



**MIDLAND RADIO
AND TELEVISION
SCHOOLS
INC.**

POWER & LIGHT BUILDING, KANSAS CITY, MISSOURI

**RADIO LAWS
ELEMENT ONE**

RADIO LAW

.....guardian of the air.

Imagine that you have been called to attend a meeting of several hundred people. The purpose of the meeting is to decide important issues having bearing upon life in your community. Speakers are to address the throng. Entertainment of a varied nature and an orchestra are included in the program.

You arrive at the meeting place and find confusion and a conglomeration of noises. All the speakers are shouting, waving their arms, and competing with one another. The orchestra is blaring---the entertainers are going through their acts---people are arguing and fighting. It is evident to you that absolutely nothing is being accomplished.

Taking matters into your own hands, you quickly organize a small but efficient group of level-headed men. You instruct them to quiet each noisy group, and, as they depart to carry out your orders, you mount the speaker's stand.

Gradually confusion and noise give way to order and quiet. You address the throng and lay down the law, explaining that results can be accomplished only through mutual cooperation. You give each speaker an opportunity to deliver his talk. You intersperse music and entertainment with business. When the meeting is over, definite beneficial results have been obtained.

Were it not for Radio Laws, broadcasting and all forms of radiotelephone and radiotelegraph communications would present a picture of utter confusion. The fact that there ARE radio laws that are enforced has made possible an orderly growth of the great radio and communications industry. To take full advantage of the opportunities in the radio industry, YOU MUST KNOW THE LAWS. Master them thoroughly from beginning to end.

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KANSAS CITY, MO.

RADIO LAWS

Element One



The need for government regulation of radio broadcasting was realized soon after communication with wireless electrical equipment became known to the general public. The early experiments by such famous men as Marconi, Hertz, and Edison paved the way for the rise of a gigantic communication system. Without regulation or control by the governments of the world, it would have been impossible for this communication system to provide mankind with all of the advantages it has to offer.

The initial regulatory body to convene for the purpose of discussing problems pertaining to radio communication was the First International Radiotelegraphic Conference, held in Berlin on August 4, 1903. Regulations agreeable to the nations represented were drafted, and it was suggested that each nation establish some method of controlling radio communications within its own boundaries. Great Britain passed the Wireless Telegraph Act on August 15, 1904. The United States government passed an Act on June 24, 1910 requiring certain passenger ships to carry wireless equipment and operators. Following these pioneer steps, all governments in the world became conscious of the necessity for internal radio regulations and cooperative regulations between nations. The World War succeeding this period prevented world-wide agreement on laws governing radio; however, each country enforced rigid governmental control of its own wireless facilities.

Following the World War, the United States adopted various rules of an inconsequential nature until 1927 when the Federal Radio Commission was formed. This Commission immediately drafted and enforced the Radio Act of 1927, an Act superseding all previous regulations and for the purpose of maintaining government control over the allocation and use of frequencies for radio communication in the United States.

On July 11, 1934, the Federal Communications Commission was organized to succeed the Federal Radio Commission, and also to regulate wire telephony and telegraphy. This body is now in existence and consists of a group of Commissioners to whom is entrusted the control of radio and wire facilities in the United States. The Federal Communications Commission immediately passed the Communications Act of 1934 to succeed the Radio Act of 1927. The Act of 1934 is still in effect (as amended); it is necessary that every radio operator be familiar with its contents.

On February 1, 1938, representatives from 71 countries convened at Cairo, Egypt for the purpose of revising previous international rules adopted at Madrid in 1932. The International Telecommunications Conference (Cairo) adopted regulations concerning radio practice and procedure for the purpose of binding all important nations of the world into common agreement on the allocation of frequencies and rules governing the use of radio on the high seas. Since the United States was a member of this conference and approved the rules adopted, the contents of the treaty are binding on the United States.

In addition to the Communications Act of 1934 and the Cairo Conference Regulations, other important radio legislations with which

all United States operators must be familiar include the rules and regulations imposed by the Federal Communications Commission.

In this lesson you are to study the laws, rules, and regulations necessary to obtain a radio operator's permit. Later in your training we shall point out the more important parts of this lesson which you must study very thoroughly. For the present, read its contents. Only the important extracts are given; you will find that some of the Section, Article, and Rule numbers are omitted. There will be no examination covering this material.

PREPARATION MATERIAL RADIO OPERATOR EXAMINATIONS ELEMENT 1 - BASIC LAW

SCOPE -- Provisions of Law and Regulations with which every operator should be familiar.

The questions included herein are such as may appear in the examination constituting Element 1 of the Commercial Radio Operator Examination. The questions which actually appear in this examination do not go beyond the scope of the questions which follow, although the questions may appear in a different form. The examination consists of ten questions. Three on the Communications Act of 1934, two on the International General Radio Regulations (Cairo revision) and five on the Rules and Regulations of the Federal Communications Commission.

KEY TO ABBREVIATIONS

Sec...Refers to a section of the Communications Act of 1934.

Art...Refers to an Article of the International General Radio Regulations (Cairo revision).

R.R...Refers to a provision of the Rules and Regulations of the Federal Communications Commission.

QUESTIONS AND ANSWERS

111.01 State five grounds on any one of which the Federal Communications Commission has authority to suspend a radio operator's license or permit. (Sec. 303m)

Answer: "Commission shall have authority to suspend the license of any operator upon proof sufficient to satisfy the Commission that the licensee--

"(A) has violated any provision of any Act, treaty, or convention binding on the United States, which the Commission is authorized to administer, or any regulations made by the Commission.

"(B) has failed to carry out a lawful order of the master or person in charge of the ship or aircraft on which he is employed.

"(C) has wilfully damaged or permitted radio apparatus to be damaged;

"(D) has transmitted superfluous radio communications or signals or communications containing profane or obscene words, language, or meaning, or has knowingly transmitted-- "(1) false or deceptive signals or communications, or-- "(2) a call signal or letter which has not been assigned by proper authority to the station he is operating;

"(E) has wilfully or maliciously interfered with any other radio communications or signals;

"(F) has obtained or attempted to obtain, or assisted another to obtain or attempt to obtain an operator's license by fraudulent means.

111.02 Is an operator subject to the penal provisions of the Act if he violates the terms of a radio treaty to which the United States is a party? (Sec. 303m, Sec. 502)

Answer: Yes, see Question 111.01, and Sec. 502.

111.03 State at least two provisions made in the Communications Act to ensure the priority of communications or signals relating to ships in distress. (Sec. 321 (b)).

Answer: "All radio stations, including Government stations and stations on board foreign vessels when within the territorial waters of the United States, shall give absolute priority to radio communications or signals pertaining to ships in distress; shall cease all sending on frequencies which will interfere with a radio communication or signal of distress, and, except when engaged in answering or aiding the ship in distress shall refrain from sending any radio communication or signals until there is

assurance that no interference will be caused with radio communications or signals relating thereto, and shall assist the vessel in distress, so far as possible, by complying with its instructions." See also Question 151.01.

111.04 In what class of radio station and under what circumstances is an operator permitted to adjust the transmitter for a maximum of radiated power without regard to the interference produced? (Sec. 321 (a))

Answer: Ship station when sending distress signals or communications or traffic relating thereto.

111.05 In what cases may a transmitter on shipboard be adjusted to produce a maximum of radiation irrespective of the interference which may be caused? (Sec. 321 (a))

Answer: See Question 111.04.

121.01 What communications, if any, are not subject to the secrecy provisions of the Communications Act? (Sec. 605)

Answer: (a) Radio communications broadcast; (b) communications transmitted by amateurs or others for the use of the general public; (c) communications relating to ships in distress: See Question 121.04.

121.02 State in your own words the prohibition, if any, against the transmission of false calls and communications relating to distress. (Sec. 325 (a))

Answer: No person within the jurisdiction of the United States shall knowingly utter or transmit or cause to be transmitted any false or fraudulent signals of distress or communications relating thereto.

121.03 State in your own words the law regarding the transmission of fraudulent signals of distress or communications relating thereto. (Sec. 325 (a))

Answer: See Question 121.02.

121.04 State in your own words the substance of the Communications Act that is provided to ensure the secrecy of radiograms. (Sec. 605)

Answer: No person shall divulge or publish the contents or meaning of any radio or wire communication except to the addressee or his authorized agent, nor utilize information obtained from the message for his own or another's benefit. See Question 121.01.

121.05 Does the Communications Act of 1934, as amended, contain any provision that prohibits the interception, use, and publication of radio communications?

Answer: Yes, see Question 121.04. (Sec. 605)

131.01 What form of language if transmitted by an operator or other person makes him subject to the penal provisions of the Communications Act? (Sec. 326)

Answer: Obscene, indecent, or profane language.

131.02 What provisions are made in the Communications Act to ensure communication between stations in the mobile service? (Sec. 322)

Answer: Coastal stations open to public service must communicate with ships, and ships must communicate with each other without distinction as to the radio systems or instruments used by each.

131.03 Does the Federal Communications Commission have authority to issue a radio operator's license or permit to a citizen of a country other than the United States? (Sec. 303-1)

Answer: No.

131.04 Has the master of a ship radiotelephone station the authority to forbid the transmission of a message by anyone on board? (Sec. 358)

Answer: Yes. "The transmission and receipt of messages:.... shall be under the supreme control of the master."

131.05 Has the master of a ship radiotelephone station the authority to regulate the transmission and reception of messages on shipboard? (Sec. 358)

Answer: Yes, see Question 131.04.

131.06 Under what conditions is the utterance or transmission of a false or fraudulent signal of distress or communication relating thereto permissible? (Sec. 325)

Answer: None. See Question 121.02.

131.07 Under what conditions is the utterance of obscene, indecent, or profane language by means of radio permissible? (Sec. 326).

Answer: None; see question 131.01.

141.01 What is the radiotelephony safety signal? Art. 24-26-(2).

Answer: The word SECURITY repeated three times.

141.02 Under what conditions may a mobile station, if necessary, disregard the General Radio Regulations (Cairo)? Art. 24-1.

Answer: "No provision of these regulations shall prevent a mobile station in distress from using any means available to it for drawing attention, signaling its position, and obtaining help."

141.03 What is the radiotelephony urgent signal? Art. 24-22-(2).

Answer: Three transmissions of the word PAN.

141.04 What signals and messages are forbidden by international agreement? Art. 22-1-(1).

Answer: "The transmission of unnecessary or unidentified signals or correspondence shall be forbidden to all stations."

141.05 What precautions must an operator observe before proceeding with a transmission? Art. 17-2-(1).

Answer: Keep watch over a sufficient interval to assure himself that no interference will be caused before transmitting.

141.06 What does the receipt of the signal "PAN" transmitted by radiotelephony indicate? Art. 24-22-(3).

Answer: The calling station has a very urgent message about the safety of the ship or persons on board or sighted from on board.

141.07 What should an operator do if he intercepts the word "SECURITY" repeated three times? Art. 24-28-(2).

Answer: He must listen on the wave on which the safety signal has been sent until the message so announced has been completed; in addition, he must keep silence on waves which might interfere with the safety message.

141.08 When should the safety signal be transmitted by telephony?

Answer: The safety signal (SECURITY) announces that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings. Hence, it should precede such a transmission.

141.09 The urgent signal sent by an aircraft and not followed by a message indicates what? Art. 24-22-(4).

Answer: "The aircraft transmitting it is in trouble and forced to land, but that it is in no need of immediate help."

141.10 What obligation rests on an operator intercepting the signal "PAN"? Art. 24-22-(5)

Answer: The urgent signal shall have priority over all other communications, except distress communications, and all mobile stations hearing it must take care not to interfere with the transmission of the message which follows the urgent signal."

151.01 What procedure must be followed by a radio station receiving a distress call from a mobile station which is unquestionably in its vicinity? Art. 24-11-(1)

Answer: "Must acknowledge receipt thereof at once. If the distress call has not been preceded by an auto-alarm signal, these stations may transmit this auto-alarm signal with the authorization of the authority responsible for the station, taking care not to interfere with the transmission of the acknowledgement of the receipt of said message by other stations." See also Question 131.04.

151.02 What essential information should be transmitted in a distress message? Art. 24-6-(1)

Answer: "This message shall include the distress call followed by the name of the ship, aircraft, or the vehicle in distress, information regarding the position of the latter, the nature of the distress and the nature of the help requested, and any other further information which might facilitate this assistance."

151.03 By what authority may the operator of a ship or aircraft station transmit a distress call or message? Art. 24-8.

Answer: "The distress call and message shall be sent only by order of the master or person responsible for the ship, aircraft, or other vehicle carrying the mobile station."

151.04 What is the international distress signal to be used in radiotelephony? Art. 24-4-(1)

Answer: "The spoken expression Mayday."

151.05 What does the interception of the word "MAYDAY" transmitted by telephony announce? Art. 24-4-(2)

Answer: That the station sending it is threatened by serious and imminent danger and requests immediate assistance.

151.06 What radio waves may be used under the provisions of the Treaty in transmitting distress messages in case of an emergency by: (a) Aircraft stations? Art. 24-3-(2)

Answer: "On the watching wave of the land or mobile stations capable of helping it."

151.07 State the order of priority of radio communications in the mobile service. Art. 26

Answer: "1. Distress calls, distress messages, and.... distress traffic;

"2. Communications preceded by an urgent signal.

"3. Communications preceded by a safety signal;

"4. Communications relative to radio direction-finding bearings;

"5. Government radiotelegrams for which priority right has not been waived;

"6. All other communications."

151.08 What information must be contained in a distress message transmitted in an emergency, from a radio station aboard aircraft flying over land? Art. 24-7-(3)

Answer: "Its position by the name of the nearest locality, its approximate distance from this point, accompanied, according to the case, by one of the words North, South, East, or West, or in some cases, words indicating intermediate directions." See Question 151.02.

151.09 What information must be contained in a distress message? Art. 24-6-(1)

Answer: See Question 151.02.

151.10 When, after having sent its distress message, an aircraft station is unable to signal its position, what procedure shall be followed to assist others in determining its approximate location? Art. 24-6-(2)

Answer: "It shall endeavor...to send its call signal long enough so that the radio direction-finding stations may determine its position."

161.01 State at least two classes of stations which cannot be operated by the holder of a restricted radiotelephone operator permit. R.R. 163.01 (e)

Answer: (a) "Any of the various classes of broadcast station other than relay broadcast station." (b) "Coastal telephone station or a coastal harbor station other than in the Territory of Alaska." (c) "A ship station licensed to use type A-3 emission for communication with coastal telephone stations."

161.02 Under what conditions may the holder of a restricted radiotelephone operator's permit operate a station for which the permit is valid?

Answer: "(1) Such operator is prohibited from making adjustments that might result in improper transmitter operation.

"(2) The equipment is so designed that none of the operations necessary to be performed during the course of normal rendition of service may cause off-frequency operation or result in any unauthorized radiation.

"(3) Any needed adjustments of the transmitter that may affect the proper operation of the station are regularly made by, or in the presence of, an operator holding a first or second class license, either telephone or telegraph, who shall be responsible for the proper operation of the equipment."

161.03 State at least two classes of ship stations which the holder of a restricted radiotelegraph permit is prohibited from operating.

Answer: R.R. 163.01...Exceptions: "(2) The permit is not valid for the operation of a ship station licensed to use type A-3 emission for communication with coastal telephone stations.

"(3) The license is not valid for the operation of a radiotelegraph station on board a vessel required by treaty or statute to be equipped with a radio installation.

"(4) The license is not valid for the operation of any ship telegraph...station open to public correspondence."

161.04 Who is permitted to make adjustments or tests in the presence of the licensed operator responsible for the maintenance of the transmitter and under his responsibility for the proper operation of the equipment? R.R. 163.03

Answer: "Other persons...for the purpose of carrying out tests or making adjustments requiring specialized knowledge or skill."

161.05 Within what period of time must any person receiving official notice of a violation of the terms of the Communications Act of 1934, as amended, Treaty, or Rules and Regulations of the Commission be answered? R.R. 15.40

Answer: Within three days, unless this is impossible because of illness or the like, when the answer must be sent as soon as possible with a satisfactory explanation of the delay.

171.01 What is the obligation of an operator whose license or permit has been lost, mutilated, or destroyed? R.R. 164.01

Answer: He must immediately notify the Commission and apply for a new license.

171.02 How may the holder of a radiotelegraph or radiotelephone first or second class license indicate to representatives of the Commission that he is legally qualified to adjust equipment operated by holders of restricted radiotelephone operator permits? R.R. 164.05

Answer: He "shall post at such station his operator license or a verified statement from the Commission in lieu thereof."

171.03 How may an operator show proof of his legal qualifications to operate a radio transmitter? R.R. 2.52

Answer: By posting his original operator's license at the place where he is on duty or kept in his possession in the manner prescribed by law for the particular class of station concerned.

171.04 What is an operator of a radio station, who has submitted his license for renewal or applied for a duplicate license required to exhibit as his authority to continue operation of the station pending receipt of the license? R.R. 164.02

Answer: "A signed copy of the application for duplicate, or renewal, which has been submitted by him" to the Commission.

171.05 What is the holder of a radiotelegraph or radiotelephone first or second class license, who is employed as a service and maintenance operator at stations operated by holders of restricted permits, obligated to post at the stations? R.R. 164.05

Answer: Same as Question 171.02

181.01 How may corrections be made in a log? R.R. 2.57

Answer: "Any necessary corrections may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction."

181.02 Is it lawful to erase an entry made in a station log? R.R. 2.57

Answer: "No log or portion thereof shall be erased."

181.03 What are the Commission's requirements with regard to the retention of a radio station log? R.R. 2.54

Answer: Routine logs are to be retained one year unless otherwise provided.

181.04 How long must the licensee retain a station log which involves communications incident to a disaster? R.R. 2.54

Answer: "Until specifically authorized in writing by the Commission to destroy them."

181.05 What is the Commission's rule with regard to rough logs? R.R. 2.58

Answer: "Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log."

191.01 What procedure should one follow if he desires to resist an order of suspension of his operator's license or permit? Sec. 303 (2) R.R. 15.60 - 15.61

Answer: A written application should be filed with the Commission within 15 days from the date of the notice of suspension for a hearing. The suspension will be held in abeyance until the conclusion of the hearing, at which the Commission may affirm, modify, or revoke the order of suspension.

191.02 What is the responsibility of a licensee of a radio station with respect to permitting it to be inspected by representatives of the Commission? R.R. 2.48

Answer: The station shall be available for inspection at any reasonable hour.

191.03 Who is responsible for the control of distress traffic? Art. 24-14, R.R. 2.60

Answer: The mobile station in distress or station delegated by the same.

191.04 Are logs subject to inspection by representatives of the Commission? R.R. 2.55

Answer: Yes, "the logs shall be made available upon request by an authorized representative of the Commission."

191.05 By whom shall the log of a radio station be kept? R.R. 2.55

Answer: "Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty."

101.01 Under what conditions may a distress message be retransmitted? R.R. 2.61

Answer: "In the following cases: (a) When the station in distress is not itself in a position to transmit the message.

"(b) In the case of mobile stations, when the master or person in charge of the ship, aircraft, or other vehicle carrying the station which intervenes believes that further help is necessary.

"(c) In the case of other stations, when directed to do so by the station in control of distress traffic or when it has reason to believe that a distress call which it has intercepted has not been received by any station in a position to render aid."

101.02 What tolerance in operating power is permissible under normal circumstances? R.R. 2.80

Answer: "(a) When the maximum power only is specified, the operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified.

"(b) When an exact power is specified, the operating power shall not be more than 5 percent above or less than 10 percent below such power."

101.03 Under what conditions may a station be operated in a manner other than that specified in the station license? R.R. 2.63

Answer: "During a period of emergency in which the normal communication facilities are disrupted."

101.04 What is the Commission's rule with respect to measurement of the radio station frequency? R.R. 2.75

Answer: "The licensee of each station shall provide means for the measurement of the station frequency. The measurement of the station frequency shall be made by a means independent of the frequency control of the transmitter and shall be conducted in accord with the regulations governing the class of station concerned."

101.05 When may operation be resumed after a station has been notified to cease transmission because of interference to distress traffic? R.R. 2.62

Answer: Only after the station in control has signaled that the distress no longer exists.

The remainder of this lesson is devoted to Extracts from the Communications Act of 1934; Articles of the General Radio Regulations of the Federal Communications Commission; and Rules Governing Commercial Radio Operators, along with a list of the type of license required for operators of various classes of radio stations.

A thorough study of this entire section will not be necessary, since the most important sections are indicated in the question and answer portion of the lesson. However, it is advisable for the student to read through these laws at least once, since a good knowledge of their contents will assist greatly in understanding the requirements of a radio operator.

EXTRACTS OF THE COMMUNICATIONS ACT OF 1934, AS AMENDED

SECTION 1 - PURPOSES OF ACT; CREATION OF FEDERAL COMMUNICATIONS COMMISSION. For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communication, there is hereby created a Commission to be known as the "Federal Communications Commission", which shall be constituted as hereinafter provided and which shall execute and enforce the provisions of this Act.

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SECTION 301 - LICENSE FOR RADIO COMMUNICATION OR TRANSMISSION OF ENERGY. It is the purpose of this Act, among other things, to maintain the control of the United States over all the channels of interstate and foreign radio transmission; and to provide for the use of such channels, but not the ownership thereof, by persons for limited periods of time, under licenses granted by Federal authority, and no such license shall be construed to create any right, beyond the terms, conditions, and periods of the license. No person shall use or operate any apparatus for the transmission of energy or communications or signals by radio (a) from one place in any Territory or possession of the United States or in the District of Columbia to another place in the same Territory, possession, or district; or (b) from any State, Territory, or possession of the United States, or from the District of Columbia to any other State, Territory, or possession of the United States; or (c) from any place in any State, Territory, or possession of the United States, or in the District of Columbia, to any place in any foreign country or to any vessel; or (d) within any State when the effects of such use extend beyond the borders of said State, or when interference is caused by such use or operation with the transmission of such energy, communications, or signals from within said State to any place beyond its borders, or from any place beyond its borders to any place within said State, or with the transmission or reception of such energy, communications, or signals from and/or to places beyond the borders of said State; or (e) upon any vessel or aircraft of the United States; or (f) upon any other mobile stations within the jurisdiction of the United States, except under and in accordance with this Act and with a license in that behalf granted under the provisions of this Act.

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SECTION 303 - GENERAL POWERS OF COMMISSION. Except as otherwise provided in this Act, the Commission from time to time, as public convenience, interest, or necessity requires, shall--

(1) Have authority to prescribe the qualifications of station operators, to classify them according to the duties to be performed,

to fix the forms of such licenses, and to issue them to such citizens of the United States as the Commission finds qualified;

(m) (1) Have authority to suspend the license of any operator upon proof sufficient to satisfy the Commission that the licensee--

(A) Has violated any provision of any Act, treaty, or convention binding on the United States which the Commission is authorized to administer, or any regulation made by the Commission under any such Act, treaty, or convention; or

(B) Has failed to carry out a lawful order of the master or person lawfully in charge of the ship or aircraft on which he is employed; or

(C) Has wilfully damaged or permitted radio apparatus or installations to be damaged; or

(D) Has transmitted superfluous radio communications or signals or communications containing profane or obscene words, language, or meaning, or has knowingly transmitted--

(1) False or deceptive signals or communications, or

(2) A call signal or letter which has not been assigned by proper authority to the station he is operating; or

(E) Has wilfully or maliciously interfered with any other radio communications or signals; or

(F) Has obtained or attempted to obtain, or has assisted another to obtain or attempt to obtain, an operator's license by fraudulent means.

(2) No order of suspension of any operator's license shall take effect until fifteen days' notice in writing thereof, stating the cause for the proposed suspension, has been given to the operator licensee who may make written application to the Commission at any time within said fifteen days for a hearing upon such order. The notice to the operator licensee shall not be effective until actually received by him, and from that time he shall have fifteen days in which to mail the said application. In the event that physical conditions prevent mailing of the application at the expiration of the fifteen-day period, the application shall then be mailed as soon as possible thereafter, accompanied by a satisfactory explanation of the delay. Upon receipt by the Commission of such application for hearing, said order of suspension shall be held in abeyance until the conclusion of the hearing which shall be conducted under such rules as the Commission may prescribe. Upon the conclusion of said hearing the Commission may affirm, modify, or revoke said order of suspension.

(n) Have authority to inspect all radio installations associated with stations required to be licensed by any Act or which are subject to the provisions of any Act, treaty, or convention binding on the United States, to ascertain whether in construction, installation, and operation they conform to the requirements of the rules and regulations of the Commission, the provisions of any Act, the terms of any treaty or convention binding on the United States, and the conditions of the license or other instrument of authorization under which they are constructed, installed, or operated.

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(r) Make such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this Act, or any international radio or wire communications treaty or convention, or regulations annexed thereto, including any treaty or convention insofar as it relates to the use of radio, to which the United States is or may hereafter become a party.

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SECTION 315 - FACILITIES FOR CANDIDATES FOR PUBLIC OFFICE. If any licensee shall permit any person who is a legally qualified candidate for any public office to use a broadcasting station, he shall afford equal opportunities to all other such candidates for that office in the use of such broadcasting station, and the Commission shall make rules and regulations to carry this provision into effect; Provided--That such licensee shall have no power of censorship over the material broadcast under the provisions of this section. No obligation is hereby imposed upon any licensee to allow the use of its station by any such candidate.

SECTION 317 - ANNOUNCEMENT THAT MATTER IS PAID FOR. All matter broadcast by any radio station for which service, money, or any other valuable consideration is directly or indirectly paid, or promised to or charged or accepted by, the station so broadcasting, from any person shall, at the time the same is so broadcast, be announced as paid for or furnished, as the case may be, by such person.

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SECTION 318 - OPERATION OF TRANSMITTING APPARATUS. The actual operation of all transmitting apparatus in any radio station for which a station license is required by this Act shall be carried on only by a person holding an operator's license issued hereunder, and no person shall operate any such apparatus in such station except under and in accordance with an operator's license issued to him by the Commission: Provided, however, that the Commission if it shall find that the public interest, convenience, or necessity will be served thereby may waive or modify the foregoing provisions of this section for the operation of any station except (1) stations for which licensed operators are required by international agreement, (2) stations for which licensed operators are required for safety purposes, (3) stations engaged in broadcasting and (4) stations operated as common carriers on frequencies below thirty thousand kilocycles: Provided further, that the Commission shall have power to make special regulations governing the granting of licenses for the use of automatic radio devices and for the operation of such devices.

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SECTION 321 - DISTRESS SIGNALS AND COMMUNICATIONS. (a) The transmitting set in a radio station on shipboard may be adjusted in such a manner as to produce a maximum of radiation, irrespective of the amount of interference which may thus be caused, when such station is sending radio communications or signals of distress and radio communications relating thereto.

(b) All radio stations, including Government stations and stations on board foreign vessels when within the territorial waters of the United States, shall give absolute priority to radio communications or signals relating to ships in distress; shall cease all sending on frequencies which will interfere with hearing a radio communication or signal of distress, and, except when engaged in answering or aiding the ship in distress, shall refrain from sending any radio communications or signals until there is assurance that no interference will be caused with the radio communications or signals relating thereto, and shall assist the vessel in distress, so far as possible, by complying with its instructions.

SECTION 322 - INTERCOMMUNICATION IN MOBILE SERVICE. Every land station open to general public service between the coast and vessels or aircraft at sea shall, within the scope of its normal operations, be bound to exchange radio communications or signals with any ship or aircraft station at sea; and each station on shipboard or aircraft at sea shall, within the scope of its normal operations, be bound to exchange radio communications or signals with any other station on shipboard or aircraft at sea or with any land station open to general public service between the coast and vessels or aircraft at sea: Provided, that such exchange of radio communication shall be without distinction as to radio systems or instruments adopted by each station.

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SECTION 324 - USE OF MINIMUM POWER. In all circumstances, except in case of radio communications or signals relating to vessels in distress, all radio stations, including those owned and operated by the United States, shall use the minimum amount of power necessary to carry out the communication desired.

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SECTION 325 - FALSE DISTRESS SIGNALS; REBROADCASTING; STUDIOS OF FOREIGN STATIONS. (a) No person within the jurisdiction of the United States shall knowingly utter or transmit, or cause to be uttered or transmitted, any false or fraudulent signal of distress, or communication relating thereto, nor shall any broadcasting station rebroadcast the program or any part thereof of another broadcasting station without the express authority of the originating station.

SECTION 326 - CENSORSHIP; INDECENT LANGUAGE. Nothing in this Act shall be understood or construed to give the Commission the power of censorship over the radio communications or signals transmitted by any radio station, and no regulation or condition shall be promulgated or fixed by the Commission which shall interfere with the right of free speech by means of radio communication. No person within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication.

.....

SECTION 358. The radio installation, the operators, the regulation of their watches, the transmission and receipt of messages, and the radio service of the ship except as they may be regulated by law or international agreement, or by rules and regulations made in pursuance thereof, shall in the case of a ship of the United States be under the supreme control of the master.

.....

SECTION 501 - GENERAL PENALTY. Any person who wilfully and knowingly does or causes or suffers to be done, any act, matter, or thing, in this Act prohibited or declared to be unlawful, or who willfully and knowingly omits or fails to do any act, matter, or thing in this Act required to be done, or willfully and knowingly causes or suffers such omission or failure, shall, upon conviction thereof, be punished for such offense, for which no penalty (other than a forfeiture) is provided herein, by a fine of not more than \$10,000 or by imprisonment for a term of not more than two years, or both.

.....

SECTION 502 - VIOLATIONS OF RULES, REGULATIONS, ETC. Any person who willfully and knowingly violates any rule, regulation, restriction, or condition made or imposed by the Commission under authority of this Act, or any rule, regulation, restriction, or condition made or imposed by any international radio or wire communications treaty or convention, or regulations annexed thereto, to which the United States is or may hereafter become a party, shall, in addition to any other penalties provided by law, be punished, upon conviction thereof, by a fine of not more than \$500 for each and every day during which such offense occurs.

.....

SECTION 505 - VENUE OF OFFENSES. The trial of any offense under this Act shall be in the district in which it is committed; or if the offense is committed upon the high seas, or out of the jurisdiction of any particular State or district, the trial shall be in the district where the offender may be found or into which he shall be first brought. Whenever the offense is begun in one jurisdiction and completed in another it may be dealt with, inquired of, tried, determined, and punished in either jurisdiction in the same manner as if the offense had been actually and wholly committed therein.

.....

SECTION 605 - UNAUTHORIZED PUBLICATION OF COMMUNICATIONS. No person receiving or assisting in receiving, or transmitting, or assisting in transmitting, any interstate or foreign communication by wire or radio shall divulge or publish the existence, contents, substance, purport, effect, or meaning thereof, except through authorized channels of transmission or reception, to any person other than the addressee, his agent, or attorney, or to a person employed or authorized to forward such communication to its destination, or to proper accounting or distributing officers of the various communicating centers over which the communication may be passed, or to the master of a ship under whom he is serving, or in response to a subpoena issued by a court of competent jurisdiction, or on demand of other lawful authority; and no person not being authorized by the sender shall intercept any communication and divulge or publish the existence, contents, substance, purport, effect, or meaning of such intercepted communication to any person; and no person not being entitled thereto shall receive or assist in receiving any interstate or foreign communication by wire or radio and use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto; and no person having received such intercepted communication or having become acquainted with the con-

tents, substance, purport, effect, or meaning of the same or any part thereof, knowing that such information was so obtained, shall divulge or publish the existence, contents, substance, purport, effect, or meaning of the same or any part thereof, or use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto: Provided, that this section shall not apply to the receiving, divulging, publishing, or utilizing the contents of any radio communication broadcast, or transmitted by amateurs or others for the use of the general public, or relating to ships in distress.

.....

INTERNATIONAL TELECOMMUNICATIONS CONVENTION MADRID, 1932.

ARTICLE 24

1. The contracting governments agree to take all the measures possible, compatible with the system of telecommunication used, with a view of insuring the secrecy of international correspondence.

.....

ARTICLE 34

1. Stations carrying on radio communications in the mobile service shall be bound, within the scope of their normal operation to exchange radio communications with one another irrespective of the radio system they have adopted.

ARTICLE 35

1. All stations, regardless of their purpose, must, so far as possible, be established and operated in such a manner as not to interfere with the radio services or communications of either the other contracting governments, or the private operating agencies recognized by these contracting governments and of other duly authorized operating agencies which carry on radio communication service.

ARTICLE 36

Stations participating in the mobile service shall be obliged to accept, with absolute priority, distress calls and messages regardless of their origin, to reply in the same manner to such messages, and immediately to take such action in regard thereto as they may require.

ARTICLE 37

The contracting governments agree to take the steps required to prevent the transmission or the putting into circulation false or deceptive distress signals or distress calls, and the use, by a station, of call signals which have not been regularly assigned to it.

GENERAL RADIO REGULATIONS
(REVISION OF CAIRO 1938)

ARTICLE 1 - DEFINITIONS

1. TELECOMMUNICATION: Any telegraph or telephone communication of signs, signals, writings, images, and sounds of any nature, by wire, radio, or other systems or processes of electric or visual (semaphore) signaling.

GENERAL NETWORK OF TELECOMMUNICATION CHANNELS: The whole of the existing telecommunication channels open to public service, with the exception of the radio channels of the mobile service.

RADIO COMMUNICATION: Any telecommunication by means of Hertzian waves.

RADIOTELEGRAM: Telegram originating in or intended for a mobile station, transmitted or all or part of its route over the radio-communication channels of the mobile service.

TELEGRAPHY: Telecommunication by any system of telegraph signalling. The word "telegram" also covers "radiotelegram", except when the text expressly precludes such a meaning.

TELEPHONY: Telecommunication by any system of telephone signalling.

FREQUENCY ASSIGNED TO A STATION: The frequency assigned to a station is the frequency occupying the center of the frequency band in which the station is authorized to work. In general, this frequency is that of the carrier wave.

FREQUENCY BAND OF AN EMISSION: The frequency band of an emission is the frequency band actually occupied by this emission for the type of transmission and for the signalling speed used.

FREQUENCY TOLERANCE: The frequency tolerance is the maximum permissible separation between the actual frequency of an emission and the frequency which this emission should have (frequency notified or frequency chosen by the operator).

POWER OF A RADIO TRANSMITTER: The power of a radio transmitter is the power supplied to the antenna. For the types of transmitters indicated hereinafter, the following data are applicable:

CONTINUOUS WAVE RADIOTELEGRAPHY: In the case of a transmitter employing type-A1 or -A2 emissions the power is that delivered to the antenna during the marking (key closed) condition.

CONVENTIONAL DOUBLE SIDEBAND TYPE: In the case of an amplitude-modulated wave transmitter of the conventional double sideband type the power in the antenna is represented by two numbers, one indicating the value of the carrier-wave power supplied to the antenna and the other indicating the actual maximum percentage of modulation used.

OTHER TYPES: In the case of amplitude-modulated wave transmitters of other than the conventional double sideband type, the maximum power delivered to the antenna shall be given as the power of the transmitter.

2. FIXED SERVICE: A service carrying on radio communication of any kind between fixed points, with the exception of the broadcasting services and special services.

MOBILE SERVICE: A radio-communication service carried on between mobile and land stations and by mobile stations communicating among themselves, excluding special services.

AERONAUTICAL SERVICE: A radio service carried on between aircraft stations and land stations and by aircraft stations among themselves. This term shall also apply to fixed and special radio services intended to insure the safety of aerial navigation.

BROADCASTING SERVICE: A service carrying on the broadcasting of transmissions intended to be received by the general public; this service shall include exclusively:

(a) RADIOTELEPHONE SERVICE: Service carrying on the broadcasting of transmissions for reception at a distance of voice and music.

(b) TELEVISION SERVICE: Service carrying on the broadcasting of transmissions for the visual reception at a distance of fixed or moving objects.

FACSIMILE SERVICE: A service making transmissions for the reproduction at a distance of fixed images in a permanent form.

SPECIAL SERVICE: A telecommunication service carried on especially for the needs of a specific service of general interest and not open to public correspondence, such as: a service of radio-beacons, radio direction finding, time signals, regular meteorological bulletins, notices to navigators, press messages addressed to all, medical notices (medical consultation by radio), standard frequencies, emissions for scientific purposes, et cetera.

3. FIXED STATION: A station not capable of being moved and communicating by radio with one or more stations established in the same manner.

LAND STATION: A station not capable of being moved, carrying on a mobile service.

COAST STATION: A land station carrying on a service with ship stations. This may be a fixed station assigned also to communication with ship stations; in this case, it shall be considered as a coast station only for the duration of its service with ship stations.

AERONAUTICAL STATION: A land station carrying on a service with aircraft stations. This may be a fixed station assigned also to communication with aircraft stations; in this case, it shall be considered as an aeronautical station only for the duration of its service with aircraft stations.

MOBILE STATION: A station capable of being moved and which ordinarily does move.

ON-BOARD STATION: A station on board either a ship which is not permanently moored, or an aircraft.

SHIP STATION: A station on board a ship which is not permanently moored.

AIRCRAFT STATION: A station on board an aircraft.

PORTABLE STATION: A station intended to be moved easily but which is not ordinarily used while in motion.

RADIOBEACON STATION: A special station the emissions of which are intended to enable an on-board station to determine its bearing or a direction with reference to the radiobeacon station, and in some cases also the distance which separates it from the latter.

RADIO DIRECTION-FINDING STATION: A station equipped with special apparatus for determining the direction of the emissions of other stations.

AMATEUR STATION: A station used by an "amateur", that is, by a duly authorized person interested in radio technique solely with a personal aim and without pecuniary interest.

PRIVATE EXPERIMENTAL STATION: A private station intended for experiments looking to the development of radio technique or science.

PRIVATE RADIO STATION: A private station, not open to public correspondence, which is authorized solely to exchange with other "private radio stations" communications concerning the private business of the license holder or holders.

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ARTICLE 2 - SECRECY OF RADIO COMMUNICATIONS

The administrations agree to take the necessary measures to prohibit and prevent:

(a) The unauthorized interception of radio communications not intended for the general use of the public.

(b) The divulging of the contents or of the mere existence, the publication or any use whatever, without authorization, of the radio communication mentioned in (a).

.....

ARTICLE 3 - LICENSE

1. (1) No transmitting station may be established or operated by any person or by any enterprise whatever without a special license issued by the government of the country to which the station in question is subject.

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ARTICLE 5 - CLASSIFICATION OF EMISSIONS

1. Emissions shall be classified below according to the purpose for which they are used; assuming their modulation or their possible keying to be only in amplitude.

1. CONTINUOUS WAVES:

- TYPE A0. waves, the successive oscillations of which are identical under fixed conditions.
- TYPE A1. Telegraphy on pure continuous waves. A continuous wave which is keyed according to a telegraph code.
- TYPE A2. Modulated telegraphy. A carrier wave modulated at one or more audible frequencies; the audible frequency or frequencies or their combination with the carrier wave being keyed according to a telegraph code.
- TYPE A3. Telephony. waves resulting from the modulation of a carrier wave by frequencies corresponding to the voice, to music or to other sounds.
- TYPE A4. Facsimile. waves resulting from the modulation of a carrier wave by frequencies produced at the time of the scanning of a fixed image with a view to its reproduction in a permanent form.
- TYPE A5. Television. waves resulting from the modulation of a carrier wave by frequencies produced at the time of the scanning of fixed or moving objects.

2. DAMPED WAVES:

TYPE B. waves composed of successive series of oscillations the amplitude of which, after attaining a maximum, decreases gradually, the wave trains being keyed according to a telegraph code.

2. In the above classification, the presence of a carrier wave is assumed in all cases. However, such carrier wave may or may not be transmitted.

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ARTICLE 6 - QUALITY OF EMISSIONS

1. The waves emitted by a station must be kept on the authorized frequency as exactly as the state of the art permits, and their radiation must be as free as practically possible from all emissions not essential to the type of communication carried on.

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3. (1) The administrations shall frequently check the waves emitted by the stations under their jurisdiction to determine whether or not they comply with the provisions of the present Regulations.

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ARTICLE 9 - CONDITIONS TO BE OBSERVED BY MOBILE STATIONS

A. GENERAL

2. The frequency of emission of mobile stations shall be verified as often as possible by the inspection service to which they are subject.

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ARTICLE 11 - AUTHORITY OF THE MASTER

1. The radio service of a mobile station shall be placed under the supreme authority of the master or the person responsible for the ship, aircraft, or any other vehicle carrying the mobile station.

3. The master or responsible person as well as any persons who may have knowledge of the text or simply the existence of radiotelegrams, or of any information acquired by means of the radio service, shall be bound by the obligation to observe and insure the secrecy of the correspondence.

ARTICLE 12 - INSPECTION OF STATIONS

1. (1) The competent governments or administrations of countries where a mobile station calls, may demand the production of the license. The operator of the mobile station or the person responsible for the station must submit to this verification. The license must be kept in such a way that it may be furnished without delay. However, the production of the license may be replaced by a permanent posting in the station, of a copy of the license certified by the authority which has granted it.

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ARTICLE 17 - GENERAL RADIOTELEGRAPH PROCEDURE IN THE MOBILE SERVICE

2. (1) Before transmitting, any station must keep watch over a sufficient interval to assure itself that it will cause no harmful interference with the transmissions being made within its range; if such interference is likely, the station shall await the first stop in the transmission which it may disturb.

.....

ARTICLE 22 - INTERFERENCE

1. (1) The transmission of unnecessary or unidentified signals or correspondence shall be forbidden to all stations.

(2) Tests and experiments shall be permitted in mobile stations if they do not interfere with the service of other stations. As for stations other than mobile stations, each administration shall judge, before authorizing them, whether or not the proposed tests or experiments are likely to interfere with the service of other stations.

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ARTICLE 24 DISTRESS TRAFFIC AND DISTRESS SIGNAL ALARM, EMERGENCY, AND SAFETY SIGNALS

A. GENERAL

1. No provision of these Regulations shall prevent a mobile station in distress from using any means available to it for drawing attention, signaling its position, and obtaining help.

3. (2) AIRCRAFT. Any aircraft in distress must transmit the distress call on the watching wave of the land or mobile stations capable of helping it; when the call is addressed to stations of the maritime service, the waves to be used are the distress wave or watching wave of these stations.

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C. DISTRESS SIGNAL

4. (1) In radiotelegraphy, the distress signal shall consist of the group ... - - - . . . , transmitted as one signal, in which the dashes must be emphasized so as to be distinguished clearly from the dots.

In radiotelephony, the distress signal shall consist of the spoken expression MAYDAY (corresponding to the French pronunciation of the expression "m'aider").

(2) These distress signals shall announce that the ship, aircraft, or any other vehicle which sends the distress signal is threatened by serious and imminent danger and requests immediate assistance.

.....

5. (4) This call shall have absolute priority over other transmissions. All stations hearing it must immediately cease all transmission capable of interfering with the distress traffic, and must listen on the wave used for the distress call. This call must not be sent to any particular station and shall not require an acknowledgment of receipt.

6. (1) The distress call must be followed as soon as possible by the distress message. This message shall include the distress call followed by the name of the ship, aircraft, or the vehicle in distress, information regarding the position of the latter, the nature of the distress and the nature of the help requested, and any other further information which might facilitate this assistance.

(2) When, in its distress message, an aircraft is unable to signal its position, it shall endeavor after the transmission of the incomplete message to send its call signal long enough so that the radio direction-finding stations may determine its position.

7. (1) As a general rule, a ship or aircraft at sea shall signal its position in latitude and longitude (Greenwich) using figures, for the degrees and minutes, accompanied by one of the words NORTH or SOUTH and one of the words EAST or WEST. A period shall separate the degrees from the minutes. In some cases, the true bearings and the distance in nautical miles from some known geographical point may be given.

.....

(3) As a general rule, an aircraft flying over land shall signal its position by the name of the nearest locality, its approximate distance from this point, accompanied, according to the case, by one of the words NORTH, SOUTH, EAST, or WEST, or, in some cases, words indicating intermediate directions.

8. The distress call and message shall be sent only by order of the master or person responsible for the ship, aircraft, or other vehicle carrying the mobile station.

.....

11. (1) Stations of the mobile service which receive a distress message from a mobile station which is unquestionably in their vicinity, must acknowledge receipt thereof at once. If the distress call has not been preceded by an auto-alarm signal, these stations may transmit this auto-alarm signal with the authorization of the authority responsible for the station (for mobile stations, see Art. 11, 1.), taking care not to interfere with the transmission of the acknowledgment of the receipt of said message by other stations.

(2) Stations of the mobile service which receive a distress message from a mobile station which unquestionably is not in their vicinity, must wait a short period of time before acknowledging receipt thereof, in order to make it possible for stations nearer to the mobile station in distress to answer and acknowledge receipt without interference.

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14. The control of distress traffic shall devolve upon the mobile station in distress or upon the mobile station which has sent the distress call. These stations may delegate the control of the distress traffic to another station.

.....

22. (2) In radiotelephony the urgent signal shall consist of three transmissions of the expression PAN (corresponding to the French pronunciation of the word "panne"); it shall be transmitted before the call.

(3) The urgent signal shall indicate that the calling station has a very urgent message to transmit concerning the safety of a ship, an aircraft, or another vehicle, or concerning the safety of some person on board or sighted from on board.

(4) In the aeronautical service, the urgent signal PAN shall be used in radiotelegraphy and in radiotelephony to indicate that the aircraft transmitting it is in trouble and is forced to land, but that it is not in need of immediate help. This signal should, so far as possible, be followed by a message giving additional information.

(5) The urgent signal shall have priority over all other communications, except distress communications, and all mobile or land stations hearing it must take care not to interfere with the transmission of the message which follows the urgent signal.

(6) In case the urgent signal is used by a mobile station, this signal must, as a general rule, subject to the provisions of (4), be addressed to a definite station.

.....

25. (1) The urgent signal may be transmitted only with the authorization of the master or of the person responsible for the

ship, aircraft, or any other vehicle carrying the mobile station.
(2) In the case of a land station, the urgent signal may be transmitted only with the approval of the responsible authority.
.....

26. (1) In radiotelegraphy, the safety signal shall consist of the group TTT, transmitted three times, with the letters of each group, as well as the consecutive groups, well separated. This signal shall be followed by the word DE and three transmissions of the call signal of the station sending it. It announces that this station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings.

(2) In radiotelephony, the word SECURITY (corresponding to the French pronunciation of the word "securite") repeated three times, shall be used as the safety signal.
.....

28. (2) All stations hearing the safety signal must continue listening on the wave on which the safety signal has been sent until the message so announced has been completed; they must moreover keep silence on all waves likely to interfere with the message.
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ARTICLE 26
ORDER OF PRIORITY OF COMMUNICATIONS
IN THE MOBILE SERVICE

The order of priority of radio communications in the mobile service shall be as follows:

1. Distress calls, distress messages, and distress traffic.
2. Communications preceded by an urgent signal.
3. Communications preceded by a safety signal.
4. Communications relative to radio direction-finding bearings.
5. Government radiotelegrams for which priority right has not been waived.
6. All other communications.

EXTRACTS FROM RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION

CHAPTER 1. RULES OF PRACTICE AND PROCEDURE.

SECTION 1.391. UNDER TITLE III OF THE ACT. Any licensee receiving official notice of a violation of the terms of the Communications Act of 1934, any legislative act, Executive Order, treaty to which the United States is a party, or the rules and Regulations of the Federal Communications Commission, shall, within three days from such receipt, send a written answer direct to the Federal Communications Commission at Washington, D. C., and a copy thereof to the office of the Commission originating the official notice when the originating office is other than the office of the Commission in Washington, D. C.; provided, however, that if an answer cannot be sent nor acknowledgment made within such three day period by reason of illness or other unavoidable circumstances, acknowledgment and answer shall be made at the earliest practicable date with a satisfactory explanation of the delay. The answer to each notice shall be complete in itself and shall not be abbreviated by reference to other communications or answers to other notices. If the notice relates to some violation that may be due to the physical or electrical characteristics of transmitting apparatus, the answer shall state fully what steps, if any, are taken to prevent future violations, and if any new apparatus is to be installed, the date such apparatus was ordered, the name of the manufacturer, and promised date of delivery. If the installation of such apparatus requires a construction permit, the file number of the application shall be given, or if a file number has not been assigned by the Commission, such identification as will permit of ready reference. If the notice of violation relates to some lack of attention or improper operation of the transmitter, the name and license number of the operator in charge shall be given.

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SECTION 1.411. ORDER OF SUSPENSION. No order of suspension of any operator's license shall take effect until fifteen days' notice in writing thereof, stating the cause for the proposed suspension, has been given to the operator licensees who may make written application to the Commission at any time within said fifteen days for a hearing upon such order. The notice to the operator licensee shall not be effective until actually received by him, and from that time he shall have fifteen days in which to mail the said application. In the event that physical conditions prevent mailing of the application at the expiration of the fifteen-day period, the application shall then be mailed as soon as possible thereafter, accompanied by a satisfactory explanation of the delay. Upon receipt by the Commission of such application for hearing, said order of suspension shall be held in abeyance until the conclusion of the hearing which shall be conducted under such rules as the Commission shall deem appropriate. Upon the conclusion of said hearing the Commission may affirm, modify, or revoke said order of suspension.

SECTION 1.412. PROCEEDINGS. Proceedings for suspension of an operator's license shall in all cases be initiated by the entry of an order of suspension. Respondent will be given notice thereof together with notice of his right to be heard and to contest the proceeding. The effective date of the suspension will not be specified in the original order but will be fixed by subsequent motion of the Commission in accordance with the conditions specified above. Notice of the effective date of suspension will be given respondent, who shall send his operator license to the office of the Commission in Washington, D. C., on or before the said effective date, or, if the effective date has passed at the time notice is received, the license shall be sent to the Commission forthwith.

CHAPTER 2 GENERAL RULES AND REGULATIONS

DEFINITIONS

2.1 PERMITTEE. "Permittee" means the holder of a radio station construction permit.

2.2 STATION LICENSEE. "Station licensee" means the holder of a radio station license.

2.3 OPERATOR LICENSEE. "Operator licensee" means the holder of a license or permit for the technical operation (manipulate the controls) of a licensed radio station.

2.4 RADIO STATION. "Radio station" or "station" means a station equipped to engage in radio communication or radio transmission of energy. A station includes all apparatus used at a particular location for one class of service and operated under a single instrument of authorization. Radio stations are classified according to the nature of the service they furnish, and in each service there may be several classes of radio stations as herein-after provided.

2.5 USEFUL RADIO SPECTRUM. "Useful radio spectrum" means the total number of wavelengths or frequencies which may be used for the transmission of energy, communications, or signals by radio.

2.6 TELEVISION. "Television" is a system of communications in which transient visual images of moving or fixed objects are transmitted for reception by visual observation.

2.7 FACSIMILE. "Facsimile" is a system of communication in which images are transmitted for record reception.

2.8 TYPE A FACSIMILE. "Type A facsimile" is a system of facsimile communication in which images are built up of lines or dots of constant intensity.

2.9 TYPE B FACSIMILE. "Type B facsimile" (telephotography, photoradio, etc.) is a system of facsimile communication in which images are built up of lines or dots of varying intensity.

2.10 CYCLES, KILOCYCLES, MEGACYCLES. In these regulations and in any instrument of authorization issued pursuant thereto, the term "cycles" shall be construed to mean cycles per second; "kilocycles" to mean kilocycles per second; and "megacycles" to mean megacycles per second.

2.11 CARRIER WAVE. A "carrier wave" is;

(a) In a frequency stabilized system, the sinusoidal component of a modulated wave whose frequency is independent of the modulating wave; or

(b) The output of a transmitter when the modulating wave is made zero; or

(c) A wave generated at a point in the transmitting system and subsequently modulated by the signal; or

(d) A wave generated locally at the receiving terminal which when combined with the sidebands in a suitable detector produces the modulating wave.

2.12 CARRIER FREQUENCY. A "carrier frequency" is the frequency of the carrier wave.

2.13 AUTHORIZED, LICENSED, ASSIGNED FREQUENCY. "Authorized frequency", "licensed frequency", or "assigned frequency" means the carrier frequency assigned to a station by the Commission and specified in the instrument of authorization.

2.14 OPERATING FREQUENCY. "Operating frequency" means the carrier frequency that is actually generated by a station.

2.15 COMMUNICATION BAND. "Communication band" means the frequency band or width of the frequency band required for the type of emission authorized.

2.16 AUTHORIZED BAND. "Authorized band" means the frequency band or width of the frequency band within which the emissions of a station shall be confined. Its width comprises the "communication band" and twice the "frequency tolerance".

2.17 AUTHORIZED OR LICENSED POWER. "Authorized power" or "licensed power" means the power assigned to a radio station by the Commission and specified in the instrument of authorization.

2.18 OPERATING POWER. "Operating power" means the power that is actually supplied to the radio station antenna. This power is computed by one of the several methods hereinafter described in these regulations.

2.19 MAXIMUM RATED CARRIER POWER. "Maximum rated carrier power" is the maximum power at which the transmitter can be operated satisfactorily and is determined by the design of the transmitter and the type and number of vacuum tubes used in the last radio stage.

2.20 PLATE INPUT POWER. "Plate input power" means the product of the direct plate voltage applied to the tubes in the last radio stage and the total direct current flowing to the plates of these tubes, measured without modulation.

2.21 ANTENNA POWER. "Antenna input power" or "antenna power" means the product of the square of the antenna current and the antenna resistance at the point where the current is measured.

2.22 ANTENNA CURRENT. "Antenna current" means the radio frequency current in the antenna with no modulation.

2.23 ANTENNA RESISTANCE. "Antenna resistance" means the total resistance of the transmitting antenna system at the operating frequency and at the point at which the antenna current is measured.

2.24 MODULATION. "Modulation" is the process of producing a wave, some characteristic of which varies as a function of the instantaneous value of another wave, called the modulating wave.

2.25 MODULATOR STAGE. "Modulator stage" means the last amplifier stage of the modulating wave which modulates a radio frequency stage.

2.26 MODULATED STAGE. "Modulated stage" means the radio frequency stage to which the modulator is coupled and in which the continuous wave (carrier wave) is modulated in accordance with the system of modulation and the characteristics of the modulating wave.

2.27 LAST RADIO STAGE. "Last radio stage" means the oscillator or radio frequency-power amplifier stage which supplies power to the antenna.

2.28 PERCENTAGE MODULATION (AMPLITUDE). "Percentage modulation" with respect to a amplitude modulated wave means the ratio of half the difference between the maximum and minimum amplitudes of the amplitude modulated wave to the average amplitude, expressed in percentage.

2.29 PERCENTAGE MODULATION (FREQUENCY). "Percentage modulation" with respect to a frequency modulated radio wave, is the ratio of the frequency difference between the fixed carrier frequency and the resultant modulated frequency, and the frequency difference required for 100 percent modulation, expressed in percentage.

2.30 MAXIMUM PERCENTAGE MODULATION. "Maximum percentage of modulation" means the greatest percentage of modulation that may be obtained by a transmitter without producing in its output harmonics of the modulating frequency in excess of those permitted by these regulations.

2.31 HIGH-LEVEL MODULATION. "High-level modulation" is modulation produced in the last radio stage of the system.

2.32 LOW-LEVEL MODULATION. "Low-level modulation" is modulation produced in an earlier stage than the final.

2.33 PLATE MODULATION. "Plate modulation" is modulation produced by introduction of the modulating wave into the plate circuit of any tube in which the carrier frequency wave is present.

2.34 GRID MODULATION. "Grid modulation" is modulation produced by introduction of the modulating wave into any of the grid circuits of any tube in which the carrier frequency wave is present.

2.35 SPECIAL PROVISIONS FOR APPARATUS EMPLOYING ALTERNATING PLATE SUPPLY (SELF-RECTIFYING PLATE SUPPLY). In the application of these rules to equipment authorized and designed for the use of alternating current or voltage, as plate supply for the last radio stage, the terms "direct current" and "direct voltage" shall be

considered as referring to the equivalent effective alternating current and voltage, and terms having possible application only to equipment designed for the use of direct current shall not apply whenever these terms are used in these rules.

ADMINISTRATIVE REGULATIONS

2.41 PERIOD OF CONSTRUCTION. Each construction permit will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin, and a maximum of six months thereafter as the time within which construction shall be completed and the station ready for operation, unless otherwise determined by the Commission upon proper showing in any particular case.

2.42 EQUIPMENT TEST. Upon completion of construction of a radio station in exact accordance with the terms of the construction permit, the technical provisions of the application therefor and the rules and regulations governing the class of station concerned and prior to filing of application for license, the permittee is authorized to test the equipment for a period not to exceed 10 days; Provided, that:

(a) The inspector in charge of the district in which the station is located, is notified 2 days in advance of the beginning of tests.

(b) In the case of all broadcast stations the Commission also shall be notified 2 days in advance of the beginning of tests, which shall be conducted in the case of standard broadcast stations, only between 1 AM and 6 AM, local standard time unless otherwise specifically authorized. Equipment tests shall not be conducted during the frequency monitoring period when the station is required to remain silent.

(c) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date of beginning for the period of such tests as and when such action may appear to be in the public interest, convenience, and necessity.

2.43 SERVICE OR PROGRAM TEST.

(a) When construction and equipment tests are completed in exact accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations governing the class of station concerned, and after an application for station license has been filed with the Commission showing the transmitter to be in satisfactory operating condition, the permittee is authorized to conduct service or program tests in exact accordance with the terms of the construction permit for a period not to exceed 30 days; Provided that:

(1) The inspector in charge of the district in which the station is located is notified 2 days in advance of the beginning of such tests.

(2) In the case of all broadcast stations the Commission also shall be notified 2 days in advance of the beginning of tests.

(b) The Commission reserves the right to cancel such tests or suspend, or change the date of beginning for the period of such tests as and when such action may appear to be in the public interest, convenience, and necessity by notifying the permittee.

(c) Service or program tests will not be authorized after expiration date of the construction permit.

2.44 AUTHORIZATION FOR TESTS NOT TO BE CONSTRUED AS LICENSE.

The authorization for tests embodied in sections 2.42 and 2.43 shall not be construed as constituting a license to operate, but as a necessary part of the construction.

2.45 LICENSE EXPIRATION TIME AND PERIODS.

Each station license will be issued so as to expire at the hour 3 AM, eastern standard time. The normal license periods and expiration dates are specified under the rules governing the class of station concerned. Unless otherwise ordered, when an application for a new station license is granted within three months of the expiration date for licenses of the particular class of station involved, the license shall be issued for the unexpired period of the current license term and for the full succeeding term. If granted more than three months from the normal expiration date, the license will be issued for the unexpired period of the current license term only.

2.46 LICENSE, SIMULTANEOUS MODIFICATION AND RENEWAL. When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license) the modified license as well as the renewal license shall be issued to conform to the combined action of the commission.

2.47 MAINTENANCE TESTS OF LICENSED STATIONS. Station licensees are authorized to carry on such routine tests as may be required for the proper maintenance of the stations under the rules governing the class of station concerned, provided that the tests shall be so conducted as not to cause interference with the service of other stations.

2.48 STATION INSPECTION. The licensee of any radio station shall make the station available for inspection by representatives of the Commission at any reasonable hour and under the regulations governing the class of station concerned.

2.49 CALL LETTER ASSIGNMENT. The call letters of a radio station shall normally be designated in alphabetical order from groups available for assignment.

2.50 DELETION OF CALL LETTERS. The call letters of a radio station will be deleted in either of the following instances:

- (a) Where an existing instrument of authorization has expired and no application for renewal or extension thereof has been filed;
- (b) Where a license has been revoked, surrendered or canceled.

2.51 STATION LICENSE, POSTING OF. The original of each station license shall be posted in the transmitter room or kept in the manner specified in the regulations governing the class of station concerned.

2.52 OPERATOR LICENSE, POSTING OF. The original license of each station operator shall be posted at the place where he is on duty, or kept in his possession in the manner specified in the regulations governing the class of station concerned.

2.53 OPERATORS, PLACE OF DUTY.

(a) Except as may be provided in the rules governing a particular class of station, one or more licensed operators of the grade specified by these rules and regulations shall be on duty at the place where the transmitting apparatus of each station is located and in actual charge thereof whenever it is being operated; Provided, however, that:

(1) Subject to the provision of paragraph (b) of this section, in the case of a station licensed for service other than broadcast, where remote control is used, the Commission may modify the foregoing requirements upon proper application and showing being made so that such operator or operators may be on duty at the control station in lieu of the place where the transmitting apparatus is located.

(2) In the case of two or more stations, except amateur and broadcast, licensed in the name of the same person to use frequencies above 30000 kilocycles only, a licensed radio operator of any class except amateur, radiotelephone third class, or holder of restricted operator permit who has the station within his effective control, may be on duty at any point within the communication range of such stations in lieu of the transmitter location or control point during the actual operation of the transmitting apparatus and shall supervise the emissions of all such stations so as to insure the proper operation in accordance with the station license.

(b) Authority to employ an operator at the control point in accordance with paragraph (a) (1) of this section shall be subject to the following conditions:

(1) The transmitter shall be so installed and protected that it is not accessible to other than duly authorized persons.

(2) The emissions of the transmitter shall be continuously monitored at the control point by a licensed operator of the grade specified for the class of station involved.

(3) Provision shall be made so that the transmitter can quickly and without delay be placed in an inoperative con-

dition in the event there is a deviation from the terms of the station license.

(4) The radiation of the transmitter shall be suspended immediately when there is a deviation from the terms of the station license.

2.54 RETENTION OF RADIO STATION LOGS. Logs of a radio station, when required elsewhere in these rules and regulations to be made or kept, shall be retained by the licensee for a period of 1 year unless otherwise provided by the rules governing the particular service or class of station concerned: Provided, however, that logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee has been notified, shall be retained by the licensee until specifically authorized in writing by the Commission to destroy them: Provided, further, that logs incident to or involved in any claim or complaint of which the licensee has notice shall be retained by the licensee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

2.55 LOGS, BY WHOM KEPT. Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commission.

2.56 LOG FORM. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned, are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.

2.57 CORRECTION OF LOGS. No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

2.58 ROUGH LOGS. Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.

2.59 DISTRESS MESSAGES. Each station licensee shall give absolute priority to radio communications or signals relating to ships or aircraft in distress; shall cease all sending on frequencies which will interfere with hearing a radio communication or signal of distress and except when engaged in answering or aiding the ship or aircraft in distress; shall refrain from sending any radio communications or signals until there is assurance that no interference will be caused with the radio communications or signals relating thereto, and shall assist the vessel in distress, so far as possible, by complying with its instructions.

2.60 CONTROL OF DISTRESS TRAFFIC. The control of distress traffic shall devolve upon the mobile station in distress or upon the station which by application of the provisions of section 2.61 has sent the distress call. These stations may delegate the control of the distress traffic to another station.

2.61 RETRANSMISSION OF DISTRESS MESSAGE. Any station which becomes aware that a mobile station is in distress may transmit the distress message in the following cases:

(a) When the station in distress is not itself in a position to transmit the message.

(b) In the case of mobile stations, when the master or the person in charge of the ship, aircraft, or other vehicle carrying the station which intervenes believes that further help is necessary.

(c) In the case of other stations, when directed to do so by the station in control of distress traffic or when it has reason to believe that a distress call which it has intercepted has not been received by any station in a position to render aid.

2.62 RESUMPTION OF OPERATION AFTER DISTRESS. No station having been notified to cease operation shall resume operation on frequency or frequencies which may cause interference until notified by the station issuing the original notice that the station

involved will not interfere with distress traffic as it is then being routed or until the receipt of a general notice that the need for handling distress traffic no longer exists.

2.63 OPERATION DURING EMERGENCY. The licensee of any station, except amateurs, may, during a period of emergency in which the normal communication facilities are disrupted as a result of hurricane, flood, earthquake, or similar disaster, utilize such station for emergency communication service in communicating in a manner other than that specified in the station license, provided (1) that as soon as possible after the beginning of such emergency use notice be sent to the Commission in Washington, D.C., and to the inspector in charge of the district in which the station is located stating the nature of the emergency and the use to which the station is being put, and (2) that the emergency use of the station shall be discontinued as soon as substantially normal communication facilities are again available and the Commission in Washington, D.C., and the inspector in charge be notified immediately when such special use of the station is terminated. The Commission may at any time order the discontinuance of such service.

2.64 PORTABLE-MOBILE STATION. "Portable-mobile station" means a radio station which is normally used while in motion and which is capable of being moved conveniently from one mobile unit to another, and is in fact so moved from time to time.

2.73 SPECIAL EMISSIONS. Authorization for other types of emission may be issued and will be termed "special" in the instrument of authorization. When special emissions are authorized they will be described and limited as to bandwidth by the instrument of authorization.

2.74 PERMISSIBLE BANDWIDTH OF EMISSION. The bandwidth described herein is the maximum permissible for the type of emission indicated. Unless otherwise specifically provided by the rules governing the class of station concerned, the bandwidth emitted shall not exceed the frequency separation bandwidth as shown in the table of frequency allocations.

2.75 FREQUENCY MEASUREMENT. The licensee of each station shall provide means for the measurement of the station frequency. The measurement of the station frequency shall be made by a means independent of the frequency control of the transmitter and shall be conducted in accord with the regulations governing the class of station concerned.

2.76 PRIMARY STANDARD OF FREQUENCY. The primary standard of frequency for radio frequency measurements shall be the national standard of frequency maintained by the National Bureau of Standards, Department of Commerce, Washington, D.C. The operating frequency of all radio stations will be determined by comparison with this standard or the standard signals of Station WWV of the National Bureau of Standards.

2.77 CLASS B EMISSION PROHIBITED. No license shall be issued for the operation of any station using, or proposing to use, transmitting apparatus employing damped wave (class B) emissions.

2.78 FREQUENCY TOLERANCE. The frequency tolerance for various classes of stations will be as specified in the regulations governing the class of station concerned.

2.79 OPERATING POWER, COMPUTATION OF. The operating power shall be computed by one of the following methods:

(a) By indirect measurement from the plate input power of the last radio stage, by multiplying the plate voltage by the total plate current of the last radio stage, and by a factor which is specified in the regulations governing the class of station concerned.

(b) By direct measurement of the antenna input power.

(c) By measurements of field intensity as specified by the regulations governing the class of station concerned.

2.80 OPERATING POWER TOLERANCE. The operating power of all radio stations shall be maintained within the following tolerance of the authorized or licensed power:

(a) When the maximum power only is specified, the operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified.

(b) When an exact power is specified, the operating power shall at all times be within the limits of 105 percent and 90 percent of the maximum power specified.

2.81 CHANGES IN HEIGHT OR LOCATION OF ANTENNA. The licensee of a radio station, the transmitter of which is authorized at a fixed location, shall not make any changes without the express authority of the Commission, either in the height or the location of the antenna or its supporting structures, except in case of other than broadcast station when the existing or proposed antenna or structure has a maximum height not in excess of 100 feet above the ground, changes in height or local changes in location may be made without specific authorization. In no case shall any change in the height or the location of the antenna or its supporting structures be made without authority when located or proposed to be located within five miles of an airport recognized by the Civil Aeronautics Authority or within five miles of the center line of an established federal airway.

2.91 NATIONAL DEFENSE PREPARATION BY FREE SERVICE. Any common carrier or the licensee of any radio station subject to the Communications Act may utilize its facilities to render free service to the government for military or Naval communications in preparation for national defense. The government agency concerned will keep the Commission generally informed of the services of this kind accepted. Nothing herein or in any other regulation of the Commission shall be construed to require any such carrier or station to participate in any such communication.

PROVISIONS GOVERNING THE OPERATION OF CERTAIN LOW POWER RADIO FREQUENCY DEVICES

2.101 GENERAL. Pending the acquiring of more complete information regarding the character and effects of the radiation involved, the following provisions shall govern the operation of the low power radio frequency electrical devices hereinafter described.

2.102 APPARATUS EXCEPTED FROM REQUIREMENTS OF OTHER RULES. With respect to any apparatus which generates a radio frequency electromagnetic field functionally utilizing a small part of such field in the operation of associated apparatus not physically connected thereto and at a distance not greater than:

$$\frac{157,000}{f. \text{ (kc.)}} \text{ ft. } \left[\frac{\lambda}{2\pi} \right]$$

the existing rules and regulations of the Commission shall not be applicable, provided:

(a) That such apparatus shall be operated with the minimum power possible to accomplish the desired purpose.

(b) That the best engineering principles shall be utilized in the generation of radio frequency currents so as to guard against interference to established radio service, particularly on the fundamental and harmonic frequencies.

(c) That in any event the total electromagnetic field produced at any point a distance of:

$$\frac{157,000}{f. \text{ (kc.)}} \text{ ft. } \left[\frac{\lambda}{2\pi} \right]$$

from the apparatus shall not exceed 15 microvolts per meter.

(d) That the apparatus shall conform to such engineering standards as may from time to time be promulgated by the Commission.

2.103 EXCEPTIONS; INTERFERENCE TO RADIO RECEPTION. The provisions of sections 2.101 and 2.102 shall not be construed to apply to any apparatus which causes interference to radio reception.

2.104 INSPECTION AND TEST; CERTIFICATES. Upon request, the Commission will inspect and test any apparatus described in sections 2.101 and 2.102, and on the basis of such inspection and test, formulate and publish findings as to whether such apparatus does or does not comply with the above conditions, and issue a certificate specifying conditions of operation to the party making such request.

PART 13
RULES GOVERNING COMMERCIAL
RADIO OPERATORS

ORDER

At a meeting of the Federal Communications Commission held at its offices in Washington, D. C., on the 19th day of December, 1938.

WHEREAS, it appears necessary to provide for a certain transition period during which the present holders of licenses may continue to operate radio stations and may have a reasonable opportunity to obtain renewal of such licenses in accordance with the revised rules,

IT IS ORDERED, That all licenses outstanding as of this date shall continue in force for the remainder of their respective terms. However, a licensee may apply for renewal under the terms of the new regulations at any time during the remainder of the license period.

IT IS FURTHER ORDERED, That all outstanding radiotelegraph licenses bearing an endorsement granting privileges comparable with a radiotelephone license of any class shall be considered as two separate licenses and application for renewal thereof shall be made separately.

IT IS FURTHER ORDERED, That radiotelegraph first class licenses now held by persons under twenty-one years of age may be renewed without regard to the age limit provided by Rule 13.12.

GENERAL

13.1 LICENSED OPERATORS REQUIRED. Unless otherwise specified by the Commission, the actual operation of any radio station for which a station license is required shall be carried on only by a licensed radio operator of the required class. (See section 13.61)

13.2 CLASSES OF LICENSES. The classes of commercial operator licenses issued by the Commission are:

- (a) COMMERCIAL RADIOTELEPHONE GROUP
 - (1) Radiotelephone second class operator license.
 - (2) Radiotelephone first class operator license.
- (b) COMMERCIAL RADIOTELEGRAPH GROUP
 - (1) Radiotelegraph second class operator license.
 - (2) Radiotelegraph first class operator license.
- (c) RESTRICTED COMMERCIAL GROUP
 - (1) Restricted radiotelephone operator permit.
 - (2) Restricted radiotelegraph operator permit.

13.3 DUAL HOLDING OF LICENSES. A person may not hold more than one radiotelegraph operator license (or restricted radiotelegraph permit) and one radiotelephone operator license (or restricted radiotelephone operator permit) at the same time.

13.4 TERM OF LICENSES. Commercial operator licenses are normally issued for a term of 5 years from the date of issuance.

APPLICATIONS

13.11 PROCEDURE. The application form in duplicate for operator license, properly completed and signed, shall be submitted in person or by mail to the office at which the applicant desires to be examined, which office will make the final arrangements for conducting the examination. If the application is for renewal of license, it must be submitted during the last year of the license term and if the service requirements are fulfilled (section 13.28) the renewal license may be issued by mail. A renewal application shall also be accompanied by the license to be renewed.

13.12 SPECIAL PROVISIONS, RADIOTELEGRAPH FIRST CLASS. An applicant for the radiotelegraph first class operator license must be at least 21 years of age at the time the license is issued and shall have had an aggregate of 1 year of satisfactory service as a radiotelegraph operator manipulating the key of a manually operated radiotelegraph station on board a ship or in a manually operated coastal telegraph station.

EXAMINATIONS

13.21 EXAMINATION ELEMENTS. Written examinations will comprise questions from one or more of the following examination elements:

- (1) BASIC LAW. Provisions of law and regulation with which every operator should be familiar.
- (2) BASIC THEORY AND PRACTICE. Technical matters appropriate for every class of license except restricted radiotelephone operator permit.
- (3) RADIOTELEPHONE. Additional matters, both legal and technical, including radiotelephone theory and practice.
- (4) ADVANCED RADIOTELEPHONE. Theory and practice applicable to broadcast station operation.
- (5) RADIOTELEGRAPH. Additional matters, both legal and technical, including radiotelegraph theory and practice.
- (6) ADVANCED RADIOTELEGRAPH. Radiotelegraph theory and practice of wider scope, particularly with respect to ship radio matters (direction finders, ship radiotelephone stations, spark transmitters, etc.).

13.22 EXAMINATION REQUIREMENTS. Applicants for original licenses will be required to pass examinations as follows:

- (a) RADIOTELEPHONE SECOND CLASS OPERATOR LICENSE:
 - (1) Ability to transmit and receive spoken messages in English.
 - (2) Written examination elements: 1, 2, and 3.
- (b) RADIOTELEPHONE FIRST CLASS OPERATOR LICENSE:
 - (1) Ability to transmit and receive spoken messages in English.
 - (2) Written examination elements: 1, 2, 3, and 4.
- (c) RADIOTELEGRAPH SECOND CLASS OPERATOR LICENSE:
 - (1) Ability to transmit and receive spoken messages in English.
 - (2) Transmitting and receiving code test of sixteen code groups per minute.
 - (3) Written examination elements: 1, 2, 5, and 6.
- (d) RADIOTELEGRAPH FIRST CLASS OPERATOR LICENSE:
 - (1) Ability to transmit and receive spoken messages in English.
 - (2) Transmitting and receiving code test of twenty-five words per minute plain language and twenty code groups per minute.
 - (3) Written examination elements: 1, 2, 5, and 6.
- (e) RESTRICTED RADIOTELEPHONE OPERATOR PERMIT:
 - (1) Ability to transmit and receive spoken messages in English.
 - (2) Written examination element: 1.
- (f) RESTRICTED RADIOTELEGRAPH OPERATOR PERMIT:
 - (1) Transmitting and receiving code test of sixteen code groups per minute.
 - (2) Written examination elements: 1, 2, and 5.

13.23 FORM OF WRITING. Written examinations shall be in English and shall be written by the applicant in longhand in ink, except that diagrams may be in pencil.

13.24 PASSING MARK. A passing mark of 75 percent of a possible 100 percent will be required on each element of a written examination.

13.25 NEW CLASS, ADDITIONAL REQUIREMENTS. The holder of a license, who applies for another class of license, will be required to pass only the added examination elements for the new class of license.

13.26 CANCELING AND ISSUING NEW LICENSES. If the holder of a license qualifies for a higher class in the same group, the license held will be canceled upon the issuance of the new license. Similarly, if the holder of a restricted operator permit qualifies for a first or second class operator license of the corresponding type, the permit held will be canceled upon issuance of the new license.

13.27 ELIGIBILITY FOR REEXAMINATION. An applicant who fails an examination element will be ineligible for 2 months to take an examination for any class of license requiring that element. Examination elements will be graded in the order listed (Sec. 13.28) and an applicant may, without further application, be issued the class of license for which he qualifies.

13.28 RENEWAL EXAMINATIONS AND EXCEPTIONS. A license may be renewed without examination provided the service record on the license (see Secs. 13.91 - 13.94 inclusive) shows at least 3 years satisfactory service in the aggregate during the license term and while actually employed as a radio operator under that license; or shows at least 2 years service in the aggregate, under the same conditions, of which 1 year must have been continuous and immediately prior to the date of application for renewal.

If the above requirements have not been fulfilled, but the service record shows at least 3 months satisfactory service in the aggregate, while actually employed as a radio operator under the license during the last 3 years of the license term, a license may be renewed upon the successful completion of a renewal examination which may be taken at any time during the last year of the license term.

Renewal examinations will consist of the same elements as for original licenses. However, the written examination will be directed toward a determination of the applicant's qualifications to continue to hold the license for which he has previously qualified. If the renewal examination is not successfully completed before expiration of the license sought to be renewed, or if the service is not acceptable, the applicant will be examined as for the original license.

CODE TESTS

13.41 TRANSMITTING SPEED REQUIREMENTS. An applicant is required to transmit correctly in the International Morse Code for 1 minute at the rate of speed prescribed in these rules for the class of license desired.

13.42 TRANSMITTING TEST PROCEDURE. Transmitting tests shall be performed by the use of the conventional Morse key except that a semi-automatic key, if furnished by the applicant, may be used in transmitting code tests of 25 words per minute.

13.43 RECEIVING SPEED REQUIREMENTS. An applicant is required to receive the International Morse Code by ear, and legibly transcribe, consecutive words or code groups for a period of 1 minute without error at the rate of speed specified in the rules for the class of license for which application is made.

13.44 RECEIVING TEST PROCEDURE. Receiving code tests shall be written in longhand either in ink or pencil except that in the case of the 25 words per minute code test, a typewriter may be used when furnished by the applicant.

13.45 COMPUTING WORD OR CODE GROUPS. Each five characters shall be counted as one word or code group. Punctuation marks or figures count as two characters.

SCOPE OF AUTHORITY

13.61 OPERATORS' AUTHORITY. The various classes of commercial operator licenses issued by the Commission authorize the holders thereof to operate radio stations, except amateur, as follows:

(a) RADIOTELEPHONE SECOND CLASS OPERATOR LICENSE. Any station while using type A-0, A-3, A-4, or A-5 emission except: standard broadcast stations, International Broadcast stations, or ship stations licensed to use power in excess of 100 watts and type A-3 emission for communication with coastal telephone stations.

(b) RADIOTELEPHONE FIRST CLASS OPERATOR LICENSE. Any station while using type A-0, A-3, A-4, or A-5 emission except ship stations licensed to use a power in excess of 100 watts and type A-3 emission for communication with coastal telephone stations.

(c) RADIOTELEGRAPH SECOND CLASS OPERATOR LICENSE. Any station while using type B, A-0, A-1, A-2, A-3, or A-4 emission except:

- (1) Any of the various classes of broadcast stations other than a relay broadcast station, or
- (2) On a passenger vessel required by treaty or statute to

maintain a continuous radio watch by operators on a vessel having continuous hours of service for public correspondence, the holder of this class of license may not act as chief operator.

(3) On a vessel (other than a vessel operated exclusively on the Great Lakes) required by treaty or statute to be equipped with a radiotelegraph installation, the holder of this class license may not act as chief or sole operator until he has had at least 6 months' satisfactory service as a qualified radiotelegraph operator on a vessel of the United States.

(d) **RADIOTELEGRAPH FIRST CLASS OPERATOR LICENSE.** Any station while using type B, A-0, A-1, A-2, A-3, or A-4 emission except:

(1) Any of the various classes of broadcast stations other than a relay broadcast station.

(2) On a cargo vessel (other than a vessel operated exclusively on the Great Lakes) required by treaty or statute to be equipped with a radiotelegraph installation, the holder of this class license may not act as chief or sole operator until he has had at least 6 months' satisfactory service as a qualified radiotelegraph operator on a vessel of the United States.

(e) **RESTRICTED RADIOTELEPHONE OPERATOR PERMIT.** Any station while using type A-0, A-3, or A-4 emission: Provided, that --

(1) Such operator is prohibited from making adjustments that may result in improper transmitter operation.

(2) The equipment is so designed that none of the operations necessary to be performed during the course of normal rendition of service may cause off-frequency operation or result in any unauthorized radiation.

(3) Any needed adjustments of the transmitter that may affect the proper operation of the station are regularly made by or in the presence of an operator holding a first or second class license, either telephone or telegraph, who shall be responsible for the proper operation of the equipment.

EXCEPTIONS:

(1) The permit is not valid for the operation of any of the various classes of broadcast stations other than a relay broadcast station.

(2) The permit is not valid for the operation of a coastal telephone station or a coastal harbor station other than in the Territory of Alaska.

(3) The permit is not valid for the operation of a ship station licensed to use type A-3 emission for communication with coastal telephone stations.

(f) **RESTRICTED RADIOTELEGRAPH OPERATOR PERMIT.** Any station while using type B, A-0, A-1, A-2, A-3, or A-4 emission: Provided, that, in the case of equipment designed for and using type A-3 or A-4 emission --

(1) Such operator is prohibited from making adjustments that may result in improper transmitter operation.

(2) The equipment is so designed that none of the operations necessary to be performed during the course of normal rendition of service may cause off-frequency operation or result in any unauthorized radiation.

(3) Any needed adjustments of the transmitter which may affect proper operation of the station are regularly made by or in the presence of an operator holding a first or second class license, either telephone or telegraph, who shall be responsible for the proper operation of the equipment.

EXCEPTIONS:

(1) The permit is not valid for the operation of any of the various classes of broadcast stations other than a relay broadcast station.

(2) The permit is not valid for the operation of a ship station licensed to use type A-3 emission for communication with coastal telephone stations.

(3) The license is not valid for the operation of a radiotelegraph station on board a vessel required by treaty or statute to be equipped with a radio installation.

(4) The license is not valid for the operation of any ship telegraph, coastal telegraph, or marine-relay station open to public correspondence.

13.62 SPECIAL PRIVILEGES. (a) Any operator may operate any station in the experimental service, while using frequencies above 300000 kilocycles.

(b) Subject to the limitations set forth herein (see Sec. 13.61), the holder of any class radiotelephone operator license may operate a radiotelephone point-to-point station, a coastal harbor, or coastal telephone station while using A-1 or A-2 emission, for testing or other transmission entirely secondary and incidental to the service of such station.

13.63 OPERATOR'S RESPONSIBILITY. The licensed operator responsible for the maintenance of a transmitter may permit other persons to adjust a transmitter in his presence for the purpose of carrying out tests or making adjustments requiring specialized knowledge or skill, provided that he shall not be relieved thereby from responsibility for the proper operation of the equipment.

13.64 OBEDIENCE TO LAWFUL ORDERS. All licensed radio operators shall obey and carry out the lawful orders of the master or person lawfully in charge of the ship or aircraft on which they are employed.

13.65 DAMAGE TO APPARATUS. No licensed radio operator shall willfully damage, or cause or permit to be damaged, any radio apparatus or installation in any licensed radio station.

13.66 UNNECESSARY, UNIDENTIFIED, OR SUPERFLUOUS COMMUNICATIONS. No licensed radio operator shall transmit unnecessary, unidentified, or superfluous radio communications or signals.

13.67 OBSCENITY, INDECENCY, PROFANITY. No licensed radio operator or other person shall transmit communications containing obscene, indecent, or profane words, language, or meaning.

13.68 FALSE SIGNALS. No licensed radio operator shall transmit false or deceptive signals or communications by radio, or any call letter or signal which has not been assigned by proper authority to the radio station he is operating.

13.69 INTERFERENCE. No licensed radio operator shall willfully or maliciously interfere with or cause interference to any radio communication or signal.

13.70 FRAUDULENT LICENSES. No licensed radio operator or other person shall obtain or attempt to obtain, or assist another to obtain, an operator's license by fraudulent means.

MISCELLANEOUS

13.71 ISSUE OF DUPLICATE LICENSE. An operator whose license or permit has been lost, mutilated, or destroyed, shall immediately notify the Commission. A sworn application for duplicate should be submitted to the office of issue embodying a statement attesting to the facts thereof. If a license has been lost, the applicant must state that reasonable search has been made for it, and further, that in the event it be found either the original or the duplicate will be returned for cancellation. The applicant must also give a statement of the service that has been obtained under the lost license.

13.72 EXHIBITING SIGNED COPY OF APPLICATION. When a duplicate operator license or permit has been requested, or request for renewal upon service has been made, the operator shall exhibit in lieu thereof a signed copy of the application for duplicate, or renewal, which has been submitted by him.

13.73 SUPERVISION OF EXAMINATIONS FOR PERMIT. Persons other than employees of the Commission may be authorized to supervise examinations for Restricted Radiotelephone Operator Permits for one or more employees of a division of local or State Government: Provided --

(a) That the absence of such employees for the purpose of taking an examination at a field office or designated examining city would interfere with the proper functioning of the division;

(b) That the chief of police, director of public safety, or other official of equal responsibility furnish the names of the persons to be examined and designate an official by name and title to supervise the examination. The application for supervisory examination shall be made to the inspector in charge of the district in which the applicants are located.

13.74 VERIFICATION CARD. The holder of an operator license who operates any station in which the posting of an operator license is not required, may, upon filing application (Form 756), in duplicate, accompanied by his license, obtain a Verification Card (Form 758-F). This card may be carried on the person of the operator in lieu of the original operator license; Provided, the license is readily accessible within a reasonable time for inspection upon demand by an authorized Government representative.

13.75 POSTING LICENSE OR VERIFIED STATEMENT. The holder of a radiotelegraph or radiotelephone first or second class license who is employed as a service and maintenance operator at stations operated by holders of Restricted Operator Permits shall post at such station his operator license or a verified statement from the Commission (Form 759) in lieu thereof.

SERVICE

13.91 ENDORSEMENT OF SERVICE RECORD. A station licensee, or his duly authorized agent, or the master of a vessel acting as the agent of a licensee, shall endorse the service record appearing on said operator license, showing the call letters and types of emission of the station operated, the nature and period of employment, and quality of performance of duty.

13.92 AVIATION SERVICE ENDORSEMENT. If the operator has operated more than three stations in the aviation service, the service may be shown by giving the name of the aviation chain or company in lieu of listing the call letters of the several stations.

13.93 SERVICE ACCEPTABILITY. Credit will be allowed only for satisfactory service obtained under conditions that required the employment of licensed operators, or when obtained at United States Government stations.

13.94 STATEMENT IN LIEU OF SERVICE ENDORSEMENT. The holder of a radiotelegraph license or a restricted radiotelegraph operator permit desiring an endorsement to be placed thereon attesting to an aggregate of at least 6 months' satisfactory service as a qualified operator on a vessel of the United States, may, in the event documentary evidence cannot be produced, submit to any office of the Commission a statement under oath accompanied by the license to be endorsed, embodying the following:

- (a) Names of ships at which employed;
- (b) Call letters of stations;
- (c) Types of emission used;
- (d) Type of service performed as follows:
 - (1) Manual radiotelegraph operation only; and
 - (2) Transmitter control only; or
 - (3) Combination of (1) and (2) running concurrently.
- (e) Whether service was satisfactory or unsatisfactory;
- (f) Period of employment;
- (g) Name of master, employer, licensee, or his duly authorized agent.

OPERATOR REQUIREMENTS FOR THE VARIOUS CLASSES OF RADIO STATIONS

SERVICE AND CLASS OF STATION	TYPES OF EMISSION	LICENSE REQUIRED (MINIMUM)
AMATEUR:	A1, A3	Amateur
AGRICULTURE:		
Telegraph Pt. to Pt. (1)	A1	Restricted Radiotelegraph
AVIATION:		
Aeronautical (1)	A3	Restricted Radiotelephone
Aeronautical Pt. to Pt. (1)	A1	Restricted Radiotelegraph
Airport (1)	A3	Restricted Radiotelephone
Aircraft (1)	A3	Restricted Radiotelephone
Marker Beacon (1)	A3	Restricted Radiotelephone
Flying School (1)	A3	Restricted Radiotelephone
Instrument Landing Service (1)	A3	Restricted Radiotelephone
BROADCAST:		
Regular	A3	Radiotelephone First
Developmental	A3	Radiotelephone Second
Facsimile	A4	Radiotelephone Second
High Frequency	A3	Radiotelephone Second
International	A3	Radiotelephone First
Non-Commercial Educational	A3	Radiotelephone Second
Relay (1) (4)	A3	Restricted Radiotelephone
Television	A5	Radiotelephone Second
EMERGENCY:		
Forestry (1) (2)	A3	Restricted Radiotelephone
Marine Fire (1)	A3	Restricted Radiotelephone
Municipal Police (1)	A3	Restricted Radiotelephone
State Police (1) (2)	A3	Restricted Radiotelephone
Interzone Police (3)	A1	Restricted Radiotelegraph
Zone Police (3)	A1	Restricted Radiotelegraph
Special (1) (2)	A3	Restricted Radiotelephone
EXPERIMENTAL (5)		
Class I (1)	A3	Restricted Radiotelephone
Class II (1)	A3	Restricted Radiotelephone
Class III (1)	A3	Restricted Radiotelephone
FIXED PUBLIC:		
Telegraph Pt. to Pt. (1)	A-1	Restricted Radiotelegraph
Telephone Pt. to Pt. (1)	A-3	Restricted Radiotelephone
FIXED PUBLIC PRESS:		
Telegraph Pt. to Pt. (1)	A-1	Restricted Radiotelegraph
MARINE RELAY (NON-PUBLIC): (1)	A-1	Restricted Radiotelegraph
MARINE RELAY (PUBLIC):	A-1	Radiotelegraph Second
MISCELLANEOUS:		
Geological (1)	A-3	Radiotelephone Second
Geophysical (1)	A-3	Radiotelephone Second
Intermittent	A-3	Restricted Radiotelephone
Mobile Press	A-1	Radiotelegraph Second
Motion Picture (1)	A-3	Restricted Radiotelephone
Provisional (1)	A-3	Restricted Radiotelephone
Relay Press (1)	A-1	Restricted Radiotelegraph
Special Press (1)	A-1	Restricted Radiotelegraph
PUBLIC COASTAL:		
Coastal Telegraph	A-1	Radiotelegraph Second
Coastal Telephone	A-3	Radiotelephone Second
Coastal Harbor	A-3	Radiotelephone Second
PRIVATE COASTAL:		
Coastal Telegraph	A-1	Radiotelegraph Second
Coastal Harbor	A-3	Radiotelephone Second
SHIPS (EQUIPPED UNDER LAW):	A-1	Radiotelegraph Second
Less than 100 W. with phone to phone	A-3	Radiotelephone Second
SHIPS (VOLUNTARILY EQUIPPED):	A-1	Restricted Radiotelegraph

(1) where normal operation of equipment requires no adjustments, such adjustments being made by operator holding second class, or higher, license.

(2) Where A-1 is also used, the operator must have Restricted Radiotelegraph Operator Permit.

(3) Where A-3 is also used, the operator must have Restricted Radiotelephone Operator Permit.

(4) Restricted Radiotelegraph Operator Permit is valid for the operation of relay broadcast station.

(5) Special provisions may be made to operate without licensed operator if conditions justify such operation.

Notes

(These extra pages are provided for your use in taking special notes)

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