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NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5 02

Subj: GUIDELINES FOR ASSESSING MERCHANT MARINERS THROUGH DEMONSTRATIONS OF PROFICIENCY AS OFFICERS IN CHARGE OF NAVIGATIONAL WATCHES AND MASTER ON SHIPS OF LESS THAN 500 GROSS TONNAGE AS MEASURED UNDER THE INTERNATIONAL TONNAGE CONVENTION (ITC) WHILE ENGAGED ON NEAR-COASTAL VOYAGES

Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulation II/3 and Section A-II/3 of STCW Code, incorporated into regulations at 46 CFR 10.102(b)
(b) Federal Register dated August 16, 2000, Docket No. USCG-2000-7692, Guidelines for Assessing Merchant Mariners Through Demonstrations of Proficiency as Officers in Charge of Navigational Watches on Ships of Less Than 500 Gross Tonnage as Measured Under the (ITC) While Engaged on Near-Coastal Voyages
(c) Table A-II/3, Assessment Guidelines, Specification for minimum standard of competence as Officer in Charge of a Navigational Watch and Master on Ships of Less Than 500 Gross Tonnage (ITC) Engaged on Near-Coastal Voyages, Available at: http://dms.dot.gov

1. PURPOSE. This Circular provides the national guidelines for the assessment of merchant mariners' proficiency through demonstrations of skills of an applicant for an STCW certificate as an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages. These guidelines are for use in training programs approved or accepted by the U. S. Coast Guard as meeting reference (a) and by designated examiners (DEs) when carrying out their assessment activities.

2. ACTION. Officers in Charge, Marine Inspection (OCMIs), should use this Circular when establishing that candidates are entitled to hold an STCW-95 certificate as an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-

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Coastal Voyages. OCMIs should also bring this Circular to the attention of the appropriate people in the maritime industry within their zones. This Circular is available on the World Wide Web at **http://www.uscg.mil/hq/g-m/nvic/**. Within the Coast Guard, it will be distributed by electronic means only.

3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

   a. The guidance from the International Maritime Organization (IMO) on shipboard assessments of proficiency, MSC/Circular 853, suggests that administrations should develop standards and measures of performance for practical tests as part of a program of training and assessment of mariners. These standards and measures ensure the uniform assessment of mariners without regard to individuality of the DEs and will result in standardization, fairness, and consistency. Enclosure (1) provides an overview of the Coast Guard's policy on assessments of mariners as required by the STCW.

   b. The Coast Guard tasked the Merchant Marine Personnel Advisory Committee (MERPAC) to recommend national assessment criteria for certification as an Officer in Charge of a Navigational Watch or a Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages. The National Maritime Center (NMC) then used MERPAC's criteria to develop proposed national guidelines, which we published for public comment in references (b) and (c). Comments from the public occupy attachments (3), (4), and (5) of reference (c). After consideration of the public's comments, the NMC developed the final version of the national assessments, which appear in enclosure (2). MERPAC's recommended guidelines included "knowledge" competencies not included within the national guidelines. The guidelines focus solely on the practical demonstrations of mariners' competency. Out of this process came the final version of the national assessment guidelines contained in enclosure (2).

5. DISCUSSION.

   a. All mariners who commence training or sea service required by the STCW on or after August 1, 1998, or all mariners applying for STCW certification as an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages on or after February 1, 2002, are required by 46 CFR 10.901(c) to present documentation demonstrating competence in those skills specified in the table of enclosure (2). The practical demonstrations of skills are required by 46 CFR 10.205(p) to be completed in the presence of, and certified by, a DE. Unless a mariner demonstrates proficiency in the skills required of an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages in enclosure (2), the OCMI will not issue the STCW certificate.

   b. A person assessing mariners under STCW for practical proficiency as an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as

Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages should use either the guidelines in enclosure (2) or an alternative as discussed in paragraph 5.c.

c. Those who assess the practical proficiency of mariners may refine these published guidelines and develop innovative alternatives; however, before they use them, they must submit them to the NMC for approval by the Coast Guard. A training institution submitting a course that leads to certification as an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages should either state that the guidelines in enclosure (2) will apply or otherwise identify the guidelines to be used.

d. Merchant mariners required to demonstrate proficiency through demonstrations of skills for an Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage as Measured Under the International Tonnage Convention (ITC) While Engaged on Near-Coastal Voyages should use these guidelines for self-study and self-assessment.

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SECURITY AND ENVIRONMENTAL PROTECTION

Encl: (1) Assessments of Mariners
(2) Table A-II/3, Assessment Guidelines, Specification for minimum standard of competence as Officer in Charge of a Navigational Watch or Master on Ships of Less Than 500 Gross Tonnage (ITC) Engaged on Near-Coastal Voyages

Non-Standard Distribution:

B:a G-M(1); G-MS(1); G-MSO (4)

D:l CG Liaison Officer MILSEALIFTCOMD (Code N-7CG) (1); CG Liaison Officer MARAD (MAR-720.2) (1).

ASSESSMENTS OF MARINERS

1. ASSESSMENT OF SKILLS.

a. All mariners who commence training or sea service required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), on or after August 1, 1998, or all mariners who apply for STCW certification as an Officer in Charge of a Navigational Watch and Master on Ships of Less Than 500 Gross Tonnage engaged on near-coastal voyages on or after February 1, 2002, must demonstrate to a designated examiner (DE) minimum competency in certain knowledge, understandings, and proficiencies. Without evidence to this effect, no endorsement will be issued.

b. Traditionally, in the United States, the Coast Guard has measured mariners' competency through assessments of knowledge. Knowledge-based components of this competency usually involve the recalling of facts or concepts, and written examinations are normally valid and reliable instruments for assessing such components. Historically, the Coast Guard has issued licenses and documents based predominantly on written essay and multiple-choice examinations. Currently, the Coast Guard employs a bank of over 25,000 multiple-choice questions to examine mariners.

c. Assessment of understanding is more complex than assessment of knowledge. Understanding involves specific principles and information processes necessary to analyze alternatives, make conclusions, make choices and decisions, or affect outcomes. Because it is a covert characteristic, understanding must be ascertained through assessment of an overt behavior that demonstrates understanding. Ascertainment can employ a variety of mechanisms, ranging from written problems involving calculations or analysis of facts to practical demonstrations requiring diagnostic or analytical reasoning. Many of the Coast Guard's 25,000 written questions for multiple-choice examinations involve problems that assess an understanding; but, in many instances, complete understanding is best measured through actual assessment of a mariner's performance.

d. Guidance provided by the IMO on certain assessments of proficiency requires development of standards and measures of performance for practical tests as part of seafarers' training programs. This is a new requirement for many flag-state administrations and their maritime industries. Performance assessment is part of a larger, well established body of knowledge called instructional system design (ISD). Within this body, assessment methodologies range from the simple and straightforward to the complex and difficult. For the purposes of STCW, the Coast Guard believes the simplest and most straightforward approach works best and has decided to develop a set of national guidelines. In these, a performance standard has three components: the condition, the behavior, and the criteria. The first establishes the conditions under which the

candidate must demonstrate the knowledge, understanding or proficiency. The second specifies the precise set of knowledge, understandings, or skills (the 'behaviors') that must be recalled, demonstrated or performed. The third is the particular acts against which we measure an applicant's behavior to determine if the performance can be considered minimally competent.

e. The third component is normally expressed in terms of "measures" or combinations of "measures," such as a time limit or requirement, a specific sequence, a number or a percentage, a tolerance, or a degree of conformance or accuracy required. For highly critical skills, the criteria may require precise answers, require exact sequences of actions, or have very small tolerances of errors or degrees of conformance. For instance, missing just one step of a sequence may constitute failure because that step was critical to achieving the final outcome. In less-critical skills, wider tolerances or degrees of conformance may pass; however, in every case the applicant must demonstrate the minimal level of competence set forth in the criteria.

2. DEVELOPMENT OF STANDARDS

a. While the STCW Code gives broad guidance on the standards of performance and methods of assessment, the responsibility for the development of specific performance standards for each competency lies with the training provider. Development of valid and reliable performance standards is a resource-intensive effort. To minimize cost to the industry, promote uniformity, expedite the development process, and provide valid examples of these new performance standards, the Coast Guard asked that MERPAC develop recommendations for a set of these standards.

b. MERPAC developed the core elements of a set of these standards and forwarded them to the Coast Guard. We reviewed the initial recommendations and compared them to the requirements of the STCW. We incorporated the final products into the proposed national assessment guidelines and published them in the Federal Register for public comments. After considering the comments, we have made them the standards for identifying minimum levels of competence during demonstrations of a mariner's proficiency.

c. We encourage companies and maritime training institutions to use the national guidelines for assessment of STCW proficiencies in training programs submitted for our approval or for acceptance by a recognized quality-standards system. They should use them during STCW proficiency assessments conducted by their DEs. They may develop alternative assessment standards; however, they may not use these in accepted or approved training programs until we have reviewed and approved them.

3. WRITTEN EXAMINATIONS

a. Written examinations used in training programs under the STCW deserve particular emphasis. Companies and maritime training institutions should review their written instruments for assessing each knowledge-based and understanding-based competency from the STCW to ensure they include at least one question for each competency in the appropriate table from Part A of the STCW Code.

b. Companies and maritime training institutions should also have multiple questions for addressing each knowledge-based and understanding-based competency from the STCW to afford candidates a fair opportunity to demonstrate minimum ability. If only one question assessed a required knowledge or understanding, an incorrect answer would constitute a failure to have demonstrated the knowledge or understanding and would leave the candidate ineligible to have that competency certified by the DE, unless the DE used an alternative method. Accordingly, it would be preferable for the assessment to contain several questions. For example, in a written multiple-choice examination, if four questions concerned the same critical knowledge, three correct answers and one incorrect answer would meet the requirements for minimum competency if the performance standard was a 70% score. In this case the mariner would qualify as competent for that knowledge.

TABLE A-II/3 Assessment Guidelines

Specification for minimum standard of competence as Officer in Charge of a Navigational Watch and Master on Ships of Less than 500 Gross Tonnage (ITC) Engaged on Near-Coastal Voyages

Candidates for a certificate as an officer in charge of a navigational watch on ships of less than 500 gross tonnage must meet the standards of competence set out in STCW Code Table A-II/3. In order to accomplish this, candidates must:

- Complete approved education and training and meet all the competencies listed in the table;
- Pass a written examination for the knowledge and understanding portion of those competencies; and
- Successfully accomplish a practical demonstration of skill for selected competencies.

Written Assessments

Assessments by written examination are required for: Celestial Navigation; Terrestrial Navigation; Electronic Navigation and Position Systems; Echo Sounders; Magnetic and Gyro compasses; Steering Control Systems; Meteorology; Watchkeeping, including Bridge Resource Management and Voyage Planning; Radar Navigation; ARPA; Emergency Procedures; Search and Rescue; Visual Signaling; Ship Handling; Cargo Handling and Stowage; Pollution Prevention; Ship Stability; Fire Fighting and Fire Prevention; Life Saving; Medical Aid; and IMO Conventions concerning Safety of Life at Sea. The candidate must achieve a minimum-passing grade of 70% in each area of knowledge or understanding within the competency, except for Rules of the Road, which must be completed with a passing grade of 90%.

Training and Assessment in Radar and ARPA must include successful completion of approved simulator courses and in-service experience. Training and assessment in Medical First Aid, Fire Prevention and Fire Fighting, Advanced Fire Fighting and Crowd Management and Passenger Safety for passenger ships may be satisfied by attending independent courses that are Coast Guard

approved or accepted as meeting the requirements of the STCW. These guidelines contain assessment criteria for some of these subjects. The Coast Guard will only grant approval for these courses if they use the relevant national assessment criteria or their equivalents in their courses to assess practical demonstrations of skill. The candidate must achieve a minimum-passing grade of 70% in each area of knowledge or understanding within the competency.

The knowledge or understanding-based portion of the following competencies may be assessed through a written multiple-choice examination. The candidate must achieve a minimum-passing grade of 70% in each area of knowledge or understanding within the competency.

Plan and conduct a coastal passage and determine position;
Maintain a safe navigational watch;
Respond to emergencies;
Respond to a distress signal at sea;
Maneuver the ship and operate small ship power plants;
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage;
Ensure compliance with pollution-prevention requirements;
Maintain seaworthiness of the ship;
Prevent, control, and fight fires on board;
Operate life-saving appliances;
Apply medical first-aid on board ship; and
Monitor compliance with legislative requirements.

Practical Demonstrations of Skill

The assessment criteria that follow identify those skills in Table A-II/3 that must be demonstrated: Plan and conduct a coastal passage and determine position; Maintain a safe navigational watch, and Maneuver the ship. In addition, the United States Coast Guard is requiring demonstration of skills in a competency entitled, "Use radar and ARPA to maintain the safety of navigation." 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. The examiner is encouraged to use a checklist in conducting assessments of practical demonstrations of skill. Checklists allow a training institution or designated examiner to ensure

that critical tasks are not overlooked when evaluating a candidate's practical demonstration. Training institutions and designated examiners should develop their own checklists for use in conducting the assessments in a complete and structured manner.

TABLE A-II/3 Guidelines for Assessment

Specification of minimum standard of competence

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH AND FOR MASTERS ON SHIPS OF LESS THAN 500 GROSS TONNAGE (ITC) ENGAGED ON NEAR COASTAL VOYAGES

Function: Navigation at the operational level

- *Italics denote STCW proficiency from Table A-II/3 of the STCW*

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
Plan and conduct a coastal passage and determine position.	***Terrestrial and coastal navigation**** *Ability to determine the ship's position by use of:* *.1 landmarks; and* *.2 aids to navigation, including lighthouses, beacons** and navigational	On a ship underway, or on a full mission ship simulator, with land and aids to navigation in sight, using a standard bearing circle, alidade, or other device for taking bearings, and given a chart with a scale of no more than 1: 150,000,	the candidate will determine the bearings of at least two charted objects and plot them.	1. The position is within ±0.1 nm of the assessor's position. 2. Crossing angles of bearings should be not less than 30° and not more than 150° between bearings. 3. The bearings of objects abeam or close to the beam are observed first. 4. The chart in use is the largest scale suitable for the waters being transited.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) structures.			
	*Ability to determine the ship's position by use of** Marine Radar	On an operational marine radar or a radar simulator that meets applicable national and international performance standards, with land and buoys displayed, and given a chart with a scale of no more than 1:150,000,	the candidate will determine two or more ranges measured from identified charted objects or points of land and plot them.	The position is within ± 0.1 nm of the assessor's solution.
		On an operational marine radar or a radar simulator that meets applicable national and international performance standards, with land and buoys displayed, and given a chart with a scale of no more than 1: 150,000,	the candidate will determine two or more tangents measured from identified and charted objects or points of land and plot.	The position is within ± 0.1 nm of the assessor's solution.
	*Ability to determine the ship's position by the use of**	On a ship underway, or a full mission ship simulator, using a standard plotting sheet	the candidate will plot the ship's DR position for every hour (or	The position is within ± 1.0 nm of the assessor's solution.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) Dead Reckoning	(cont'd) or chart, and given the vessels speed made good and course made good for the past four hours,	(cont'd) more frequently, if required) for the duration of the watch.	
	*Ability to determine the ship's position by the use of** Set and Drift	On a ship underway, or on a full mission ship simulator, with the ship's speed of at least 10 knots, and using a plotting sheet or chart, when encountering wind and current which sets the vessel,	the candidate will plot the vessel's position on at least two successive occasions not less than 30 minutes apart, for a vessel steaming at least 10 knots, calculate set and drift by vector analysis, and determine the course to steer to make the intended course.	The course to steer is within ± 5° of the assessor's solution.
	Thorough knowledge of and ability to use navigational charts and publications, such as sailing	On a ship, or in a navigational laboratory, given notices to mariners and uncorrected charts, and publications,	the candidate will correct five charts and three publications, including the *Light List* or the *List of Lights*.	1. Charts and publications needing correction are identified. 2. Corrections are correctly made to the affected charts and publications. 3. All corrections to charts are recorded on the chart and in the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) *directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information**			(cont'd) chart-correction record or on the chart-correction spreadsheet. 4. All corrections to publications are recorded on the correction page of the publication and on the publication- correction card or the publication- correction spreadsheet.
		On a ship, 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 will identify the charts needed for the voyage.	1. The name and number of the charts are correctly identified and recorded. 2. The charts selected are the largest scales appropriate for the area being transited. 3. There is no gap in coverage for any portion of the voyage requiring coastal navigation and departure and arrival at any port.
		On a ship, a full mission ship simulator, or in a navigation laboratory, when given three way points	the candidate will: 1. determine the appropriate courses and	1. Courses and distances between way points are correctly calculated. 2. The route is the most direct. 3. The courses are plotted on the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) consisting of a position of departure, a position of arrival, and one other way point, with a total distance of more than 600 nm,	(cont'd) distances between way points; and 2. plot the intended courses on the charts selected.	(cont'd) appropriately scaled charts noting the ETA at each way point, including the final way point.
	Electronic systems of position fixing and navigation* *Ability to determine the ship's position by use of** electronic navigational aids. GPS	On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a GPS or DGPS receiver which meets IMO performance standards,	the candidate will initialize a GPS or DGPS receiver, determine the ship's position, and evaluate the accuracy of that position.	1. The system is initialized. 2. The indicators of position accuracy are determined .
		On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a GPS or DGPS receiver which meets IMO performance standards, when hearing "Man	the candidate will activate the man overboard/emergency position save function.	The ship's position is saved or recorded within one minute of hearing "Man Overboard."

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) Overboard,"		
	*Ability to determine the ship's position by use of** electronic navigational aids LORAN	On a ship underway, or on a full mission ship simulator, or in a navigation laboratory, using a LORAN receiver which meets both national and international performance standards,	the candidate will initialize a LORAN receiver, determine the ship's position, and evaluate the accuracy of that position.	1. The receiver is turned on. 2. The appropriate station pair are selected. 3. The lat/long or TDs are read and plotted correctly within 0.1 nm of the assessor's solution on a chart with a scale of no more than 1:150,000. 4. The accuracy of the fix is evaluated using the system and receiver limitations and TD crossing angles.
	Ability to operate the equipment and apply the information correctly Echo Sounders	On a ship 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 which meets IMO performance standards,	the candidate will turn on, test and operate the echo sounder.	1. The system is turned on. 2. The echo sounder is tested in accordance with the manufacturer's recommendations. 3. The correct UTC or LT is noted on the echo sounder paper (if fitted). 4. The scale selected is the lowest appropriate for the vessel's draft and the depth of water of the area being transited. 5. The sensitivity is adjusted to obtain proper depth reading on the display and correct trace on the paper (if fitted).

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	*Compasses** *Ability to determine errors of the magnetic and gyro-compasses, using terrestrial means, and to allow for such errors**	On a ship underway or on a full mission ship simulator, using navigational or natural terrestrial ranges, using only a magnetic compass and a chart with variation,	the candidate will note the vessel's magnetic compass heading while aligned on the range and determine magnetic compass deviation.	1. The magnetic heading is compared to the charted range or bearing. 2. The magnetic compass error is determined and properly labeled. 3. Variation is determined from the chart. 4. The deviation solution is ± .5° of the assessor's solution. 5. The deviation is correctly recorded in the compass record book and the ship's log.
		On a ship underway or on a full mission ship simulator, and given a deviation table,	the candidate will correctly apply the compass error to the course by magnetic compass to make good the intended true course.	1. Compass error is correctly applied to the magnetic course. 2. The solution is ± 1° of the assessor's solution.
		On a ship underway or on a full mission ship simulator, or in a navigational laboratory, and given a deviation table and a chart with a scale of no more than 1:150,000,	the candidate will correctly apply the compass error to the bearings by magnetic compass of at least two charted objects and plot them on the chart in use	1. Compass error is correctly applied to the magnetic bearings. 2. The position is within ± 0.5 nm of the assessor's solution.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	Automatic Pilot* Adjustment of controls for optimum performance	On a ship underway or on a full mission ship simulator,	the candidate will conduct the pre-departure test of the vessel's steering gear.	1. The steering control system is turned on. 2. The heading input is checked and aligned with the compass. 3. After the required warm-up period, the controls for switching pumps and motors between the port and starboard steering systems are tested. 4. Both port and starboard steering systems are tested as follows: 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, the rudder is tested throughout its full range of motion.
		On a ship underway or on a full mission ship simulator, while in	the candidate will set the rudder and weather controls that are most suitable for the	1. The weather control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) auto-pilot,	(cont'd) weather and sea conditions.	(cont'd) 2. The rudder control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions for the area being transited or simulated.
	Meteorology* *Ability to use and interpret information obtained from on board meteorological instruments**	On a ship underway or in a laboratory,	the candidate will determine the barometric pressure in millibars, inches or millimeters of mercury.	1. The barometer is read and the appropriate corrections are applied. 2. The barometric pressure determined by the candidate is within 0.5 millibar, .02 inch or 0.4 millimeter of the assessor's corrected reading.
		On a ship underway or in a laboratory, and using an anemometer,	the candidate will determine true wind speed and direction.	1. The apparent wind speed and direction is converted to true wind speed and direction. 2. The candidate's solution is within 10 degrees for direction and five knots for speed of the assessor's solution.
		On a ship underway or in a laboratory, and	the candidate will determine the weather	The candidate's determinations of expected wind, sea and weather

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) using the surface, upper air and sea state analysis weather maps,	(cont'd) to be encountered during the next 24-hour period.	(cont'd) 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.
Maintain a safe navigational watch.	***Watchkeeping**** *Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea**	At night, on a ship underway, on a full mission ship simulator, or using approved laboratory equipment,	the candidate will identify vessels through observation of their light configurations.	The candidate correctly identifies the situation or occupation of 18 of 20 vessels that have different light configurations.
		In daylight, on a ship underway, on a full mission ship simulator, or using approved laboratory equipment,	the candidate will identify vessels through observation of their required shapes.	The candidate correctly identifies the situation or occupation of 18 of 20 vessels that are displaying different required shapes.
		In restricted visibility, on a ship underway, on a full mission ship simulator, or using approved laboratory	the candidate will identify vessels by hearing their required sound signals.	The candidate correctly identifies the situation or occupation of 9 of 10 vessels sounding different required sound signals.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) equipment,		
		On a ship underway, or a full mission ship simulator, or using approved laboratory equipment, 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 will determine if risk of collision exists with approaching meeting, crossing and overtaking vessels.	1. Two visual bearings of an approaching vessel are taken 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. 2. Each observation is within ± 2° of the assessor's solution.
		On a ship underway, or a full mission ship simulator, or using approved laboratory equipment, when risk of collision with an approaching meeting vessel exists in good visibility in the open ocean,	the candidate will apply the Rules of the Road correctly and maneuver the vessel to avoid the collision, if required.	1. The aspect of the approaching vessel is determined. 2. The situation is identified as a meeting situation. 3. Positive action in ample time is taken in accordance with the Steering and Sailing Rules to achieve a CPA of at least 3 nm. 4. Speed or course changes are large enough to be readily apparent to another vessel observing

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) visually or by radar.
		On a ship underway, or a full mission ship simulator, or using approved laboratory equipment, 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 the open ocean,	the candidate will apply the Rules of the Road correctly and maneuver the vessel to avoid the collision, if required.	1. The aspect of the approaching vessel is determined. 2. The situation is identified as a crossing situation. 3. Positive action in ample time is taken in accordance with the Steering and Sailing Rules to achieve a CPA of at least 3 nm. 4. Speed or course changes are large enough to be readily apparent to another vessel observing visually or by radar.
		On a ship underway, or a full mission ship simulator, or using approved laboratory equipment, when risk of collision with an approaching overtaking vessel exists in good visibility in the open ocean,	the candidate will apply the Rules of the Road correctly and maneuver the vessel to avoid the collision, if required.	1. The aspect of the approaching vessel is determined. 2. The situation is identified as an overtaking situation. 3. Positive action in ample time is taken in accordance with the Steering and Sailing Rules to achieve a CPA of at least 1 nm. 4. Speed or course changes are large enough to be readily apparent to

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) another vessel observing visually or by radar.
	Knowledge of content of the Principles to be observed in keeping a navigational watch. *	On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will properly relieve the watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraphs 21 and 22.	1. The standing orders and night orders are read. 2. The vessel's position, course and speed are determined and compared to the DR position and track. 3. The position of the next charted way point is noted. 4. The identities of critical aids to navigation in sight are verified. 5. Tides and current are determined as necessary. 6. Visibility and weather are determined. 7. The radar or ARPA, if fitted, is checked and is properly tuned. 8. Any targets displayed on the radar or ARPA, if fitted, are checked. 9. Heading by magnetic compass heading is checked. 10. The navigational hazards likely to be encountered during the watch are determined. 11. The possible effect of list, trim, water density and squat on

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) under keel clearance are determined. 12. Courses, traffic, weather and any special instructions are related by the officer being relieved. 13. The relieving officer tells the officer being relieved that he or she is relieved.
		On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will properly keep a safe and environmentally sound navigational watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraphs 23 to 50.	1. The voyage plan is closely and continuously monitored. 2. A proper look out 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 being transited. 6. Under keel clearance is suitable for the draft of the vessel at all times. 7. The 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.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 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. 12. The risk or danger of collision with each approaching vessel is determined and early and substantial action, if required, is taken in accordance with the COLREGS. 13. Rudder and engine orders are executed as ordered. 14. The validity of the gyro input to all navigation equipment is verified. 15. Magnetic compass and gyro errors are determined by any available means and the error is logged. 16. Magnetic variation and compass deviation are correctly applied to

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) courses and bearings. 17. The candidate determines that the person steering the vessel is competent to do so. 18. Tide and current conditions for the watch period are determined in coastal or tidal waters. 19. Set and drift are determined and applied to allow for set and drift. 20. The weather conditions onboard the ship are correctly and timely recorded and reported as required. 21. Running lights are checked throughout the watch period. 22. The master is notified as directed by all master's or standing orders. 23. All relevant navigation information is used to identify protected marine habitats, areas and sanctuaries. 24. All required log entries are made.
		On a ship underway or on a full mission ship simulator during an exercise at sea,	the candidate will notify the master as instructed, and when in doubt of other vessels' intentions, or in any circumstances that affect the routine	The master is notified immediately when one of the following occurs: 1. restricted visibility is encountered or expected; 2. vessel traffic density or the movement of other ships causes concern;

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
			(cont'd) navigation of the vessel in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 40.	(cont'd) 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 fail, or alarms or indicators for these systems sound; 8. any radio equipment fails; 9. concerns arise in heavy weather about damage to the vessel or its 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.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		On a ship at anchor or on a full mission ship simulator during an exercise at anchor,	the candidate will properly keep a safe anchor watch in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 51.	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 is 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. 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 roadstead, strong winds or current and poor holding ground). 10. All required lights, shapes and sounds are properly shown/sounded.
		On a ship at sea or on a full mission ship simulator during an	the candidate will recognize the restricted visibility and	1. The restricted visibility is determined. 2. The master is notified of the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) exercise at sea, when visibility becomes restricted while underway,	(cont'd) take the appropriate action to navigate in restricted visibility in accordance with the COLREGS and in accordance with STCW Code Section A-VIII/2, Part 3-1, Paragraph 45.	(cont'd) restricted visibility. 3. Steering is switched to hand steering. 4. A proper lookout is posted and the running lights turned on. 5. The vessel's speed is adjusted to reflect the change of circumstances in accordance with Rule 6. 6. Sounding of required sound signals is commenced. 7. The radar or ARPA, if fitted, is set on the appropriate scale to scan at long range for the presence of other vessels. 8. Approaching targets are plotted on the radar or ARPA, if fitted. 9. Radar or ARPA, if fitted, is used to obtain early warning of risk of collision and to determine the speed and direction of relative motion.
		On a ship at sea or on a full mission ship simulator during an exercise at sea,	the candidate will properly turn the watch over.	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.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 3. Required weather data is read and recorded in the deck log. 4. The heading of the magnetic compasses is checked and recorded. 5. The movement of all vessel traffic is checked by both 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 related 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, if fitted, 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. The watch is not turned over

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) during a maneuver or other action taken to avoid a hazard to navigation.
		On a ship, a full mission ship 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 will plan a safe and environmentally sound voyage and review the voyage plan with the master.	**Appraisal** (The candidate's plan takes into account paragraph 2 of the annex to IMO Assembly Resolution A 893(21)) as follows: 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

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) and atlases; 9. weather information; 10. weather routing services; 11. ship reporting systems, VTS and environmental protection measures; 12. vessel traffic density for the route; 13. pilotage requirements and information exchange; and 14. port information, including emergency response capability. **Planning** (The candidate's plan contains the following in accordance with paragraph 3 of the annex to IMO Assembly Resolution A.893(21)): 15. courses plotted on the appropriately scaled charts noting the ETA at each way point, including the final way point; 16. courses and distances between way points which are correctly calculated and indicated on the charts; 17. the most direct route that avoids all

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) hazards to navigation by the margin of safety of three nm; 18. the areas of all required speed changes; 19. the minimum under keel clearances in critical areas, and positions requiring a change of machinery status; 20. the way point of all course changes; 21. the methods and frequency of position fixing, including areas requiring the highest accuracy; 22. the positions and radio hailing frequencies or channels where port authorities, pilots and VTS services must be notified are noted on the relevant chart; 23. the state of the tide and currents at the port of departure for the times of departure and transit; 24. contingency plan for alternative actions in cases of emergency; 25. all relevant navigation information used to identify protected marine habitats, areas and sanctuaries; and 26. the review of the voyage plan with the Master and deck officers.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		On a ship, or on a full mission ship simulator, when given a voyage plan,	the candidate will execute the voyage plan.	**Execution** (The candidate, in accordance with paragraph 4 and 5 of the annex to IMO Assembly Resolution A.893(21)) acts as follows: 1. checks the reliability and condition of the navigational equipment at frequent intervals; 2. applies basic information obtained from the tide tables and other navigational publications to determine under keel clearance; 3. fixes the vessel's position at appropriate intervals; 4. frequently checks magnetic and gyro-compasses; 5. assesses meteorological information; 6. determines compass error; 7. calculates sailings for up to 24 hours; 8. correctly operates and applies information from electronic navigation systems; 9. correctly operates the radar and ARPA, if fitted, and applies the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 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.
	Thorough knowledge of effective bridge teamwork procedures	**BRM** **Recognition of watch condition** On a ship at sea or on a full mission ship simulator during an exercise at sea, when help is needed because of restricted visibility, vessel traffic or safety	the candidate will recognize the need for additional personnel on the bridge and notify the master.	The candidate notifies the master immediately of the following: 1. restricted visibility is encountered or expected; 2. vessel traffic density or the movements of other ships causes concern; 3. the vessel transits through restricted waters with vessel traffic; and

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) of navigation,		(cont'd) 4. the candidate is fatigued to the point that decision making is affected.
		BRM **Condition III: the ship is navigating near land, shoals, or with increased traffic density and/or restricted visibility. This condition requires concentrated navigation and observation of traffic for collision avoidance (entering or leaving port).** On a ship at sea or on a full mission ship simulator during an exercise at sea, and with a bridge team in place for navigating in congested near coastal	the candidate will identify all vessels (targets) posing a risk or danger of collision, and provide appropriate information and recommendations to the conning officer concerning vessel traffic and any other situation or condition that may effect the safe navigation of the vessel.	1. The candidate will immediately relay the following to the conning officer: a. the risk and danger of collision of all approaching vessels which has been determined within 6 minutes; b. the relative position of the threatening vessel, its CPA and TCPA; c. recommended course changes in accordance with the COLREGS to remove the risks of collision and avoid close quarters situations; d. all recommended course or speed changes which will result in increasing the CPA to approaching vessels identified as posing a risk or danger of collision; and e. all recommended course changes which will provide sufficient sea room and bottom

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) waters with or without reduced visibility, and assigned to monitor vessel traffic movements, using an ARPA (if fitted) meeting all national and international requirements,		(cont'd) clearance for the area being transited. 2. Communication is clear, immediate, reliable and relevant. 3. Non-essential activities are avoided.
		BRM **Condition III** On a ship at sea or on a full mission ship simulator during an exercise at sea, and with a bridge team in place for navigating in congested near coastal waters with or without reduced visibility, and assigned to monitor vessel's position, communicate on the VHF, and all other bridge duties, using an	the candidate will determine and plot the vessel's position by electronic and visual means, communicate as required on the VHF, and carry out all engine commands, ensure that all rudder commands are properly carried out, and make all appropriate log book entries.	1. Visual and electronic means are used to determine the ship's position, including GPS, LORAN, echo sounders, and, if fitted, radar, ARPA and ECDIS. 2. The vessel's position is plotted in accordance with previously stated tolerances at regular intervals appropriate to the vessel's speed and the area being transited. 3. The correct courses to steer to maintain the ship on the intended track are determined and recommended to the conning officer.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) ARPA meeting all national and international requirements, a GPS receiver and all the bridge equipment identified in the standard,		(cont'd) 4. All VHF calls to own ship are answered and calls to other ships in the area and port authorities are made as required. 5. The helmsman is monitored to ensure all rudder commands are properly carried out. 6. Communication is clear, immediate, reliable and relevant. 7. Non-essential activities are avoided. 8. All required entries in the appropriate vessel's logs are made.
		BRM **Condition II or III** **Condition II: the ship is underway offshore in restricted visibility, with increased traffic, land or shoals**	the candidate will monitor the vessel's movement, recognize erroneously-stated information about the vessel's position or a target vessel's movement, and notify the conning officer of specific questions	**Error Trapping** 1. The misinformation or command error is detected. 2. The conning officer is notified within 30 seconds of the occurrence of the error (for helm orders, the candidate will detect

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) **affecting navigation (coastwise navigation).** On a ship at sea or on a full mission ship simulator during an exercise at sea, and with a bridge team in place for navigating in congested near coastal waters with or without reduced visibility, and assigned duties as an officer in a Bridge Team, when one of the following occurs: 1. an incorrect rudder order is given; 2. a rudder or engine command is not given at the proper time to maintain the intended track; 3. a navigational aid is misidentified; 4. the vessel's position is	(cont'd) regarding the vessel's situation.	(cont'd) the error and issue a corrective order within 5 seconds).

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) improperly fixed; or 5. a target vessel's movements are improperly stated,		
		BRM **Condition II or III** On a full mission ship simulator during an exercise at sea, and with a bridge team in place, while navigating in congested near coastal waters in good visibility, and assigned duties as an officer in a Bridge Team, and given the following: 1. a vessel on own ship's starboard bow changes course and creates a risk of collision; 2. there is insufficient	the candidate will determine the appropriate action to take.	**Prioritization** The candidate will: 1. assess the situation; 2. determine in which priority action must be taken for the safety of the vessel; 3. recommend that the engines be slowed or stopped in sufficient time to avoid the collision with the vessel on the starboard bow; and 4. after the danger of collision is over, acknowledge the distress call.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) water depth for own ship to turn to starboard; 3. a vessel ahead is on a reciprocal course 1.5 nm away with a CPA of 0.5 miles on the port side; and 4. the GMDSS distress alarm sounds,		
		BRM **Condition II** On a ship at sea or on a full mission ship simulator during an exercise at sea, when acting as part of the bridge team with the assigned duties to monitor the vessel's navigation and determine the risk or danger of collision with all vessels underway in	the candidate will determine and plot the vessel's position at suitable intervals, plot or systematically observe all approaching vessels and inform the bridge team of dangers to navigation, intended course changes, and vessels which pose a risk or danger of collision.	1. The vessel's position is determined and plotted at suitable intervals. 2. All aids to navigation are identified. 3. The bridge team is notified immediately of the following; a) when planned course changes must be made; b) effects of tides or currents setting the vessel off its intended course; and c) any doubt about the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) open sea,		(cont'd) vessel's position. 4. The risk and danger of collision with approaching vessels in the vicinity are visually determined with radar/ARPA bearings, if fitted. 5. The bridge team is notified of the following; a) danger or risk of collision with any approaching vessel; b) recommended course change to avoid the risk or danger of collision; and c) recommended speed change to avoid the risk or danger of collision if the engines are available for immediate use.
		BRM **Condition III**	the candidate will determine the number of officers and crewmembers required	1. The following tasks are assigned: a) conning;

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) On a ship at sea or on a full mission ship simulator during an exercise at sea, when establishing a bridge team to monitor the vessel's navigation and determine the risk or danger of collision with all vessels,	(cont'd) to safely navigate the vessel and assign individual officers and crewmembers specific duties and functions as part of the bridge team.	(cont'd) b) lookout; c) collision avoidance; d) navigation; e) communication; and f) administration.
Use radar and ARPA to maintain the safety of navigation.	**Radar Navigation** Ability to operate and to interpret and analyze information obtained from radar, including the following: Performance, including, .2 setting up and maintaining displays.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will set up and maintain the radar display.	Within three minutes after the power is turned on: 1. the set is switched from stand-by to transmit; 2. the appropriate scale is selected; 3. the gain control is adjusted so that targets and sea return appear; 4. the tune control is adjusted (if the unit is not self-tuning); 5. the brilliance control is adjusted; 6. the sea clutter and rain clutter controls are adjusted to suppress the rain and sea clutter without losing targets; and 7. the north-up stabilized relative motion is selected.

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		On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will switch the display from north-up stabilized relative motion to true motion head-up, and state how to recognize the mode displayed.	Within 15 seconds: 1. the display is switched from north-up stabilized relative motion to true motion; 2. the display is switched from true motion to head-up; and 3. the candidate points to the location on the display of the information that indicates the mode displayed.
	Radar Navigation Ability to operate and to interpret and analyze information obtained from radar, including the following: Performance, including, .3 detection of misrepresentation of information, false echoes, sea return, etc., racons	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate will identify false echoes, sea return, a RACON and SART.	The candidate recognizes and correctly identifies: 1. the false echoes: a. indirect or false echoes; b. side lobe effects; c. multiple echoes; d. second trace echoes; e. electronic interference; and f. spoking; 2. sea return; 3. RACONs; and 4. SARTs.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) and SARTs.			
	Radar Navigation Use, including: .1 range and bearing; course and speed of other ships; and, time and distance of crossing, meeting, and overtaking ships.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, with land and aids to navigation in range,	the candidate will determine the range and bearing of an object.	1. The candidate determines the range and bearing to an object selected by the assessor within 30 seconds. 2. The candidate's determination is within ± 0.1 nm of the assessor's solution or ± 1% of the range scale in use. 3. The candidate's determination of the bearing is within ± 1° of the assessor' s solution.
	Radar Navigation .2 identification of critical echoes.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12-mile	the candidate will determine if risk of collision or danger of collision exists with all approaching vessels.	1. The candidate identifies: a. all approaching vessels whose bearings do not change appreciably; and b. all vessels that have a CPA of less than 3 miles. 2. All determinations are made within 8 minutes of determining the initial range and bearing of each vessel.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) scale, with at least 5 vessels on the display,		
	Radar Navigation .2 identification of critical echoes; detecting course and speed changes of other ships; and effective changes of own ship's course and speed.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12- mile scale,	the candidate will determine: 1. the range and bearing to 3 other ships (meeting, crossing, and overtaking); 2. the DRM and SRM of all other ships; and 3. the CPA and TCPA of all vessels with less than a 3 nm CPA.	1. The range and bearing solution is completed within 30 seconds and is within the previously stated tolerances. 2. The DRM solution is completed within 6 minutes and is within ± 5° of the assessor's solution. 3. The SRM solution is completed within 7 minutes of initial range and bearing and is within ± 2 knots of the assessor's solution. 4. The CPA solution is completed within 7 minutes and is within ± 0.5 nm of the assessor's solution. 5. The TCPA solution is completed within 8 minutes and is within ± 3 minutes of the assessor's solution.
		On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international	the candidate will detect speed and course changes of other ships which result in a change in the direction or speed of relative motion.	Other ships' speed changes of at least 5 knots and/or course changes of at least 10° are detected within 10 rotations of the sweep (30 seconds) from the time the candidate begins the systematic observation of the display.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) performance standards, set on the 12-mile scale, in the stabilized relative motion north up mode, and with meeting of crossing targets,		
	Radar Navigation .2 identification of critical echoes; detecting course and speed changes of other ships; and effective changes of own ship's course and speed. .3 application of International Regulations for Preventing Collisions at Sea.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, on the 12-mile scale in north-up stabilized relative motion, with a ship on the starboard bow with a CPA of 0.5 nm,	the candidate will control the target vessel's DRM by changing own ship's course in accordance with the COLREGS.	The candidate: 1. determines the new course to steer to achieve a 2 nm CPA; 2. executes a turn to starboard; and 3. achieves a CPA of not less than 1.8 nm or more than 2.2 nm.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12-mile scale, in the north-up stabilized relative motion mode, with a vessel on the beam with a CPA of less than 0.5 nm ahead,	the candidate will control the target vessel's DRM by changing own ship's speed in accordance with the COLREGS.	The candidate: 1. determines the new speed to achieve a 2 nm CPA; 2. executes a speed reduction; and 3. achieves a CPA of not less than 1.8 nm or more than 2.2 nm.
	Radar Navigation .4 plotting techniques and relative and true motion concepts.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12-mile scale, in the relative motion north-up mode, using any graphically	the candidate will determine the true course and speed of three target vessels.	1. The candidate: a. constructs a relative motion triangle on either a reflection plotter, a maneuvering board, or a transfer plotting sheet; and b. solves for the target vessel's true course and speed within 8 minutes. 2. The candidate's true course solution is within ± 5° and the true speed solution is within ± 5knots of the assessor's solution.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) correct method,		
		On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards, set on the 12-mile scale, in the true motion mode, using any graphically correct method,	the candidate will determine the DRM, SRM, CPA and TCPA of three target vessels.	The candidate: 1. constructs a relative motion triangle on either a reflection plotter, a maneuvering board, or a transfer plotting sheet; 2. obtains a DRM solution within 8 minutes and within ± 5° of the assessor's solution; 3. obtains a SRM solution within 8 minutes of initial range and bearing and within ± 2 knot of the assessor's solution; 4. obtains a CPA solution within 7 minutes and within ± 0.5 nm of the assessor's solution; and 5. obtains a TCPA solution within 8 minutes and within ± 3 minutes of the assessor's solution.
	Radar Navigation .5 parallel indexing.	On an operational radar or radar simulator that meets the standards of 33 CFR 164.38 and other applicable national and	the candidate will use a parallel index line to monitor and maintain the vessel on track.	1. The candidate: a. constructs a parallel index line through the edge of the known hazard to navigation or land mass; and b. monitors the vessel's movement

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) international performance standards, set on the 12-mile scale, in relative motion north-up mode, with aids to navigation and a coastline displayed on the display,		(cont'd) in relation to the parallel index line or an electronic display of the distance off the index line to determine if the vessel moved toward the hazard or landmass. 2. The vessel does not drift more than 10 % of the set distance toward the parallel index line.

Before an OICNW may serve on a vessel equipped with an ARPA, he or she must complete a Coast Guard approved or accepted ARPA course that includes a practical demonstration and assessment of the following skills.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
Use radar and ARPA to maintain the safety of navigation.	Principle types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA Ability to operate, to interpret and to analyze information obtained from ARPA, including: .1 system performance and accuracy, tracking capabilities and limitations, and processing delays; and	On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA),	the candidate will set up and maintain the ARPA display.	Within three minutes, the candidate: 1. turns the power on; 2. initializes performance monitor; 3. notes error messages; 4. switches from standby to on; 5. selects the appropriate scale; 6. adjusts the gain control so that targets and sea return appear; 7. adjusts the tune control (if the unit is not self-tuning); 8. adjusts the brilliance control; 9. adjusts the sea clutter and rain clutter controls to suppress the rain and sea clutter without losing targets; 10. selects display north-up stabilized, relative motion; 11. selects proper gyro course and speed input; and 12. selects sea stabilized mode.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) .2 use of operational warnings and system tests.			
	.3 methods of target acquisition and their limitations	On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with at least 10 targets on the selected range,	the candidate will acquire ten targets manually.	The candidate manually acquires 10 targets within 2 minutes.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the	the candidate will establish an exclusion area that suppresses the automatic acquisition of targets in that area.	Within 2 minutes, the candidate establishes an exclusion area on the port or starboard side of the vessel that is either: 1. described by an arc of 90° on the port or starboard side of the vessel; or 2. described by a line parallel to the vessel's track four nm from the

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) ARPA on the 12-mile range, and in automatic acquisition,		(cont'd) vessel.
	.4 true and relative vectors, graphic representation of target information and danger areas	On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will switch between true and relative vectors and change the length of the vectors from 6 minutes to 30 minutes.	The candidate switches between true and relative vectors and changes the length of the vectors within 10 seconds.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will designate two acquired targets.	The candidate designates: 1. two of the acquired targets for an alphanumeric display of the target information; and 2. the designation is completed within 10 seconds for each target.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA),	the candidate will cancel a single target.	A single target is canceled within 5 seconds.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will demonstrate the ability to have the ARPA display past target history.	1. The candidate correctly operates the controls that display past target history. 2. The past history is displayed within 10 seconds.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and	the candidate will establish the CPA and TCPA for dangerous targets.	1. The candidate determines the parameters for dangerous targets by: a. entering a minimum CPA; and b. entering a minimum TCPA.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) international performance standards for ARPA), with the ARPA on the 12-mile scale,		(cont'd) 2. Data entry will be completed within one minute.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will establish an alarm area with outer and inner guard rings.	The candidate establishes an alarm area with an outer guard ring of 8 nm and an inner guard ring of 4 nm within 2 minutes.
	.5 deriving and analyzing information, critical echoes, exclusion areas and trial maneuvers	On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile	the candidate will demonstrate the trial maneuver function.	The candidate: 1. accesses the trial maneuver mode; 2. enters course changes; 3. determines the course to steer to avoid all targets by at least 2 nm, within 30 seconds; 4. enters speed changes; 5. determines the speed necessary to avoid all targets by at least 2 nm., within 30 seconds; and

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) scale, and with at least ten targets visible on the screen,		(cont'd) 6. returns the display to real time.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will switch the display from a north-up relative motion sea stabilized display to a true motion ground stabilized display.	The candidate completes the change within 10 seconds.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale,	the candidate will determine the range and bearing of an object.	1. The candidate determines the range and bearing of an object selected by the assessor within 30 seconds by positioning the VRM on the edge of the object which is closest to the vessel and positioning the EBL through the object. 2. The candidate's determination is within ± 0.1 nm of the assessor's solution or ± 1% of the range scale

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) in use. 3. The candidate's determination of the bearing is within ± 1° of the assessor' s solution.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the ARPA on the 12-mile scale, and using 2 nav marks and one nav line,	the candidate will establish a nav line to monitor and maintain the vessel on track.	1. The candidate: a. constructs a nav line between the 2 nav marks and through the seaward edge of the known hazard to navigation or land mass; b. positions the VRM at a distance named by the assessor from the edge of the nav line; and c. monitors the vessel's movement to determine if the edge of the VRM moves inside the nav line. 2. The VRM must not drift more than 10 % of the VRM distance inside the nav line.
		On an operational ARPA that meets the standards of 33 CFR 164.38 (or an ARPA simulator that meets applicable national and international performance standards for ARPA), with the	the candidate will determine the set and drift of the vessel.	1. The display is sea stabilized. 2. A stationery target is identified, acquired and designated. 3. The target's course and speed is read as the set and drift within 3 minutes.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		(cont'd) ARPA on the 12-mile scale,		
Maneuver the ship.	***Ship maneuvering and handling**** Maneuvering and procedures for the rescue of person overboard	On a ship at sea or in a full mission simulator, upon receiving notification of a Man-Overboard (MOB),	the candidate will immediately initiate either a Williamson Turn or Anderson Turn (as appropriate for conditions), return the vessel to within sight of the MOB, and give the command to launch the rescue boat.	The candidate: 1. orders full rudder to the side of MOB; 2. sounds MOB signal if other vessels are in sight; 3. simulates releasing the lighted buoy; 4. marks the ship's position on ARPA/GPS (if fitted); 5. simulates a "Mayday" call on the VHF notifying any vessels in vicinity of the MOB; 6. completes the recovery turn; 7. states the rescue boat would be prepared for launch or scrambling nets rigged on the side of the vessel; and 8. states that when on the reciprocal of the original course, the vessel would be slowed or stopped within .1 nm of the MOB to begin the recovery/search.
	Ship maneuvering and handling*	On a ship at sea or in a full mission simulator,	the candidate will order turning the	The candidate: 1. orders the turn left or right more

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
	(cont'd) Basic Maneuvering		(cont'd) vessel left or right more than 45^0 from the original heading.	(cont'd) than 45^0 from the original heading by applying a minimum of 10° and a maximum of 20° of rudder; 2. reduces rudder as the ship approaches the new course; and 3. steadies on the new course without over shooting the course by more than 10°.
		On a ship at sea, or in a full mission simulator, proceeding at a speed of at least half-ahead,	the candidate will execute an emergency stop.	The candidate, within the safe operating limits of the vessel's propulsion system, stops the vessel using maximum astern thrust and rudder cycling without deviating from the original course by more than 20°.
		On a ship at sea 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 will demonstrate anchoring the vessel.	1. Planning: a. determines depth of water; b. determines type of bottom; c. determines wind and current; d. determines bottom obstructions; e. determines room to swing; f. determines the place to anchor; g. determines courses and maneuvers to the anchor site; and h. determines the desired final heading.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) 2. Approach: a. the ship does not pass to windward or up current of any anchored vessel or hazard to navigation. 3. Placement: a. the anchor site is approached slowly; b. the ship's 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. a length of chain 5-7 times the water depth is paid out slowly. 5. Fetching up: a. the ship is allowed to fetch up on the chain; and b. the ship rides on a final heading that is within 40° of the desired final heading.

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
		On a ship 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, on a single-screw vessel with a right-hand propeller,	the candidate will demonstrate docking a vessel starboard side to a pier.	1. Planning: a. determines the depth of water at the berth for the state of the tide; b. determines the strength and direction of the current for the route to the berth and at berth; c. determines the direction and velocity of the wind; and d. determines the appropriate courses and maneuvers for the approach to the berth. 2. Approach: a. when within 3 ship lengths of the berth, reduces to a speed that allows the vessel to maintain its heading and be stopped in less than ½ of the ship's length; b. the angle of approach is between 20° and 30° to the pier face; and c. the engines are stopped and backed without losing all headway or heading. 3. Docking: a. the starboard side spring line is secured to the dock;

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) b. left rudder is applied to straighten the vessel; c. the engines and spring line, as necessary, are used to stop the ship or move the vessel into final position; d. the bow and stern lines are put out; and e. all lines are taken in until the vessel lays alongside next to the pier with no movement.
		On a ship 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, on a single-screw vessel with a right-hand propeller,	the candidate will demonstrate docking a vessel port side to a pier.	1. Planning: a. determines the depth of water at the berth for the state of the tide; b. determines the strength and direction of the current for the route to the berth and at berth; c. determines the direction and velocity of the wind; and d. determines the appropriate courses and maneuvers for the approach to the berth. 2. Approach: a. when within 3 ship lengths of the berth, reduces to a speed that allows the vessel to

STCW Competence	Knowledge, understanding and proficiency	Performance Condition	Performance Behavior	Performance Standard
				(cont'd) maintain its heading and be stopped in less than ½ of the ship's length; b. the angle of approach is between 20° and 30° to the pier face; and c. the engines are stopped and backed (with left rudder) without losing all headway or heading. 3. Docking: a. the port side spring line is secured to the dock; b. right rudder is applied to straighten the vessel; c. the engines and spring line, as necessary, are used to stop the ship or move the vessel into final position; d. the bow and stern lines are put out; and e. all lines are taken in until the vessel lay alongside next to the pier with no movement.

** Italics denote STCW proficiency from Table A-II/3 of the STCW*