

Enabling UAS Operations

A hand holding a black quadcopter drone. The drone is centered in the frame, with its four propellers visible. Overlaid on the drone and the hand are various futuristic digital elements: a green circular light on the drone's body, several circular gauges with numbers like 72%, 54%, 96%, and 82%, and various abstract geometric shapes and lines. The background is a blurred blue with a network of white dots and lines, suggesting a digital or technological environment.

NAM/CAR/SAM Regions

Lack of Harmonization

- Differing Approaches
- A States' Tolerance for Safety is key
- Performance-based, Operation-Centric
- ICAO's mission - to facilitate global harmonization
increasing safety



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- A large, jagged iceberg floats in a deep blue sea under a cloudy sky. A small black drone is flying in the air, positioned between the first and second bullet points. The background shows a distant shoreline with some buildings.
- **Certification and Safe Operation**
 - **No Discretionary Topics**
 - **Applies to All Types of UA Operations**
 - **Each State Determines Regulatory Enforcement**

Performance-based regulations

Measurable Outcomes such as:

Operations near persons shown to be remote

Operations in controlled airspace with position accuracy tolerances

Identifying the performance level of equipment

Prescriptive regulations

Age of remote pilot; maximum altitude; maximum UA speed



Safety Risk Varies

Operational Risk Assessment

Continuous Process

Safety Risk Tolerability

Key determinant – Safety Management

www.safety/safetymanagement



ICAO UAS Model Regulations

Part 101 – Open Category, Standard operating conditions, 25 kg or less

Part 102 – Specific Category, > 25 kg, UOC or UA authorization

Certified Category – RPAS for international IFR operations

Part 149 – Approved Aviation Organization

Companion **Advisory Circulars**





ICAO

SAFETY

ICAO MODEL UAS REGULATIONS

Approved Aviation Organization (AAO)

Delegated authority for Specific Tasks

Remote Pilot Certification

Registration of Unmanned Aircraft



ICAO MODEL UAS REGULATIONS

Advisory Circulars

Guidance material – how to comply

- **AC 101-1** applies to all UAS users; operators must remain compliant with limitations in Part 101
- **AC 102-1** flexible; UOC or UA authorization risks mitigated to an acceptable level
 - **AC 102-37** carriage of dangerous goods; humanitarian aid and emergency events

CARRIAGE OF DANGEROUS GOODS

Annex 18 – *The Safe Transport of Dangerous Goods* & the associated technical instructions

AC 102-37 – oversight guidance for CAAs and to assist UA operators in the transport of dangerous good as in humanitarian operations

UAS can play a vital role in times of crisis



Vanuatu



ICAO MODEL UAS REGULATIONS

Manufacturer's Declaration of Compliance (DOC)



Performance-based regulation **102.301**
UA manufacturer declares operational category and the CAA sets the criteria for the DOC.

Transport Canada **Draft AC 922-001**
RPAS Safety Assurance

**Guidance**ICAO Model UAS
Regulations

ICAO U-AID Guidance

UTM Guidance, Edition 2

UAS Toolkit

ICAO RPAS CONOPS

**U-AID or UAS for
Humanitarian Aid and
Emergency Response
Guidance****Expert Groups**Remotely Piloted Aircraft
Systems Panel (RPASP)Task Force on Unmanned
Aircraft Systems for
Humanitarian Aid and
Development (TF-UHAD)Unmanned Aircraft
Systems Advisory Group
(UAS-AG)**Unmanned Aviation
Bulletin****ICAO's upcoming
Meetings and Events
page****RPAS Workshops**

Unmanned Aviation

UTM Request for Information (RFI)

International Civil Aviation Organization Unmanned Aircraft System
Traffic Management (UTM) Request for Information

Due to the ongoing impacts of travel restrictions, public health concerns of large gatherings and uncertainty in the short to medium term caused by COVID-19, ICAO has made the difficult decision to postpone the Fourth DRONE ENABLE Symposium, which was originally scheduled for 9 to 11 September 2020 in Rio de Janeiro, Brazil. The symposium, renamed DRONE ENABLE 2021, will now be held from 13 to 15 April 2021, with the location remaining Rio de Janeiro.

As it is understood that the current COVID-19 situation may have negatively impacted the ability of States, organizations and individuals to respond to this year's RFI, ICAO has extended the submission deadline to **25 September 2020**. Those that have already submitted responses are welcome to update their original submission and those that were unable to meet the original timeline are invited to provide a submission by the revised deadline.

Please feel free to contact ICAO at DRONEENABLE@icao.int should you have any questions.

**www.icao.int/safety/UA**



Supporting Material



ICAO Applications (fillable)

ICAO Fillable Applications are especially useful as they can be uploaded to a State's website for online completion by operators. One of the forms, **Application for U-AID Authorization**, is for U-AID operations and provides a comprehensive CONOPS once completed. The second form, **Expedited Authorization for Urgent UAS Operations**, is for urgent requests seeking an expedited approval.



Advisory Circular 102-37

Advisory Circular 102-37 was developed by a working group of the Dangerous Goods Panel and focuses on the carriage of dangerous goods on board UA. The basis for this AC is intended for circumstances when the full provisions of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) are not appropriate or necessary, due to the nature of the UA operation.

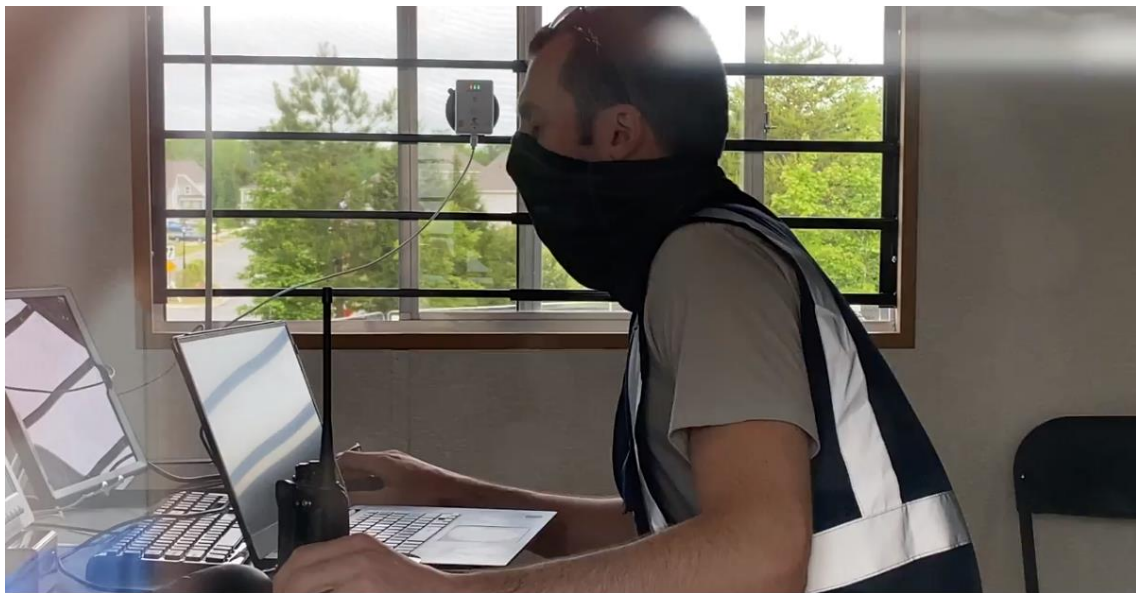


U-AID UA Operations With Short Lead Time

U-AID UA Operations with Short Lead Time, a decision tree including considerations for urgent operations.

U-AID GUIDANCE

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



Routine humanitarian delivery by UA



Missions as a result of catastrophic events



Expedited review

U-AID GUIDANCE MATERIAL

Mission Planning provided by
GlobalMedic of Canada

Fillable Applications (urgent/long-term)

U-AID GUIDANCE MATERIAL

ICAO Asia Pacific Guidance for UAS Regulation

UAS Safety Risk Management Policy of U.S.

UA Accident Reporting Form



ICAO

SAFETY

U-AID GUIDANCE MATERIAL

U-AID Societal Interactions – Long Term

U-AID Operations with short lead time

U-AID GUIDANCE MATERIAL



THANK YOU FOR YOUR ATTENTION

