Part 15—Incidental and Restricted Radiation Devices [Revised]

Subpart A—General

Subpart B—Incidental Radiation Devices

Subpart C—Radio Receivers

Subpart D—Community Antenna Television Systems [1]

AUTHORITY: §§ 15.1 to 15.166 issued under sec. 4, 48 Stat. 1066, as amended; 47 U. S. C. 154. Interpret or apply secs. 301, 403, 48 Stat. 1081, 1094; 47 U. S. C. 301, 403. Other statutory provisions interpreted or applied are cited to text.

SUBPART A—GENERAL

SOURCE: §§ 15.1 to 15.7 appear at 20 F. R. 10057, Dec. 29, 1955, except as otherwise noted.

§ 15.1 *Basis of this part.* Section 301 of the Communications Act of 1934, as amended, provides for the control by the Federal Government over all the channels of interstate and foreign radio communication and further provides, in part, that no person shall use or operate apparatus for the transmission of energy, communications or signals by radio when the effects of such operation extend beyond state lines or cause interference with the transmission or reception of energy, communications, or signals, of any interstate or foreign character by radio, except under and in accordance with the Communications Act and a license granted under the provisions of that act. Restricted and incidental radiation devices emit radio frequency energy on frequencies within the radio spectrum and constitute a source of harmful interference to authorized radio communication services operating upon the channels of interstate and foreign communication unless precautions are taken which will prevent the creation of any substantial amount of such interference.

§ 15.2 *Scope of this part.* (a) This part contains rules that set forth the conditions under which the operation of incidental and restricted radiation devices is considered to fall outside the purview of section 301 of the Communications Act which specifies when a station license is required as a condition for lawful operation.

(b) No incidental or restricted radiation device which fails to conform to the provisions of this part, or which causes harmful interference, may be operated without a station license. Unless such devices may be operated in accordance with the provisions of some other part of this chapter (see particularly Part 19, Citizens Radio Service), persons wishing to operate such devices in a manner inconsistent with this part will be required to first secure an amendment of the Commission's rules to establish a licensed service providing for such operation and setting forth the technical and other limitations thereof; *Provided,* That in appropriate circumstances, when such a petition for rule making has been filed, the Commission may consider, prior to final action thereon, applications for Special Temporary Authorizations to operate stations on a developmental basis where it can be shown that such temporary operation would be in aid of a final determination as to whether the proposed rule should be adopted, and that such temporary operation would otherwise be in the public interest; and *Provided further,* That the Commission will, in exceptional situations, consider individual applications for licenses to operate incidental or restricted radiation devices, not conforming to the provisions

[1] Added subsequent to revision of chapter.

of this part, where it can be shown that the proposed operation would be in the public interest, that it is for a unique type of station or for a type of operation which is incapable of establishment as a regular service, and that the proposed operation cannot feasibly be conducted under these rules.

§ 15.3 *General condition of operation.* Persons operating restricted or incidental radiation devices shall not be deemed to have any vested or recognizable right to the continued use of any given frequency, by virtue of prior registration or certification of equipment. Operation of these devices is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by other incidental or restricted radiation devices, industrial, scientific or medical equipment, or from any authorized radio service.

§ 15.4 *General definitions*—(a) *Radio frequency energy.* Electromagnetic energy at any frequency in the radio spectrum between 10 kc and 3,000,000 Mc.

(b) *Harmful interference.* Any radiation or induction which endangers the functioning of a radio navigation service or of a safety service or obstructs or repeatedly interrupts a radio service operating in accordance with the regulations in Part 2 of this chapter.

(c) *Incidental radiation device.* A device that radiates radio frequency energy during the course of its operation although the device is not intentionally designed to generate radio frequency energy.

(d) *Restricted radiation device.* A device in which the generation of radio frequency energy is intentionally incorporated into the design and in which the radio frequency energy is conducted along wires or is radiated, exclusive of transmitters which require licensing under other parts of this chapter and exclusive of devices in which the radio frequency energy is used to produce physical, chemical or biological effects in materials and which are regulated under the provisions of Part 18 of this chapter.

(e) *Community antenna television system.* A restricted radiation device designed and used for the purpose of distributing television signals by means of conducted or guided radio frequency currents to a multiplicity of receivers outside the confines of a single building.

NOTE: The television signals that are distributed are modulated radio frequency signals and may be:

(a) Broadcast signals that have been received and amplified,

(b) Broadcast signals that have been received and converted to another frequency,

(c) Any other modulated radio frequency signals fed into the system.

[Paragraph (e) added, 21 F. R. 5368, July 18, 1956]

§ 15.5 *Equipment available for inspection.* Any equipment or device subject to the provisions of this part together with any license, certificate, notice of registration or any technical data required to be kept on file by the operator of the device shall be made available for inspection by Commission representatives upon reasonable request.

§ 15.6 *Information required by the Commission.* The owner or operator of any device subject to this part shall promptly furnish to the Commission or its representative such information as may be requested concerning the operation of the device including a copy of any field strength measurements made by or for the operator of the device.

§ 15.7 *General requirement for restricted radiation devices.* Unless regulated under some other subpart of this part, 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 $\frac{157{,}000}{F(kc.)}$ feet $\left(\text{equivalent to } \frac{\lambda}{2\pi}\right)$ need not be licensed 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 services, particularly on the fundamental and harmonic frequencies.

(c) That in any event the total electromagnetic field produced at any point a distance of $\frac{157{,}000}{F(kc.)}$ feet $\left(\text{equivalent to } \frac{\lambda}{2\pi}\right)$ 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.

(e) That in the event harmful interference is caused, the operator of the apparatus shall promptly take steps to eliminate the harmful interference.

SUBPART B—INCIDENTAL RADIATION DEVICES

§ 15.31 *Operating requirements.* An incidental radiation device shall be operated so that the radio frequency energy that is radiated does not cause harmful interference. In the event that harmful interference is caused, the operator of the device shall promptly take steps to eliminate the harmful interference.

[20 F. R. 10058, Dec. 29, 1955]

SUBPART C—RADIO RECEIVERS

SOURCE: §§ 15.61 to 15.69 appear at 20 F. R. 10058, Dec. 29, 1955, except as otherwise noted.

§ 15.61 *Scope of this subpart.* Radio receivers come within the scope of this subpart insofar as they are restricted radiation devices and generate and radiate radio frequency energy. Typically, these rules apply to superheterodyne receivers in which the oscillator may produce harmful interference. As another example, these rules also regulate television broadcast receivers with respect to the radio frequency energy which is generated by the horizontal sweep circuits and which may cause interference.

§ 15.62 *Radiation interference limits.* The radiation from all radio receivers that operate (tune) in the range 30 to 890 Mc, including frequency modulation broadcast receivers and television broadcast receivers, manufactured after the effective date of this subpart shall not exceed the following field strength limits at a distance of 100 feet or more from the receiver:

Frequency of radiation (Mc)	Field strength (uv/m)
0.45 up to and including 25	See note.
Over 25 up to and including 70	32.
Over 70 up to and including 130	50.
130–174	50–150 (linear interpolation).
174–260	150.
260–470	150–500 (linear interpolation).
470–1000	500.

NOTE: This requirement applies only to radio receivers intended to be connected to power lines of public utility systems. Pending the development of suitable measurement techniques for measuring the actual radiation in this band the interference capabilities of a receiver in this band will be determined by the measurement of radio frequency voltage between each power line and ground at the power terminals of the receiver. The voltage so measured shall not exceed 100 uv at any frequency between 450 kc and 25 Mc inclusive.

[21 F. R. 7578, Oct. 3, 1956]

§ 15.63 *Measurement procedure.* (a) Any measurement procedure acceptable to the Commission may be used to show compliance with the requirements of this subpart. A detailed description of the proposed measurement procedure, including a list of the test equipment to be used, shall be submitted to the Commission when requesting a determination regarding the acceptability of the proposed measurement procedure.

(b) The following methods of measurement are considered acceptable procedures for certification of receivers pursuant to § 15.64:

(1) Institute of Radio Engineers Standard 51 IRE 17S1 for radiation measurements.

(2) Institute of Radio Engineers Standard 54 IRE 17.S1 for powerline interference measurements for television broadcast receivers, when the standard is modified by substituting a line stabilization network having the electrical constants described in MIL–I–16910A, "Military Specification For Interference Measurement" available from the Commanding Officer, Naval Supply Depot, Scotia 2, New York.

(c) In the case of measurements in the field, radiation in excess of 15 uv/m at any frequency between 450 kc and 25 Mc at the border of the property and more than 15 feet from any power line crossing this border under the control and exclusive use of the person operating or authorizing the operation of the receiver will be considered an indication of noncompliance with the radiation requirements of this subpart.

§ 15.64 *Certification of radio receivers.* (a) No radio receiver manufactured after the effective dates of this subpart that operates in the range 30 to 890 Mc, including frequency modulation broadcast receivers and television broadcast receivers, shall be operated without a station license unless it has been certificated to demonstrate compliance with

the radiation interference limits in this subpart.

(b) The owner or operator need not certificate his own receiver, if it has been certificated by the manufacturer or the distributor.

(c) Certification made by a manufacturer or the distributor shall be based on tests made on receivers actually produced for sale. Tests shall be performed on a sufficient number of production units to assure that all production units comply with the radiation limitations of this subpart.

(d) The certificate may be executed by an engineer skilled in making and interpreting field strength measurements.

(e) The certificate shall contain the following information:

(1) Name of manufacturer or distributor of receiver,

(2) Model number,

(3) Brief description of receiver, including tuning range, type of circuit, purpose for which used (as broadcast, aircraft, etc.),

(4) Brief statement of the measurement procedure used,

(5) Date the measurements were made,

(6) A summary of the data obtained,

(7) A statement certifying that on the basis of measurements made, the radio receiver is capable of complying with the requirements of this part under normal operation with the usual maintenance,

(8) The name and address of the certifying engineer, and name and address of his employer, if any, and

(9) Date of the certificate.

(f) The certificate shall be retained by the owner, manufacturer or the distributor for a period of five years, and shall be made available, upon reasonable request, to an authorized Commission representative, or photostat furnished by mail. (See § 15.65 for filing requirement with FCC).

§ 15.65 *Information to be filed with Commission.* (a) Each manufacturer, distributor or other certifying agency that issues certifications pursuant to this subpart shall file with the Commission a description of its measurement facilities used for certification.

(b) A copy of each certificate prepared by a manufacturer, distributor or certifying agency shall be filed with the Commission at the time the certificate is prepared.

§ 15.66 *Identification of certificated receivers.* Each certificated receiver shall be identified by a distinctive seal or label, which may be a part of the name plate and which shall state that the receiver has been certificated for compliance with the requirements of this subpart. The seal or label shall be permanently attached to the receiver and shall be readily visible for inspection by prospective purchasers.

§ 15.67 *Operation of radio receivers aboard a ship.* In addition to meeting the requirements of this part, a radio receiver operated aboard a ship shall also meet the requirements of Part 8 of this chapter.

§ 15.68 *Effective date of this subpart.* (a) Except as provided in paragraphs (b), (c) and (d) of this section, television broadcast receivers manufactured after May 1, 1956, and all other radio receivers manufactured after October 1, 1956, except FM broadcast receivers, shall comply with the requirements of this part. FM broadcast receivers shall comply with the requirements of this part after December 31, 1956.

[Paragraph (a) amended, 21 F. R. 7652, Oct. 5, 1956]

Prior Amendments

1956: 21 F. R. 2864, May 2.

(b) The radiation interference limits above 260 Mc and the certification requirements with respect thereto shall be met by all new models of UHF television broadcast receiver chassis placed in production after December 31, 1956, and by all UHF television broadcast receivers manufactured after June 30, 1957.

(c) The power line interference limit and the certification requirement with respect thereto shall be met by all new models of television broadcast receiver chassis placed in production after June 30, 1956, and by all television broadcast receivers manufactured after December 31, 1956: *Provided, however,* That this limit and certification thereof for frequencies between 3 and 25 Mc shall be met by all new models of television broadcast receiver chassis placed in production after June 30, 1957, and by all

television broadcast receivers manufactured after December 31, 1957.

[Paragraph (c) amended, 21 F. R. 10407, Dec. 28, 1956]

Prior Amendments

1956: 21 F. R. 5058, July 7.

(d) The radiation interference limits and the certification requirement with respect thereto shall be met by all pocket type superregenerative receivers used in the one-way signalling services as defined in Part 6 of this chapter which are manufactured after December 31, 1956.

§ 15.69 *Interference from a radio receiver.* The operator of a radio receiver, regardless of tuning range, date of manufacture, or of certification, which causes harmful interference shall promptly take steps to eliminate the harmful interference.

SUBPART D—COMMUNITY ANTENNA TELEVISION SYSTEMS

AUTHORITY NOTE: §§ 15.161 to 15.166 interpret or apply sec. 303, 48 Stat. 1082, as amended; 47 U. S. C. 303.

SOURCE: §§ 15.161 to 15.166 appear at 21 F. R. 5368, July 18, 1956.

§ 15.161 *Radiation from a community antenna television system.* Radiation from a community antenna television system shall be limited as follows:

Frequencies (Mc)	Distance (ft.)	Radiation limits (uv/m)	
		General requirement	Sparsely inhabited areas [1]
Up to and including 54	100	15	15
Over 54 up to and including 132	10	20	400
Over 132 up to and including 216	10	50	1,000
Over 216	100	15	15

[1] For the purpose of this section, a sparsely inhabited area is an area where television broadcast signals are not, in fact, being received within 1,000 feet of any part of the community antenna television system.

§ 15.162 *Demonstration of compliance.* The operator of each CATV system shall be responsible for insuring that each such system is designed, installed and operated in a manner which fully complies with the provisions of this subpart. Each system operator shall be prepared to show, upon reasonable demand by an authorized representative of the Commission, that the system does, in fact, comply with the rules.

§ 15.163 *Interference from a community antenna television system.* In the event that the operation of a community antenna television system causes harmful interference to reception of authorized radio stations the operator of the system shall immediately take whatever steps are necessary to remedy the interference.

§ 15.164 *Responsibility for receiver generated interference.* Interference originating in a radio receiver shall be the responsibility of the receiver operator in accordance with the provisions of Subpart C of this part: *Provided, however,* That the operator of the community antenna television system to which the receiver is connected shall be responsible for the suppression of receiver generated interference that is distributed by the system when this interference is conducted into the system at the receiver.

§ 15.165 *Measurement of field strength.* Measurements to determine the field strength of radio frequency energy generated by community antenna television systems shall be made in accordance with standard engineering procedures. Measurements made above 25 megacycles shall include the following:

(a) A field strength meter using a horizontal dipole antenna shall be employed.

(b) Field strength shall be expressed in terms of the RMS value of synchronizing peak.

(c) The dipole antenna shall be placed 12 feet above the ground and positioned directly below the system components. Where such placement results in a separation of less than 10 feet between the center of the dipole antenna and the system components, the dipole shall be repositioned to provide a separation of 10 feet.

(d) The horizontal dipole antenna shall be rotated about a vertical axis and the maximum meter reading shall be used.

(e) Measurements shall be made where other conductors are 10 or more feet away from the measuring antenna.

§ 15.166 *Effective date of radiation limits in this subpart.* (a) The radiation limits for community antenna television systems shall be met by all new systems whose construction begins on

or after October 1, 1956, and by all new sections added to existing systems whose construction begins on or after October 1, 1956.

(b) Community antenna television systems in existence on September 30, 1956, shall comply with the radiation limits in these rules not later than December 31, 1959: *Provided,* That any harmful interference to the reception of authorized radio stations caused by such systems shall be promptly remedied during this period by the operator of the CATV system.

Part 16—Land Transportation Radio Services [Revised]

Subpart A—General Information

Subpart B—Applications, Authorizations, and Notifications

Subpart C—Technical Standards

Subpart D—Station Operating Requirements

Subpart E—Developmental Operation

Subpart F—Motor Carrier Radio Service

Subpart G [Reserved]

Subpart H—Railroad Radio Service

Subpart I—Taxicab Radio Service

Subpart J [Reserved]

Subpart K—Automobile Emergency Radio Service