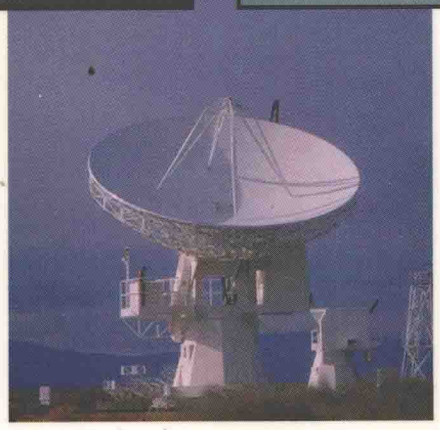
Includes Radar Questions and Answers

The Complete Guide to the F.C.C. General Radiotelephone Operator License

By Laurence Goldberg




Exam Questions and Answers with Explanations

The Center for F.C.C. Exam Preparation

The Complete Guide To

The F.C.C. General Radiotelephone Operator License

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First Edition

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First printed in 1995
Printed in the United States of America
First Edition

Publisher's Cataloging in Publication Data:
Goldberg, Laurence M.
The Complete Guide To The F.C.C. General Radiotelephone Operator License: Exam Questions And Answers With Explanations / by Laurence Goldberg. — 1st Edition.
Includes Index.
1. Radiotelephone—United States—Examinations—Study Guides.
2. Radio Operators—Licenses—United States I. Title.
Library of Congress Catalog Card Number: 95-92161
ISBN 1-886176-18-3: $29.95 Softcover
10 9 8 7 6 5 4 3 2 1

Cover Design: Charles C Hendershott
Laurence Goldberg
Rochelle Colon Goldberg

Copy Editor: Paul Silverman

Special Thanks: Fred Stockmeyer

Cover Photographs by: Coast Guard Cutter and Helicopter Copyright © Corel Corporation 1993
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Published by: The Center for F.C.C. Exam Preparation
P.O. Box 245019
Brooklyn, New York 11224-0012 USA
(718) 940-3273 Book Order Dept. 1-800 721-EXAM (3926)

Preface

The objective of this guide is to provide instructors and/or the aspiring radiotelephone operator with a comprehensive and orderly tool for use in the classroom or self preparation for the Federal Communications Commission General Radiotelephone Operator License examination. The author has drawn upon first hand experience acquired as a successful candidate for the radiotelephone operator license and as an institutional operator and instructor dedicated to preparing others for the challenge.

To facilitate the use of this text, the subject matter has been arranged in a logical, topic-by-topic, sequential order. Answers to specific questions are accompanied by relevant explanations oriented toward the novice. These explanations are written in an informal manner, as if an instructor were there personally and speaking to you directly, rather than the formal way most textbooks are written. This has proven to be helpful to students who are trying to prepare for this exam by themselves. Therefore, in addition to being a test-answer document, this feature makes it ideal for use as a study guide.

In writing the text, an effort was made to keep the questions and their corresponding answers and explanations on the same page; in general this objective was realized. Most of the author's students have expressed preference for this format as it facilitates the learning process by minimizing page turning. However, in order to accommodate the student who prefers the challenge of answering the question first, the answer is "hidden" by placing it immediately after the explanation without benefit of spacing.

The General Radiotelephone Operator License examination comprises two exams, Element 1 and Element 3. The recommended method to study the material is to follow the order as it is presented in the text for both exams. Element 1 is for the Marine Radio Operator Permit when taken separately. The questions pertain to rules and regulations that govern the maritime industry which must be mastered if a successful bid for a license is to be made. Since the General Radiotelephone Operator License allows its holder to adjust and repair Federal Communication Commission licensed transmitters in the aviation, maritime and international fixed public radio service, an understanding of the rules and regulations is required. This is considered to be the less difficult of the two exams.

For Element 3, the recommended approach is to address each chapter separately and deliberately. The reader is advised to look for key words in the question itself. Generally, there is some type of clue to the answer in about one-third of the questions in this question pool. If there is more than one way to arrive at an answer to the question, both are included in this guide.

In Element 1, all questions have equal weight but this is not true in Element 3. Element 3 is subdivided into eight sections labeled A through H. Greater priority should be given to subelements A, B, D, E, F, and G and subelements C and H are of least importance. For example, if after preparing for this exam, you are having difficulty with some questions from subelement D or F and also from subelement H, give more study time to the questions from D or F and less study time for the questions from H.

The following indicates the breakdown of the number of questions in the question pool and the percentage of the questions asked for Element 1 and for the eight subelements from Element 3.

Element	Element Topic	Total # of Questions	Exam Questions	Percentage
Element 1	Rules and Regulations	169	24	.142 or 1:7.0
Subelement 3A	Operating Procedures	40	3	.075 or 1:13
Subelement 3B	Radio Wave Propagation	22	3	.136 or 1:7.3
Subelement 3C	Radio Practice	96	5	.052 or 1:19
Subelement 3D	Electrical Principals	115	16	.139 or 1:7.2
Subelement 3E	Circuit Components	75	13	.173 or 1:5.75
Subelement 3F	Practical Circuits	138	22	.159 or 1:6.27
Subelement 3G	Signals and Emissions	97	9	.093 or 1:10.7
Subelement 3H	Antennas and Feed Lines	137	5	.036 or 1:27.4

The exact order of importance for the subelements are E, F, D, B, G, A, C, and finally H. The questions are numbered A19, D114 and so on. The letter A refers to subelement A question 19 and the letter D refers to subelement D question 114. The exam you will take must contain 3 questions from subelement A, 3 questions from subelement B, 5 questions from subelement C and so on. The test that the student will take will not follow the F.C.C.'s format; the first 3 questions from subelement A then the next 3 from subelement B and so on. This being the case, it would not help to become familiar with the questions in their original order, but rather in the order presented in this manuscript.

All of us at The Center for F.C.C. Exam Preparation believe this book will greatly assist you in passing your F.C.C. exam and we wish you much success in doing so.

ELEMENT 1

QUESTION POOL

Commercial Radio Operator License Examination
Written Element 1
QUESTION POOL
Released September 2, 1993
Updated March 3, 1994

The questions asked in each Element 1 examination must be taken from the following pool. This pool will remain in effect until superseded by Commission-release of an updated pool.

An Element 1 examination is used to prove that the examinee possesses the operational and technical qualifications necessary to performing properly the duties required of a person holding a Marine Radio Operator Permit (MROP). To pass, an examinee must answer correctly at least 18 out of 24 questions from this pool. Element 1 is also a partial requirement for a General Radiotelephone Operator License, any class of Radiotelegrapher's Certificate, and any class of Global Maritime Distress and Safety System License.

A MROP must be held by any person who operates certain radiotelephone stations aboard voluntarily equipped vessels, some categories of aviation radiotelephone stations, and certain coast radiotelephone stations. A MROP must also be held by the operator of compulsory equipped radiotelephone stations aboard vessels of more than 300 gross tons, and vessels that carry more than six passengers for hire in the open sea or in any tidewater area of the United States, and certain ships that operate on the Great Lakes.

Each Element 1 examination is administered by a Commercial Operator License Examination Manager (COLE Manager). The COLE Manager must construct the examination from this pool by randomly selecting 24 questions. The COLE Manager may change the order of the answer and distracters (incorrect choices) of questions from the order that appears in this pool.

Suggestions concerning improvement to the questions in the pool or submittal of new questions for consideration in updated pools may be sent to the Federal Communications Commission, Aviation and Marine Branch, Room 5322, Washington, DC 20554.

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(1) What is the Global Maritime Distress and Safety System (GMDSS)?

(A) An automated ship-to-shore distress alerting system using satellite and advanced terrestrial communications systems.

(B) An emergency radio service employing analog and manual safety apparatus.

(C) An association of radio officers trained in emergency procedures.

(D) The international organization charged with the safety of ocean-going vessels.

This is a new system that is replacing radio-telegraphy distress signals that used to be sent on 500 kHz. It is coordinated by the International Maritime Organization. Key words to look for are "global" which refers to satellites and "maritime distress and safety system" which refers to a ship-to-shore distress alerting system.
Answer: A

(55) What is the Automated Mutual-Assistance Vessel Rescue System?

(A) A voluntary organization of mariners who maintain radio watch on 500 kHz., 2182 kHz. and 156.800 MHz.

(B) An international system operated by the Coast Guard providing coordination of search and rescue efforts.

(C) A coordinated radio direction finding effort between the Federal Communications Commission and U.S. Coast Guard to assist ships in distress.

(D) A satellite-based distress and safety alerting program operated by the U.S. Coast Guard.

"Mutual" tells you that it is international and "Vessel Rescue System" tells you that it involves the U.S. Coast Guard in search and rescue efforts.
Answer: B

(61) What traffic management service is operated by the U.S. Coast Guard in certain designated water areas to prevent ship collisions, groundings and environmental harm?

(A) Water safety management bureau (WSMB).

(B) Vessel traffic service (VTS).

(C) Ship movement and safety agency (SMSA).

(D) Interdepartmental harbor and port patrol (IHPP).

The Vessel Traffic Service is operated by the U.S. Coast Guard in certain designated water areas to prevent ship collisions, groundings and environmental harm.
Hint: The answer is in the question, "traffic" and "service".
Answer: B

(86) By international agreement which ships must carry radio equipment for the safety of life at sea?

(A) Cargo ships of more than 300 gross tons and vessels carrying more than12 passengers.

(B) All ships traveling more than 100 miles out to sea.

(C) Cargo ships of more than 100 gross tons and passenger vessels on international deep-sea voyages.

(D) All cargo ships of more than 100 gross tons.

According to the Safety Convention, a passenger ship is one carrying more than 12 passengers (not including crew members). Passenger ships and cargo ships from 300 gross tons to 1600 gross tons must carry radio-telephone equipment to call for help in times of distress.
Answer: A

(41) What is the Communication Act's definition of a "passenger ship"?

THIS QUESTION HAS BEEN DELETED!

(A) Any ship which is used primarily in commerce for transporting persons to and from harbors or ports.

(B) A vessel that carries or is licensed or certificated to carry more than 12 passengers.

(C) Any ship transporting more than six passengers for hire.

(D) A vessel of any nation that has been inspected and approved as a passenger carrying vessel.

This question has been deleted but I feel it is still a very important rule to know, and the answer will help you with other questions on this exam such as number 57 below. According to the Communication Act, a passenger ship is one carrying more than 12 passengers (not including crew members).
Answer: B

(57) Which of the following statements is true as to ships subject to the Safety Convention?

(A) A cargo ship participates in international commerce by transporting goods between harbors.

(B) Passenger ships carry six or more passengers for hire as opposed to transporting merchandise.

(C) A cargo ship is any ship that is not licensed or certificated to carry more than 12 passengers.

(D) Cargo ships are FCC inspected on an annual basis while passenger ships undergo U.S. Coast Guard inspections every six months.

Passenger ships are licensed to carry more than 12 passengers. While cargo ships may carry some passengers, they are not licensed to carry more than 12 passengers.
Answer: C

(58) What is a "passenger carrying vessel" when used in reference to the Great Lakes Radio Agreement?

(A) A vessel that is licensed or certificated to carry more than twelve passengers.

(B) Any ship carrying more than six passengers for hire.

(C) Any ship, the principal purpose of which is to ferry persons on the Great Lakes and other inland waterways.

(D) A ship which is used primarily for transporting persons and goods to and from domestic harbors or ports.

Remember it this way. More people have access to all of the world's oceans (Safety Convention or Communication Act) than to the Great Lakes (Great Lakes Radio Agreement), therefore the over 12 to over 6 ratio.
Answer: B

(2) What authority does the Marine Radio Operator Permit confer?

(A) Grants authority to operate commercial broadcast stations and repair associated equipment.

(B) Allows the radio operator to maintain equipment in the Business Radio Service.

(C) Confers authority to operate licensed radio stations in the Aviation, Marine and International Fixed Public Radio Services.

(D) The non-transferable right to install, operate and maintain any type-accepted radio transmitter.

The MROP is an operators license for the Aviation, Marine and International Fixed Public Radio Services.
Answer: C

(67) What is the minimum radio operator requirement for ships subject to the Great Lakes Radio Agreement?

(A) Third Class Radiotelegraph Operator's Certificate.

(B) General Radiotelephone Operator License.

(C) Marine Radio Operator Permit.

(D) Restricted Radiotelephone Operator Permit.

Radio operators licensed under the "Great Lakes Radio Agreement" are compulsory equipped and therefore must know the operating rules and regulations (Element 1), which is the MROP.
Answer: C

(123) An operator or maintainer must hold a General Radiotelephone Operator License to:

(A) Adjust or repair FCC licensed transmitters in the aviation, maritime and international fixed public radio services.

(B) Operate voluntarily equipped ship maritime mobile or aircraft transmitters with more than 1,000 watts of peak envelope power.

(C) Operate radiotelephone equipment with more than 1,500 watts of peak envelope power on cargo ships over 300 gross tons.

(D) All of the above.

The General Radiotelephone Operator License is both a higher class operator license and a maintainers license all in one.
Answer: D

(36) What are the radio operator requirements of a cargo ship equipped with a 1000 watt peak-envelope-power radiotelephone station?

(A) The operator must hold a General Radiotelephone Operator License or higher class license.

(B) The operator must hold a Restricted Radiotelephone Operator Permit or higher class license.

(C) The operator must hold a Marine Radio Operator Permit or higher class license.

(D) The operator must hold a GMDSS Radio Maintainer's License.

Voluntarily equipped ships have a limit of 1000 watts PEP and compulsory equipped ships such as passenger ships and cargo ships (over 300 gross tons for this question), have a limit of 1500 watts PEP for the MROP.
Answer: C

(37) What are the radio operator requirements of a small passenger ship carrying more than six passengers equipped with a 1000 watt carrier power radiotelephone station?

(A) The operator must hold a General Radiotelephone Operator or higher class license.

(B) The operator must hold a Marine Radio Operator Permit or higher class license.

(C) The operator must hold a Restricted Radiotelephone Operator Permit or higher class license.

(D) The operator must hold a GMDSS Radio Operator's License.

This ship is compulsory equipped. Key word to look for is "carrier power" not "peak envelope power". If you have more than 250 watts of carrier power then you need a full General Radiotelephone Operator License.
Answer: A

(72) What authorization is required to operate a 350 watt PEP maritime voice station on frequencies below 30 MHz aboard a small non-commercial pleasure vessel?

(A) Third Class Radiotelegraph Operator's Certificate.

(B) General Radiotelephone Operator License.

(C) Restricted Radiotelephone Operator Permit.

(D) Marine Radio Operator Permit.

Radio operators on non-commercial pleasure vessels when operating on VHF (30-300 MHz) are voluntarily equipped and need no license. When operating on MF or HF (under 30 MHz), you need a Restricted Radiotelephone Operator Permit.
Answer: C

(110) Licensed radiotelephone operators are not required on board ships for:

(A) Voluntarily equipped ship stations on domestic voyages operating on VHF channels.

(B) Ship radar, provided the equipment is non-tunable, pulse type magnetron and can be operated by means of exclusively external controls.

(C) Installation of a VHF transmitter in a ship station where the work is performed by or under the immediate supervision of the licensee of the ship station.

(D) Any of the above.

None of the above requires a commercial license.
Answer: D

(39) Which commercial radio operator license is required to install a VHF transmitter in a voluntarily equipped ship station?

(A) A Marine Radio Operator Permit or higher class of license.

(B) None, if installed by, or under the supervision of, the licensee of the ship station and no modifications are made to any circuits.

(C) A Restricted Radiotelephone Operator Permit or higher class of license.

(D) A General Radiotelephone Operator License.

The ship station licensee is responsible for the operation and maintenance of the radio station Therefore if a VHF transmitter needs to be installed, no license is needed if it is installed by or under the supervision of the station licensee.
Answer: B

(68) What FCC authorization is required to operate a VHF transmitter on board a vessel voluntarily equipped with radio and sailing on a domestic voyage?

(A) No radio operator license or permit is required.

(B) Marine Radio Operator Permit.

(C) Restricted Radiotelephone Operator Permit.

(D) General Radiotelephone Operator License.

No license is needed for VHF on a voluntarily equipped ship on a domestic voyage. The key words are "VHF", "voluntarily" equipped and "domestic" voyage.
Answer: A

(38) Which commercial radio operator license is required to operate a fixed tuned ship radar station with external controls?

(A) A radio operator certificate containing a Ship Radar Endorsement.

(B) A Marine Radio Operator Permit or higher.

(C) Either a First or Second Class Radiotelegraph certificate or a General Radiotelephone Operator License.

(D) No radio operator authorization is required.

If the radar unit is "fixed" tuned with "external" controls (in other words "idiot proof"), then no license is needed.
Answer: D

(3) Which of the following persons are ineligible to be issued a commercial radio operator license?

(A) Individuals who are unable to send and receive correctly by telephone spoken messages in English.

(B) Handicapped persons with uncorrected disabilities which affect their ability to perform all duties required of commercial radio operators.

(C) Foreign maritime radio operators unless they are certified by the International Maritime Organization (IMO).

(D) U.S. Military radio operators who are still on active duty.

The license is a United States license, therefore English must be spoken by the operator since English is our primary language. This ensures that a distress message will be understood by whomever receives it.
Answer: A

(5) What is a requirement of every commercial operator on duty and in charge of a transmitting system?

(A) A copy of the Proof-of-Passing Certificate (PPC) must be on display at the transmitter location.

(B) The original license or a photocopy must be posted or in the operator's personal possession and available for inspection.

(C) The FCC Form 756 certifying the operator's qualifications must be readily available at the transmitting system site.

(D) A copy of the operator's license must be supplied to the radio station's supervisor as evidence of technical qualification.

As is the case with the FAA's A&P certificate, you must have it on you for inspection at all times.
Answer: B

(102) The FCC may suspend an operator license upon proof that the operator:

(A) Has assisted another to obtain a license by fraudulent means.

(B) Has willfully damaged transmitter equipment.

(C) Has transmitted obscene language.

(D) Any of the above.

No naughty boys or girls allowed here! Darn!!
Answer: D

(43) Who may be granted a ship station license in the maritime service?

(A) Anyone, including foreign governments.

(B) Only FCC licensed operators holding a First or Second Class Radiotelegraph Operator's Certificate or the General Radiotelephone Operator License.

(C) Vessels that have been inspected and approved by the U.S. Coast Guard and Federal Communications Commission.

(D) The owner or operator of a vessel, or their subsidiaries.

A ship station license is a license for a radio station (transmitter) on the ship. An owner, operator or a subsidiary of the owner or operator may apply for a ship station license. The F.C.C. only covers the United States, so foreign governments may not receive a station license.
Answer: D

(62) What action must be taken by the owner or operator of a vessel who changes its name?

(A) A Request for Ship License Modification (RSLM) must be submitted to the FCC's licensing facility.

(B) The Engineer-in-Charge of the nearest FCC field office must be informed.

(C) The Federal Communications Commission in Gettysburg, PA, must be notified in writing.

(D) Written confirmation must be obtained from the U.S. Coast Guard.

The Gettysburg office is responsible for all of the licensing for the F.C.C.. Any changes in your name, vessel name or your mailing address must be sent in writing to the Gettysburg office.
Answer: C

(155) When a ship is sold:

(A) New owner must apply for a new license.

(B) FCC inspection of equipment is required.

(C) Old license is valid until it expires.

(D) Continue to operate; license automatically transfers with ownership.

The radio station license is given to a specific person; it is not transferable. Just like with an airplane, the new owner must apply for a new ship station license.
Answer: A

(27) Who has ultimate control of service at a ship's radio station?

(A) The master of the ship.

(B) A holder of a First Class Radiotelegraph Certificate with a six months service endorsement.

(C) The Radio Officer-in-Charge authorized by the captain of the vessel.

(D) An appointed licensed radio operator who agrees to comply with all Radio Regulations in force.

Key word is ultimate! The captain or the master of the vessel (same thing) has ultimate control over everything.
Answer: A

(33) What type of communications may be exchanged by radio printer between authorized private coast stations and ships of less than 1600 gross tons?

(A) Public correspondence service may be provided on voyages of more than 24 hours.

(B) All communications providing they do not exceed 3 minutes after the stations have established contact.

(C) Only those communications which concern the business and operational needs of vessels.

(D) There are no restrictions.

The question really is saying "What type of communications may be exchanged by radiotelephone, facsimile or radioprinter by or between anybody". Since the information is being sent over the airwaves, only communications which concern the business and operational needs of vessels may be sent. You are not allowed to use them the way you would a regular telephone, which of course is not restricted.
Answer: C

(59) How do the FCC's Rules define a power-driven vessel?

(A) A ship that is not manually propelled or under sail.

(B) Any ship propelled by machinery.

(C) A water craft containing a motor with a power rating of at least 3 HP.

(D) A vessel moved by mechanical equipment at a rate of 5 knots or more.

We usually associate power driven with a motor or other type of machinery so think of the key word here "machinery".
Answer: B

(137) A reserve power source must be able to power all radio equipment plus an emergency light system for how long?

(A) 24 hours.

(B) 12 hours.

(C) 8 hours.

(D) 6 hours.

A reserve power source must be able to power all radio equipment plus an emergency light system for 6 hours. Remember it!
Answer: D

(15) What regulations govern the use and operation of FCC licensed ship stations operating in international waters?

(A) The regulations of the International Maritime Organization (IMO) and Radio Officers Union.

(B) Part 80 of the FCC Rules plus the international Radio Regulations and agreements to which the United States is a party.

(C) The Maritime Mobile Directives of the International Telecommunication Union.

(D) Those of the FCC's Aviation and Marine Branch, PRB, Washington, DC 20554.

Just like with the FAR's in aviation (a mechanics nightmare), there's a Part number for everything. Part 13 is for Commercial Radio Operator Rules, Part 23 is for the International Fixed Public Radiocommunication Services, Part 73 is for Radio Broadcast Services, Part 80 is for the Maritime Industry, and Part 87 is for the Aviation Industry.
Answer: B

(12) What is a requirement of all marine transmitting apparatus used aboard UnitedStates vessels?

(A) Only equipment that has been type accepted by the FCC for Part 80 operations is authorized.

(B) Equipment must be approved by the U.S. Coast Guard for maritime mobile use.

(C) Certification is required by the International Maritime Organization (IMO).

(D) Programming of all maritime channels must be performed by a licensed Marine Radio Operator.

Part 80 covers the Maritime Industry. This test will only ask you about Part 80 operations.
See answer for question number 15 on the previous page.
Answer: A

(40) What transmitting equipment is authorized for use by a station in the maritime services?

(A) Transmitters that have been certified by the manufacturer for maritime use.

(B) Unless specifically excepted, only transmitters type accepted by the Federal Communications Commission for Part 80 operations.

(C) Equipment that has been inspected and approved by the U.S. Coast Guard.

(D) Transceivers and transmitters that meet all ITU specifications for use in maritime mobile service.

See answer for question number 15 on the previous page.
Answer: B

(143) The master or owner of a vessel must apply how many days in advance for an FCC ship inspection?

(A) 60 days.

(B) 30 days.

(C) 3 days.

(D) 24 hours.

It is courteous to apply as long in advance as possible; however the regulations require only a minimum of 3 days.
Answer: C

(13) Where do you submit an application for inspection of a ship radio station?

(A) To a Commercial Operator Licensing Examination Manager (COLE Manager).

(B) To the Federal Communications Commission, Washington, DC 20554.

(C) To the Engineer-in-Charge of the FCC District Office nearest the proposed place of inspection.

(D) To the nearest International Maritime Organization (IMO) review facility.

You would send an inspection application to the Engineer-in-Charge of the F.C.C. District Office nearest the proposed place of inspection.This makes sense. You wouldn't apply to L.A. if your ship were in N.Y.
Answer: C