§ 17.56 Maintenance of lighting equipment.

(a) Replacing or repairing of lights, automatic indicators or automatic control or alarm systems shall be accomplished as soon as practicable.

(b) The flash tubes in a high intensity obstruction lighting system shall be replaced whenever the peak effective daytime intensity falls below 200,000 candelas.

[40 FR 30267, July 18, 1975]

§ 17.57 Report of radio transmitting antenna construction, alteration, and/or removal.

The owner of an antenna structure for which an Antenna Structure Registration Number has been obtained must notify the Commission within 24 hours of completion of construction (FCC Form 854–R) and/or dismantlement (FCC Form 854). The owner must also immediately notify the Commission using FCC Form 854 upon any change in structure height or change in ownership information.

[61 FR 4364, Feb. 6, 1996]

§ 17.58 Facilities to be located on land under the jurisdiction of the U.S. Forest Service or the Bureau of Land Management.

Any application proposing new or modified transmitting facilities to be located on land under the jurisdiction of the U.S. Forest Service or the Bureau of Land Management shall include a statement that the facilities will be so located, and the applicant shall comply with the requirements of § 1.70 of this chapter.

[32 FR 11274, Aug. 3, 1967]

PART 18—INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

Subpart A—General Information

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SOURCE: 50 FR 36067, Sept. 5, 1985, unless otherwise noted.
(c) Industrial, scientific, and medical (ISM) equipment. Equipment or appliances designed to generate and use locally RF energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunication. Typical ISM applications are the production of physical, biological, or chemical effects such as heating, ionization of gases, mechanical vibrations, hair removal and acceleration of charged particles.

(d) Industrial heating equipment. A category of ISM equipment used for or in connection with industrial heating operations utilized in a manufacturing or production process.

(e) Medical diathermy equipment. A category of ISM equipment used for therapeutic purposes, not including surgical diathermy apparatus designed for intermittent operation with low power.

(f) Ultrasonic equipment. A category of ISM equipment in which the RF energy is used to excite or drive an electromechanical transducer for the production of sonic or ultrasonic mechanical energy for industrial, scientific, medical or other noncommunication purposes.

(g) Consumer ISM equipment. A category of ISM equipment used or intended to be used by the general public in a residential environment, notwithstanding use in other areas. Examples are domestic microwave ovens, jewelry cleaners for home use, ultrasonic humidifiers.

(h) ISM frequency. A frequency assigned by this part for the use of ISM equipment. A specified tolerance is associated with each ISM frequency. See §18.301.

(i) Marketing. As used in this part, marketing shall include sale or lease, offer for sale or lease, advertising for sale or lease, the import or shipment or other distribution for the purpose of sale or lease or offer for sale or lease. See subpart I of part 2 of this chapter.

(j) Magnetic resonance equipment. A category of ISM equipment in which RF energy is used to create images and data representing spatially resolved density of transient atomic resources within an object.

NOTE: In the foregoing, sale (or lease) shall mean sale (or lease) to the user or a vendor who in turn sells (or leases) to the user. Sale shall not be construed to apply to devices sold to a second party for manufacture or fabrication into a device which is subsequently sold (or leased) to the user.

§18.109 General technical requirements.

ISM equipment shall be designed and constructed in accordance with good engineering practice with sufficient shielding and filtering to provide adequate suppression of emissions on frequencies outside the frequency bands specified in §18.301.

§18.111 General operating conditions.

(a) Persons operating ISM equipment shall not be deemed to have any vested or recognizable right to the continued use of any given frequency, by virtue of any prior equipment authorization and/or compliance with the applicable rules.

(b) Subject to the exceptions in paragraphs (c) and (d) of this section and irrespective of whether the equipment otherwise complies with the rules in this part, the operator of ISM equipment that causes harmful interference to any authorized radio service shall promptly take whatever steps may be necessary to eliminate the interference.

(c) The provisions of paragraph (b) of this section shall not apply in the case of interference to an authorized radio station or a radiocommunication device operating in an ISM frequency band.

(d) The provisions of paragraph (b) of this section shall not apply in the case of interference to a receiver arising from direct intermediate frequency pickup by the receiver of the fundamental frequency emissions of ISM equipment operating in an ISM frequency band and otherwise complying with the requirements of this part.

§18.113 Inspection by Commission representatives.

Upon request by a representative of the Commission the manufacturer,
§ 18.115
owner, or operator of any ISM equip-
ment shall make the equipment avail-
able for inspection and promptly fur-
nish the Commission with such infor-
mation as may be required to indicate
that the equipment complies with this
part.

§ 18.115 Elimination and investigation of harmful interference.

(a) The operator of ISM equipment
that causes harmful interference to
radio services shall promptly take ap-
propriate measures to correct the prob-
lem.

(b) If the operator of ISM equipment
is notified by the Commission’s Engi-
neer in Charge (EIC) that operation of
such equipment is endangering the
functioning of a radionavigation or
safety service, the operator shall im-
mediately cease operating the equip-
ment. Operation may be resumed on a
temporary basis only for the purpose of
eliminating the harmful interference.
Operation may be resumed on a regular
basis only after the harmful inter-
ference has been eliminated and ap-
proval from the EIC obtained.

(c) When notified by the EIC that a
particular installation is causing
harmful interference, the operator or
manufacturer shall arrange for an engi-
neer skilled in techniques of inter-
ference measurement and control to
make an investigation to ensure that
the harmful interference has been
eliminated. The EIC may require the
engineer making the investigation to
furnish proof of his or her qualifica-
tions.

§ 18.117 Report of interference inves-
tigation.

(a) An interim report on investiga-
tions and corrective measures taken
pursuant to §18.115 of this part shall be
filed with the EIC of the local FCC of-
lice within 30 days of notification of
harmful interference. The final report
shall be filed with the EIC within 60
days of notification.

(b) The date for filing the final report
may be extended by the Engineer in
Charge when additional time is re-
quired to put into effect the corrective
measures or to complete the investiga-
tion. The request for extension of time
shall be accompanied by a progress re-
port showing what has been accom-
plished to date.

§ 18.121 Exemptions.

Non-consumer ultrasonic equipment,
and non-consumer magnetic resonance
equipment, that is used for medical di-
gnostic and monitoring applications
is subject only to the provisions of
§§18.105, 18.109 through 18.119, 18.301 and
18.303 of this part.

12, 1995]

§ 18.123 Transition provisions for com-
pliance with the rules.

Consumer ISM devices, induction
cooking ranges and ultrasonic equip-
ment that are authorized under the
certification, verification or declara-
tion of conformity procedures on or
after July 12, 2004 shall comply with
the conducted limits specified in
§18.307. All such devices that are manu-
factured or imported on or after July
11, 2005 shall comply with the con-
ducted limits specified in §18.307.
Equipment authorized, imported or
manufactured prior to these dates shall
comply with the conducted limits spec-
ified in §18.307 or with the conducted
limits that were in effect immediately
prior to September 9, 2002.

[67 FR 45671, July 10, 2002]

Subpart B—Applications and
Authorizations

§ 18.201 Scope.

This subpart contains the procedures
and requirements for authorization to
market or operate ISM equipment
under this part.

§ 18.203 Equipment authorization.

(a) Consumer ISM equipment, unless
otherwise specified, must be authorized
under either the Declaration of Con-
formity or certification procedure
prior to use or marketing. An applica-
tion for certification shall be filed with
the Commission on an FCC Form 731,
pursuant to the relevant sections in
part 2, subpart J of this chapter and
shall also be accompanied by:

(1) A description of measurement fa-
cilities pursuant to §2.948, or reference
§ 18.207 Technical report.

When required by the Commission a technical report shall include at least the following information:

(a) A description of the measurement facilities in accordance with §2.948. If such a description is already on file with the Commission, it may be included by reference.

(b) A copy of the installation and operating instructions furnished to the user. A draft copy of such instructions may be submitted with the application; provided a copy of the actual document to be furnished to the user is submitted as soon as it is available, but no later than 60 days after the grant of the application.

(c) The full name and mailing address of the manufacturer of the device and/or applicant filing for the equipment authorization.

(d) The FCC Identifier, trade name(s), and/or model number(s) under which the equipment is or will be marketed.

(e) A statement of the rated technical parameters that includes:
   (1) A block and schematic diagram of the circuitry.
   (2) Nominal operating frequency.
   (3) Maximum RF energy generated.
   (4) Electrical power requirements of equipment.
   (5) Any other pertinent operating characteristics.

(f) A report of measurements, including a list of the measuring equipment used, and a statement of the date when the measuring equipment was last calibrated and when the measurements were made. The frequency range that was investigated in obtaining the report of measurements shall be indicated. See also §§18.309 and 18.311.


§ 18.209 Identification of authorized equipment.

(a) Each device for which a grant of equipment authorization is issued under this part shall be identified pursuant to the applicable provisions of subpart J of part 2 of this chapter. Changes in the identification of authorized equipment may be made pursuant to §2.933 of part 2 of this chapter. FCC Identifiers as described in §§2.925 and 2.926 of this chapter shall not be used on equipment subject to verification or Declaration of Conformity.

(b) Devices authorized under the Declaration of Conformity procedure shall be labelled with the logo shown below. The label shall not be a stick-on, paper label. It shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in §2.925(d) of this chapter. Permanently affixed means that the label is etched, engraved, stamped, silkscreened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable. The logo follows:

[63 FR 36603, July 7, 1998]

§ 18.211 Multiple listing of equipment.

(a) When the same or essentially the same equipment will be marketed under more than one FCC Identifier, equipment authorization must be requested on an FCC Form 731 for each FCC Identifier.
§ 18.212 Compliance information.

(a) Equipment authorized under the Declaration of Conformity procedure shall include the following compliance information in lieu of the information required by §2.1077.

(1) Identification of the product, e.g., name and model number.

(2) A statement similar to the following:

This device complies with Part 18 of the FCC Rules.

(3) The name and address of the responsible party as defined in §2.909 of the rules. This party must be located within the United States.

(b) The compliance information may be placed in the instruction manual, on a separate sheet, or on the packaging. There is no specific format for this information.

[83 FR 36663, July 7, 1998]

§ 18.213 Information to the user.

Information on the following matters shall be provided to the user in the instruction manual or on the packaging if an instruction manual is not provided for any type of ISM equipment:

(a) The interference potential of the device or system

(b) Maintenance of the system

(c) Simple measures that can be taken by the user to correct interference.

(d) Manufacturers of RF lighting devices must provide an advisory statement, either on the product packaging or with other user documentation, similar to the following: This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45-30 MHz. Variations of this language are permitted provided all the points of the statement are addressed and may be presented in any legible font or text style.


Subpart C—Technical Standards

§ 18.301 Operating frequencies.

ISM equipment may be operated on any frequency above 9 kHz except as indicated in §18.303. The following frequency bands, in accordance with §2.106 of the rules, are allocated for use by ISM equipment:

<table>
<thead>
<tr>
<th>ISM frequency</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.78 MHz</td>
<td>±15.0 kHz</td>
</tr>
<tr>
<td>13.56 MHz</td>
<td>±7.0 kHz</td>
</tr>
<tr>
<td>27.12 MHz</td>
<td>±163.0 kHz</td>
</tr>
<tr>
<td>40.68 MHz</td>
<td>±20.0 kHz</td>
</tr>
<tr>
<td>915 MHz</td>
<td>±13.0 MHz</td>
</tr>
<tr>
<td>2,450 MHz</td>
<td>±50.0 MHz</td>
</tr>
<tr>
<td>5,800 MHz</td>
<td>±75.0 MHz</td>
</tr>
<tr>
<td>24,125 MHz</td>
<td>±125.0 MHz</td>
</tr>
<tr>
<td>61.25 GHz</td>
<td>±250.0 MHz</td>
</tr>
<tr>
<td>122.50 GHz</td>
<td>±500.0 MHz</td>
</tr>
<tr>
<td>245.00 GHz</td>
<td>±1.0 GHz</td>
</tr>
</tbody>
</table>

Note: The use of the 6.78 MHz ±15 kHz frequency band is subject to the conditions of footnote 524 of the Table of Allocations. See §2.106.
Federal Communications Commission

§ 18.303 Prohibited frequency bands.

Operation of ISM equipment within the following safety, search and rescue frequency bands is prohibited: 490–510 kHz, 2170–2194 kHz, 8354–8374 kHz, 121.4–121.6 MHz, 156.7–156.9 MHz, and 242.8–243.2 MHz.

§ 18.305 Field strength limits.

(a) ISM equipment operating on a frequency specified in §18.301 is permitted unlimited radiated energy in the band specified for that frequency.

(b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Operating frequency</th>
<th>RF Power generated by equipment (watts)</th>
<th>Field strength limit (μV/m)</th>
<th>Distance (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any type unless otherwise specified (miscellaneous).</td>
<td>Any ISM frequency .........</td>
<td>Below 500 25</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 or more 25×SQRT(power/500) 300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any non-ISM frequency ..</td>
<td>Below 500 15</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 or more 15×SQRT(power/500) 300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial heaters and RF stabilized arc welders.</td>
<td>On or below 5,725 MHz ..</td>
<td>Any 10</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above 5,725 MHz ..........</td>
<td>Any 10</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Medical diathermy</td>
<td>Any ISM frequency ..........</td>
<td>Any 25</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any non-ISM frequency ..</td>
<td>Any 25</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Below 500 2,400/F(kHz)</td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>500 or more 2,400/F(kHz)\times SQRT(power/500) 300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultrasonic</td>
<td>Below 490 kHz ............</td>
<td>Any 24,000/F(kHz)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above 1,600 kHz ...........</td>
<td>Any 24,000/F(kHz)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Below 90 kHz ...............</td>
<td>Any 1,500</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above 1,600 kHz ..........</td>
<td>Any 1,500</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Induction cooking ranges</td>
<td>Below 90 kHz ...............</td>
<td>Any 300</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above 90 kHz ...............</td>
<td>Any 300</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

1 Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

2 Reduced to the greatest extent possible.

3 Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

4 Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

(c) The field strength limits for RF lighting devices shall be the following:

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Field strength limit at 30 meters (μV/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-consumer equipment:</td>
<td></td>
</tr>
<tr>
<td>30–88 ..........</td>
<td>30</td>
</tr>
<tr>
<td>88–216 ..........</td>
<td>50</td>
</tr>
<tr>
<td>216–1000 ......</td>
<td>70</td>
</tr>
<tr>
<td>Consumer equipment:</td>
<td></td>
</tr>
<tr>
<td>30–88 ..........</td>
<td>10</td>
</tr>
<tr>
<td>88–216 ..........</td>
<td>15</td>
</tr>
<tr>
<td>216–1000 ......</td>
<td>20</td>
</tr>
</tbody>
</table>

NOTES

1. The tighter limit shall apply at the boundary between two frequency ranges.

2. Testing for compliance with these limits may be made at closer distances, provided a sufficient number of measurements are taken to plot the radiation pattern, to determine the major lobes of radiation, and to determine the expected field strength level at 30, 300, or 1600 meters. Alternatively, if measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor.


§ 18.307 Conduction limits.

For the following equipment, when designed to be connected to the public utility (AC) power line the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal using a 50 μH/50 ohms line impedance stabilization network (LISN).

(a) All Induction cooking ranges and ultrasonic equipment:

<table>
<thead>
<tr>
<th>Frequency of emission (MHz)</th>
<th>Conducted limit (dBμV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quasi-peak</td>
<td>Average</td>
</tr>
<tr>
<td>0.009–0.05</td>
<td>110</td>
</tr>
</tbody>
</table>

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§ 18.309  Frequency range of measurements.

(a) For field strength measurements:

<table>
<thead>
<tr>
<th>Frequency band in which device operates (MHz)</th>
<th>Range of frequency measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 1.705</td>
<td>Lowest frequency generated in the device, but not lower than 9 kHz.</td>
</tr>
<tr>
<td>1.705 to 30</td>
<td>Lowest frequency generated in the device, but not lower than 9 kHz.</td>
</tr>
<tr>
<td>30 to 500</td>
<td>Lowest frequency generated in the device or 25 MHz, whichever is lower.</td>
</tr>
<tr>
<td>500 to 1,000</td>
<td>Lowest frequency generated in the device or 100 MHz, whichever is lower.</td>
</tr>
<tr>
<td>Above 1,000</td>
<td>do</td>
</tr>
</tbody>
</table>

(b) For conducted powerline measurements, the frequency range over which the limits are specified will be scanned.


§ 18.311  Methods of measurements.

The measurement techniques which will be used by the FCC to determine compliance with the technical requirements of this part are set out in FCC Measurement Procedure MP-5, "Methods of Measurements of Radio Noise Emissions from ISM equipment". Although the procedures in MP-5 are not mandated, manufacturers are encouraged to follow the same techniques which will be used by the FCC.

PART 19—EMPLOYEE RESPONSIBILITIES AND CONDUCT

Subpart A—General Provisions


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