INTERNATIONAL STANDARD

ISO 23665

Unmanned aircraft systems — Training for personnel involved in UAS operations

Aéronefs sans pilote — Formation du personnel impliqué dans l'exploitation d'UAS

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 www.iso.org/iso/foreword.html.

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

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 https://www.iso.org/members.html.

Introduction

Unmanned aircraft (UA) have been rapidly increased in number, application and type within recent decades. UA are commonly utilized for filming, agricultural spraying, inspection, security activities and are expected to be also employed for transportation.

However, the required knowledge, attitude and skill levels for personnel who are involved in unmanned aircraft system (UAS) operations need to be clearly defined. When unskilled persons operate a UA, the risk of a serious accident will increase. Discrepancies in qualification criteria among countries or organizations will also prevent the international exchange of workers and aircraft.

This document helps to ensure that personnel who are involved in UAS operations receive appropriate education and obtain essential knowledge and skill. Training organizations and individuals qualified according to this document will be internationally recognized. It will enhance the international operation of UAS, enable personal exchange, and encourage international trade.

The main body of this document defines the procedures for the operation of a training organization, which is the entity that delivers training to trainees. The requirements for a specific course (VLOS UAS remote pilot-in-command) are located in Annex A. It is envisioned that further courses will be defined later and that these will be added as additional annexes in the future.

Unmanned aircraft systems — Training for personnel involved in UAS operations

1   Scope

This document describes the procedures for training personnel who will be involved in the operation of unmanned aircraft systems (UAS).

This document defines:

a)   knowledge, skill, attitude and qualification criteria that are needed for UAS pilots and training organizations that provides training to trainees of UAS remote pilots and other personnel involved in UAS operations;

b)   training curriculum and contents for specific learning courses;

c)   qualification and confirmation criteria for the training organizations;

d)   general procedures for providing training of UAS personnel. The requirements for a specific course as described in the annexes can be more restrictive in some cases.

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 21384-3:2019, *Unmanned aircraft systems — Part 3: Operational procedures*

ISO 21384-4:2020, *Unmanned aircraft systems — Part 4: Vocabulary*

ISO 21895, *Categorization and classification of civil unmanned aircraft systems*

3   Terms and definitions

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

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

—   ISO Online browsing platform: available at https://www.iso.org/obp

—   IEC Electropedia: available at http://www.electropedia.org/

3.1
national aviation authority
government statutory authority in each country that oversees the approval and regulation of civil aviation

3.2
visual observer
remote crew member who, by visual observation of the remotely piloted aircraft, assists the *remote pilot* (3.3) in the safe conduct of the flight