



“UAS: THE GLOBAL PERSPECTIVE” & “UAS VTOL”

Respectively 20th & 3rd Edition

Coming Out in Febr. 2025

Be included - Submit your Data

Your Entry is Free-of-Charge

**PRO
UAS**

Producer Country

UAS Name / Designation

| | |
|---|---|
| Usage (See page 2) | <input type="radio"/> Aerial Work <input type="radio"/> Cargo Transport <input type="radio"/> Passenger Transport <input type="radio"/> Gvmt & Military |
| Status | <input type="radio"/> Conceptual <input type="radio"/> In Development <input type="radio"/> Experimental <input type="radio"/> Prototype <input type="radio"/> Market Ready / In Production <input type="radio"/> Research Project <input type="radio"/> Demonstrator |
| Airframe Type | <input type="radio"/> Fixed Wing (<i>capable of flight by using the aerodynamic lift generated by its wings</i>) <input type="radio"/> Fixed Wing with Lift Rotors (<i>rotors positioned on arms, wings, tail or booms</i>) <input type="radio"/> Lighter-than-Air (<i>airships, dirigibles, flying object</i>) <input type="radio"/> No Wings / No Rotors (<i>e.g. fuselage or pod with integrated ducted fans or vectoring jet nozzles</i>) <input type="radio"/> Ornithopter (<i>flapping wings</i>) <input type="radio"/> Motorized parafoil (<i>self-inflating wing</i>) <input type="radio"/> Rotorcraft (<i>derives its source of lift from rotor blades rotating around an axis</i>) <input type="radio"/> Transwing (<i>wing folds & tilts & permits in-flight transitioning</i>) <input type="radio"/> Tilt Wing (<i>wing is horizontal for conventional forward flight and rotates up for VTOL</i>) |
| VTOL | Vertical take-off & landing capable <input type="radio"/> Yes <input type="radio"/> No |
| Rotorcraft Class <i>(See page 3 for explanation of terms & pictographs)</i> | <input type="radio"/> Bicopter <input type="radio"/> Birotor Coaxial <input type="radio"/> Birotor Intermeshing <input type="radio"/> Gyroplane <input type="radio"/> Monocopter <input type="radio"/> Multicopter (3 & <10 lift rotors) <input type="radio"/> Pluricopter (10 lift rotors & more) <input type="text"/> Quantity lift rotors <input type="text"/> Quantity lift rotors <input type="text"/> Quantity puller rotors <input type="text"/> Quantity puller rotors <input type="text"/> Quantity pusher rotors <input type="text"/> Quantity pusher rotors <input type="radio"/> Tandem Ducted Rotors <input type="radio"/> Tandem Rotor <input type="radio"/> Tailsitter |
| | Tether: <input type="checkbox"/> Standard <input type="checkbox"/> Optional |
| Propulsion | <input type="radio"/> Electric <input type="radio"/> Hybrid <input type="radio"/> Jet / Turbine <input type="radio"/> Piston <input type="radio"/> Other |
| Fuel / Energy | <input type="radio"/> Avgas <input type="radio"/> Battery <input type="radio"/> Fuel Cell <input type="radio"/> Gasoline <input type="radio"/> Heavy Fuel <input type="radio"/> Nitrogen <input type="radio"/> Solar Panel <input type="radio"/> 2-Stroke <input type="radio"/> 4-Stroke <input type="radio"/> Other Note: Heavy Fuel = Diesel, Jet Fuel (<i>Jet A1, JP5, JP8</i>), Kerosene |
| Command & Control | <input type="radio"/> Manual <input type="radio"/> Programmed / Automatic <input type="checkbox"/> SatCom enabled Note: In view of regulatory considerations, “Programmed / Automatic” includes autonomous. |
| Control Range | <input type="radio"/> <0,2 km <input type="radio"/> 2 km <input type="radio"/> 25 km <input type="radio"/> 50 km <input type="radio"/> 75 km <input type="radio"/> 150 km <input type="radio"/> >150 km |
| Flight Endurance | <input type="text"/> minutes <input type="text"/> km Note: <i>Please fill in both boxes</i> |
| Max. Cruise Speed | <input type="text"/> km/h |
| Max. Take-Off Weight | <input type="text"/> kg |
| Principal Mission Payload | <input type="radio"/> Imaging <input type="radio"/> Sensing & Measurement <input type="radio"/> Other (<i>Non-military</i>) <i>(See page 4 for explanation of terms & examples)</i> <input type="radio"/> Other (<i>Military</i>) |
| Payload Capacity | <input type="text"/> kg Total weight of the payload [(<i>Imaging, Sensing & Measuremernt, Other</i>), cargo, pilot, passengers & luggage], that can be accommodated. |
| | Principal payload is aircraft-specific & factory-integrated <input type="radio"/> Yes <input type="radio"/> No |
| | <input type="text"/> Quantity of passengers that can be transported (<i>in addition to pilot</i>) |
| Submission | Date <input type="text"/> |
| Submitter | <input type="radio"/> Mr <input type="radio"/> Ms First Name <input type="text"/> Family Name <input type="text"/> |
| | Email <input type="text"/> Tel. <input type="text"/> |
| Comment | <input type="text"/> |



DEFINITIONS & EXPLANATIONS RELATIVE TO THE SUBMISSION FORM



UAS USAGE

Aerial Work

Commercial & Non-Commercial

(Including Corporate Operations = Operations conducted by a corporate entity for its own purposes)

An aircraft operation in which an aircraft is used for specialized (flight) services such as agriculture, construction, photography, surveying, observation & patrol, search & rescue, aerial advertisement, etc. (Chicago Convention, Annex 6 Part 1, Chapter 1.H9)

Flight Training / Instruction

(Commercial & Corporate operations)

- Duo *(student instruction by licensed pilot)*
- Solo *(unaided student flight)*
- Check *(qualification verification of pilot license holder)*

Other Miscellaneous

(Commercial & Corporate operations)

- Test / Experimental
- Demonstration
- Ferry / Positioning
- Air Show / Race

Cargo Transport

Commercial & Non-Commercial (incl. Corporate)

Scheduled & Non-scheduled

- Internal Loads *(inside the airframe)*
- External Loads *(outside the airframe)*

Passenger Transport

Commercial & Non-Commercial (incl. Corporate)

Scheduled & Non-scheduled

Governmental & Military Flight Operations

Governmental Flight Operations

- | | |
|--|-------------------------|
| Security-related | Safety-related |
| - Border Guards | - Civil Protection |
| - Coast Guard | - Fire-fighters |
| - Customs | - Gvmt executive agency |
| - Police <i>(municipal, national, federal)</i> | |

Military Flight Operations

- | | |
|---------------|--------|
| - Air Force | - Army |
| - Gendarmerie | - Navy |

Regional & International Organisations

European Commission Agencies, e.g.:

- Border & Coast Guard Agency (FRONTEX)
- European Maritime Safety Agency (EMSA)

International Criminal Court (ICC)

Interpol

United Nations (UN) Agencies

UAS & RPAS - Definitions

The following terms & explanations, indicated in ICAO Circular 326, are used in this document.

Unmanned aircraft system (UAS) is an aircraft and its associated elements which is operated with no pilot on board.

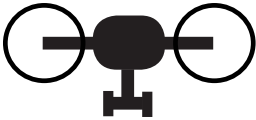


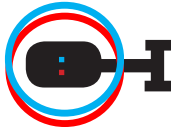
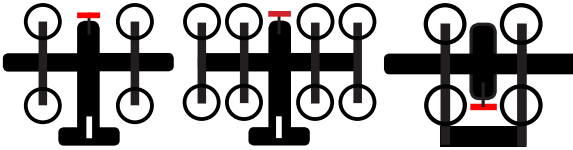

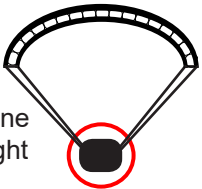
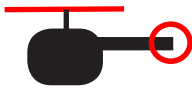
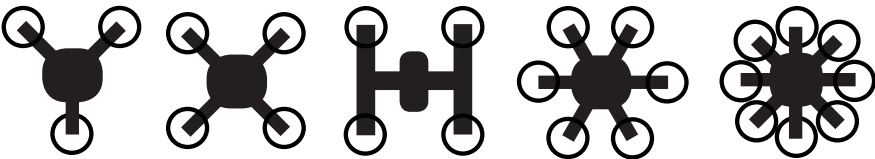
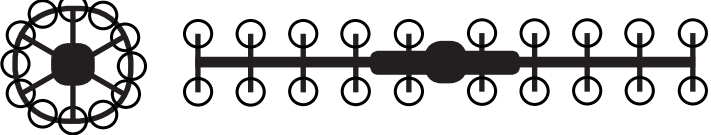


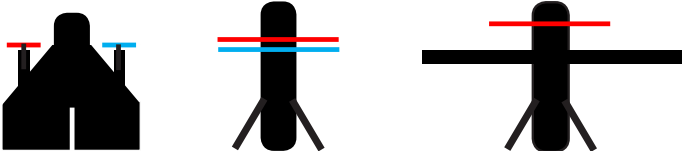
Unmanned aircraft (UA) is any aircraft intended to be flown without a pilot on board. They can be remotely and fully controlled from another place (ground, another aircraft, space) or pre-programmed to conduct its flight without intervention (automatic).

Remotely-piloted aircraft system (RPAS) is a set of configurable elements consisting of a remotely piloted aircraft (RPA), its associated remote pilot station(s), the required command and control links and any other system elements as may be required at any point during flight operation (e.g. launch & recovery systems). (Note: RPAS is a subcategory of UAS).

Remotely piloted aircraft (RPA) is an aircraft where the flying pilot is not on board the aircraft. A RPA is piloted from a Remote Pilot Station and is expected to be integrated into the air traffic management system equally as manned aircraft, [and] real-time piloting control is provided by a licensed Remote Pilot.

Note: The abbreviations UAS, RPAS, UA and RPA are invariable (singular & plural are identical).

VTOL-Capable UAS - Rotorcraft Classes

| | | | |
|---|--|--|--|
| <p>Bicopter</p>  | <p>Fuselage or pod with 2 arms, each equipped with 1 rotor - No tail rotor.</p> | <p>Coaxial Motor / Rotor Configuration</p>  <p>A set of 2 motors & 2 rotors on the same axis with the rotors rotating in opposite directions.</p> | |
| <p>Birotor Coaxial</p>  | <p>Fuselage or pod with 2 super-imposed coaxial rotors - No tail rotor.</p> | <p>Birotor Intermeshing</p>  | <p>Fuselage or pod with 2 rotors side-by-side - No tail rotor.</p> |
| <p>Fixed Wing Rotary</p>  | <p>Fixed wing aircraft (puller or pusher configuration) with lift rotors (non-coaxial or coaxial) (tilting or non-tilting) positioned on wings, tail or wing booms, or in fuselage & tail, or with fans positioned on wings.</p> | | |
| <p>Gyroplane</p>  | <p>Fuselage or pod with unpowered lift rotor and forward propulsion rotor on aft of fuselage, on side arms or on (stub) wings - No tail rotor.</p> | <p>Motorized Parafoil</p>  | <p>Pod with pushing engine and given flight by a parafoil.</p> |
| <p>Monocopter</p>  | <p>Fuselage or pod with one powered lift & one powered tail rotor. May have forward propulsion rotors on side arms or (stub) wings.</p> | | |
| <p>Multicopter</p>  | <p>Pod with >2 & <10 lift rotors (non-coaxial or coaxial) positioned on arms or rotor booms.</p> | | |
| <p>Pluricopter</p>  | <p>Pod with 10 or more lift rotors (non-coaxial or coaxial) positioned on wing booms, tail booms, arms, rotor booms or supports.</p> | | |
| <p>Tandem Ducted Rotor</p>  | <p>Fuselage or pod with 2 integrated ducted rotors (non-coaxial or coaxial). May have 1 or more forward propulsion rotor. No tail rotor.</p> | <p>Tandem Rotor</p>  | <p>A type of VTOL aircraft with 2 main rotor systems. The rear rotor is usually mounted in a higher position than the front rotor, in order to avoid the blades from colliding. No tail rotor.</p> |
| <p>Tailsitter</p>  | <p>A type of VTOL aircraft that takes off and lands on its tail, and, after take-off, tilts horizontally for forward flight.</p> | | |

UAS Payloads

Payloads are elements installed on an unmanned aircraft (UA) and **not necessary for flight**, but are carried for the purpose of achieving specific mission objectives.

3 Payload categories:

- ♦ **Imaging**
- ♦ **Sensing & Measurement**
- ♦ **Other:**
 - Non-military
 - Military

Imaging Payloads (Civ & Mil)

Elements on a UA permitting the capture of **imagery** (*possibly with simultaneous tracking*) and the recording or transmission of such data. Imaging payloads (gimballed & non-gimballed) include, amongst others:

| | |
|--|--------------------------------|
| Corona Effect Imager | Light Intensification Sensor |
| Digital Photo Camera | Line Scanner |
| Digital Video Camera | Multilayer Laser |
| Electro-Optical (EO) Sensor | Multispectral - Optical |
| Film Camera | Multispectral - Thermal |
| Flash LiDAR | Multisensor Imager |
| Forward-looking Infrared (FLIR) | Near Infrared Sensor |
| Hyperspectral Sensor | Radar |
| Infrared (IR) Sensor | Radar - Ground Penetrating |
| Light Detection and Ranging (LiDAR) Sensor | Radar - Maritime |
| Laser Scanner | Solid State Photon Counter |
| | Synthetic Aperture Radar (SAR) |

Sensing & Measurement Payloads (Civ & Mil)

Elements on a UA permitting the capture of **non-imagery data** and the recording or transmission of such data. They include, amongst others:

Aerial pollution measurement device
Anemometer
Atmospheric measurement device
Atmospheric pollutant detector
Bathymetric measurement device
Camera mounts & gimbals
Dry film thickness measurement device
Electricmagnetic acoustic transducer (EMAT)
Emergency beacon detector
Frequency measurement device
Gas (*leak*) detector
Geomagnetic measurement device
Gimbal mount
Hydrographic measurement device
Interferometry
Laser pointer / range finder
Lightning protection system (LPS) tester
Location defining (*static & moving objects*):

- ♦ Flora & Fauna
- ♦ Object
- ♦ Person
- ♦ Phenomena

Measurement probe / feeler
Metal detector
Meteorological measurement device
Microwave radiometer
Mineral detector
Mobile telephone detector & localiser
Moving target indicator
Nuclear, radiological, biological & chemical (NRBC) detector
Odour detector
Particle measurement device
Phenomena analysis
Pulsed eddy current (PEC) wall thickness measurement
Radiation meter
Spectrometer

Radio frequency spectrum analyser
Ultrasonic transducer (UT)
Ultraviolet sensor

For Unmanned Target Aircraft (UTA):

- Doppler radar missed distance indicator (MDI)
- Acoustic MDI

Other Payloads

Elements on a UA permitting to achieve specific **non-imagery, non-sensing & non-measuring** mission objectives. There are 2 categories:

Non-Military

Airborne data recorder
Cable (lead) stringing grip
Cargo hoisting & lowering winch
Cargo (net) sling & hook
Cargo storage container / rack (*internal & external*)
Communication relay (*incl. antennae*)
Dispensing system (*solids*):

- ♦ Bulk (*e.g. fertilizer pellets, granulates, larvae capsules, pollination agents, seeds*)
- ♦ Other (*e.g. seedlings*)

Fire extinguishing system (*incl. discharge spout*)
Forestry trimming and/or harvesting tool
High pressure liquid dispenser (*roof / wall cleaning*)
Life buoy carriage & delivery device
Lighting (*floodlight, spotlight, strobe*)
Loudspeaker / megaphone
Manipulating / robotic arm
Payload-imposed antennae
Perching grip (*e.g. on high power transmission cable*)
Publicity banners (*UA-towed*) + tow hook & cable
Publicity / announcement screen
Tagg fixation device (*e.g. bird disruptor on power cable*)
Spraying system (*liquids for various purposes: pesticides, fertilizer, insecticides, cleaning / painting of structures*)
Suction extractor (*hornet & wasp nest control*)
Water bombing system (*large volume liquid release*)
Water sampling device

Military

Artillery / gunshot detector & localiser
Automated identification system (AIS)
Cargo (*net*) sling & hook
Communications intelligence (COMINT)
Communication relay (*incl. antennae*)
Electronic counter measures (ECM)
Electronic intelligence (ELINT)
Electronic warfare (EW) & Electronic support (ES)
Image intelligence (IMINT)
Intelligence, Surveillance, Reconnaissance (ISR)
Laser designator
Mine detector (*on land / at sea*)
Missiles & rockets (*incl. launch pylons / racks*)
Ordnance (*e.g. bombs, flares, grenades, mortars*) & ejectors
Pod (*wing / fuselage-mounted - various purposes*)
Signal intelligence (SIGINT)
Target search & acquisition (TA)
UA neutralisation / interception system (*net & net launcher*)
Warhead
Weapon (*lethal, non-lethal*) & mount
For Decoys & UTA:

- Radar signature augmentation
- Thermal augmentation
- Tow target sleeve, cable & winch
- Smoke generator