SLOVENSKI STANDARD
oSIST prEN 4709-008:2024

01-maj-2024

Aeronavtika - Letalski sistemi brez posadke - 008. del: C5 Dodatni kompleti

Aerospace series - Unmanned Aircraft Systems - Part 008: C5 Accessories kits

Luft- und Raumfahrt - Unbemannte Luftfahrzeugsysteme - Teil 008: Zubehörsätze der Klasse C5

Série aérospatiale - Aéronefs télépilotés - Partie 008 : Kits d'accessoires classe C5

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Ta slovenski standard je istoveten z: **prEN 4709-008**

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ICS:		
49.020	Letala in vesoljska vozila na splošno	Aircraft and space vehicles in general

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 4709-008

February 2024

ICS

English Version

Aerospace series - Unmanned Aircraft Systems - Part 008: C5 Accessories kits

Luft- und Raumfahrt - Unbemannte Luftfahrzeugsysteme - Verifizierungsmethode für die Geocaging Funktion.

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 471.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (prEN 4709-008:2024) has been prepared by Technical Committee CEN/TC 471 UAS, the secretariat of which is held by BNAE.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

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1 Scope

This document provides technical specification and verification methods to support compliance with Commission Delegated Regulation (EU) 2020/1058 of 27 April 2020 amending Delegated Regulation (EU) 2019/945 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems.

More specifically, it addresses compliance with class C5 accessories kit requirements.

Even if security, including IT security, may be useful from an operational point of view, it falls outside the scope of this document.

This document delineates how a product compliance for the C5 accessories performance and reliability of the safety equipment can be ensure. The specifications will ensure that the manufacturer's C3 compliance is not altered by the accessories kit.

This document only addresses UA with lift provided by rotary wings. Fixed wings, VTOL and other hybrid UA are out of this scope.

Compliance with this document assists in complying with CE marking technical requirements.

This document is only applicable for UA with energy sources based on electro-chemical technologies.

Additional hazards that occur from the characteristics of the payload are excluded and are, conversely, under the responsibility of the UAS manufacturer and UAS operator.

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.

prEN 4709-001:2021,[1] *Aerospace series — Unmanned Aircraft Systems — Part 001: Product requirements and verification methods*

prEN 4709-004:2020,[1] *Aerospace series — Unmanned Aircraft Systems — Part 004: Lighting requirements*

prEN 4709-006:2023,[1] *Aerospace series - Unmanned Aircraft Systems - Part 006: Means to terminate flight, requirements, and verification*

prEN 4709-007:2024,[1] *Aerospace series - Unmanned Aircraft Systems - Part 007: General product requirements for UAS of classes C5 and C6*

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[1] At draft stage.

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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
CE marking
marking by which the manufacturer indicates that the product is in conformity with the applicable requirements set out in Union harmonization legislation providing for its affixing

3.2
kit provider
legal entity that provides the C5 accessory kit and accompanying requisites under their name or trademark

3.3
qualified kit integrator
legal or natural entity with a suitable level of expertise and knowledge qualified to proceed with the installation and the verification of the kit

3.4
manufacturer serial number
unique sequence of alphanumerical characters assigned to the UA by its manufacturer in ANSI/CTA-2063-A-2019 format

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3.5
means to reduce the effect of the UA impact dynamics
technical means as part of a UAS that prevent major impact damage to mitigate the risk that the remote pilot does not activate the means to terminate the flight in time, fearing the damage and the potential destruction of the UA

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3.6
payload
instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is installed in or attached to the aircraft, and is not used or intended to be used in operating or controlling an aircraft in flight, and is not part of an airframe, engine, or propeller

3.7
UA
aircraft operating, or designed to operate, autonomously or to be piloted remotely without a pilot on board

3.8
UA class
C0 to C6 class identification label of UA as defined in Regulation (EU) 2019/945

3.9
UA configuration
basic design arrangement of the UA: fixed-wing, rotary wing, or multicopter

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3.10
UAS
unmanned aircraft and its associated elements which are operated with no pilot on board

3.11
UAS software
software running on board UA or at its associated elements such as the command unit

3.12
UAS software modification
modification of UA software that is not documented by the original UA manufacturer in its instructions

[SOURCE: ISO/CD 21384-2.]

4 Product requirements and compliance for accessories kit transforming a C3-class UAS into a C5-class UAS

4.1 UA configuration

4.1.1 Requirements

(1) An accessories kit may only ensure conversion of a class C3 UAS.

(2) The class C3 UAS is not a fixed wing one.

(3) The class C3 UAS provides the necessary interfaces to the accessories.

4.1.2 Verification method

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Requirement (1)

Verify that the kit comes with a list of compatible UAS and that each one of them is of class C3. If the UAS has different possible configurations (payloads, etc.), the list shall provide details of the compatible configurations. Each compliant UAS shall be identified by its version and its software version.

Requirement (2)

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Verify that the UAS listed in the manufacturer's instructions for which the kit provides conversion is not fixed wings whether or not equipped with a VTOL capability ones unless tethered.

Requirement (3)

Review the installation instructions provided with the kit and test the mounting of the kit on all the compliant UAS. The compliant UAS addressed by the kit shall have the necessary interface so that the kit can be integrated on them. The kit shall describe the interface needed for its mounting. Interfaces can be not mandatory if the kit can be fitted without any interfaces. As of the published date of this specification, no standard has defined an interface for FTS or PRS. In the absence of a defined interface, the accessory kit manufacturer may describe an acceptable existing interface present on the compatible UAS.

Refer to 4.3.2.1 for description of the means to check compatibility.

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4.1.3 Pass criteria

(1) The manufacturer's instructions of the kit include a list of compatible UAS. The list describes the compatible configurations for each UAS for which several configurations are possible. A Declaration of Conformity covering Regulation (EU) 2019/945 and indicating a C3 type is provided (in the technical file) for each UAS included in the list.

(2) The design of the UA does not include features that can be assimilated to wings generating lift and enabling the aircraft flying horizontally.

(3) The interface proposed is an existing interface (for example, battery connectors for FTS). No interface is specifically added on the UAS for the accessory kit.

The kit is well mounted on the proposed interface following the installation instructions provided by the kit.

4.2 UAS software configuration

4.2.1 Requirements

(1) The accessories kit shall not include changes to the original software of the class C3 UAS.

NOTE The kit can include software configuration instructions for setting some parameters in the original software present in the UA.

4.2.2 Verification method

Requirement (1)

Verify by design review that the kit functionalities are independent from the software of the drone. If there is software communication between the kit and the drone, those shall be described and there shall have no impact on the main functionalities: FTS and means to reduce impact energy. The design shall indicate which software version the kit is applicable to.

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4.2.3 Pass criteria

(1) The design review proves independence of the kit from the software of the UA. The kit comes with a list of compatible software versions.

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4.3 UAS original C3 compliance

4.3.1 General

The kit shall not alter the original compliance of the class C3 UAS.

4.3.2 MTOM

4.3.2.1 Requirements

(1) The mass of the combination of the UA with items included in the kit shall not exceed the MTOM of class C3.

4.3.2.2 Verification method

Requirement (1)

— Review the packaging, identify all the items provided with the kit in the different packaging and draw-up the list of items that are fitted to the UA.

— Determine the masses of all items that are fitted to the UA in the list of items and determinate the mass according to the weighing procedure described below.