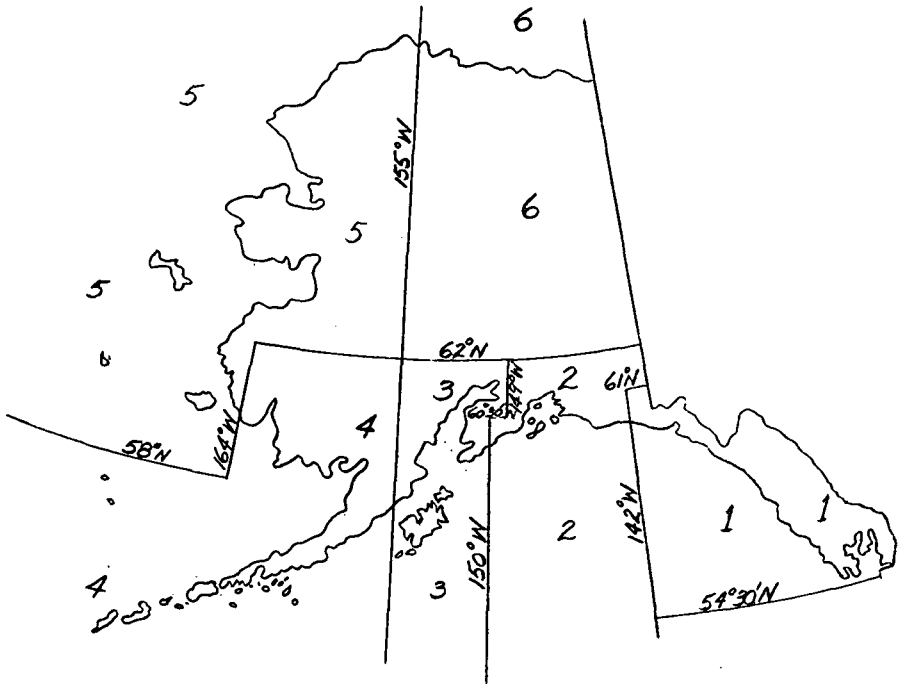

TERRITORY OF ALASKA
Frequency Assignment Zones
FIGURE 1—(See § 14.3)

Part 15—Incidental and Restricted Radiation Devices

Subpart A—General

Subpart B—Incidental Radiation Devices

Subpart C—Radio Receivers

Subpart D—Community Antenna Television Systems

Subpart E—Low Power Communication Devices

AUTHORITY: §§ 15.1 to 15.211 issued under sec. 4, 48 Stat. 1066, as amended; 47 U. S. C. 154. Interpret or apply secs. 301, 303, 48 Stat. 1081, 1082, as amended; 47 U. S. C. 301, 303.

SOURCE: §§ 15.1 to 15.211 appear at 22 F. R. 7507, Sept. 20, 1957, except as otherwise noted.

SUBPART A—GENERAL

§ 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 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 this part.

§ 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.

(f) *Low power communication device.* A low power communication device is a restricted radiation device, exclusive of those employing conducted or guided radio frequency techniques, used for the transmission of signs, signals (including control signals), writing, images and sounds or intelligence of any nature by radiation of electromagnetic energy.

Examples: Wireless microphone, phonograph oscillator, radio controlled garage door opener and radio controlled models.

§ 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.

SUBPART C—RADIO RECEIVERS

§ 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. Typi-

cally, 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.* (a) 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 specified in § 15.68 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 paragraph (b).
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.

(b) Pending the development of suitable measurement techniques for measuring the actual radiation in the band 0.45 to 25 Mc, 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. This requirement applies only to radio receivers intended to be connected to power lines of public utility systems. For television broadcast receivers the voltage so measured shall not exceed 100 uv at any frequency between 450 kc and 25 Mc inclusive. For all other receivers the voltage shall not exceed 100 uv at any frequency between 450 kc and 9 Mc inclusive, 1000 uv for frequencies between 10 Mc and 25 Mc and linear increase from 100 uv to 1000 uv for frequencies between 9 Mc and 10 Mc.

§ 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.* VHF television broadcast receivers manufactured after May 1, 1956, shall comply with the certification requirements of this subpart, except that compliance with the power line interference limits for frequencies between 3 Mc and 25 Mc is required for such receivers manufactured after December 31, 1957. All other radio receivers that operate (tune) in the range 30 to 890 Mc manufactured after October 1, 1956, shall comply with the certification requirements of this subpart, except as follows:

(a) FM broadcast receivers manufactured after December 31, 1956, shall comply with the certification requirements with respect to frequencies above 25 Mc. All such receivers manufactured after December 31, 1957, shall comply with the certification requirements with respect to all frequencies.

(b) UHF television broadcast receivers manufactured after December 31, 1957, shall comply with the certification requirements of this subpart; *Provided, however,* that the limit 500 uv/m appearing in the table contained in § 15.62 of this part is temporarily increased to 1,000 uv/m for all UHF television receivers until December 31, 1958.

(c) The radiation interference limits and the certification requirement with respect thereto shall be met by all pocket type super-regenerative 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

§ 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 this subpart 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.

SUBPART E—LOW POWER COMMUNICATION DEVICES

§ 15.201 *Frequencies of operation.* (a) A low power communication device may be operated on any frequency in the bands 10–490 kc, 510–1600 kc and 26.97–27.27 Mc.

(b) Other frequencies above 70 Mc may be used for operations of short duration in accordance with the requirements set forth in § 15.206.

§ 15.202 *Radiation limitation below 1600 kc.* A low power communication device which operates on any frequency between 10 and 490 kc or between 510

and 1600 kc shall limit the radiation so that the field strength does not exceed the value specified in the following table:

Frequency (kc)	Distance (feet)	Field strength (uv/m)
10–490	1,000	$\frac{2400}{F(kc)}$
510–1600	100	$\frac{24000}{F(kc)}$

§ 15.203 *Alternative requirement for operation on frequencies between 160 kc and 190 kc.* In lieu of meeting the radiation limitation, stated in § 15.202, a low power communication device operating on a frequency between 160 and 190 kc need only meet the following requirements:

(a) The power input to the final radio frequency stage (exclusive of filament or heater power) does not exceed one watt.

(b) All emissions below 160 kc or above 190 kc are suppressed 20 db or more below the unmodulated carrier.

(c) The total length of the transmission line plus the antenna does not exceed 50 feet.

§ 15.204 *Alternative requirement for operation on frequencies between 510 and 1600 kc.* In lieu of meeting the radiation limitation stated in § 15.202, a low power communication device operating on a frequency between 510 and 1600 kc inclusive need only meet the following requirements:

(a) The power input to the final radio stage (exclusive of filament or heater power) does not exceed 100 milliwatts.

(b) The emissions below 510 kc or above 1600 kc are suppressed 20 db or more below the unmodulated carrier.

(c) The total length of the transmission line plus the antenna does not exceed 10 feet.

(d) Low power communication devices obtaining their power from the lines of public utility systems shall limit the radio frequency voltage appearing on each power line to 200 microvolts or less on any frequency from 510 kc to 1600 kc. Measurements shall be made from each power line to ground both with the equipment grounded and with the equipment ungrounded.

NOTE: One method of determining radio frequency voltage on the power line is described in "Military Specification for Interference Measurement" MIL–I–16910 (SHIPS) dated January 14, 1952, available from the Commanding Officer, Naval Supply Depot, Scotia 2, New York. Note that this procedure calls for grounding the equipment under test, whereas the Commission's rules call for measurements both with the equipment grounded and with the equipment ungrounded.

§ 15.205 *Operation within the frequency band 26.97–27.27 Mc.* A low power communication device may operate within the band 26.97–27.27 Mc (27.12 Mc±150 kc) provided it complies with all of the following requirements:

(a) The carrier of the device shall be maintained within the band 26.97–27.27 Mc.

(b) All emissions, including modulation products, below 26.97 Mc or above 27.27 Mc shall be suppressed 20 db or more below the unmodulated carrier.

(c) The power input to the final radio stage (exclusive of filament or heater power) shall not exceed 100 milliwatts.

(d) The antenna shall consist of a single element that does not exceed 5 feet in length.

§ 15.206 *Operation above 70 Mc.* A low power communication device may be operated on any frequency above 70 Mc. provided it complies with all of the following conditions:

(a) Operation is limited to one second duration and to occur not more than once in 30 seconds.

(b) The radiated field on any frequency from 70 Mc to 1000 Mc does not exceed the limits specified for receivers in § 15.62.

(c) The radiated field on any frequency above 1000 Mc does not exceed 500 microvolts per meter at a distance of 100 feet.

(d) The device is provided with means for automatically limiting operation within the time restrictions specified in this section.

§ 15.207 *Class B emission prohibited.* Operation of low power communication devices that produce Class B emissions (damped waves) is prohibited.

§ 15.208 *Certification requirements.* (a) No low power communication device manufactured after the dates set

forth in § 15.211 shall be operated without a station license unless it has been certificated to demonstrate compliance with the requirements in this part.

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

(c) Where certification is based on measurement of a prototype, a sufficient number of units shall be tested to assure that all production units comply with the technical requirements of this subpart.

(d) The certificate may be executed by a technician skilled in making and interpreting the measurements that are required to assure compliance with the requirements of this part.

(e) The certificate shall contain the following information:

(1) The operating conditions under which the device is intended to be used.

(2) The antenna to be used with the device.

(3) A statement certifying that the device can be expected to comply with the requirements of this subpart under the operating conditions specified in the certificate.

(4) The month and year in which the device was manufactured.

[22 F. R. 7507, Sept. 20, 1957, as amended at 22 F. R. 10493, Dec. 24, 1957]

§ 15.209 *Location of certificate.* The certificate shall be permanently attached to the device and shall be readily visible for inspection.

§ 15.210 *Interference from low power communication devices.* Notwithstanding the other requirements of this part, the operator of a low power communication device, regardless of date of manufacture, which causes harmful interference to an authorized radio service, shall promptly stop operating the device until the harmful interference has been eliminated.

§ 15.211 *Date when certification is required.* All low power communication devices which operate on frequencies of 70 Mc or above, manufactured after June 30, 1958, shall comply with the certification requirements of this subpart. All low power communication devices which operate on frequencies below 70 Mc, manufactured after December 31, 1957, shall comply with the certification requirements of this subpart.

[22 F. R. 10493, Dec. 24, 1957]

Part 16—Land Transportation Radio Services

Subpart A—General Information

Subpart B—Applications, Authorizations, and Notifications

Subpart C—Technical Standards

Subpart D—Station Operating Requirements