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**Unmanned aircraft systems —**  
**Part 4:**  
**Vocabulary**

*Aéronefs sans pilote —*  
*Partie 4: Vocabulaire*

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 16, *Unmanned aircraft systems*.

A list of all parts in the ISO 21384 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Unmanned aircraft systems —

## Part 4: Vocabulary

### 1 Scope

This document defines terms and definitions relating to unmanned aircraft systems that are widely used in science and technology.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **aerial work**

*aircraft* (3.6) operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Note 1 to entry: The definition is adapted from Reference [7].

#### 3.2

##### **aerodrome pilot**

*remote pilot* (3.63) familiar with a defined aerodrome or landing site, which transfers responsibility to another pilot a few minutes after take-off or accepts responsibility for approach, landing and possibly taxiing and parking

#### 3.3

##### **aeroplane**

power-driven heavier-than-air *aircraft* (3.6), deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight

Note 1 to entry: The definition is adapted from Reference [6].

#### 3.4

##### **air traffic service**

##### **ATS**

generic term that can refer to flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service)

Note 1 to entry: The definition is adapted from Reference [6].

**3.5**  
**airborne collision avoidance system**  
**ACAS**

*aircraft* (3.6) system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircrafts that are equipped with SSR transponders

Note 1 to entry: The definition is adapted from Reference [6].

**3.6**  
**aircraft**

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

Note 1 to entry: The definition is adapted from Reference [10].

**3.7**  
**aircraft category**

classification of *aircraft* (3.6) according to specified basic characteristics

EXAMPLE *Aeroplane* (3.3), helicopter, glider, free balloon.

Note 1 to entry: The definition is adapted from Reference [12].

**3.8**  
**airship**

power-driven lighter-than-air *aircraft* (3.6)

Note 1 to entry: The definition is adapted from Reference [9].

**3.9**  
**airspace management**  
**ASM**

planning function with the primary objective of maximizing the utilization of available airspace by dynamic time-sharing and, at times, the segregation of airspace among various categories of users based on short-term needs, while securing aviation safety

**3.10**  
**air traffic management**  
**ATM**

dynamic, integrated management of air traffic and airspace including *air traffic services* (3.4), *airspace management* (3.9) and air traffic flow management, safely, economically and efficiently, through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions

Note 1 to entry: The definition is adapted from Reference [13].

**3.11**  
**altitude**

vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL)

Note 1 to entry: The definition is adapted from Reference [6].

**3.12**  
**ATS communication link**

digital or analogue communication link to transfer voice or data between *remote crew members* (3.61), *ATS* (3.4), airspace users and other airspace users

Note 1 to entry: It includes air-ground, air-to-air and ground-ground links.

**3.13****autonomous system**

system that, perceiving its environment and determining if this affects its goals, takes action to ensure as far as practicable that its goals will be safely achieved

**3.14****beyond visual line-of-sight****BVLOS**

operation of a *UAS* (3.80) other than *VLOS* (3.85) or *EVLOS* (3.26)

**3.15****collision avoidance threshold**

boundary around the *UA* (3.79) at which the collision avoidance function declares that action is necessary to avoid a collision, by preventing the threat from penetrating the *collision volume* (3.17)

Note 1 to entry: The definition is adapted from Reference [14].

**3.16****collision boundary**

closest point of approach or minimum distance to be achieved between two *aircrafts* (3.6) to ensure that a collision is avoided taking account of any inaccuracies in the system

**3.17****collision volume**

cylindrical volume of airspace centred on the *UA* (3.79) with a horizontal radius and vertical *height* (3.36) within which a collision is most likely and avoidance of a collision can only be considered a matter of chance

**3.18****command and control link****C2 link**

data link between the *remotely-piloted aircraft* (3.67) and the *remote pilot station* (3.64) for the purposes of managing the flight

Note 1 to entry: The definition is adapted from Reference [6].

**3.19****commercial air transport operation****CAT**

*aircraft* (3.6) operation involving the transport of passengers, cargo or mail for remuneration or hire

Note 1 to entry: The definition is adapted from Reference [7].

**3.20****control station**

defined location containing one or more controls

[SOURCE: ISO 12643-1:2009, 3.12]

**3.21****detect and avoid**

capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action

Note 1 to entry: The definition is adapted from Reference [6].

**3.22****down-link**

direct or indirect data link from the *unmanned aircraft* (3.79) to one or more peers

**3.23****drone**

unmanned system which is remotely or autonomously operated

**3.24**

**droneport**

any aerodrome including *vertiports* (3.83) exclusively dedicated to landing, ground-handling and take-off of *unmanned aircrafts* (3.79)

**3.25**

**dual instruction time**

time during which a person is receiving instruction from a properly authorized *remote pilot* (3.63) at the controls of the *remote pilot station* (3.64)

**3.26**

**extended visual line-of-sight**

**EVLOS**

operation beyond the unaided visual range of the *remote pilot* (3.63), but where the remote pilot is supported by vision systems or one or more visual observers

**3.27**

**flight duty period**

period which commences when the first *remote crew member* (3.61) reports for duty that includes a flight or a series of flights and which finishes when the last remote crew member's duty ends

**3.28**

**flight level**

surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013,2 hPa, and is separated from other such surfaces by specific pressure intervals

Note 1 to entry: The definition is adapted from Reference [6].

**3.29**

**flight manual**

manual, acceptable by the local aviation authority, containing the order of actions in normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the *aircraft* (3.6) systems

**3.30**

**flight recorder**

any type of recorder installed in the *aircraft* (3.6) for the purpose of complementing accident/incident investigation

Note 1 to entry: In the case of *unmanned aircraft* (3.79), it also includes any type of recorder installed in a *remote pilot station* (3.64) for the purpose of complementing accident/incident investigation.

Note 2 to entry: The definition is adapted from Reference [12].

**3.31**

**flight termination system**

means and/or procedure triggered manually or automatically to initiate a pre-programmed action or a set of actions designed to terminate *UA* (3.79) flight, minimising risks to third parties

**3.32**

**flight time**

total time from the moment the on-board systems are activated with the intent to perform a flight, until the moment the on-board systems are de-activated

**3.33**

**general aviation operation**

operation of a *manned aircraft* (3.42) other than a *commercial air transport operation* (3.19) or an *aerial work* (3.1) operation

Note 1 to entry: The definition is adapted from Reference [12].

**3.34****geo-limitation**

process of creating boundaries to contain or exclude *UAS* (3.80) operations

**3.35****handover**

act of passing piloting control from one *remote pilot station* (3.64) to another

Note 1 to entry: The definition is adapted from Reference [12].

**3.36****height**

vertical distance of a level, a point or an object considered as a point, measured from a specified datum

Note 1 to entry: The definition is adapted from Reference [6].

**3.37****instrument flight time**

time during which a pilot is *piloting* (3.57) an *aircraft* (3.6) solely by reference to instruments and without external reference points

**3.38****intruder**

*aircraft* (3.6) within the *surveillance volume* (3.74) but outside the self-separation threshold

**3.39****launch and recovery system**

system from which or by means of which an *unmanned aircraft* (3.79) is launched or by which it is recovered

**3.40****lost link**

loss of *command and control link* (3.18) contact with the *unmanned aircraft* (3.79) such that the *remote pilot* (3.63) can no longer manage the flight of the UA

**3.41****maintenance programme**

document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, necessary for the safe operation of the *UAS* (3.80)

Note 1 to entry: The definition is adapted from Reference [12].

**3.42****manned aircraft**

*aircraft* (3.6) which is intended or designed to be operated with at least one human pilot on board

**3.43****model aircraft**

*UA* (3.79) that is capable of sustained flight in the atmosphere and that is used exclusively for leisure flights, air displays, sport or competition activities

**3.44****monitoring**

process of observing on a regular basis over a period of time

**3.45****night**

period between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be prescribed by an aviation authority

Note 1 to entry: The definition is adapted from Reference [6].

**3.46**

**non-cooperative aircraft**

*aircraft* (3.6) that do not have an electronic means of conspicuity (i.e., a transponder) aboard or not operating such equipment due to malfunction or deliberate action

**3.47**

**operational control**

exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of safety of the *aircraft* (3.6) and the regularity and efficiency of the flight

Note 1 to entry: The definition is adapted from Reference [12].

**3.48**

**operational volume**

volume of airspace in which the *aircraft* (3.6) is proposed to operate, defined by points on the ground and *altitudes* (3.11)

**3.49**

**operating manual**

publication issued by the manufacturer which contains detailed data and instructions related to the design, installation, operation and maintenance of equipment

[SOURCE: ISO 10432:2004, 3.18, modified — "SSSV system equipment" has been replaced by "equipment".]

**3.50**

**operations manual**

publication issued by the *operator* (3.52) under its responsibility, containing procedures, instructions and guidance for use by operational personnel in the execution of their duties

**3.51**

**operations specification**

authorization, condition and limitation associated with the *RPAS* (3.69) *operator* (3.52) certificate and subject to the conditions in the *operations manual* (3.50)

Note 1 to entry: The definition is adapted from Reference [12].

**3.52**

**operator**

person, organization or enterprise engaged in or offering to engage in an operation of an *unmanned aircraft system* (3.80)

Note 1 to entry: The definition is adapted from Reference [6].

**3.53**

**optionally piloted aircraft**

**OPA**

*aircraft* (3.6) that may be operated by an on-board pilot or by a *remote pilot* (3.63)

**3.54**

**operational risk management**

**ORM**

continual cyclic process which includes risk assessment, risk decision making and implementation of risk controls, which results in acceptance, mitigation, or avoidance of risk

**3.55**

**payload**

all elements of an *unmanned aircraft* (3.79) that are not necessary for flight but are carried for the purpose of fulfilling specific mission objectives

**3.56****payload link**

data link for *up-linking* (3.82) command instructions to the *unmanned aircraft* (3.79) *payload* (3.55) and *down-linking* (3.22) payload data, which is not critical to the safe operation of the *unmanned aircraft system* (3.80)

**3.57****pilot**, verb

manipulate the flight controls of an *aircraft* (3.6) during *flight time* (3.32)

**3.58****qualified entity****QE**

accredited legal or natural person which is authorized to execute certain certification or oversight tasks by and under the control and the responsibility of an aviation authority

Note 1 to entry: The definition is adapted from Reference [15].

**3.59****radio line-of-sight****RLOS**

direct electronic contact through radio waves between a transmitter and a receiver, when both are under the control of an *UAS* (3.80) *operator* (3.52)

**3.60****remote co-pilot**

*remote pilot* (3.63) serving in any piloting capacity other than as a *remote PIC* (3.65) but excluding a remote pilot who is an operating crew member for the sole purpose of receiving flight instruction

**3.61****remote crew member**

crew member charged with duties essential to the operation of an *unmanned aircraft* (3.79), during *flight time* (3.32)

**3.62****remote cruise relief pilot**

*remote crew member* (3.61) who is assigned to perform remote pilot tasks during cruise flight, to allow the *remote pilot-in-command* (3.65) to obtain planned rest

Note 1 to entry: The definition is adapted from Reference [12].

**3.63****remote pilot**

person charged by the *operator* (3.52) with duties essential to the operation of an *unmanned aircraft* (3.79) and who manipulates the flight controls, as appropriate, during *flight time* (3.32)

Note 1 to entry: The definition is adapted from Reference [6].

**3.64****remote pilot station****RPS**

station at which the *remote pilot* (3.63) manages the flight of an *unmanned aircraft* (3.79)

**3.65****remote pilot-in-command****remote PIC****PIC**

*remote pilot* (3.63) designated by the *operator* (3.52), as being in command and charged with the safe conduct of flight

Note 1 to entry: The definition is adapted from Reference [12].

**3.66**

**remotely-piloted**

<of an aircraft> controlled from a pilot station which is not on board the *aircraft* (3.6)

**3.67**

**remotely-piloted aircraft**

**RPA**

*unmanned aircraft* (3.79) which is *piloted* (3.57) from a *remote pilot station* (3.64)

Note 1 to entry: The definition is adapted from Reference [6].

**3.68**

**RPA observer**

*remote crew member* (3.61) who, by visual observation of the *unmanned aircraft* (3.79), assists the *remote pilot* (3.63) in the safe conduct of the flight

**3.69**

**remotely-piloted aircraft system**

**RPAS**

set of configurable components consisting of a *remotely-piloted aircraft* (3.67), its associated *remote pilot station(s)* (3.64), the required *command and control links (C2 links)* (3.18) and any other system components as may be required, at any point during flight operation

**3.70**

**RPAS operator certificate**

**ROC**

certificate authorizing an *operator* (3.52) to carry out specified *RPAS* (3.69) operations

Note 1 to entry: The definition is adapted from Reference [12].

**3.71**

**segregated airspace**

airspace of specified dimensions allocated for exclusive use to a specific user(s)

**3.72**

**solo flight time**

*flight time* (3.32) during which a student *remote pilot* (3.63) is *piloting* (3.57) the *RPA* (3.67) without receiving RPA flight instruction

**3.73**

**state aircraft**

*aircraft* (3.6) when carrying out military, customs, police, search and rescue, firefighting, coastguard or similar activities or services under the control and responsibility of a State, undertaken in the public interest by a body vested with public authority powers

**3.74**

**surveillance volume**

volume which describes the effective limits (e.g. range, elevation, azimuth) of the surveillance system

**3.75**

**swarm**

two or more *UA* (3.79) whose motion is mutually and automatically coordinated, while the *remote pilot* (3.63) controls all of them through a single *remote pilot station* (3.64)

**3.76**

**switchover**

operation that consists of performing the transfer command and control from one data link channel to another channel with the same *remote pilot station* (3.64)