



Office of
Deputy Commissioner
of Maritime Affairs

THE REPUBLIC OF LIBERIA
LIBERIA MARITIME AUTHORITY

Marine Notice
NAV-001
Rev. 02/22

TO: ALL SHIPOWNERS, OPERATORS, MASTERS AND OFFICERS OF MERCHANT SHIPS, AND AUTHORIZED CLASSIFICATION SOCIETIES

SUBJECT: Safety of Navigation - Nautical Charts, Publications and Notices to Mariners

- References:**
- (a) **Maritime Law 10.296(5)**
 - (b) **SOLAS 74, as amended, Chapter V, Regulations 18, 19 and 27**
 - (c) **Resolution MSC.191(79)**
 - (d) **Resolution MSC.232(82)**
 - (e) **Resolution MSC.252(83)**
 - (f) **Resolution MSC.282(86)**
 - (g) **Resolution A.817(19), as amended by MSC.64(67), and MSC.86(70)**
 - (h) **MSC Circular 891**
 - (i) **MSC Circular 982**
 - (j) **MSC Circular 1091**
 - (k) **MSC Circular 1179**
 - (l) **MSC.1/Circ.1503 as revised**

Supersedes: Marine Notice NAV-001, Rev. 06/12

The following changes have been included:

- a. Added new section 3.0 on electronic nautical publications and
- b. Amended paragraph 1.10 to include back up arrangements for ECDIS and ENPs

PURPOSE:

This Notice provides advice and guidance to mariners on the importance of maintaining a regular and efficient system of charts and publications, corrections, and use of electronic updating services.

APPLICABILITY:

This Notice provides advice and guidance to mariners on the importance of maintaining a regular and efficient system of charts and publications, corrections, and use of electronic updating services. It also provides notice of new Electronic Chart Display and Information System (ECDIS) carriage requirements at section 1.4.

Regulation II/1-3 of the STCW Convention, as amended, requires approved training in the use of ECDIS. Specific requirements can be found in [Liberian publication RLM-118](#) - Requirements for Merchant Marine Personnel Certificates.

1.0 REQUIREMENTS:

- 1.1 It is essential that any nautical publication which is liable to be affected by changes in navigational or hydrographic conditions be corrected and updated by every available means, primarily through Notice to Mariners, and additionally by Radio Navigational Warnings, e.g., NAVTEX, and Safety NET. The regular use of an electronic digitized notice to mariner's chart correction service is authorized, provided it meets the applicable requirements of reference (b).
- 1.2 All ships irrespective of size shall have nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage. A type approved electronic chart display and information system (ECDIS) operated with either part of, or full sets of Electronic Navigational Charts (ENC) is accepted as meeting the chart carriage requirements. Where ECDIS is used to fulfill this requirement, the ship will be provided with adequate back up arrangements meeting the requirements of regulation V/19.2.1.4 of reference (b), which may be nautical charts adequate for the intended voyage, or a backup ECDIS (see section 2.0 for acceptance of a backup ECDIS).
- 1.3 The electronic chart and information system and all electronic publications used for navigation shall be sufficient for the trade route, adequate for navigation and maintained up-to-date for the intended voyage as required by regulation V/27 of reference (b).
- 1.4 Resolution MSC 282(6) was adopted on 5 June 2009 and entered into force on 1 January 2011 amending SOLAS Chapter V, Regulation 19 to add new paragraphs 2.10 and 2.11 requiring the fitting of ECDIS on ships engaged on international voyages, based on ship type, gross tonnage and date of construction.
- 1.5 The installation of the ECDIS as with all navigation equipment should be conducted following the guidance found in [reference \(e\)](#) regarding performance standards for integrated navigation systems. Further, when developing or changing the bridge layout it is advisable to take into consideration the "Guidelines on Ergonomic Criteria for Bridge Equipment and Layout found in [reference \(i\)](#). Ship operators, masters and deck officers on ECDIS-fitted ships are encouraged to use the guidance in [reference \(l\)](#) to improve their understanding and facilitate safe and effective use of ECDIS.
- 1.6 The Administration accepts the use of Raster Chart Display Systems (RCDS) when ENC charts are not available, provided the vessel operator has trained the crew in the use of the RCDS. As the RCDS may appear distorted, a folio of paper back up charts for the areas not covered by ENCs must be maintained on board.
- 1.7 The Administration also accepts Sailing Directions, List of Lights, Notices to Mariners, Tide Tables and other Nautical Publications necessary for the intended voyage in electronic digital format (hereinafter referred to as Electronic Nautical Publications (ENPs)), as meeting the requirements of Regulation V/27 of reference (b), which may be integrated with the ECDIS; provided the ECDIS and back up arrangements allow instant access at any time to the nautical publications without distortion or obstruction of the chart display. Electronic Nautical Publications may also be installed on a standalone computer system (see section 3.0

below for details). In addition, the ship's crew must have access to information provided officially or on behalf of a government authorized Hydrographic Office or other relevant government institution and the ships master and navigational officers must be properly trained in the use of the system.

- 1.8 Chapter V, Regulation 27 of reference (b) further requires "Nautical charts and publications, such as sailing directions, lists of lights, notice to mariners, tide tables and all other nautical publications necessary for the intended voyage shall be adequate and up to date." Uncorrected charts and publications have proven to be a source of problems with port State control inspections. While it is appreciated that many vessels may be engaged in worldwide trading calling at ports in countries where Notices to Mariners and other publications may not be available, it is possible to order well in advance the current editions of sailing directions, tide and current tables, charts and chart corrections for delivery to the ship on a regular basis, or subscribe to a digitized notice to mariner's chart correction service.
- 1.9 A concise guide to the proper correction of charts has been published by the UK Admiralty Charts and Publications. Designed to be easy to use, the guide provides a range of examples of chart correcting techniques for the use of shipboard navigators. The publication, which is available from Admiralty Charts Agents (see Catalogue No. NP294 – How to Keep Your Admiralty Products Up to Date) provides guidance on SOLAS best practice, which of course will be a basis for ISM Code auditing.
- 1.10 Liberian Nautical Inspectors have been instructed to pay particular attention to the carriage on board of charts and nautical publications appropriate to the service in which the ship is engaged; including back up arrangements, where ECDIS and ENPs are used to fulfil these requirements. In the event that a Nautical Inspector determines the charts/publications are inadequate, or that an efficient correction procedure does not exist, the ship may be prevented from proceeding to sea on its intended voyage until action is taken to correct the situation.
- 1.11 Masters and Officers should be aware of the danger of navigating without adequate under keel clearance. The practice of navigating through waters barely adequate in depth with a finely assessed under keel clearance based upon predicted tidal heights is not recommended, as the actual tidal rises may be appreciably lower than predicted. Wind conditions which may cause negative tidal surges should always be considered. Charted depths or soundings may not be current or may be based on surveys taken many years in the past.
- 1.12 There are areas where the information on a chart is questionable and caution is advised. **Reference (k)** identified the coastal waters of the Niger Delta and the areas off the South China and Java Seas as areas of high concern. Mariners should be cautious when using such information
- 1.13 Even charts based on recent surveys may not show all seabed obstructions or the shallowest depths. Hydrographic surveys have inherent technical limitations, due partly in some offshore areas to difficulties in accurately calculating tidal ranges. Furthermore, in some cases the depth of the seabed is constantly changing. Nautical charts should, therefore, not be absolutely relied upon in their representation of depth, and when tidal predictions are applied to the chart as if they were actual tide levels, the uncertainties are thereby compounded.
- 1.14 In areas such as estuaries and approaches to ports, where optimum under keel clearance cannot be obtained, Masters should carefully consider what is an appropriate speed having

regard to the 'squat' characteristics of their particular ship. Masters are cautioned against being influenced by any interests outside the ship, commercial or otherwise, to proceed at a speed inconsistent with safe navigation.

1.15 All primary and secondary means utilize to meet the ECDIS and the nautical publications SOLAS requirements must be clearly documented on the Form E of the Safety Equipment Certificate or Form P of the Passenger Ship Safety Certificate.

2.0 ACCEPTANCE OF BACKUP ECDIS (see Regulation V/19.2.1.4 of reference (b))

2.1 This Administration will accept a second ECDIS as meeting the back up arrangement for areas where coverage is provided by Electronic Navigation Charts, provided:

- The ECDIS is Type approved in accordance with relevant international standards (reference (g));
 - If installed on or after 1 January 2009 (see reference (d)); and,
 - If installed on or after 1 January 2000 but before 1 January 2009 (see resolutions MSC.64 (67), Annex 5 and MSC.86 (70), Annex 4).
- The ECDIS unit was tested and licensed by an officially accredited Prototype Test Center in accordance with IMO and the International Electrotechnical Commission (IEC) standards
- The backup ECDIS is loaded with the relevant ENC's and connected to systems providing continuous position fixing capabilities at the start of the voyage.
- Both systems are independent and connected to the main and emergency power supplies.
- The vessel will receive updates for the electronic charts and publications from an authorized supplier.
- There is a sufficient portfolio of updated paper charts for any area on its trade route not covered by ENC's

2.2 The back-up ECDIS shall be marked and the planned route shall be available to enable safe take-over of ECDIS functions should the primary ECDIS fail and allow the vessel to be navigated safely until the termination of the voyage.

2.3 When paper charts are used as the back-up, the charts shall include: The planned route; and the ship's position will be updated regularly in narrow channels to enable the safe take over of ECDIS functions should the system fail.

3.0 INSTALLATION AND IMPLEMENTATION OF ELECTRONIC NAUTICAL PUBLICATIONS (ENPs) ON STANDALONE COMPUTER SYSTEM:

3.1 Installation and implementation of ENPs on a standalone computer system shall take into consideration of regulation 15 of SOLAS Chapter V on the principles related to bridge design and should consider the recommendations in **references (h), (i), and (j)**.

3.2 As a minimum, the hardware shall consist of two computer systems (referred hereinafter as primary and secondary computers), each having the functionality of a processor unit, display, keyboard, pointing device (such as a mouse) and the means to load software and data updates.

3.3 The processor unit of the computer shall be capable of running the official ENP software

products in an effective manner, giving due regard to the specific requirements of the official software products, the operating system in use and the demands of other software products loaded on the computer. Full consideration should be given to the:

- Operating System in use (e.g. Windows XP) - is it supported by the digital nautical publication products that will be loaded onto the system?
- Processor speed (e.g. 1GHz) - is it fast enough to support the loaded products, particularly if nautical publication software will be operating simultaneously with other products?
- Memory: (e.g. 256 MB) - is it large enough to support simultaneously nautical publication products and other running software?
- Hard disk space free: (e.g. 1 GB) - is there enough space to load the programme, the data and the necessary updates?
- Essential peripherals, (e.g. CD ROM, keyboard, mouse, internet connection) - are the right peripherals available to load, use and update ENP software and data?

3.4 The primary computer shall be installed close to where the voyage is monitored. It shall be designed to meet the environmental conditions defined in IEC60945 and shall be powered from the main and emergency sources of power on the bridge. The display should be able to be varied in brightness and contrast to enable viewing in all ambient light conditions. The lighting over the keyboard should be adjustable to enable use in all ambient situations. Care should be taken in positioning and setting-up the display and keyboard lighting so that it does not affect the night vision of bridge watch staff.

3.5 If the display and controls for accessing ENPs are situated close to the conning position or to a look-out position, the display at night should be set to appropriate night-time colors. Great care must be taken in setting brightness adjustments to prevent the display and the keyboard lighting from affecting the night vision of bridge watch staff.

3.6 The primary computer shall be dedicated for ENPs and shall be available for instant use at any time during the voyage.

3.7 The primary computer system should be powered through an uninterruptible power supply (UPS). This is a self-contained battery-driven power inverter that continues to supply good quality electrical power, even when there are fluctuations in the ship's main supply. A UPS can also operate the computer system for some minutes even if there is a complete power failure. It cannot normally be considered to act as the emergency source of power because of the relatively short time before its batteries are exhausted.

3.8 A secondary computer system shall be available in addition to the primary computer system in case of failure of the primary system. It may also be used to run other software needed for essential bridge support functions, provided these are checked for compatibility with the officially approved products loaded. For vessels not installed with local access network (LAN), It is ideally situated on the bridge when it should comply with the requirements of Paragraphs above, except:

- It is not necessary for it to be provided with an emergency source of power
- It need only comply with the EMC requirements of IEC60945

3.9 A secondary computer system is not required if the equivalent paper version of the digital

nautical publication is available on the bridge and is maintained up-to-date. In that case the bridge computer system need only comply with the EMC requirements of IEC 60945 and not the full environmental requirements specified for the bridge environment.

- 3.10 Cyber risk management procedures shall be implemented to protect the primary and secondary computer systems (including a network system, if used) against computer viruses. This may be by the installation and regular update of anti-virus software or by strict bridge instructions prohibiting unauthorized use, including the loading of non-approved software or data.
- 3.11 Training on the system shall be provided to enable operators to use it effectively and maintain the databases to be fully up-to-date. Users new to the particular vessel should be familiarized with the equipment set-up and with the vessel's bridge procedures concerning the use of digital nautical publications, prior to using the equipment.
- 3.12 Updates shall be available and applied before passage planning commences and before leaving port. If updates are received at sea they shall be applied as soon as possible. Any changes relevant to the execution of the passage plan shall be noted on the passage plan. Updates need to be applied to both the primary and secondary systems. Records (which may be in electronic format) shall be kept when updates are received and applied.
- 3.13 During passage planning it shall be checked that any licenses concerning the use of the software and its updates will remain valid for a period in excess of the expected worst-case voyage duration. If this is not the case corrective action needs to be taken.
- 3.14 A status check of the primary and secondary computer systems shall be made before leaving port and at least once per day in order to ascertain the availability of the systems. This information should be recorded in the ship's log.
- 3.15 Clear bridge instructions should be available to prohibit any unauthorized use of the primary and secondary computer systems.

4.0 PAPER NAUTICAL CHARTS AND PUBLICATIONS AS THE PRIMARY MEANS OF NAVIGATION:

As an alternative, operators of vessels with ECDIS installed may continue to use paper nautical charts and publications as the primary means of navigation.

- 4.1 When a vessel operator chooses to use paper nautical charts and publications as the primary means of navigation:
 - The Recognized Organization shall provide a notation on the Form E of the Safety Equipment Certificate, or Form P of the Passenger Ship Safety Certificate, which indicates that the ECDIS is installed as required, but that the vessel operator has elected to continue using paper nautical charts and publications as the primary means of navigation on this vessel.
 - Paper nautical charts and publications used for navigation shall be sufficient for the trade route, adequate for navigation and maintained up-to-date for the intended voyage in accordance with regulation V.27 of reference (b).

* * * * *