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COMPREHENSIVE REVIEW OF THE STCW CONVENTION AND THE STCW CODE

Electronic officer

Submitted by the Islamic Republic of Iran

SUMMARY

<i>Executive summary:</i>	This document, in response to the invitation by STW 38 is proposing definition and training and certification requirements for the Electronic officer
<i>Action to be taken:</i>	Paragraph 17
<i>Related documents:</i>	STW 38/17, paragraphs 12.82, 12.83, 12.85 and annex 11; MSC 81/25, paragraph 23.36

Background

1 The STW 37 had considered the need for a comprehensive review of the STCW Convention and the STCW Code and had invited the Committee to add a new item to its work programme and agenda for STW 38 "Comprehensive review of the STCW Convention and the STCW Code" with a target completion date of 2008 and also to instruct the Sub-Committee to define first in detail the issues to be reviewed and advise the Committee accordingly, before embarking on the actual work.

2 The MSC 81 had endorsed the proposal of STW 37 and instructed the Sub-Committee to define, as a first step, the issues to be reviewed and to advise the Committee accordingly, before embarking on the actual work, for the Committee to endorse the scope of the review of the instruments, and the Sub-Committee to undertake, as a second step, the authorized review in a systematic and organized manner.

3 The STW 38 endorsed the list of areas in the STCW Convention and the STCW Code identified for the comprehensive review (STW 38/17, paragraph 12.156 and annex 11), and invited the Committee to approve it and instruct the Sub-Committee to undertake the proposed review accordingly in a systematic and organized manner.

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4 On the one hand, the increasing widespread use of computer-based systems and electronic applications in the operation of ships, and the rapid technological developments, call for new specific knowledge, skills and abilities. On the other hand, with most ships manned by multinational crews, in order to attain a consistent level of training and minimum standards of competency across the industry, the sub-committee at STW 38 agreed to define “electronic officer” and its certification requirements.

Discussion

5 Considering the increasing employment of electronic systems for the monitoring and control of ship’s main engine, auxiliary machinery and deck machinery, the electronic officer is expected to be well qualified for the operation, testing, fault diagnostics and maintenance of electrical and electronic control systems.

6 There are already a great many electronic navigational and communication technologies and services available or in development, such as Automatic Identification System (AIS), Electronic Chart Display and Information Systems (ECDIS), Integrated Bridge Systems/Integrated Navigation Systems (IBS/INS), Automatic Radar Plotting Aids (ARPA), radio navigation, Long Range Identification and Tracking (LRIT) systems and the Global Maritime Distress and Safety System (GMDSS). Therefore, electronic officer should also have the required competencies to operate, test and maintain electronic communication and navigational equipment, including fault diagnostics.

7 Undoubtedly electronic officer should have required knowledge of the English language to enable him/her to use relevant engineering publications such as manufacturer’s technical and operational manuals and to perform assigned duties in a safe and efficient manner.

8 Electronic officer as a member of the ship’s complement is also expected, same as deck and engineer officers, to possess safety, pollution prevention, fire prevention and fire-fighting, life-saving appliances and medical first aid competencies.

9 The extent of the application of electronic systems in navigational aids, communication equipment and control of engine room equipment are not directly related to the ship’s Gross Tonnage (TG) or its propulsion power. There are small ships which are highly automated and there are large ships with low level of automation. But since the IMO international conventions are mostly attributed to ships’ GT, therefore, Gross Tonnage of the ship rather than her propulsion power is selected in the present proposal, as set out in annex 1.

10 A new definition and new regulation for defining and setting minimum requirements for certification of electronic officers is proposed in annex 1 to this document. Proposed new regulation also includes transitional provisions (paragraphs 3 and 4).

11 The proposed standard of competence and near-coastal voyages provisions is presented in the proposed new section A-[...], as set out in annex 1.

12 Taking into account the experience that Islamic Republic of Iran has gained in training and employment of the radio-electronic officers during the last 10 years, and considering above paragraphs 5 to 8 and in order to assist the Sub-Committee in their discussion, the proposed table of competence for electronic officer has been developed and presented as annex 2 to this document for consideration by the Sub-Committee.

Recommendation

13 MSC 81 realizing the increasing use of the Electronic Navigation and in order to integrate existing and new navigational tools, in particular electronic tools, in an all-embracing system decided to include, in the work programmes of the NAV and COMSAR Sub-Committees, a high priority item on “Development of an e-navigation strategy”, with a target completion date of 2008 (MSC 81/25, paragraph 23.36), which indicates that in future, electronic communication and navigational equipment has more role on the safe navigation and operation of ships.

14 Considering the increasing widespread use of computer-based systems and electronic applications in the operation of ships, electronic officer is expected not only to maintain electronic control equipment of the engine room machinery but also to maintain electronic communication and navigational equipment.

15 Taking into account that Sub-Committee at STW 38 agreed that new definitions for “electronic officer” and “electrical officer” may be considered (STW 38/17, annex 11, paragraph 5) and their certification requirements (regulations) to be developed therefore, it seems that the most suitable place for the mentioned regulations is in chapter IV as new regulations IV/3 and IV/4 respectively and therefore, the titles of chapter IV of the Convention and Parts A and B of the STCW Code may be amended to “Radiocommunication, electronic and electrical”, “Standards regarding the radio, electronic and electrical personnel” and “Guidance regarding radiocommunication, electronic and electrical” respectively .

16 Taking above paragraphs 13 to 15 into account it is proposed that STW 39 as first step, to consider that chapter IV needs to be reviewed in order to consider the need for including the certification requirements for electronic officer and electrical officer and hence amending the title and, advise MSC 84 accordingly and after Committee’s endorsement, the Sub-Committee to undertake the review. (In accordance with principal .4 of paragraph 3 of STW 38/17, annex 11).

Action requested of the Sub-Committee

17 The Sub-Committee is invited to consider the viewpoints presented in this document, and take actions as appropriate.

ANNEX 1**ELECTRONIC OFFICER****Proposed new definition**

Electronic officer means an officer qualified in accordance with the provisions of chapter [...] of the Convention.

Proposed new regulation

Mandatory minimum requirements for certification of electronic officers

- 1 Every electronic officer serving on a seagoing ship [of 500 gross tonnage or more] shall hold an appropriate certificate.
- 2 Every candidate for certification shall:
 - .1 be not less than 18 years of age;
 - .2 have approved seagoing service of not less than six months as part of an approved training program which includes on-board training which meets the requirements of section A-[...] of the STCW Code and is documented in an approved training record book; and
 - .3 have completed approved education and training and meet the standard of competence specified in section A-[...] of the STCW Code.
- 3 Every party shall compare the standard of competence which it required of electronic officers for certificates issued before [date] with those specified for the certificate in section A-[...] of the STCW Code, and shall determine the need, if any, for requiring those 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 seagoing ship [of 500 gross tonnage or more] for a period of not less than 12 months within the last five years preceding the entry into force of this regulation for that Party.

Proposed new Section A- [...]

Mandatory minimum requirements for certification of electronic officers on ships [of 500 gross tonnage or more]

Standard of competence

1 Every candidate for certification as electronic officer on ships [of 500 gross tonnage or more] shall be required to demonstrate the competence to perform the functions at the operational level, as specified in column 1 of table A- [...].

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

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 tabulated in columns 3 and 4 of table A- [...]

Near-coastal voyages

4 An Administration may issue a certificate restricted to service on ships engaged exclusively on near-coastal voyages and, for the issue of such a certificate, may exclude such subjects as are not applicable to the waters or ships concerned, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

ANNEX 2

TABLE A-[...]

SPECIFICATION OF MINIMUM STANDARD OF COMPETENCE FOR ELECTRONIC OFFICER

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and Proficiency	Methods for demonstrating competence	Criteria for Evaluating competence
Operate, maintain and repair electrical generation and distribution systems Operate, monitor, repair and evaluate electronic control equipment	<i>Theoretical knowledge</i> Knowledge of marine electro technology, electronics and electrical equipment Knowledge of automation, instrumentation and control systems <i>Practical knowledge</i> Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics Operation, testing and maintenance of electronic control systems	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	Operation of equipment and systems is in accordance with operating manuals Performance levels are in accordance with technical specifications Maintenance activities are correctly planned in accordance with technical, legislative, safety and procedural specifications The effect of malfunctions on associated plant and systems is accurately identified, ships technical drawings are correctly interpreted, measuring and calibrating instruments are correctly used and actions taken are justified

Column 1 Competence	Column 2 Knowledge, understanding and Proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for Evaluating competence
Use English in written and oral form	Adequate knowledge of the English language to enable the officer to use engineering publications and to perform [engineering] duties	Examination and assessment of evidence obtained from practical instruction	English language publications relevant to [engineering] duties are correctly interpreted Communications are clear and understood
Test, detect and rectify faults, and maintain electronic navigational aids and communication equipment to operating condition	<i>Theoretical knowledge</i> Knowledge of marine communication and electronic navigational systems Knowledge of microprocessor based systems (software & hardware) <i>Practical knowledge</i> Operation, testing and maintenance of electronic communication and navigational equipment, including fault diagnostics.	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	Operation of equipment and systems is in accordance with operating manuals Performance levels are in accordance with technical specifications Maintenance activities are correctly planned in accordance with technical, legislative, safety and procedural specifications The effect of malfunctions on associated plant and systems is accurately identified, ships technical drawings are correctly interpreted, measuring and calibrating instruments are correctly used and actions taken are justified

Function: Maintenance and repair at the operational level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and Proficiency	Methods for demonstrating competence	Criteria for Evaluating competence
Organize safe maintenance and repair procedures	<i>Theoretical knowledge</i> Marine electronic, electrical, computer and communication practices <i>Practical knowledge</i> Organizing and 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 workshop training	Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications Appropriate plans, specifications, materials and equipment are available for maintenance and repair Action taken leads to the restoration of the systems by the most suitable method
Detect and identify the cause of electronic/electrical malfunctions and correct faults	<i>Practical knowledge</i> Detection of electronic system malfunction, location of faults and action to repair and prevent damage	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	The methods of comparing actual operating conditions are in accordance with recommended practices and procedures Actions and decisions are in accordance with recommended operating specifications and limitations

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and Proficiency	Methods for demonstrating competence	Criteria for Evaluating competence
Ensure safe working practices	<i>Practical knowledge</i> Safe working practices	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 workshop training	Working practices are in accordance with legislative requirements, code of practice, permits to work and environmental concerns

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

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

Column 1 Competence	Column 2 Knowledge, understanding and Proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for Evaluating competence
Prevent, control and fight fires on board	<i>Fire prevention and fire-fighting appliances</i> Knowledge of fire prevention Ability to organize fire drills Knowledge of classes and chemistry of fire Knowledge of fire-fighting systems Action to be taken in the event of fire, including fires involving oil systems	Assessment of evidence obtained from approved fire-fighting training and experience as set out in section A-VI/3	The type and scale of the problem is promptly identified and initial actions are conform with the emergency procedures and contingency plans for the ship Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and Proficiency	Methods for demonstrating competence	Criteria for Evaluating competence
Operate life-saving appliances	<i>Life-saving</i> Ability to organize abandon ship drills and knowledge of the operation of the survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids. Knowledge of survival at sea techniques	Assessment of evidence obtained from approved training and experience as set out in section A-VI/2, paragraphs 1 to 4	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards
Apply medical first aid on board ship	<i>Medical aid</i> Practical application of medical guides and advise by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	Assessment of evidence obtained from approved training as set out in section A-VI/4, paragraphs 1 to 3	Identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and Proficiency	Methods for demonstrating competence	Criteria for Evaluating competence
Monitor compliance with legislative requirements	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the marine environment	Assessment of evidence obtained from examination or approved training	Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified