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FUTURE.

ICAO UNMANNED AVIATION: An Overview

ICAO APAC - The Second Webinar on UAS/RPAS

11- 12 December 2024

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UAS/RPAS Technical Expert,
RPAS Section
Air Navigation Bureau (ANB)

OVERVIEW

- SCOPE OF ICAO WORK ON UNMANNED AVIATION
- BVLOS OPERATIONS
- ANNEX 6 PART IV
- ICAO RESOURCES

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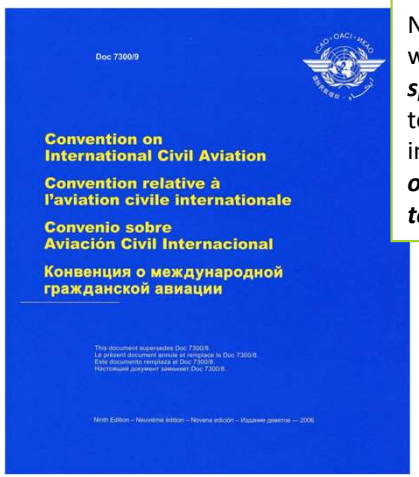
SCOPE OF ICAO WORK ON UNMANNED AVIATION



Doc 7300
Convention on International Civil Aviation (1944)

Article 8

Pilotless aircraft

No aircraft capable of being ***flown without a pilot*** shall be flown without a pilot over the territory of a contracting State ***without special authorization*** by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of ***such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft***.

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SCOPE OF ICAO WORK ON UNMANNED AVIATION

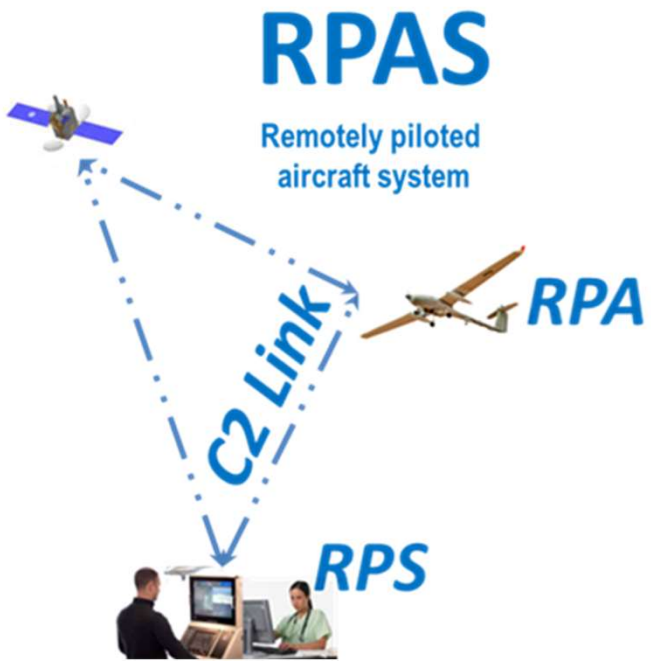
FEATURES

- Multiple Frameworks;
- Global Multiple Applications;
- Beneficial Outcomes;
- Manned Aviation Risks…
  - RPA to operate alongside manned aircraft, as a predictable, cooperative airspace user: All **19 Annexes** affected
  - RPASP - Priority given to **fundamentals** for **international** operations

SCOPE OF ICAO WORK ON UNMANNED AVIATION

An **RPAS** consists of**:**

- One (1) **RPA**
- One (1) **or more RPS**
- **RPA and RPS** connected by **C2 Link** (in direct radio line-of-sight or BRLOS, such as via satellite)
- **other components** essential for flight, like manned aircraft, including:
  - ATC communications and surveillance equipment (radio coms; CPDLC; ADS-B; SSR transponder)
  - navigation equipment
  - launch and recovery equipment (e.g. catapult, winch, rocket, net, parachute, airbag
  - flight control computer (FCC), FMS and autopilot
  - system health monitoring
  - flight termination system



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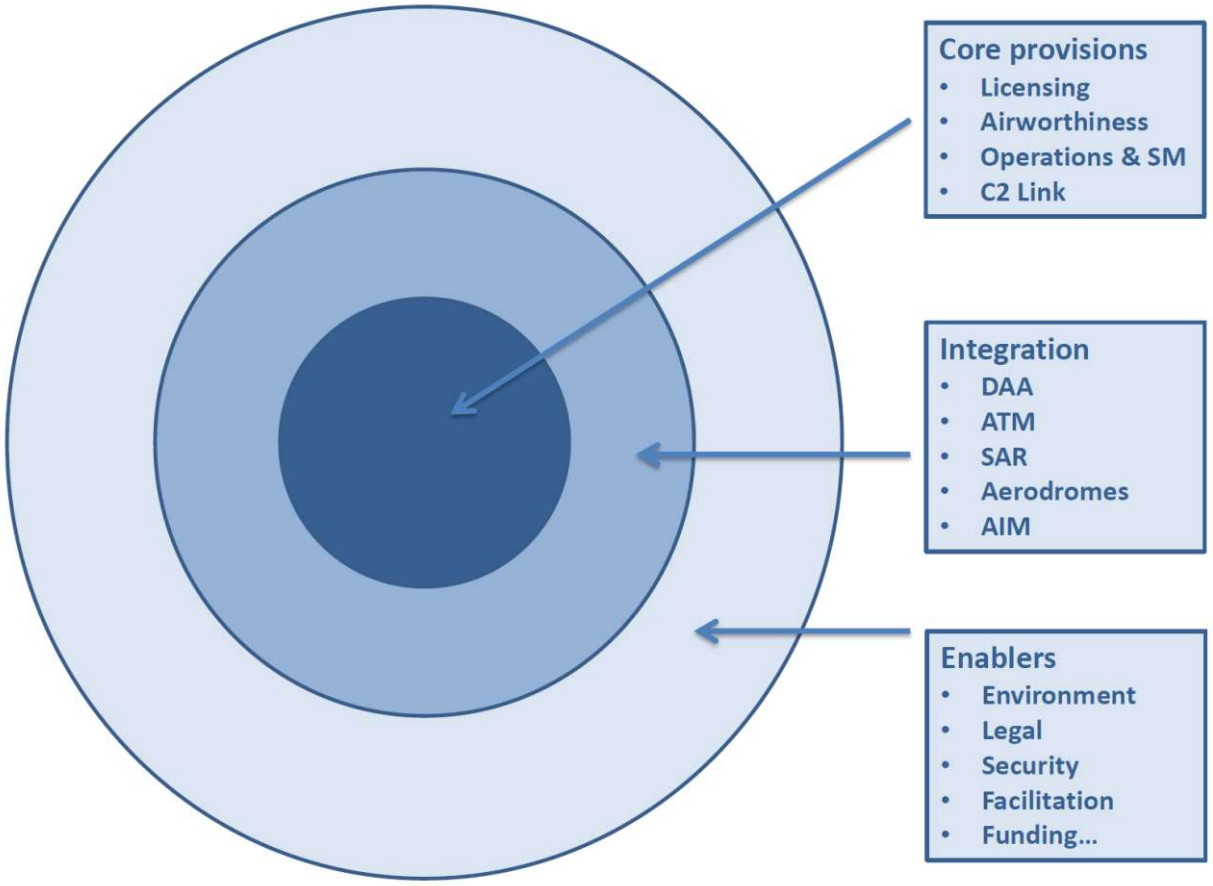
SCOPE OF ICAO WORK ON UNMANNED AVIATION



- ✓ **Core provisions** for **international** air navigation
- ✓ **Additional requisites for safe international navigation**
- ✓ **Other ICAO work to integrate RPAS into international aviation**

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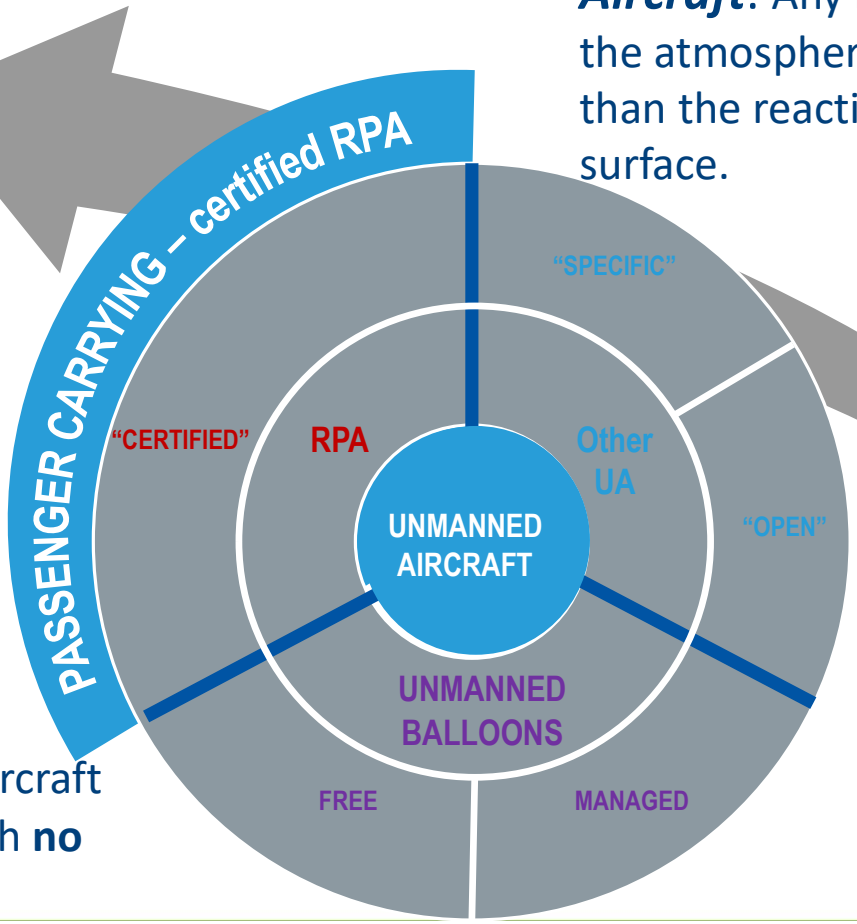
SCOPE OF ICAO WORK ON UNMANNED AVIATION

Aircraft. Any machine that can derive support in the atmosphere from the **reactions of the air** other than the reactions of the air against the earth's surface.

UA=Aircraft



Unmanned aircraft. An aircraft intended to be operated with **no pilot on board**

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SCOPE OF ICAO WORK ON UNMANNED AVIATION

UNMANNED AIRCRAFT SYSTEM STUDY GROUP (UASSG)
2008 - 2014

CIRC 328 – Unmanned Aircraft Systems (2011)

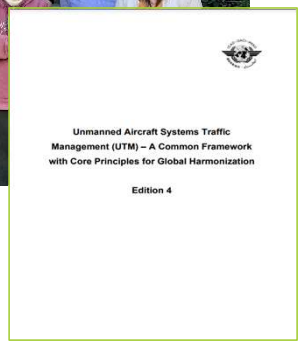
REMOTELY PILOTED AIRCRAFT SYSTEMS PANELS (RPASP)
2014

- ✓ ***> 130 experts***
- ✓ ***13 WGs/TFs***
- ✓ ***19 Annexes***

DOC 10019 – Manual on Remotely Piloted Aircraft Systems (2015)

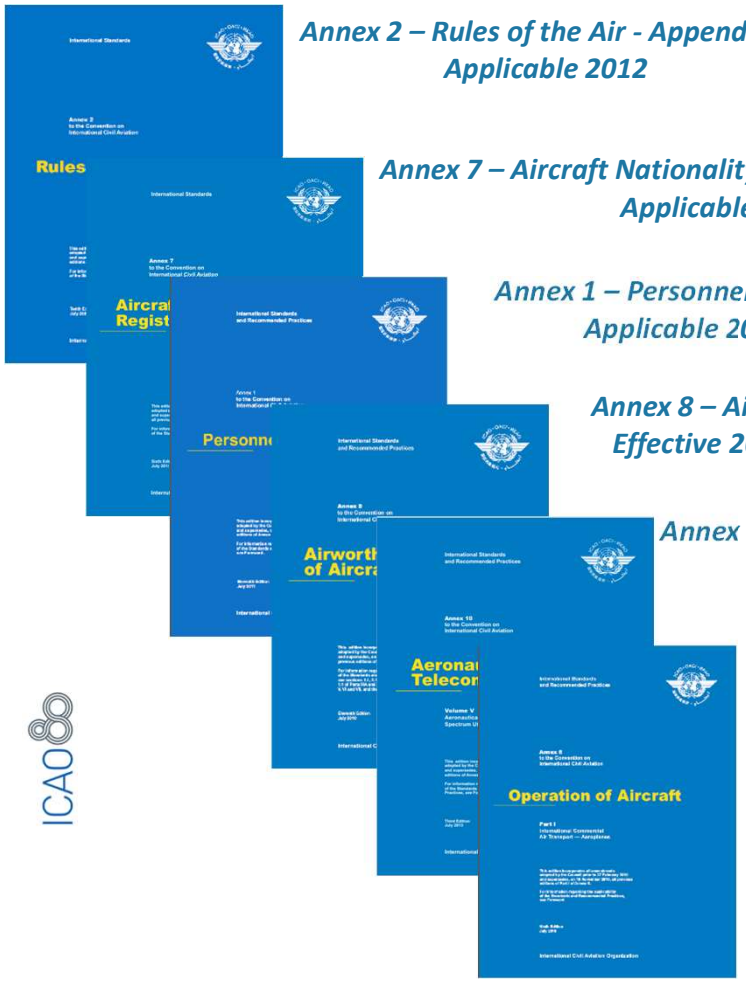
UNMANNED AIRCRAFT SYSTEMS – ADVISORY GROUP (UAS-AG)
2017 - 2023

- ✓ ***> 20 experts***
- ✓ ***6 Drone Enable***
- ✓ ***UTM framework***



UTM
A Common Framework with Core Principles for Global Harmonization (4ed. 2023)

SCOPE OF ICAO WORK ON UNMANNED AVIATION



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

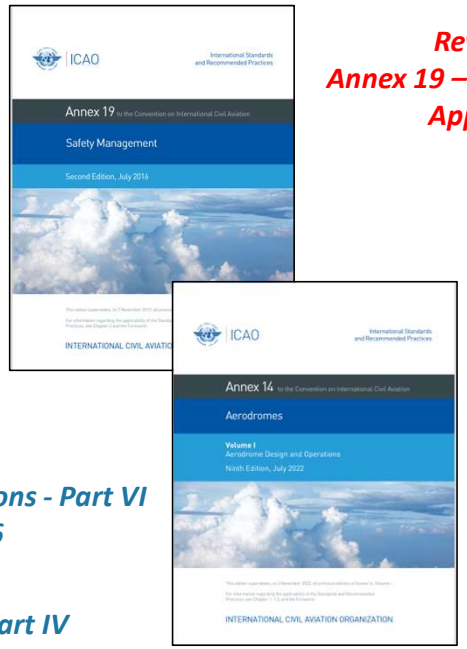
Annex 7 – Aircraft Nationality and Registration Marks
Applicable 2012

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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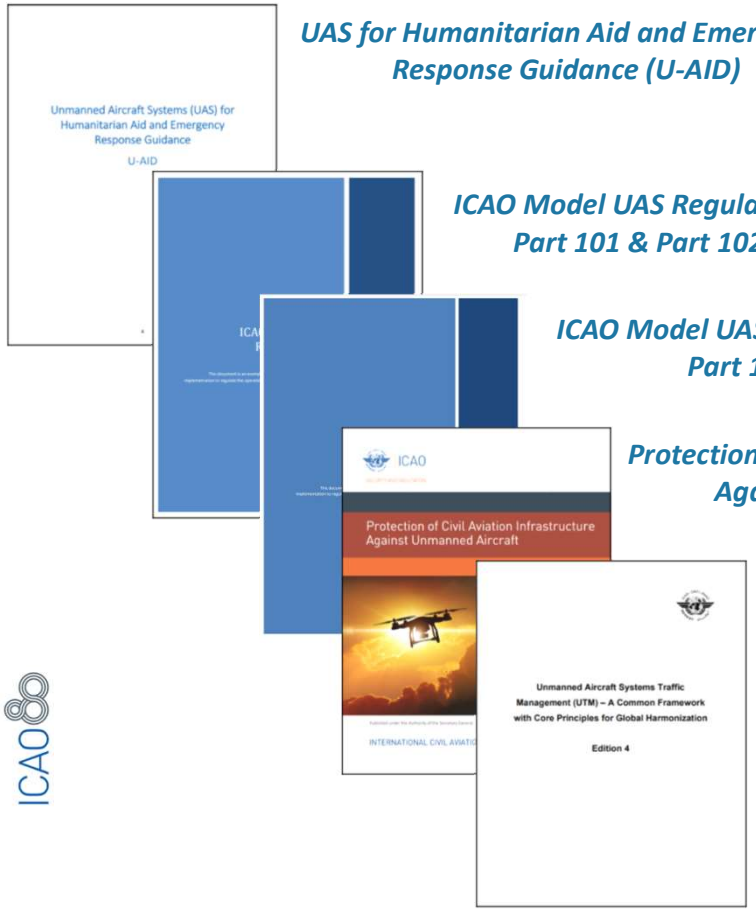
SCOPE OF ICAO WORK ON UNMANNED AVIATION



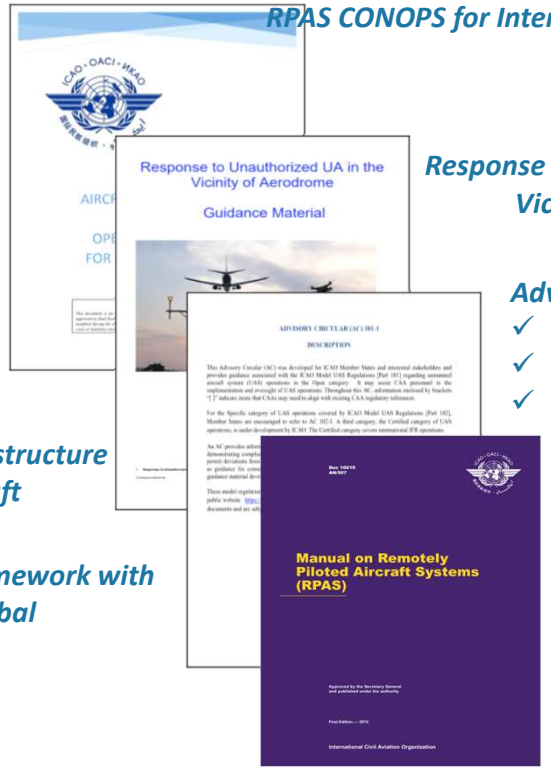
UAS for Humanitarian Aid and Emergency Response Guidance (U-AID)

ICAO Model UAS Regulations Part 101 & Part 102

ICAO Model UAS Regulations Part 149

Protection of Civil Aviation Infrastructure Against Unmanned Aircraft

UTM: A Common Framework with Core Principles for Global Harmonization (4ed)



RPAS CONOPS for International Operations

Response to Unauthorized UA in the Vicinity of Aerodrome

Advisory Circular (AC)
- ✓ *101-1*
- ✓ *102-1*
- ✓ *102-37*

DOC 10019 – Manual on Remotely Piloted Aircraft Systems Vol. II
2026

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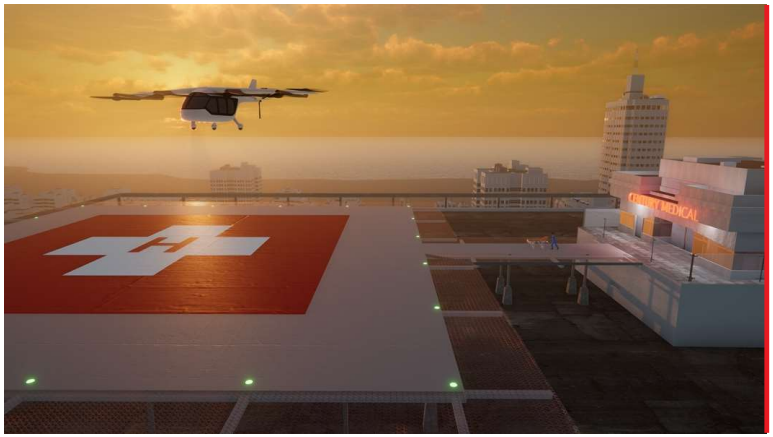
SCOPE OF ICAO WORK ON UNMANNED AVIATION

REGIONAL CARGO AND PASSENGER TRANSPORT



PUBLIC GOOD

CONSUMER/ ENTERPRISE GOODS AND SERVICES

LOCAL PASSENGER TRANSPORT

ICAO

Advanced Air Mobility (AAM)

SCOPE OF ICAO WORK ON UNMANNED AVIATION

REGIONAL CARGO AND PASSENGER TRANSPORT

PUBLIC GOOD

CONSUMER/ ENTERPRISE GOODS AND SERVICES

LOCAL PASSENGER TRANSPORT

ADVANCED AIR MOBILITY (AAM) STUDY GROUP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AAM 2024
ICAO'S FIRST ADVANCED
AIR MOBILITY SYMPOSIUM
9 — 12 September 2024
ICAO Headquarters, Montréal, Canada
On ICAO TV
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In collaboration with
CAAM

AAM 2024 ICAO'S FIRST ADVANCED AIR MOBILITY SYMPOSIUM

AAM International Call to Action

Paving the Way for the Future of Aviation with Advanced Air Mobility

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BEYOND VISUAL LINE OF SIGHT (BVLOS)

** FPV*

UAS OPERATIONAL EMPLOYMENT:

- Infrastructure Inspection,
- Humanitarian Aid,
- Goods Delivery,
- Crop Monitoring
- Area Surveillance,
- Search and Rescue
- …
  - ✓ **VAST RANGE / ENHANCE EFFICIENCY,**
  - ✓ **DIFFERENT FRAMEWORKS,**
  - ✓ **DIFFERENT OPERATIONAL PROFILES.**

REMOTE AIRCRAFT "OUT" OF THE PILOT`S SIGHT

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BEYOND VISUAL LINE OF SIGHT (BVLOS)

DESPITE THE POSITIVE OUTCOMES, IT POSES CHALLENGES:

- NOT MENACE TO AVIATION SAFETY LEVELS,
- NOT MENACE TO PEOPLE AND PROPERTIES ON THE GROUND,
- AIRSPACE SURVEILLANCE/IDENTIFICATION,
- CONSPICUITY FOR OTHER AIRSPACE USERS,
- HAZARDS AVOIDANCE (WEATHER, OBSTACLES, AIRCRAFT),
- REMOTE PILOT`s SITUATIONAL AWARENESS (SA)
- ….

DISREGARD SAFETY – BAD RESULTS

BEYOND VISUAL LINE OF SIGHT (BVLOS)

National Transportation Safety Board
Aviation Incident Final Report

Location:	Hoffman Island, NY
Date & Time:	09/21/2017, 1920 ED
Aircraft:	DJI Phantom
Defining Event:	Midair collision
Flight Conducted Under:	Part 107: Small UAS

Analysis

The United States Army UH-60M helicopter was o
mean sea level (msl) when it collided with a privat
(sUAS). The helicopter sustained minor damage ar
helicopter saw the sUAS before impact and immed
collision.

https://www.ntsb.gov/investigations/Pages/DCA17IA202AB.aspx

Aviation Investigation Final Report

Location:	Daytona Beach, Florida	Accident Nur	
Date & Time:	December 30, 2023, 14:04 Local	Registration:	
Aircraft:	ROBINSON HELICOPTER R44 (A1); DJI Mavic 2 (A2)	Aircraft Dam	
Defining Event:	Midair collision	Injuries:	
Flight Conducted Under:	Part 91: General aviation - Other work use (A1); Part		

Analysis

The pilot of the helicopter reported that while flying at an indicated
ft, while on approach to land at an off-airport landing zone, he saw
aerial system (UAS)] in front of his windscreen. He attempted to av
and the UAS impacted the main rotor resulting in substantial dama
The pilot reported that there were no preaccident mechanical malfu
helicopter that would have precluded normal operation.

https://data.ntsb.gov/carol-repgen/api/Aviation/ReportMain/GenerateNewestReport/193587/pdf

Man dies after being struck by drone in southern Vietnam

Tuesday, November 26, 2024, 14:02 GMT+7

The scene of a fatal incident where a man was killed in a collision with a drone in Kien Giang Province, southern

https://tuoitrenews.vn/news/society/20241126/man-dies-after-being-struck-by-drone-in-southern-vietnam/83107.html

DISREGARD SAFETY – BAD RESULTS

SAFE SKIES.
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BEYOND VISUAL LINE OF SIGHT (BVLOS)

BVLOS ASSUMPTIONS:

- PRESERVE EXISTING LEVELS OF AVIATION SAFETY,
- NOT INTRODUCE NEW UNACCEPTABLE SOCIETAL RISKS,
- NOT IMPOSE OTHER UNDESIRABLE IMPACTS ON SOCIETY (E.G. PRIVACY, ENVIRONMENTAL),
- DELIVER THE VALUE THEIR STAKEHOLDERS SEEK,
- PROFIT OR REDUCTION OF COSTS (OR THE FUTURE PROMISE OF), OR
- SOCIETAL, HUMANITARIAN, ENVIRONMENTAL BENEFITS (GOVERNMENT OR NOT-FOR PROFIT CONTEXT)

BEYOND VISUAL LINE OF SIGHT (BVLOS)

BVLOS OPERATIONAL PROFILE X ASSOCIATED RISKS

- POPULATED AREAS (RISK FOR PEOPLE/PROPERTIES)
- DENSITY AIRSPACE (RISK FOR OTHER AIRCRAFT)
- REMOTE AREAS
- FLIGHT TIME
- FLIGHT PROFILE
- WEATHER

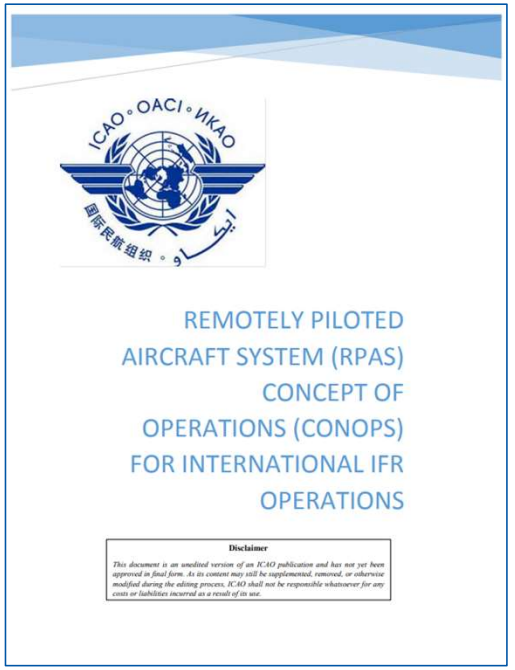
BVLOS X C2 LINK X ASSOCIATED RISKS:

- BVLOS – RLOS (RADIO LINE OF SIGHT)
  - "DIRECT LINK"
- BVLOS – BRLOS (BEYOND RADIO LINE OF SIGHT)
  - RELAY NODs

BEYOND VISUAL LINE OF SIGHT (BVLOS)

ICAO – Remotely Piloted Aircraft System (RPAS) Concept Of Operations (CONOPS) for International IFR Operations:

- ✓ SEGREGATED AIRSPACE – Airspace of specified dimensions allocated for exclusive use to a specific user(s)
- ✓ ACCOMMODATED – ……..can operate along with some level of adaptation or support that compensates for its inability to comply with existing operational constructs……
- ✓ INTEGRATED – refers to a **future** when RPA may be expected to enter the airspace system routinely without requiring special provisions…….



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BEYOND VISUAL LINE OF SIGHT (BVLOS)

➢ BVLOS UAS OPERATIONS - OPERATIONAL TYPE	➢ HISTORICALLY SEPARATION MANAGEMENT
➢ BVLOS ➢ LOCALIZED "WIDE" AREA SURVEY ➢ BLOCKED FROM REMOTE PILOT VIEW (BUILDING, TREE, TERRAIN)	➢ SEGREGATED VISUALLY (POTENTIAL INTRUDING MANNED AIRCRAFT CAN BE SEEN)
➢ REMOTE AREA BVLOS	➢ SEGREGATED BY ARRANGEMENT WITH LOCAL OPERATORS, NOTAM
➢ LINEAR SURVEY/PATROL	➢ SEGREGATED AND OPERATOR LIAISON/ NOTAM
➢ WIDE AREA SURVEY	➢ SEGREGATED AND OPERATOR LIAISON/ NOTAM
➢ CARGO DELIVERY (URBAN, RURAL)	➢ ACCOMMODATED <150M AND OPERATOR LIAISON/ NOTAM, UTM
➢ HIGH ALTITUDE PSEUDO SATELLITE (HAPS)	➢ INTEGRATED/SEGREGATED PROCEDURALLY ATC SERVICES /OPERATOR, SELF SEPARATION, COLLABORATIVE TRAFFIC MANAGEMENT IN STRATOSPHERE
➢ RPAS - IFR FLIGHT INTEGRATED WITH MANNED TRAFFIC (FUTURE)	➢ INTEGRATED ATC SEPARATION SERVICES, DETECT AND AVOID SYSTEM

BEYOND VISUAL LINE OF SIGHT (BVLOS)

BVLOS X POSSIBILITIES

- UNMANNED/REMOTE AIRCRAFT
  - “CERTIFIED”/”TESTED”
  - FAILSAFE EMERGENCY SYSTEMS
  - STANDARD OPERATIONAL PROCEDURE (SOP)/CHECK-LIST
- REMOTE PILOT/CREW
  - “CERTIFIED”
  - HEALTH CONDITIONS (Use of Psychoactive Substances)
- ORGANIZATIONAL FRAME
  - SAFETY MANAGEMENT SYSTEM (SMS)
  - QUALITY MANAGEMENT SYSTEM (QMS)
  - SAFETY/FATIGUE/C2 LINK OVERSIGHT SYSTEM
  - APPLICABLE DOCUMENTS/REGISTERS

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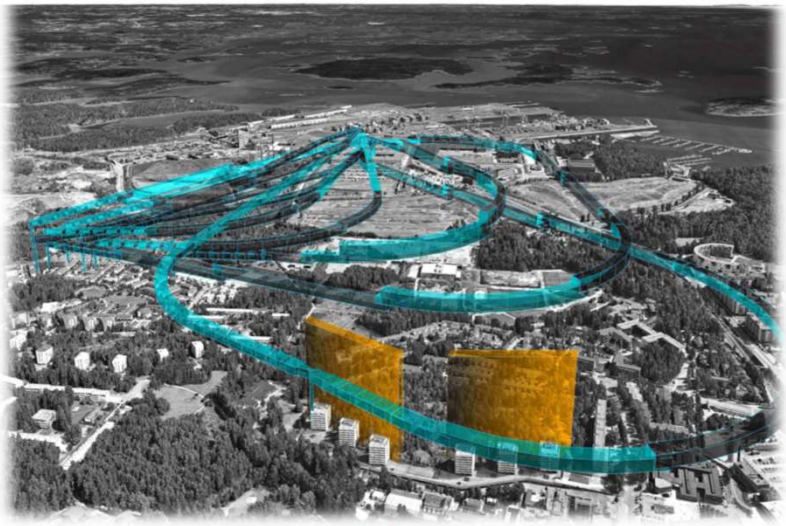
BEYOND VISUAL LINE OF SIGHT (BVLOS)

BVLOS X POSSIBILITIES

- OPERATIONAL ISSUES
  - PRE-PLANNING (ROUTE, WEATHER, …)
  - RISK ASSESSMENT
  - FLIGHT PLAN
  - EMERGENCY/CONTINGENCY PLAN
  - ADEQUATE AUTHORIZATIONS
  - ROBUST/RELIABLE C2 LINK
  - C2 LINK COVERAGE IN THE OPERATIONS AREA
  - ADEQUATE ENDURANCE (FUEL, BATTERY, …)
  - GNSS ADEQUATE SIGNAL
  - SERVICE LEVEL AGREEMENT (SLA) – If Applicable
  - OPERATIONAL AGREEMENT (CAA X OPERATOR)
  - ….



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BEYOND VISUAL LINE OF SIGHT (BVLOS)

BVLOS (STATES & SYSTEMS)

- ✓ **GLOBALLY, STATES ALLOW BVLOS OPERATIONS,**
- ✓ **SOME STATES DEVELOPED SYSTEMS TO PROVIDE AUTHORIZATION/COORDINATION,**

BVLOS IS BEING CONDUCTED IN ALL CONTINENTS

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BEYOND VISUAL LINE OF SIGHT (BVLOS)

ICAO TV

UAS BEYOND VISUAL LINE OF SIGHT OPERATIONS (BVLOS) - FOR REGULATORS 2020

This webinar is aimed at experienced aviation regulators with limited UAS exposure who are interested to learn more about BVLOS. Industry and others with a concern in how a regulator views BVLOS will also have an interest

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BEYOND VISUAL LINE OF SIGHT (BVLOS)

HOW TO REGULATE BVLOS OPERATIONS IN MY STATE?

- **ICAO GUIDANCE MATERIAL (PART 102, UTM FRAMEWORK, U-AID)**

- **INCORPORATE ICAO SARPs PROVISIONS**

"While the application of the provisions of Annex 6, Part IV is clearly defined, States are encouraged to apply the SARPs contained herein for domestic RPAS operations, as appropriate. […] Annex 6, Part IV SARPs were largely developed based on operations under instrument flight rules (IFR). States are encouraged to apply the SARPs provided herein for domestic RPAS operations, as appropriate". (Annex 6, Part IV, p. xix)

- **CONSULT OTHER STATE`S EXPERIENCES.**

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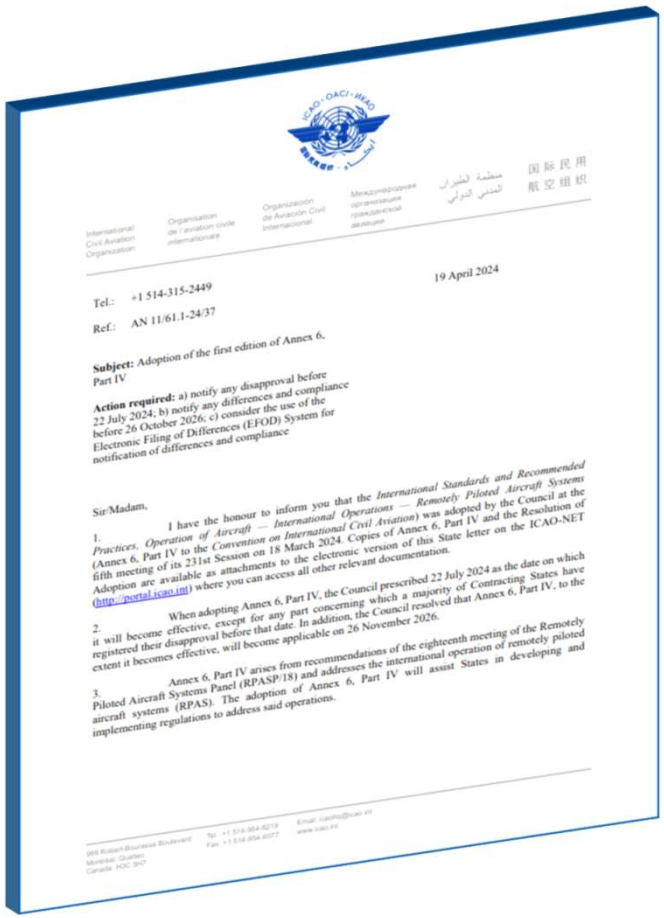
ANNEX 6 PART IV



International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Tel.: +1 514-315-2449

Ref.: AN 11/61.1-24/37

19 April 2024

Subject: Adoption of the first edition of Annex 6, Part IV

Action required: a) notify any disapproval before 22 July 2024; b) notify any differences and compliance before 26 October 2026; c) consider the use of the Electronic Filing of Differences (EFOD) System for notification of differences and compliance

Sir/Madam,

1. I have the honour to inform you that the *International Standards and Recommended Practices, Operation of Aircraft — International Operations — Remotely Piloted Aircraft Systems* (Annex 6, Part IV to the *Convention on International Civil Aviation*) was adopted by the Council at the fifth meeting of its 231st Session on 18 March 2024. Copies of Annex 6, Part IV and the Resolution of Adoption are available as attachments to the electronic version of this State letter on the ICAO-NET (http://portal.icao.int) where you can access all other relevant documentation.

2. When adopting Annex 6, Part IV, the Council prescribed 22 July 2024 as the date on which it will become effective, except for any part concerning which a majority of Contracting States have registered their disapproval before that date. In addition, the Council resolved that Annex 6, Part IV, to the extent it becomes effective, will become applicable on 26 November 2026.

3. Annex 6, Part IV arises from recommendations of the eighteenth meeting of the Remotely Piloted Aircraft Systems Panel (RPASP/18) and addresses the international operation of remotely piloted aircraft systems (RPAS). The adoption of Annex 6, Part IV will assist States in developing and implementing regulations to address said operations.

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STATE LETTER

AN 11/61.1-24/37

19 April 2024

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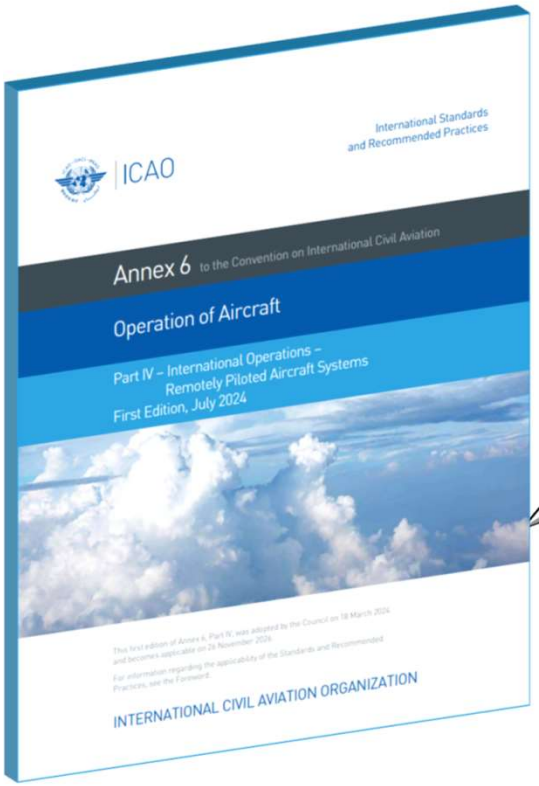
ANNEX 6 PART IV



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

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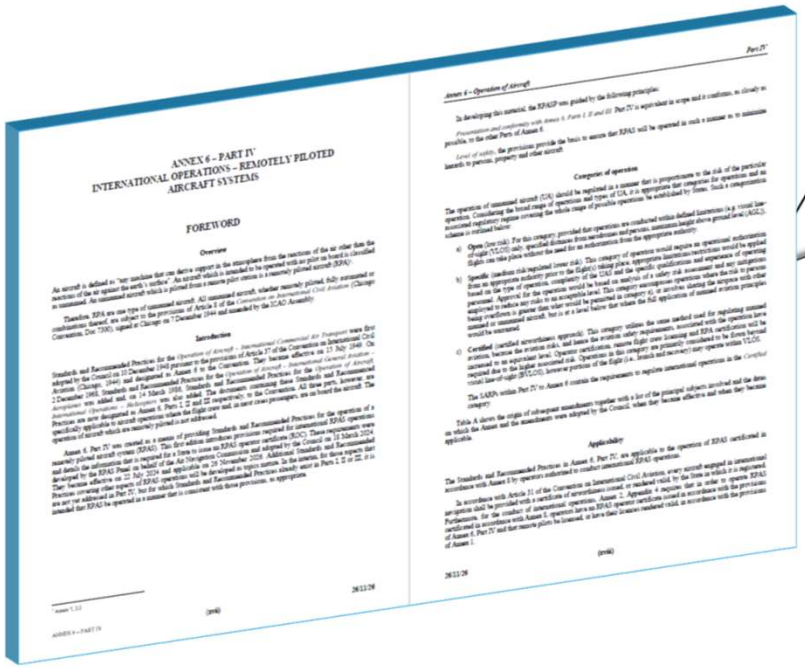
ANNEX 6 PART IV



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

FOREWORD

Overview

Introduction

Part IV

Annex 6 – Operation of Aircraft

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)

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In developing this material, the RPASP was guided by the following principles:

Presentation and conformity with Annex 6, Parts I, II and III. Part IV is equivalent in scope and it conforms, as closely as possible, to the other Parts of Annex 6.

Level of safety, the provisions provide the basis to ensure that RPAS will be operated in such a manner as to minimize hazards to persons, property and other aircraft.

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:

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.

The SARPs within Part IV to Annex 6 contain the requirements to regulate international operations in the *Certified* category.

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

- ✓ 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**".

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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.**

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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,…).**

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**


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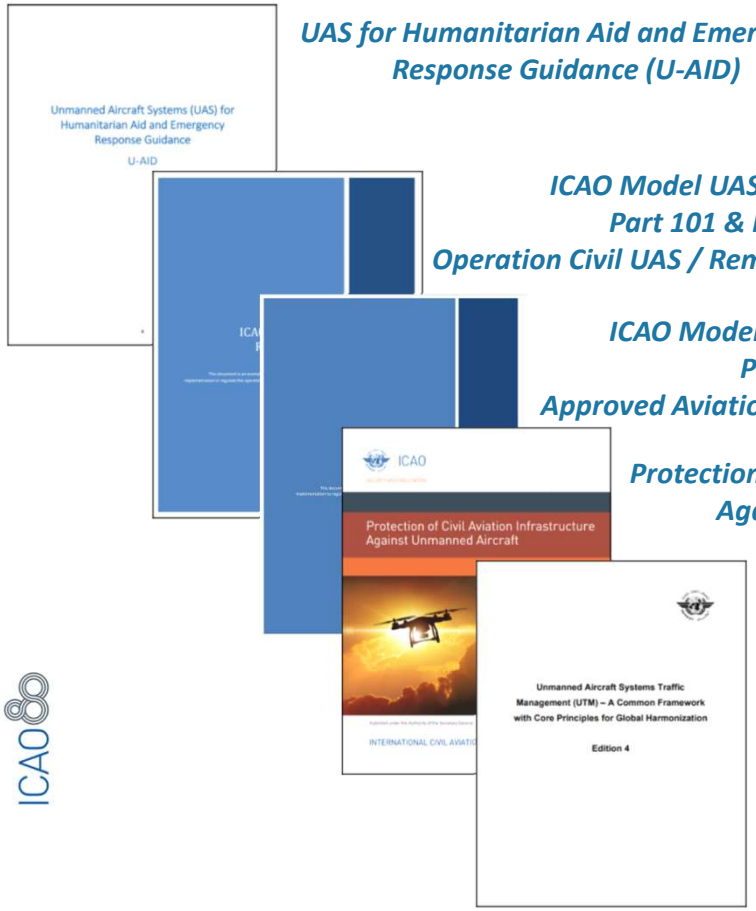


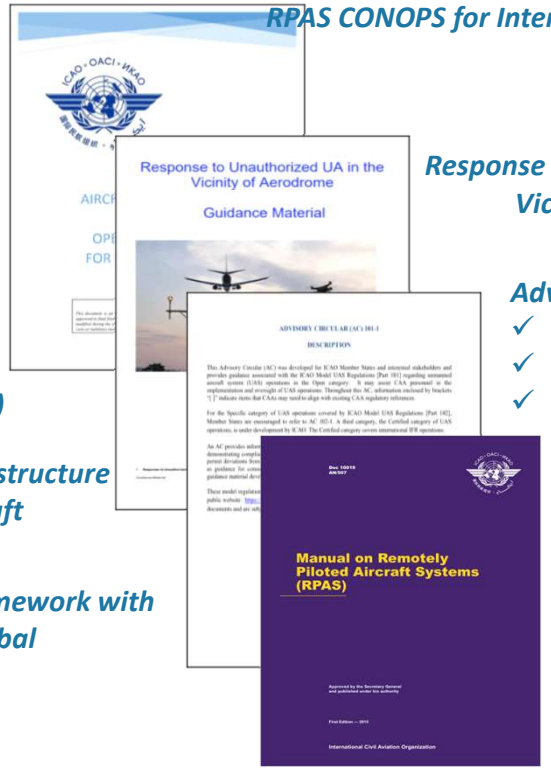
UAS for Humanitarian Aid and Emergency Response Guidance (U-AID)

ICAO Model UAS Regulations
Part 101 & Part 102
Operation Civil UAS / Remote Pilot Certification

ICAO Model UAS Regulations
Part 149
Approved Aviation Organizations (AAO)

Protection of Civil Aviation Infrastructure Against Unmanned Aircraft

UTM: A Common Framework with Core Principles for Global Harmonization (4ed)



RPAS CONOPS for International Operations

Response to Unauthorized UA in the Vicinity of Aerodrome

Advisory Circular (AC)
- ✓ *101-1*
- ✓ *102-1*
- ✓ *102-37*

DOC 10019 – Manual on Remotely Piloted Aircraft Systems Vol. I & II (2026)

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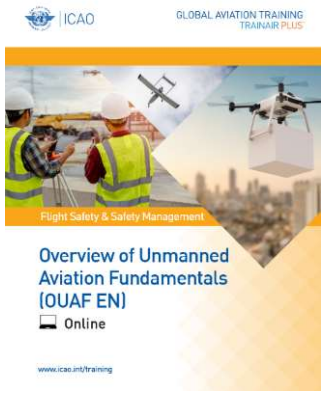
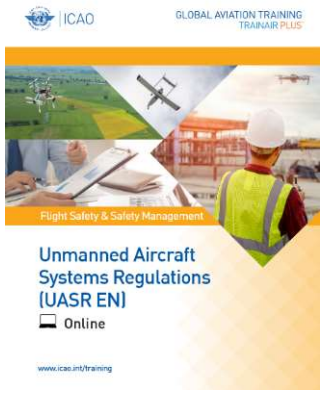


Overview of Unmanned Aviation Fundamentals (OUAF)

Unmanned Aircraft Systems Operations (UASO)



Unmanned Aircraft Systems Regulations (UASR)

Unmanned Aircraft Systems Safety Management System (UASSMS)

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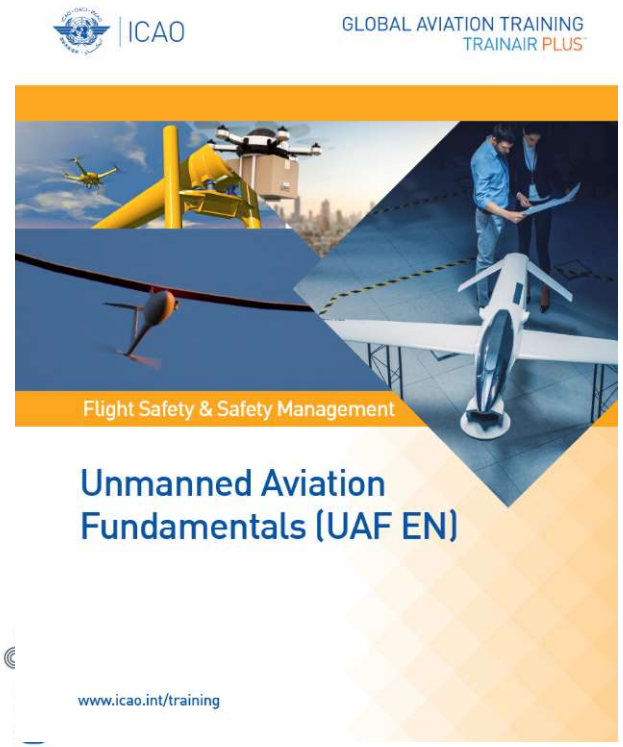

Course Goal: provide CAA personnel involved in the regulation of unmanned aviation with the competencies required to address the current and emerging safety issues related to unmanned aircraft operating in international and national airspace, consistent with the developing ICAO Standards and Recommended Practices (SARPs) framework.

Scan to learn more

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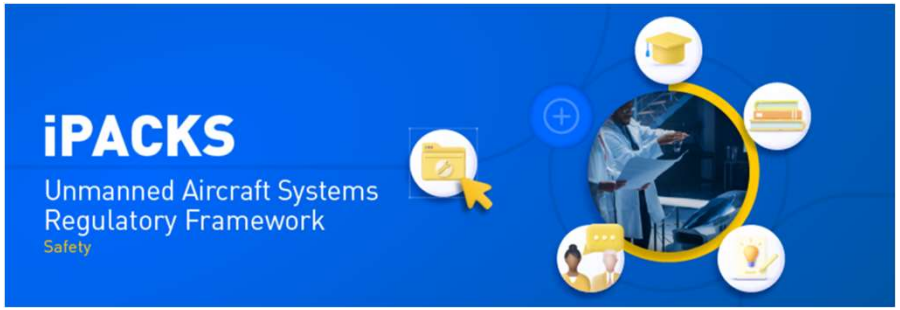

iPACK: This Implementation Package (iPack) is a self-contained package aimed at assisting and guiding ministries of transport, Civil Aviation Authorities (CAAs), and organizations that intend to operate UAS in multiple countries in the implementation of a UAS regulatory framework that remains outside of the Remotely Piloted Aircraft Systems (RPAS) framework.

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https://www.icao.int/safety/UA/Pages/default.aspx

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https://www.icao.int/safety/UA/Pages/default.aspx

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ICAO RESOURCES

- ✓ Enabling UAS Operations (2 episodes)
- ✓ Introducing ICAO UAS Model Regulations
- ✓ UAS Beyond Visual Line-of-Sight Operations - for Regulators
- ✓ ICAO UTM Framework - Core Principles for Global Harmonization
- ✓ U-AID - Humanitarian Operations using UAS
- ✓ Safety Management System (SMS) for UAS Operations
- ✓ RPAS International IFR Regulatory Framework
- ✓ UTM Financial Sustainability Strategies
- ✓ UTM Deployment Best Practices and Lessons Learned

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*"By **embracing innovation and working together,** we can create a **new era in aviation** that is inclusive of a broad range of users and operations. To achieve this vision, **high levels of global cooperation** should be enabled by strategic planning while remaining adaptable to changes".*

Call to Action AAM 2024

Thank You


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