DOCUMENT RESUME

ED 136 804 IR 004 595

TITLE	Safety and Special Radio Services.
INSTITUTION	Federal Communications Commission, Washington, D.C.
PUB DATE	Dec 76
NOTE	20p.; Information Bulletin No. 7
EDRS PRICE	MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS	Aviation Technology; Emergency Programs; Forestry; Industry; Navigation; Professional Services; Radar; *Radio; *Safety; *Special Services; Transportation

ABSTRACT

Numerous radio stations across the nation perform nonbroadcast services in areas ranging from aviation, forestry protection, and telephone maintenance to amateur and citizen radio. These services can be grouped in four general categories: (1) safety, (2) industry, (3) land transportation, and (4) miscellaneous purposes. This bulletin briefly describes some 50 radio services which comprise the Safety and Special Radio Services, and FCC (Federal Communications Commission) regulations for these stations. (SC)

Safety and Special Radio Services

Federal Communications Commission, Washington, D.C.

Safety and Special Radio Services

7 12/76

INFORMATION BULLETIN

WHAT THEY ARE

The radio and TV broadcast stations which dot the nation are familiar to the eyes, as well as to the ears, of its citizens. However, their number is dwarfed by a vast array of other types of radio stations with which most people are unfamiliar.

These stations perform services that are almost as varied as they are numerous. Most of them are grouped in what is known as the "Safety and Special Radio Services." They include the use of radio by boats and aircraft, rail and motor carriers, local government, amateurs interested in the radio art, industry, manufactures, public utilities and other businesses individuals for private convenience, agencies concerned with police and fire protection, and for national defense and other emergency services.

In brief, the Safety and Special Radio Services cover practically all radio uses with the exception of broadcasting and common carrier services for hire to the general public.

HOW THEY GREW

The Safety and Special Radio Services include some of radio's oldest functions. The first practical application of radio was in safeguarding life and property at sea. Marine disaster proved radiotelegraphy to be an effective aid to ocean rescues, as well as for speedy ship-to-ship and ship-to-shore communication. The early and continued use of the radio direction finder further established the value of radio for navigation and safety at sea.

Two world wars accelerated the growth of radiocommunication and radiolocation. With the outbreak of World War I, governments began using radio to keep abreast of events and to direct the movements of troops and supplies. World War II not only further demonstrated the military usefulness of radio but stimulated development of equipment and techniques which spurred its utilization for peacetime purposes.

Subsequent developments heightened interest in and extended the use of radiocommunication for business and other activities. More rigid technical requirements, narrower (split) channel spacing and frequency sharing are making more effective use of the still limited spectrum space available to these services. Since there is a scarcity of available frequencies, assignments to private radio users are generally made on a shared basis with other licensees.

WHAT THEY DO

The present Safety and Special Radio Services may, for convenience, be grouped into four general categories as follows:

Safety services -- aviation, marine, police, fire, local government, forestry conservation, highway maintenance, special emergency, and State Guard.

Industrial services -- power, petroleum, forest products, business, manufacturers, special industrial, relay press, motion picture, industrial radiolocation and telephone maintenance.

Land transportation services -- railroad, motor carrier transportation of property and passengers, taxicabs, and automobile emergency.

Miscellaneous services -- amateur, citizens, and disaster communications.

These major classifications are in turn broken down into sub-groups which form the little-known "networks" devoted to the protection of life and property and the trade, professional and personal interests of so many people.

The following pages give a brief description of the some 50 radio services which comprise the Safety and Special Radio Services.

Since this primer must be general in treatment, it does not go into technical or statistical detail. Nor is it practicable to list the frequencies assigned to any particular service. For example, some services are required to share frequencies; other services are permitted temporary use of frequencies pending domestic and international developments; and some services can use frequencies only so long as they cause no interference. Consequently, readers in need of specific information are advised to consult those portions of the Commission's rules and regulations governing the particular services in which they are interested (listed hereafter.)

AVIATION RADIO SERVICES

Aeronautical radio is vital to the protection of life and property in the air, and to the maintenance of an adequate system of navigational aids on the ground and aloft. The necessisty of radio in connection with aircraft operation is shown not only by the fact that it is legally required for airlines and for aircraft flying into certain controlled airports, but also by the large number of voluntary installations by private aircraft operators.

The Aviation Services are concerned with the licensing and regulation of non-governmental aircraft radio stations, aeronautical public service stations, aeronautical enroute and aeronautical fixed stations, aeronautical metropolitan stations, airdome control stations, aeronautical utility mobile stations, radio-navigation stations, aeronautical advisory stations, aviation instructional stations, flight test stations, aeronautical search and rescue stations, Civil Air Patrol stations, aeronautical multicom stations, and radionavigation land test stations.

The following thumbnail description of the various classes of stations in the Aviation Services indicates the part each plays in the complex field of aviation communications:

Aircraft Radio Stations are essentially any type of radio transmitter installed aboard an aircraft. Except the public service type, such stations are used for operational and safety purposes. Because of the nature of their services, aircraft radio stations are divided into three categories: namely, air carrier aircraft, private aircraft, and public service aircraft.

Air Carrier Aircraft Stations are used aboard commercial aircraft engaged in transporting passengers or cargo for hire. This class of station includes scheduled, nonscheduled and cargo carriers. To ensure safe and efficient operation, air carrier aircraft use communication and navigation equipment manufactured to meet high standards.

Private Aircraft Stations provide radiocommunication on aircraft used for pleasure and business. This class of station has the largest number of aircraft radio station authorizations.

Aeronautical Public Service Stations enable persons in aircraft to connect with the landline telephone system through public coast stations. Public service aircraft stations on transport planes engaged in intercontinental service may operate on the frequencies available to ship telephone and ship telegraph stations for like service.

Aeronautical Enroute and Aeronautical Fixed Stations provide the radiocommunication service necessary for the safe, expeditious and economical operation of aircraft. Aeronautical enroute stations communicate between the ground and aircraft, whereas aeronautical fixed stations (which are only located in Alaska) furnish point-to-point communication. In international operations, and operations in areas where landline facilities are not adequate, radio provides the primary service. Domestic air carriers are required to maintain two-way ground-to-air radiotelephone communication at terminals and other points to ensure satisfactory communication over the entire route. Such a system is independent of safety radio facilities provided by governmental agencies.

Aeronautical Metropolitan Stations transmit communications for the safe, expeditious and economical operation of aircraft operating between a main air terminal or a metropolitan area and subordinate landing areas. They are authorized only to aeronautical enroute station licensees. These stations are used principally to render local communication services for helicopter operations.

Airdrome Control Stations make communication possible between an airdrome control tower and aircraft or aeronautical utility mobile stations; and further, exercise control over aircraft within the control zone of an airport in addition to controlling traffic, both aircraft and vehicles, at the airport. Such control consists of directing arriving and departing planes so as to avoid collisions and maintaining an efficient flow of traffic into and out of the airport. Airdrome control stations at principal airports are normally operated by the Federal Aviation Administration.

Aeronautical Utility Mobile Stations are installed aboard crash, maintenance, fire and other vehicles that operate at an airdrome, and are usually under control tower direction. These stations provide two services: (1) communication by routine maintenance vehicles necessary to the operation of an airport; and (2) communication by emergency vehicles in case of accident on the field.

Radionavigation Stations establish, by radio means, the traffic lanes of the air and provide information so that aircraft may determine position, course, heading, distance from a station, etc. They are, for the most part, operated by the Government; however, the type of navigational stations licensed by the Commission includes stations which furnish navigation, instrument landing, direction, distance and altitude information.

Aeronautical Advisory Stations provide advisory communication between an airport operator and private aircraft so that airmen may ascertain the condition of the runways, fuel available, wind conditions, weather, or other needed information. Aeronautical advisory stations are not used for the control of aircraft in flight.

Aviation Instructional Stations are employed on the ground or on board aircraft for communicating instructions to students or pilots operating aircraft or engaged in soaring activities.

Flight Test Stations, ground or aircraft, are used for communication in connection with the testing of aircraft and aircraft components. Newly designed equipment can be tested under flight condition. Communication with the ground is essential to log pertinent data and instructions pertaining to these flight tests.

Aeronautical Search and Rescue Stations furnish communication with aircraft engaged in search-and-rescue operations.

Civil Air Patrol Stations -- The Civil Air Patrol is a civilian auxiliary of the United States Air Force, but its radio stations are licensed by the Commission. It utilizes Air Force frequencies for communicating with land or mobile stations while carrying out search, rescue, training or other activities for which this organization is responsible.

Aeronautical Multicom Stations transmit communications to private aircraft for the directing of ground activities from the air and the directing of aerial activities from the ground where communications are not otherwise provided for in the Aviation Services. Communications by these stations pertain to such activities as agriculture, ranching and conservation activities; forest fire fighting; aerial application; aerial advertising and parachute jumping. Aeronautical Multicom stations may, in some cases, be authorized to perform the function of aeronautical advisory stations.

Radionavigation Land Test Stations transmit signals for the testing and calibration of aircraft navigation aids.

MARINE RADIO SERVICES

The use of radio on ships is the oldest of the safety radio services and the one with which the public is most familar, mainly through publicity which has attended its performance under emergency conditions at sea.

The Maritime Mobile Service employs radiotelephone and radiotelegraph and is broken down into ship-to-ship and ship-to-shore communication, including navigational aid communication.

Broadly speaking, maritime radio uses may be divided into those which are required by law for safety purposes and those which are voluntary on the part of ship owners (combining safety with other purposes, such as navigation and commerce) and those which are available for public correspondence.

All radio stations on ships of United States registry (other than radio stations belonging to and operated by the United States Government), are required to be licensed by the Federal Communications Commission.

Radio stations on vessels utilizing telegraphy, telephony, or both, communicate with other ships and with coast stations to transmit and receive signals and messages relating to safety of life and property and to assist navigation. In turn, coast stations transmit reports on weather and hazards to navigation. Ships equipped with radiotelephony may also communicate with aircraft. In addition, many shipboard stations transmit and receive messages for passengers and crew.

The Communications Act requires all cargo vessels of 300 or more gross tons and all passenger vessels navigated in the open sea to carry radiotelegraph (radiotelephone may be substituted on cargo vessels under 1,600 gross tons) unless exempted by the Commission under certain conditions. The Communications Act and international law require cargo vessels between 300 and 1,600 gross tons navigated in the open sea or on international voyages to be equipped with either radiotelegraph or radiotelephone. The Great Lakes Agreement between the United States and Canada requires certain vessels on the Great Lakes to have radiotelephone. Other ships, not coming within the compulsory requirements, are free to select either radiotelegraph or radiotelephone if radiocommunication is desired. The Communications Act requires boats navigated in the open sea or on tidewaters within the jurisdiction of the United States and carrying more than six passengers for hire to be equipped with radiotelephone as a safety measure.

The use of frequencies and the operating procedures employed in the marine services necessitate international coordination, inasmuch as ships traveling over the world must have standardization in communication. By international agreement 500 kHz and 2182 kHz are the international calling and distress frequencies for radiotelegraphy and radiotelephony respectively. In addition, the very high (short distance) frequency of 156.80 MHz is used internationally for calling and safety purposes by stations operating in the band 156-174 MHz employing telephony. Domestically 156.80 MHz also is used as a distress frequency. Specific frequency bands provide for the use of marine radar.

Development of radar, Loran, and other electronic devices and systems have aided marine navigation. For example, vessels equipped with radar are enabled to enter and leave ports during periods of poor visibility with less danger of collision and running aground. Radar can fix the position of a ship independently of any other ship or shore stations when the vessel is within approximately 50 miles of an identified shoreline.

The Loran system makes it possible to determine the geographic position of a ship or aircraft at any point in its journey within the Loran service area. Loran is especially useful when weather conditions make celestial observation impossible. This system, completely different from radar, is dependent upon continuous transmissions from stations on land at known locations. The range of Loran transmission over seawater is from 500 to 700 nautical miles during the day and up to 1,400 nautical miles at night.

Ramark is a navigational aid used in conjunction with radar but is dependent upon transmissions from a known fixed location. It enables the position of a ship or aircraft to be determined by means of bearings visibly presented on the radar indicator scope, thus helping to lead the boat or plane to its destination.

Public Coast Radio Stations, established at points on land, are open to the general public for communication service between ships at sea and on inland water either by telegraph or telephone. These stations are classified according to the type of communication used, telegraph or telephone, and according to communication range. Class III coast stations render short-range service only by VHF radiotelephony; Class II coast stations generally provide only medium-range service; and Class I coast stations provide long-range service in addition to medium and short-range service.

Public coast stations transmit weather reports to ships and expedite distress, urgency and safety messages, in addition to public correspondence communications.

Limited Coast Stations serve the business and operational needs of vessels served by the coast station licensee but are not available for public correspondence.

Alaska Fixed Public Stations provide safety and public service communication between Alaska communities and with RCA Alaska Communications. RCA Alaska operates the main intra-Alaska communication system.

PUBLIC SAFETY RADIO SERVICES

These services comprise local government, police, fire, forestry conservation, highway maintenance, special emergency, and State Guard radio services. They are available, primarily, to governmental agencies directly concerned with the public welfare.

The Police Radio Service, the oldest of these services, serves municipal, county and state police departments. Among other services, it furnishes communication between police land stations and mobile units, including police aircraft and police ships. Even the foot patrolman is part of this network when he has been provided with a portable transmitter-receiver combination.

Police radio stations have been established in every state and in nearly every county, and most cities over 5,000 in population now have some degree of police radio protection. Many of these, in turn, are integrated into regional and nationwide police communication circuits.

In the main, police radio stations utilize radiotelephone but radiotelegraphy is also employed by zone and inter-zone stations. The radiotelephone normally provides three-way communication--from a fixed land station to mobile units; from mobile units to land stations; and from one mobile unit to others. For each land station there may be a dozen to several hundred mobile units.

Radiotelegraphy, on the other hand, provides communication between cities and between states for the exchange of police information. Teletype has come into general use in addition to radiotelegraph stations.

The Fire Radio Service plays an important public role in the prevention and control of fires. It is used to maintain contact between fire headquarters and fire fighters.

The importance of an independent fire radio service has been recognized by the country's larger municipalities. Many of them have established their own systems exclusively for communications essential to fire activities.

Eligibility to communicate over fire radio frequencies extends to "governmental subdivisions" (states, territories, counties, cities, etc.) and persons or organizations charged with specific fire protection activities such as volunteer fire departments.

Users of fire radio frequencies require two distinct types of communication: that employed between headquarters and the fire apparatus and between the fire chief and individual firemen at the scene of a blaze. The first permits headquarters to maintain contact with all fire apparatus out on call. The second enables a squad chief at a fire to direct his men within or around a building.

The Local Government Radio Service permits municipalities to transmit communications essential to their official activities, including those concerning civil defense. This covers police, fire and other emergency as well as routine administrative messages.

The Forestry Conservation Radio Service provides communication networks essential to the prevention, detection and suppression of forest fires and the conservation of wild life and natural resources.

In addition to governmental entities, forestry conservation radio facilities are operated by individuals and private organizations responsible for protecting large timber tracts. These facilities now are used in game law enforcement, protection of forests from insects and disease, reforestation, flood and erosion control, as well as fire protection.

Basically, forestry conservation radiocommunication systems are similar to police and fire radio networks. They consist of a land station at a fixed location, mobile units attached to trucks, and pack units carried by foresters or game wardens. In addition, stations can be set up in lookout towers during fire hazard seasons.

The Highway Maintenance Radio Service provides communication primarily between base stations and mobile units, and between the latter. Base stations also communicate with each other but usually only on a secondary basis; i.e., noninterference to mobile communications.

Highway maintenance communication is employed to coordinate activities at, or speed units to, the scene of snow-laden roads, landslides, road blocks, and similar emergency situations. It also permits highway departments to maintain instantaneous contact with road crews during floods and other natural disasters and highway construction projects.

Special Emergency Radio Service authorizations are issued to hospitals, ambulance or rescue squad operations; medical schools and doctors, including veterinarians; disaster relief organizations, such as the Red Cross; school buses, beach life-saving patrols; and the service is used for emergency communication in isolated areas, and communications common carrier stand-by facilities.

The telephone and telegraph companies use this service in emergencies involving breaks in wirelines. Such situations are met by rushing trailers equipped with portable radio units to the scene and maintaining communication between each end of the break until repairs are made.

The State Guard Radio Service handles emergency communications relating to public safety and the protection of life and property and, secondarily, those essential for training and organization maintenance. Low-power portable or mobile units together with higher-powered base stations are used for this purpose.

The State Guard is not to be confused with the National Guard, which uses Federal military radio facilities. When the National Guard is called into Federal service, the State Guard constitutes the only military security force left to the particular state.

DISASTER COMMUNICATIONS SERVICE

The purpose of this service is to provide essential communication in connection with disasters or other incidents which involve loss of communication facilities normally available or which require temporary communication facilities. This covers occurrences which involve the health or safety of a community or a larger area. Examples are floods, earthquakes, hurricanes, and even armed attack.

Government and other stations are eligible. Thus, any fixed, land or mobile station can qualify; also amateurs and commercial operators. Authorization, however, is on the basis of participation in a recognized local, regional or national disaster communications plan.

INDUSTRIAL RADIO SERVICES

The industrial radio group embraces power, petroleum, forest products, business, manufacturers, special industrial, relay press, motion picture, industrial radiolocation and telephone maintenance.

These privately operated radiocommunication systems represent a new tool in the national economy. Savings are made in time spent by employees on certain projects and in the ability to summon assistance to trouble spots before they become serious. But not to be overlooked are the radical changes in operating procedure which are brought about by the utilization of radiocommunication. For example, a radiocommunication system eliminates the need for holding a fleet of repair trucks at base for emergency use. With radio, trucks can be dispatched on routine assignments, and in the event of an emergency they can be rerouted to the scene more rapidly than otherwise possible.

The following paragraphs outline the individual Industrial Radio Services:

The Power Radio Service provides facilities for electric, gas, water and steam public utilities for the dispatch of mobile units to restore services interrupted by fire, storm, flood and accident, although the principal volume of messages concern routine maintenance activities.

The Petroleum Radio Service is available to the petroleum and natural gas industries, with the exception of retail distributors. It is also used in prospecting for oil; drilling for, producing, collecting or refining oil and gas; and for transporting these fuels and their by-products through pipelines from storage locations to distribution points.

The Forest Products Radio Service furnishes timber and logging companies with radiocommunication facilities similar to those employed by government entities to prevent, report and suppress fires. They likewise serve in the interest of safer and more efficient and economical logging and free-farming operations.

The Business Radio Service is open to persons engaged in any lawful commercial activity which would be benefited by radio adjuncts. Included are educational, philanthropic and religious institutions, clergymen, hospitals, medical associations and clinics.

The Manufacturers Radio Service provides for the use of radio by manufacturers for communication to aid in production as well as the safeguarding and handling of materials at their plants.

The Special Industrial Radio Service enables radio usage by persons regularly engaged in farming, heavy construction (such as the building of bridges and highways), mining and certain other specialized activities essential to industrial operations or public health. These facilities are utilized in the delivery of fuel oil, butane gas, ready-mix concrete, etc.

The Relay Press Radio Service is employed by newspaper and press associations for quick contact with reporters and photographers in automobiles on news assignments.

The Motion Picture Radio Service is used by film producers to coordinate action and to safeguard life and property on outdoor "location."

The Industrial Radiolocation Service aids commercial or industrial enterprises in establishing a position, distance or direction by means of radiolocation devices for purposes other than navigation.

The Telephone Maintenance Radio Service is utilized by common carriers for communication in connection with the construction, repair, maintenance and efficient operation of their wire and radio telephone and telegraph systems.

LAND TRANSPORTATION RADIO SERVICES

The Land Transportation Radio Services provide radiocommunication for railroad, motor carrier (passenger bus and cargo trucks), taxicabs and automobile emergency usage.

Railroad Radio Service communication falls roughly into two general categories -- "train," for mainline operations including end-to-end (from caboose to engine cab, for example) and point-to-train communication (from a wayside station to a train en route) and "yard and terminal" or "general" operations.

Radio increases railroad efficiency and economy. Yard operation is essentially a local service requiring a communication range generally of less than five miles. Terminal operation is also local in nature, although requiring a wider coverage -- as much as 35 miles in some instances. Radar is used to control automatically various yard operations. Trackside radio apparatus in mainline operations detect and transmit to the train crew defects in the running gear of cars.

The Motor Carrier Radio Service is employed by operators of land motor vehicles engaged in providing a common- or contract-carrier service for the transportation of passengers or goods for compensation (buses and trucks). Its primary purpose is to furnish contact between terminals and vehicles operating on the streets or highways, either for carrying passengers or freight, or for certain supervisory or service activities in that connection. Local package delivery services operating as common or contract carriers are eligible, but motor vehicles used as taxicabs, delivery vehicles, school buses or vehicles utilized for sightseeing or special charter purposes are specifically excluded from this service.

The Taxicab Service is used to direct the movement of vehicles; not for communication by passengers. By receiving calls by radio from company offices, the efficiency of taxicab operation is considerably enhanced.

The Automobile Emergency Radio Service is used by automobile associations and garages. Crowded highways require prompt maintenance and repair service if they are to be kept clear. Since one disabled car can produce a traffic jam, its speedy removal is essential. In this task, radio is of material assistance because it permits the rapid dispatch of tow trucks and other service vehicles.

Persons licensed in the Public Safety, Industrial and Land Transportation Radio Services are permitted to engage in cooperative use or sharing of radio facilities on a nonprofit, cost-sharing basis. In the cooperative arrangement, a group of persons each eligible for a license in the same service share the use of a base station licensed to one of them.

Private Microwave. Users in many of the radio services described herein also are eligible for point-to-point operations in one or more of the operational fixed microwave bands. The use of such facilities is available to the Public Safety, Industrial, Land Transportation and Aviation and Marine Services. Typical systems include those used by police agencies, petroleum pipelines, turnpikes, railroads, and electric power companies.

AMATEUR RADIO SERVICE

The Amateur Radio Service is one of the largest radio services in point of number of licensees and is one of the oldest and most active radio groups. An amateur station may not be used to transmit or receive messages for hire, or be used in connection with any commercial enterprise.

This service which provides qualified persons with a means of obtaining technical training and experience in the field of radio has no age limits. The average age of self-styled "hams" is about 35-40 years. However, teenagers are numerous, and even seven-year-olds have qualified for the novice license.

Amateur Radio is the chosen hobby of many physically handicapped persons and is an appropriate outlet for an electronic-conscious youth to pursue as an engaging and instructive hobby.

Although primarily a personal hobby, amateur radio has made many contributions to public service by furnishing emergency communication during hurricanes, floods, fires and other disasters.

An applicant must pass a prescribed code test and technical examination before an amateur operator license and an amateur station license will be granted. There are six classes of amateur operator licenses representing five levels of technical qualifications and operating privileges. Examinations for most classes are given in the field by Commission representatives.

RADIO AMATEUR CIVIL EMERGENC SERVICE

An important part of the amateur's public service is his participation in the Radio Amateur Civil Emergency Service (RACES). This is a service which makes use of the amateur, his equipment and portions of his normal frequency bands in time of war or other national emergency.

Although only an amateur may be a station licensee in RACES, certain grades of commercial radio operators as well as amateur radio operators may operate such stations provided that they have been certified by their civil defense organization. Each RACES plan submitted to the Commission must include the certification of a civil defense radio officer, who must hold a commercial or amateur operator license above a certain grade and be responsible for the radiocommunication facilities for civil defense use.

CITIZENS RADIO SERVICE

The Citizens Radio Service has become the Commission's fastest growing service and is now the largest single radio service administered by the Commission. It is intended for essential personal or business short-range radiocommunication, signaling, and radio control of objects and devices. In addition to private individuals, business firms, organizations and local governments can qualify for licenses in this service, although unincorporated associations may be issued a Class D station license only upon special showing.

Citizens radio may be employed for communication on farms, ranches, recreation area, etc., and for remote control of such objects as garage-door openers, model airplanes, and display signs. It cannot be used to broadcast to the public, carry messages for charge, engage in radiocommunications as a hobby or diversion or seek distance communication. Channels have to be shared and users are not protected from interference.

The rules governing this service provide, among other things, a simplified licensing procedure; three classes of stations (A, C and D) dependent upon range, power, etc.; also engineering standards, technical specifications, and procedural requirements for obtaining Commission approval of equipment.

Any citizens of the United States 18 years of age or over (12 years for Class C) can apply for a Citizens station license. The application form, when completed, is sent to the Commission's Gettysburg, Pa., office, with the exception of Class A applications which are sent to its Washington office for consideration.

REGULATION

Stations in the Safety and Special Radio Services are, as in the case of other radio services, basically regulated by the Federal Communications Commission according to the provisions of the Communications Act of 1934, as amended, and, technically, by their respective covering rules and regulations.

Persons interested in the operating details of a certain service are urged to obtain a copy of the rules governing that particular service. These rules are not distributed by the Commission but are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Rules affecting the Safety and Special Radio Services are grouped in volumes as follows:

Volume IV (price $9.50) contains Part 81 concerning "Stations on Land in the Maritime Services and Alaska-Public Fixed Stations," and Part 83, "Stations on Shipboard in the Maritime Services."

Volume V (price $18.20) includes Part 87, "Aviation Services;" Part 89, "Public Safety Radio Services;" Part 91, "Industrial Radio Services," and Part 93, "Land Transportation Radio Services."

Volume VI (price $5.35) embraces Part 95 "Citizens Radio Service," Part 97, "Amateur Radio Service," and Part 99, "Disaster Communications Service."

These volumes are available from the Superintendent of Documents on a subscription basis which includes the basic volume plus the mailing by that agency, for an indefinite period, or subsequent amendments to the volumes purchased. All orders should be sent to the Superintendent of Documents (not to or through the FCC). Individual rule parts or amendments are not sold separately, nor can they be supplied by the Commission.

Radio stations must comply with the terms of their authorizations regarding frequency tolerance, power limitations, permissible communications, call signals, etc. Willful or repeated violations may result in a forfeiture, revocation of license or even criminal prosecution.

In general, call signals are assigned in an order determined by blocks of calls made available for that purpose. Thus a station may have a call ranging form three letters and one digit (aeronautical land) to three letters and four digits (ship telephone). Amateur calls are more complicated since they include a digit to identify the regional location of the station.

The Commission's field engineering staff inspects radio stations, investigates interference complaints, monitors transmissions for compliance with the rules and regulations, and examines operators for the various classes of licenses. Complaints of illegal operation, unlawful interception of calls, etc., also are investigated by the field force. Unauthorized radio transmission is prohibited.

HOW TO APPLY FOR A LICENSE

Any citizen or national of the United States is eligible for a license if his proposed operation is of a type permitted under the rules of the Commission.

The first step in seeking to operate a station in the Safety and Special Radio Services is to obtain a copy of the Commission's rules governing the particular service in which interested (see previous reference to rule parts). A properly completed application for a license may then be filed, as appropriate, with the Commission's offices in Washington, D. C. (ZIP Code 20554) or in Gettysburg, Pa., (17325). Each application must be specific and complete. It should contain, among other things, information about the station location, proposed equipment, power, antenna height and operating frequency. A filing fee is required when applying for most of the services. The amount of this fee, and any exceptions, may be found in Part 1 of the rules.

In most Safety and Special Radio Services the normal license period is five years. Further application procedure must be followed in order to obtain a renewal of license. There are also forms for requesting additional time to construct a station, to modify an authorization, and to assign or transfer control of a station.

Application forms are available from any of the Commission's field offices, or by addressing the Secretary, Federal Communications Commission, Washington, D. C., 20554. The Commission maintains district field offices in Boston, New York, Philadelphia, Baltimore, Norfolk, Atlanta, Savannah, Miami, Tampa, New Orleans, Mobile, Houston, Beaumont (Texas), Dallas, Los Angeles, San Diego, San Pedro, San Francisco, Portland (Oregon), Seattle, Denver, St. Paul, Kansas City (Missouri), Chicago, Detroit, Buffalo, Honolulu (Hawaii), San Juan (Puerto Rico), Anchorage (Alaska), and Washington, D. C.

Applications, and all related correspondence, should be addressed to the Secretary of the Commission and mailed to Washington, D. C., or Gettysburg, Pennsylvania, as appropriate. Exceptions are applications for amateur and commercial radio operators, which can be made to the area field office, and applications for Public Fixed Stations and land stations of the Maritime Service in Alaska which should be made to the District Office at Seattle, Washington.