
**Technical requirements for small
unmanned aircraft electric energy
systems**

*Exigences techniques relatives aux systèmes d'énergie électrique pour
petits aéronefs sans pilote*



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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).

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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.

Technical requirements for small unmanned aircraft electric energy systems

1 Scope

This document provides technical requirements and test methods for small unmanned aircraft electric energy systems (EESs).

This document applies to the EES of small unmanned aircrafts (UAs) with the maximum take-off mass (MTOM) less than 25 kg corresponding to unmanned aircraft systems (UASs) at level I, II, III and IV as graded in ISO 21895:2020, and with secondary lithium batteries. This document can apply to new type of batteries to be used in the UA electric energy system in the future.

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*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60950, *Information technology equipment - Safety*

IEC 62281:2019, *Safety of primary and secondary lithium cells and batteries during transport*

United Nations *Manual of Tests and Criteria, Seventh revised edition, Section 38.3: Lithium Batteries* (2019)

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

electric energy system

EES

software and hardware system that provides the energy required for the unmanned aircraft, and distributes, controls, detects and estimates the energy

3.2

secondary lithium battery

rechargeable unit which incorporates *secondary lithium cells* (3.3) electrically connected in series and/or parallel with or without monitoring and protection circuitry for charging and discharging

Note 1 to entry: It may incorporate adequate housing and a terminal arrangement and may have electronic control devices.