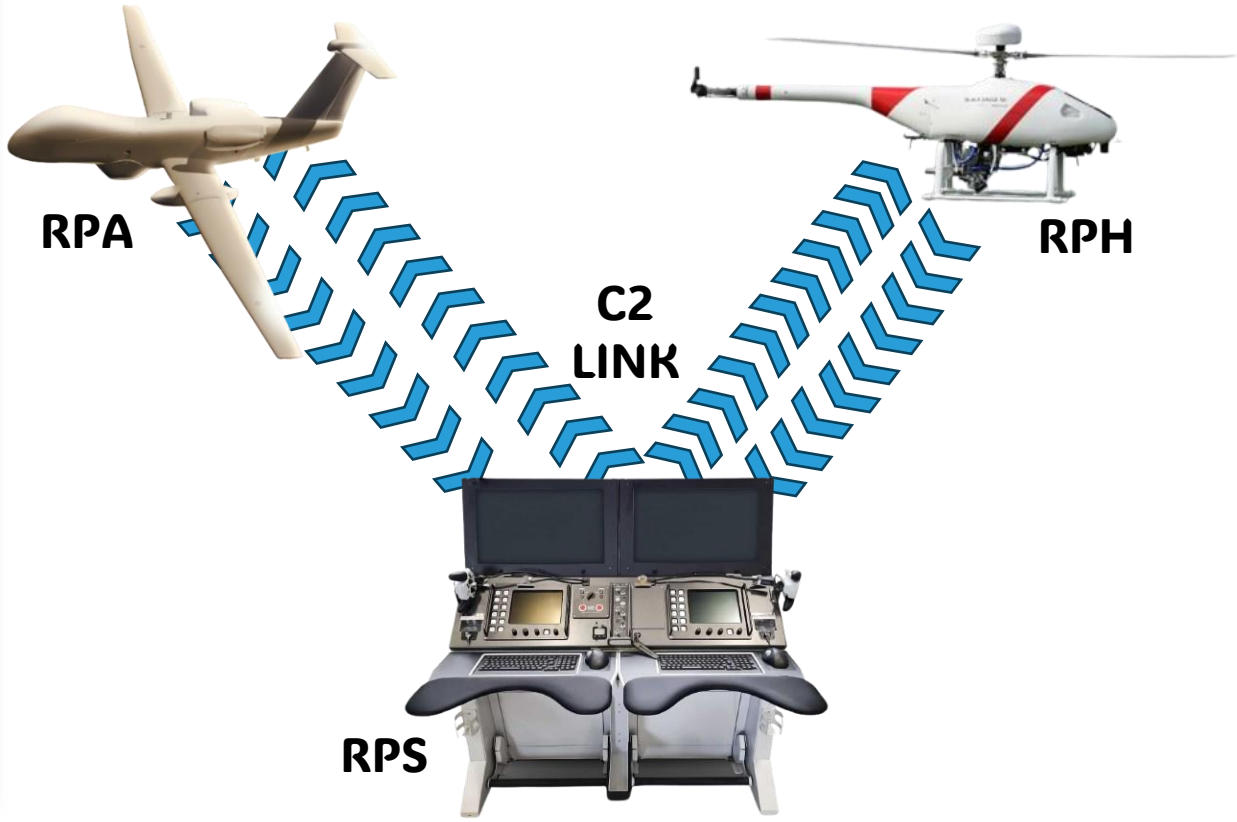
*** This space should contain identification of the C2 Link(s) permitted for the command and control of the RPA to comply with the certification code and to operate in accordance with specified operating limitations.

**** 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.

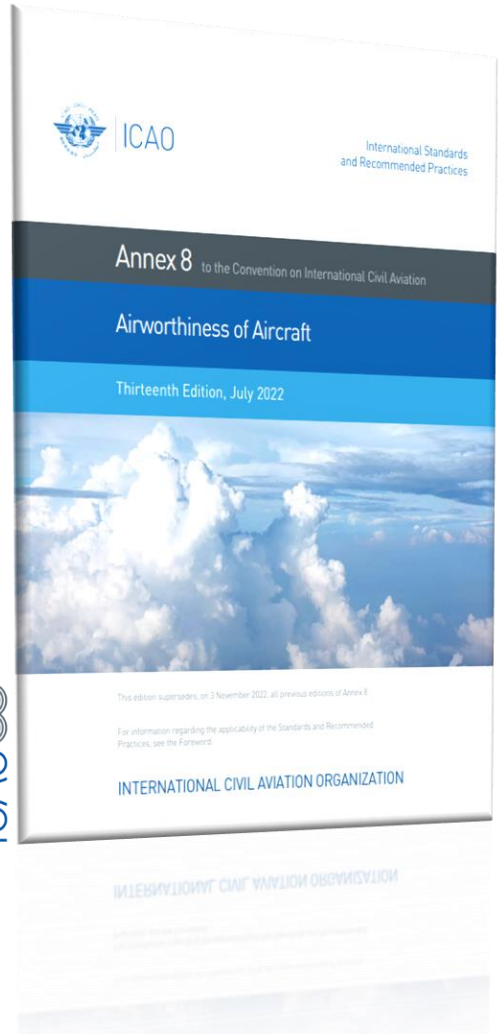
Annex 8 - Figure 2

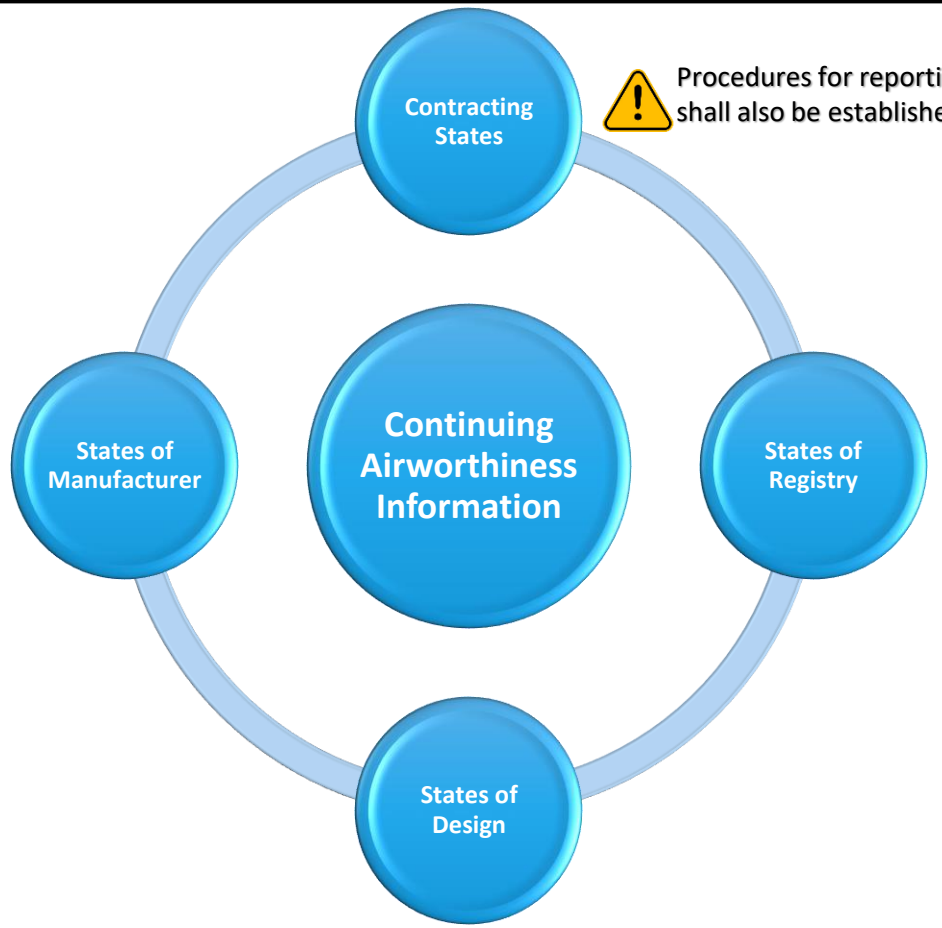
The Certificate of Airworthiness for all RPA shall contain the information shown in Figure 2 and shall be generally similar to it.



ANNEX 8 – Airworthiness of Aircraft

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

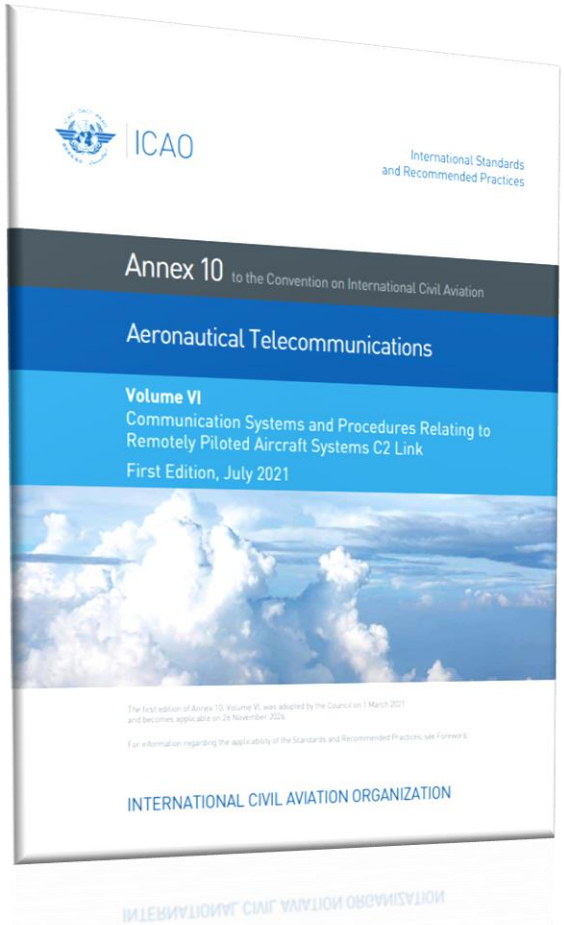




Procedures for reporting this information shall also be established.

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

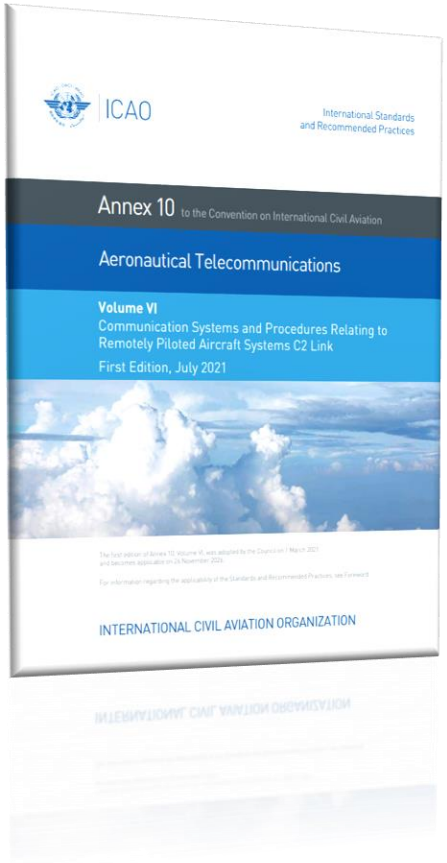
Sets the Standards for the Communication Systems and Procedures Relating to Remotely Piloted Aircraft Systems C2 Link:

- **C2 Link Procedures:**
  - **Contingency and Emergency Procedures;**
  - **Security;**
  - **…**
- **C2 Link System:**
  - **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.

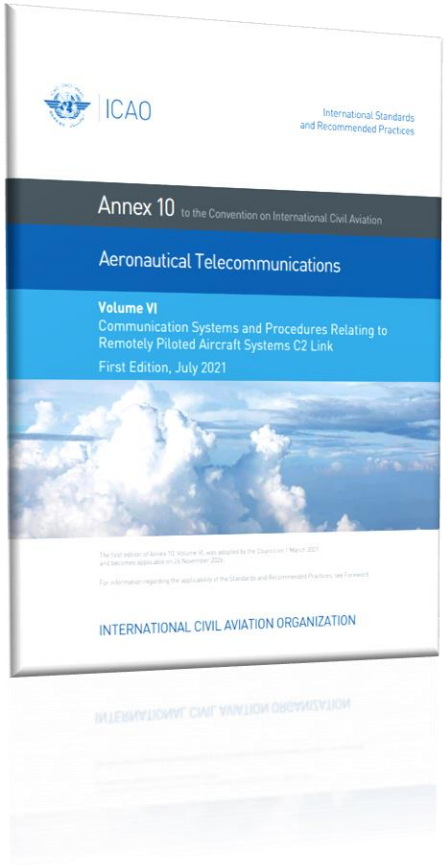
Nominal C2 Link State. The state of the RPAS when the C2 Link performance is sufficient to allow the remote pilot to actively manage the flight of the RPA in a safe and timely manner appropriate to the airspace and operational conditions.

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



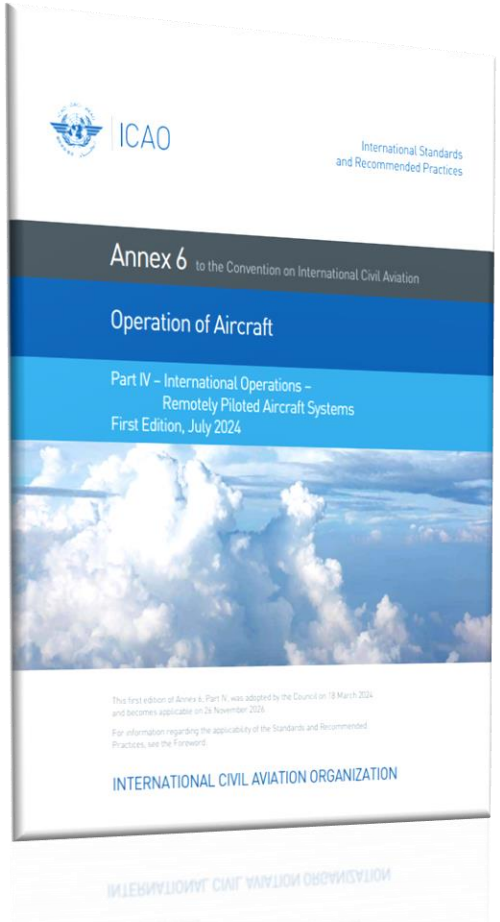
When a portion of, or all of, the C2 Link(s) is under the operational control of a C2CSP, the operator shall establish an SLA with the C2CSP prior to commencing operations. SLA shall be approved by State of the Operator.

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.

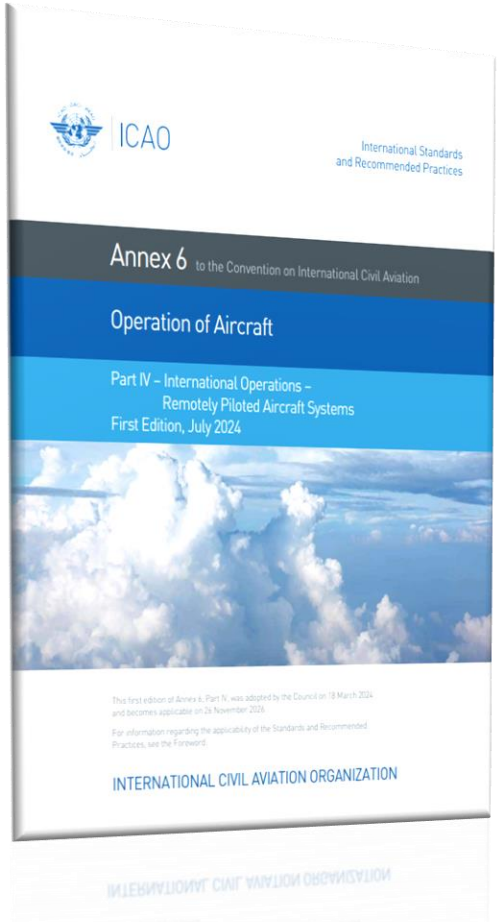
ANNEX 6 – Operation of Aircraft
Part IV



Chapter 1 – Definitions
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

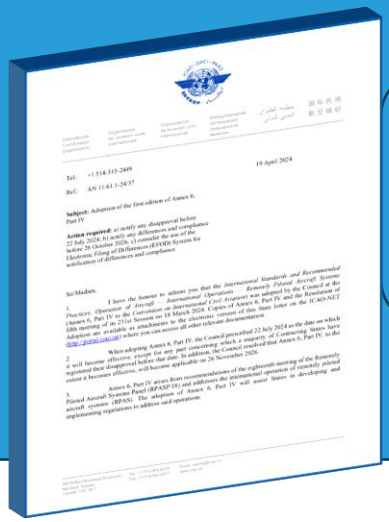
10 Appendixes
12 Attachments
198 pages

ANNEX 6 – Operation of Aircraft Part IV



Chapter 1 – Definitions
Chapter 2 – Applicability
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



State Letter

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

ANNEX 6 PART IV

ANNEX 6 - PART IV
INTERNATIONAL OPERATIONS - REMOTELY PILOTED AIRCRAFT SYSTEMS

FOREWORD

Overview

Introduction

Annex 6 – Operation of aircraft

Part IV

Categories of operation

Applicability

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 States. 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.

ANNEX 6 PART IV

"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

ANNEX 6 PART IV

- ✓ 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**".

ANNEX 6 PART IV

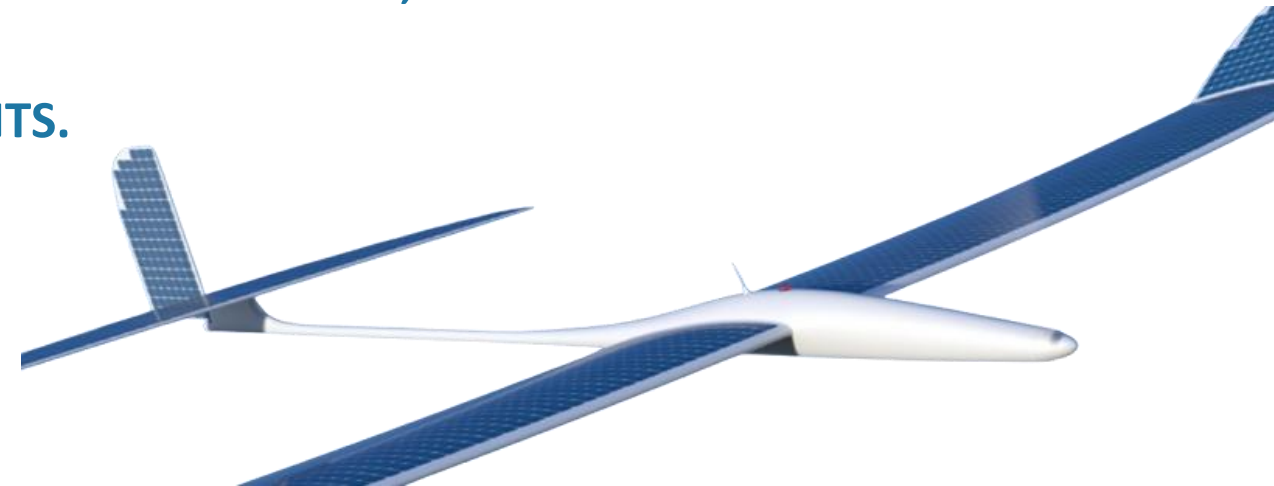
- ✓ **RESPONSIBILITIES FOR:**
  - ✓ OPERATOR,
  - ✓ STATE - OPERATOR,
  - ✓ STATE – OPERATION OCCURS,
  - ✓ STATE - RPS LOCATE/OPERATE,
  - ✓ REMOTE PILOT & CREW.

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.

ANNEX 6 PART IV

- ✓ 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.



ANNEX 6 PART IV

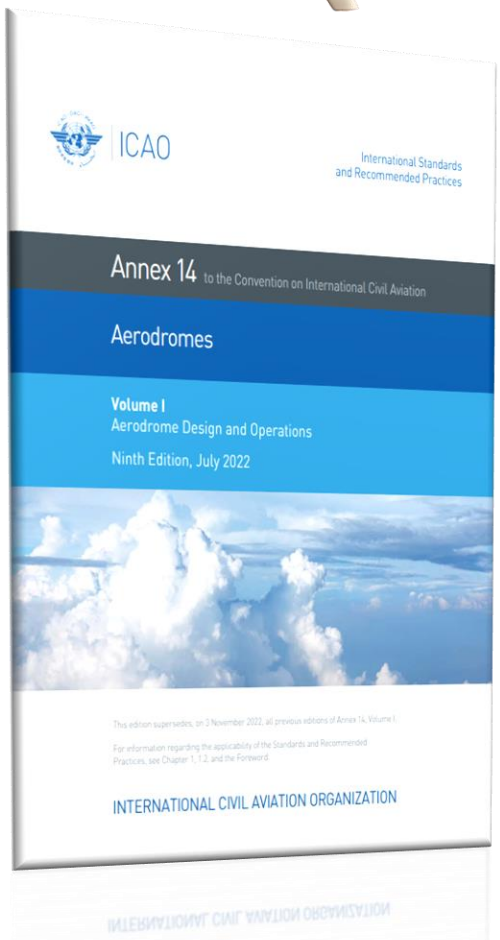
- ✓ **C2 LINK (SLA – Service Level Agreement):**
  - ✓ **OPERATOR**
  - ✓ **C2CSP (C2 Communications Service Provider)**

- ✓ **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 – Aerodromes



Annex 14 – Aerodromes

Vol. I - Aerodrome Design and Operations

Vol.II – Heliports

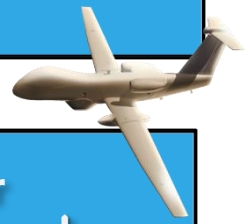
Sets forth the minimum aerodrome specifications for aircraft which have the characteristics of those which are currently operating or for similar aircraft that are planned for introduction.

- **Certification;**
- **Data;**
- **Specifications;**
- **Obstacles;**
- **Visual NavAids;**
- **Maintenance;**
- **…**

Doc 9981
Aerodromes

ANNEX 14 – Aerodromes

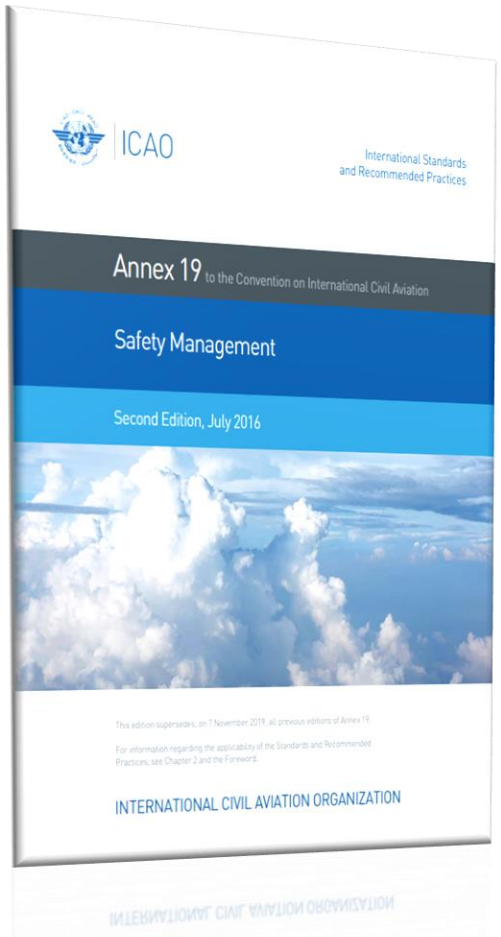
Automation of RPA operations and a reliable C2 Link are designed to integrate the RPA and its remote pilot in the aerodrome environment safely and efficiently [...] compliance with operational procedures that exist for conventional aircraft ... must not present an undue hazard or burden ... must not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



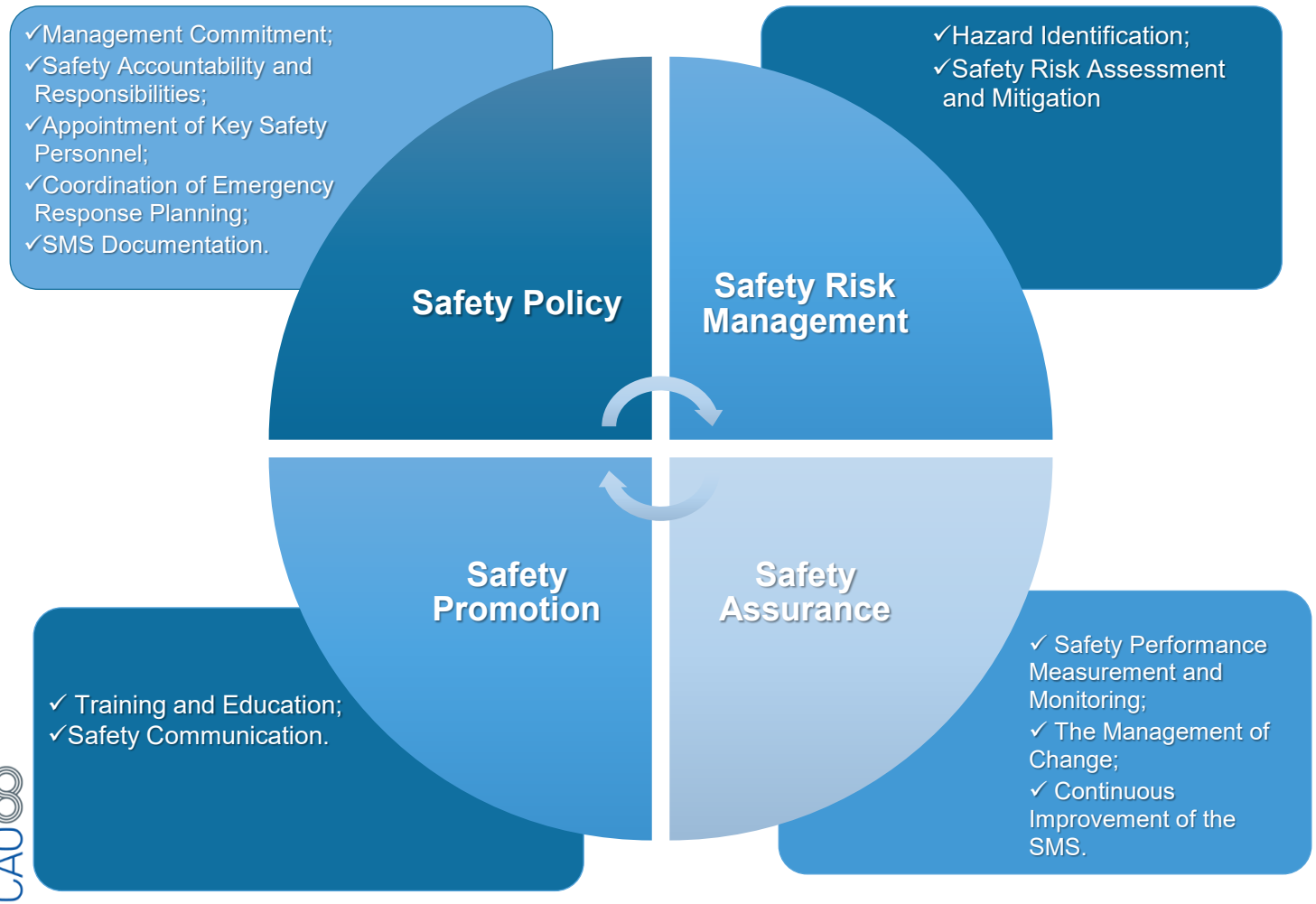
Annex 19 – Safety Management

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);**
- **…**

ICAO

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.

Thank You

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