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Unmanned aircraft systems —

Part 1: General specification

Aéronefs sans pilote — Partie 1: Spécifications générales

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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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see <u>www.iso</u> .org/iso/foreword.html. (standards.iteh.ai)

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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 <u>www.iso.org/members.html</u>.

Unmanned aircraft systems —

Part 1: General specification

1 Scope

This document specifies the general requirements for UAS for civil applications including commercial. This document provides the foundation and common terms, definitions and references relevant to the whole standard, the purpose of which is to provide a safety quality standard for the safe operation of all UAS through the provision of synergistic standards for manufacturing and operations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21384-2, Unmanned aircraft systems - Part 2: Product systems

ISO 21384-3, Unmanned aircraft systems - Part 3: Operational procedures

ISO 21384-4, Unmanned aircraft systems — Part 4: Terms and definitions

ISO/DIS 21384-1

ISO 21895, Categorization and classification of civil unmanned aircraft systems

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21384-4 apply.

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 <u>http://www.electropedia.org/</u>

4 General requirements

4.1 Compliance with aviation law and regulations

- The design, production, distribution, ownership, registration, training of personnel, operation, maintenance and disposal and any other action related to UAS, shall be compliant with the laws and regulations applicable internationally and in the involved States, including but not limited to safety of industrial products, civil aviation, health and safety of workers as well as security, liability, environmental protection, privacy and data protection.
- UA are considered aircraft in Annex 7 to the Chicago Convention and therefore regulated by the Civil Aviation Authorities (or other competent authorities designated by the State) in many States.
- UAS operation representing a high safety risk, may be required to be certified, licensed or approved in accordance with the administrative procedures applicable to manned aviation.

- National airspace is under the sovereignty of individual States. Therefore, competent authorities
 designated by the State establish rules for access and use of the national airspace.
- Various services are provided in the airspace by Air Navigation Service Providers (ANSP) including new emerging providers for UAS Traffic Management in VLL airspace.
- To access airspace, requirements on UAS equipment or functionality may apply, as well as procedures to obtain authorization from an ANSP.

4.2 UAS safety

- In comparison to manned aviation, the specifications, system architectures and operation of UAS are significantly different and spanning across a wider range of applications. Therefore, the risks associated with the operation of UAS depend on design features of the UAS, on the performance of the UA and on the intended operation, on the intended operational scenario, as well as on the normal, abnormal and emergency procedures.
- A formal risk based approach to safety and security, coupled with sufficient evidence of mitigation, is vital for those involved in the design, production, operation and continued airworthiness of UAS to assure airworthiness, operational safety as well as the risk of physical or cyber interference or takeovers from others.

5 Classification and categorization

ISO 21895 provides a holistic framework for the classification of UAS from different viewpoints which are subsequently categorized and graded against a stakeholder specific rule set. The framework provides a valuable tool for all stakeholders on the industry to categorize UAS from their own perspective and the perspective of others.

The following Figure 1 shows a conceptual structure of the UAS classification framework.



Figure 1 — Classification and grading principle framework

6 Product systems

UAS design and production can be very different to that of manned aviation and, as such, it requires a specialised, risk-based approach to assure airworthiness of the product. ISO 21384-2 details the UAS specific safety requirements as well as providing useful information for UAS manufacturers.

This document will evolve with the industry underpinning its development and providing an industry approved safety and quality framework for the manufacture of all UAS.

7 Operational procedures

UAS operations can be very different from that of manned aviation and, as such, require a specialised, risk-based approach to operational safety. ISO 21384-3 details the UAS specific operational safety systems, procedures and requirements as well as providing useful information for UAS operators.

This document will evolve with the industry underpinning its development and providing an industry approved safety and quality framework for all commercial UAS operations.

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[1] ICAO. 2012, Annex 7 to the Chicago Convention, Aircraft Nationality and Registration Marks, Montreal, 6th edition including amendment 6

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