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Radiocommunication Information Circular

Syllabus for the Restricted Operator's Certificate - Maritime Commercial (ROC-MC) and Accreditation Procedure for Training and Examination

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Comments and suggestions may be directed to the following address:

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<http://strategis.gc.ca/spectrum>

1. Introduction

The material presented in this publication covers the scope of the examination for the **Restricted Operator's Certificate - Maritime Commercial (ROC-MC)** for the Global Maritime Distress and Safety System (GMDSS). This is the second certificate in the series of three levels of radio operator certification for the commercial and leisure mariner. The first is the **General Operator Certificate for GMDSS (GOC)**; the second is the ROC-MC (the subject of this document) and the third, the **Restricted Operator Certificate - Maritime (ROC-M)** for pleasure vessels not governed by Transport Canada's *Crewing Regulations*.

The training and assessment for the ROC-MC may be provided by trainers/examiners at accredited marine training institutes, marine industry companies and organizations or marine equipment suppliers. A list of organizations accredited to train and examine candidates for the ROC-MC is given in Annex I. The holder of a GOC has all the operating privileges of the ROC.

2. Background

Canada is a member of the International Telecommunication Union (ITU), an organization established to maintain and extend international cooperation for the improvement and rational use of telecommunication of all kinds. To this end, the Union fosters collaboration among its members to establish basic standards for communication procedures and practices, frequency allocation, and radio regulations on a worldwide basis. In 1987, the ITU World Administrative Conference for the mobile services adopted the necessary provisions in the *Radio Regulations* to introduce the GMDSS.

Canada is also a member of the International Maritime Organization (IMO), which in close cooperation with the ITU, recommends practices for the establishment of maritime communications systems to serve the international marine community. As part of its work, IMO has mandated the minimum requirements that radio operators must meet with respect to GMDSS certification.

Industry Canada administers radiocommunications in Canada, based on both national and international acts, regulations and conventions. Marine operations in Canada are generally regulated by the Marine Safety Branch of Transport Canada. Marine Safety Branch, through their *Crewing Regulations* require ships, that are required to be fitted with a ship radio station in accordance with the *Ship Station Radio Regulations* (SSR), to carry persons who hold the appropriate operator certification.

3. GMDSS

The Global Maritime Distress and Safety System (GMDSS) was implemented over a seven-year period, commencing February 1, 1992 and finishing on February 1, 1999. This worldwide system will enhance the assistance that can be given to ships in distress and urgency situations. Certificate requirements and background on the area concept of the GMDSS can be found in Radiocommunication Information Circular 16 (RIC-16), *Professional Radio Operator's Certificate*. Current information on the progress and implementation of GMDSS shore-based facilities is available in the latest edition of the *Radio Aids*

to *Marine Navigation* and the annual edition of *Notices to Mariners*.

Generally speaking, in accordance with SSR, compulsorily-fitted ships with Very High Frequency (VHF) radiotelephones must carry persons who hold a Restricted Operator's Certificate - Maritime Commercial, and compulsorily-fitted ships with Medium Frequency (MF) or Medium Frequency/High Frequency (MF/HF) radiotelephones, or ship earth stations, must carry persons who hold either a General Operator's Certificate or a Radiocommunication Operator General Maritime Certificate. There are two exceptions to these requirements:

- Radio operators on “small fishing vessels.” A small fishing vessel is defined in Transport Canada’s *Small Fishing Vessel Inspection Regulations*, as a vessel that is not a sailing ship, exceeds 15 tons (gross tonnage) is used in commercial fishing, but does not exceed 150 tons, (gross tonnage) and does not exceed 24.4 metres in length. This exception permits such vessels, when fitted with MF or HF transmitting equipment, or both, to carry radio operators holding only a Restricted Operator’s Certificate - Maritime Commercial.
- Radio operators on vessels using the Athabasca-Mackenzie inland waterways. Even though HF radios may be carried by vessels on this waterway, the HF frequency used is outside of the marine bands. The only marine frequencies used in certain areas of this waterway are in the VHF band. Consequently, operators on these vessels are only required to hold a Restricted Operator's Certificate - Maritime Commercial.

4. ROC-MC

The Restricted Operator’s Certificate - Maritime Commercial (ROC-MC) as described, is intended for the mariners, serving on compulsorily-fitted commercial ships within the North American A1 sea areas. It is compliant with the *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978*, as amended in 1995 (STCW 95 Regulation IV/2). The certificate is obtained by completing an abbreviated version of the International Maritime Organization (IMO) Model Course consistent with the “Near Coastal Voyage” option (STCW 95 R1/3).

Additionally, it should be noted that STCW 95 IV/2 incorporates a minimum age requirement of 18 years in order to hold this operator certificate.

Other publications that will be of assistance to candidates taking the ROC-MC examinations are the *Radio Aids to Marine Navigation (RAMN)* and, to a lesser extent, the *Ship Station Radio Regulations (SSR)* and the *Ship Station Technical Regulations (SST)*. These last two documents have been established in accordance with the *Canada Shipping Act (CSA)*.

5. Training and Examination

- 5.1 Training will consist of approximately 50% theory and 50% practical instruction using an approved GMDSS simulator or installed equipment. The course will consist of 20 hours of training. To accommodate testing, four hours will be added for review of the material covered and for both theory and practical examinations (one hour for the written component and three hours to allow time for practical evaluation). In order to ensure that students can receive an adequate level of practical instruction, a class size of a maximum of 12 students is recommended.
- 5.2 To accommodate candidates who have operational experience in maritime communications and who hold Radiotelephone Operator's Restricted Certificate (ROR-C) Maritime, or equivalent, issued prior to GMDSS implementation, provisions have been made for an "Abridged Course Training Stream." This abridged course reduces the time spent on basic radiocommunication techniques in order to concentrate on GMDSS related topics. As indicated in the syllabus, training time for candidates taking the abridged course can be reduced by 10 hours.
- 5.3 Marine training institutes and marine organizations may be authorized to conduct challenge examinations for candidates who hold a Radiotelephone Operator's Restricted Certificate (ROR-C) Maritime, or equivalent.
- 5.4 For the successful completion of an ROC-MC, the pass mark for the examination is 70%.

6. Accreditation

Industry Canada will accredit maritime organizations to provide training and assessment for the ROC-MC certificates. Accreditation means that the program of instruction has been reviewed by Industry Canada to confirm that there are sufficient expertise, equipment and facilities available to ensure an appropriate level of training for candidates for the ROC-MC certificate. In addition, these entities will be accredited to conduct ROC-MC examinations on behalf of Industry Canada. Information regarding successful candidates will be forwarded to Industry Canada who will then issue the ROC-MC certificates.

An application for accreditation by Industry Canada should be forwarded to the nearest regional or district office of Industry Canada, consult the Radiocommunication Information Circular 66 (RIC-66), *Addresses and Telephone Numbers of Regional and District Offices*.

The application will outline the following:

- the course curriculum, breaking it down by hours of theoretical and practical study;
- a list of instructors and their professional qualifications and operational experience, or acceptable equivalent;
- the training facilities; and
- the course material, a list of equipment, a copy of examinations and type of simulator, if applicable.

6.1 Facilities

Accredited organizations shall have appropriate classrooms for theoretical instructions and the necessary course material for all candidates. Practical instruction and testing may be provided preferably by using the actual GMDSS equipment or by using GMDSS computer simulation or a combination of both. Whatever process is used, there must be sufficient practical instruction to enable the student to demonstrate the operation of a radio station on a GMDSS-equipped ship in an A1 sea area.

6.2 Equipment

For the practical training, adequate working space and separate working areas are recommended for trainees. The following equipment is recommended:

- one fully operational VHF transmitter/receiver for radiotelephony and DSC, incorporating a DSC watch receiver for channel 70;
- at least one dummy satellite EPIRB (406 MHz or 1.6 GHz) with hydrostatic release mechanism;
- one dummy SART;
- one NAVTEX receiver;
- one two-way portable VHF radiotelephone with charging equipment;
- one personal computer or realistic simulation equipment for every two students, capable of running relevant programs for simulating the operation of DSC;
- one battery inverter power supply connected as the reserve source of energy (not necessarily located in the working area); and
- signs and markings in accordance with the requirements of the Administration for GMDSS ship station.

6.3 Accreditation Inspection

If the application appears to be in order, arrangements will then be made for a representative of Industry Canada to visit the institute to confirm the information contained in the application. After confirming the provided information, an accreditation letter will be sent to the organization concerned. Prior to the commencement of the first course, Industry Canada will outline the procedure for the transmittal of examination results.

7. Instructors

At least one instructor at the accredited organization shall hold a valid General Operator Certificate (GOC) issued after February 1, 1995, or the new ROC-MC for GMDSS issued in accordance with this syllabus. This requirement should also be complemented with operating experience in the GMDSS environment.

8. Training

Training for the ROC-MC will be provided by trainer/examiners at accredited marine training institutes or Marine Industry Organizations and companies. Training will consist of approximately 50% theory and 50% practical instruction using an approved GMDSS simulator or installed equipment.

9. Course Delivery and Examination Time Requirements

9.1 Full Course

The course will consist of 20 hours of training. An additional four hours will be required to review the material covered and for both theory and practical examinations (one hour for the written component and 15 minutes per student to allow time for practical evaluation).

9.2 Abridged Course

The course will consist of 10 hours of training. An additional four hours will be required to review the material covered and for both theory and practical examinations (one hour for the written component and 15 minutes per student to allow time for practical evaluation).

9.3 Challenge Exam

The examination will consist of a one hour written component and at least 15 minutes per candidate to allow time for practical evaluation. Candidates who fail to achieve a minimum of 50% on their first attempt of the challenge exam will not be allowed to rewrite the exam until 30 days have elapsed.

10. Class Size

For the reasons outlined in section 5, class size should be limited to a maximum of 12 students.

11. Methods for Demonstrating Proficiency

The examiner will assure proficiency through practical demonstration of operational procedures by using the following:

- approved equipment;
- GMDSS communication simulator, where appropriate; and
- radio communication laboratory equipment.

Radiocommunication Information Circulars are available on the Internet at the following address:
<http://strategis.gc.ca/spectrum>.

Other publications, such as the *Radio Aids to Marine Navigation* and the annual edition of *Notices to*

Mariners are available from booksellers offering government documents and publications.

Inquiries concerning the contents of this publication, or suggestions for its improvement may be directed to:

Industry Canada
Radiocommunications and
Broadcasting Regulatory Branch
300 Slater Street
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Attention: DOSP-A

Annex I

Pacific Region

Camosun College
School of Trades & Technology, CE
Interurban Campus
4461 Interurban Road
Victoria, BC
V9E 2C1
Telephone: (250) 370-4563
Fax: (250) 370-4552
Registration Contact: Grace Moises
Instructor: Capt Dick Turpin
E-mail: ttce@camosun.bc.ca
Web site: www.camosun.bc.ca

Maritime Education Associates
8671 King George Highway
Surrey, BC
V3W 5C4
Telephone: (604) 596-3055
Fax: (604) 761-3798
Instructor: Bob Kitching
E-mail: info@maritimed.com

North Island College
2300 Ryan Road
Courtenay, BC
V9N 8N6
Main Phone: (250) 923-9700
Telephone: (250) 923-9790
Fax: (250) 923-9725
Instructor: David Dyke
Registration Contact: Alexandra Morley
E-mail: morley@nic.bc.ca

Pacific Marine Training Campus
British Columbia Institute of Technology
265 West Esplanade
North Vancouver, BC
V7M 1A5
Telephone: (604) 453-4100
Fax: (604) 985-2862
Instructor: Richard Goeller

Ryan and Associates
1220 Esquimalt Avenue
West Vancouver, BC
V7T 1K3
Telephone: (604) 926-3815
Fax: (604) 926-3971
Instructor: Peter Ryan, P. Eng.
E-mail: PeterRyan@telus.net

Ontario Region

The Great Lakes International Marine Training
Centre Georgian College
1450 Eighth Street East
Owen Sound, ON
N4K 5R4

Quebec Region

Cégep de la Gaspésie et des îles
167 la Grande Allée Est
PO Box 220
Grande-Rivière, QC
G0C 1V0

**Centre de Formation
Service de l'éducation aux adultes
Commission scolaire des Îles**
PO Box 610 Cap-aux-Meules
Îles-de-la-Madeleine, QC
G4T 3R7
Telephone: (418) 986-5511
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**Institut maritime du Québec
Service de la formation continue**
2965, rue de l'Etchemin
Saint-Romuald, QC G6W 7X5
Téléphone: (418) 835-1621
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Courriel : sfc@imq.qc.ca

New Brunswick Community College - St. Andrews
99 Augustus Street
St. Andrews, NB
E5B 2E9
Telephone: (506) 529-5000
Contact: Tim Marshall
E-mail: tim.marshall@gnb.ca
(This course is offered in English)

**New Brunswick Community College - Péninsule
Acadienne**
9 St-Pierre Boulevard Est
Caraquet, NB
E1W 1B6
Contact: Luc Leblanc
Telephone: (506) 726-2500
E-mail: luc.leblanc@gnb.ca

Atlantic Region

**CCG Marine Communications &
Traffic Services Training
Canadian Coast Guard College**
PO Box 4500
Sydney, NS
B1P 6L1
Contact: Michael Ouellette
Phone: (902) 564-3660

**Marine Institute
Memorial University of Newfoundland**
PO Box 4920
St. John's, NF
A1C 3R9
Contact: A. Patterson
Telephone: (709) 778-0200
Fax: (709) 778-0664

Annex II

Sample Letter of Accreditation

Dear _____;

Further to our visit of (*date*) for the purpose of reviewing the facilities and course material produced by your institute, we are pleased to inform you that (*name of marine organization or institute*) meets all of the criteria required for accreditation to conduct instructional courses and examinations for the *Restricted Operator's Certificate - Maritime Commercial (ROC-MC) for the Global Maritime Distress and Safety System (GMDSS)*.

This accreditation is valid until suspended or revoked. Failure to maintain the standard and quality of the course material and instruction that were in place at your institute at the time of our Accreditation Review may result in the suspension or revocation of this accreditation.

I would like to thank you again for your time and hospitality that you afforded us during our visit, and I wish you all the best in the delivery of this program.

Sincerely,

Annex III

Accreditation Checklist - Inspection Form Restricted Operator's Certificate - Maritime Commercial (ROC-MC)					
			Comments	Adequate	
6.1 Facilities				yes	no
(a)	Course curriculum	(a) Knowledge of the basic features of the maritime mobile service			
		(b) GMDSS concept & regulations			
		(c) Practical knowledge (ability to use GMDSS equipment)			
		(d) Distress, safety communication procedure			
(b)	Instructors	GOC certificate			
		Operational experience			
(c)	Course material	(obtain copies)			
6.2 Equipment					
(a)	VHF Txcvr / Rxcvr with DSC & DSC watch Rxcvr for channel 70				
(b)	Dummy EPIRB (406MHz / 1.6 GHz) with hydrostatic release				
(c)	Dummy SART				
(d)	NAVTEX receiver				
(e)	Portable VHF radiotelephone with charger				
(f)	Personal computer / Simulator (1 per 2 students)				
(g)	Battery inverter power supply				
(h)	Signs and markings (Administration for GMDSS ship stations)				
6.3 Accreditation Inspection			Completed		
			yes	no	
(a)	Review procedure for submitting exam results				
(b)	Certification letter issued				
Administrative Information					
Accredited by:					
Date of accreditation					

Annex IV

Restricted Operator Certificate - Maritime Commercial (ROC-MC) - GMDSS Syllabus

Competence	Knowledge, Understanding and Proficiency	Abridged Course Material	Full Course Time	Abridged Course Time
(A) Knowledge of the Basic Features of the Maritime Mobile Service	1. The General Principles and Basic Features of the Maritime Mobile Service: 1.1 Radiotelephone procedures. 1.2 Types of communications: Distress, urgency and safety communications; public correspondence; port operations, ship movement; intership and on board communications. 1.3 Types of stations: Ship stations, coast stations, Rescue Coordination Centres (RCCs); pilot stations, port stations and vessel traffic control stations. 1.4 Basic knowledge of frequency, bands, channelization (Basic propagation limitations of VHF - radio). 1.5 Basic knowledge of publications (RAMN, etc.).	Not applicable	2.5	Not applicable
(B) Concept of the Global Maritime Distress and Safety System (GMDSS)	1. System Concept 1.1 GMDSS concept using VHF/DSC as a primary means of distress alerting, urgency, safety and for establishing routine communication to a coast and ship station. 1.2 MMSI concept & ramifications.		1.75	0.5
Regulations	2. Regulations 2.1 Definition of Sea areas with emphasis on A1. 2.2 Watch keeping on VHF Distress DSC frequency, and VHF channel 16. 2.3 Equipment carriage requirement for Sea area A1.		1.75	0.5

(C) Practical Knowledge, Operational Characteristics and Ability to Use the GMDSS Sub-system Equipment of a Ship Station	1. Ship Station Equipment 1.1 VHF/DSC watch receiver/modem, classes and types of DSC. 1.2 VHF R/T transceiver: channels, controls, usage and routine testing. 1.3 DSC call categories, distress, urgency, safety, ship's business and routine. 1.4 Call telecommand and traffic information: distress alerts, other calls, working channel information and acknowledgement of calls. 1.5 Records keeping (logs etc.). 1.6 Cancellation of false alerts. 1.7 2182 kHz watch receiver.	1.2 - not required	3.5	3.0
	2. Survival Craft Radio Equipment: Basic Operational Specifications Characteristics and Routine Testing: 2.1 Portable (immersion proof) VHF radios. 2.2 Search and Rescue Radar Transponders (SARTs). 2.3 Emergency Position Radio Beacons (EPIRBs).		2.0	0.5
	3. NAVTEX 3.1 Maritime Safety Information (MSI): Basic NAVTEX system concept. NAVAREAs. 3.2 NAVTEX receiver operational characteristics, set up procedures and message format.		2.5	0.5
(D) Distress, Safety and Routine Communication Procedures in the GMDSS	1. Distress, Urgency and Safety Communications 1.1 DSC Distress alert, sending, receiving and acknowledgement, cancellation of distress message. Distress relay. DSC urgency, safety calls and subsequent R/T traffic. On scene communication and SAR operations. 1.2 R/T Distress subsequent traffic. Urgency and Safety communications.		3.0	2.5
	2. Operational Procedures for General Communications 2.1 Using DSC to establish initial call. 2.2 Transmission and reception of routine R/T communications.		3.0	2.5
Total Time			20.0	10.0