
Maritime navigation and radiocommunication equipment and systems - Radar - Part 3: Radar with chart facilities - Performance requirements, methods of test and required test results (IEC 60936-3:2002)

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EUROPEAN STANDARD

EN 60936-3

NORME EUROPÉENNE

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**Maritime navigation and radiocommunication
equipment and systems -
Radar
Part 3: Radar with chart facilities -
Performance requirements -
Methods of testing and required test results
(IEC 60936-3:2002)**

Matériels et systèmes de navigation et
de radiocommunications maritimes -
Radars
Partie 3: Radars avec systèmes
d'enregistrement -
Performances techniques -
Méthodes d'essai et résultats exigibles
(CEI 60936-3:2002)

Navigations- und Funkkommunikations-
geräte und -systeme für die Seeschifffahrt -
Radar
Teil 3: Radar mit Seekarteneinrichtung -
Leistungsanforderungen, Prüfverfahren
und geforderte Prüfergebnisse
(IEC 60936-3:2002)

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This European Standard was approved by CENELEC on 2002-06-01. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 80/337/FDIS, future edition 1 of IEC 60936-3, prepared by IEC TC 80, Maritime navigation and radiocommunication equipment and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60936-3 on 2002-06-01.

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) 2003-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-06-01

Annexes designated "normative" are part of the body of the standard. In this standard, annexes A, B, C and ZA are normative. Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60936-3:2002 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60872-1	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - Radar plotting aids Part 1: Automatic radar plotting aids (ARPA) - Methods of testing and required test results	EN 60872-1	1998 ²⁾
IEC 60872-2	- ¹⁾	Part 2: Automatic tracking aids (ATA) - Methods of testing and required test results	EN 60872-2	1999 ²⁾
IEC 60872-3	- ¹⁾	Part 3: Electronic plotting aid (EPA) - Performance requirements - Methods of testing and required test results	EN 60872-3	2001 ²⁾
IEC 60945	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	1997 ²⁾
IEC 60936-1	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - Radar Part 1: Shipborne radar - Performance requirements - Methods of testing and required test results	EN 60936-1	2000 ²⁾
IEC 60936-2	- ¹⁾	Part 2: Shipborne radar for high-speed craft (HSC) - Methods of testing and required test results	EN 60936-2	1999 ²⁾
IEC 61162	Series	Maritime navigation and radiocommunication equipment and systems - Digital interfaces	EN 61162	Series

1) Undated reference.

2) Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61174	- ¹⁾	Maritime navigation and radiocommunication equipment and systems - Electronic chart display and information system (ECDIS) - Operational and performance requirements, methods of testing and required test results	EN 61174	2001 ²⁾
IMO	- ¹⁾	Convention for the Safety of Life at Sea (SOLAS), as amended	-	-
IMO Resolution MSC.64(67) Annex 4	- ¹⁾	Performance standards for radar equipment	-	-
IMO Resolution A.694(17)	- ¹⁾	General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids	-	-
IMO Resolution A.820	- ¹⁾	Performance standards for navigational radar equipment for high-speed craft	-	-
IMO Resolution A.817	- ¹⁾	Performance standards for electronic chart display and information systems (ECDIS)	-	-
IHO S52 and appendices	- ¹⁾	Specifications for Chart Content and Display Aspects of ECDIS	-	-

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Part 3:

Radar with chart facilities –

Performance requirements –

Methods of testing and required test results

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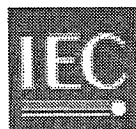
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION
EQUIPMENT AND SYSTEMS – RADAR –Part 3: Radar with chart facilities – Performance requirements –
Methods of testing and required test results

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60936-3 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
80/337/FDIS	80/342/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B and C form an integral part of this standard.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – RADAR –

Part 3: Radar with chart facilities – Performance requirements – Methods of testing and required test results

1 Scope

This part of IEC 60936 specifies the minimum operational and performance requirements, methods of testing and required test results conforming to performance standards not inferior to those adopted by the IMO in Resolution MSC.64(67) Annex 4 Radar clauses 3.3.9 and 3.3.10 for the optional requirements for superimposition of selected parts of SENC information. In addition it takes account of IMO Resolution A.694 and is associated with IEC 60945. When a requirement of this standard is different from IEC 60945, the requirement in this standard shall take precedence.

A High Speed Craft (HSC) radar, as defined in IEC 60936-2, that uses 'selected parts of the SENC' shall comply with the requirements of this standard.

This standard does not include the mandatory performance requirements for the shipborne radar or HSC radar. These are specified in IEC 60936-1, Shipborne radar, and IEC 60936-2, HSC radar respectively.

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All text in this standard, whose wording is identical to that in IMO Resolution MSC.64(67) Annex 4 is printed in *italics* and the Resolution (abbreviated to – A4) and paragraph numbers are indicated in brackets, i.e. (A4/3.3).

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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.

IEC 60872-1, *Maritime navigation and radiocommunication equipment and systems – Radar plotting aids – Part 1: Automatic radar plotting aids (ARPA) – Methods of testing and required test results*

IEC 60872-2, *Maritime navigation and radiocommunication equipment and systems – Radar plotting aids – Part 2: Automatic tracking aids (ATA) – Methods of testing and required test results*

IEC 60872-3, *Maritime navigation and radiocommunication equipment and systems – Radar plotting aids – Part 3: Electronic plotting aid (EPA) – Methods of testing and required test results*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

IEC 60936-1, *Maritime navigation and radiocommunication equipment and systems – Radar – Part 1: Shipborne radar – Performance requirements – Methods of testing and required test results*

IEC 60936-2, *Maritime navigation and radiocommunication equipment and systems – Radar – Part 2: Shipborne radar for high-speed craft (HSC)– Methods of testing and required test results*

IEC 61162, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces*

IEC 61174, *Maritime navigation and radiocommunication equipment and systems – Electronic chart display and information system (ECDIS) – Operational and performance requirements, methods of testing and required test results*

IMO Convention for the Safety of Life at Sea (SOLAS) as amended

IMO Resolution MSC.64(67) Annex 4 *Recommendation on performance standards for radar equipment.*

IMO Resolution A.694(17), *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system and for electronic navigational aids*

IMO Resolution A.820(19), *Performance standards for navigational radar equipment for high-speed craft*

IMO Resolution A.817(19), *Performance standards for electronic chart display and information systems*

IHO S52 and appendices

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3 Definitions and abbreviations

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For the purposes of this part of IEC 60936 the following definitions and abbreviations apply.

3.1 Definitions

3.1.1

ECDIS

IEC 61174 'Electronic chart display and information system' (ECDIS) means a navigation information system which, with adequate backup arrangements, can be accepted as complying with the up-to-date chart required by regulation V/20 of the 1974 SOLAS Convention. It displays selected information from a system electronic navigational chart (SENC) with positional information from navigational sensors to assist the mariner in route planning and route monitoring, and by displaying additional navigation-related information. The reference geodetic datum is WGS-84

3.1.2

SENC

System Electronic Navigational Chart (SENC) means a database resulting from the transformation of the ENC for appropriate use, updates to the ENC by appropriate means, and other data added by the mariner. It is this database that is actually accessed for the display generation and other navigational functions, and which is the equivalent to an up-to-date paper chart. The SENC may also contain information from other sources