



INTERNATIONAL STANDARD

**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**

Withhold

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and abbreviations	9
3.1 Definitions	10
3.2 Abbreviations	13
4 Minimum operational and performance requirements.....	13
4.1 General.....	13
4.2 ECDIS definitions	14
4.3 Display of SENC information	14
4.3.1 SENC	14
4.3.2 Warning indication.....	14
4.3.3 Categories of display.....	15
4.3.4 Safety contour	15
4.3.5 Safety depth.....	15
4.3.6 Information content.....	15
4.3.7 Verification and updates.....	15
4.3.8 Information about chart objects.....	16
4.3.9 Display scale	16
4.4 Provision and updating of chart information.....	16
4.4.1 Contents of the SENC	16
4.4.2 Updates.....	16
4.5 Scale.....	17
4.6 Display of other navigational information	17
4.6.1 Common reference system.....	17
4.6.2 Radar and plotting information.....	17
4.7 Display mode and generation of the neighbouring area	17
4.8 Colours and symbols.....	18
4.9 Display requirements.....	18
4.9.1 Route planning and monitoring	18
4.9.2 Chart presentation size.....	18
4.9.3 Colour and resolution	18
4.9.4 Presentation	18
4.9.5 Removal of information categories.....	19
4.10 Route planning, monitoring and voyage recording	19
4.10.1 General	19
4.10.2 Route planning	19
4.10.3 Route monitoring	19
4.10.4 Position integration.....	20
4.10.5 Object information	21
4.10.6 LOP position fix	21
4.10.7 Voyage recording	21
4.11 Calculations and accuracy.....	22
4.12 Connections with other equipment (interfaces)	22
4.13 Performance tests, malfunction alarms and indications.....	23
4.14 Back-up arrangements	23

4.15	Power supply.....	23
4.16	Software maintenance.....	24
5	Requirements contained in IHO special publications.....	24
5.1	Content and structure of chart data.....	24
5.2	Priority of chart display.....	24
5.3	Display of chart information.....	25
5.3.1	Scale and navigation purpose.....	25
5.3.2	Text.....	25
5.3.3	Units and legend.....	26
5.4	Display functions.....	26
5.4.1	Object information.....	26
5.4.2	Navigational information.....	26
5.4.3	Safety contour.....	27
5.4.4	Navigational calculations.....	27
5.4.5	Date-dependant ENC objects.....	27
5.5	Supplementary display functions.....	28
5.5.1	Additional mariner's information.....	28
5.5.2	Additional non-HO information.....	28
5.5.3	Tidal adjustment.....	28
5.6	Use of the presentation library.....	29
5.6.1	Presentation library.....	29
5.6.2	Test diagrams.....	29
5.7	Display characteristics.....	29
5.7.1	Display base.....	29
5.7.2	Navigators notes.....	29
5.8	Performance requirements.....	30
5.8.1	Redraw.....	30
5.8.2	Resolution.....	30
5.8.3	Symbols.....	30
5.8.4	Number of colours.....	30
5.8.5	Brightness and contrast.....	30
5.9	Ergonomic requirements.....	31
5.9.1	Mode and orientation.....	31
5.9.2	Windows.....	31
5.9.3	Mariner's information panel.....	31
5.10	Update of chart information.....	31
5.10.1	General.....	31
5.10.2	Manual update.....	32
5.10.3	Semi-automatic update.....	33
5.10.4	Reception of updates.....	33
5.10.5	Sequence check.....	33
5.10.6	Consistency check.....	34
5.10.7	Geographic applicability.....	34
5.10.8	Summary report.....	34
5.10.9	Review of ENC updates.....	34
5.10.10	Modification of updates.....	34
6	Methods of testing and required test results.....	34
6.1	EUT installation, technical documentation, and test requirements.....	34
6.2	Interfaces.....	35

6.3	General requirements and presentation requirements.....	35
6.3.1	General requirements	35
6.3.2	Presentation requirements.....	35
6.4	Preparation	36
6.4.1	Power-up.....	36
6.4.2	Initial ship parameters	36
6.4.3	Required test items	36
6.5	Initial data tests.....	36
6.5.1	Presentation library	36
6.5.2	ENC	37
6.5.3	Encrypted ENC.....	37
6.6	Accuracy	38
6.7	Visual requirements.....	38
6.7.1	Symbols	38
6.7.2	Units and legend	38
6.7.3	Colour table.....	39
6.7.4	Resolution	39
6.7.5	Display characteristics.....	39
6.8	Functional requirements	39
6.8.1	Standard display.....	40
6.8.2	Display base.....	40
6.8.3	All other information	40
6.8.4	Display priorities.....	40
6.8.5	Additional display functions	40
6.8.6	Scale and navigation purpose.....	41
6.8.7	Mode and orientation.....	41
6.8.8	Safety contour.....	42
6.8.9	Safety depth.....	42
6.8.10	Object information	42
6.8.11	Navigation related functions	43
6.8.12	Position integration.....	43
6.8.13	Radar and plotting information.....	44
6.8.14	Loading of corrupted data.....	44
6.8.15	Automatic updates	45
6.8.16	Manual updates	46
6.8.17	Self-tests of major functions	46
6.9	Operational requirements	47
6.9.1	Ergonomic principles	47
6.9.2	Route planning	47
6.9.3	Route monitoring	48
6.9.4	Twelve-hour log.....	49
6.9.5	Voyage record.....	49
6.9.6	Power supply.....	50
6.9.7	LOP position fix	50
6.10	Software maintenance.....	50
	Annex A (normative) SENC information to be displayed during route planning and route monitoring.....	51
	Annex B (normative) Navigational elements and parameters.....	52
	Annex C (normative) Areas for which special conditions exist	53

Annex D (normative) Alarms and indicators	54
Annex E (normative) ENC test data set.....	55
Annex F (normative) Back-up arrangements	58
Annex G (normative) ECDIS in the RCDS mode of operation	68
Annex H (normative) Alarms and indicators in the RCDS mode of operation	89
Annex I (normative) Scenario definitions and plots.....	90
Annex J (informative) Test requirements for encrypted ENC	94
Annex K (informative) Guidance for testing	97
Annex L (normative) Testing for colours and intensity	99
Annex M (informative) Elements of an electronic chart database	102
Annex N (informative) Cross-references between IEC 61174 editions and MSC.232(82)	107
Table 1 – Mandatory IEC 61162-1 sentences.....	23
Table 2 – Area, line and point objects	42
Table L.1 – Ambient light conditions	100

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61174 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This third edition of IEC 61174 cancels and replaces the second edition published in 2001, of which it constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- this edition incorporates revised performance standards for ECDIS adopted by the IMO as resolution MSC.232(82) in December 2006;
- the test methods have been updated accordingly and new tests added for encrypted ENC data;

- the revised IMO performance standards refer to performance standards for displays adopted by the IMO as resolution MSC.191(79) and these have been incorporated by reference to IEC 62288;
- Annex E of the previous edition which defined navigation symbols has been deleted as this information is now in IEC 62288.
- five new annexes have been added.

IMO changed the order of the performance standards in MSC.232(82) compared with the previous standards in resolution A.817(19). Annex N gives a cross-referencing of clause numbering.

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

FDIS	Report on voting
80/535/FDIS	80/542/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 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

A bilingual version of this publication may be issued at a later date.

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

1 Scope

This International Standard specifies the performance requirements, methods of testing and required test results of equipment conforming to performance standards not inferior to those adopted by the IMO in resolution MSC.232(82).

This standard is based upon the performance standards of IMO resolution MSC.232(82), and is also associated with IMO resolution A.694(17) and IEC 60945. Reference is made, where appropriate, to IMO resolution MSC.232(82), and all subclauses whose wording is identical to that in the resolution are printed in italics.

In association with the above IMO resolution MSC.232(82), are the International Hydrographic Organization (IHO) special publications S-32, S-52, S-57, S-61, S-63 and S-64. This standard has included extracts from the above publications where they are applicable to this equipment. Where reference is made, all subclauses whose wording is identical to that in the publications, are printed in italics.

(232/A2.1) These performance standards should apply to all ECDIS equipment carried on all ships as follows:

- *dedicated standalone workstation.*
- *a multifunction workstation as part of an INS.*

(232/A2.2) These performance standards apply to ECDIS mode of operation, ECDIS in RCDS mode of operation as specified in Annex G and ECDIS backup arrangements as specified in Annex F.

(232/A2.3) Requirements for structure and format of the chart data, encryption of chart data as well as the presentation of chart data are within the scope of relevant IHO standards, including those listed in the normative references.

The requirements of this standard are not intended to prevent the use of new techniques in equipment and systems, provided the facilities offered are not inferior to those stated.

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

IEC 61162 (all parts), *Maritime navigation and radiocommunication equipment and systems – Digital interfaces*

IEC 62288, *Maritime navigation and radiocommunication equipment and systems – Presentation of navigation-related information on shipborne navigational displays – General requirements – Methods of testing and required test results*

IEC 62388, *Maritime navigation and radiocommunication equipment and systems – Shipborne Radar – Performance requirements – Methods of testing and required test results*

IMO *International Convention for the safety of life at sea (SOLAS) 1974 (as amended)*

IMO A.424(XI):1979, *Performance standards for gyro-compasses*

IMO A.694(17):1991, *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*

IMO A.821(19):1995, *Performance standards for gyro-compasses for high-speed craft*

IMO A.823(19):1995, *Performance standards for automatic radar plotting aids*

IMO A.824(19):1995, *Performance standards for devices to indicate speed and distance*

IMO A.830(19):1995, *Code on Alarms and Indicators*

IMO MSC.191(79), *Performance standards for the presentation of navigation-related information on shipborne navigational displays*

IMO MSC.192(79), *Revised performance standards for radar equipment*

IMO MSC.232(82):2006, *Revised Performance standards for electronic chart display and information systems (ECDIS)*

IMO MSC/Circ.982 (2000), *Guidelines on ergonomic criteria for bridge equipment and layout*

IMO SN/Circ.243 (2004), *Guidelines for the Presentation of Navigation-related Symbols, Terms and Abbreviations*

IMO SN.1/Circ.266 (2007), *Maintenance of electronic chart display and information system (ECDIS) software*

IHO M-3:2007, *Resolutions of the IHO, Chapter A, Section 3, Technical Resolution 3.11*

IHO S-32, appendix 1, *Hydrographic dictionary – Glossary of ECDIS related terms*

IHO S-52:1996, *Specifications for chart content and display aspects of ECDIS*

IHO S-52, appendix 1:1996, *Guidance on updating the electronic navigational chart*

IHO S-52, appendix 2:2004 *Colour and symbol specifications for ECDIS*

IHO S-57, appendix B.1: 2000, *ENC product specification*

IHO S-61:1999, *Product specification for raster navigational charts (RNC)*

IHO S-63:2008, *IHO data protection scheme*

IHO S-64, *Test data sets for ECDIS*