INTERNATIONAL STANDARD

ISO 24356

First edition
2022-08

General requirements for tethered unmanned aircraft systems

Exigences générales relatives aux aéronefs sans pilote captifs

Reference number
ISO 24356:2022(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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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 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 www.iso.org/members.html.

Introduction

The purpose of this document is to describe a general technical architecture for tethered unmanned aircraft systems (*t*UAS). It addresses the general requirements for components and subsystems, functions and performance. The objective is to promote international trade, provide a technical basis for related industrial applications, a guidance for development and manufacturing, and to promote safe operations.

General requirements for tethered unmanned aircraft systems

1 Scope

This document specifies general and manufacturing requirements for tethered unmanned aircraft systems (*t*UAS), including heavier-than-air tethered unmanned aircraft (*t*UA), which are powered by equipment on the ground. The specifications are intended for *t*UAS where the purpose for the tether is to supply power to the *t*UA as well as to provide a mechanical restraint. Unmanned aircrafts (UAs) that are not receiving power from and only restrained by the tether are referred to ISO 21384-2; however, there are clauses in this document that apply to the tethering equipment (e.g. winches and cables).

This document is applicable to the development, manufacturing, industrial applications and delivery of *t*UAS.

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: UAS components*

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

ISO 23629 (all parts), *UAS traffic management (UTM)*

IEC 60228, *Conductors of insulated cables*

IEC 60811, *Common test methods for insulating and sheathing materials of electric cables and optical cables*

IEC 60885-1, *Electrical test methods for electric cables — Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V*

IEC 61076-1, *Connectors for electronic equipment — Product requirements — Part 1: Generic specification*

IEC 61076-2, *Connectors for electronic equipment — Product requirements — Part 2: Circular connectors*

IEC 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications*

IEC 62197-1, *Connectors for electronic equipment — Product requirements — Part 1: Generic specification*

IEC 62197-2, *Connectors for electronic equipment — Product requirements — Part 2: Sectional specification for circular connectors*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21384-2, ISO 21384-4 and the following apply.

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

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