

標題

電子海図情報表示装置 (Electronic Chart Display and Information System (ECDIS))の搭載について

ClassNK

テクニカル インフォメーション

No. TEC-1129

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各位

2012 年 6 月 22 日付 ClassNK テクニカルインフォメーション TEC-0907 により、ECDIS の搭載に関する要件をお知らせいたしております。その後にも関連情報についてテクニカルインフォメーションや ClassNK ホームページ上に掲載の ECDIS ニュースにてお知らせしてまいりました。今般 TEC-0907 にてお知らせしてきた内容を最新化し、関連する他のテクニカルインフォメーションについても参照する形で No. TEC-1129 として発行することといたしました。

これに伴い、ClassNK テクニカルインフォメーション No.TEC-0907 は絶版といたします。

1. 対象船舶

国際航海に従事する次の船舶に適用されます。

- (1) 500GT 以上の旅客船
- (2) 3,000GT 以上のタンカー*
- (3) 3,000GT 以上、タンカー以外、の新造貨物船及び 10,000GT 以上、タンカー以外、の現存貨物船
*「タンカー」とは、引火性の液体貨物のばら積み輸送のために建造し又は改造した貨物船を言う。

2. 適用日

適用日は以下の通りです。なお、「建造された」の定義は、SOLAS 第 V 章 2 規則 1 によります。

- (1) 旅客船
 - (i) 2012 年 7 月 1 日以降に建造された旅客船は、登録検査の日
 - (ii) 2012 年 7 月 1 日前に建造された旅客船は、2014 年 7 月 1 日以降の最初の安全設備検査の日
- (2) タンカー
 - (i) 2012 年 7 月 1 日以降に建造されたタンカーは、登録検査の日
 - (ii) 2012 年 7 月 1 日前に建造されたタンカーは、2015 年 7 月 1 日以降の最初の安全設備検査の日
- (3) タンカー以外の貨物船
 - (i) 2013 年 7 月 1 日以降に建造された 10,000GT 以上の貨物船は、登録検査の日
 - (ii) 2014 年 7 月 1 日以降に建造された 3,000GT 以上 10,000GT 未満の貨物船は、登録検査の日
 - (iii) 2013 年 7 月 1 日前に建造された 50,000GT 以上の貨物船は、2016 年 7 月 1 日以降の最初の安全設備検査の日

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NOTES:

- ClassNK テクニカル・インフォメーションは、あくまで最新情報の提供のみを目的として発行しています。
- ClassNK 及びその役員、職員、代理もしくは委託事業者のいずれも、掲載情報の正確性及びその情報の利用あるいは依存により発生する、いかなる損失及び費用についても責任は負いかねます。
- バックナンバーは ClassNK インターネット・ホームページ(URL: www.classnk.or.jp)においてご覧いただけます。

- (iv) 2013 年 7 月 1 日前に建造された 20,000GT 以上 50,000GT 未満の貨物船は、2017 年 7 月 1 日以降の最初の安全設備検査の日
- (v) 2013 年 7 月 1 日前に建造された 10,000GT 以上 20,000GT 未満の貨物船は、2018 年 7 月 1 日以降の最初の安全設備検査の日
- (4) 上記(1)(ii)、(2)(ii)、(3)(iii)、(iv)及び(v)の船で、引き渡しの日が適用日より後になる場合は、登録検査の日

3. ECDIS の型式承認

- (1) 主管庁又は主管庁の承認した機関の承認を受けた型式のものであること。
- (2) 機関が採択した性能基準を満足していること。
 - (i) 2009 年 1 月 1 日前に搭載された ECDIS は、IMO 決議 A.817(19)、MSC.64(67) Annex 5 及び MSC.86(70) Annex 4 を満足し、最新の IHO 基準のソフトに更新され、最新の電子海図(ENC)のすべての情報が表示できるものであること。
 - (ii) 2009 年 1 月 1 日以降に搭載された ECDIS は、IMO 決議 MSC.232(82)を満足するものであり、最新の IHO 基準のソフトに更新され、最新の電子海図(ENC)のすべての情報が表示できるものであること。
 - (iii) 関連する最新の IEC 規格の試験基準 IEC61174 を満足していること。
2017 年 9 月 1 日以降に搭載される ECDIS は、IMO 決議 MSC.232(82)を満足するものであり、かつ IEC61174 Edition 4.0 に従い型式承認を取得したものであること。

4. 電子海図 (Electronic Navigation Charts = ENC)

- (1) 政府から認められた水路機関が発行する航海用電子海図 (ENC) で、IHO 基準に合致したデータベースにより作成された海図であること。
- (2) 船舶が就航する海域のすべてにわたる ENC を備えること。
適切な ENC がない場合や沿岸国から沿岸の海図の要求がある場合は、ラスター海図又は紙海図を準備すること。
- (3) ENC のすべての情報を ECDIS の画面に表示できること。

2017 年 9 月 1 日以降、一部の IHO 基準が以下の通り改定される。

内容	改定前	改定後
Specifications for Chart content and display aspects of ECDIS	S-52 Ed.6.0	S-52 Ed.6.1.0
Presentation Library (PL) (Annex A to S-52)	Ed.3.4	Ed.4.0
Test Data Sets	S-64 Ed.2.0.0	S-64 Ed.3.0

- (4) ENC の管理・更新は、管理会社から ISM Code に従って船に指示されること。
- (5) 最新の ENC 情報は、IHO のウェブサイトから入手できる。

5. 装備要領

(1) 全般

- (i) 非常電源から給電されていること。
- (ii) ECDIS への外部接続機器は、ジャイロコンパス、船速距離計、GPS 受信機以外に、レーダー(画像と ARPA 情報)及び AIS に接続すること。
現存船に ECDIS を装備する場合は、できる限り接続する。
その他の航海設備や無線設備との接続については、デジタル出力がされていれば接続してもよい。
レーダー画像の重畳については、ClassNK テクニカルインフォメーション TEC-0912 を併せ参照のこと。

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- (iii) ECDIS のソフトウェアの更新については、製造メーカからの指示に従うこと。
- (iv) ECDIS 搭載が要求されていない船舶に、紙海図の代替として ECDIS を航海に使用する場合は、旗国の指示に従うこと。
- (2) 主 ECDIS
 - (i) 主 ECDIS の設置場所は操舵室のカーテンより前の場所とすること。
 - (ii) 主 ECDIS には適切なバックアップ装置を備えること。バックアップ装置として、型式承認書に記載された機種、又は紙海図を使用することができる。
- (3) バックアップ装置
 - (i) バックアップ装置にレーダー機能があっても、SOLAS 条約第 V 章で要求されるレーダーを省略できない。
 - (ii) バックアップ ECDIS の設置場所は、操舵室内であれば特に場所は規定されていない。
 - (iii) バックアップ ECDIS の操作は、主装置と同じであること。
 - (iv) 主 ECDIS から切り替えられたときに、主 ECDIS の切替え前の情報が引き継がれること。
 - (v) 供給電源は、主 ECDIS とは分離されていること。
 - (vi) バックアップ ECDIS とジャイロコンパス、船速距離計、GPS 受信機との接続ケーブルは、主 ECDIS のものとは分離されていること
 - (vii) 主 ECDIS とバックアップ ECDIS 間のインターフェイスのための信号線があること。
- (4) オートパイロット(HCS)に接続して航跡制御(TCS)をする場合の取扱い
 - (i) TCS を装備した場合は、NK 検査員の立会のもとで海上公試で作動を確認すること。現存船で TCS を追加装備する場合は、装備図面、試験方案を弊社材料艤装部へ提出し、承認の後、NK 検査員の立会のもとで海上試験を実施すること。
 - (ii) バックアップナビゲーターアラームの装備場所は、船長室とする。この警報を BNWAS に接続してもよい。
- 6. ECDIS のトレーニング
 - (1) 2010 年 STCW 条約改正及び関連サーキュラーにより、ECDIS を搭載する船舶に従事する船長・航海士は、2017 年 1 月 1 日までに ECDIS の Generic トレーニング (IMO トレーニングコース (IMO Model Course) 1.27) を修了していることが海技免状の取得、更新の条件として義務づけられています。
 - (2) STCW.7/Circ.24 により Generic 及び Type-specific トレーニング修了に関する書類の所持については要求しないとされていますが、船長・航海士は従事する船舶に搭載された ECDIS の操作について十分な知識、理解及び技能は必要とされる。PSC 等による指摘への対策として、トレーニング修了を示す証明書や記録等を本船上に所持することが推奨されます。
- 7. 図面承認

適用日前の現存船にすでに搭載された ECDIS または現存船に新設する ECDIS に対する図面承認は要求されないので、搭載完了後安全設備検査を受検してください。
- 8. 検査

ECDIS に関する検査は、次の項目を確認します。

 - (1) 型式承認書のコピー、適合した性能要件、
 - (2) 非常電源からの給電、GPS、ジャイロ、船速距離計からの信号入力、

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- (3) 最新の ENC が表示でき、就航航路のすべての ENC の所持、
- (4) バックアップ装置の要件、並びに
- (5) バックアップが、紙海図の場合は、最新の海図で改補がされたもの。

9. その他

IMO 情報、旗国情報、適合機種などの情報は、ClassNK ウェブサイトの ECDIS ニュースでお知らせします。

オーストラリア入港船に対する AMSA が発行した Marine Notice については、ClassNK テクニカルインフォメーション TEC-1067 を参照してください。

また、電子海図の規格改定については、ClassNK テクニカルインフォメーション TEC-1101 及び TEC-1106 も併せ参照してください。

なお、本件に関してご不明な点は、以下の部署にお問い合わせください。

ECDIS の装置及び装備に関して：

一般財団法人 日本海事協会 (ClassNK)

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検査に関して：

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船員のトレーニングに関して：

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添付：

1. IMO performance standards for ECDIS MSC.232(82)
2. IMO Circular STCW.7/Circ.24/Rev.1

ANNEX 24

RESOLUTION MSC.232(82)

(adopted on 5 December 2006)

ADOPTION OF THE REVISED PERFORMANCE STANDARDS FOR ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

RECALLING ALSO regulations V/19 and V/27 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, which requires all ships to carry adequate and up-to-date charts, sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage,

NOTING that the up-to-date charts required by SOLAS regulations V/19 and V/27 can be provided and displayed electronically on board ships by electronic chart display and information systems (ECDIS), and that the other nautical publications required by regulation V/27 may also be so provided and displayed,

RECOGNIZING the need to improve the previously adopted, by resolution A.817(19), as amended, performance standards for ECDIS in order to ensure the operational reliability of such equipment and taking into account the technological progress and experience gained,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation, at its fifty-second session,

1. ADOPTS the Revised performance standards for electronic chart display and information systems (ECDIS), set out in the Annex to the present resolution;
2. RECOMMENDS Governments ensure that ECDIS equipment:
 - (a) if installed on or after 1 January 2009, conform to performance standards not inferior to those specified in the Annex to the present resolution; and
 - (b) if installed on or after 1 January 1996 but before 1 January 2009, conform to performance standards not inferior to those specified in the Annex to resolution A.817(19), as amended by resolutions MSC.64(67) and MSC.86(70).

ANNEX

REVISED PERFORMANCE STANDARDS FOR ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)

1 SCOPE OF ECDIS

- 1.1** The primary function of the ECDIS is to contribute to safe navigation.
- 1.2** ECDIS with adequate back-up arrangements may be accepted as complying with the up-to-date charts required by regulations V/19 and V/27 of the 1974 SOLAS Convention, as amended.
- 1.3** ECDIS should be capable of displaying all chart information necessary for safe and efficient navigation originated by, and distributed on the authority of, government authorized hydrographic offices.
- 1.4** ECDIS should facilitate simple and reliable updating of the electronic navigational chart.
- 1.5** ECDIS should reduce the navigational workload compared to using the paper chart. It should enable the mariner to execute in a convenient and timely manner all route planning, route monitoring and positioning currently performed on paper charts. It should be capable of continuously plotting the ship's position.
- 1.6** The ECDIS display may also be used for the display of radar, radar tracked target information, AIS and other appropriate data layers to assist in route monitoring.
- 1.7** ECDIS should have at least the same reliability and availability of presentation as the paper chart published by government authorized hydrographic offices.
- 1.8** ECDIS should provide appropriate alarms or indications with respect to the information displayed or malfunction of the equipment (see appendix 5).
- 1.9** When the relevant chart information is not available in the appropriate form (see section 4), some ECDIS equipment may operate in the Raster Chart Display System (RCDS) mode as defined in appendix 7. RCDS mode of operation should conform to performance standards not inferior to those set out in appendix 7.

2 APPLICATION OF THESE STANDARDS

- 2.1** 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.
- 2.2** These performance standards apply to ECDIS mode of operation, ECDIS in RCDS mode of operation as specified in appendix 7 and ECDIS backup arrangements as specified in appendix 6.

- 2.3** 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 appendix 1.
- 2.4** In addition to the general requirements set out in resolution A.694(17)*, the presentation requirements set out in resolution MSC.191(79), ECDIS equipment should meet the requirements of these standards and follow the relevant guidelines on ergonomic principles adopted by the Organization¹.

3 DEFINITIONS

For the purpose of these performance standards:

- 3.1** *Electronic Chart Display and Information System (ECDIS)* means a navigation information system which with adequate back-up arrangements can be accepted as complying with the up-to-date chart required by regulations V/19 and V/27 of the 1974 SOLAS Convention, as amended, by displaying selected information from a system electronic navigational chart (SENC) with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required display additional navigation-related information.
- 3.2** *Electronic Navigational Chart (ENC)* means the database, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards. 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.
- 3.3** *System Electronic Navigational Chart (SENC)* means a database, in the manufacturer's internal ECDIS format, resulting from the lossless transformation of the entire ENC contents and its updates. It is this database that is accessed by ECDIS for the display generation and other navigational functions, and is equivalent to an up-to-date paper chart. The SENC may also contain information added by the mariner and information from other sources.
- 3.4** *Standard Display* is the display mode intended to be used as a minimum during route planning and route monitoring. The chart content is listed in appendix 2.
- 3.5** *Display Base* means the chart content as listed in appendix 2 and which cannot be removed from the display. It is not intended to be sufficient for safe navigation.
- 3.6** Further information on ECDIS definitions may be found in IHO Hydrographic Dictionary Special Publication S-32 (see appendix 1).

* Refer to Publication IEC 60945.

¹ MSC/Circ.982.

MODULE A - DATABASE

4 PROVISION AND UPDATING OF CHART INFORMATION

- 4.1** The chart information to be used in ECDIS should be the latest edition, as corrected by official updates, of that issued by or on the authority of a Government, government-authorized Hydrographic Office or other relevant government institution, and conform to IHO standards².
- 4.2** The contents of the SENC should be adequate and up-to-date for the intended voyage to comply with regulation V/27 of the 1974 SOLAS Convention as amended.
- 4.3** It should not be possible to alter the contents of the ENC or SENC information transformed from the ENC.
- 4.4** Updates should be stored separately from the ENC.
- 4.5** ECDIS should be capable of accepting official updates to the ENC data provided in conformity with IHO standards. These updates should be automatically applied to the SENC. By whatever means updates are received, the implementation procedure should not interfere with the display in use.
- 4.6** ECDIS should also be capable of accepting updates to the ENC data entered manually with simple means for verification prior to the final acceptance of the data. They should be distinguishable on the display from ENC information and its official updates and not affect display legibility.
- 4.7** ECDIS should keep and display on demand a record of updates including time of application to the SENC. This record should include updates for each ENC until it is superseded by a new edition.
- 4.8** ECDIS should allow the mariner to display updates in order to review their contents and to ascertain that they have been included in the SENC.
- 4.9** ECDIS should be capable of accepting both non-encrypted ENCs and ENCs encrypted in accordance with the IHO Data Protection Scheme³.

² IHO Special Publication S-52 and S-57 (see appendix 1).

³ IHO Special Publication S-63 (see appendix 1).

MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS

5 DISPLAY OF SENC INFORMATION

- 5.1** ECDIS should be capable of displaying all SENC information. An ECDIS should be capable of accepting and converting an ENC and its updates into a SENC. The ECDIS may also be capable of accepting a SENC resulting from conversion of ENC to SENC ashore, in accordance with IHO TR 3.11⁴. This method of ENC supply is known as SENC delivery.
- 5.2** SENC information available for display during route planning and route monitoring should be subdivided into the following three categories, Display Base, Standard Display and All Other Information (see appendix 2).
- 5.3** ECDIS should present the Standard Display at any time by a single operator action.
- 5.4** When an ECDIS is switched on following a switch off or power failure, it should return to the most recent manually selected settings for display.
- 5.5** It should be easy to add or remove information from the ECDIS display. It should not be possible to remove information contained in the Display Base.
- 5.6** For any operator identified geographical position (e.g. by cursor picking) ECDIS should display on demand the information about the chart objects associated with such a position.
- 5.7** It should be possible to change the display scale by appropriate steps e.g. by means of either chart scale values or ranges in nautical miles.
- 5.8** It should be possible for the mariner to select a safety contour from the depth contours provided by the SENC. ECDIS should emphasize the safety contour over other contours on the display, however:
- .1 if the mariner does not specify a safety contour, this should default to 30m. If the safety contour specified by the mariner or the default 30 m contour is not in the displayed SENC, the safety contour shown should default to the next deeper contour;
 - .2 if the safety contour in use becomes unavailable due to a change in source data, the safety contour should default to the next deeper contour; and
 - .3 in each of the above cases, an indication should be provided.
- 5.9** It should be possible for the mariner to select a safety depth. ECDIS should emphasize soundings equal to or less than the safety depth whenever spot soundings are selected for display.
- 5.10** The ENC and all updates to it should be displayed without any degradation of their information content.

⁴ IHO Miscellaneous Publication M-3.
Document3

5.11 ECDIS should provide a means to ensure that the ENC and all updates to it have been correctly loaded into the SENC.

5.12 The ENC data and updates to it should be clearly distinguishable from other displayed information, including those listed in appendix 3.

6 SCALE

6.1 ECDIS should provide an indication if:

- .1 the information is displayed at a larger scale than that contained in the ENC; or
- .2 own ship's position is covered by an ENC at a larger scale than that provided by the display.

7 DISPLAY OF OTHER NAVIGATIONAL INFORMATION

7.1 Radar information and/or AIS information may be transferred from systems compliant with the relevant standards of the Organization. Other navigational information may be added to the ECDIS display. However, it should not degrade the displayed SENC information and it should be clearly distinguishable from the SENC information.

7.2 It should be possible to remove the radar information, AIS information and other navigational information by single operator action.

7.3 ECDIS and added navigational information should use a common reference system. If this is not the case, an indication should be provided.

7.4 Radar

7.4.1 Transferred radar information may contain a radar image and/or tracked target information.

7.4.2 If the radar image is added to the ECDIS display, the chart and the radar image should match in scale, projection and in orientation.

7.4.3 The radar image and the position from the position sensor should both be adjusted automatically for antenna offset from the conning position.

8 DISPLAY MODE AND GENERATION OF THE NEIGHBOURING AREA

8.1 It should always be possible to display the SENC information in a "north-up" orientation. Other orientations are permitted. When such orientations are displayed, the orientation should be altered in steps large enough to avoid unstable display of the chart information.

8.2 ECDIS should provide for true motion mode. Other modes are permitted.

8.3 When true motion mode is in use, reset and generation of the chart display of the neighbouring area should take place automatically at own ship's distance from the edge of the display as determined by the mariner.

- 8.4** It should be possible to manually change the displayed chart area and the position of own ship relative to the edge of the display.
- 8.5** If the area covered by the ECDIS display includes waters for which no ENC at a scale appropriate for navigation is available, the areas representing those waters should carry an indication (see appendix 5) to the mariner to refer to the paper chart or to the RCDS mode of operation (see appendix 7).

9 COLOURS AND SYMBOLS

- 9.1** IHO recommended colours and symbols should be used to represent SENC information⁵.
- 9.2** The colours and symbols other than those mentioned in 9.1 should comply with the applicable requirements contained in the IMO standards for navigational symbols⁶.
- 9.3** SENC information displayed at the scale specified in the ENC should use the specified size of symbols, figures and letters⁵.
- 9.4** ECDIS should allow the mariner to select whether own ship is displayed in true scale or as a symbol.

10 DISPLAY REQUIREMENTS

- 10.1** ECDIS should be capable of displaying information for:
- .1 route planning and supplementary navigation tasks; and
 - .2 route monitoring.
- 10.2** The effective size of the chart presentation for route monitoring should be at least 270 mm x 270 mm.
- 10.3** The display should be capable of meeting colour and resolution recommendations of IHO⁵.
- 10.4** The method of presentation should ensure that the displayed information is clearly visible to more than one observer in the conditions of light normally experienced on the bridge of the ship by day and by night.
- 10.5** If information categories included in the Standard Display (See appendix 2) are removed to customize the display, this should be permanently indicated. Identification of categories which are removed from the Standard Display should be shown on demand.

⁵ Special Publication S-52, Appendix 2 (see appendix 1)
Document3

11 ROUTE PLANNING, MONITORING AND VOYAGE RECORDING

11.1 It should be possible to carry out route planning and route monitoring in a simple and reliable manner.

11.2 The largest scale data available in the SENC for the area given should always be used by the ECDIS for all alarms or indications of crossing the ship's safety contour and of entering a prohibited area, and for alarms and indications according to appendix 5.

11.3 Route Planning

11.3.1 It should be possible to carry out route planning including both straight and curved segments.

11.3.2 It should be possible to adjust a planned route alphanumerically and graphically including:

- .1** adding waypoints to a route;
- .2** deleting waypoints from a route; and
- .3** changing the position of a waypoint.

11.3.3 It should be possible to plan one or more alternative routes in addition to the selected route. The selected route should be clearly distinguishable from the other routes.

11.3.4 An indication is required if the mariner plans a route across an own ship's safety contour.

11.3.5 An indication should be given if the mariner plans a route closer than a user-specified distance from the boundary of a prohibited area or a geographic area for which special conditions exist (see appendix 4). An indication should also be given if the mariner plans a route closer than a user-specified distance from a point object, such as a fixed or floating aid to navigation or isolated danger.

11.3.6 It should be possible for the mariner to specify a cross track limit of deviation from the planned route at which an automatic off-track alarm should be activated.

11.4 Route monitoring

11.4.1 For route monitoring the selected route and own ship's position should appear whenever the display covers that area.

11.4.2 It should be possible to display a sea area that does not have the ship on the display (e.g. for look ahead, route planning), while route monitoring. If this is done on the display used for route monitoring, the automatic route monitoring functions (e.g. updating ship's position, and providing alarms and indications) should be continuous. It should be possible to return to the route monitoring display covering own ship's position immediately by single operator action.

- 11.4.3** ECDIS should give an alarm if, within a specified time set by the mariner, own ship will cross the safety contour.
- 11.4.4** ECDIS should give an alarm or indication, as selected by the mariner, if, within a specified time set by the mariner, own ship will cross the boundary of a prohibited area or of a geographical area for which special conditions exist (see appendix 4).
- 11.4.5** An alarm should be given when the specified cross track limit for deviation from the planned route is exceeded.
- 11.4.6** An indication should be given to the mariner if, continuing on its present course and speed, over a specified time or distance set by the mariner, own ship will pass closer than a user-specified distance from a danger (e.g. obstruction, wreck, rock) that is shallower than the mariner's safety contour or an aid to navigation.
- 11.4.7** The ship's position should be derived from a continuous positioning system of an accuracy consistent with the requirements of safe navigation. Whenever possible, a second independent positioning source, preferably of a different type, should be provided. In such cases ECDIS should be capable of identifying discrepancies between the two sources.
- 11.4.8** ECDIS should provide an alarm when the input from position, heading or speed sources is lost. ECDIS should also repeat, but only as an indication, any alarm or indication passed to it from position, heading or speed sources.
- 11.4.9** An alarm should be given by ECDIS when the ship reaches a specified time or distance, set by the mariner, in advance of a critical point on the planned route.
- 11.4.10** The positioning system and the SENC should be on the same geodetic datum. ECDIS should give an alarm if this is not the case.
- 11.4.11** It should be possible to display alternative routes in addition to the selected route. The selected route should be clearly distinguishable from the other routes. During the voyage, it should be possible for the mariner to modify the selected sailing route or change to an alternative route.
- 11.4.12** It should be possible to display:
- .1 time-labels along a ship's track manually on demand and automatically at intervals selected between 1 and 120 minutes; and
 - .2 an adequate number of: points, free movable electronic bearing lines, variable and fixed range markers and other symbols required for navigation purposes and specified in appendix 3.
- 11.4.13** It should be possible to enter the geographical co-ordinates of any position and then display that position on demand. Also, it should be possible to select any point (features, symbol or position) on the display and read its geographical co-ordinates on demand.

11.4.14 It should be possible to adjust the displayed geographic position of the ship manually. This manual adjustment should be noted alpha-numerically on the screen, maintained until altered by the mariner and automatically recorded.

11.4.15.1 ECDIS should provide the capability to enter and plot manually obtained bearing and distance lines of position (LOP), and calculate the resulting position of own ship. It should be possible to use the resulting position as an origin for dead-reckoning.

11.4.15.2 ECDIS should indicate discrepancies between the positions obtained by continuous positioning systems and positions obtained by manual observations.

11.5 Voyage recording

11.5.1 ECDIS should store and be able to reproduce certain minimum elements required to reconstruct the navigation and verify the official database used during the previous 12 hours. The following data should be recorded at one minute intervals:

- .1 to ensure a record of own ship's past track: time, position, heading, and speed; and
- .2 to ensure a record of official data used: ENC source, edition, date, cell and update history.

11.5.2 In addition, ECDIS should record the complete track for the entire voyage, with time marks at intervals not exceeding 4 hours.

11.5.3 It should not be possible to manipulate or change the recorded information.

11.5.4 ECDIS should have a capability to preserve the record of the previous 12 hours and of the voyage track.

12 CALCULATIONS AND ACCURACY

12.1 The accuracy of all calculations performed by ECDIS should be independent of the characteristics of the output device and should be consistent with the SENC accuracy.

12.2 Bearings and distances drawn on the display or those measured between features already drawn on the display should have accuracy no less than that afforded by the resolution of the display.

12.3 The system should be capable of performing and presenting the results of at least the following calculations:

- .1 true distance and azimuth between two geographical positions;
- .2 geographic position from known position and distance/azimuth; and
- .3 geodetic calculations such as spheroidal distance, rhumb line, and great circle.

13 PERFORMANCE TESTS, MALFUNCTIONS ALARMS AND INDICATIONS

- 13.1** ECDIS should be provided with means for either automatically or manually carrying out on-board tests of major functions. In case of a failure, the test should display information to indicate which module is at fault.
- 13.2** ECDIS should provide a suitable alarm or indication of system malfunction.

14 BACK-UP ARRANGEMENTS

Adequate back-up arrangements should be provided to ensure safe navigation in case of an ECDIS failure; see appendix 6.

- .1** Facilities enabling a safe take-over of the ECDIS functions should be provided in order to ensure that an ECDIS failure does not develop into a critical situation.
- .2** A back-up arrangement should provide means of safe navigation for the remaining part of a voyage in the case of an ECDIS failure.

MODULE C – INTERFACING AND INTEGRATION

15 CONNECTIONS WITH OTHER EQUIPMENT 7

- 15.1** ECDIS should not degrade the performance of any equipment providing sensor inputs. Nor should the connection of optional equipment degrade the performance of ECDIS below this standard.
- 15.2** ECDIS should be connected to the ship's position fixing system, to the gyro compass and to the speed and distance measuring device. For ships not fitted with a gyro compass, ECDIS should be connected to a marine transmitting heading device.
- 15.3** ECDIS may provide a means to supply SENC information to external equipment.

16 POWER SUPPLY

- 16.1** It should be possible to operate ECDIS and all equipment necessary for its normal functioning when supplied by an emergency source of electrical power in accordance with the appropriate requirements of chapter II-1 of the 1974 SOLAS Convention, as amended.
- 16.2** Changing from one source of power supply to another or any interruption of the supply for a period of up to 45 seconds should not require the equipment to be manually re-initialized.

7 Publication IEC 61162.

Appendix 1

REFERENCE DOCUMENTS

The following international organizations have developed technical standards and specifications, as listed below, for use in conjunction with this standard. The latest edition of these documents should be obtained from the organization concerned:

INTERNATIONAL MARITIME ORGANIZATION (IMO)

Address: International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom

Phone: +44 207 735 76 11
Fax: +44 207 587 32 10
E-mail: info@imo.org
Web: <http://www.imo.org>

Publications

IMO resolution MSC.191(79) on Performance Standards for the presentation of navigation related information on shipborne navigational displays

IMO resolution A.694(17) on Recommendations on general requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids

SN.Circ/207 (1999) on Differences between RCDS and ECDIS

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

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

INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)

Address: Directing Committee
International Hydrographic Bureau
BP 445
MC 98011 Monaco Cedex
Principality of Monaco

Phone: +377 93 10 81 00
Fax: +377 93 10 81 40
E-mail: info@ihb.mc
Web: <http://www.iho.shom.fr>

Publications

Special Publication No. S-52, Specifications for Chart Content and Display Aspects of ECDIS

Special Publication No. S-52 appendix 1, Guidance on Updating the Electronic Navigational Chart

Special Publication No. S-52 appendix 2, Colour and Symbol Specifications for ECDIS

Special Publication No. S-32, Hydrographic Dictionary

Special Publication No. S-57, IHO Transfer Standard for Digital Hydrographic Data

Special Publication No. S-61, IHO Product specification for Raster Navigational Charts (RNC)

Special Publication No. S-63, IHO Data Protection Scheme

Miscellaneous Publication No. M-3, *Resolutions of the IHO*

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

Address: IEC Central Office
3 rue de Varembé
PO Box 131
CH-1211 Geneva 20
Switzerland

Phone: +41 22 734 01 50
Fax: +41 22 733 38 43

Publications

IEC Publication 61174, Electronic Chart Display and Information Systems (ECDIS) - Operational and Performance Requirements, Method of Testing and Required Test Results.

IEC Publication 60945, General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System and Marine Navigational Equipment.

IEC Publication 61162, *Digital Interfaces - Navigation and Radiocommunication Equipment On board Ship.*

[IEC Publication 62288, Maritime Navigation and Radiocommunication Equipment and Systems – Presentation of navigation related information – General requirements, methods of test and required test results.]

Appendix 2

SENC INFORMATION AVAILABLE FOR DISPLAY DURING ROUTE PLANNING AND ROUTE MONITORING

- 1** Display base to be permanently shown on the ECDIS display, consisting of:
 - .1** coastline (high water);
 - .2** own ship's safety contour;
 - .3** isolated underwater dangers of depths less than the safety contour which lie within the safe waters defined by the safety contour;
 - .4** isolated dangers which lie within the safe water defined by the safety contour, such as fixed structures, overhead wires, etc.;
 - .5** scale, range and north arrow;
 - .6** units of depth and height; and
 - .7** display mode.

- 2** Standard display consisting of:
 - .1** display base
 - .2** drying line
 - .3** buoys, beacons, other aids to navigation and fixed structures
 - .4** boundaries of fairways, channels, etc.
 - .5** visual and radar conspicuous features
 - .6** prohibited and restricted areas
 - .7** chart scale boundaries
 - .8** indication of cautionary notes
 - .9** ships' routeing systems and ferry routes
 - .10** archipelagic sea lanes.

- 3** All other information, to be displayed individually on demand, for example:
 - .1** spot soundings
 - .2** submarine cables and pipelines
 - .3** details of all isolated dangers
 - .4** details of aids to navigation
 - .5** contents of cautionary notes
 - .6** ENC edition date
 - .7** most recent chart update number
 - .8** magnetic variation
 - .9** graticule
 - .10** place names.

Appendix 3

NAVIGATIONAL ELEMENTS AND PARAMETERS

- 1** Own ship.
 - .1** Past track with time marks for primary track.
 - .2** Past track with time marks for secondary track.
- 2** Vector for course and speed made good.
- 3** Variable range marker and/or electronic bearing line.
- 4** Cursor.
- 5** Event.
 - .1** Dead reckoning position and time (DR).
 - .2** Estimated position and time (EP).
- 6** Fix and time.
- 7** Position line and time.
- 8** Transferred position line and time.
 - .1** Predicted tidal stream or current vector with effective time and strength.
 - .2** Measured tidal stream or current vector with effective time and strength.
- 9** Danger highlight.
- 10** Clearing line.
- 11** Planned course and speed to make good.
- 12** Waypoint.
- 13** Distance to run.
- 14** Planned position with date and time.
- 15** Visual limits of lights arc to show rising/dipping range.
- 16** Position and time of “wheel over”.

Appendix 4

AREAS FOR WHICH SPECIAL CONDITIONS EXIST

The following are the areas which ECDIS should detect and provide an alarm or indication under sections 11.3.5 and 11.4.4:

- Traffic separation zone
- Inshore traffic zone
- Restricted area
- Caution area
- Offshore production area
- Areas to be avoided
- User defined areas to be avoided
- Military practise area
- Seaplane landing area
- Submarine transit lane
- Anchorage area
- Marine farm/aquaculture
- PSSA (Particularly Sensitive Sea Area)

Appendix 5

ALARMS AND INDICATORS

Section	Requirements	Information
11.4.3	Alarm	Crossing safety contour
11.4.4	Alarm or Indication	Area with special conditions
11.4.5	Alarm	Deviation from route
11.4.8	Alarm	Positioning system failure
11.4.9	Alarm	Approach to critical point
11.4.10	Alarm	Different geodetic datum
13.2	Alarm or Indication	Malfunction of ECDIS
5.8.3	Indication	Default safety contour
6.1.1	Indication	Information overscale
6.1.2	Indication	Larger scale ENC available
7.3	Indication	Different reference system
8.5	Indication	No ENC available
10.5	Indication	Customized display
11.3.4	Indication	Route planning across safety contour
11.3.5	Indication	Route planning across specified area
11.4.6	Indication	Crossing a danger in route monitoring mode
13.1	Indication	System test failure

In this Performance Standard the definitions of Indicators and Alarms provided in the IMO resolution A.830(19) "Code on Alarms and Indicators, 1995" apply.

Alarm: An alarm or alarm system which announces by audible means, or audible and visual means, a condition requiring attention.

Indicator: Visual indication giving information about the condition of a system or equipment.

Appendix 6

BACK-UP REQUIREMENTS

1 INTRODUCTION

As prescribed in section 14 of this performance standard, adequate independent back-up arrangements should be provided to ensure safe navigation in case of ECDIS failure. Such arrangements include:

- .1** facilities enabling a safe take-over of the ECDIS functions in order to ensure that an ECDIS failure does not result in a critical situation;
- .2** a means to provide for safe navigation for the remaining part of the voyage in case of ECDIS failure.

2 PURPOSE

The purpose of an ECDIS back-up system is to ensure that safe navigation is not compromised in the event of ECDIS failure. This should include a timely transfer to the back-up system during critical navigation situations. The back-up system shall allow the vessel to be navigated safely until the termination of the voyage.

3 FUNCTIONAL REQUIREMENTS

3.1 Required functions and their availability

3.1.1 Presentation of chart information

The back-up system should display in graphical (chart) form the relevant information of the hydrographic and geographic environment which are necessary for safe navigation.

3.1.2 Route planning

The back-up system should be capable of performing the route planning functions, including:

- .1** taking over of the route plan originally performed on the ECDIS;
- .2** adjusting a planned route manually or by transfer from a route planning device.

3.1.3 Route monitoring

The back-up system should enable a take-over of the route monitoring originally performed by the ECDIS, and provide at least the following functions:

- .1** plotting own ship's position automatically, or manually on a chart;
- .2** taking courses, distances and bearings from the chart;
- .3** displaying the planned route;

- .4 displaying time labels along ship's track;
- .5 plotting an adequate number of points, bearing lines, range markers, etc., on the chart.

3.1.4 Display information

If the back-up is an electronic device, it should be capable of displaying at least the information equivalent to the standard display as defined in this performance standard.

3.1.5 Provision of chart information

- .1 The chart information to be used in the backup arrangement should be the latest edition, as corrected by official updates, of that issued by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution, and conform to IHO standards.
- .2 It should not be possible to alter the contents of the electronic chart information.
- .3 The chart or chart data edition and issuing date should be indicated.

3.1.6 Updating

The information displayed by the ECDIS back-up arrangements should be up-to-date for the entire voyage.

3.1.7 Scale

If an electronic device is used, it should provide an indication:

- .1 if the information is displayed at a larger scale than that contained in the database; and
- .2 if own ship's position is covered by a chart at a larger scale than that provided by the system.

3.1.8 If radar and other navigational information are added to an electronic back-up display, all the corresponding requirements for radar information and other navigation information of this performance standard should be met.

3.1.9 If an electronic device is used, the display mode and generation of the neighbouring area should be in accordance with section 8 of this performance standard.

3.1.10 Voyage recording

The back-up arrangements should be able to keep a record of the ship's actual track, including positions and corresponding times.

3.2 Reliability and accuracy

3.2.1 Reliability

The back-up arrangements should provide reliable operation under prevailing environmental and normal operating conditions.

3.2.2 Accuracy

Accuracy should be in accordance with section 12 of this performance standard.

3.3 Malfunctions, warnings, alarms and indications

If an electronic device is used, it should provide a suitable alarm or indication of system malfunction.

4 OPERATIONAL REQUIREMENTS

4.1 Ergonomics

If an electronic device is used, it should be designed in accordance with the ergonomic principles of ECDIS.

4.2 Presentation of information

If an electronic device is used:

- .1** Colours and symbols should be in accordance with the colours and symbols requirements of ECDIS.
- .2** The effective size of the chart presentation should be not less than 250 mm x 250 mm or 250 mm diameter.

5 POWER SUPPLY

If an electronic device is used:

- .1** the back-up power supply should be separate from the ECDIS; and
- .2** conform to the requirements in this ECDIS performance standard.

6 CONNECTIONS WITH OTHER EQUIPMENT

6.1 If an electronic device is used, it should:

- .1** be connected to systems providing continuous position-fixing capability; and
- .2** not degrade the performance of any equipment providing sensor input.

6.2 If radar with selected parts of the ENC chart information overlay is used as an element of the back-up, the radar should comply with resolution MSC.192(79).

Appendix 7

RCDS MODE OF OPERATION

Whenever in this appendix reference is made to any provisions of the annex related to ECDIS, the term ECDIS should be substituted by the term RCDS, SENC by SRNC and ENC by RNC, as appropriate.

This appendix refers to each paragraph of the performance standards for ECDIS (i.e. the Annex to which this part is appendix 7) and specifies which paragraphs of the Annex either:

- .1 apply to RCDS; or
- .2 do not apply to RCDS; or
- .3 are modified or replaced as shown in order to apply to RCDS.

Any additional requirements applicable to RCDS are also described.

1 SCOPE

1.1 Paragraph applies to RCDS.

1.2 When operating in RCDS-mode, an appropriate portfolio of up-to-date paper charts (APC) should be carried on board and be readily available to the mariner.

1.3 - 1.7 Paragraphs apply to RCDS.

1.8 RCDS should provide appropriate alarms or indications with respect to the information displayed or malfunction of the equipment (see Table 1 of this appendix).

1.9 Refers to Appendix 7 and applies to RCDS.

2 APPLICATION OF THESE STANDARDS

2.1 – 2.4 Paragraphs apply to RCDS.

3 DEFINITIONS

3.1 *Raster Chart Display System* (RCDS) means a navigation information system displaying RNCs with positional information from navigation sensors to assist the mariner in route planning and route monitoring, and if required, display additional navigation-related information.

3.2 *Raster Navigational Chart* (RNC) means a facsimile of a paper chart originated by, or distributed on the authority of, a government-authorized hydrographic office. RNC is used in these standards to mean either a single chart or a collection of charts.

- 3.3** *System Raster Navigational Chart Database (SRNC)* means a database resulting from the transformation of the RNC by the RCDS to include updates to the RNC by appropriate means.
- 3.4-3.5** Paragraphs do not apply to RCDS.
- 3.6** Paragraph applies to RCDS.
- 3.7** Appropriate Portfolio of up to date paper Charts (APC) means a suite of paper charts of a scale to show sufficient detail of topography, depths, navigational hazards, aids to navigation, charted routes, and routing measures to provide the mariner with information on the overall navigational environment. The APC should provide adequate look-ahead capability. Coastal States will provide details of the charts which meet the requirement of this portfolio, and these details are included in a worldwide database maintained by the IHO. Consideration should be given to the details contained in this database when determining the content of the APC.

MODULE A - DATABASE

4 PROVISION AND UPDATING OF CHART INFORMATION

- 4.1** The RNC used in RCDS should be the latest edition of that originated by, or distributed on the authority of, a government authorized hydrographic office and conform to IHO standards. RNCs not on WGS 84 or PE-90 should carry meta-data (i.e., additional data) to allow geo-referenced positional data to be displayed in the correct relationship to SRNC data.
- 4.2** The contents of the SRNC should be adequate and up-to-date for that part of the intended voyage not covered by ENC.
- 4.3** It should not be possible to alter the contents of the RNC.
- 4.4 – 4.8** All paragraphs apply to RCDS.
- 4.9** Paragraph does not apply to RCDS

MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS

5 DISPLAY OF SRNC INFORMATION

- 5.1** RCDS should be capable of displaying all SRNC information.
- 5.2** SRNC information available for display during route planning and route monitoring should be subdivided into two categories:
- .1 the RCDS standard display consisting of RNC and its updates, including its scale, the scale at which it is displayed, its horizontal datum, and its units of depths and heights; and
 - .2 any other information such as mariner's notes.

- 5.3- 5.4** Paragraphs apply to RCDS.
- 5.5** It should be easy to add to, or remove from; the RCDS display any information additional to the RNC data, such as mariner's notes. It should not be possible to remove any information from the RNC.
- 5.6 – 5.9** Paragraphs do not apply to RCDS.
- 5.10 – 5.12** Paragraphs apply to RCDS.
- 5.13** There should always be an indication if the ECDIS equipment is operating in RCDS mode.
- 6** **SCALE**
- This section applies to RCDS.
- 7** **DISPLAY OF OTHER NAVIGATIONAL INFORMATION**
- 7.1 - 7.4** All paragraphs apply to RCDS.
- 8** **DISPLAY MODE AND GENERATION OF THE NEIGHBOURING AREA**
- 8.1** It should always be possible to display the SRNC in “chart-up” orientation. Other orientations are permitted.
- 8.2 - 8.4** All paragraphs apply to RCDS.
- 8.5** Paragraph refers to RCDS mode of operation.
- 9** **COLOURS AND SYMBOLS**
- 9.1** IHO recommended colours and symbols should be used to represent SRNC information.
- 9.2** Paragraph applies to RCDS.
- 9.3** Paragraph does not apply to RCDS.
- 9.4** Paragraph applies to RCDS.
- 10** **DISPLAY REQUIREMENTS**
- 10.1-10.2** Paragraphs apply to RCDS.
- 10.3** Paragraph does not apply to RCDS.

- 10.4** Paragraph applies to RCDS.
- 10.5** Paragraph does not apply to RCDS.
- 10.6** RCDS should be capable of displaying, simply and quickly, chart notes which are not located on the portion of the chart currently being displayed.
- 11 ROUTE PLANNING, MONITORING AND VOYAGE RECORDING**
- 11.1** Paragraphs apply to RCDS.
- 11.2** Paragraph does not apply to RCDS.
- 11.3 Route Planning**
- 11.3.1-11.3.3** Paragraphs apply to RCDS.
- 11.3.4-11.3.5** Paragraphs do not apply to RCDS.
- 11.3.6** Paragraph applies to RCDS.
- 11.3.7** It should be possible for the mariner to enter points, lines and areas which activate an automatic alarm. The display of these features should not degrade the SRNC information and it should be clearly distinguishable from the SRNC information.
- 11.4 Route monitoring**
- 11.4.1** Paragraph applies to RCDS.
- 11.4.2** It should be possible to display a sea area that does not have the ship on the display (e.g. for look ahead, route planning), while route monitoring. If this is done on the display used for route monitoring, the automatic route monitoring functions in 10.4.6 and 10.4.7 should be continuous. It should be possible to return to the route monitoring display covering own ship's position immediately by single operator action.
- 11.4.3-11.4.4** Paragraphs do not apply to RCDS.
- 11.4.5** Paragraph apply to RCDS.
- 11.4.6** Paragraphs do not apply to RCDS.
- 11.4.7-11.4.9** Paragraphs apply to RCDS.
- 11.4.10** The RCDS should only accept positional data referenced to the WGS 84 or PE-90 geodetic datum. RCDS should give an alarm if the positional data is not referenced to one of these datum. If the displayed RNC cannot be referenced to the WGS 84 or PE-90 datum then a continuous indication should be provided.

11.4.11-11.4.15 Paragraphs apply to RCDS.

11.4.16 RCDS should allow the user to manually align the SRNC with positional data. This can be necessary, for example, to compensate for local charting errors.

11.4.17 It should be possible to activate an automatic alarm when the ship crosses a point, line, or is within the boundary of a mariner entered feature within a specified time or distance.

11.5 Voyage recording

11.5.1-11.5.4 All paragraphs apply to RCDS.

12 CALCULATIONS AND ACCURACY

12.1-12.3 All paragraphs apply to RCDS.

12.4 RCDS should be capable of performing transformations between a local datum and WGS 84 Datum.

13 PERFORMANCE TESTS, MALFUNCTION ALARMS AND INDICATIONS

13.1-13.2 All paragraphs apply to RCDS.

14 BACK-UP ARRANGEMENTS

All paragraphs apply to RCDS.

MODULE C – INTERFACING AND INTEGRATION

15 CONNECTIONS WITH OTHER EQUIPMENT

15.1-15.3 All paragraphs apply to RCDS.

16 POWER SUPPLY

16.1-16.2 All paragraphs apply to RCDS.

Table 1

ALARMS AND INDICATORS IN THE RCDS MODE OF OPERATION

Paragraph	Requirement	Information
11.4.5	Alarm	Deviation from route
11.4.17	Alarm	Approach to mariner entered feature, e.g. area, line
11.4.8	Alarm	Position system failure
11.4.9	Alarm	Approach to critical point
11.4.10	Alarm or indication	Different geodetic datum
13.2	Alarm or indication	Malfunction of RCDS mode
5.13	Indication	ECDIS operating in the raster mode
6.1	Indication	Larger scale information available, or overscale
6.1.2	Indication	Larger scale RNC available for the area of the vessel

Note: The definitions of alarms and indicators are given in appendix 5.



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STCW.7/Circ.24/Rev.1
16 June 2017

**INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND
WATCHKEEPING FOR SEAFARERS (STCW), 1978, AS AMENDED**

**Guidance for Parties, Administrations, port State control authorities, recognized
organizations and other relevant parties on the requirements of the STCW
Convention, 1978, as amended**

1 The Sub-Committee on Human Element, Training and Watchkeeping, at its fourth session (30 January to 3 February 2017), noted the urgent need for some clarification on the implementation of the 2010 Manila Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended.

2 The Sub-Committee also noted that:

- .1 problems associated with requests for documentation during inspections or surveys that is not required by the STCW Convention, 1978, as amended, were resulting in significant and unnecessary administrative burdens on Administrations, companies and seafarers. It was further noted that some problems were linked to inconsistencies in interpretations regarding the status of IMO model courses;
- .2 references to the STCW Convention, 1978, as amended, were made in varied ways within certificates and documentary evidence;
- .3 there were reported misinterpretations of the training and familiarization provisions for Electronic Chart Display and Information Systems (ECDIS) as required by the STCW Convention, 1978, as amended; and
- .4 the 2010 Manila Amendments to the STCW Convention and STCW Code introduced four new certificates as set out in regulation II/5 (able seafarer deck), III/5 (able seafarer engine), III/6 (electro-technical officers) and III/7 (electro-technical ratings), and that misinterpretation of the applicable provisions had been reported.

3 To assist all concerned, the Sub-Committee prepared clarifications on a number of issues in the Guidance, as set out in the annex.

4 Member States are invited to be guided accordingly and to bring this Guidance to the attention of all concerned, in particular, port State control officers, recognized organizations, companies and other relevant parties.

5 The content of this circular takes account of the guidance in MSC.1/Circ.1030 and MSC.1/Circ.1032.

6 This circular revokes MSC.1/Circ.1030 and MSC.1/Circ.1032.

ANNEX

GUIDANCE FOR PARTIES, ADMINISTRATIONS, PORT STATE CONTROL AUTHORITIES, RECOGNIZED ORGANIZATIONS AND OTHER RELEVANT PARTIES ON THE REQUIREMENTS OF THE STCW CONVENTION, 1978, AS AMENDED

Provision of documentation for verification

1 Under regulation I/2 of the STCW Convention, 1978, as amended, the documentation authorizing the holder to serve in certain functions on board ship are certificates of competency and certificates of proficiency and, only with regard to regulation V/2, documentary evidence. The list of certificates or documentary evidence required under the STCW Convention, 1978, as amended, is set out in table B-I/2 of the STCW Code.

2 Certificates of competency, certificates of proficiency and documentary evidence issued in accordance with chapters II, III, IV, V, VI and VII of the STCW Convention, 1978, as amended, are evidence of having successfully completed all required training and that the required standard of competence has been achieved.

3 While IMO model courses may assist with the development of training programmes, they are not mandatory, and Administrations are not required to use them when preparing and approving training courses to meet the objectives of the STCW Code, as amended.

4 The validation of an IMO model course means that no reason was found to object to its contents. It does not mean that it is an official interpretation of the Convention, or that approval was granted by the IMO bodies.

5 It is agreed that:

- .1 in accordance with regulation I/4 of the STCW Convention, 1978, as amended, seafarers should not be required to provide documentation for verification that is not required by the Convention; and
- .2 certificates or documentary evidence issued under the STCW Convention, 1978, as amended, should not be required to contain reference to IMO model courses.

References to the STCW Convention, 1978, as amended

6 The normal practice within IMO is to refer to international conventions by an acronym of the title of the convention and the date on which it was made (e.g. SOLAS 1974). Where amendments are made to the original convention, the title is then amended to reflect the amendments (e.g. SOLAS 1974, as amended) but it is not normal practice to append the year/dates of the amendments to the title of the amended convention.

7 It has been reported that different references to the STCW Convention, 1978, as amended, can be found in certificates and endorsements, which has led to some confusion. In particular, if the references had different meanings, or if the differences were unintentional.

8 The format of certificates and endorsements provided in section A-I/2 of the STCW Code refers to "the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended".

9 In order to avoid confusion, it is recommended that certificates and endorsements referring to the STCW Convention use the reference "the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended", without appending the year/dates of the amendments.

10 It is important to note that seafarers may hold certificates and documentary evidence that contain a different reference to the STCW Convention that remain valid and should be accepted.

Training requirements for Electronic Chart Display and Information Systems (ECDIS) and provision of the documentation for verification

11 The STCW Code contains requirements for approved training on ECDIS. In cases where the approved training has not been completed, a limitation shall be included on the certificate and endorsements issued to the seafarer. Where such a limitation is not specified, the certificate and endorsements are evidence of having successfully completed the required approved training and that the standard of competence has been achieved.

12 No requirement exists for the approved training on ECDIS equipment to be type-specific. The knowledge, understanding and proficiency required to be demonstrated is generalized to ensure seafarers have the necessary skills for basic operation of all types of equipment.

13 In accordance with regulation I/14, companies are responsible for ensuring that seafarers employed on their ships are familiarized with the installed equipment, including ECDIS.

14 It is agreed that seafarers required to have training in the use of ECDIS:

- .1 should not be required to provide documentation of training in ECDIS that is specific to the installed equipment; and
- .2 are required to be familiarized with the ECDIS equipment installed on board.

Regulations II/5 (able seafarer deck), III/5 (able seafarer engine), III/6 (electro-technical officers) and III/7 (electro-technical ratings)

15 Misinterpretation of the applicable provision of regulations II/5, III/5, III/6 and III/7 has been reported. In particular, port State control officers have required personnel on board to possess applicable Certificate of Competency or Certificate of Proficiency, when such personnel are not included in the Minimum Safe Manning Document (MSMD) of the ship.

16 Port State control officers, recognized organizations and other relevant parties are reminded that under paragraph 2.1 of appendix 11 of the *Procedures for port State control, 2011* (resolution A.1052(27)), "If a ship is manned in accordance with a MSMD or equivalent document issued by the flag State, the port State control officers should accept that the ship is safely manned".