

*Paper for Consideration by ENCWG***Consideration of Port State Control Issues related to ECDIS Carriage and Operation**

Submitted by:	IHO Secretariat
Executive Summary:	This paper provides a short analysis of the consultation regarding port State control issues related to ECDIS and offers some suggestions on the way forward.
Related Documents:	IHO CL 67/2016 dated 20 December - <i>Consideration of Port State Control Issues related to ECDIS Carriage and Operation</i> IHO CL 12/2017 dated 7 February – <i>Preparation for NCSR-4</i> HSSC-8 Final Minutes
Related Projects:	ENCWG 2017-18 Work Plan S-66 – <i>Facts about Electronic Charts and Carriage Requirements</i>

Background

1. Following HSSC-8 (Action HSSC8/56 refers) and in accordance with its work plan, the ENCWG is expected to consider the possible concerns raised by Port State Control (PSC) authorities related to the carriage and operation of ECDIS. This paper reports on the feedback from Member States on their survey of PSC procedures (IHO CL 67/2016 refers) and provides a preliminary analysis of their responses. The main objective of this task (together with the similar one related to T&Ps ER – HSSC8/28 refers) is to incorporate recommendations and possible guidelines into a single IHO authoritative and informative document to be made available to HOs, maritime safety agencies, PSC authorities and mariners.

Analysis

2. The IHO Secretariat thanks the 19 following IHO Member States who replied to IHO CL 67/2016: Australia, Brazil, Chile, Croatia, Ecuador, France, Greece, Guatemala, Italy, Mauritius, Mexico, Netherlands, New Zealand, Norway, Portugal, Singapore, Turkey, Ukraine and United Kingdom. Their comments are provided in Annex¹.

3. What the IHO Secretariat retains from these responses, in relation with the topics that are in the remit of the IHO only, is as follows:

- a. PSC officers/inspectors follow the guidelines that are available in the respective PSC MoUs when applicable, ... but these guidelines are either non-publicly available or, when available, considered in general not detailed or practical enough as far as ECDIS/ENC issues are concerned;
- b. PSC officers/inspectors check if the *electronic charts* (some reports indicate that not all of them are ENCs) are updated until the last editions and corrected until the last Notices to the Mariners available;
- c. PSC officers/inspectors check if appropriate charts, adequate for the intended voyage², are uploaded in the ECDIS;
- d. PSC officers/inspectors check if ECDIS software is maintained and kept updated³ according to the latest IHO standards, by looking up at the ECDIS system references;

¹ The large file provided by Australia, which includes ECDIS screenshots, as well as the spreadsheet provided by New Zealand, are not included in the Annex for practical reasons and are to be downloaded from the ENCWG-2 webpage.

² In this respect, the response provided by Australia on ENC coverage versus unofficial data, is particularly informative.

³ In this respect, the response provided by the Netherlands for the preparation of the IMO NCSR-4 meeting (IHO CL 12/2017 refers), given in Annex, is worth to be noted.

- e. there is a general agreement that further practical guidelines should be developed under the umbrella of the Sub-Committee on Implementation of IMO Instruments (III) and it is noted that relevant submissions are planned to be considered in July 2017 at its 4th session;
- f. however, a couple of Member States have indicated that their PSC officers/inspectors consider that the current generic procedures are sufficient;
- g. one Member State has expressed concerns that supporting PSC procedures on ECDIS/ENC matters is not within the remit of the IHO;
- h. there is no comment reporting the [improper] use by PSC officers/inspectors of *ECDIS Data Presentation and Performance Check in Ships* that would corroborate the concerns raised at NCSR 3 and HSSC-8;
- i. the active support by UK of the ECDIS guidelines to the Paris MoU and the associated recommendations should be noted (See Annex).
- j. it should be noted that in 2017, the PSC MoUs plan a Concentrated Inspection Campaign (CIC) focusing on safety of navigation – including ECDIS.

Recommendations

4. Based on these reports and noting that few incidents have been reported so far, the IHO Secretariat is of the view that:
 - a. if and when required by III, the IHO should include in its programme of work supporting the development of further practical and detailed guidelines to the current PSC ECDIS procedures and should consider offering training workshops to PSC officers/inspectors on the occasion of Open ECDIS Stakeholder's Forums and/or maritime events ;
 - b. Member States, involved in the development of PSC procedures and guidelines on ECDIS/ENC, should support the request made by the IHO Secretariat to the Paris MoU, for getting a copy of the relevant technical documentation on this matter and further consider the provisions related to IHO ECDIS/ENC standards.
 - c. If in the short term, it seems that there is no urgent need to develop another single IHO authoritative document on this matter (as initially suggested at HSSC-8)⁴. It is suggested to consider including in Edition 2.0 of S-66 (including changes made for Ed. 1.2 - draft still to be issued for the consideration of Member States-) a supplement section, such as a FAQ section, to support HOs, maritime safety agencies, PSC authorities and mariners (*What is an updated ENC? How can I verify that the uploaded ENC is updated? Are there gaps on the [official] ENC coverage available for my intended voyage? Is there an equivalent of a T&P NM for an ENC?, How can I check that my "electronic" charts are compliant with the latest IHO standards in force?, Links to the IHO and IEC standards in force related to ECDIS, etc.*). In that respect, the ENCWG's attention is drawn on the fact that reference to IHO Publication S-66 is made in the IMO Circular MSC.1/Circ.1503 "*ECDIS – Guidance for Good Practice*".

Action required of ENCWG

5. The ENCWG is invited to:
 - a. **note** this paper,
 - b. **consider** the responses provided by the MS to IHO CL 67/2016 (see Annex),
 - c. **consider** the suggestions made by the IHO Secretariat in section 4 and **agree** on the proposed way forward,
 - d. **include** recommendations on this issue in its report to be submitted at the 9th meeting of HSSC,
 - e. **take** any other actions considered necessary.

⁴ Unless there are urgent concerns to do so for the T&P issues (Action HSSC8/28 refers).

Annex

Member States' responses to IHO CL 67/2017

Australia

Please find a consolidated list of concerns from the Australian Maritime Safety Authority regarding Port State Control inspections (image heavy).

I recently assisting AMSA in drafting a revised Marine Notice regarding use of official charts. It has become apparent that the inclusion of unofficial data within the viewing area on ECDIS results in the same warning as the absence of official ENC (a hole in available coverage). A ship that operates regularly on a fairly narrow route, and therefore not purchasing or holding current coverage over a very large area, will therefore see a continuous warning of "Unofficial Data", triggered by the ECDIS OEM's background world map. This ambiguity can be seen in the attached examples. This ambiguity makes it virtually impossible for a PSC Inspector to determine whether the recent and next voyage legs were or are going to be conducted on official ENC or other coverage, particularly when zoomed out to view the full extent or major legs of those voyages.

- ENCWG2-7.4B Port State Control Issues regarding ECDIS & ENC (AMSA - AHS).doc

- ENCWG2-7.4C Examples of ECDIS-ENC Unofficial Data warnings.docx

Brazil

Regarding CL67/2016, first of all we would like to congratulate the IHO for his initiative related to ECDIS carriage on and operation.

Secondly, after we kept in touch with our Port State Control we were informed by them that as from 01/07/2017 they will comply with the following procedures:

- check if the items listed on Form E of the International Certificate to Safety Equipment for the Cargo Ships are accomplished;
- check if the ECDIS equipment has the type approval certificate which confirms that it complies with the relevant IMO performance standards and IEC standards test;
- check if the electronic charts are updated until the last editions and corrected until the last Notices to the Mariners available;
- check whether there is documented evidence of generic and specific training performed by the Commander and navigation officers for the type of ECDIS carried on the ship;
- check if there are documented procedures for the use of ECDIS by the navigation officers;
- check whether the on-board sensors (course, speed, yaw ratio, etc.) are aligned and in accordance with the ECDIS display;
- check whether there is evidence of periodic testing and checking of ECDIS equipment that need to be performed as part of the Safety Management System;
- ask for demonstration of operational competence by navigation officers (ask the Navigation Officer to adjust the safety depth and check the sound alarm of the equipment); and
- check if the navigation officers hold the certificates in accordance with the Manila Amendments to the STCW Convention.

DHN understands that the improve of the procedures to check the correct use of the ECDIS by the Flag and Port State Control is indispensable for the future of the safety of navigation.

Chile

We have given close study to the Circular Letter in the reference and we would like to express our concern on the way this subject has been introduced into the IHO. We have the following comments:

- 1.- The title of the CL "Consideration of the Port State Control issues related to ECDIS carriage and Operation", in our opinion, is a topic that rests with the National Maritime Authorities, which are responsible for the implementation of IMO regulations.
- 2.- The subject under consideration by the CL is not based on concrete reports. In effect, paragraph 1 of the CL indicates that: "*it appears that mariners are facing...*". We believe that it would be different if real situations were made known, firstly to understand the problem; to confirm if the issue is under IHO's field and if so, to seek for the appropriate solution by the concerned body.
- 3.- The origin of the discussion seems to be generated by a sort of misunderstanding between the mariner and the PSC authorities and therefore it is up to them to solve such situation. We do not see the role of the IHO in establishing inspection's procedure and therefore we cannot agree to task the IHO ENCWG to work on PSC issues related to the carriage and operation of ECDIS. To our understanding this is an IMO responsibility.
- 4.- A different scenario would be if IMO, after acknowledging the occurrence of a certain problem decides to request IHO's support in areas of IHO's competence.

Croatia

Croatia as a full member of the PRIMAR RENC has provided to the Croatian Port State Control Officers (PSCOs) the ENC Inspector tool developed by PRIMAR to be used specifically by PSCOs during their inspections of ECDIS and ENCs onboard vessels.

Recognizing the functionality and simplicity of this tool, the HHI organised a workshop in November 2014. Since then, the ENC Inspector tool has been available to all Croatian PSCOs.

Ecuador (courtesy translation from Spanish to English by the IHO Secretariat)

As a reply to the IHO Circular Letter Nr. 67/2016 dated 20th December 2016, "Consideration of Port State Control Issues related to ECDIS Carriage and Operation", you will find enclosed hereto the document nr. ARE-DIRNEA-DSM-007-O dated 23rd of January 2017, in which the Maritime Authority of Ecuador informs that the regulations issued in our country correspond to those determined in Chapter V, Rule 19, item 12 of the SOLAS Convention, related to the use of Electronic Charts Display and Information Systems.

ARE-DIRNEA-DSM-007:

From National Director of the Aquatic Spaces To INOCAR

Concerning your document nr. INOCAR-DIR-2016-2205-OF dated 28th December 2016, referring to the IHO Circular Letter Nr. 67/2016 dated 20th December 2016, it is relevant to mention that this National Directorate has issued no additional provisions concerning the contents of Chapter V, Rule 19, item 12 of the SOLAS Convention, in which are established the rules related to the use of Electronic Charts Display and Information Systems (ECDIS).

France (courtesy translation from French to English by the IHO Secretariat)

In reply to the letter in reference, it is my pleasure to inform you that in France, the Ministry of the Environment, Energy and the Sea - safety of navigation department - office SM3 is in charge of inspection for port State control. The information obtained from the Head of this office concerning the standard practices for port State control are listed below:

- 1) There is no evidence supporting such observations on «increasing instances of misunderstanding by port State control (PSC) authorities in relation to inspections concerning the carriage and operation of Electronic Chart Display and Information Systems (ECDIS) and Electronic Navigational Charts (ENC) » mentioned in paragraph 1 of the referenced CL; the bureau SM3 has never been requested to date, to deal with appeals related to an ECDIS deficiency. There is no trace in briefings, debates and recent reports within the Paris Memorandum of Understanding on these “misunderstandings”.
- 2)) The PSC instruction of the Paris MoU concerning ECDIS was updated in 2016. It establishes in detail the procedures carried out by the inspectors which are perfectly clear and unambiguous from their point of view. According to the rules of the Memorandum, which were recalled to the IHO Secretariat, this instruction is confidential and cannot be submitted to anyone without previous consent from the Memorandum committee. At the next committee, France will propose that the instruction be submitted to the IHO.
- 3) According to the rules of the Memorandum, the inspectors must undergo various training. Some are compulsory, others are optional. ECDIS training falls into the latter category. However, the feedback on the present experience gained is that many inspectors feel that training is unnecessary as they believe that the implementation of the instruction on the ECDIS control is simple enough.
- 4) The harmonisation of procedures between the numerous MoU’s on the ships control by port States (Paris, Tokyo, Abuja, Indian Ocean etc.) remains to be carried out under the aegis of the IMO. This would help answer some “misunderstandings”.

Greece

In reply to CL 67/2016 please be informed that the Hellenic Navy Hydrographic Service has contacted the Hellenic Port Control Authority seeking their advice in the related subject. Following their reply, please note that, according to the guidelines of the Paris MoU, the Port State inspectors (PSCO) check the compliance of the vessel and crew with the minimum requirements of the International Conventions, in general. It should be emphasized that the authorized inspector is always functioning based on his personal experience and judgment. For the ECDIS equipment carried on ships as a primary means of navigation, the main points among those examined are the following:

1. The ECDIS and associated position and other sensor(s) are in working condition (e.g. match the vessel position coordinates on display against the berth).
2. Appropriate and adequately updated charts are loaded, evidenced by comparing ENCs with latest available updates via notices to mariners issued by the chart authority.
3. The ECDIS application software is maintained and kept updated to the latest International Hydrographic Office standards, by looking up System reference.
4. A voyage plan for previous and/or next passage can be displayed.
5. The crew has adequate familiarity with the use of ECDIS and transfer to backup system.
6. The backup system, listed in RECORD of Equipment, is functional and available.
7. The required nautical publications are being carried and updated.

Guatemala (courtesy translation from Spanish to English by the IHO Secretariat)

Background:

1. This document introduces the problems of poor navigation practices that have been detected and the concern there is in terms of dependence by the bridge officers related to the use of electronic equipment, ignoring in some cases the personal checks.
2. The document III 5-3-5 (Australia, which was sent to all the member authorities of the Agreement by the email 27/16 dated the 19/05/2016,) is attached hereto; in such document the Maritime Authority of Australia expressed to the Sub-Committee III concerns related to poor navigation practices observed and the difficulties experienced in the use of electronic navigation equipment in some ships visiting its ports, in some cases almost causing accidents, and proposed to develop additional guidelines for the officers tasked by the State Port Control to monitor the electronic navigation systems.
3. During the meeting, some delegations expressed their views about excessive reliance on ECDIS, reminiscent of a possible similar situation detected in the aviation sector. In this context, the Sub-Committee also noted the expected future performance of an intensive campaign of inspections by the Memorandums of Understanding of Paris and Tokyo about SOLAS Chapter V, including the ECDIS related requirements.
4. It is important to outline that there is no provision concerning the need of a certificate stating that there is an acquaintance with the use of ECDIS, although the System of the Safety Management of the Ship (SGS) should foresee it. On the other hand, it is inferred that the OSERPs (Officers Responsible for the Supervision of the State Port Control) should also be familiar with the monitoring of the operation of this equipment.
5. The Sub-Committee noted the importance of the raised issues and invited the Paris Memorandum of Understanding to consider the possibility of submitting its guidelines to III 4 and other relevant IMO bodies, and observed, in the same context, that the United States delegation supported the proposal to develop guidelines for the monitoring by State Port Control on ECDIS and planned to submit the relevant document on this issue.
6. He also invited Australia and the concerned delegations to complement the coordinating role of the Sub-Committee, which should receive the relevant documents in its next session.
7. Actions whose adoption is required by the Committee:
 1. The Committee is invited to take note of the ANNEX I documentation and to adopt the measures it deems appropriate;
 2. To establish a correspondence group with the following terms of reference:
 - 2.1 to develop guidelines for the monitoring of electronic navigation equipment;
 - 2.2 to analyse the feasibility of a CEC on Chapter V.

Italy

In accordance with action HSSC8/56, the Italian Hydrographic Institute requested input from the Italian Maritime Administration in order to provide feedback on PSC issues related to ECDIS carriage and operation.

This is the information acquired:

Current and standard practices and check-lists

During an initial inspection of vessels with mandatory fit of ECDIS, the PSCO checks:

- that the Record of Equipment (RoE) attached to the Safety Certificate records the ECDIS as fitted and indicates the backup system deployed;
- that the ECDIS is loaded with current and updated Electronic Navigational Charts (ENCs);

- that the correct functioning of the ECDIS system and availability of the backup through checks is demonstrable by the watch keeping officers;
- that the ECDIS and associated position sensor(s) are in working condition, and that the loaded charts are appropriate and updated;
- that the ECDIS application software is maintained and kept updated to the latest IHO standards;
- that a voyage plan for previous and/or next passage can be displayed;
- familiarity with the use of ECDIS and transfer to a backup system functional/available;
- that required nautical publications are being carried and updated.

During an initial inspection of vessels of voluntarily fitted vessels the PSCO checks:

- Safety Certificate and RoE;
- evidence that the ECDIS being used is SOLAS compliant as duly type approved equipment, and flag State or Recognized Organization confirmation of compliance. In the absence of such evidence, the PSCO should assume that the Electronic Charting System (ECS) fitted onboard is not an ECDIS and cannot fulfil SOLAS requirements and, therefore, carries out/orders a standard check for a vessel using paper charts.

Where clear grounds exist, a more detailed inspection is to be carried out in order to:

- check a valid ECDIS type approval certificate;
- check the display of the required sensor/system inputs where available;
- confirm that the ECDIS can be operated from an emergency source of electrical power;
- where an electronic backup is specified, confirm that it's operational;
- confirm that the power supply is separate from the primary ECDIS;
- check that appropriate/updated charts are installed; and that a (current/future) voyage plan can be displayed;
- where paper charts are used as backup, confirm that the right charts for the intended voyage are available; a (current/future) voyage plan has been incorporated; the charts have been updated;
- The PSCO should confirm that a randomly selected watch officer can undertake basic tasks during watchkeeping (e.g. select charts, change scale, explain meaning of symbols, call up and insert/amend a waypoint in a route etc.);

Reports on the main issues inspectors are facing (ECDIS related deficiencies)

YEAR 2015

ECDIS alarm found inoperative (2 deficiencies)

ECDIS inoperative (1 deficiency)
ECDIS not up to date and license expired (1 deficiency)
ECDIS found switched off (1 deficiency)
ECDIS Chief Officer has no specific training on ECDIS installed on board (1 deficiency)

YEAR 2016

ECDIS compulsory on board the ship but not working (1 deficiency)
ECDIS charts (ENC/RNC) not updated (1 deficiency)
ECDIS training certificate for 2nd Mate not holding – the Mate cannot attend watch keeping duty (1 deficiency)

Mauritius

The relevant Authority in Mauritius has been consulted regarding information on Port State control issues related to ECDIS carriage and operation. You may wish to find hereunder the following information for your consideration:

(a) For Mauritius, Port State Control is carried out by Officers of the Shipping Division of the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping.

(b) The guidelines of the Indian Ocean Memorandum of Understanding (IOMOU) on Port State Control are closely adhered to.

(c) PSC Officers (PSCOs) usually focus on how ships meet the SOLAS requirements for chart carriage and the safe and effective conduct of navigation tasks. The contents of the following documents are taken into consideration, namely:

- SOLAS Chapter V - Regulation 18.
- IMO Resolution A. 817(19) Performance Standards for ECDIS, as amended by IMO resolution MSC.64 (67) and MSC.86 (70), and further amended by IMO resolution MSC.232 (82) depending upon date of installation.
- SOLAS Chapter V - Regulation 19.2.1.4, 19.2.1.5, 19.2.10 and 19.2.11.
- Safety of Navigation IMO Circular SN.1 /Circular 207 Rev.1 Differences between RCDS & ECDIS.
- Safety of Navigation IMO Circular SN.1 /Circular 266 Rev.1 Maintenance of Electronic Chart Display and Information System (ECDIS) Software
- Safety of Navigation IMO Circular SN. 1 /Circular 276 Transitioning from Paper Charts to Electronic Chart Display Information Systems (ECDIS) Navigation.
- Training - STCW / IMO Model Course 1.27.
- MSC. 1 / Circ. 1503 (CDIS guidance for good practice).

(d) Furthermore, PSCOs take account of the ECDIS-related issues as per attached checklist for ECDIS.

(e) It is to be noted that the list of known ECDIS anomalies have been compiled by the International Maritime Organization's (IMO) and is included in its MSC. 1/ Circ. 1503.

(f) Appropriate training on ECDIS would be very valuable for PSCOs in Mauritius.

Mexico (courtesy translation from Spanish to English by the IHO Secretariat)

From Deputy Director General of Oceanography, Hydrography and Meteorology Navy of Mexico

Concerning your above mentioned Circular Letter, in which you require information concerning the inspections made by the Port State Control on the need to carry an ECDIS and on its use (including the ENC related issues), we inform you that, during foreign vessels' inspections made by the Port State

Control, the only thing checked is that the concerned equipment be on board and mentioned in the equipment certificate. Likewise, I inform you that no campaign, on which was focused the Viña del Mar agreement, has been carried out to check the efficiency of the equipment.

Concerning the training and experience of the users, we inform you that the course related to this system is run by the Trust in charge of Training for National Merchant Navy staff (FIDENA) since 2014, based on the Manila International Convention of 1978 on Training, Certification and Watchkeeping for Seafarers.

From Dirección General Adjunta de Protección y Seguridad Marítima, de la Secretaría de Comunicaciones y Transportes (SCT)

About this subject, and as per Rule 19.2.1.4 of SOLAS Chapter V, “**Devices and nautical systems on board**”, every ship, regardless of its size, will have: nautical charts and publications to plan and visually present the ship’s track for the foreseen voyage and to draw the track and verify the situation during the voyage. An Electronic Chart Display and Information System (ECDIS) will be acceptable to meet this obligation of carrying nautical charts. To this respect, we inform you that during the inspection by the Port State Control carried out for the foreign ships, it is only checked that the concerned equipment be on board and mentioned in the certificate of the equipment. Likewise, we inform you that a campaign focused by the Viña del Mar agreement, to check the efficiency of equipment, has not been undertaken yet.

With reference to users’ training and experience, please note that the course on such a system is being run by FIDENA since 2014, based on the Amendments of Manila to the International Convention on Training, Qualifications and Watchkeeping Standards for Seafarers, 1978. Consequently, the expedition of the Special Competence Certificate by the General Directorate of Merchant Shipping is from that same year, and is being issued until 2017, for the following Certificates:

SPECIAL COMPETENCE CERTIFICATE	2014	2015	2016	2017*	TOTAL
Operator of the Electronic Charts Display and Information System	31	211	452	50	744

2017 Until 24th January 2017.*

Netherlands⁵

ECDIS manufacturers, type approval organizations, Classification Societies, ship owners, operators and masters are hereby informed that, as from 31 August 2017, IHO standards S-52 Edition 6.0 / Chart Content and Display Aspects, Presentation Library Edition 3.4 and Standard S-64 Edition 2.0 / Test Data Sets, are no longer valid for existing ECDIS systems type approved with an edition of IEC61174 previous to the 4th edition. (ref. annex 1).

Background

During NCSR3 at IMO in March 2016 the entry into force date for the new editions of IHO- and IEC standards S-52, S-64 and IEC 61174 was extended by one year (i.e. 31 August 2017) in order to create ample time for manufacturers and ship owners to upgrade older ECDIS systems.

It is the view of the Netherlands flag State Administration that from 1 September 2017 ECDIS systems which do not fulfil hard- and software requirements, and subsequently cannot present ENC’s according to the latest IHO standards, cannot be considered as meeting the chart carriage requirements of SOLAS V

⁵ Actually response to IHO CL 12/2017.

reg. 19.2.1.4, nor as meeting the qualification of 'up to date' nautical charts referred to in SOLAS V reg. 27.

It is the responsibility of the company and the master to ensure compliance with V/27 and also to ensure that the ECDIS application software, and hardware if necessary, is updated before 31 August 2017.

All ECDIS on board, including those, which are not in use for primary navigation, shall comply with the latest IHO standards.

New Zealand

The excel spreadsheet contains all the ECDIS deficiencies found during Maritime New Zealand (MNZ) port State control inspections in recent years. (Also included are Voyage and Passage Planning).

[NZ Response to CL67-16 Deficiencies related to the carriage of ECDIS](#)

Norway

The Norwegian Maritime Administration has not been facing complications related to «ECDIS carriage and operation» in port state controls done in 2016.

In 2017 there will be a concentrated inspection campaign (CIC) focusing on safety of navigation – including ECDIS. Experience shows us that this will contribute to more issues regarding this theme.

Portugal

The Portuguese Hydrographic Office has been informed by the Portuguese competent authority for Port State Control that they use the instructions approved by the Paris and Tokyo Memoranda of Understanding on Port State Control (Paris MoU), and that the documentation can only be provided directly by the Paris MoU secretariat.

Singapore

Following are the points that are looked out for during PSC inspections on ECDIS:

1. ECDIS equipment is duly endorsed in the Records of Safety Equipment Certificate
2. ECDIS type approval certificate, confirming compliance with relevant IMO performance standard and the International Electro-technical Commission (IEC) test standard
3. Use of latest edition official ENCs, updated and corrected to the latest available updates and notices to mariners
4. Adequate independent back-up arrangements (in accordance with Records of Safety Equipment Certificate)
5. Approved ECDIS generic and familiarisation training for master and Navigating officers
6. ECDIS software is maintained to the latest applicable IHO standards
7. Conformance and alignment with input from sensors (e.g. heading, speed, GPS and rate of turn) and presentation on the ECDIS display

8. Evidence of periodic tests and checks of the ECDIS carried out in accordance with the Safety Management System SMS and manufacturer's requirements
9. Operational competency by the ship's navigating officers (e.g. safety checking of a voyage plan, safety depth/contour settings, look ahead/guard zone function etc.)
10. Safety Management System (SMS) included ECDIS as critical equipment, documented procedures and instructions for the use of ECDIS are included

Our PSCOs' observations on ECDIS related deficiencies are as follows :

1. Unofficial electronic charts are also used for navigation in addition to paper charts.
2. ECDIS installed and use solely for on-board training purpose not identified and appropriately marked as "For training purpose only/not to be used for navigation"
3. Appropriate ECDIS generic training (which may be based upon IMO model course 1.27) meeting the competence requirements of the 2010 Manila Amendments to the STCW Convention as well as relevant documentation not available from navigating officers
4. Familiarization training with the ship's equipment including ECDIS (in accordance with STCW regulation I/14) as well as relevant documentation not available from navigating officers
5. Navigating officers not familiar with safety checking of a voyage plan, safety depth/contour settings, look ahead/guard zone function etc.
6. The passage plan not drawn up in using ECDIS when it is "Primary means to Navigation"
7. The ship's safety equipment certificate form "E" sec 3.1 and 3.2 not updated to reflect the primary navigation means, i.e. ECDIS or nautical charts.

Turkey

Regarding CL 67-2016, the relevant information related to inspections by port State control authorities of ECDIS carriage and operation (including ENC related issues) are as follows:

1. Current and Standard Practices and Checklists implemented by Turkish PSC:

- Inspectors are following up the guidelines of PSC MoUs of which Turkey is a member. These are namely the Black Sea PSC MoU and the Mediterranean PSC MoU. Additionally, Paris PSC MoU standards/guidance are taken into consideration for the implementation of best practices. The guidelines related to ECDIS in MoUs are not detailed enough in terms of ECDIS operation and their copies can not be provided because of confidentiality limitations.
- There is no other guideline about ECDIS carriage and operation (including ENC related issues) used by the inspectors in Turkey.

2. Main Problems that PSC Inspectors are Facing:

- It has been observed that the main problem in using ECDIS is the training problem. In particular, 20% of the watch officers were found to be confident in use of ECDIS, 60% have knowledge at utilization level, and 20% have not enough training and knowledge
- Technical difficulties in the implementation of the audit due to the differences in operation of ECDIS in vessels. ECDIS is offered by various brands compatibility issues with other devices on the bridge.

- It is recommended that technical inspections related to ECDIS should be carried out periodically by the manufacturer and the relevant report of those reports should be submitted to the PSC Officer.

3. No feedback from Ship Owners and Operators is received.

Ukraine

...

Herewith the State Hydrographic Service of Ukraine (SHSU) informs on absence of any commentaries concerning the matters encircled by IHO CL 67/2016.

The delay of the kind has been caused with the necessity to receive replies of the sea port authorities.

United Kingdom

The following is largely as a result of liaising with the UK Maritime Administration, The Maritime and Coastguard Agency (MCA).

1) As one of the founding members of the IHO-IMO Ad-hoc Group for ECDIS Anomalies (2010), UK is particularly grateful to the IHO with regard to their continued updates to the IMO NCSR and Implementation of IMO Instruments (111) sub-committees.

2) UK produced and provided the original ECDIS guidelines to Paris MoU in 2010, which was extensively updated in 2015 to include the updated IEC 61174 and commensurate IHO standards.

3) 1114 which meets in July 2017, has invited comments with regard to various Port State Control guidelines on ECDIS. Having been instrumental in providing such guidelines for the Paris MoU region, UK will be aiming to ensure world-wide harmonisation by the PSC regimes.

4) A joint Concentrated Inspection Campaign (CIC) on SOLAS Ch V, by Paris and Tokyo MoU, is to be carried out Sept-Nov 2017. Given the alternating leading roles, this CIC's questionnaire will be led by Far-Eastern States. Hence, those IHO member states in that part of the world may be asked to ensure due ECDIS focus is given within the CIC.

5) As far as UK is concerned there is not an increasing concern about misunderstandings of ECDIS by PSC. The Paris MoU ECDIS guidelines have clear and simple instructions related to the PSC Inspector conduct and actions. As regards the reported "apparent and inappropriate use of the ECDIS Data Presentation and Performance Check", in UK there are no such incidents. UK PSC Officers, all of them all surveyors of the UK-flagged vessels, seem to be well aware of the proposed usage and efficacy of the DPPC.

6) UK has no reservations on the Paris MoU ECDIS Guidelines being made available to IHO. The Paris MoU secretariat will be so advised.

7) In response to the request for relevant information related to inspections by PSC, the following is a brief summary:

a. MCA survey and inspection not only deliver PSC functions but also flag State functions like surveys, audits, enforcement and of course the flag State inspections.

b. UK Surveyors and PSC officers/inspectors are given extant and topical technical and policy guidance to undertake their work including M-notices, Instructions to Surveyors, Advice Notes and checklists, which cover issues like whether the vessel is carrying ECDIS under mandatory or voluntary measure, and if ECDIS, whether as the primary means of navigation.

c. UK survey and inspection frontline staff make extensive use of the information provided in the UKHO Weekly Notices to Mariners, Section VIII, detailing the currency and status of the Admiralty Digital Products and Services, including ENCs and RNCs.

d. Only a handful of ECDIS related deficiencies have been reported on UK ships.

e. The lack of appropriate ECDIS training has been noted as an issue on some ships. The UK has taken note of the recent IMO Circular (MSC 1/Circ.1560) which asked port State control officers (PSCO) to take a pragmatic approach to the requirement for seafarers to hold updated certification on-board a vessel as per the 2010 Manila amendments up until the 1st July 2017.

f. In 2015, Charts and NPs were in the top 5 of Paris MoU PSC inspection deficiencies. However, it seems that the more readily tangible items like the fire control measures, bridge equipment, lifesaving appliances etc. almost always get the top billing, thus pushing Charts and NPs down the list. Paris MoU has recently made details of their inspections public, via an interactive tool, which is available on their portal and can be queried to right down to say ECDIS, SNC and NPs. This may be a useful tool to investigate deficiencies.