

COMDTCHANGENOTE 16721
NVIC 13-14
August 6, 2018

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 13-14, CH 1

Subj: CH-1 TO GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS AS MASTER OR OFFICER IN CHARGE OF A NAVIGATIONAL WATCH OF VESSELS OF LESS THAN 500 GT LIMITED TO NEAR-COASTAL WATERS, NVIC 13-14, COMDTPUB 16721

Ref: (a) Guidelines on Qualification for STCW Endorsements as Master or Officer in Charge of a Navigational Watch of Vessels of Less Than 500 GT Limited to Near-Coastal Waters, NVIC 13-14, COMDTPUB 16721

1. PURPOSE. This Commandant Change Notice publishes CH-1 to Reference (a), Guidelines on Qualification for STCW Endorsements as Master or Officer in Charge of a Navigational Watch of Vessels of Less Than 500 GT Limited to Near-Coastal Waters, NVIC 13-14, COMDTPUB 16721.
2. ACTION. Officers in Charge, Marine Inspection (OCMIs) should bring this Commandant Change Notice to the attention of the maritime industry within their zones of responsibility. Internet release is authorized.
3. DIRECTIVES AFFECTED. Navigation and Inspection Circular (NVIC) 13-14, COMDTPUB 16721 is changed in accordance with this Commandant Change Notice.
4. DISCUSSION.
 - a. This notice changes the guidance found in Reference (a) concerning qualifying for STCW endorsements as Master or Officer in Charge of a Navigational Watch (OICNW) of Vessels of Less Than 500 GT Limited to Near-Coastal Waters.
 - b. The standards of competence for endorsements as Master and OICNW for vessels of less than 500 GT are found in Table A-II/3 of the STCW Code. This table does not include standards of competence for Bridge Resource Management (BRM), Leadership and Managerial Skills, or Leadership and Teamworking Skills. This Commandant Change Notice will remove the requirement for mariners to complete approved training or to demonstrate meeting the standard of competence in these areas in order to qualify for or to renew endorsements as Master and OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters.

DISTRIBUTION – SDL No. 168

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NON-STANDARD DISTRIBUTION:

- c. This Commandant Change Notice will also remove grandfathering provisions that expired on December 31, 2016.
 - d. After publication of NVIC 13-14, the Coast Guard noted an error in the discussion of the service requirements for Master on Vessels of Less Than 500 GT Limited to Near-Coastal Waters. The original NVIC incorrectly included “or” after the discussion of the service requirements in paragraph (2)(a)(i) of Enclosure (1). This Commandant Change Notice corrects that error to indicate that the service is in addition to training and meeting the STCW standard of competence and is not an alternative to training and assessment.
5. DISCLAIMER. This guidance is not a substitute for applicable legal requirements, nor is it itself a regulation. It is not intended to, nor does it impose legally binding requirements on any party. It represents the Coast Guard’s current thinking on this topic and is issued for guidance purposes to outline methods of best practice for compliance with applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.
6. MAJOR CHANGES. This Commandant Change Notice revises Reference (a) as follows:
- a. Enclosure (1) is revised to:
 - 1) Remove the requirement to complete approved training for Leadership and Managerial Skills in order to qualify for or to renew an endorsement as Master of Vessels of Less Than 500 GT Limited to Near-Coastal Waters;
 - 2) Correct an error in the discussion of service requirements for endorsements as Master of Vessels of Less Than 500 GT Limited to Near-Coastal Waters;
 - 3) Remove the requirement to complete approved training for Bridge Resource Management in order to qualify for an endorsement as OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters;
 - 4) Remove the requirement to meet the standard of competence for Leadership and Teamworking Skills to renew an endorsement as OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters;
 - 5) Revise the discussion of service requirements for OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters to include the quantity of seagoing service that should be included in an approved program;
 - 6) Remove grandfathering and transition provisions that expired on December 31, 2016;
 - 7) Add cites to applicable portions of the Code of Federal Regulations (CFR);
 - 8) Revise discussions concerning training for Basic Training, Proficiency in Survival Craft, and Advanced Firefighting to note that mariners who completed this training more than five years before the date of application should provide evidence of having maintained the applicable standard of competence;
 - 9) Add a discussion in the section for renewal of endorsements to note that mariners who will serve as the person in charge of a survival craft should provide evidence of maintaining the

standard of competence for Proficiency in Survival Craft or Proficiency in Survival Craft-Limited; and

10) Change the format of the discussion of endorsement renewal requirements to improve readability; and

- b. Enclosures (2), and (3) are revised to reflect previously published policy extending the date for acceptance of assessments that were not signed by a Coast Guard approved Qualified Assessor, and to add additional information concerning assessments that are performed on military vessels.

Significant changes are marked with a vertical line

7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.

- a. The development of this NVIC and the general policies contained within it have been thoroughly reviewed by the originating office, and are categorically excluded (CE) under current USCG CE # 33 from further environmental analysis, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1 (series). Because this NVIC implements, without substantive change, the applicable Commandant Instruction or other federal agency regulations, procedures, manuals, and other guidance documents, Coast Guard categorical exclusion #33 is appropriate.
- b. This NVIC will not have any of the following: significant cumulative impacts on the human environment; substantial controversy or substantial change to existing environmental conditions; or inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment. All future specific actions resulting from the general policies in this NVIC must be individually evaluated for compliance with the National Environmental Policy Act (NEPA), DHS and Coast Guard NEPA policy, and compliance with all other environmental mandates.

8. DISTRIBUTION. No paper distribution will be made of this Commandant Change Notice. An electronic version will be located at <http://www.uscg.mil/hq/cg5/nvic>.

9. PROCEDURE. Remove and insert the following pages:

<u>Remove</u>	<u>Insert</u>
Enclosure (1)	Enclosure (1) CH-1
Enclosure (2), Page 1	Enclosure (2), Page 1 CH-1
Enclosure (3), Page 10	Enclosure (3), Page 10 CH-1

10. RECORDS MANAGEMENT CONSIDERATIONS. This NVIC has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with the Federal Records Act (44 U.S.C. 3101 et seq.), NARA requirements, and the Information and Life Cycle Management Manual, COMDTINST

M5212.12 (series). This policy does not create significant or substantial change to existing records management requirements.

11. FORMS/REPORTS. None.

12. REQUEST FOR CHANGES. All requests for changes or questions regarding implementation of this Commandant Change Notice should be directed to the Mariner Credentialing Program Policy Division (CG-MMC-2), at (202) 372-2357 or MMCPolicy@uscg.mil.



J. P. NADEAU
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

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4. BACKGROUND.

- a. The STCW Convention and STCW Code set forth standards for training and certification for merchant mariners, including mariners serving as Master and OICNW of Vessels of Less Than 500 GT on near-coastal voyages.
- b. In order to implement the 1995 amendments to the STCW, the Coast Guard published NVIC 05-02 providing guidance on how mariners may qualify for endorsements as Master or OICNW on Vessels of Less Than 500 Gross Tonnage.
- c. The International Maritime Organization (IMO) amended the STCW Convention and STCW Code on June 25, 2010. These amendments entered into force for all ratifying countries, including the United States, on January 1, 2012.
- d. The Convention is not self-implementing; therefore, the U.S., as a signatory to the STCW Convention, initiated regulatory changes to ensure full implementation of the amendments to the STCW Convention and STCW Code. The U.S. implements these provisions under the Convention and under the authority of United States Code, Titles 33 and 46. The Coast Guard published a final rule in the Federal Register on December 24, 2013, (78 FR 77796) that implements the STCW, including the 2010 amendments. This rule became effective on March 24, 2014. The Coast Guard is publishing this NVIC to provide guidance on complying with the new regulations. This NVIC supersedes NVIC 05-02.

5. DISCUSSION.

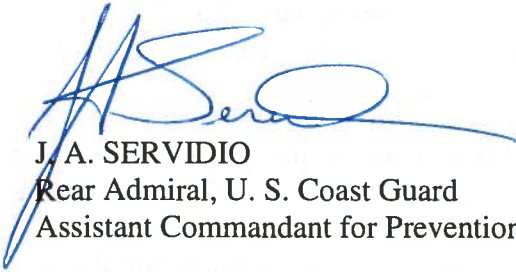
- a. Policy regarding these endorsements is located in this NVIC. Enclosure (1) details specific qualification requirements for these endorsements. Enclosure (2) contains the national assessment guidelines. Enclosure (3) may be used to record the completion of assessments. Enclosure (4) provides relevant excerpts from the STCW Convention and STCW Code.
- b. When assessing demonstrations of skills, Qualified Assessors (QAs) are encouraged to use the guidelines in Enclosure (2) or an approved alternative. Shipboard QAs may make minor changes to the assessments in Enclosure (2) to reflect differences in shipboard equipment and operating procedures. QAs may not make other changes unless prior approval is given by the National Maritime Center (NMC) (46 CFR 11.301(a)(1)(i)).
- c. A training institution applying for approval of a course or program that leads to an endorsement as Master or OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters should state either that the guidelines in Enclosure (2) will apply, or provide the guidelines it proposes to use. Under 46 CFR 10.402(e) and 11.301(a)(1)(i), a training institution must submit any deviations from these guidelines to the Coast Guard for approval before use.

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- d. When applying for an endorsement as Master or OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters, mariners need only submit the completed Enclosure (3), Record of Assessment, or equivalent evidence of demonstration of competence, to the Coast Guard. The Coast Guard recommends that mariners retain a copy of Enclosure (3) or equivalent evidence of demonstration of competence for their records.
 - e. NVIC 05-02 was never put into practice as was other guidance promulgated to assist mariners in qualifying for similar STCW endorsements. NVIC 05-02 was never utilized by the public or the Coast Guard. Actual practice has not required assessments for those qualifying for either OICNW or Master of Vessels of Less Than 500 GT Limited to Near-Coastal Waters. As such, we do not expect there to be any grandfathering issues directly related to the cancellation of NVIC 05-02.
6. **DISCLAIMER.** This guidance is not a substitute for applicable legal requirements, nor is it itself a regulation. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current thinking on this topic and is issued for guidance purposes to outline methods of best practice for compliance to the applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.
7. **ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.**
- a. The development of this NVIC and the general policies contained within it have been thoroughly reviewed by the originating office, and are categorically excluded (CE) under current USCG CE # 33 from further environmental analysis, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1 D. Because this NVIC implements, without substantive change, the applicable Commandant Instruction or other federal agency regulations, procedures, manuals, and other guidance documents, Coast Guard categorical exclusion #33 is appropriate.
 - b. This NVIC will not have any of the following: significant cumulative impacts on the human environment; substantial controversy or substantial change to existing environmental conditions; or inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment.
8. **RECORDS MANAGEMENT CONSIDERATIONS.** This NVIC has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with Federal Records Act, 44 U.S.C. 3101 et seq., National Archives and Record Administration requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This policy does not create a significant or substantial change to existing records management requirements.
9. **QUESTIONS.** All questions regarding implementation of this Circular should be directed to the Mariner Credentialing Program Policy Division (CG-CVC-4), at (202) 372-2357 or

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MMCPolicy@uscg.mil To obtain approval for an alternative to the assessments described in Enclosure (2), contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil



J. A. SERVIDIO
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Assistant Commandant for Prevention Policy

- Encl: (1) Discussion of Qualification Requirements for Master and OICNW on Vessels of Less than 500 GT Limited to Near-Coastal Waters
- (2) Assessment Guidelines for Master and OICNW on Vessels of Less than 500 GT Limited to Near-Coastal Waters
- (3) Record of Assessment for Master and OICNW on Vessels of Less than 500 GT Limited to Near-Coastal Waters
- (4) Excerpts from STCW Convention and STCW Code

**DISCUSSION OF QUALIFICATION REQUIREMENTS FOR MASTER AND OFFICER
IN CHARGE OF A NAVIGATIONAL WATCH ON VESSELS OF LESS THAN 500 GT
LIMITED TO NEAR-COASTAL WATERS**

1. GENERAL. This enclosure provides guidance for deck officers to qualify for International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) endorsements as Master and Officer in Charge of a Navigational Watch (OICNW) on Vessels of Less Than 500 GT Limited to Near-Coastal Waters in accordance with Section A-II/3 of the STCW Code and 46 Code of Federal Regulations (CFR) 11.317 and 46 CFR 11.321.
2. SEA SERVICE, TRAINING, AND DEMONSTRATIONS.
 - a. An applicant for an STCW endorsement as Master on Vessels of Less Than 500 GT Limited to Near-Coastal Waters must provide evidence of:
 - i) Not less than 12 months of service as OICNW on vessels operating in oceans, near-coastal waters, and/or Great Lakes. Service on inland waters, bays, or sounds that are navigable waters of the United States may be substituted for up to 50 percent of the total required service. Experience gained in the engine department on vessels may be creditable for up to 1 month of the service requirements (46 CFR 11.317(a)(1));
 - ii) Meeting the standard of competence specified in Section A-II/3 of the STCW Code (46 CFR 11.317(a)(2)). The assessments described in Enclosure (2) may be used for this purpose; and
 - iii) Satisfactory completion of approved training in the following:
 - 1) Medical First-Aid Provider (46 CFR 11.317(a)(3)(i));
 - 2) Proficiency in Survival Craft or Proficiency in Survival Craft-Limited (46 CFR 11.317(a)(3)(iii)). If this training was completed more than 5 years before the date of application, the applicant must provide evidence of maintaining the standard of competence as specified in 46 CFR 12.613(b) or 12.615(b), as appropriate;
 - 3) Electronic Chart Display Information Systems (ECDIS), to be valid for vessels with this equipment (46 CFR 11.317(a)(3)(v));
 - 4) Radar Observer, to be valid for vessels with this equipment (46 CFR 11.317(a)(3)(vi)); and
 - 5) Automatic Radar Plotting Aids (ARPA), to be valid for vessels with this equipment (46 CFR 11.317(a)(3)(vii));
 - 6) Basic Training (46 CFR 11.302). If this training was completed more than 5 years before the date of application, the applicant must provide evidence of maintaining the standard of competence as specified in 46 CFR 11.302(b); and

- 7) Advanced Firefighting (46 CFR 11.317(a)(3)(ii)). If this training was completed more than 5 years before the date of application, the applicant must provide evidence of maintaining the standard of competence as specified in 46 CFR 11.303(b).
- b. An applicant for an STCW endorsement as an OICNW on Vessels of Less Than 500 GT Limited to Near-Coastal Waters must provide evidence of:
- i) Seagoing service as follows:
 - 1) Twenty-four months of service in the deck department on vessels operating on oceans, near-coastal waters and/or the Great Lakes. Service on inland waters, bays, or sounds that are navigable waters of the United States may be substituted for up to 50 percent of the required service. Experience gained in the engine department may be creditable for up to 3 months of the required service (46 CFR 11.321(a)(1)(i)); or
 - 2) Successful completion of approved training program that includes 12 months of seagoing service (46 CFR 11.321(a)(1)(ii) and (iii)); and
 - ii) Meeting the standard of competence specified in Section A-II/3 of the STCW Code. The assessments described in Enclosure (2) may be used for this purpose; and
 - iii) Satisfactory completion of approved training in the following:
 - 1) Medical First-Aid Provider (46 CFR 11.321(a)(3)(i));
 - 2) Proficiency in Survival Craft or Proficiency in Survival Craft-Limited (46 CFR 11.317(a)(3)(iii)). If this training was completed more than 5 years before the date of application, the applicant must provide evidence of maintaining the standard of competence as specified in 46 CFR 12.613(b) or 12.615(b), as appropriate;
 - 3) Electronic Chart Display Information Systems (ECDIS), to be valid for vessels with this equipment (46 CFR 11.321(a)(3)(v));
 - 4) Radar Observer, to be valid for vessels with this equipment (46 CFR 11.321(a)(3)(vi));
 - 5) Automatic Radar Plotting Aids (ARPA), to be valid for vessels with this equipment (46 CFR 11.321(a)(3)(vii));
 - 6) Basic Training (46 CFR 11.302). If this training was completed more than 5 years before the date of application, the applicant must provide evidence of maintaining the standard of competence as specified in 46 CFR 11.302(b); and
 - 7) Advanced Firefighting (46 CFR 11.317(a)(3)(ii)). If this training was completed more than 5 years before the date of application, the applicant must provide

evidence of maintaining the standard of competence as specified in 46 CFR 11.303(b).

- c. In accordance with 46 CFR 11.301(h) mariners qualified to hold any of the following national officer endorsements will also be qualified to hold an STCW endorsement corresponding to the service or other limitations of their license or officer endorsements. The vessels concerned are not subject to further obligation under STCW because of their special operating conditions as small vessels engaged in domestic, near-coastal voyages:
 - i) Masters, mates, or engineers endorsed for service on small passenger vessels that are subject to 46 CFR Subchapters T or K and that operate beyond the boundary line; and
 - ii) Masters, mates, or engineers endorsed for service on seagoing vessels of less than 200 GRT, other than passenger vessels subject to 46 CFR Subchapter H.

STCW endorsements issued in accordance with 46 CFR 11.301(h) will have a limitation to domestic, near coastal voyages.

3. RENEWAL OF ENDORSEMENTS. Assessment is not required for renewal of endorsements as Master or OICNW on Vessels of Less Than 500 GT Limited to Near-Coastal Waters. To renew an STCW endorsement as Master or OICNW of Vessels of Less Than 500 GT Limited to Near-Coastal Waters, mariners must meet the applicable requirements in 46 CFR 10.227 to renew their national endorsement and provide evidence of:
 - a. Completion of approved or accepted training for ECDIS, to be valid on a vessel with this equipment (46 CFR 11.317(b)(2));
 - b. Maintaining the standard of competence in Basic Training (46 CFR 11.302(b)) and Advanced Firefighting (46 CFR 11.303(b)); and
 - c. Mariners serving as Lifeboatman must also provide evidence of maintaining the standard of competence for Proficiency in Survival Craft (46 CFR 12.613) or Proficiency in Survival Craft-Limited (46 CFR 12.615), as appropriate.

Assessment Guidelines for Master and Officer in Charge of a Navigational Watch of Vessels of Less than 500 GT Limited to Near-Coastal Waters

Standard of Competence

Every candidate for an STCW endorsement as Master or Officer in Charge of a Navigational Watch (OICNW) of Vessels of Less Than 500 GT Limited to Near-Coastal Waters must provide evidence of having achieved the standard of competence as specified in Table A-II/3 of the STCW Code. The table below is adopted from Table A-II/3 of the STCW Code (found in Enclosure (4)) to assist the candidate and assessor in the demonstration of competency.

Practical Skill Demonstrations

These assessment guidelines establish the conditions under which the assessment will occur, the performance or behavior the candidate is to accomplish, and the standards against which the performance is measured.

Qualified Assessors

A shipboard Qualified Assessor (QA) who witnesses a practical demonstration may sign the appropriate blocks and pages in the Record of Assessment in Enclosure (3) or an equivalent record. All assessments must be signed by a QA approved by the Coast Guard in accordance with 46 CFR 10.405. In order to facilitate the transition to this new requirement, the Coast Guard will accept assessments that have been demonstrated in the presence of and signed by an assessor who has not been Coast Guard approved that were conducted before January 1, 2020, provided that the assessor meets the professional requirements in 46 CFR 10.405(a)(3) to assess competence for the specific endorsement. These assessments must be submitted to the Coast Guard as part of a complete application no later than June 30, 2020, provided that the assessor meets the professional requirements in 46 CFR 10.405(a)(3) to assess competence for the specific endorsement. Assessors must be in possession of the level of endorsement, or other professional credential, which provides proof that he or she has attained a level of experience and qualification equal or superior to the relevant level of knowledge, skills, and abilities to be assessed (46 CFR 10.405(a)(3)). In the interim, the Coast Guard will accept assessments signed by mariners who hold an appropriate national endorsement and have at least 1 year of experience on oceans or near-coastal vessels of at least 100 GRT. To assess candidates for Mate, this experience should be as Mate or Master, and to assess candidates for Master, the experience should be as Master. For assessments signed on a military vessel, the assessor should be authorized to conduct similar assessments for the U.S. Army, U.S. Navy, or U.S. Coast Guard Personnel Qualification Standard (PQS) for underway officer of the deck (OOD). Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. For example, assessments involving the carriage of cargo should not be performed on a vessel that does not carry cargo and/or by an assessor who lacks experience on cargo-carrying vessels. After December 31, 2019, QAs must be approved by the National Maritime Center to (46 CFR 10.405). Qualified military personnel will not need to be approved QAs and may continue to sign assessments on military vessels after December 31, 2019.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Notes

The following notes are referred to in the “Task No.” column of the assessment table:

Course The assessment may only be satisfied by successful completion of a Coast Guard approved or accepted course.

Master These assessments are only required for an endorsement as Master.

Radar Not required for mariners serving exclusively on vessels not fitted with radar. If the assessment is not completed, a limitation will be added to the STCW endorsement indicating that it is not valid for service on vessels equipped with radar.

ECDIS Not required for mariners serving exclusively on vessels not fitted with an Electronic Chart Display and Information System (ECDIS). If the mariner does not complete an approved ECDIS course, a limitation will be added to the STCW endorsement indicating that it is not valid for service on vessels equipped with ECDIS after December 31, 2016.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

**Assessment Guidelines for Master and Officer in Charge of a Navigational Watch of Vessels of Less than 500 GT
Limited to Near-Coastal Waters**

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.A Position fix by two bearings	Plan and conduct a coastal passage and determine position	<i>Navigation</i> Ability to determine the ship's position by the use of .1 landmarks .2 aids to navigation, including lighthouses, beacons and buoys	On a vessel underway, in a navigation laboratory, or on a simulator, with land and aids to navigation in sight, using appropriate available navigation equipment for taking bearings, and given a chart with a scale of no more than 1:150,000,	the candidate determines the bearings of at least two charted objects and plots them.	The candidate's: 1. Position is within ± 0.10 nm of the assessor's solution; 2. Crossing angles of bearing is not less than 30° nor more than 160° between bearings; 3. Bearings of objects abeam or close to the beam are observed first; and 4. Chart in use is the largest scale suitable for the waters being transited.
1.2.A Plot DR position	Plan and conduct a coastal passage and determine position	<i>Navigation</i> Ability to determine the ship's position by the use of .3 dead reckoning, taking into account winds, tides, currents and estimated speed	On a vessel underway or in a navigation laboratory, using a standard plotting sheet or chart, and given the vessels speed made good and course made good for the past 4 hours,	the candidate plots the vessel's DR position for every hour (or more frequently, if required) for the next 4 hours.	The candidate's positions are within $\pm .25$ nm of the assessor's.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.3.A Determine the course to steer	Plan and conduct a coastal passage and determine position	<i>Navigation</i> Ability to determine the ship's position by the use of .3 dead reckoning, taking into account winds, tides, currents and estimated speed	On a vessel underway or in a navigation laboratory, with the vessel's speed at least 10 knots, and using a plotting sheet or chart, when encountering wind and current which sets the vessel,	the candidate plots the vessel's position on at least two occasions not less than 30 minutes apart, calculates set and drift by vector analysis, and determines the course to steer to make the intended course.	The course to steer determined by the candidate is within $\pm 5^\circ$ of the assessor's solution.
1.4.A Correction of charts and publications	Plan and conduct a coastal passage and determine position	Thorough knowledge of and ability to use nautical charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information	On a vessel or in a navigation laboratory, given notices to mariners and uncorrected charts and publications,	the candidate corrects 5 charts and 3 publications, including the <i>Light List</i> or the <i>List of Lights</i> (or international equivalents).	The candidate: 1. Identifies charts and publications needing correction; 2. Correctly makes corrections to the affected charts and publications; 3. Records all chart corrections on the chart and in the chart-correction record or on the chart-correction spreadsheet; and 4. Records corrections to all publications on the correction page of the publication and on the publication-correction card or the publication-correction spreadsheet.
1.4.B Chart selection	Plan and conduct a passage and determine position	Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information	On a vessel, or in a navigational laboratory, given a voyage of at least 600 nm between the port of departure and the port of arrival, and given the appropriate chart catalog,	the candidate identifies the charts needed for the voyage.	The candidate: 1. Correctly identifies and records the names and numbers of the charts; 2. Selects the charts with the largest scales appropriate for the area being transited; and 3. Ensures that there is no gap in chart coverage for any part of the voyage requiring coastal navigation between departure and arrival at any port.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.4.C Route planning	Plan and conduct a passage and determine position	Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information	On a vessel, or in a navigation laboratory, when given three way-points consisting of a position of departure, a position of arrival, and one other way-point, with a total distance of more than 600 nm,	the candidate determines the appropriate courses and distances between way-points, and plots the intended courses on the charts selected.	The candidate: 1. Correctly calculates courses and distances between way-points within 3 nm and/or 1° of the assessor's solution; 2. Ensures that the route is the most direct; and 3. Plots the courses on the appropriately scaled charts noting the ETA at each way-point, including final way-point.
1.5.A Vessel Traffic System (VTS)	Plan and conduct a coastal passage and determine position	Reporting in accordance with General Principles for Ship Reporting Systems and with VTS procedures	On a vessel or simulator,	the candidate navigates through a VTS, observing the VTS user's guide.	The candidate: 1. Communicates with the VTS; 2. Provides the initial information exchange required by the VTS; 3. Updates information during transit as required by the VTS; 4. Updates information if the vessel anchors and/or berths; and 5. Closes communications with the VTS as the vessel departs the VTS jurisdiction.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.6.A Voyage Planning - Appraisal <i>Master</i>	Plan and conduct a coastal passage and determine position	<p>Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.:</p> <ul style="list-style-type: none"> .1 restricted waters .2 meteorological conditions .3 ice .4 restricted visibility .5 traffic separation schemes .6 vessel traffic service (VTS) areas .7 areas of extensive tidal effects 	On a ship, a simulator, or in a navigation laboratory, when given a port of departure and a port of arrival not more than 600 nm apart,	the candidate collects the information to plan a safe and environmentally sound voyage plan.	<p>The candidate ensures the following are taken into account and develops a voyage plan for the vessel:</p> <ol style="list-style-type: none"> 1. The condition of the vessel, its stability, equipment, operational limitations, draft, and maneuvering characteristics; 2. Any special characteristics of the cargo and its stowage; 3. Crew members' competency and rest status; 4. The validity of all ship's certificates and documents; 5. Up-to-date charts of proper scale, and the latest notices to mariners and radio navigational warnings; 6. Up-to-date coast pilots, sailing directions, and other information sources appropriate for the voyage; 7. Relevant routing guides; 8. Up-to-date tide and current tables and atlases; 9. Weather information and routing; 10. Ship reporting systems, VTS and environmental protection measures; 11. Vessel traffic density for the route; 12. Pilotage requirements and information exchange; and 13. Port information, including emergency response capability.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.6.B Voyage Planning - Planning <i>Master</i>	Plan and conduct a coastal passage and determine position	Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.: .1 restricted waters .2 meteorological conditions .3 ice .4 restricted visibility .5 traffic separation schemes .6 vessel traffic service (VTS) areas .7 areas of extensive tidal effects	On a ship, a simulator, or in a navigation laboratory, when given a port of departure and a port of arrival not more than 600 nm apart,	the candidate plans a safe and environmentally sound voyage plan.	The candidate: 1. Plots courses on appropriately scaled charts noting the ETA at each way-point, including the final way-point; 2. Correctly calculates and indicates courses and distances between way-points on the charts; 3. Determines the most direct route that avoids all hazards to navigation by an appropriate margin of safety; 4. Determines the areas of all required speed changes; 5. Determines minimum underkeel clearances in critical areas, and positions requiring a change of machinery status; 6. Determines way-points of all course changes; 7. Determines the state of the tide and currents at the port of departure for the times of departure and transit; 8. Creates a contingency plan for alternative actions in cases of emergency; 9. Determines relevant navigation information used to identify protected marine habitats, areas and sanctuaries; and 10. Reviews the plan with the navigation team.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.6.C Voyage Planning - Execution <i>Master</i>	Plan and conduct a coastal passage and determine position	Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.: .1 restricted waters .2 meteorological conditions .3 ice .4 restricted visibility .5 traffic separation schemes .6 vessel traffic service (VTS) areas .7 areas of extensive tidal effects	On a ship, a simulator, or in a navigation laboratory, when given a voyage plan,	the candidate executes the plan.	The candidate: 1. Checks the reliability and condition of the navigational equipment frequently; 2. Applies basic information obtained from the tide tables and other navigational publications to determine underkeel clearance; 3. Fixes the vessel's position at appropriate intervals; 4. Frequently checks compass(es); 5. Assesses meteorological information; 6. Determines compass error; 7. Applies set and drift and other needed course corrections; 8. Correctly operates and applies information from electronic navigation systems; 9. Correctly operates the radar and ARPA, if fitted, and applies the information for navigation and collision avoidance; 10. Correctly operates propulsion and steering systems to control heading and speed; 11. Initiates action in the event of a real or simulated equipment malfunction or failure of major items of equipment; 12. Correctly conducts radio-communications; 13. Monitors and correctly operates safety and alarm systems; and 14. Closely and continuously monitors the voyage plan.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.7.A <i>ECDIS Course</i>	Plan and conduct a coastal passage and determine position	Thorough knowledge of and ability to use ECDIS	This KUP is satisfied if the candidate has successfully completed the approved or accepted <i>ECDIS</i> course specified in 46 CFR 11.317(a)(3)(v) and 46 CFR 11.321(a)(3)(v).		
1.8.A Position fix by two ranges <i>Radar</i>	Plan and conduct a coastal passage and determine position	<i>Navigational aids and equipment</i> Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	On a marine radar or radar simulator that meets applicable national and international performance standards, with land and navigational aids displayed, and given a chart with a scale of no more than 1:150,000,	the candidate determines two or more ranges measured from identified charted objects or points of land and plots them.	The candidate's position is within ± 0.10 nm of the assessor's position.
1.8.B Position fix by tangents to objects <i>Radar</i>	Plan and conduct a coastal passage and determine position	<i>Navigational aids and equipment</i> Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	On a marine radar or radar simulator that meets applicable national and international performance standards, with land and navigational aids displayed, and given a chart with a scale of no more than 1:150,000,	the candidate determines two or more tangents measured from identified-charted objects or points of land and plots them.	The candidate's position is within ± 0.10 nm of the assessor's position.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.8.C Position fix by GPS	Plan and conduct a coastal passage and determine position	<i>Navigational aids and equipment</i> Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	On a vessel underway, or on a simulator, or in a navigation laboratory, using a GPS or DGPS receiver which meets IMO performance standards,	the candidate initializes a GPS or DGPS receiver, determines the ship's position and evaluates the accuracy of that position by independent methods.	The candidate: 1. Initializes the system; and 2. Determines the accuracy of the position.
1.8.D Use of GPS position save function	Plan and conduct a coastal passage and determine position	<i>Navigational aids and equipment</i> Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	On a vessel underway, or on a simulator, or in a navigation laboratory, using a GPS or DGPS receiver which meets IMO performance standards, when hearing "Man Overboard,"	the candidate activates the man overboard / emergency position save function.	The candidate saves or records the ship's position within 1 minute of hearing "Man Overboard."

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.8.E Use of echo sounder	Plan and conduct a coastal passage and determine position	<i>Navigational aids and equipment</i> Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	On a vessel underway, using an echo sounder which meets IMO performance standards or a part-task trainer that realistically simulates all the functions and controls of an echo sounder and which meets IMO performance standards,	the candidate turns on, tests, and operates the echo sounder.	The candidate: 1. Turns the system on; 2. Tests the echo sounder in accordance with manufacturer's recommendations; 3. Notes the correct UTC on the echo sounder paper (if fitted); 4. Ensures that the scale selected is the lowest appropriate for the vessel's draft and the depth of water of the area of transit; and 5. Adjusts the sensitivity to obtain proper depth reading on the display and correct trace on the paper (if fitted).
1.9.A Determine magnetic compass deviation	Plan and conduct a coastal passage and determine position	<i>Compasses</i> Ability to determine errors of the compass, using terrestrial means, and to allow for such errors	On a vessel or simulator, using navigational or natural terrestrial ranges, using only a magnetic compass and a chart with variation,	the candidate notes the vessel's magnetic compass heading while aligned on the range and determines the magnetic compass deviation.	The candidate: 1. Compares the magnetic compass heading to the charted range bearing; 2. Determines the magnetic compass error and properly labels it; 3. Determines variation from the chart; 4. Determines the magnetic compass deviation to within $\pm 1.0^\circ$ of the assessor's solution; and 5. Correctly records it in the compass record book and the ship's log.
1.9.B Determine course to steer by magnetic compass	Plan and conduct a coastal passage and determine position	<i>Compasses</i> Knowledge of the errors and corrections of magnetic compasses	On a vessel, in a navigation laboratory, or on a simulator, and given a deviation table,	the candidate correctly applies the compass error to the course by magnetic compass to make good the intended true course.	The candidate correctly applies the compass error to the magnetic course and the solution is within $\pm 1.0^\circ$ of the assessor's solution.

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1.9.C Position fix by magnetic compass bearings	Plan and conduct a coastal passage and determine position	<i>Compasses</i> Knowledge of the errors and corrections of magnetic compasses	On a vessel, in a navigation laboratory, or on a simulator, and given a deviation table and a chart with a scale of no more than 1:150,000,	the candidate correctly applies the compass error to the compass bearings by magnetic compass of at least two charted objects and plots them on the chart in use.	The candidate: <ol style="list-style-type: none"> 1. Correctly applies compass error to the magnetic compass bearings; and 2. Determines the objects' position to within $\pm 1.0^\circ$ of the assessor's solution.
1.10.A Steering gear test	Plan and conduct a coastal passage and determine position	<i>Automatic pilot</i> Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance	On a vessel underway or on a simulator,	the candidate conducts the pre-departure test of the vessel's steering gear.	The candidate: <ol style="list-style-type: none"> 1. Turns on the steering control system; 2. Aligns the steering gyro-repeater with the master o-compass (if fitted); 3. Tests the controls for switching pumps and motors between the port and starboard steering systems after the required warm-up period; and 4. Tests the steering systems: <ol style="list-style-type: none"> a. When the control is switched to hand steering, the rudder is tested throughout its full range of motion; and b. When the control is switched to non-follow-up (if fitted), the rudder is tested.

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1.10.B Set weather controls	Plan and conduct a coastal passage and determine position	<i>Automatic pilot</i> Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance	On a vessel underway or on a simulator equipped with rudder and weather controls, while in auto pilot,	the candidate sets the rudder and weather controls that are most suitable for the weather and sea conditions.	The candidate sets the controls in accordance with the manufacturer's recommendations for the prevailing sea conditions for the area transited or simulated.
1.10.C Change from auto pilot to hand steering	Plan and conduct a coastal passage and determine position	<i>Automatic pilot</i> Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance	On a vessel or in a laboratory, when asked by a Qualified Assessor to describe procedures to change the steering mode from auto pilot to hand steering,	the candidate describes how to change the steering mode from auto pilot to hand steering.	The candidate's description includes: 1. Repeating the order; 2. Switching the steering mode from auto pilot to hand; 3. Testing that the new steering mode is responding; and 4. Stating: "She's in hand steering."
1.10.D Change from hand steering to auto pilot	Plan and conduct a coastal passage and determine position	<i>Automatic pilot</i> Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance	On a vessel or in a laboratory, when asked by a Qualified Assessor to describe procedures to change the steering mode from hand steering to auto pilot,	the candidate describes how to change the steering mode from hand steering to auto pilot.	The candidate's description includes: 1. Repeating the order; 2. Putting the wheel amidships; 3. Verifying that the course dialed into the auto pilot is the same as the course to be steered; 4. Switching the steering mode from hand to auto pilot; 5. Verifying that the auto pilot is responding properly; and 6. Stating: "She's in auto pilot."

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.11.A Read barometric pressure	Plan and conduct a coastal passage and determine position	<i>Meteorology</i> Ability to use and interpret information obtained from shipborne meteorological instruments	On a vessel or in a laboratory, and using a barometer,	the candidate determines the barometric pressure in millibars, inches, or millimeters of mercury.	The candidate: 1. Reads the barometer and applies the appropriate corrections; Determines the barometric pressure to within 0.5 millibar, 0.02 inch, or 0.4 millimeter of the assessor's corrected reading.
1.12.A Determine true wind speed and direction	Plan and conduct a coastal passage and determine position	<i>Meteorology</i> Ability to apply the meteorological information available	On a vessel underway using an anemometer, or in a laboratory and given anemometer reading and vessel course and speed,	the candidate determines true wind speed and direction.	The candidate converts the apparent wind speed and direction to true wind speed and direction, and the solution is within 10° for direction and 5 knots for speed of the assessor's solution.
1.13.A Determine expected weather conditions	Plan and conduct a coastal passage and determine position	<i>Meteorology</i> Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems	On a vessel or in a laboratory, and given the surface, upper air, and sea state analysis weather maps,	the candidate determines the weather to be encountered during the next 24-hour period.	The candidate's determinations of expected wind, sea, and weather conditions (types and amount of cloud cover, rain, and fog) are based on standard meteorological principles and agree with the assessor's determinations based on the movement of the systems and fronts.
2.1.A Identify light configurations	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	At night, on a vessel underway, on a simulator, or using laboratory equipment,	the candidate identifies vessels through observation of their light configurations.	The candidate correctly identifies the situation or occupation of 9 of 10 vessels that have different light configurations.

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2.1.B Identify day shapes	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	In daylight, on a vessel underway, on a simulator, or using laboratory equipment,	the candidate identifies vessels through observation of their required shapes.	The candidate correctly identifies the situation or occupation of 9 of 10 vessels that have different required shapes.
2.1.C Identify sound signals	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	In restricted visibility, on a vessel underway, on a simulator, or using laboratory equipment,	the candidate identifies vessels by hearing their required sound signals.	The candidate correctly identifies the situation or occupation of 4 of 5 vessels that have different required sound signals.
2.1.D Determine risk of collision	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	On a vessel underway, or a simulator, and using a magnetic compass, gyro-compass repeater (if fitted), azimuth circle, bearing circle or alidade, or other means resulting in equivalent accuracy,	the candidate determines if risk of collision exists with approaching meeting, crossing, and overtaking vessels.	The candidate takes two visual bearings of an approaching vessel using an azimuth circle, bearing circle, alidade, or other means resulting in equivalent accuracy, to determine if the bearing to the approaching vessel is appreciably changing, and each observation is within $\pm 2^\circ$ of the assessor's solution.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.1.E Maneuver to avoid risk of collision - crossing	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	On a vessel underway, or a simulator, when risk of collision with an approaching crossing vessel (from the candidate's starboard side at a relative bearing of between 30° and 112.5°) exists in good visibility in open water,	the candidate correctly applies the Rules of the Road and maneuvers the vessel to avoid collision, if required.	The candidate: 1. Determines the aspect of the approaching vessel; 2. Identifies the situation as a crossing situation; 3. Takes positive action in ample time in accordance with the Steering and Sailing Rules to achieve a CPA of at least 1.0 nm; and 4. Makes speed or course changes that are large enough to be readily apparent to another vessel observing visually or by radar.
2.1.F Maneuver to avoid risk of collision - meeting	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	On a vessel underway, or a simulator, when risk of collision with an approaching meeting vessel exists in good visibility in open water,	the candidate correctly applies the Rules of the Road and maneuvers the vessel to avoid collision, if required.	The candidate: 1. Determines the aspect of the approaching vessel; 2. Identifies the situation as a meeting situation; 3. Takes positive action in ample time in accordance with the Steering and Sailing Rules to achieve a CPA of at least 1.0 nm; and 4. Makes speed or course changes that are large enough to be readily apparent to another vessel observing visually or by radar.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.1.G Maneuver to avoid risk of collision - overtaking	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	On a vessel underway, or a simulator, when risk of collision with an approaching overtaking vessel exists in good visibility in open water,	the candidate correctly applies the Rules of the Road and maneuvers the vessel to avoid collision, if required.	The candidate: 1. Determines the aspect of the approaching vessel; 2. Identifies the situation as an overtaking situation; 3. Attempts VHF communications with the overtaking vessel; 4. Sounds the danger signal, if required by the rules; 5. Takes positive action in ample time in accordance with the Steering and Sailing Rules to achieve a CPA of at least 0.5 nm; and 6. Makes speed or course changes large enough to be readily apparent to another vessel observing visually or by radar.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.A Watch relief	Maintain a safe navigational watch	<i>Watchkeeping</i> Knowledge of content of the Principles to be observed in keeping a navigational watch	On a vessel underway at sea,	the candidate properly relieves the watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraphs 21 and 22.	The candidate: <ol style="list-style-type: none"> 1. Reads the standing orders and/or night orders; 2. Determines and compares the vessel's position, course, and speed with the DR position and track; 3. Notes the position of the next charted way-point; 4. Verifies the identities of critical aids to navigation in sight; 5. Determines tides and current as necessary; 6. Checks and properly tunes the radar and/or ARPA, if fitted; 7. Checks any targets displayed on the radar or ARPA, if fitted; 8. Checks the heading by magnetic compass; 9. Determines the navigational hazards likely to be encountered during the watch; 10. Determines the possible effect of list, trim, water density, and squat on underkeel clearance; 11. Ensures that he/she receives courses, traffic, weather and any special instructions from the officer being relieved; and 12. Tells the officer being relieved that he or she is relieved.

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2.2.B Keep a safe navigation watch	Maintain a safe navigational watch	<i>Watchkeeping</i> Knowledge of content of the Principles to be observed in keeping a navigational watch	On a vessel underway at sea,	the candidate properly keeps a safe and environmentally sound navigational watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraphs 23 to 50.	<p>The candidate ensures that:</p> <ol style="list-style-type: none"> 1. The voyage plan is closely and continuously monitored; 2. A proper lookout is maintained by all available means; 3. A safe speed is maintained throughout the watch period; 4. Position, course, and speed are checked at frequent intervals; 5. The steering mode selected is appropriate to the area transited; 6. Underkeel clearance is suitable for the draft of the vessel at all times; 7. Course changes are made in accordance with the voyage plan; 8. The vessel's position is fixed and plotted on an appropriate chart at intervals suitable to the vessel's speed and the area being transited; 9. The identities of critical aids to navigation in sight are determined; 10. More than one method, including electronic and other navigational equipment, external fixed aids, geographic reference points, and hydrographic contours, is used to fix the vessel's position and check the accuracy of fixes; 11. Radio equipment is frequently checked and found to be functioning properly; <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
<p>2.2.B <i>Continued</i> Keep a safe navigation watch</p>					<p><i>Continued from previous page</i></p> <ol style="list-style-type: none"> 12. Risk of collision with approaching vessels is determined and early and substantial action, if required, is taken in accordance with COLREGS; 13. The validity of the gyro input to all navigation equipment is verified (if fitted); 14. Error of the magnetic compass and, if fitted, gyro-compass are determined by any available means and the error is logged; 15. Magnetic variation and compass deviation are correctly applied to courses and bearings; 16. The person steering is competent; 17. Tide and current conditions for the watch period are determined in coastal and tidal waters; 18. Set and drift are determined and applied to allow for set and drift; 19. The weather conditions on board the ship are correctly and timely recorded and reported as required; 20. Running lights are checked throughout the watch period; 21. The Master is notified as directed by all Master's or standing orders; 22. All relevant navigation information is used to identify protected marine habitats, areas and sanctuaries; and 23. All required log entries are made.

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2.2.C Notify Master when appropriate	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the Principles to be observed in keeping a navigational watch	On a vessel underway at sea,	the candidate notifies the Master as instructed, and when in doubt of other vessel's intentions, or in any circumstances that affect the routine navigation of the vessel in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 40.	The candidate notifies the Master immediately when the following occur: <ol style="list-style-type: none"> 1. Restricted visibility is encountered or expected; 2. Vessel traffic density or movement of other ships causes concern; 3. Difficulty is experienced in maintaining course; 4. Failure to sight land or a navigational mark, or to obtain soundings when expected; 5. Aids to navigation are not in position or are displaying incorrect characteristics; 6. Land or a navigational mark is sighted unexpectedly, or soundings change unexpectedly; 7. The engines or their control systems, steering, or any essential navigational equipment fails, or alarms or indicators for these systems fail; 8. Any radio equipment fails; 9. Concerns arise in heavy weather about damage to the vessel or cargo; 10. Any hazard to navigation that poses a threat to the vessel is noticed; 11. Any doubt about the ship's safety or other emergency arises; or 12. Any changes are made to the voyage plan.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.D Keep a safe anchor watch	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the Principles to be observed in keeping a navigational watch	On a vessel at anchor,	the candidate properly keeps a safe anchor watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 51.	The candidate ensures that: <ol style="list-style-type: none"> 1. Ship's position is determined and swing is plotted; 2. Ship's position is frequently checked by visual and radar bearings and radar ranges from the same charted objects; 3. GPS anchor alarm are established; 4. Proper lookout is maintained; 5. Periodic inspections are made; 6. When necessary, a rating is posted at the anchor to carry out orders with respect to the anchor; 7. Weather, tides, and sea state are monitored; 8. The Master is notified immediately when the weather changes, visibility becomes restricted, or the anchor starts to drag; 9. Engines are ready for immediate use, where conditions require (open roadsteads, strong winds, or current and poor holding ground); and 10. All required lights, shapes, and sounds are properly shown /sounded.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.E Navigate in restricted visibility	Maintain a safe navigational watch	<i>Watchkeeping</i> Knowledge of content of the Principles to be observed in keeping a navigational watch	On a vessel underway or on a ship simulator, when visibility becomes restricted while underway,	the candidate recognizes the restricted visibility and takes appropriate action to navigate in restricted visibility in accordance with STCW Code Section A-VIII/2, Part 4-1, Paragraph 45.	The candidate: 1. Determines the restricted visibility; 2. Notifies Master of restricted visibility; 3. Switches to hand steering. 4. Posts a proper lookout and turns the running lights on; 5. Adjusts the vessel's speed in accordance with Rule 6; 6. Sounds the required sound signals; 7. Sets the radar and/or ARPA on the appropriate scale to scan at long range for other vessels; and 8. Plots all approaching targets on the radar or ARPA, if fitted. 9. Uses radar or ARPA, if fitted, to obtain early warning of risk of collision and to determine the speed and direction of relative motion.
2.2.F Turn over a watch	Maintain a safe navigational watch	<i>Watchkeeping</i> Thorough knowledge of the Principles to be observed in keeping a navigational watch	On a vessel underway at sea or on a simulator,	the candidate properly turns the watch over.	The candidate ensures that: 1. A DR position is plotted on the chart in use for the end of the watch; 2. The ship's position is determined and plotted by all means appropriate to the area being transited; 3. Required weather data is read and recorded in the vessel log; <i>Continued on next page</i>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.F <i>Continued</i> Turn over a watch					<p style="text-align: center;"><i>Continued from previous page</i></p> <ol style="list-style-type: none"> 4. The heading of the magnetic compass is checked and recorded; 5. The movement of all vessel traffic is checked by visual and electronic means immediately before being relieved; 6. The vessel's course and speed, posting of special lookouts, steering mode in use, and weather and visibility are relayed to the relieving officer; 7. Any special instructions regarding occurrences during the past watch, or which are expected during the next watch, are related; 8. All relevant information concerning vessels in sight, or on the radar or ARPA, is reported to the relieving officer; 9. The Master is notified if there is any doubt that the relieving officer is competent to perform his or her duties; 10. If the Master or pilot has the con, details concerning delegated responsibilities are relayed; and 11. The watch is not turned over during a maneuver or other action taken to avoid a hazard to navigation.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.3.A	Maintain a safe navigational watch	<i>Watchkeeping</i> Use of routing in accordance with the General Provisions on Ships' Routing	This KUP is satisfied if the candidate has successfully completed Assessment 1.4.B.		
2.3.B	Maintain a safe navigational watch	<i>Watchkeeping</i> General Provisions on Ships' Routing	This KUP is satisfied if the candidate has successfully completed Assessment 1.4.C.		
2.4.A	Maintain a safe navigational watch	<i>Watchkeeping</i> The use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures	This KUP is satisfied if the candidate has successfully completed Assessment 1.5.A.		
3.1.A Safety of passengers in emergency situations	Respond to emergencies	<i>Emergency procedures</i> Precautions for the protection and safety of passengers in emergency situations	On a vessel or in a laboratory, when asked by a Qualified Assessor to describe the precautions for the protection and safety of passengers in emergency situations specified by the assessor,	the candidate describes the precautions for the protection and safety of passengers in emergency situations.	The candidate's description is appropriate for the described situation(s).

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
3.2.A Initial damage assessment and control	Respond to emergencies	<i>Emergency procedures</i> Initial action to be taken following a collision or a grounding; initial damage assessment and control	On a vessel or in a laboratory, when asked by a Qualified Assessor to describe actions to be taken following a collision or a grounding,	the candidate describes the initial action to be taken following a collision or grounding.	The candidate's description is appropriate for the described situation and includes initial damage assessment and control.
3.2.B Actions following a collision	Respond to emergencies	<i>Emergency procedures</i> Initial action to be taken following a collision or a grounding; initial damage assessment and control	On a vessel, or on a simulator, during a simulation of the vessel after a collision,	the candidate gives the proper commands to maximize the safety of crew and vessel.	The candidate's commands include: <ol style="list-style-type: none"> 1. Assessing damage and determines if vessel has lost watertight integrity; 2. Determining the ship's stability and hull stresses; 3. Checking for injuries to personnel; 4. Taking steps to prevent the progressive flooding of spaces; 5. Determining if threat of oil pollution exists; 6. Maintaining communication with other vessel and renders assistance if possible; 7. Monitoring the weather; 8. Maneuvering the vessel to minimize the effect of further damage; and 9. Determining the damage stability condition and "danger angle" for launching survival craft before listing 15°.

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3.2.C Actions following a grounding	Respond to emergencies	<i>Emergency procedures</i> Initial action to be taken following a collision or a grounding; initial damage assessment and control	On a vessel, or on a simulator, during a simulation of the vessel after a grounding,	the candidate orders the appropriate steps to minimize grounding damage.	The candidate's orders include: 1. All watertight doors be closed, the hull be checked, the bilges and tanks be sounded, and all spaces below the waterline be visually inspected where possible; 2. The vessel be anchored in order to hold it until the grounding force is calculated and the float plan is complete; 3. Ballast and fuel be transferred as necessary; 4. Communications with the engine room be established and the sea suction be switched if necessary; 5. The type of bottom on which the vessel grounded is determined; and 6. The threat of oil pollution be determined.
3.3.A Emergency steering <i>Master</i>	Respond to emergencies	Emergency procedures, including emergency steering	On a vessel at sea, or on a simulator, during a simulation of a steering casualty that cannot be corrected by switching steering motors,	the candidate gives the proper commands to operate the emergency steering system.	The candidate's commands include: 1. The steering motor be switched to the motor not in use; 2. Crewmen man the alternate steering location, if appropriate; 3. Establishing communications with the alternate steering location, as appropriate; 4. Steering control be switched from the bridge to the alternate steering location; and 5. Appropriate helm orders be followed and courses steered.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
3.4.A Emergency towing <i>Master</i>	Respond to emergencies	Emergency procedures, including arrangements for towing and for being taken in tow	On a vessel at sea or on a simulator, during a drill simulation of an engine casualty,	the candidate gives the proper commands to prepare the vessel for emergency towing.	The candidate's commands include: 1. Identifying the available equipment/gear to be used for emergency towing; 2. Making sure the chain will not pay out until the towing vessel requests additional chain; and 3. Actions for getting underway under tow. (Secure rudder dead center, close watertight doors, hatches and vents, etc.).
3.5.A Man overboard <i>Master</i>	Respond to emergencies	Emergency procedures, including rescuing persons from the sea	On a ship at sea or in a simulator, during a drill, upon receiving notification of a man overboard (MOB) from your own vessel,	the candidate immediately maneuvers for the fastest recovery of person in the water, and gives the commands to launch a rescue boat.	The candidate: 1. Gives appropriate maneuvering commands; 2. Sounds the MOB signal; 3. Simulates releasing a lighted buoy and/or other appropriate lifesaving equipment; 4. Marks the ship's position on ARPA and/or GPS (if fitted); 5. Simulates a "Mayday" call on VHF notifying any vessels in vicinity of the MOB; 6. Completes the recovery maneuver; and 7. States the rescue boat, if so equipped, would be prepared for launch.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
<p>3.6.A Assisting a vessel in distress <i>Master</i></p>	<p>Respond to emergencies</p>	<p>Emergency procedures, including assisting a vessel in distress</p>	<p>On a vessel or in a laboratory, when asked by a Qualified Assessor to describe procedures for assisting a ship or aircraft in distress,</p>	<p>the candidate appropriately describes procedures and actions to assist vessels and aircraft in distress.</p>	<p>The candidate's description includes:</p> <ol style="list-style-type: none"> 1. Reporting systems, such as: <ol style="list-style-type: none"> a. Preparing departure, arrival, and daily reports; b. Actions to be taken when instructed to assist; and c. Actions to be taken to request assistance; 2. Emergency towing to prevent a ship from grounding on a lee shore by other than a salvage tug; 3. Medical emergency communications; 4. Contacting contracted doctors ashore; 5. Medical assistance from nearby ships with doctors aboard; 6. Taking aboard survivors of ship and aircraft casualties; and 7. Relaying sea and weather conditions to aircraft needing assistance; and relaying navigational information to aircraft and ships needing assistance.
<p>3.7.A Emergencies in port <i>Master</i></p>	<p>Respond to emergencies</p>	<p>Emergency procedures, including appreciation of the action to be taken when emergencies arise in port</p>	<p>On a vessel or in a laboratory, when asked by a Qualified Assessor to describe the procedures to be followed for responding to specific emergencies which arise in port,</p>	<p>the candidate describes the procedures to be followed for responding to the emergencies.</p>	<p>The candidate's description is appropriate for the described situation.</p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
4.1.A IAMSAR Manual	Respond to a distress signal at sea	<i>Search and rescue</i> Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	On a vessel or in a laboratory, when asked by a Qualified Assessor to describe the procedures for search and rescue contained in the IAMSAR Manual,	the candidate describes the coordination of a search and rescue.	The candidate's description includes: 1. Establishing communication methods and message texts to be used in search patterns in accordance with IAMSAR; 2. Determining the most probable search area by calculating: a. The target probability area when the intended course of the target is known; and b. The set and drift of a life raft using a set and drift graph of approximate drift values; 3. Determining the appropriate search pattern; and 4. Coordinating with at least one other vessel in the search pattern.
5.1.A Course change of more than 45°	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> Knowledge of factors affecting safe maneuvering and handling	On a vessel underway or in a simulator,	the candidate turns the vessel left or right more than 45° from the original heading.	The candidate turns left or right more than 45° from the original heading and steadies on the new course without overshooting the course by more than 10°.
5.1.B Emergency stop	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> Knowledge of factors affecting safe maneuvering and handling	On a vessel underway or in a simulator, proceeding at a speed of at least half-ahead,	the candidate demonstrates an emergency stop.	The candidate stops the vessel without deviating from the original course by more than 20° within the safe operating limits of the vessel's propulsion system.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.1.C Dock vessel	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> Knowledge of factors affecting safe maneuvering and handling	On a vessel underway or in a simulator, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3 knots,	the candidate demonstrates docking a vessel to a pier.	The candidate: 1. Plans the operation by determining: a. Depth of water at the berth for the state of the tide; b. Strength and direction of the current for the route to the berth and at berth; c. Direction and velocity of the wind; and d. Appropriate approach to the berth; 2. Within a safe distance, the vessel is positioned appropriately at approaching at a safe speed and ready to be secured to the dock; and 3. All lines are made fast and the vessel lays alongside next to the pier with no movement.
5.2.A Fresh water systems	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> The operation of small ship power plants and auxiliaries	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the fresh water systems,	the candidate describes freshwater systems.	The candidate's description includes: 1. Treatment of fresh water for drinking; and 2. The vessel's domestic-water system.

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5.2.B Principles of steering gear	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> The operation of small ship power plants and auxiliaries	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the operating principles of steering gear,	the candidate describes the operating principles of steering gear.	The candidate's describes the operation of steering gear, in generally accepted engineering terms, including: 1. Variable delivery hydraulic pumps; 2. General design and operation including redundancy for: a. Auxiliary steering; b. Power supplies; and c. Emergency control; 3. Control systems including telemotor control systems and electric control systems; 4. Local operation; and 5. Testing steering gear before sailing and during drills.
5.2.C Sewage treatment plants	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> The operation of small ship power plants and auxiliaries	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the operating principles of sewage treatment plants,	the candidate describes the operating principles of sewage treatment plants.	The candidate describes the operation of shipboard sewage-handling equipment, in generally accepted engineering terms, including: 1. U. S. regulations and International Conventions: a. MARPOL Annex IV; b. Federal Water Pollution Control Act; and c. 33 CFR 159; 2. Operation of a chemical-treatment plant; and 3. Operation of a biological-sewage treatment plant.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.2.D Deck machinery	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> The operation of small ship power plants and auxiliaries	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the operating principles of deck machinery,	the candidate describes the operating principles of deck machinery.	The candidate describes the operation of deck machinery, in generally accepted engineering terms, including: 1. Anchor windlasses, including: a. Capabilities and limitations; b. Gearing; and c. Redundant arrangements; 2. Winches, including: a. Spooling devices, including advantages and disadvantages; b. Safe working load and operating characteristics; c. Self tensioning, including advantages and disadvantages; and d. Advantages and disadvantages of different drive systems; and 3. Lubrication and maintenance of deck machinery.

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5.2.E Fuel consumption <i>Master</i>	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> The operation of small ship power plants and auxiliaries	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe factors affecting fuel consumption,	the candidate describes the principles of fuel consumption.	The candidate describes fuel consumption, in proper engineering terms, as a function of: 1. Displacement; 2. Distance; 3. Speed; 4. Sea state; 5. Hull condition; 6. Propeller condition, if applicable; 7. Calculating, when given data from past performances: daily consumption at service speed; 8. Fuel required for a voyage; 9. Speed for a specific consumption on a daily consumption basis; and 10. Speed for a specific consumption on a voyage consumption basis.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.3.A Anchor the vessel	Maneuver the ship and operate small ship power plants	<i>Ship maneuvering and handling</i> Proper procedures for anchoring and mooring	On a vessel underway or in a full mission simulator, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3 knots,	the candidate demonstrates anchoring the vessel.	The candidate anchors the vessel as follows: 1. Planning: The following are determined: a. Depth of water; b. Type of bottom; c. Wind and current; d. Bottom obstructions; e. Room to swing; f. Place to anchor; and g. Courses and maneuvers to the anchor site; 2. Approach: The ship does not pass to windward or up current of any anchored vessel or hazard to navigation; 3. Placement: a. The site is approached slowly; b. Position is checked by natural landmarks and aids forming ranges ahead and abeam; c. The vessel is stopped when in position on the approximate desired final heading; and d. The anchor is correctly dropped for the depth of water; 4. Laying out: a. The ship is backed slowly; and b. An appropriate length of chain is paid out slowly; and 5. Fetching up: The vessel is allowed to fetch up on the chain.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.1.A Cargo handling, stowage, and securing	Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	<i>Cargo handling, stowage and securing</i> Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the handling, stowage and securing of cargo,	the candidate describes the safe handling, stowage, and securing of cargoes, including dangerous, hazardous, and harmful cargoes, and their effect on the safety of life and of the ship.	The candidate's description includes the handling of dangerous, hazardous and harmful cargoes and compliance with international regulations and recognized standards and codes of safe practice.
6.1.B Carriage of dangerous cargo	Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	<i>Cargo handling, stowage and securing</i> Use of the International Maritime Dangerous Goods (IMDG) Code	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the proper carriage of dangerous cargoes,	the candidate describes the safe carriage of dangerous cargoes.	The describes the basic concepts used in the loading of packaged dangerous goods, including: 1. The following from the IMDG Code: a. labeling and placarding and stowage segregation of dangerous goods; and b. packaged form; 2. Reporting of incidents involving dangerous goods; and 3. Stowage requirements in Chapter 7.1 of the IMDG Code.
7.1.A Precautions to prevent pollution of the marine environment	Ensure compliance with pollution-prevention requirements	<i>Prevention of pollution of the marine environment and anti-pollution procedures</i> Knowledge of the precautions to be taken to prevent pollution of the marine environment	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe precautions to be taken to prevent pollution of the marine environment,	the candidate describes appropriate procedures.	The candidate description includes: 1. Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed; 2. Importance of proactive measures to protect the marine environment; and 3. Actions to ensure that a positive environmental reputation is maintained.

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7.2.A Anti-pollution procedures and associated equipment	Ensure compliance with pollution-prevention requirements	<i>Prevention of pollution of the marine environment and anti-pollution procedures</i> Anti-pollution procedures and all associated equipment	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe anti-pollution procedures and associated equipment	the candidate describes appropriate pollution prevention procedures and equipment.	The candidate description includes: 1. Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed; and 2. Actions to ensure that a positive environmental reputation is maintained.
8.1.A Determine stability data	Maintain seaworthiness of the ship	<i>Ship stability</i> Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment	On a vessel, or in a laboratory, and given stability, trim and stress tables, and diagrams, and asked by a Qualified Assessor to determine stability data for various conditions of loading,	the candidate determines stability data for the vessel.	The stability conditions comply with the IMO intact stability criteria under all conditions of loading.
8.2.A Partial loss of intact buoyancy	Maintain seaworthiness of the ship	<i>Ship stability</i> Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the actions to be taken for a partial loss of intact buoyancy,	the candidate describes actions to take for a partial loss of intact buoyancy.	The candidate describes appropriate actions to ensure and maintain the watertight integrity of the vessel that are in accordance with accepted practices.
8.3.A Watertight integrity	Maintain seaworthiness of the ship	<i>Ship stability</i> Understanding of the fundamentals of watertight integrity	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe principles of watertight integrity,	the candidate describes the fundamentals of watertight integrity.	The candidate describes appropriate actions to ensure and maintain the watertight integrity of the vessel that are in accordance with accepted practices ensuring correct use of watertight bulkheads, doors, and closures to maintain watertight integrity.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.4.A Vessel construction	Maintain seaworthiness of the ship	<i>Ship stability</i> General knowledge of the principal structural members of a ship and the proper names for the various parts	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe the principal structural members of a vessel,	the candidate describes the principal structure members of a vessel and the proper names for the various parts.	The candidate correctly identifies and describes the vessel structural members.
9.1.A Organize fire drills <i>Course</i>	Prevent, control and fight fires on board	<i>Fire prevention and fire-fighting appliances</i> Ability to organize fire drills	This KUP is satisfied if the candidate successfully completes the approved or accepted training in <i>Basic and Advanced Fire Fighting</i> specified in 46 CFR 11.317(a)(3)(ii) and 46 CFR 11.321(a)(3)(ii).		
9.2.A Classes and chemistry of fire <i>Course</i>	Prevent, control and fight fires on board	<i>Fire prevention and fire-fighting appliances</i> Knowledge of classes and chemistry of fire	This KUP is satisfied if the candidate successfully completes the approved or accepted training in <i>Basic and Advanced Fire Fighting</i> specified in 46 CFR 11.317(a)(3)(ii) and 46 CFR 11.321(a)(3)(ii).		
9.3.A Fire-fighting systems <i>Course</i>	Prevent, control and fight fires on board	<i>Fire prevention and fire-fighting appliances</i> Knowledge of fire-fighting systems	This KUP is satisfied if the candidate successfully completes the approved or accepted training in <i>Basic and Advanced Fire Fighting</i> specified in 46 CFR 11.317(a)(3)(ii) and 46 CFR 11.321(a)(3)(ii).		
9.4.A Actions in the event of fire <i>Course</i>	Prevent, control and fight fires on board	<i>Fire prevention and fire-fighting appliances</i> Knowledge of action to be taken in the event of fire, including fires involving oil systems	This KUP is satisfied if the candidate successfully completes the approved or accepted training in <i>Basic and Advanced Fire Fighting</i> specified in 46 CFR 11.317(a)(3)(ii) and 46 CFR 11.321(a)(3)(ii).		

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.A Life-saving appliances <i>Course</i>	Operate life-saving appliances	<i>Life-saving</i> Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids			This KUP is satisfied if the candidate successfully completes the approved or accepted training for <i>Proficiency in Survival Craft and Rescue Boats, other than Fast Rescue Boats</i> specified in 46 CFR 11.317(a)(3)(iii) and 46 CFR 11.321(a)(3)(iii).
11.1.A Medical first aid <i>Course</i>	Apply medical first aid on board ship	<i>Medical aid</i> Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship			This KUP is satisfied if the candidate successfully completes the approved or accepted <i>Medical First Aid Provider</i> training specified in 46 CFR 11.317(a)(3)(i) and 46 CFR 11.321(a)(3)(i).

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
12.1.A International maritime conventions	Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	On a vessel, or in a laboratory, when asked by a Qualified Assessor to describe relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment,	the candidate describes legislative requirements relating to safety of life at sea, security, and protection of the marine environment.	The candidate describes fuel consumption, in proper engineering terms, as a function of: <ol style="list-style-type: none"> 1. International Convention for the Safety of Life at Sea (SOLAS); 2. International Ship and Port Facility Security Code (ISPS); 3. International Safety Management Code (ISM); 4. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (STCW); and 5. MARPOL 73/78 and its Annexes.
13.1.A Personal survival techniques <i>Course</i>	Contribute to the safety of personnel and ship	Knowledge of personal survival techniques	This KUP is satisfied if the candidate successfully completes approved or accepted <i>Basic Training</i> or presents evidence of maintaining the standards of competence in <i>Basic Training</i> as specified in 46 CFR 11.302.		
13.2.A Fire prevention and fire fighting <i>Course</i>	Contribute to the safety of personnel and ship	Knowledge of fire prevention and ability to fight and extinguish fires	This KUP is satisfied if the candidate successfully completes approved or accepted <i>Basic Training</i> or presents evidence of maintaining the standards of competence in <i>Basic Training</i> as specified in 46 CFR 11.302.		

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
13.3.A Elementary first aid <i>Course</i>	Contribute to the safety of personnel and ship	Knowledge of elementary first aid	This KUP is satisfied if the candidate successfully completes approved or accepted <i>Basic Training</i> or presents evidence of maintaining the standards of competence in <i>Basic Training</i> as specified in 46 CFR 11.302.		
13.4.A Personal safety and social responsibilities <i>Course</i>	Contribute to the safety of personnel and ship	Knowledge of personal safety and social responsibilities	This KUP is satisfied if the candidate successfully completes approved or accepted <i>Basic Training</i> or presents evidence of maintaining the standards of competence in <i>Basic Training</i> as specified in 46 CFR 11.302.		

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Record of Assessment

for

MASTER AND OFFICER IN CHARGE OF A NAVIGATIONAL
WATCH OF VESSELS OF LESS THAN 500 GT
LIMITED TO NEAR-COASTAL WATERS

For: _____
Print Name of Candidate

Candidate's Signature

Candidate's Mariner Reference No.

RECORD OF ASSESSMENTMaster and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

NOTE TO QUALIFIED ASSESSOR(S): In performing your function as a Qualified Assessor, you may use your initials only to indicate you have personally witnessed the demonstration of skill or ability by the person being assessed. The Assessment Guidelines in Enclosure (2) will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/3 of the STCW Code. The use of these Assessment Guidelines is not mandatory and an alternative means of having achieved the standards of competence in the STCW Code will be considered as described in paragraph 10 of this NVIC. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date	
Plan and conduct a coastal passage and determine position	Ability to determine the ship's position by the use of landmarks and aids to navigation	1.1.A	Position fix by two bearings			
		1.2.A	Plot DR position			
	Ability to determine the ship's position by the use of dead reckoning	1.3.A	Determine the course to steer			
		Thorough knowledge of and ability to use nautical charts and publications	1.4.A	Correction of charts and publications		
			1.4.B	Chart selection		
	1.4.C	Route planning				

Notes:**Master**

Assessment is only required for an endorsement as Master.

ECDIS

Assessment is not for mariners serving exclusively on vessels not fitted with ECDIS. If the mariner does not complete an approved ECDIS course, a limitation will be added to the STCW endorsement indicating that it is not valid for service on vessels equipped with ECDIS after December 31, 2016.

Radar

Assessment is not for mariners serving exclusively on vessels not fitted with radar. If the assessment is not completed, a limitation will be added to the STCW endorsement indicating that it is not valid for service on vessels equipped with radar.

COURSE

Assessment is satisfied by completion of an appropriate approved or accepted course.

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Plan and conduct a coastal passage and determine position	Reporting in accordance with General Principles for Ship Reporting Systems and with VTS procedures	1.5.A	Vessel Traffic System (VTS)		
	Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks	1.6.A <i>Master</i>	Voyage Planning - Appraisal		
		1.6.B <i>Master</i>	Voyage Planning - Planning		
		1.6.C <i>Master</i>	Voyage Planning - Execution		
	Thorough knowledge of and ability to use ECDIS	1.7.A <i>ECDIS</i>	ECDIS	COURSE	
	Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned	1.8.A <i>Radar</i>	Position fix by two ranges		
		1.8.B <i>Radar</i>	Position fix by tangents to objects		
		1.8.C	Position fix by GPS		
		1.8.D	Use of GPS position save function		
		1.8.E	Use of echo sounder		
	Ability to determine errors of the compass, using terrestrial means, and to allow for such errors	1.9.A	Determine magnetic compass deviation		
		1.9.B	Determine course to steer by magnetic compass		
		1.9.C	Position fix by magnetic compass bearings		

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Plan and conduct a coastal passage and determine position	Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance	1.10.A	Steering gear test		
		1.10.B	Set weather controls		
		1.10.C	Change from auto pilot to hand steering		
		1.10.D	Change from hand steering to auto pilot		
	Ability to use and interpret information obtained from shipborne meteorological instruments	1.11.A	Read barometric pressure		
	Ability to apply the meteorological information available	1.12.A	Determine true wind speed and direction		
	Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems	1.13.A	Determine expected weather conditions		
Maintain a safe navigational watch	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	2.1.A	Identify light configurations		
		2.1.B	Identify day shapes		
		2.1.C	Identify sound signals		
		2.1.D	Determine risk of collision		

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Maintain a safe navigational watch	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972	2.1.E	Maneuver to avoid risk of collision - crossing		
		2.1.F	Maneuver to avoid risk of collision - meeting		
		2.1.G	Maneuver to avoid risk of collision - overtaking		
	Knowledge of content of the Principles to be observed in keeping a navigational watch	2.2.A	Watch relief		
		2.2.B	Keep a safe navigation watch		
		2.2.C	Notify Master when appropriate		
		2.2.D	Keep a safe anchor watch		
		2.2.E	Navigate in restricted visibility		
		2.2.F	Turn over a watch		
	Use of routing in accordance with the General Provisions on Ships' Routing	2.3.A	<i>See assessment no. 1.4.B</i>		
		2.3.B	<i>See assessment no. 1.4.C</i>		
	The use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures	2.4.A	<i>See assessment no. 1.5.A</i>		

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Respond to emergencies	Precautions for the protection and safety of passengers in emergency situations	3.1.A	Safety of passengers in emergency situations		
	Initial action to be taken following a collision or a grounding	3.2.A	Initial damage assessment and control		
		3.2.B	Actions following a collision		
		3.2.C	Actions following a grounding		
	Emergency procedures, including emergency steering	3.3.A <i>Master</i>	Emergency steering		
	Emergency procedures, including arrangements for towing and for being taken in tow	3.4.A <i>Master</i>	Emergency towing		
	Emergency procedures, including rescuing persons from the sea	3.5.A <i>Master</i>	Man overboard		
	Emergency procedures, including assisting a vessel in distress	3.6.A <i>Master</i>	Assisting a vessel in distress		
	Emergency procedures, including appreciation of the action to be taken when emergencies arise in port	3.7.A <i>Master</i>	Emergencies in port		
Respond to a distress signal at sea	Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	4.1.A	IAMSAR Manual		

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Maneuver the ship and operate small ship power plants	Knowledge of factors affecting safe maneuvering and handling	5.1.A	Course change of more than 45°		
		5.1.B	Emergency stop		
		5.1.C	Dock vessel		
	The operation of small ship power plants and auxiliaries	5.2.A	Fresh water systems		
		5.2.B	Principles of steering gear		
		5.2.C	Sewage treatment plants		
		5.2.D	Deck machinery		
		5.2.E <i>Master</i>	Fuel consumption		
	Proper procedures for anchoring and mooring	5.3.A	Anchor the vessel		
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship	6.1.A	Cargo handling, stowage, and securing		
		6.1.B	Carriage of dangerous cargo		
	Use of the International Maritime Dangerous Goods (IMDG) Code				

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Ensure compliance with pollution-prevention requirements	Knowledge of the precautions to be taken to prevent pollution of the marine environment	7.1.A	Precautions to prevent pollution of the marine environment		
	Anti-pollution procedures and all associated equipment	7.2.A	Anti-pollution procedures and associated equipment		
Maintain seaworthiness of the ship	Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment	8.1.A	Determine stability data		
	Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy	8.2.A	Partial loss of intact buoyancy		
	Understanding of fundamentals of watertight integrity	8.3.A	Watertight integrity		
	General knowledge of the principal structural members of a ship and the proper names for the various parts	8.4.A	Vessel construction		
Prevent, control and fight fires on board	Ability to organize fire drills	9.1.A	Organize fire drills	COURSE	
	Knowledge of classes and chemistry of fire	9.2.A	Classes and chemistry of fire	COURSE	
	Knowledge of fire-fighting systems	9.3.A	Fire-fighting systems	COURSE	
	Knowledge of action to be taken in the event of fire	9.4.A	Actions in the event of fire	COURSE	

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Operate life-saving appliances	Ability to organize abandon ship drills and knowledge of operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	10.1.A	Life-saving appliances	COURSE	
Apply medical first aid on board ship	Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	11.1.A	Medical first aid	COURSE	
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	12.1.A	International maritime conventions		
Contribute to the safety of personnel and ship	Knowledge of personal survival techniques	13.1.A	Personal survival techniques	COURSE	
	Knowledge of fire prevention and ability to fight and extinguish fires	13.2.A	Fire prevention and fire fighting	COURSE	
	Knowledge of elementary first aid	13.3.A	Elementary first aid	COURSE	
	Knowledge of personal safety and social responsibilities	13.4.A	Personal safety and social responsibilities	COURSE	

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

Qualified Assessors (QAs) witnessing the successful demonstrations noted in this record should provide the information below relative to their service with the candidate. Prospective QAs should have a minimum of at least 1 year of experience as OICNW on vessels of at least 100 GRT. For assessments performed on a military vessel, the assessor should be authorized to conduct similar assessments for the U.S. Navy or U.S. Coast Guard Personnel Qualification Standard (PQS) for underway officer of the deck (OOD). Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. For example, assessments involving the carriage of cargo should not be performed on a vessel that does not carry cargo and/or by an assessor who lacks experience on cargo-carrying vessels. After December 31, 2019, QAs must be approved by the National Maritime Center (46 CFR 10.107). Qualified military personnel authorized to conduct similar assessments for the U.S. Army, U.S. Navy, or U.S. Coast Guard PQS for OOD will not need to be approved as QAs and may continue to sign assessments on military vessels after December 31, 2019.

Vessel Name	Gross Tonnage	Dates of Service		Assessor Name	Assessor Signature	Sample Initials of Assessor	Assessor Mariner Reference Number	Assessor Shipboard Position
		From	To					
M/V Nilbog	453 GT	4/1/2018	7/7/2018	Ignatius J. Reilly	<i>Ignatius J. Reilly</i>	<i>JJR</i>	1234567	Master

Print Name of Candidate

Candidate's Mariner Reference No.

RECORD OF ASSESSMENT

Master and Officer in Charge of a Navigational Watch of
Vessels of Less Than 500 GT Limited to Near-Coastal Waters

Vessel Name	Gross Tonnage (Note GRT or GT)	Dates of Service		Assessor Name	Assessor Signature	Sample Initials of Assessor	Assessor Mariner Ref. No.	Assessor Shipboard Position
		From	To					

Excerpts from the International Convention on Standards of Training,
Certification and Watchkeeping for Seafarers, 1978, as amended

and

Seafarers' Training, Certification and Watchkeeping Code, as amended

Notice: These excerpts are provided for background information. By themselves, they do not constitute Coast Guard policy.

The Manila Amendments to the annex to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978

Chapter I
General provisions

Regulation I/6

Training and assessment

Each party shall ensure that:

- .1 the training and assessment of seafarers, as required under the Convention, are administered, supervised and monitored in accordance with the provisions of section A-I/6 of the STCW Code; and
- .2 those responsible for the training and assessment of competence of seafarers, as required under the Convention, are appropriately qualified in accordance with the provisions of section A-I/6 of the STCW Code for the type and level of training and assessment involved.

Regulation I/12

Use of Simulators

1 The performance standards and other provisions set forth in section A-I/12 and such other requirements as are prescribed in part A of the STCW Code for any certificate concerned shall be complied with in respect of:

- .1 all mandatory simulator-based training;
- .2 any assessment of competency required by part A of the STCW Code which is carried out by means of a simulator; and
- .3 any demonstration, by means of a simulator, of continued proficiency required by part A of the STCW Code.

Chapter II

Standards regarding the master and deck department

Regulation II/3

Mandatory minimum requirements for certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage

Ships not engaged on near-coastal voyages

1 Every officer in charge of a navigational watch serving on a seagoing ship of less than 500 gross tonnage not engaged on near-coastal voyages shall hold a certificate of competency for ships of 500 gross tonnage or more.

2 Every master serving on a seagoing ship of less than 500 gross tonnage not engaged on near-coastal voyages shall hold a certificate of competency for service as master on ships of between 500 and 3,000 gross tonnage.

Ships engaged on near-coastal voyages

Officer in charge of a navigational watch

- 3 Every officer in charge of a navigational watch on a seagoing ship of less than 500 gross tonnage engaged on near-coastal voyages shall hold a certificate of competency.
- 4 Every candidate for certification as officer in charge of a navigational watch on a seagoing ship of less than 500 gross tonnage engaged on near-coastal voyages shall:
 - .1 be not less than 18 years of age;
 - .2 have completed:
 - .2.1 special training, including an adequate period of appropriate seagoing service as required by the Administration, or
 - .2.2 approved seagoing service in the deck department of not less than 36 months;
 - .3 meet the applicable requirements of the regulations in chapter IV, as appropriate, for performing designated radio duties in accordance with the Radio Regulations;
 - .4 have completed approved education and training and meet the standard of competence specified in section A-II/3 of the STCW Code for officers in charge of a navigational watch on ships of less than 500 gross tonnage engaged on near-coastal voyages; and
 - .5 meet the standard of competence specified in section A-VI/1, paragraph 2, section A-VI/2, paragraphs 1 to 4, section A-VI/3, paragraphs 1 to 4 and section A-VI/4, paragraphs 1 to 3 of the STCW Code.

Master

- 5 Every master serving on a seagoing ship of less than 500 gross tonnage engaged on near-coastal voyages shall hold a certificate of competency.
- 6 Every candidate for certification as master on a seagoing ship of less than 500 gross tonnage engaged on near-coastal voyages shall:
 - .1 be not less than 20 years of age;
 - .2 have approved seagoing service of not less than 12 months as officer in charge of a navigational watch;
 - .3 have completed approved education and training and meet the standard of competence specified in section A-II/3 of the STCW Code for masters on ships of less than 500 gross tonnage engaged on near-coastal voyages; and
 - .4 meet the standard of competence specified in section A-VI/1, paragraph 2, section A-VI/2, paragraphs 1 to 4, section A-VI/3, paragraphs 1 to 4 and section A-VI/4, paragraphs 1 to 3 of the STCW Code.

Exemptions

- 7 The Administration, if it considers that a ship's size and the conditions of its voyage are such as to render the application of the full requirements of this regulation and section A-II/3 of

the STCW Code unreasonable or impracticable, may to that extent exempt the master and the officer in charge of a navigational watch on such a ship or class of ships from some of the requirements, bearing in mind the safety of all ships which may be operating in the same waters.

Chapter VIII Watchkeeping

Regulation VIII/2

Watchkeeping arrangements and principles to be observed

1 Administrations shall direct the attention of companies, masters, chief engineer officers and all watchkeeping personnel to the requirements, principles and guidance set out in the STCW Code which shall be observed to ensure that a safe continuous watch or watches appropriate to the prevailing circumstances and conditions are maintained on all seagoing ships at all times.

2 Administrations shall require the master of every ship to ensure that watchkeeping arrangements are adequate for maintaining a safe watch or watches, taking into account the prevailing circumstances and conditions and that, under the master's general direction:

- .1** officers in charge of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they shall be physically present on the navigating bridge or in a directly associated location such as the chartroom or bridge control room at all times;
- .2** radio operators are responsible for maintaining a continuous radio watch on appropriate frequencies during their periods of duty;
- .3** officers in charge of an engineering watch, as defined in the STCW Code, under the direction of the chief engineer officer, shall be immediately available and on call to attend the machinery spaces and, when required, shall be physically present in the machinery space during their periods of responsibility;
- .4** an appropriate and effective watch or watches are maintained for the purpose of safety at all times, while the ship is at anchor or moored and, if the ship is carrying hazardous cargo, the organization of such watch or watches takes full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions prevailing on board, afloat or ashore; and
- .5** as applicable, an appropriate and effective watch or watches are maintained for the purposes of security.

**The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping
(STCW) Code**

Chapter I

Standards regarding general provisions

Section A-I/6

Training and assessment

- 1** Each Party shall ensure that all training and assessment of seafarers for certification under the Convention is:
- .1** structured in accordance with written programmes, including such methods and media of delivery, procedures, and course material as are necessary to achieve the prescribed standard of competence; and
 - .2** conducted, monitored, evaluated and supported by persons qualified in accordance with paragraphs 4, 5 and 6.
- 2** Persons conducting in-service training or assessment on board ship shall only do so when such training or assessment will not adversely affect the normal operation of the ship and they can dedicate their time and attention to training or assessment.

Qualifications of instructors, supervisors and assessors*

- 3** Each Party shall ensure that instructors, supervisors and assessors are appropriately qualified for the particular types and levels of training or assessment of competence of seafarers either on board or ashore, as required under the Convention, in accordance with the provisions of this section.

In-service training

- 4** Any person conducting in-service training of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:
- .1** have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training being conducted;
 - .2** be qualified in the task for which training is being conducted; and
 - .3** if conducting training using a simulator:
 - .3.1** have received appropriate guidance in instructional techniques involving the use of simulators; and
 - .3.2** have gained practical operational experience on the particular type of simulator being used.
- 5** Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention shall have a full understanding of the training programme and the specific objectives for each type of training being conducted.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Assessment of competence

6 Any person conducting in-service assessment of competence of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:

- .1** have an appropriate level of knowledge and understanding of the competence to be assessed;
- .2** be qualified in the task for which the assessment is being made;
- .3** have received appropriate guidance in assessment methods and practice;
- .4** have gained practical assessment experience; and
- .5** if conducting assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator under the supervision and to the satisfaction of an experienced assessor.

Training and assessment within an institution

7 Each Party which recognizes a course of training, a training institution, or a qualification granted by a training institution, as part of its requirements for the issue of a certificate required under the Convention, shall ensure that the qualifications and experience of instructors and assessors are covered in the application of the quality standard provisions of section A-I/8. Such qualification, experience and application of quality standards shall incorporate appropriate training in instructional techniques, and training and assessment methods and practice, and shall comply with all applicable requirements of paragraphs 4 to 6.

Section A-I/12

Standards governing the use of simulators

Part 1 – Performance standards

General performance standards for simulators used in training

- 1** Each Party shall ensure that any simulator used for mandatory simulator-based training shall:
- .1** be suitable for the selected objectives and training tasks;
 - .2** be capable of simulating the operating capabilities of shipboard equipment concerned, to a level of physical realism appropriate to training objectives, and include the capabilities, limitations and possible errors of such equipment;
 - .3** have sufficient behavioural realism to allow a trainee to acquire the skills appropriate to the training objectives;
 - .4** provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to the training objectives;
 - .5** provide an interface through which a trainee can interact with the equipment, the simulated environment and, as appropriate, the instructor; and

- .6 permit an instructor to control, monitor and record exercises for the effective debriefing of trainees.

General performance standards for simulators used in assessment of competence

2 Each Party shall ensure that any simulator used for the assessment of competence required under the Convention or for any demonstration of continued proficiency so required shall:

- .1 be capable of satisfying the specified assessment objectives;
- .2 be capable of simulating the operational capabilities of the shipboard equipment concerned to a level of physical realism appropriate to the assessment objectives, and include the capabilities, limitations and possible errors of such equipment;
- .3 have sufficient behavioural realism to allow a candidate to exhibit the skills appropriate to the assessment objectives;
- .4 provide an interface through which a candidate can interact with the equipment and simulated environment;
- .5 provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to assessment objectives; and
- .6 permit an assessor to control, monitor and record exercises for the effective assessment of the performance of candidates.

Additional performance standards

3 In addition to meeting the basic requirements set out in paragraphs 1 and 2, simulation equipment to which this section applies shall meet the performance standards given hereunder in accordance with their specific type.

Radar simulation

4 Radar simulation equipment shall be capable of simulating the operational capabilities of navigational radar equipment which meets all applicable performance standards adopted by the Organization* and incorporate facilities to:

- .1 operate in the stabilized relative-motion mode and sea- and ground-stabilized true-motion modes;
- .2 model weather, tidal streams, current, shadow sectors, spurious echoes and other propagation effects, and generate coastlines, navigational buoys and search and rescue transponders; and
- .3 create a real-time operating environment incorporating at least two own-ship stations with ability to change own ship's course and speed, and include parameters for at least 20 target ships and appropriate communication facilities.

* See relevant/appropriate performance standards adopted by the Organization.

Automatic Radar Plotting Aid (ARPA) simulation

5 ARPA simulation equipment shall be capable of simulating the operational capabilities of ARPAs which meet all applicable performance standards adopted by the Organization*, and shall incorporate the facilities for:

- .1 manual and automatic target acquisition;
- .2 past track information;
- .3 use of exclusion areas;
- .4 vector/graphic time-scale and data display; and
- .5 trial manoeuvres.

Part 2 – Other provisions

Simulator training objectives

6 Each Party shall ensure that the aims and objectives of simulator-based training are defined within an overall training programme and that specific training objectives and tasks are selected so as to relate as closely as possible to shipboard tasks and practices.

Training procedures

- 7 In conducting mandatory simulator-based training, instructors shall ensure that:
- .1 trainees are adequately briefed beforehand on the exercise objectives and tasks and are given sufficient planning time before the exercise starts;
 - .2 trainees have adequate familiarization time on the simulator and with its equipment before any training or assessment exercise commences;
 - .3 guidance given and exercise stimuli are appropriate to the selected exercise objectives and tasks and to the level of trainee experience;
 - .4 exercises are effectively monitored, supported as appropriate by audio and visual observation of trainee activity and pre- and post-exercise evaluation reports;
 - .5 trainees are effectively debriefed to ensure that training objectives have been met and that operational skills demonstrated are of an acceptable standard;
 - .6 the use of peer assessment during debriefing is encouraged; and
 - .7 simulator exercises are designed and tested so as to ensure their suitability for the specified training objectives.

Assessment procedures

8 Where simulators are used to assess the ability of candidates to demonstrate levels of competency, assessors shall ensure that:

- .1 performance criteria are identified clearly and explicitly and are valid and available to the candidates;

- .2 assessment criteria are established clearly and are explicit to ensure reliability and uniformity of assessment and to optimize objective measurement and evaluation, so that subjective judgements are kept to the minimum;
- .3 candidates are briefed clearly on the tasks and/or skills to be assessed and on the tasks and performance criteria by which their competency will be determined;
- .4 assessment of performance takes into account normal operating procedures and any behavioural interaction with other candidates on the simulator or with simulator staff;
- .5 scoring or grading methods to assess performance are used with caution until they have been validated; and
- .6 the prime criterion is that a candidate demonstrates the ability to carry out a task safely and effectively to the satisfaction of the assessor.

Qualifications of instructors and assessors *

9 Each Party shall ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training and corresponding assessment of competence as specified in regulation I/6 and section A-I/6.

Chapter II

Standards regarding the master and deck department

Section A-II/3

Mandatory minimum requirements for certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage, engaged on near-coastal voyages

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH

Standard of competence

1 Every candidate for certification shall:

- .1 be required to demonstrate the competence to undertake, at operational level, the tasks, duties and responsibilities listed in column 1 of table A-II/3;
- .2 at least hold the appropriate certificate for performing VHF radiocommunications in accordance with the requirements of the Radio Regulations; and
- .3 if designated to have primary responsibility for radiocommunications during distress incidents, hold the appropriate certificate issued or recognized under the provisions of the Radio Regulations.

2 The minimum knowledge, understanding and proficiency required for certification is listed in column 2 of table A-II/3.

3 The level of knowledge of the subjects listed in column 2 of table A-II/3 shall be sufficient to enable the candidate to serve in the capacity of officer in charge of a navigational watch.

* The relevant IMO Model Course(s) and resolution MSC.64(67), *Recommendations on new and amended performance standards*, may be of assistance in the preparation of courses.

4 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall be based on section A-VIII/2, part 4-1 – Principles to be observed in keeping a navigational watch, and shall also take into account the relevant requirements of this part and the guidance given in part B of this Code.

5 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-I/3.

Special training

6 Every candidate for certification as officer in charge of a navigational watch on ships of less than 500 gross tonnage, engaged on near-coastal voyages, who, in accordance with paragraph 4.2.1 of regulation II/3, is required to have completed special training, shall follow an approved programme of onboard training which:

- .1** ensures that, during the required period of seagoing service, the candidate receives systematic practical training and experience in the tasks, duties and responsibilities of an officer in charge of a navigational watch, taking into account the guidance given in section B-II/1 of this Code;
- .2** is closely supervised and monitored by qualified officers on board the ships in which the approved seagoing service is performed; and
- .3** is adequately documented in a training record book or similar document*.

MASTER

7 Every candidate for certification as master on ships of less than 500 gross tonnage, engaged on near-coastal voyages, shall meet the requirements for an officer in charge of a navigational watch set out below and, in addition, shall be required to provide evidence of knowledge and ability to carry out all the duties of such a master.

* The relevant IMO Model Course(s) and a similar document produced by the International Shipping Federation may be of assistance in the preparation of training record books.

Table A-II/3

Specification of minimum standard of competence for officers in charge of a navigational watch and for masters on ships of less than 500 gross tonnage engaged on near-coastal voyages

Function: Navigation at the operational level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Plan and conduct a passage and determine position</p> <p>Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. These limitations shall be reflected in the endorsement issued to the seafarer concerned</p>	<p><i>Navigation</i></p> <p>Ability to determine the ship's position by use of:</p> <ul style="list-style-type: none"> .1 landmarks .2 aids to navigation, including lighthouses, beacons and buoys .3 dead reckoning, taking into account winds, tides, currents and estimated speed <p>Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information</p> <p>Reporting in accordance with General Principles for Ship Reporting Systems and with VTS procedures</p> <p><i>Note:</i> This item is only required for certification as master</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved laboratory equipment training <p>using chart catalogues, charts, nautical publications, radio navigational warnings, sextant, azimuth mirror, electronic navigation equipment, echo-sounding equipment, compass</p>	<p>Information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied.</p> <p>The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions</p> <p>The position is determined within the limits of acceptable instrument/system errors</p> <p>The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals</p> <p>Calculations and measurements of navigational information are accurate</p> <p>Charts selected are the largest scale suitable for the area of navigation and charts and publications are corrected in accordance with the latest information available</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a passage and determine position	Voyage planning and navigation for all conditions by acceptable methods of plotting coastal tracks, taking into account, e.g.: <ul style="list-style-type: none"> .1 restricted waters .2 meteorological conditions .3 ice .4 restricted visibility .5 traffic separation schemes .6 vessel traffic service (VTS) areas .7 areas of extensive tidal effects <p><i>Note:</i> This item is only required for certification as master</p> Thorough knowledge of and ability to use ECDIS	Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> .1 approved training ship experience .2 approved ECDIS simulator training 	

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a passage and determine position <i>(continued)</i>	<p><i>Navigational aids and equipment</i></p> <p>Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ships concerned</p> <p><i>Compasses</i></p> <p>Knowledge of the errors and corrections of magnetic compasses</p> <p>Ability to determine errors of the compass, using celestial and terrestrial means, and to allow for such errors</p>	Assessment of evidence obtained from approved radar simulator	<p>Performance checks and tests of navigation systems comply with manufacturer's recommendations, good navigational practice and IMO resolutions on performance standards for navigational equipment</p> <p>Interpretation and analysis of information obtained from radar is in accordance with accepted navigational practice and takes account of the limits and accuracy levels of radar</p> <p>Errors in magnetic compasses are determined and applied correctly to courses and bearings</p>
	<p><i>Automatic pilot</i></p> <p>Knowledge of automatic pilot systems and procedures; change-over from manual to automatic control and vice versa; adjustment of controls for optimum performance</p> <p><i>Meteorology</i></p> <p>Ability to use and interpret information obtained from shipborne meteorological instruments</p> <p>Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems</p> <p>Ability to apply the meteorological information available</p>		<p>Selection of the mode of steering is the most suitable for the prevailing weather, sea and traffic conditions and intended manoeuvres</p> <p>Measurements and observations of weather conditions are accurate and appropriate to the passage</p> <p>Meteorological information is evaluated and applied to maintain the safe passage of the vessel</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain a safe navigational watch	<p><i>Watchkeeping</i></p> <p>Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended</p> <p>Knowledge of the content of the Principles to be observed in keeping a navigational watch</p> <p>Use of routeing in accordance with the General Provisions on Ships' Routeing</p> <p>Use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience; .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved laboratory equipment training 	<p>The conduct, handover and relief of the watch conforms with accepted principles and procedures</p> <p>A proper look-out is maintained at all times and in such a way as to conform to accepted principles and procedures</p> <p>Lights, shapes and sound signals conform with the requirements contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended, and are correctly recognized</p> <p>The frequency and extent of monitoring of traffic, the ship and the environment conform with accepted principles and procedures</p> <p>Action to avoid close encounters and collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended</p> <p>Decisions to adjust course and/or speed are both timely and in accordance with accepted navigation procedures</p> <p>A proper record is maintained of the movements and activities relating to the navigation of the ship</p> <p>Responsibility for the safety of navigation is clearly defined at all times, including periods when the master is on the bridge and while under pilotage</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	<p>Emergency procedures, including:</p> <ul style="list-style-type: none"> .1 Precautions for the protection and safety of passengers in emergency situations .2 Initial assessment of damage and damage control .3 action to be taken following a collision .4 action to be taken following a grounding; initial damage assessment and control <p>In addition, the following material should be included for certification as master:</p> <ul style="list-style-type: none"> .1 emergency steering .2 arrangements for towing and for being taken in tow .3 rescuing persons from the sea .4 assisting a vessel in distress .5 appreciation of the action to be taken when emergencies arise in port 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 practical training 	<p>The type and scale of the emergency is promptly identified</p> <p>Initial actions and, if appropriate, manoeuvring are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency</p>
Respond to a distress signal at sea	<p><i>Search and rescue</i></p> <p>Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual</p>	<p>Examination and assessment of evidence obtained from practical instruction or approved simulator training, where appropriate</p>	<p>The distress or emergency signal is immediately recognized</p> <p>Contingency plans and instructions in standing orders are implemented and complied with</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Manoeuvre the ship and operate small ship power plants	<p><i>Ship manoeuvring and handling</i></p> <p>Knowledge of factors affecting safe manoeuvring and handling</p> <p>The operation of small ship power plants and auxiliaries</p> <p>Proper procedures for anchoring and mooring</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p>	<p>Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres</p> <p>Adjustments made to the ship's course and speed to maintain safety of navigation</p> <p>Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times</p>

Function: Cargo handling and stowage at the operational level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor the loading, stowage, securing, and unloading of cargoes and their care during the voyage	<p><i>Cargo handling, stowage and securing</i></p> <p>Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship</p> <p>Use of the International Maritime Dangerous Goods (IMDG) Code</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p>	<p>Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations</p> <p>The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice</p>

Function: Controlling the operation of the ship and care for persons on board at the operational level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ensure compliance with pollution-prevention requirements	<p><i>Prevention of pollution of the marine environment and anti-pollution procedures</i></p> <p>Knowledge of the precautions to be taken to prevent pollution of the marine environment</p> <p>Anti-pollution procedures and all associated equipment</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p>	<p>Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain seaworthiness of the ship	<p><i>Ship stability</i></p> <p>Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment</p> <p>Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy</p> <p>Understanding of the fundamentals of watertight integrity</p> <p><i>Ship construction</i></p> <p>General knowledge of the principal structural members of a ship and the proper names for the various parts</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved laboratory equipment training</p>	<p>The stability conditions comply with the IMO intact stability criteria under all conditions of loading</p> <p>Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice</p>
Prevent, control and fight fires on board	<p><i>Fire prevention and fire-fighting appliances</i></p> <p>Ability to organize fire drills</p> <p>Knowledge of classes and chemistry of fire</p> <p>Knowledge of fire-fighting systems</p> <p>Knowledge of action to be taken in the event of fire, including fires involving oil systems</p>	<p>Assessment of evidence obtained from approved fire-fighting training and experience as set out in section A-VI/3</p>	<p>The type and scale of the problem is promptly identified and initial actions conform with the emergency procedure and contingency plans for the ship</p> <p>Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly</p> <p>The order of priority and the levels and time-scales of making reports and informing personnel on board are relevant to the nature of the emergency and reflect the urgency of the problem</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate life-saving appliances	<i>Life-saving</i> Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	Assessment of evidence obtained from approved training and experience as set out in section A-VI/2, paragraphs 1 to 4	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards
Apply medical first aid on board ship	<i>Medical aid</i> Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	Assessment of evidence obtained from approved training as set out in section A-VI/4, paragraphs 1 to 3	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified
Contribute to the safety of personnel and ship	Knowledge of personal survival techniques Knowledge of fire prevention and ability to fight and extinguish fires Knowledge of elementary first aid Knowledge of personal safety and social responsibilities	Assessment of evidence obtained from approved training and experience as set out in section A-VI/1, paragraph 2	Appropriate safety and protective equipment is correctly used Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Procedures designed to safeguard the environment are observed at all times Initial and follow-up action on becoming aware of an emergency conforms with established emergency response procedures

Chapter VIII Standards regarding watchkeeping

Section A-VIII/2

Watchkeeping arrangements and principles to be observed

Part 1 – Certification

- 1** The officer in charge of the navigational or deck watch shall be duly qualified in accordance with the provisions of chapter II or chapter VII appropriate to the duties related to navigational or deck watchkeeping.
- 2** The officer in charge of the engineering watch shall be duly qualified in accordance with the provisions of chapter III or chapter VII appropriate to the duties related to engineering watchkeeping.

Part 2 – Voyage Planning

General requirements

- 3** The intended voyage shall be planned in advance, taking into consideration all pertinent information, and any course laid down shall be checked before the voyage commences.
- 4** The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

Planning prior to each voyage

- 5** Prior to each voyage, the master of every ship shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature and which are relevant to the safe navigation of the ship.

Verification and display of planned route

- 6** When the route planning is verified, taking into consideration all pertinent information, the planned route shall be clearly displayed on appropriate charts and shall be continuously available to the officer in charge of the watch, who shall verify each course to be followed prior to using it during the voyage.

Deviation from planned route

- 7** If a decision is made, during a voyage, to change the next port of call of the planned route, or if it is necessary for the ship to deviate substantially from the planned route for other reasons, then an amended route shall be planned prior to deviating substantially from the route originally planned.

Part 3 – Watchkeeping principles in general

- 8** Watches shall be carried out based on the following bridge and engine-room resource management principles:

- .1 proper arrangements for watchkeeping personnel shall be ensured in accordance with the situations;
- .2 any limitation in qualifications or fitness of individuals shall be taken into account when deploying watchkeeping personnel;
- .3 understanding of watchkeeping personnel regarding their individual roles, responsibility and team roles shall be established;
- .4 the master, chief engineer officer and officer in charge of watch duties shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel;
- .5 watchkeeping personnel shall understand functions and operation of installations/equipment, and be familiar with handling them;
- .6 watchkeeping personnel shall understand information and how to respond to information from each station/installation/equipment;
- .7 information from the stations/installations/equipment shall be appropriately shared by all the watchkeeping personnel;
- .8 watchkeeping personnel shall maintain an exchange of appropriate communication in any situation; and
- .9 watchkeeping personnel shall notify the master/chief engineer officer/officer in charge of watch duties without any hesitation when in any doubt as to what action to take in the interest of safety.

Part 4 – Watchkeeping at sea

Principles applying to watchkeeping generally

9 Parties shall direct the attention of companies, masters, chief engineer officers and watchkeeping personnel to the following principles, which shall be observed to ensure that safe watches are maintained at all times.

10 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational or cargo watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

11 The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

Protection of marine environment

12 The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Part 4-1 – Principles to be observed in keeping a navigational watch

13 The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972, as amended.

Lookout

14 A proper lookout shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended and shall serve the purpose of:

- .1** maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment;
- .2** fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and
- .3** detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

15 The lookout must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.

16 The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout. The officer in charge of the navigational watch may be the sole lookout in daylight provided that, on each such occasion:

- .1** the situation has been carefully assessed and it has been established without doubt that it is safe to do so;
- .2** full account has been taken of all relevant factors, including, but not limited to:
 - state of weather;
 - visibility;
 - traffic density;
 - proximity of dangers to navigation; and
 - the attention necessary when navigating in or near traffic separation schemes; and
- .3** assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

17 In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:

- .1** visibility, state of weather and sea;
- .2** traffic density, and other activities occurring in the area in which the vessel is navigating;

- .3 the attention necessary when navigating in or near traffic separation schemes or other routing measures;
- .4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;
- .5 the fitness for duty of any crew members on call who are assigned as members of the watch;
- .6 knowledge of, and confidence in, the professional competence of the ship's officers and crew;
- .7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;
- .8 activities taking place on board the ship at any particular time, including radiocommunication activities, and the availability of assistance to be summoned immediately to the bridge when necessary;
- .9 the operational status of bridge instrumentation and controls, including alarm systems;
- .10 rudder and propeller control and ship manoeuvring characteristics;
- .11 the size of the ship and the field of vision available from the conning position;
- .12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and
- .13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

Watch arrangements

18 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, *inter alia*, shall be taken into account:

- .1 at no time shall the bridge be left unattended;
- .2 weather conditions, visibility and whether there is daylight or darkness;
- .3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;
- .4 use and operational condition of navigational aids such as ECDIS, radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;
- .5 whether the ship is fitted with automatic steering;
- .6 whether there are radio duties to be performed;
- .7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and their limitations; and

- .8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

Taking over the watch

19 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

20 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.

21 Prior to taking over the watch, relieving officers shall satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation expected to be encountered during their watch.

22 Relieving officers shall personally satisfy themselves regarding the:

- .1 standing orders and other special instructions of the master relating to navigation of the ship;
- .2 position, course, speed and draught of the ship;
- .3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;
- .4 procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and
- .5 navigational situation, including, but not limited to:
 - .5.1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch;
 - .5.2 the errors of gyro- and magnetic compasses;
 - .5.3 the presence and movement of ships in sight or known to be in the vicinity;
 - .5.4 the conditions and hazards likely to be encountered during the watch; and
 - .5.5 the possible effects of heel, trim, water density and squat on under-keel clearance.

23 If, at any time, the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

Performing the navigational watch

24 The officer in charge of the navigational watch shall:

- .1 keep the watch on the bridge;

- .2** in no circumstances leave the bridge until properly relieved; and
 - .3** continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood.
- 25** During the watch, the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.
- 26** The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.
- 27** The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.
- 28** When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended in force.
- 29** In cases of need, the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use shall be made of UMS engine controls provided on the bridge in accordance with the applicable procedures.
- 30** Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.
- 31** A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.
- 32** It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper lookout is maintained. In a ship with a separate chartroom, the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper lookout is maintained.
- 33** Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Such tests shall also be carried out prior to port arrival and departure.
- 34** The officer in charge of the navigational watch shall make regular checks to ensure that:
 - .1** the person steering the ship or the automatic pilot is steering the correct course;
 - .2** the standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;
 - .3** the automatic pilot is tested manually at least once a watch;

- .4** the navigation and signal lights and other navigational equipment are functioning properly;
- .5** the radio equipment is functioning properly in accordance with paragraph 86 of this section; and
- .6** the UMS controls, alarms and indicators are functioning properly.

35 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the requirements in force of the International Convention for the Safety of Life at Sea (SOLAS), 1974^{*}. The officer of the navigational watch shall take into account:

- .1** the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and
- .2** that, with a ship under automatic steering, it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the lookout in order to take emergency action.

36 Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo-sounder is a valuable navigational aid.

37 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations.

38 The officer in charge of the navigational watch shall ensure that the range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.

39 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time.

40 The officer in charge of the navigational watch shall notify the master immediately:

- .1** if restricted visibility is encountered or expected;
- .2** if the traffic conditions or the movements of other ships are causing concern;
- .3** if difficulty is experienced in maintaining course;
- .4** on failure to sight land, or a navigation mark or to obtain soundings by the expected time;
- .5** if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;

^{*} See SOLAS regulations V/24, V/25 and V/26.

- .6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;
- .7 if the radio equipment malfunctions;
- .8 in heavy weather, if in any doubt about the possibility of weather damage;
- .9 if the ship meets any hazard to navigation, such as ice or a derelict; and
- .10 in any other emergency or if in any doubt.

41 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall, in addition, not hesitate to take immediate action for the safety of the ship, where circumstances so require.

42 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper lookout.

Watchkeeping under different conditions and in different areas

Clear weather

43 The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and shall bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972, as amended and subsequently check that such action is having the desired effect.

44 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice.

Restricted visibility

45 When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972, as amended with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. In addition, the officer in charge of the navigational watch shall:

- .1 inform the master;
- .2 post a proper lookout;
- .3 exhibit navigation lights; and
- .4 operate and use the radar.

In hours of darkness

46 The master and the officer in charge of the navigational watch, when arranging lookout duty, shall have due regard to the bridge equipment and navigational aids available for use, their limitations, procedures and safeguards implemented.

Coastal and congested waters

47 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow. When using ECDIS, appropriate usage code (scale) electronic navigational charts shall be used and the ship's position shall be checked by an independent means of position fixing at appropriate intervals.

48 The officer in charge of the navigational watch shall positively identify all relevant navigation marks.

Navigation with pilot on board

49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or the officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.

50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

Ship at anchor

51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall:

- .1** determine and plot the ship's position on the appropriate chart as soon as practicable;
- .2** when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
- .3** ensure that proper lookout is maintained;
- .4** ensure that inspection rounds of the ship are made periodically;
- .5** observe meteorological and tidal conditions and the state of the sea;
- .6** notify the master and undertake all necessary measures if the ship drags anchor;
- .7** ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;
- .8** if visibility deteriorates, notify the master;

- .9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and
- .10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

* * * * *

Part 5 – Watchkeeping in port

Principles applying to all watchkeeping

General

90 On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety. Special requirements may be necessary for special types of ships' propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo.

Watch arrangements

91 Arrangements for keeping a deck watch when the ship is in port shall at all times be adequate to:

- .1 ensure the safety of life, of the ship, the port and the environment, and the safe operation of all machinery related to cargo operation;
- .2 observe international, national and local rules; and
- .3 maintain order and the normal routine of the ship.

92 The master shall decide the composition and duration of the deck watch depending on the conditions of mooring, type of the ship and character of duties.

93 If the master considers it necessary, a qualified officer shall be in charge of the deck watch.

94 The necessary equipment shall be so arranged as to provide for efficient watchkeeping.

95 The chief engineer officer, in consultation with the master, shall ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port. When deciding the composition of the engineering watch, which may include appropriate engine-room ratings, the following points are among those to be taken into account:

- .1 on all ships of 3,000 kW propulsion power and over there shall always be an officer in charge of the engineering watch;
- .2 on ships of less than 3,000 kW propulsion power there may be, at the master's discretion and in consultation with the chief engineer officer, no officer in charge of the engineering watch; and
- .3 officers, while in charge of an engineering watch, shall not be assigned or undertake any task or duty which would interfere with their supervisory duty in respect of the ship's machinery system.

Taking over the watch

96 Officers in charge of the deck or engineering watch shall not hand over the watch to their relieving officer if they have any reason to believe that the latter is obviously not capable of carrying out watchkeeping duties effectively, in which case the master or chief engineer shall be notified accordingly. Relieving officers of the deck or engineering watch shall ensure that all members of their watch are apparently fully capable of performing their duties effectively.

97 If, at the moment of handing over the deck or engineering watch, an important operation is being performed, it shall be concluded by the officer being relieved, except when ordered otherwise by the master or chief engineer officer.

Part 5-1 – Taking over the deck watch

98 Prior to taking over the deck watch, the relieving officer shall be informed by the officer in charge of the deck watch as to the following:

- .1** the depth of the water at the berth, the ship's draught, the level and time of high and low waters; the securing of the moorings, the arrangement of anchors and the scope of the anchor chain, and other mooring features important to the safety of the ship; the state of main engines and their availability for emergency use;
- .2** all work to be performed on board the ship; the nature, amount and disposition of cargo loaded or remaining, and any residue on board after unloading the ship;
- .3** the level of water in bilges and ballast tanks;
- .4** the signals or lights being exhibited or sounded;
- .5** the number of crew members required to be on board and the presence of any other persons on board;
- .6** the state of fire-fighting appliances;
- .7** any special port regulations;
- .8** the master's standing and special orders;
- .9** the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;
- .10** any other circumstances of importance to the safety of the ship, its crew, cargo or protection of the environment from pollution; and
- .11** the procedures for notifying the appropriate authority of any environmental pollution resulting from ship activities.

99 Relieving officers, before assuming charge of the deck watch, shall verify that:

- .1** the securing of moorings and anchor chain is adequate;
- .2** the appropriate signals or lights are properly exhibited or sounded;
- .3** safety measures and fire-protection regulations are being maintained;

- .4 they are aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action to be taken in the event of any spillage or fire; and
- .5 no external conditions or circumstances imperil the ship and that it does not imperil others.

* * * * *

Part 5-3 – Performing the deck watch

102 The officer in charge of the deck watch shall:

- .1 make rounds to inspect the ship at appropriate intervals;
- .2 pay particular attention to:
 - .2.1 the condition and securing of the gangway, anchor chain and moorings, especially at the turn of the tide and in berths with a large rise and fall, if necessary, taking measures to ensure that they are in normal working condition;
 - .2.2 the draught, under-keel clearance and the general state of the ship, to avoid dangerous listing or trim during cargo handling or ballasting;
 - .2.3 the weather and sea state;
 - .2.4 the observance of all regulations concerning safety and fire protection;
 - .2.5 the water level in bilges and tanks;
 - .2.6 all persons on board and their location, especially those in remote or enclosed spaces; and
 - .2.7 the exhibition and sounding, where appropriate, of lights and signals;
- .3 in bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, persons on board and cargo;
- .4 take every precaution to prevent pollution of the environment by the ship;
- .5 in an emergency threatening the safety of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship, its cargo and persons on board, and, if necessary, request assistance from the shore authorities or neighbouring ships;
- .6 be aware of the ship’s stability condition so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship;
- .7 offer assistance to ships or persons in distress;
- .8 take necessary precautions to prevent accidents or damage when propellers are to be turned; and
- .9 enter, in the appropriate log-book, all important events affecting the ship.

* * * * *

Part 5-5 – Watch in port on ships carrying hazardous cargo

General

105 The master of every ship carrying cargo that is hazardous, whether explosive, flammable, toxic, health-threatening or environment-polluting, shall ensure that safe watchkeeping arrangements are maintained. On ships carrying hazardous cargo in bulk, this will be achieved by

the ready availability on board of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.

106 On ships carrying hazardous cargo other than in bulk, the master shall take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.

Part 5-6 – Cargo watch

107 Officers with responsibility for the planning and conduct of cargo operations shall ensure that such operations are conducted safely through the control of the specific risks, including when non-ship's personnel are involved.”

**GUIDANCE REGARDING PROVISIONS OF THE ANNEX TO
THE STCW CONVENTION
PART B**

Chapter I

Guidance regarding general provisions

Section B-I/6

Guidance regarding training and assessment

Qualifications of instructors and assessors

1 Each Party should ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training or assessment of competence of seafarers, as required under the Convention, in accordance with the guidelines in this section.

In-service training and assessment

2 Any person, on board or ashore, conducting in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have received appropriate guidance in instructional techniques*.

3 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have appropriate knowledge of instructional techniques and of training methods and practice.

4 Any person, on board or ashore, conducting an in-service assessment of the competence of a seafarer intended to be used in qualifying for certification under the Convention should have:

- .1 received appropriate guidance in assessment methods and practice* ; and
- .2 gained practical assessment experience under the supervision and to the satisfaction of an experienced assessor.

5 Any person responsible for the supervision of the in-service assessment of competence of a seafarer intended to be used in qualifying for certification under the Convention should have a full understanding of the assessment system, assessment methods and practice*.

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Section B-I/12

Guidance regarding the use of simulators

1 When simulators are being used for training or assessment of competency, the following guidelines should be taken into consideration in conducting any such training or assessment.

Training and assessment in radar observation and plotting*

2 Training and assessment in radar observation and plotting should:

- .1 incorporate the use of radar simulation equipment; and

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

- .2 conform to standards not inferior to those given in paragraphs 3 to 17 below.

3 Demonstrations of and practice in radar observation should be undertaken, where appropriate, on live marine radar equipment, including the use of simulators. Plotting exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of radar data and improve their plotting techniques to a standard of radar plotting commensurate with that necessary for the safe execution of collision-avoidance manoeuvring under actual seagoing conditions.

General

Factors affecting performance and accuracy

- 4 An elementary understanding should be attained of the principles of radar, together with a full practical knowledge of:
- .1 range and bearing measurement, characteristics of the radar set which determine the quality of the radar display, radar antennae, polar diagrams, the effects of power radiated in directions outside the main beam, a non-technical description of the radar system, including variations in the features encountered in different types of radar set, performance monitors and equipment factors which affect maximum and minimum detection ranges and accuracy of information;
 - .2 the current marine radar performance specification adopted by the Organization ** ;
 - .3 the effects of the siting of the radar antenna, shadow sectors and arcs of reduced sensitivity, false echoes, effects of antenna height on detection ranges and of siting radar units and storing spares near magnetic compasses, including magnetic safe distances; and
 - .4 radiation hazards and safety precautions to be taken in the vicinity of antennae and open waveguides.

Detection of misrepresentation of information, including false echoes and sea returns

- 5 A knowledge of the limitations to target detection is essential, to enable the observer to estimate the dangers of failure to detect targets. The following factors should be emphasized:
- .1 performance standard of the equipment;
 - .2 brilliance, gain and video processor control settings;
 - .3 radar horizon;
 - .4 size, shape, aspect and composition of targets;
 - .5 effects of the motion of the ship in a seaway;
 - .6 propagation conditions;
 - .7 meteorological conditions; sea clutter and rain clutter;
 - .8 anti-clutter control settings;
 - .9 shadow sectors; and
 - .10 radar-to-radar interference.

** See relevant/appropriate performance standards adopted by the Organization.

6 A knowledge should be attained of factors which might lead to faulty interpretation, including false echoes, effects of nearby pylons and large structures, effects of power lines crossing rivers and estuaries, echoes from distant targets occurring on second or later traces.

7 A knowledge should be attained of aids to interpretation, including corner reflectors and radar beacons; detection and recognition of land targets; the effects of topographical features; effects of pulse length and beam width; radar-conspicuous and -inconspicuous targets; factors which affect the echo strength from targets.

Practice

Setting up and maintaining displays

8 A knowledge should be attained of:

- .1** the various types of radar display mode; unstabilized ship's-head-up relative motion; ship's-head-up, course-up and north-up stabilized relative motion and true motion;
- .2** the effects of errors on the accuracy of information displayed; effects of transmitting compass errors on stabilized and true-motion displays; effects of transmitting log errors on a true-motion display; and the effects of inaccurate manual speed settings on a true-motion display;
- .3** methods of detecting inaccurate speed settings on true-motion controls; the effects of receiver noise limiting the ability to display weak echo returns, and the effects of saturation by receiver noise, etc.; the adjustment of operational controls; criteria which indicate optimum points of adjustment; the importance of proper adjustment sequence, and the effects of maladjusted controls; the detection of maladjustments and corrections of:
 - .3.1** controls affecting detection ranges; and
 - .3.2** controls affecting accuracy;
- .4** the dangers of using radar equipment with maladjusted controls; and
- .5** the need for frequent regular checking of performance, and the relationship of the performance indicator to the range performance of the radar set.

Range and bearing

9 A knowledge should be attained of:

- .1** the methods of measuring ranges; fixed range markers and variable range markers;
- .2** the accuracy of each method and the relative accuracy of the different methods;
- .3** how range data are displayed; ranges at stated intervals, digital counter and graduated scale;
- .4** the methods of measuring bearings; rotatable cursor on transparent disc covering the display, electronic bearing cursor and other methods;
- .5** bearing accuracy and inaccuracies caused by parallax, heading marker displacement, centre maladjustment;
- .6** how bearing data are displayed; graduated scale and digital counter; and
- .7** the need for regular checking of the accuracy of ranges and bearings, methods of checking for inaccuracies and correcting or allowing for inaccuracies.

Plotting techniques and relative-motion concepts

10 Practice should be provided in manual plotting techniques, including the use of reflection plotters, with the objective of establishing a thorough understanding of the interrelated motion

between own ship and other ships, including the effects of manoeuvring to avoid collision. At the preliminary stages of this training, simple plotting exercises should be designed to establish a sound appreciation of plotting geometry and relative-motion concepts. The degree of complexity of exercises should increase throughout the training course until the trainee has mastered all aspects of the subject. Competence can best be enhanced by exposing the trainee to real-time exercises performed on a simulator or using other effective means.

Identification of critical echoes

11 A thorough understanding should be attained of:

- .1 position fixing by radar from land targets and sea marks;
- .2 the accuracy of position fixing by ranges and by bearings;
- .3 the importance of cross-checking the accuracy of radar against other navigational aids; and
- .4 the value of recording ranges and bearings at frequent, regular intervals when using radar as an aid to collision avoidance.

Course and speed of other ships

12 A thorough understanding should be attained of:

- .1 the different methods by which course and speed of other ships can be obtained from recorded ranges and bearings, including:
 - .1.1 the unstabilized relative plot;
 - .1.2 the stabilized relative plot; and
 - .1.3 the true plot; and
- .2 the relationship between visual and radar observations, including detail and the accuracy of estimates of course and speed of other ships, and the detection of changes in movements of other ships.

Time and distance of closest approach of crossing, meeting or overtaking ships

13 A thorough understanding should be attained of:

- .1 the use of recorded data to obtain:
 - .1.1 measurement of closest approach distance and bearing;
 - .1.2 time to closest approach; and
- .2 the importance of frequent, regular observations.

Detecting course and speed changes of other ships

14 A thorough understanding should be attained of:

- .1 the effects of changes of course and/or speed by other ships on their tracks across the display;
- .2 the delay between change of course or speed and detection of that change; and
- .3 the hazards of small changes as compared with substantial changes of course or speed in relation to rate and accuracy of detection.

Effects of changes in own ship's course or speed or both

15 A thorough understanding of the effects on a relative-motion display of own ship's movements, and the effects of other ships' movements and the advantages of compass stabilization of a relative display.

16 In respect of true-motion displays, a thorough understanding should be attained of:

- .1** the effects of inaccuracies of:
 - .1.1** speed and course settings; and
 - .1.2** compass stabilization data driving a stabilized relative-motion display;
- .2** the effects of changes in course or speed or both by own ship on tracks of other ships on the display; and
- .3** the relationship of speed to frequency of observations.

Application of the International Regulations for Preventing Collisions at Sea, 1972, as amended

17 A thorough understanding should be attained of the relationship of the International Regulations for Preventing Collisions at Sea, 1972, as amended to the use of radar, including:

- .1** action to avoid collision, dangers of assumptions made on inadequate information and the hazards of small alterations of course or speed;
- .2** the advantages of safe speed when using radar to avoid collision;
- .3** the relationship of speed to closest approach distance and time and to the manoeuvring characteristics of various types of ships;
- .4** the importance of radar observation reports and radar reporting procedures being well defined;
- .5** the use of radar in clear weather, to obtain an appreciation of its capabilities and limitations, compare radar and visual observations and obtain an assessment of the relative accuracy of information;
- .6** the need for early use of radar in clear weather at night and when there are indications that visibility may deteriorate;
- .7** comparison of features displayed by radar with charted features; and
- .8** comparison of the effects of differences between range scales.

* * * * *

Application of the International Regulations for Preventing Collisions at Sea, 1972, as amended

35 Analysis of potential collision situations from displayed information, determination and execution of action to avoid close-quarters situations in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended, in force.

Training and assessment in the operational use of Electronic Chart Display and Information Systems (ECDIS)

Introduction

36 When simulators are being used for training or assessment in the operational use of Electronic Chart Display and Information Systems (ECDIS), the following interim guidance should be taken into consideration in any such training or assessment.

37 Training and assessment in the operational use of the ECDIS should:

- .1** incorporate the use of ECDIS simulation equipment; and
- .2** conform to standards not inferior to those given in paragraphs 38 to 65 below.

38 ECDIS simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12 of the STCW Code, as amended, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization, incorporate facilities to generate soundings and:

- .1** create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed; and
- .2** realistically simulate “own ship” characteristics in open-water conditions, as well as the effects of weather, tidal stream and currents.

39 Demonstrations of, and practice in, ECDIS use should be undertaken, where appropriate, through the use of simulators. Training exercises should preferably be undertaken in real time, in order to increase trainees’ awareness of the hazards of the improper use of ECDIS. Accelerated timescale may be used only for demonstrations.

General

Goals of an ECDIS training programme

40 The ECDIS trainee should be able to:

- .1** operate the ECDIS equipment, use the navigational functions of ECDIS, select and assess all relevant information and take proper action in the case of a malfunction;
- .2** state the potential errors of displayed data and the usual errors of interpretation; and
- .3** explain why ECDIS should not be relied upon as the sole reliable aid to navigation.

Theory and demonstration

41 As the safe use of ECDIS requires knowledge and understanding of the basic principles governing ECDIS data and their presentation rules as well as potential errors in displayed data and ECDIS-related limitations and potential dangers, a number of lectures covering the

theoretical explanation should be provided. As far as possible, such lessons should be presented within a familiar context and make use of practical examples. They should be reinforced during simulator exercises.

42 For safe operation of ECDIS equipment and ECDIS-related information (use of the navigational functions of ECDIS, selection and assessment of all relevant information, becoming familiar with ECDIS man-machine interfacing), practical exercises and training on the ECDIS simulators should constitute the main content of the course.

43 For the definition of training objectives, a structure of activities should be defined. A detailed specification of learning objectives should be developed for each topic of this structure.

Simulator exercises

44 Exercises should be carried out on individual ECDIS simulators, or full-mission navigation simulators including ECDIS, to enable trainees to acquire the necessary practical skills. For real-time navigation exercises, navigation simulators are recommended to cover the complex navigation situation. The exercises should provide training in the use of the various scales, navigational modes, and display modes which are available, so that the trainees will be able to adapt the use of the equipment to the particular situation concerned.

45 The choice of exercises and scenarios is governed by the simulator facilities available. If one or more ECDIS workstations and a full-mission simulator are available, the workstations may primarily be used for basic exercises in the use of ECDIS facilities and for passage-planning exercises, whereas full-mission simulators may primarily be used for exercises related to passage-monitoring functions in real time, as realistic as possible in connection with the total workload of a navigational watch. The degree of complexity of exercises should increase throughout the training programme until the trainee has mastered all aspects of the learning subject.

46 Exercises should produce the greatest impression of realism. To achieve this, the scenarios should be located in a fictitious sea area. Situations, functions and actions for different learning objectives which occur in different sea areas can be integrated into one exercise and experienced in real time.

47 The main objective of simulator exercises is to ensure that trainees understand their responsibilities in the operational use of ECDIS in all safety-relevant aspects and are thoroughly familiar with the system and equipment used.

Principal types of ECDIS systems and their display characteristics

48 The trainee should gain knowledge of the principal types of ECDIS in use; their various display characteristics, data structure and an understanding of:

- .1 differences between vector and raster charts;
- .2 differences between ECDIS and ECS;
- .3 differences between ECDIS and RCDS*;
- .4 characteristics of ECDIS and their different solutions; and
- .5 characteristics of systems for special purposes (unusual situations/emergencies).

Risks of over-reliance on ECDIS

49 The training in ECDIS operational use should address:

- .1 the limitations of ECDIS as a navigational tool;

* SN/Circ.207/Rev.1 – Differences between RCDS and ECDIS.

- .2 potential risk of improper functioning of the system;
- .3 system limitations, including those of its sensors;
- .4 hydrographic data inaccuracy; limitations of vector and raster electronic charts (ECDIS *vs.* RCDS and ENC *vs.* RNC); and
- .5 potential risk of human errors.

Emphasis should be placed on the need to keep a proper look-out and to perform periodical checking, especially of the ship's position, by ECDIS-independent methods.

Detection of misrepresentation of information

50 Knowledge of the limitations of the equipment and detection of misrepresentation of information is essential for the safe use of ECDIS. The following factors should be emphasized during training:

- .1 performance standards of the equipment;
- .2 radar data representation on an electronic chart, elimination of discrepancy between the radar image and the electronic chart;
- .3 possible projection discrepancies between an electronic and paper charts;
- .4 possible scale discrepancies (overscaling and underscaling) in displaying an electronic chart and its original scale;
- .5 effects of using different reference systems for positioning;
- .6 effects of using different horizontal and vertical datums;
- .7 effects of the motion of the ship in a seaway;
- .8 ECDIS limitations in raster chart display mode;
- .9 potential errors in the display of:
 - .9.1 the own ship's position;
 - .9.2 radar data and ARPA and AIS information;
 - .9.3 different geodetic coordinate systems; and
- .10 verification of the results of manual or automatic data correction:
 - .10.1 comparison of chart data and radar picture; and
 - .10.2 checking the own ship's position by using the other independent position-fixing systems.

51 False interpretation of the data and proper action taken to avoid errors of interpretation should be explained. The implications of the following should be emphasized:

- .1 ignoring overscaling of the display;
- .2 uncritical acceptance of the own ship's position;
- .3 confusion of display mode;
- .4 confusion of chart scale;
- .5 confusion of reference systems;
- .6 different modes of presentation;

- .7 different modes of vector stabilization;
- .8 differences between true north and gyro north (radar);
- .9 using the same data reference system;
- .10 using the appropriate chart scale;
- .11 using the best-suited sensor to the given situation and circumstances;
- .12 entering the correct values of safety data:
 - .12.1 the own ship's safety contour,
 - .12.2 safety depth (safe water), and
 - .12.3 events; and
- .13 proper use of all available data.

52 Appreciation that RCDS is only a navigational aid and that, when operating in the RCDS mode, the ECDIS equipment should be used together with an appropriate portfolio of up-to-date paper charts:

- .1 appreciation of the differences in operation of RCDS mode as described in SN.1/Circ.207/Rev.1 "Differences between RCDS and ECDIS"; and
- .2 ECDIS, in any mode, should be used in training with an appropriate portfolio of up-to-date charts.

Factors affecting system performance and accuracy

53 An elementary understanding should be attained of the principles of ECDIS, together with a full practical knowledge of:

- .1 starting and setting up ECDIS; connecting data sensors: satellite and radio navigation system receivers, radar, gyro-compass, log, echo-sounder; accuracy and limitations of these sensors, including effects of measurement errors and ship's position accuracy, manoeuvring on the accuracy of course indicator's performance, compass error on the accuracy of course indication, shallow water on the accuracy of log performance, log correction on the accuracy of speed calculation, disturbance (sea state) on the accuracy of an echo-sounder performance; and
- .2 the current performance standards for electronic chart display and information systems adopted by the Organization* .

Practice

Setting up and maintaining display

54 Knowledge and skills should be attained in:

- .1 the correct starting procedure to obtain the optimum display of ECDIS information;
- .2 the selection of display presentation (standard display, display base, all other information displayed individually on demand);
- .3 the correct adjustment of all variable radar/ARPA display controls for optimum display of data;
- .4 the selection of convenient configuration;

* See relevant/appropriate performance standards adopted by the Organization.

- .5 the selection, as appropriate, of required speed input to ECDIS;
- .6 the selection of the timescale of vectors; and
- .7 performance checks of position, radar/ARPA, compass, speed input sensors and ECDIS.

Operational use of electronic charts

55 Knowledge and skills should be attained in:

- .1 the main characteristics of the display of ECDIS data and selecting proper information for navigational tasks;
- .2 the automatic functions required for monitoring ship's safety, such as display of position, heading/gyro course, speed, safety values and time;
- .3 the manual functions (by the cursor, electronic bearing line, range rings);
- .4 selecting and modification of electronic chart content;
- .5 scaling (including underscaling and overscaling);
- .6 zooming;
- .7 setting of the own ship's safety data;
- .8 using a daytime or night-time display mode;
- .9 reading all chart symbols and abbreviations;
- .10 using different kinds of cursors and electronic bars for obtaining navigational data;
- .11 viewing an area in different directions and returning to the ship's position;
- .12 finding the necessary area, using geographical coordinates;
- .13 displaying indispensable data layers appropriate to a navigational situation;
- .14 selecting appropriate and unambiguous data (position, course, speed, etc.);
- .15 entering the mariner's notes;
- .16 using north-up orientation presentation and other kinds of orientation; and
- .17 using true- and relative-motion modes.

Route planning

56 Knowledge and skills should be attained in:

- .1 loading the ship's characteristics into ECDIS;
- .2 selection of a sea area for route planning:
 - .2.1 reviewing required waters for the sea passage, and

- .2.2 changing over of chart scale;
- .3 verifying that proper and updated charts are available;
- .4 route planning on a display by means of ECDIS, using the graphic editor, taking into consideration rhumb line and great-circle sailing:
 - .4.1 using the ECDIS database for obtaining navigational, hydro-meteorological and other data;
 - .4.2 taking into consideration turning radius and wheel-over points/lines when they are expressed on chart scale;
 - .4.3 marking dangerous depths and areas and exhibiting guarding depth contours;
 - .4.4 marking waypoints with the crossing depth contours and critical cross-track deviations, as well as by adding, replacing and erasing of waypoints;
 - .4.5 taking into consideration safe speed;
 - .4.6 checking pre-planned route for navigational safety; and
 - .4.7 generating alarms and warnings;
- .5 route planning with calculation in the table format, including:
 - .5.1 waypoints selection;
 - .5.2 recalling the waypoints list;
 - .5.3 planning notes;
 - .5.4 adjustment of a planned route;
 - .5.5 checking a pre-planned route for navigational safety;
 - .5.6 alternative route planning;
 - .5.7 saving planned routes, loading and unloading or deleting routes;
 - .5.8 making a graphic copy of the monitor screen and printing a route;
 - .5.9 editing and modification of the planned route;
 - .5.10 setting of safety values according to the size and manoeuvring parameters of the vessel;
 - .5.11 back-route planning; and
 - .5.12 connecting several routes.

Route monitoring

57 Knowledge and skills should be attained in:

- .1** using independent data to control ship's position or using alternative systems within ECDIS;
- .2** using the look-ahead function:
 - .2.1** changing charts and their scales;
 - .2.2** reviewing navigational charts;
 - .2.3** vector time selecting;
 - .2.4** predicting the ship's position for some time interval;
 - .2.5** changing the pre-planned route (route modification);
 - .2.6** entering independent data for the calculation of wind drift and current allowance;
 - .2.7** reacting properly to the alarm;
 - .2.8** entering corrections for discrepancies of the geodetic datum;
 - .2.9** displaying time markers on a ship's route;
 - .2.10** entering ship's position manually; and
 - .2.11** measuring coordinates, course, bearings and distances on a chart.

Alarm handling

58 Knowledge and ability to interpret and react properly to all kinds of systems, such as navigational sensors, indicators, data and charts alarms and indicator warnings, including, switching the sound and visual alarm signalling system, should be attained in case of:

- .1** absence of the next chart in the ECDIS database;
- .2** crossing a safety contour;
- .3** exceeding cross-track limits;
- .4** deviation from planned route;
- .5** approaching a waypoint;
- .6** approaching a critical point;
- .7** discrepancy between calculated and actual time of arrival to a waypoint;
- .8** information on under-scaling or over-scaling;
- .9** approaching an isolated navigational danger or danger area;

- .10 crossing a specified area;
- .11 selecting a different geodetic datum;
- .12 approaching other ships;
- .13 watch termination;
- .14 switching timer;
- .15 system test failure;
- .16 malfunctioning of the positioning system used in ECDIS;
- .17 failure of dead-reckoning; and
- .18 inability to fix vessel's position using the navigational system.

Manual correction of a ship's position and motion parameters

59 Knowledge and skills should be attained in manually correcting:

- .1 the ship's position in dead-reckoning mode, when the satellite and radio navigation system receiver is switched off;
- .2 the ship's position, when automatically obtained coordinates are inaccurate; and
- .3 course and speed values.

Records in the ship's log

60 Knowledge and skills should be attained in:

- .1 automatic voyage recording;
- .2 reconstruction of past track, taking into account:
 - .2.1 recording media;
 - .2.2 recording intervals;
 - .2.3 verification of database in use;
- .3 viewing records in the electronic ship's log;
- .4 instant recording in the electronic ship's log;
- .5 changing ship's time;
- .6 entering the additional data;
- .7 printing the content of the electronic ship's log;
- .8 setting up the automatic record time intervals;
- .9 composition of voyage data and reporting; and

- .10 interface with a voyage data recorder (VDR).

Chart updating

61 Knowledge and skills should be attained in:

- .1 performing manual updating of electronic charts. Special attention should be paid to reference-ellipsoid conformity and to conformity of the measurement units used on a chart and in the correction text;
- .2 performing semi-automatic updating of electronic charts, using the data obtained on electronic media in the electronic chart format; and
- .3 performing automatic updating of electronic charts, using update files obtained via electronic data communication lines.

In the scenarios where non-updated data are employed to create a critical situation, trainees should be required to perform *ad hoc* updating of the chart.

Operational use of ECDIS where radar/ARPA is connected

62 Knowledge and skills should be attained in:

- .1 connecting ARPA to ECDIS;
- .2 indicating target's speed vectors;
- .3 indicating target's tracks;
- .4 archiving target's tracks;
- .5 viewing the table of the targets;
- .6 checking alignment of radar overlay with charted geographic features;
- .7 simulating one or more manoeuvres;
- .8 corrections to own ship's position, using a reference point captured by ARPA; and
- .9 corrections using the ARPA's cursor and electronic bar.

See also section B-I/12, Guidance regarding the use of simulators (pertaining to radar and ARPA), especially paragraphs 17 to 19 and 36 to 38.

Operational use of ECDIS where AIS is connected

63 Knowledge and skills should be attained in:

- .1 interface with AIS;
- .2 interpretation of AIS data;
- .3 indicating target's speed vectors;
- .4 indicating target's tracks; and

- .5 archiving target's tracks.

Operational warnings, their benefits and limitations

64 Trainees should gain an appreciation of the uses, benefits and limitations of ECDIS operational warnings and their correct setting, where applicable, to avoid spurious interference.

System operational tests

65 Knowledge and skills should be attained in:

- .1 methods of testing for malfunctions of ECDIS, including functional self-testing;
- .2 precautions to be taken after a malfunction occurs; and
- .3 adequate back-up arrangements (take over and navigate using the back-up system).

Debriefing exercise

66 The instructor should analyze the results of all exercises completed by all trainees and print them out. The time spent on the debriefing should occupy between 10% and 15% of the total time used for simulator exercises.

Recommended performance standards for non-mandatory types of simulation

67 Performance standards for non-mandatory simulation equipment used for training and/or assessment of competence or demonstration of skills are set out hereunder. Such forms of simulation include, but are not limited to, the following types:

- .1 navigation and watchkeeping;
- .2 ship handling and manoeuvring;
- .3 cargo handling and stowage;
- .4 reporting and radiocommunications; and
- .5 main and auxiliary machinery operation.

Navigation and watchkeeping simulation

68 Navigation and watchkeeping simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization, * incorporate facilities to generate soundings and:

- .1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed;
- .2 provide a realistic visual scenario by day or by night, including variable visibility, or by night only as seen from the bridge, with a minimum horizontal field of view

* See relevant/appropriate performance standards adopted by the Organization.

available to the trainee in viewing sectors appropriate to the navigation and watchkeeping tasks and objectives;

- .3 realistically simulate “own ship” dynamics in open-water conditions, including the effects of weather, tidal stream, currents and interaction with other ships; and
- .4 realistically simulate VTS communication procedures between ship and shore.

Ship handling and manoeuvring simulation

69 In addition to meeting the performance standards set out in paragraph 37, ship handling simulation equipment should:

- .1 provide a realistic visual scenario as seen from the bridge, by day and by night, with variable visibility throughout a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the ship handling and manoeuvring training tasks and objectives;^{**} and
- .2 realistically simulate “own ship” dynamics in restricted waterways, including shallow-water and bank effects.

70 Where manned scale models are used to provide ship handling and manoeuvring simulation, in addition to the performance standards set out in paragraphs 68.3 and 69.2, such equipment should:

- .1 incorporate scaling factors which present accurately the dimensions, areas, volume and displacement, speed, time and rate of turn of a real ship; and
- .2 incorporate controls for the rudder and engines, to the correct timescale.

Cargo handling and stowage simulation

71 Cargo handling simulation equipment should be capable of simulating cargo handling and control equipment which meets all applicable performance standards adopted by the Organization^{***} and incorporate facilities to:

- .1 create an effective operational environment, including a cargo-control station with such instrumentation as may be appropriate to the particular type of cargo system modelled;
- .2 model loading and unloading functions and stability and stress data appropriate to the cargo-handling tasks to be carried out and the skills to be assessed; and
- .3 simulate loading, unloading, ballasting and deballasting operations and appropriate associated calculations for stability, trim, list, longitudinal strength, torsional stress and damage stability^{*}.

^{**} The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

^{***} No standards have as yet been adopted by the Organization.

^{*} The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

GMDSS communication simulation

72 GMDSS communication simulation equipment should be capable of simulating GMDSS communication equipment which meets all applicable performance standards adopted by the Organization^{**} and incorporate facilities to:

- .1** simulate the operation of VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the Restricted Operator's Certificate (ROC);
- .2** simulate the operation of INMARSAT-A, -B and -C ship earth stations, MF/HF NBDP, MF/HF-DSC, VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the General Operator's Certificate (GOC);
- .3** provide voice communication with background noise;
- .4** provide a printed text communication facility; and
- .5** create a real-time operating environment, consisting of an integrated system, incorporating at least one instructor/assessor station and at least two GMDSS ship or shore stations.

* * * * *

^{**} See relevant/appropriate performance standards adopted by the Organization.

Chapter II

Guidance regarding the master and the deck department

Section B-II/1

Guidance regarding the certification of officers in charge of a navigational watch on ships of 500 gross tonnage or more

Training

- 1 Every candidate for certification as officer in charge of a navigational watch should have completed a planned and structured programme of training designed to assist a prospective officer to achieve the standard of competence in accordance with table A-II/1.
- 2 The structure of the programme of training should be set out in a training plan which clearly expresses, for all parties involved, the objectives of each stage of training on board and ashore. It is important that the prospective officer, tutors, ships' staff and company personnel are clear about the competences which are to be achieved at the end of the programme and how they are to be achieved through a combination of education, training and practical experience on board and ashore.
- 3 The mandatory periods of seagoing service are of prime importance in learning the job of being a ship's officer and in achieving the overall standard of competence required. Properly planned and structured, the periods of seagoing service will enable prospective officers to acquire and practice skills and will offer opportunities for competences achieved to be demonstrated and assessed.
- 4 Where the seagoing service forms part of an approved training programme, the following principles should be observed:
 - .1 The programme of onboard training should be an integral part of the overall training plan.
 - .2 The programme of onboard training should be managed and coordinated by the company which manages the ship on which the seagoing service is to be performed.
 - .3 The prospective officer should be provided with a training record book* to enable a comprehensive record of practical training and experience at sea to be maintained. The training record book should be laid out in such a way that it can provide detailed information about the tasks and duties which should be undertaken and the progress towards their completion. Duly completed, the record book will provide unique evidence that a structured programme of onboard training has been completed which can be taken into account in the process of evaluating competence for the issue of a certificate.
 - .4 At all times, the prospective officer should be aware of two identifiable individuals who are immediately responsible for the management of the programme of onboard training. The first of these is a qualified seagoing officer, referred to as the "shipboard training officer", who, under the authority of the master, should organize and supervise the programme of training for the duration of each voyage. The second should be a person nominated by the company, referred to as the "company training

* The relevant IMO Model Course(s) and a similar document produced by the International Shipping Federation may be of assistance in the preparation of training record books.

officer”, who should have an overall responsibility for the training programme and for coordination with colleges and training institutions.

- .5 The company should ensure that appropriate periods are set aside for completion of the programme of onboard training within the normal operational requirements of the ship.

Roles and responsibilities

5 The following section summarizes the roles and responsibilities of those individuals involved in organizing and conducting onboard training:

- .1 The company training officer should be responsible for:
 - .1.1 overall administration of the programme of training;
 - .1.2 monitoring the progress of the prospective officer throughout; and
 - .1.3 issuing guidance as required and ensuring that all concerned with the training programme play their parts.
- .2 The shipboard training officer should be responsible for:
 - .2.1 organizing the programme of practical training at sea;
 - .2.2 ensuring, in a supervisory capacity, that the training record book is properly maintained and that all other requirements are fulfilled; and
 - .2.3 making sure, so far as is practicable, that the time the prospective officer spends on board is as useful as possible in terms of training and experience, and is consistent with the objectives of the training programme, the progress of training and the operational constraints of the ship.
- .3 The master’s responsibilities should be to:
 - .3.1 provide the link between the shipboard training officer and the company training officer ashore;
 - .3.2 fulfil the role of continuity if the shipboard training officer is relieved during the voyage; and
 - .3.3 ensure that all concerned are effectively carrying out the onboard training programme.
- .4 The prospective officer’s responsibilities should be to:
 - .4.1 follow diligently the programme of training as laid down;
 - .4.2 make the most of the opportunities presented, be they in or outside working hours; and
 - .4.3 keep the training record book up to date and ensure that it is available at all times for scrutiny.

Induction

6 At the beginning of the programme and at the start of each voyage on a different ship, prospective officers should be given full information and guidance as to what is expected of them and how the training programme is to be organized. Induction presents the opportunity to brief prospective officers about important aspects of the tasks they will be undertaking, with particular regard to safe working practices and protection of the marine environment.

Shipboard programme of training

7 The training record book should contain, amongst other things, a number of training tasks or duties which should be undertaken as part of the approved programme of onboard training. Such tasks and duties should relate to at least the following areas:

- .1** steering systems;
- .2** general seamanship;
- .3** mooring, anchoring and port operations;
- .4** life-saving and fire-fighting appliances;
- .5** systems and equipment;
- .6** cargo work;
- .7** bridge work and watchkeeping; and
- .8** engine-room familiarization.

8 It is extremely important that the prospective officer is given adequate opportunity for supervised bridge watchkeeping experience, particularly in the later stages of the onboard training programme.

9 The performance of the prospective officers in each of the tasks and duties itemized in the training record book should be initialled by a qualified officer when, in the opinion of the officer concerned, a prospective officer has achieved a satisfactory standard of proficiency. It is important to appreciate that a prospective officer may need to demonstrate ability on several occasions before a qualified officer is confident that a satisfactory standard has been achieved.

Monitoring and reviewing

10 Guidance and reviewing are essential to ensure that prospective officers are fully aware of the progress they are making and to enable them to join in decisions about their future programme. To be effective, reviews should be linked to information gained through the training record book and other sources as appropriate. The training record book should be scrutinized and endorsed formally by the master and the shipboard training officer at the beginning, during and at the end of each voyage. The training record book should also be examined and endorsed by the company training officer between voyages.

Assessment of abilities and skills in navigational watchkeeping

11 A candidate for certification who is required to have received special training and assessment of abilities and skills in navigational watchkeeping duties should be required to

provide evidence, through demonstration either on a simulator or on board ship as part of an approved programme of shipboard training, that the skills and ability to perform as officer in charge of a navigational watch in at least the following areas have been acquired, namely to:

- .1** prepare for and conduct a passage, including:
 - .1.1** interpreting and applying information obtained from charts;
 - .1.2** fixing position in coastal waters;
 - .1.3** applying basic information obtained from tide tables and other nautical publications;
 - .1.4** checking and operating bridge equipment;
 - .1.5** checking magnetic and gyro-compasses;
 - .1.6** assessing available meteorological information;
 - .1.7** using celestial bodies to fix position;
 - .1.8** determining the compass error by celestial and terrestrial means; and
 - .1.9** performing calculations for sailings of up to 24 hours;
 - .2** operate and apply information obtained from electronic navigation systems;
 - .3** operate radar, ARPA and ECDIS and apply radar information for navigation and collision avoidance;
 - .4** operate propulsion and steering systems to control heading and speed;
 - .5** implement navigational watch routines and procedures;
 - .6** implement the manoeuvres required for rescue of persons overboard;
 - .7** initiate action to be taken in the event of an imminent emergency situation (e.g., fire, collision, stranding) and action in the immediate aftermath of an emergency;
 - .8** initiate action to be taken in event of malfunction or failure of major items of equipment or plant (e.g., steering gear, power, navigation systems);
 - .9** conduct radiocommunications and visual and sound signalling in normal and emergency situations; and
 - .10** monitor and operate safety and alarm systems, including internal communications.
- 12** Assessment of abilities and skills in navigational watchkeeping should:
- .1** be made against the criteria for evaluating competence for the function of navigation set out in table A-II/1;
 - .2** ensure that the candidate performs navigational watchkeeping duties in accordance with the Principles to be observed in keeping a safe navigational watch (section A-

VIII/2, part 4-1) and the Guidance on keeping a navigational watch (section B-VIII/2, part 4-1).

Evaluation of competence

13 The standard of competence to be achieved for certification as officer in charge of a navigational watch is set out in table A-II/1. The standard specifies the knowledge and skill required and the application of that knowledge and skill to the standard of performance required on board ship.

14 Scope of knowledge is implicit in the concept of competence. Assessment of competence should, therefore, encompass more than the immediate technical requirements of the job, the skills and tasks to be performed, and should reflect the broader aspects needed to meet the full expectations of competent performance as a ship's officer. This includes relevant knowledge, theory, principles and cognitive skills which, to varying degrees, underpin all levels of competence. It also encompasses proficiency in what to do, how and when to do it, and why it should be done. Properly applied, this will help to ensure that a candidate can:

- .1 work competently in different ships and across a range of circumstances;
- .2 anticipate, prepare for and deal with contingencies; and
- .3 adapt to new and changing requirements.

15 The criteria for evaluating competence (column 4 of table A-II/1) identify, primarily in outcome terms, the essential aspects of competent performance. They are expressed so that assessment of a candidate's performance can be made against them and should be adequately documented in the training record book.

16 Evaluation of competence is the process of:

- .1 collecting sufficient valid and reliable evidence about the candidate's knowledge, understanding and proficiency to accomplish the tasks, duties and responsibilities listed in column 1 of table A-II/1; and
- .2 judging that evidence against the criteria specified in the standard.

17 The arrangements for evaluating competence should be designed to take account of different methods of assessment which can provide different types of evidence about candidates' competence, e.g.:

- .1 direct observation of work activities (including seagoing service);
- .2 skills/proficiency/competency tests;
- .3 projects and assignments;
- .4 evidence from previous experience; and
- .5 written, oral and computer-based questioning techniques* .

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

18 One or more of the first four methods listed should almost invariably be used to provide evidence of ability, in addition to appropriate questioning techniques to provide evidence of supporting knowledge and understanding.

Training in celestial navigation

19 The following areas summarize the recommended training in celestial navigation:

- .1 correctly adjust sextant for adjustable errors;
- .2 determine corrected reading of the sextant altitude of celestial bodies;
- .3 accurate sight reduction computation, using a preferred method;
- .4 calculate the time of meridian altitude of the sun;
- .5 calculate latitude by Polaris or by meridian altitude of the sun;
- .6 accurate plotting of position line(s) and position fixing;
- .7 determine time of visible rising/setting sun by a preferred method;
- .8 identify and select the most suitable celestial bodies in the twilight period;
- .9 determine compass error by azimuth or by amplitude, using a preferred method;
- .10 nautical astronomy as required to support the required competence in paragraphs 19.1 to 19.9 above.

20 Training in celestial navigation may include the use of electronic nautical almanac and celestial navigation calculation software.

Section B-II/3

Guidance regarding the certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage

(See section B-II/1 for guidance.)

Chapter VIII

Guidance regarding watchkeeping

Section B-VIII/2

Guidance regarding watchkeeping arrangements and principles to be observed

1 The following operational guidance should be taken into account by companies, masters and watchkeeping officers.

* * * * *

Part 4 – Guidance on watchkeeping at sea

Part 4-1 – Guidance on keeping a navigational watch

Introduction

2 Particular guidance may be necessary for special types of ships as well as for ships carrying hazardous, dangerous, toxic or highly flammable cargoes. The master should provide this operational guidance as appropriate.

3 It is essential that officers in charge of the navigational watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life, security and property at sea and of preventing pollution of the marine environment.

Anchor watch

4 The master of every ship at an unsheltered anchorage, at an open roadstead or any other virtually “at sea” conditions in accordance with chapter VIII, section A-VIII/2, part 4-1, paragraph 51 of the STCW Code, should ensure that watchkeeping arrangements are adequate for maintaining a safe watch at all times. A deck officer should at all times maintain responsibility for a safe anchor watch.

5 In determining the watchkeeping arrangements, and commensurate with maintaining the ship’s safety and security and the protection of the marine environment, the master should take into account all pertinent circumstances and conditions such as:

- .1** maintaining a continuous state of vigilance by sight and hearing as well as by all other available means;
- .2** ship-to-ship and ship-to-shore communication requirements;
- .3** the prevailing weather, sea, ice and current conditions;
- .4** the need to continuously monitor the ship’s position;
- .5** the nature, size and characteristics of anchorage;
- .6** traffic conditions;
- .7** situations which might affect the security of the ship;
- .8** loading and discharging operations;
- .9** the designation of stand-by crew members; and
- .10** the procedure to alert the master and maintain engine readiness.