



**Asia-Pacific
Economic Cooperation**

2024/TPTWG/AEG/TM1/002

Agenda Item: 2.1

ICAO Remotely Piloted Aircraft Systems Unmanned Aircraft Systems Overview

Purpose: Information

Submitted by: International Civil Aviation Organization



**Thematic Session on Unmanned
Aircraft Systems: Flightpath to the
Future
9 April 2024**



Asia-Pacific
Economic Cooperation

ICAO RPAS/UAS Overview

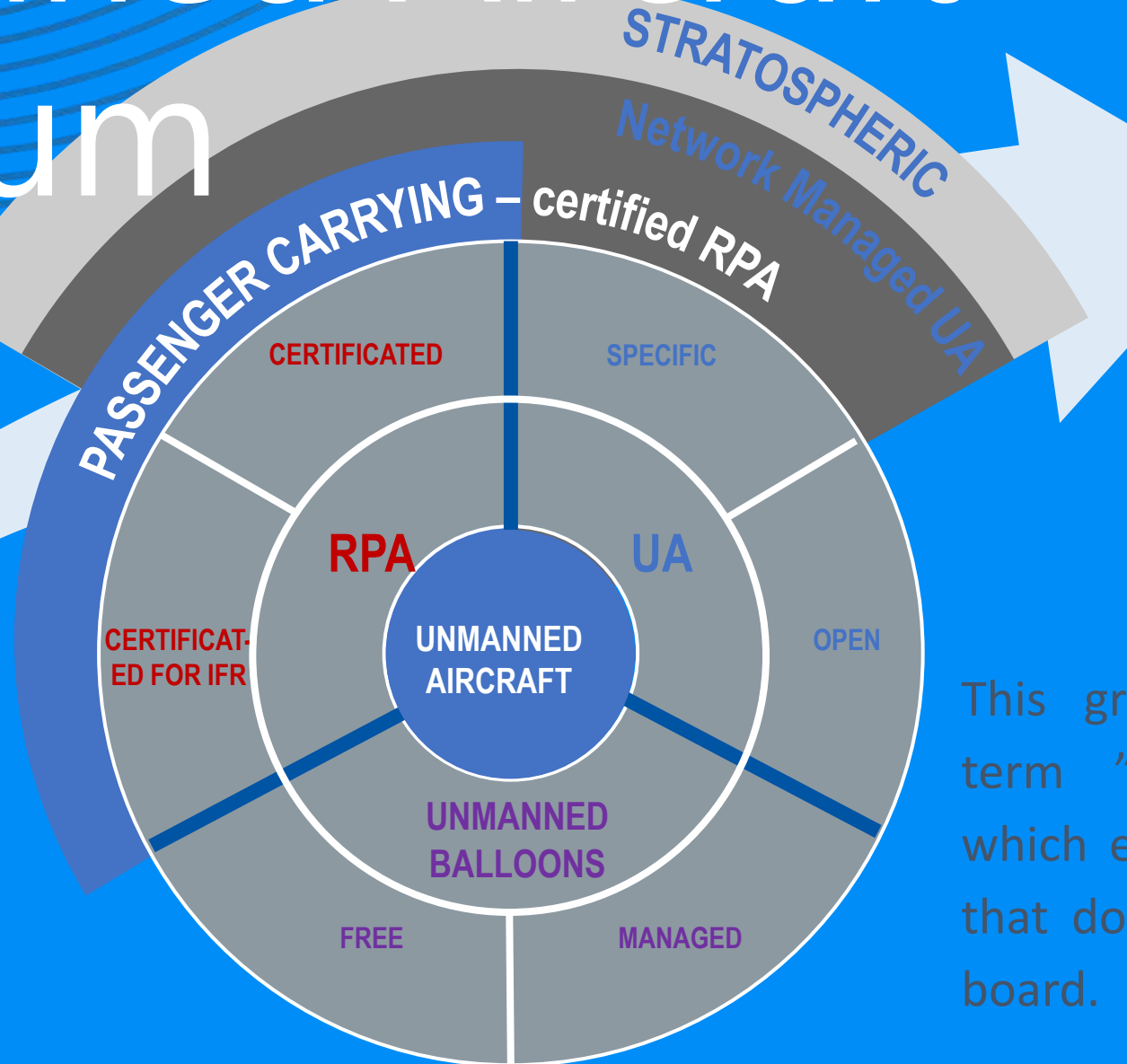
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4. UTM Framework
5. ICAO UAS Model Regulations
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Unmanned Aircraft Spectrum



This graphic illustrates the term "unmanned aircraft" which encompass all aircraft that do not have a pilot on board.

RPAS in ICAO guidance

Where can we find RPAS at ICAO:

- **Amendment of Annex 13 – Aircraft Accident and Incident Investigation** in 2010, definition of “accident” extended to include unmanned aircraft
- **Publication of UAS Circular (Cir 328)** in 2011, providing an overview of issues to address in the Annexes to ensure remotely piloted aircraft system(s) (RPAS) are compliant with the provisions of the *Chicago Convention*
- **Amendment of Annex 2 – Rules of the Air** in 2012, introduced high level provisions regarding certification, licensing, operating rules and special authorizations
- **Annex 7 – Aircraft Nationality and Registration Marks** in 2012, defined RPA as unmanned aircraft, and ensured nationality and registration marks can be applied regardless of size or configuration of aircraft



RPAS in ICAO guidance

- **Publication of *Manual on RPAS (Doc 10019)***

- to provide guidance on technical and operational issues applicable to the integration of RPA in non-segregated airspace and at aerodromes
- to direct the development of future SARPs

- **Amendment to Annex 1 – *Personnel Licensing***

- Global framework for the regulation of RPAS licensing to support international flights operating under IFR

- **Annex 8 – Airworthiness of Aircraft**

- Being expanded to cover RPS and C2 Link control

- **Annex 10 – Aeronautical Telecommunications**

- New provisions for C2 Link, frequency

spectrum, as well as detect and avoid capability

- **Annex 6 – Operation of Aircraft (Forthcoming)**

- Will contain a new Part IV – International Operations – Remotely Piloted Aircraft Systems, covering all types of RPA as well as requirements for the RPAS operator certificate

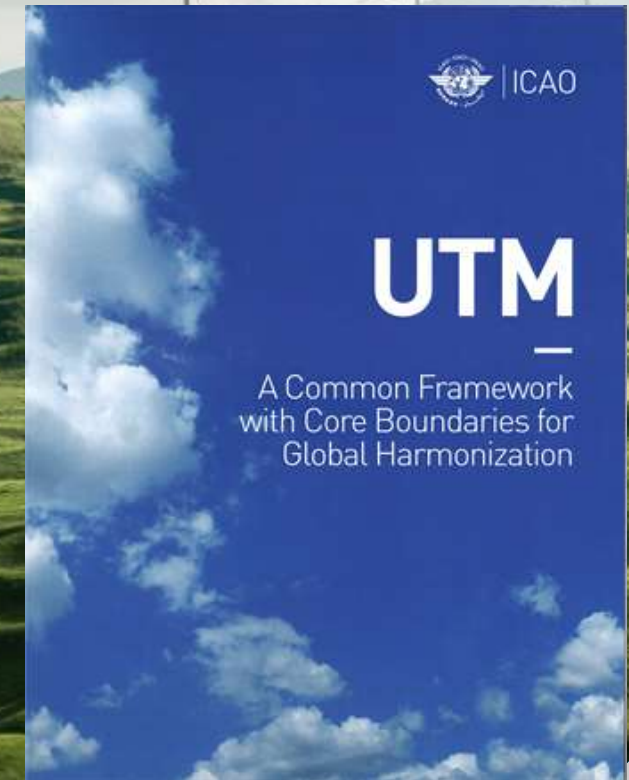


UAS Activities at ICAO



Unmanned Traffic Management (UTM) Framework

- Foster common framework and harmonization of core UTM principles
- Provides high-level UTM requirements for consideration
- Not meant to be a comprehensive technical solutions document



UTM Framework

EDITION 1 (RELEASED)

- Registration, identification and tracking
- Communications systems
- Geofencing-like systems
- Potential architectures

EDITION 2 (RELEASED)

- UTM-ATM boundaries and transitions
- Information exchange between ATM and UTM

EDITION 3 (RELEASED)

- UTM risk assessment/contingency procedures
- UTM service providers structure
- Separation and deconfliction in UTM

EDITION 4 (DRAFTING)

- UA performance requirements in a UTM environment
- UTM system certification requirements
- UTM in aerodrome environments/activities

ICAO UAS Model Regulations



- Harmonized regulations
- Risk-based approach
- Assist ICAO member states to enable unmanned aviation
- Flexible and adaptable to existing national regulations

ICAO UAS Model Regulations

- Categories
 - Open category: **Part 101**
 - Specific category: **Part 102**
 - Certified category: **Based on ICAO Annexes**
- Approved Aviation Organizations (AAO): **Part 149**
- Advisory Circulars (acceptable means of compliance):
 - **AC 101-1**
 - **AC 102-1**
 - **AC 102-37**: Dangerous Goods
- Guidance Materials:
 - **U-AID**
 - **UTM**



Unmanned Aviation Fundamentals (UAF)

- Course developed by ICAO
- Learning Objectives:
 - 1) Understand ICAO provisions and guidance materials on unmanned aviation
 - 2) Develop regulations and policies relating to unmanned aviation
 - 3) Design oversight activities for unmanned aviation
 - 4) Implement oversight activities for unmanned aviation
 - 5) Deploy a communication strategy to disseminate implementation processes



ICAO iPacks

ICAO SME

Dedicated UAS Subject Matter Expert for 20 workdays over a period of three months.

Training

- Overview of Unmanned Aviation Fundamentals – Online Course;
- Unmanned Aviation Fundamentals - Virtual Course;
- Unmanned Aircraft Systems Regulations - Online Course;
- Unmanned Aircraft Systems Operations Online Course;
- Unmanned Aircraft Systems (UAS) Safety Management System (SMS) - Online Course.

Tools

- Model UAS Regulations;
- Advisory Circulars;
- Checklists;
- Decisions aids;
- Templates; and
- Forms.

Documents

- ICAO Model UAS Regulations;
- Advisory Circulars;
- other associated guidance material; and
- relevant ICAO Annexes.



List of UAS webinars

- *Enabling UAS Operations Part I*
- *Enabling UAS Operations Part II - Panel Discussion*
- *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*

www.icao.int/Meetings/webinar-series

Resources

- Model UAS Regulations
 - <https://www.icao.int/safety/UA/Pages/ICAO-Model-UAS-Regulations.aspx>
- UAS for Humanitarian Aid, (U-AID)
 - <https://www.icao.int/safety/UA/UAID/Pages/default.aspx>
- UTM Guidance, 4th Edition
 - <https://www.icao.int/safety/UA/Documents/UTM%20Framework%20Edition%204.pdf>
- UAS iPack
 - <https://www.icao.int/secretariat/TechnicalCooperation/Pages/UAS-iPACK.aspx>
- Courses
 - www.store.icao.int/en/training/online-courses/unmanned-aircraft-systems
 - <https://igat.icao.int/ated/TrainingCatalogue/Course/5103>
- Webinars
 - www.icao.int/Meetings/webinar-series



Questions

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