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United States Coast Guard

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COMDTCHANGENOTE 16721
NVIC 24-14
April 1, 2019

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 24-14, CH 1

Subj: CH-1 TO GUIDELINES FOR QUALIFICATION FOR STCW ENDORSEMENTS AS ELECTRO-TECHNICAL RATING ON VESSELS POWERED BY MAIN PROPULSION MACHINERY OF 750 kW/1,000 HP OR MORE, NVIC 24-14, COMDTPUB 16721

Ref: (a) Guidelines for Qualification for STCW Endorsements as Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More, NVIC 24-14, COMDTPUB 16721

1. PURPOSE. This Commandant Change Notice publishes CH-1 to reference (a).

2. ACTION. The Coast Guard will use reference (a) and 46 CFR 12.611 to establish whether mariners are qualified to hold STCW endorsements as Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More (ETR). Officers in Charge, Marine Inspection (OCMIs) should also bring this notice to the attention of the maritime industry within their zones of responsibility.

3. DIRECTIVES AFFECTED. With the release of this Commandant Change Notice, reference (a) is updated.

4. DISCUSSION. After publication of Reference (a), the Coast Guard extended the date for acceptance of assessments of mariner competence that are not signed by a Coast Guard approved Qualified Assessor. This Commandant Change Notice revises Enclosures (1) and (2) of Reference (a) to reflect this extension.

5. MAJOR CHANGES. This Commandant Change Notice:

   a. Adds in Enclosure (1) an explanation of the requirement in 46 CFR 12.201(a)(1) that mariners must hold an appropriate national endorsement to qualify for an STCW endorsement; and

   b. Revises Enclosures (2), and (3) 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

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NON-STANDARD DISTRIBUTION:

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 with 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 CE #A3 from further environmental analysis, in accordance with Section 2.B and Appendix A, DHS Instruction Manual 023-01-001-01, Revision 01, Implementation of the National Environmental Policy Act (NEPA). 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 #A3 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 https://www.dco.uscg.mil/Our-Organization/NVIC/.

9. PROCEDURE. Remove and insert the following pages of Enclosure (1) to Reference (a):

Remove	Insert
Enclosure (1), Page 1	Enclosure (1), Page 1 CH-1
Enclosure (2), Page 1	Enclosure (2), Page 1 CH-1
Enclosure (3), Pages 5 and 6	Enclosure (3), Page 5 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 Reference (a) and 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

U.S. Department of Homeland Security
United States Coast Guard

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COMDTPUB P16721
NVIC 24-14
September 2, 2014

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 24-14

Subj: GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS AS ELECTRO-TECHNICAL RATING ON VESSELS POWERED BY MAIN PROPULSION MACHINERY OF 750 kW/1,000 HP OR MORE

Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulation III/7 and Section A-III/7 of STCW Code, incorporated into regulations at 46 Code of Federal Regulations (CFR) 12.103

1. PURPOSE. This Navigation and Vessel Inspection Circular (NVIC) provides guidance on qualification for and revalidation of STCW endorsements as Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More (ETR).

2. ACTION. The Coast Guard will use this NVIC and 46 CFR 12.611 to establish whether mariners are qualified to hold STCW endorsements as ETR. Officers in Charge, Marine Inspection (OCMIs) should bring this NVIC to the attention of the maritime industry within their zones of responsibility. This NVIC is available on the World Wide Web at http://www.uscg.mil/hq/cg5/nvic/. The Coast Guard will distribute it by electronic means only.

3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

   a. The STCW Convention and STCW Code set forth standards for training and certification for merchant mariners. The International Maritime Organization (IMO) amended the STCW Convention and STCW Code on June 25, 2010. These amendments entered into

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force for all ratifying countries, including the United States, on January 1, 2012, and established certain new endorsements, including ETR.

b. 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 (U.S.C.), 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 Convention and STCW Code, 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.

5. DISCUSSION.

a. Policy regarding STCW endorsements as ETR is located in this NVIC. Enclosure (1) discusses specific qualification requirements for the endorsement. 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, these are provided for information only.

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 12.601(a)(1)(i)).

c. A training institution applying for approval of a course or program that leads to an endorsement as ETR should state either that the guidelines in Enclosure (2) will apply, or provide the alternative guidelines it proposes to use. However, under 46 CFR 10.402(e), a training institution must submit any deviations from these guidelines to the Coast Guard for approval before use.

d. When applying for an ETR endorsement, mariners need only submit the completed Enclosure (3), Record of Assessment, or an equivalent evidence of demonstration of competency, to the Coast Guard**.** The Coast Guard recommends that the applicant retain a copy of Enclosure (3) or equivalent evidence of demonstration of competency for his or her records.

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 with 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 the Federal Records Act, 44 U.S.C. 3101 et seq., National Archives and Records Administrations requirements, and the 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 NVIC should be directed to the Mariner Credentialing Program Policy Division (CG-CVC-4), at (202) 372-2357 or 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.

P. F. THOMAS
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

Encl: (1) Discussion of Qualification Requirements for Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More
(2) Assessment Guidelines for Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More
(3) Record of Assessment for Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More
(4) Excerpts from STCW Convention and STCW Code

DISCUSSION OF QUALIFICATION REQUIREMENTS FOR ELECTRO-TECHNICAL RATING ON VESSELS POWERED BY MAIN PROPULSION MACHINERY OF 750 kW/1,000 HP OR MORE

1. GENERAL. This enclosure provides guidance to qualify for an International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) endorsement as Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More (ETR) in accordance with Section A-III/7 of the STCW Code and 46 Code of Federal Regulations (CFR) 12.611.

   As specified in 46 CFR 12.201(a)(1), an applicant for any STCW endorsement must hold the appropriate national endorsement. To be eligible for an STCW endorsement as ETR, mariners must hold or qualify for any national endorsement as Qualified Member of the Engine Department (QMED) or Wiper.

2. SEA SERVICE, TRAINING, AND DEMONSTRATIONS.

   a. In accordance with 46 CFR 12.611(a), a candidate for an endorsement as ETR must:

      1) Provide evidence of either:

         i) Not less than 12 months of seagoing service that includes training and experience associated with engineroom watchkeeping functions and involves the performance of duties carried out under the supervision of an engineer officer, electro-technical officer, or a qualified STCW engine rating; or

         ii) Completion of a Coast Guard approved or accepted program that includes not less than 6 months of approved seagoing service;

      2) Meet the standard of competence specified in Table A-III/7 of the STCW Code. This may be done by completing the assessment in Enclosure (2) or an approved alternative; and

      3) Satisfactorily complete approved courses in:

         i) Computer Systems and Maintenance; and

         ii) High-Voltage Power Systems.

   b. For purposes of qualifying for Electro-Technical Rating, seagoing service is considered to be service on board a vessel that is relevant to qualification for ETR. The Coast Guard will accept service in the engine department of ocean, near-coastal, Great Lakes, or inland vessels of at least 750 kW/1,000 HP as being relevant to ETR. Mariners may also acquire service on vessels of less than 750 kW/1,000 HP by providing evidence that their service included duties relevant to the ETR endorsement.

   c. A mariner who holds an STCW endorsement as Able Seafarer-Engine and a national rating endorsement as Electrician, Electrician/Refrigerating Engineer, or Junior Engineer will qualify for an ETR endorsement upon completion of the requirements in Section A-III/7 of the STCW Code and evidence of completion of the approved courses specified in paragraph 2(a)(3) of this enclosure.

   d. To qualify for an STCW endorsement as ETR, mariners must provide evidence of meeting the standard of competence for Basic Training (46 CFR 12.602).

3. ASSESSMENTS. As noted above, mariners must provide evidence of meeting the standard of competence specified in Table A-III/7 of the STCW Code by completion of the assessments in Enclosure (2), or an approved equivalent alternative. Applicants may document their assessment using Enclosure (3) or they may provide the information in any other format that shows equivalent information.

4. RENEWAL OF ENDORSEMENT. In order to renew an endorsement as ETR, an applicant must have currently valid basic training and meet the general requirements for renewal of a merchant mariner credential found in 46 CFR 10.227.

Assessment Guidelines for Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More

Standard of Competence

Each candidate for an endorsement as Electro-Technical Rating (ETR) on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More must provide evidence of having achieved the standard of competence specified in Table A-III/7 of the STCW Code (46 CFR 11.335(a)(2)). The table in this enclosure is adopted from Table A-III/7 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. In addition, for the assessments in this enclosure, the unique requirements of different manufacturers for operating, maintenance, and repair; the different generations and configurations of systems; and the specific nature of the shipboard installation do not permit the development of detailed performance criteria. As a result, many of the criteria in these guidelines call for direct reference to the manufacturers' instructions, recommendations, and specifications or the ship's standard operating procedures to determine whether the candidate's actions were appropriate, complete, timely, and executed in the proper sequence.

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 qualified assessor 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 until December 31, 2019, 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 have at least 1 year of experience as Officer in Charge of an Engineering Watch (OICEW) or an Electro-Technical Officer on seagoing vessels of at least 750 kW/1,000 HP. For assessments signed 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 engineering watch (EOOW). Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. After December 31, 2019, QAs must be approved by the National Maritime Center (46 CFR 10.405). Qualified military personnel need not be approved QAs 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-III/7 of the STCW Code. Use of these 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 guidelines must approved by the National Maritime Center before use.

Assessment Guidelines for Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.A	Safe use of electrical equipment	Safe use and operation of electrical equipment, including: Safety precautions before commencing work or repair Isolation procedures Different voltages on board	On board a vessel, or on a simulator, or in a laboratory or workshop,	the candidate describes and observes safety procedures for the operation of electrical equipment and machinery.	The candidate: 1. Observes safety procedures prior to work commencing on shipboard electrical systems, machinery and equipment, including the use of work permits and appropriate personal protective equipment; 2. Isolates electrical systems machinery and equipment from a power source using Lock Out/Tag Out procedures and proper communications; 3. Describes the procedures performed during an emergency situation, including: a. Recognition and reporting of electrical hazards and unsafe equipment; and b. Procedures in the event of electrical shock; and 4. Describes the procedures and considerations associated with the various voltage sources found on board a ship, including: a. Safe voltages for hand-held equipment; and b. Risks associated with high voltages.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.B	Safe use of electrical equipment	Safe use and operation of electrical equipment, including emergency procedures Knowledge of the causes of electric shock and precautions to be observed to prevent shock	On board a vessel, or in a laboratory or workshop,	the candidate describes procedures for recognizing and avoiding electrical shock hazards and first aid procedures for electrical shock.	The candidate's description includes: 1. Identification of hazards regarding and precautions taken to avoid electrical shock; 2. Recognizing and reporting electrical hazards and unsafe equipment; and 3. Safe voltages for hand-held equipment; 4. Risks associated with high voltage equipment and onboard work; and 5. First aid procedures to be followed in the event of an electrical shock.
2.1.A	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including: prime movers, including main propulsion plant	On board a vessel, or in a laboratory or workshop,	the candidate describes the operation and monitoring of electrical, electronic, and control systems operations, related to diesel, steam, gas turbine (direct or geared) or electric main propulsion systems and machinery.	The candidate: 1. Identifies the operational parameters of electrical systems and equipment associated with the propulsion plant; and 2. Describes the performance levels of all parameters monitored on the propulsion plant in accordance with the manufacturer's operating manuals.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.A	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including engine room auxiliary machinery *Basic knowledge of:* .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, or in a laboratory or workshop,	the candidate describes the monitoring and operation of electrical systems and equipment associated with auxiliary equipment and systems.	The candidate: 1. Identifies the operational parameters of auxiliary machinery and equipment associated with a propulsion plant that must be monitored; and 2. Describes the performance levels of all parameters monitored on auxiliary and ancillary machinery and equipment in accordance with the manufacturer's operating manuals.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.B	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including: steering systems and equipment *Basic knowledge of:* .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, or in a laboratory or workshop,	the candidate describes monitoring and operation of electrical systems and equipment associated with steering gear equipment and systems.	The candidate: 1. Identifies the operational parameters of vessel steering machinery and equipment and machinery that must be monitored; and 2. Describes the performance levels of all parameters monitored on a vessel steering machinery and equipment in accordance with the manufacturer's operating manuals. The description should include the following steering types: • Ram Type; • Rotary Vane; • Azipod Drive; and • Directional Water-Jet.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.C	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including cargo handling systems and equipment *Basic knowledge of:* .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, or in a laboratory or workshop,	The candidate describes monitoring and operation of electrical systems and equipment associated with the operation of vessel cargo handling systems.	The candidate: 1. Identifies the operational parameters of vessel cargo handling machinery and equipment that must be monitored; and 2. Describes the performance levels of all parameters monitored on a vessel cargo handling machinery and equipment in accordance with the manufacturer's operating manuals. The description should include the following equipment: • Winches or derricks; • Cranes; • Variable and constant speed motors; and • Variable and constant pumps.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.D	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including deck systems and equipment *Basic knowledge of:* .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, or in a laboratory or workshop,	the candidate describes the operation and monitoring of electrical systems and equipment associated with deck systems and equipment.	The candidate: 1. Identifies the operational parameters of vessel deck machinery and equipment that must be monitored; and 2. Describes the performance levels of all parameters monitored on a vessel deck machinery and equipment in accordance with the manufacturer's operating manuals. The description should include the following equipment: • Tension winches; • Windlass; • Capstans; • Hatch covers; • Ramp controls; and • Segregation doors.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.E	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems including hotel systems and equipment *Basic knowledge of:* .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, or in a laboratory or workshop,	the candidate describes the operation and monitoring of electrical systems and equipment associated with vessel hotel systems.	The candidate: 1. Identifies the operational parameters of vessel hotel machinery and equipment that must be monitored; and 2. Describes the performance levels of all parameters monitored on a vessel hotel machinery and equipment in accordance with the manufacturer's operating manuals. The description should include the following equipment: • Vent dampers; • Accommodation heating; • Air conditioning and ventilation; • Sanitary systems and equipment; • Potable systems and equipment; • Sewage systems and equipment; • Galley equipment and laundry equipment; • Communication devices; and • Entertainment systems.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.2.F	Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems, including bridge and navigation systems and equipment *Basic knowledge of*: .1 Electro technology and electrical machine theory .2 Electrical power distribution and electrical equipment .3 Fundamentals of automation, automatic control systems and control technology .4 Instrumentation, alarm, and monitoring systems .5 Electrical drives .6 Electro-hydraulic and electro-pneumatic control systems .7 Coupling/Load sharing and changes in electrical configuration.	On board a vessel, in a laboratory or workshop,	the candidate describes the operation and monitoring of electrical systems and equipment associated with bridge navigation systems and equipment.	The candidate: 1. Identifies the operational parameters of vessel bridge and navigation machinery and equipment that must be monitored; and 2. Describes the performance levels of all parameters monitored on a vessel bridge and navigation machinery and equipment in accordance with the manufacturer's operating manuals. The description should include the following equipment: • Remote propulsion controls; • Steering controls and feedback systems; • Communications systems, including GMDSS; • Recorders; • Radars; • Fire detection and suppression; and • Remote system controls.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
3.1.A	Use hand tools, electrical and electronic measurement equipment for fault finding, maintenance and repair operation	Safety requirements for working on shipboard electrical systems Application of safe working practices *Basic knowledge of*: .1 Construction and operational characteristics of shipboard AC and DC systems and equipment .2 Use of measuring instruments, machine tools, and hand and power tools	On board a vessel, or in a laboratory or workshop,	the candidate selects and uses hand tools and electronic measurement equipment.	The candidate: 1. Selects hand tools, measuring instruments and testing equipment and inspects and repairs electrical equipment and machinery in the most efficient and safe manner; 2. Uses hand tools correctly and inspects, maintains and repairs electrical equipment and machinery in the safest and most efficient and manner in accordance with the manufacturer's guidelines; and 3. Uses measuring instruments and testing equipment correctly, and results are accurate and electrical equipment functions properly after maintenance and repair tasks are completed.
4.1.A	Contribute to shipboard maintenance and repair	Ability to use lubrication and cleaning materials and equipment Knowledge of safe disposal of waste materials Ability to understand and execute routine maintenance and repair procedures Understanding manufacturer's safety guidelines and shipboard instructions	On board a vessel, or in a laboratory or workshop,	the candidate carries out maintenance activities in accordance with technical, safety and procedural specifications.	The candidate: 1. Uses lubrication and cleaning materials in accordance with the manufacturer's safety and technical specifications and accepted industry practices; 2. Disposes of waste materials in a safe manner in accordance with the manufacturer's safety and technical specifications, national and international laws, and accepted industry practices. 3. Understands and follows maintenance and repair directions and procedures, and performs them in a safe and acceptable manner; and 4. Observes the manufacturer's and shipboard safety protocols and directions.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.1.A	Contribute to the maintenance and repair of electrical systems and machinery on board	Basic knowledge of electro-technical drawings and safe isolation of equipment and associated systems required before personnel are permitted to work on such plant or equipment Test, detect faults and maintain and restore electrical control equipment and machinery to operating condition Electrical and electronic equipment operating in flammable areas Basics of ship's fire detection system Carrying out safe maintenance and repair procedures Detection of machinery malfunction, location of faults and action to prevent damage Maintenance and repair of lighting fixtures and supply systems	On board a vessel, or in a laboratory or workshop,	the candidate identifies the effect of malfunctions on associated plant and systems, ship's technical drawings and uses measuring and calibrating instruments to maintain and repair electrical systems and machinery.	The candidate: 1. Compares system and machinery performance data to the manufacturer's technical specifications and identifies system and machinery malfunctions; 2. Uses ship's technical drawings and schematics to correctly interpret out of range parameters or faults; and 3. Selects and correctly uses appropriate measuring, calibrating, and test instruments.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.1.B	Contribute to the maintenance and repair of electrical systems and machinery on board	Basic knowledge of electro-technical drawings and safe isolation of equipment and associated systems required before personnel are permitted to work on such plant or equipment Test, detect faults and maintain and restore electrical control equipment and machinery to operating condition Electrical and electronic equipment operating in flammable areas Basics of ship's fire detection system Carrying out safe maintenance and repair procedures Detection of machinery malfunction, location of faults and action to prevent damage Maintenance and repair of lighting fixtures and supply systems	On board a vessel, or on an approved simulator, or in a laboratory or workshop,	the candidate assists in the isolation, dismantling, reassembly, and testing electrical equipment.	The candidate assists with the: 1. Isolation of plant machinery and equipment in accordance with shipboard safety procedures and technical specifications; 2. Disassembly of plant machinery and equipment in accordance with shipboard maintenance requirements and technical manuals; 3. Assembly of plant machinery and equipment in accordance with shipboard maintenance requirements and technical manuals; and 4. Testing the performance of electrical equipment and machinery after a maintenance procedure has been completed.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.1.A	Contribute to the handling of stores	Knowledge of procedures for safe handling, stowage and securing of stores	On board a vessel, or in a laboratory or workshop,	the candidate stows and secures stores and equipment in accordance with good engineering principles.	The candidate: 1. Separates flammable and non flammable materials; 2. Separates food items from sources of contamination; 3. Properly stacks materials, including: a. Stacking heavy materials on the bottom and lighter materials on top; b. Following labeled height limits; and c. Following the orientation arrows on the packaging; 4. Separates incompatible materials; 5. Brackets or ties off all goods capable of moving and causing injury; 6. Stores items by "first in/first out"; and 7. Secures heavy items with proper types of fiber and wire rope. *This assessment is also satisfied if the candidate has completed assessment no. 8.1.A for Able Seafarer-Engine.*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
7.1.A	Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of the precautions to be taken to prevent pollution of the marine environment	On board a vessel, or in a laboratory or workshop,	the candidate describes sources of operational pollution.	The candidate's description includes: 1. Oil; 2. Noxious liquid substances; 3. Packaged goods and non-liquid substances; 4. Sewage; 5. Garbage; 6. Marine debris; and 7. Air pollution. *This assessment is also satisfied if the candidate has completed assessment no. 9.1.A for Able Seafarer-Engine.*
7.1.B	Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of the precautions to be taken to prevent pollution of the marine environment	On board a vessel, or in a laboratory or workshop,	the candidate describes precautions to be taken to prevent pollution of the marine environment.	The candidate's description includes: 1. Collection, sorting, storage, and estimating the amount of garbage on board; 2. Preparations for preventing or controlling pollutants due to the transfer of cargo, fuel, or passengers; 3. Transferring garbage ashore for disposal; and 4. Awareness of the function of the following: a. Marine Sanitation Device (MSD); b. Oily-water separator and bilge cleanliness; c. Ballast water management; d. Incinerator; e. Emission controls; and f. Vessel General Permit (VGP). *This assessment is also satisfied if the candidate has completed assessment no. 9.1.B for Able Seafarer-Engine.*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
7.2.A	Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of use and operation of anti-pollution equipment/agents	On board a vessel, or in a laboratory or workshop,	the candidate describes the location and use of anti-pollution equipment aboard ship.	The candidate's description includes: 1. Sorbents aboard the ship and the types of spills that the sorbents are effective on; 2. Booms aboard the ship and the types of spills that the booms are effective on; 3. Plugs, caps, flanges, and other equipment that can be used to stop leaks in the cargo, ballast, bunker, etc. systems. *This assessment is also satisfied if the candidate has completed assessment no. 9.2.A for Able Seafarer-Engine.*
7.3.A	Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of approved methods for disposal of marine pollutants	On board a vessel, or in a laboratory or workshop,	the candidate identifies and describes the expected types of waste generated by a pollution incident and describes the proper way to dispose of the waste.	The candidate's description includes: 1. Contaminated rags; 2. Contaminated booms; 3. Garbage; 4. Damaged drums; 5. Contaminated sorbents; and 6. Other contaminated material specific to the type of vessel the assessment is performed on. *This assessment is also satisfied if the candidate has completed assessment no. 9.3.A for Able Seafarer-Engine.*

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.1.A	Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including electrical safety	On board a vessel, or as part of a practical demonstration in a laboratory or workshop,	the candidate describes and applies electrical safety procedures to safeguard personnel and the vessel.	The candidate's description includes: 1. Observing all pertinent instructions and electric warning signs aboard ship; 2. Observing all safety precautions regarding portable electric lights and tools; 3. Not touching or operating any device that has a tag attached; 4. Not touching bare electric wires or connections and assuming all circuits to be live; 5. Not removing explosion proofing globes from lighting fixtures; 6. Not using electric cable runs to hoist or support any weight; 7. Not using the wire ways for storage; 8. Not permitting water to get into electrical equipment; 9. Avoiding severe burns and damage to equipment and clothing caused by electrolyte from storage batteries; 10. Having an electrician disconnect the circuit and tag it as out of commission when working on electrical motors or other equipment; 11. Not starting or operating electrical equipment when flammable vapors are present; and 12. Reporting damaged electrical equipment or wiring to your superior. *This assessment is also satisfied if the candidate has completed assessment no. 10.1.A for Able Seafarer-Engine.*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.2.A	Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including lockout/tagout procedures	On a vessel or as part of a practical demonstration in a laboratory or workshop, given the indicated equipment,	the candidate performs lockout/tagout procedures in accordance with good engineering principles.	The candidate: 1. Identifies the equipment to be locked out; 2. Locks and tags out equipment using approved methods, including logging; 3. Informs the first assistant or watch engineer that equipment is locked and tagged; and 4. Gives appropriate notice of removal of lock/tag when work is completed. *This assessment is also satisfied if the candidate has completed assessment no. 10.2.A for Able Seafarer-Engine.*
8.3.A	Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including mechanical safety	On a vessel or as part of a practical demonstration in a in a laboratory or workshop, given the indicated equipment,	the candidate describes and applies mechanical safety.	The candidate describes mechanical hazards and safe working practices and safely uses the following: 1. Portable tools; 2. Hand tools; 3. Rotating machinery; 4. Galley equipment; and 5. Cargo securing gear. *This assessment is also satisfied if the candidate has completed assessment no. 10.3.A for Able Seafarer-Engine.*

Task No.	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.4.A	Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including permit to work systems	On a vessel or as part of a practical demonstration in a laboratory or workshop,	the candidate describes and applies safe working practices and personal shipboard safety including permit to work systems.	The candidate describes procedures for and spaces that require a permit to work, including: 1. Hot work; 2. Confined spaces; and 3. Other policies that require a permit to work, such as working aloft and working over the side. *This assessment is also satisfied if the candidate has completed assessment no. 10.4.A for Able Seafarer-Engine.*
8.5.A	Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including working aloft	On a vessel or as part of a practical demonstration in a laboratory or workshop, given the indicated equipment,	the candidate describes and applies safe working practices and personal shipboard safety when working aloft.	The candidate describes the proper preparations for going aloft, including: 1. Notifying the appropriate officer in accordance with company procedures; 2. Confirming that equipment that may create a hazard has been turned off and tagged accordingly; 3. Confirming that the ship's motion and weather conditions will remain within safe limits; 4. Using safety equipment and checking it for operational integrity; 5. Cordoning off and placarding the area below; 6. Attaching lanyards to tools, if practical; 7. Reading safety placards in the area and taking appropriate actions; 8. Completing any required permits; and 9. Notifying appropriate personnel. *This assessment is also satisfied if the candidate has completed assessment no. 10.5.A for Able Seafarer-Engine.*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence in Section A-III/7 of the STCW Code. Use of these Guidelines is not mandatory and alternative means of achieving the competence in the STCW Code will be considered. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Record of Assessment

for

Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW / 1,000 HP Propulsion Power or More

Print Name of Candidate	Candidate's Signature	Mariner Reference No.

RECORD OF ASSESSMENT

Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP Propulsion Power or More

NOTE TO QUALIFIED ASSESSOR(S): In performing your function as a qualified assessor, you may use your initials to indicate that 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-III/7 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 as described in paragraph 5 of this NVIC. In accordance with 46 CFR 12.601(b)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task	Assessor's Initials	Date
Safe use of electrical equipment	Safe use and operation of electrical equipment, including: safety precautions before commencing work or repair; isolation procedures; and different voltages on board	1.1.A	Safety procedures for the operation of electrical equipment		
	Safe use and operation of electrical equipment, including emergency procedures Knowledge of the causes of electric shock and precautions to be observed to prevent shock	1.1.B	Electrical shock hazards		
Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems	2.1.A	Operation and monitoring of main propulsion systems and machinery		
		2.2.A	Operation and monitoring of auxiliary equipment and systems		
		2.2.B	Operation and monitoring of steering gear equipment and systems		
		2.2.C	Operation and monitoring of cargo handling systems		
		2.2.D	Operation and monitoring of deck systems and equipment		
		2.2.E	Operation and monitoring of vessel hotel systems		
		2.2.F	Operation and monitoring of bridge navigation systems and equipment		

Candidate's Name *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT

Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP Propulsion Power or More

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task	Assessor's Initials	Date
Use hand tools, electrical and electronic measurement equipment for fault finding, maintenance and repair operation	Safety requirements for working on shipboard electrical systems Application of safe working practices Basic knowledge of construction and operational characteristics of shipboard AC and DC systems and equipment; and use of measuring instruments, machine tools, and hand and power tools	3.1.A	Use of hand tools and electronic measurement equipment		
Contribute to shipboard maintenance and repair	Ability to use lubrication and cleaning materials and equipment Knowledge of safe disposal of waste materials Ability to understand and execute routine maintenance and repair procedures Understanding manufacturer's safety guidelines and shipboard instructions	4.1.A	Shipboard maintenance and repair		
Contribute to the maintenance and repair of electrical systems and machinery on board	Basic knowledge of electro-technical drawings and safe isolation of equipment Test, detect faults and maintain and restore electrical control equipment Equipment operating in flammable areas Basics of ship's fire detection system Safe maintenance and repair procedures Detection of machinery malfunction Maintenance and repair of lighting fixtures and supply systems	5.1.A	System and machinery malfunctions		
		5.1.B	Repair of electrical equipment		
Contribute to the handling of stores	Knowledge of procedures for safe handling, stowage and securing of stores	6.1.A	Loading of stores *This assessment is satisfied if the candidate has completed assessment no. 8.1.A for Able Seafarer-Engine.*		

Candidate's Name

Candidate's Mariner Reference No.

RECORD OF ASSESSMENT

Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP Propulsion Power or More

STCW Competence	Knowledge, Understanding, and Proficiency	Task No.	Task	Assessor's Initials	Date
Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of the precautions to be taken to prevent pollution of the marine environment	7.1.A	Sources of operational pollution *This assessment is satisfied if the candidate has completed assessment no. 9.1.A for Able Seafarer-Engine.*		
	Knowledge of the precautions to be taken to prevent pollution of the marine environment	7.1.B	Pollution prevention *This assessment is satisfied if the candidate has completed assessment no. 9.1.B for Able Seafarer-Engine.*		
	Knowledge of use and operation of anti-pollution equipment/agents	7.2.A	Use of anti-pollution equipment *This assessment is satisfied if the candidate has completed assessment no. 9.2.A for Able Seafarer-Engine.*		
	Knowledge of approved methods for disposal of marine pollutants	7.3.A	Waste disposal *This assessment is satisfied if the candidate has completed assessment no. 9.3.A for Able Seafarer-Engine.*		
Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety including electrical safety	8.1.A	Electrical safety procedures *This assessment is satisfied if the candidate has completed assessment no.10.1.A for Able Seafarer-Engine.*		
	Working knowledge of safe working practices and personal shipboard safety including lockout/tagout procedures	8.2.A	Lock Out / Tag Out procedures *This assessment is satisfied if the candidate has completed assessment no.10.2.A for Able Seafarer-Engine.*		
	Working knowledge of safe working practices and personal shipboard safety including mechanical safety	8.3.A	Mechanical safety *This assessment is satisfied if the candidate has completed assessment no.10.3.A for Able Seafarer-Engine.*		
	Working knowledge of safe working practices and personal shipboard safety including permit to work systems	8.4.A	Permit to work systems *This assessment is satisfied if the candidate has completed assessment no.10.4.A for Able Seafarer-Engine.*		
	Working knowledge of safe working practices and personal shipboard safety including working aloft	8.5.A	Safe working practices for working aloft *This assessment is satisfied if the candidate has completed assessment no.10.5.A for Able Seafarer-Engine.*		

Candidate's Name *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT

Electro-Technical Rating on Vessels Powered by Main Propulsion Machinery of 750 kW/1,000 HP or More

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 at least 1 year of experience as Officer in Charge of an Engineering Watch (OICEW) or an Electro-Technical Officer on seagoing vessels of at least 750 kW (1,000 HP). For assessments signed 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 engineering watch (EOOW). Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. After December 31, 2019, QAs must be approved by the National Maritime Center (46 CFR 10.107). Qualified military personnel will not need to be approved as QAs and may continue to sign assessments on military vessels after December 31, 2019.

Vessel Name and Propulsion Mode	Engine Power (HP or kW)	Dates of Service		Name of Assessor	Signature of Assessor	Sample Assessor Initials	Assessor's Mariner Reference No.	Assessor's Shipboard Position
		From	To					
M/V Eichorn (Motor)	9,876 HP	4/12/2018	8/8/2018	David Cuecas	David Cuecas	DC	1234567	Chief Engineer

Print Name of Candidate

Candidate's Mariner Reference No.

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 pf 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 III
Standards regarding the engine department

Regulation III/7
Mandatory minimum requirements for certification of electro-technical ratings

1 Every electro-technical rating serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more shall be duly certificated.

2 Every candidate for certification shall:

.1 be not less than 18 years of age;

.2 have:

.2.1 completed approved seagoing service including not less than 12 months training and experience, or

.2.2 completed approved training, including an approved period of seagoing service which shall not be less than 6 months, or .2.3 qualifications that meet the

technical competences in table A-III/7 and an approved period of seagoing service, which shall not be less than 3 months; and

.3 meet the standard of competence specified in section A-III/7 of the STCW Code.

3 Every Party shall compare the standard of competence which it required of electro-technical ratings for certificates issued before 1 January 2012 with those specified for the certificate in section A-III/7 of the STCW Code, and shall determine the need, if any, for requiring these personnel to update their qualifications.

4 Seafarers may be considered by the Party to have met the requirements of this regulation if they have served in a relevant capacity on board a ship for a period of not less than 12 months within the last 60 months preceding the entry into force of this regulation for that Party and meet the standard of competence specified in section A-III/7 of the STCW Code.

5 Notwithstanding the above requirements of paragraphs 1 to 4, a suitably qualified person may be considered by a Party to be able to perform certain functions of section A-III/7.

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.

* * * * *

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 III

Standards regarding the engine department

Section A-III/7

Mandatory minimum requirements for certification of electro-technical rating

Standard of Competence

1 Every electro-technical rating serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more shall be required to demonstrate the competence to perform the functions at the support level, as specified in column 1 of table A-III/7.

[*] 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.

2 The minimum knowledge, understanding and proficiency required of an electro-technical rating serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more is listed in column 2 of table A-III/7.

3 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 specified in columns 3 and 4 of table A-III/7.

Table A-III/7

Specification of minimum standard of competence for electro-technical ratings

Function: Electrical, electronic and control engineering at the support level

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Safe use of electrical equipment	Safe use and operation of electrical equipment, including: .1 safety precautions before commencing work or repair .2 isolation procedures .3 emergency procedures .4 different voltages on board Knowledge of the causes of electric shock and precautions to be observed to prevent shock	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Understands and follows safety instructions of electrical equipment and machinery Recognizes and reports electrical hazards and unsafe equipment Understands safe voltages for hand-held equipment Understands risks associated with high-voltage equipment and onboard work
Contribute to monitoring the operation of electrical systems and machinery	Basic knowledge of the operation of mechanical engineering systems, including: .1 prime movers, including main propulsion plant .2 engine-room auxiliary machineries .3 steering systems .4 cargo-handling systems .5 deck machineries .6 hotel systems	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Knowledge that ensures: .1 operation of equipment and system is in accordance with operating manuals .2 performance levels are in accordance with technical specifications

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to monitoring the operation of electrical systems and machinery (*continued*)	*Basic knowledge of:* .1 electro-technology and electrical machines theory .2 electrical power distribution boards and electrical equipment .3 fundamentals of automation, automatic control systems and technology .4 instrumentation, alarm and monitoring systems .5 electrical drives .6 electro-hydraulic and electro-pneumatic control systems .7 coupling, load sharing and changes in electrical configuration		
Use hand tools, electrical and electronic measurement equipment for fault finding, maintenance and repair operations	Safety requirements for working on shipboard electrical systems Application of safe working practices *Basic knowledge of*: .1 construction and operational characteristics of shipboard AC and DC systems and equipment .2 use of measuring instruments, machine tools, and hand and power tools	Assessment of evidence obtained from one or more of the following: .1 approved workshop skills training .2 approved practical experience and tests	Implementation of safety procedures is satisfactory Selection and use of test equipment is appropriate and interpretation of results is accurate Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice

Function: Maintenance and repair at the support level

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to shipboard maintenance and repair	Ability to use lubrication and cleaning materials and equipment Knowledge of safe disposal of waste materials Ability to understand and execute routine maintenance and repair procedures Understanding manufacturer's safety guidelines and shipboard instructions	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Maintenance activities are carried out in accordance with technical, safety and procedural specifications Selection and use of equipment and tools is appropriate
Contribute to the maintenance and repair of electrical systems and machinery on board	*Safety and emergency procedures* Basic knowledge of electro-technical drawings and safe isolation of equipment and associated systems required before personnel are permitted to work on such plant or equipment Test, detect faults and maintain and restore electrical control equipment and machinery to operating condition Electrical and electronic equipment operating in flammable areas Basics of ship's fire-detection system Carrying out safe maintenance and repair procedures	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved laboratory equipment training	The effect of malfunctions on associated plant and systems is accurately identified, ship's technical drawings are correctly interpreted, measuring and calibrating instruments are correctly used and actions taken are justified Isolation, dismantling and reassembly of plant and equipment is in accordance with manufacturer's safety guidelines and shipboard instructions

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to the maintenance and repair of electrical systems and machinery on board (*continued*)	Detection of machinery malfunction, location of faults and action to prevent damage Maintenance and repair of lighting fixtures and supply systems		

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

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to the handling of stores	Knowledge of procedures for safe handling, stowage and securing of stores	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Stores stowage operations are carried out in accordance with established safety practices and equipment operating instructions The handling of dangerous, hazardous and harmful stores complies with established safety practices Communications within the operator's area of responsibility are consistently successful
Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of the precautions to be taken to prevent pollution of the marine environment Knowledge of use and operation of anti-pollution equipment/agents Knowledge of approved methods for disposal of marine pollutants	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Procedures designed to safeguard the marine environment are observed at all times

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Apply occupational health and safety procedures	Working knowledge of safe working practices and personal shipboard safety, including: .1 electrical safety .2 lockout/tag-out .3 mechanical safety .4 permit to work systems .5 working aloft .6 working in enclosed spaces .7 lifting techniques and methods of preventing back injury .8 chemical and biohazard safety .9 personal safety equipment	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Procedures designed to safeguard personnel and the ship are observed at all times Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times

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.

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

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.

*** * * * ***

Main and auxiliary machinery operation simulation

73 Engine-room simulation equipment should be capable of simulating a main and auxiliary machinery system and incorporate facilities to:

.1 create a real-time environment for seagoing and harbour operations, with communication devices and simulation of appropriate main and auxiliary propulsion machinery equipment and control panels;

.2 simulate relevant sub-systems that should include, but not be restricted to, boiler, steering gear, electrical power general and distribution systems, including emergency power supplies, and fuel, cooling water, refrigeration, bilge and ballast systems;

.3 monitor and evaluate engine performance and remote sensing systems;

.4 simulate machinery malfunctions;

.5 allow for the variable external conditions to be changed so as to influence the simulated operations: weather, ship's draught, seawater and air temperatures;

.6 allow for instructor-controlled external conditions to be changed: deck steam, accommodation steam, deck air, ice conditions, deck cranes, heavy power, bow thrust, ship load;

.7 allow for instructor-controlled simulator dynamics to be changed: emergency run, process responses, ship responses; and

.8 provide a facility to isolate certain processes, such as speed, electrical system, diesel oil system, lubricating oil system, heavy oil system, seawater system, steam system, exhaust boiler and turbo generator, for performing specific training tasks.[*]

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

Chapter III

Guidance regarding the engine department

Section B-III/7

Guidance regarding training and certification for electro-technical ratings

(No provisions)