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I.S. EN 50512:2009

Electrical installations for lighting and beaconing of aerodromes - Advanced Visual Docking Guidance Systems (A-VDGS)

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English version

Electrical installations for lighting and beaconing of aerodromes - Advanced Visual Docking Guidance Systems (A-VDGS)

Installations électriques pour l'éclairage et le balisage des aérodromes - Systèmes Avancés de Guidage Visuel pour l'Accostage (SAGVA)

Elektrische Anlagen für Beleuchtung und Befeuerung von Flugplätzen - Erweitertes optisches Andockführungssystem (A-VDGS)

This European Standard was approved by CENELEC on 2008-12-01. CENELEC 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by Working Group 3 of the Technical Committee CENELEC TC 97, Electrical installations for lighting and beaconing of aerodromes.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50512 on 2008-12-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2009-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-12-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 2004/108/EC. See Annex ZZ.

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Contents

Introduction

This European Standard contains the requirements for an Advanced Visual Docking Guidance System (A-VDGS) as it is described in the ICAO Annex 14. This standard covers the characteristics of the electrical and mechanical components. This standard includes the software design where this affects the required system performance and safety.

An A-VDGS is to be designed to achieve safe and precise guidance during the docking procedure of an aircraft. The system provides at least a display which shows information of azimuth guidance and stop information.

The use of an A-VDGS is in principle limited to a defined area with an opening angle and a border distance to the stop point related to the centre line. The reference point for all distances and guidance information at the aircraft is the central axis of the nose wheel.

It has to be considered that in some cases the topographical situation of an airport requires a reduced working area for an A-VDGS which will result in the area being different from the requirements stated herein.

For practical use on the airport it has to be considered that the detection range can be limited due to the actual weather and visibility condition prevailing (fog, rain, snow, etc.).

1 Scope

This European Standard specifies requirements of electrical and mechanical design, installation, maintenance and testing procedures for advanced visual docking guidance systems.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 60068-2-1, Environmental testing - Part 2-1: Tests - Test A: Cold (IEC 60068-2-1)

EN 60068-2-2, Environmental testing - Part 2-2: Tests - Test B: Dry heat (IEC 60068-2-2)

EN 60068-2-5, Environmental testing - Part 2-5: Tests - Test Sa: Simulated solar radiation at ground level (IEC 60068-2-5)

EN 60068-2-30, Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) (IEC 60068-2-30)

EN 60068-2-64, Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance (IEC 60068-2-64)

EN 60439-1:1999, Low-voltage switchgear and control gear assemblies - Part 1: Type-tested and partially type-tested assemblies (IEC 60439-1:1999)

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

EN 60825-1, Safety of laser products - Part 1: Equipment classification and requirements (IEC 60825-1)

EN 61000-3-2, Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2)

EN 61000-3-3, Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection (IEC 61000-3-3)

EN 61000-3-11, Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection (IEC 61000-3-11)

EN 61000-3-12, Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase (IEC 61000-3-12)

EN 61000-6-2, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments (IEC 61000-6-2)

EN 61000-6-3, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)

HD 472, Nominal voltages for low-voltage public electricity supply systems
(IEC 60038 ‘IEC standard voltages’, mod.)

HD 60364 series, Low voltage electrical installations (IEC 60364 series, mod.)

3 Definitions

For the purposes of this document, the following terms and definitions apply.

The following definitions were developed to be included in international standards relating to A-VDGS on aerodromes.

3.1
Advanced Visual Docking Guidance System (A-VDGS)
those systems that provide additional guidance information to pilots, e.g. aircraft type indication, distance-to-go information and closing speed. Docking guidance information is provided on an A-VDGS display. Advanced-VDGS also permit interfacing to external management, guidance or allocation systems

3.2
A-VDGS display
display which presents the guidance and other information to the pilots in the left and/or right hand seats and to the drivers and to any other persons assisting the aircraft docking procedure

3.3
aircraft type
the aircraft manufacturer's designation for an aircraft grouping with similar design or style of structure

3.4
ambient brightness
the overall brightness level in the viewing environment surroundings