

Maritime navigation and radiocommunication equipment and systems — Radar —

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

The European Standard EN 60936-3:2002 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 60936-3:2002. It is identical with IEC 60936-3:2002.

The UK participation in its preparation was entrusted to Technical Committee EPL/80, Maritime navigation and radiocommunication equipment and systems, which has the responsibility to:

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**Maritime navigation and radiocommunication
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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-
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Radar
Teil 3: Radar mit Seekarteneinrichtung -
Leistungsanforderungen, Prüfverfahren
und geforderte Prüfergebnisse
(IEC 60936-3:2002)

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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.

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- 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with the EN have to be withdrawn (dow) 2005-06-01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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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.

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).

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

3 Definitions and abbreviations

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

3.1.3

ENC

Electronic Navigation Chart (ENC) means the database, standardized as to content, structure and format, issued for use with ECDIS on the authority of government authorized hydrographic offices. The ENC contains all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation. The content, structure and format of the ENC are specified in IHO S-57 Edition 3 including the associated ENC product specification

3.1.4

ENC test data set

a standardized data set supplied on behalf of the International Hydrographic Organisation (IHO) that is necessary to accomplish IEC testing requirements for ECDIS. This test data set is encoded according to the IHO S-57 ENC product specification and contains update information based on IHO S-52 appendix 1. The specific requirements are listed in IEC 61174 annex F

3.1.5

consistent common reference system

sensor input data, providing identical and obligatory reference pertaining to position, course, heading, bearing, speed, velocity, etc. and horizontal datum to different sub-systems within an integrated navigation system

3.1.6

degrade

reduce the information content of

3.1.7

primary chart-information set

coastlines, own ship's safety contour, dangers to navigation and fixed and floating aids to navigation, as further detailed in IMO Resolution A.817 Appendix 2 clauses 1.1, 1.2, 1.3, 1.4 and 2.3 only. See annex A of this standard for the specification of chart symbols and features, to be used.

3.2 Abbreviations

ECDIS	Electronic chart display and information system
ENC	Electronic navigation chart
EPFS	Electronic position fixing system
EUT	Equipment under test
HSC	High speed craft
IHO	International Hydrographic Organisation
SENC	System electronic navigational chart
TM	True motion
N UP	North up

4 Performance requirements

4.1 General

The performance of the shipborne radar (or HSC radar) shall not be inferior to the performance requirements adopted by the IMO in MSC.64(67) Annex 4 Radar (or A.820(19) HSC radar) as specified in IEC 60936-1 and IEC 60936-2 respectively.