

FCC AND ELECTRICAL INTERFERENCE

The Federal Communications Commission has been controlling the generation of electrical interference which interfered with communications, for many years. As communications equipment became more complex and utilized larger segments of the spectrum, and the spectrum became more crowded with radiation from electronic, industrial, commercial and consumer equipment, the FCC has increased the scope and effectiveness of its regulations. On October 1, 1970, the rules requiring manufacturers, vendors, and shippers of electronic devices to meet FCC electromagnetic interference regulations have become effective.

The new rules implemented a 1968 law empowering the FCC to make reasonable regulations governing the interference potential of certain devices. The purpose of the new rules is to require compliance with equipment standards by manufacturers, importers and distributors of RF devices, as well as by users.

RF devices subject to FCC authority and included under the amended rules range from the many kinds of radio transmitters used in the broadcasting, common carrier, marine, aviation and land mobile services to restricted radiation devices such as radio receivers, CATV systems, and low power communication devices such as wireless microphones, phonograph oscillators, radio controlled garage door openers, radio controlled models and toys. Also included are industrial, scientific and medical equipment such as ultrasonic industrial heating, medical diathermy, radio frequency stabilized arc welders and miscellaneous equipment.

Exempted from the 1968 law are carriers transporting radio frequency devices but not trading in them, devices manufactured solely for export, and devices to be used by the U.S. Government.

At the time of this publication, a number of rule makings are pending, but it cannot be anticipated when the final rules will be adopted. Thus, attention is called to the following rule-making proceedings:

Although we would like to devote more than just these two pages to the FCC, it is impossible due to the increase scope and size of this issue of ITEM. Interested persons should subscribe to FCC regulations and reports as described on the next page. Additional updated information may also be obtained by subscribing to ENR (see page 178).

During 1975, the most significant change in Part 15 of the FCC Regulations was a reorganization and renumbering that was issued in March, 1975. The rules were reorganized-not changed technically-to make it easier to find the particular section of the rules that was applicable. The revision also imposed a requirement that low power communication devices be certified by the Commission as a prerequisite for marketing. In addition, a Notice of Proposed Rule Making to revise Section 15.7, again, to make it clear how this regulation is applied to a number of different radio/electronic equipment currently on the market is scheduled for release early in 1976.

There have not been any significant changes to Part 18 - ISM Equipment - during 1975. At the time of this writing, a notice is being drafted looking toward a revision of Part 18 which should be issued in early 1976. If things move as contemplated, an overall revision of Part 18 should be issued by the end of 1976.

The FCC marketing rules are being revised to provide for a single application form instead of the three different forms presently in use. In addition, the identification requirement for equipment is being simplified.

Several FCC Dockets and OCE Bulletins were revised and released during 1975. These are highlighted below:

BULLETIN OCE 11 October 1975

"Does My Transmitter Need a License?"

Increasing quantities and varieties of miniature transmitters, characterized by small size, light weight and low power are being offered to the public. As a consequence, the question is frequently asked: "Do I need a license for this transmitter? It uses so little power." The answer depends on many conditions. This bulletin explains when a license is required and when a transmitter may be operated without a license.

Electromagnetic Compatibility: When a radio transmitter is operated, RF energy is emitted into the surrounding space. This energy may cause interference. To avoid causing interference, the equipment must be carefully designed, the frequency must be carefully selected, and the transmitter must be operated under suitable safeguards. The condition under which a generator of RF energy -- be it transmitter or other device -- can operate in the vicinity of other radio equipment without upsetting or interfering with the radio operations of its neighbors is called *Electromagnetic Compatibility*.

The operation of noncompatible apparatus may cause interference to radio and TV receivers, or may interfere with other radio systems as aviation radio employed for the safety of life and property. Interference may be merely of the nuisance type when it temporarily disturbs a TV picture. Or it may be extremely serious when it interferes with aviation communications, radio navigation, or instrument landing systems.

The FCC has promulgated rules and regulations governing the use of radio to promote electromagnetic compatibility. Except as provided by Part 15 of the Commission's Regulations, a radio station license must be obtained before a transmitter may be operated.

BULLETIN OCE 12 May 1975

"Operation in the Band 535-1600 kHz Without an Individual License"

The band 535-1600 kHz is allocated for broadcast stations. However, under the provisions of Part 15 of the Commission's Rules, a *Low Power Communication Device* or a *Carrier Current System* may be operated in this band without an individual license provided the operation meets all of the following conditions.

No harmful interference is caused to any licensed operation.

Any interference that is received must be accepted.

The technical and other requirements of Part 15 are met.

Harmful interference is defined by the Commission as any emission, radiation, or induction which endangers a radio-navigation or a safety service, or which seriously degrades, obstructs, or repeatedly interrupts other licensed radio services. Since this discussion deals with operation in the AM band (535-1600 kHz), the operator must take particular care to protect the broadcast service. See Information Bulletin No. 17-G for a more detailed discussion of the interference problem.

The technical specifications imposed by Part 15 are purposely designed to limit the coverage that may be obtained in order to protect the broadcast service. Subsequently, one should not expect to obtain radio coverage beyond about 100 meters. In fact, coverage beyond 100 meters is usually an indication that the operation does not conform to these limits and violates the Part 15 Rules. Requests for permission to operate outside these limits will not be granted because relaxing these technical limits to permit extended coverage greatly increases the interference potential to the broadcast service and cannot be permitted.

BULLETIN OCE 24 June 1975

"Receiver Certification Requirements"

All radio receivers that operate in the range of 30-890 MHz must be certificated by the FCC before they may be marketed in the USA or imported into this country. This bulletin describes the receiver certification program and explains how to apply for the required Grant of Certification (FCC Form 722-A) which is issued by the FCC.

BULLETIN OCE 37 June 1975

"Criteria to be Met by Doppler Radars Operating in the 24.05-24.25 GHz Frequency Band"

The frequency band 24.05-24.25 GHz is available to non-Federal Government radiolocation stations and amateur stations on a shared basis with Federal Government stations. Use of this frequency band by non-Federal Government stations is secondary to Federal Government use and is subject to the condition that the operation of these stations will in no way interfere with Government operations. In addition, the Federal Government has specified certain criteria which must be met by doppler radars operating in this band.

BULLETIN OCE 39 Oct 1975

"FCC Measurement Procedure for a Medical Diathermy Equipment"

This bulletin is intended to assist manufacturers and others who find it necessary to measure medical diathermy equipment to determine compliance with the technical specifications for such equipment in Part 18 of the Commission's rules by describing the measurement procedure followed by the Commission in testing these equipments for type approval.

DOCKET NO. 25042 Released March 7, 1975

This Order revises Part 15 to conform the equipment authorization procedures therein to the revised procedures recently adopted in FCC Report and Order on Equipment Authorization of RF Devices (39 FR 5912).

DOCKET NO. 30717 Released March 24, 1975

On March 7, 1975, the Commission released a revision of Part 15. This Order implemented the requirement for bilateral certification of low power communication devices by the Commission as a prerequisite for marketing of such devices to the public.

Volumes of FCC Rules and Regulations by Categories—

Available on subscription basis from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Subscription price is for an indefinite period and includes basic volume plus all amendments to be mailed to subscribers by the Superintendent of Documents when issued. Parts will not be sold *separately*, nor can they be supplied by the Commission. Domestic subscription includes U.S. Territories, Canada and Mexico. Do not send orders to the Federal Communications Commission.

Volume II (Sept. 1972) Price: \$7.00 Foreign: \$8.75
 Part 2: Frequency Allocations and Radio Treaty Matters;
 General Rules and Regulations
 Part 5: Experimental Radio Services (other than Broadcast)
 Part 15: Radio Frequency Devices
 Part 18: Industrial, Scientific, and Medical Equipment

Volume III (Sept. 1972) Price: \$15.75 Foreign: \$19.70
 Part 73: Radio Broadcast Services
 Part 74: Experimental, Auxiliary and Special Broadcast Services, and other program distribution services.
 Part 76: Cable, TV Service
 Part 78: Cable TV Relay Service

Volume IV (Dec. 1971) Price: \$9.50 Foreign: \$12.00
 Part 81: Stations on Land in Maritime Services and Alaska-Public Fixed Stations
 Part 83: Stations on Shipboard in Maritime Services
 Part 14: Public Fixed Stations & Stations of the Maritime Services in Alaska

Volume V (Dec. 1974) Price: \$18.20 Foreign: \$22.75
 Part 87: Aviation Services
 Part 89: Public Safety Radio Services
 Part 91: Industrial Radio Services
 Part 93: Land Transportation Radio Services

Volume VI (Jan. 1972) Price: \$5.35 Foreign: \$6.70
 Part 95: Citizens Radio Service
 Part 97: Amateur Radio Service
 Part 99: Disaster Communications Service

Part 23: International Fixed Public Radio Communication Services

Volume VII (Mar. 1974) Price: \$7.70 Foreign: \$9.65
 Part 21: Domestic Public Radio Services (Other than than Maritime Mobile)
 Part 25: Satellite Communications

MISCELLANEOUS PUBLICATIONS

Annual Reports of the Commission	Price varies by year
Statistics of Communications Common Carriers	\$1.00
Figure M-3 Estimated AM Ground Conductivity of the United States (Set of 2 maps)	\$2.75 per map
Study Guide and Reference Material for Radio Operator Examinations	\$2.10
FCC Reports: Weekly pamphlets containing decisions, reports, public notices, and other FCC documents. Price information for single copies and back issues will be supplied by the Superintendent of Documents on request.	\$57.40 (\$71.75 Foreign)

LOCATION OF FIELD OFFICES

District Offices and their suboffices are located at the following addresses:

Radio District	Address of the Engineer in Charge
1	1600 Customhouse, Boston, MA 02109.
2	201 Varick St., New York, NY 10014.
3	601 Market St., Phila., PA 19106.
4	Room 819, 31 Hopkins Plaza, Baltimore, MD 21201.
5	870 N. Military Highway, Norfolk, VA 23502.
6	235 Peachtree St., N.E., Atlanta, GA 30303 Suboffice: Post Office Box 8004, Room 238 Post Office Building, Savannah, GA. 31402.
7	Room 919, 51 Southwest First Ave., Miami FL 33130.
8	829 Federal Office Building, New Orleans, LA 70130 Suboffice: 439 U.S. Courthouse and Customhouse, Mobile, AL 36602.
9	New Federal Office Bldg., 515 Rusk Ave., Room 5636, Houston, TX 77002 Suboffice: 323 Federal Building, 300 Willow St., Beaumont, TX 77701.
10	1100 Commerce St., Dallas, TX 75202.
11	Room 1758, U.S. Courthouse, 312 North Spring Street, Los Angeles, CA 90012. Suboffice: Fox Theatre Bldg, 1245 Seventh Ave., San Diego, CA 92101. Suboffice: Room 2525, 300 S. Ferry St., Terminal Island, San Pedro, CA 90731.
12	323-A Customhouse, 555 Battery St., San Francisco, CA 94111.
13	1220 S.W. Third Ave., Portland, OR 97204.
14	3256 Federal Building, 915 Second Ave., Seattle, WA 98174.
15	504 New Customhouse, Denver CO 80202.
16	691 Federal Building and U.S. Courthouse, Fourth & Roberts Sts., St. Paul, MN 55101.
17	1703 Federal Building, 601 East 12th Street, Kansas City, MO 64106.
18	230 S. Dearborn St., Room 3935, Chicago, IL 60604.
19	1054 Federal Building, Detroit, MI 48226.
20	111 W. Huron St., Buffalo, NY 14202.
21	502 Federal Building, Post Office Box 1021, Honolulu, HI 96808.
22	Post Office Box 2987, 322-323 Federal Building, San Juan, P.R. 00903.
23	Room 53, Courthouse Building, Anchorage, AK 99501.
24	Room 411, 1919 M St., N.W., Washington, DC 20554.