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broadcast receivers that are shipped in interstate commerce or imported from any foreign country into the United States and for which they are responsible to comply with the provisions of this section in accordance with the following schedule:

- Receivers with screen sizes 36' and above—50% of all of a responsible party's units must include DTV tuners effective July 1, 2004; 100% of such units must include DTV tuners effective July 1, 2005
- Receivers with screen sizes 25' to 36'—50% of all of a responsible party's units must include DTV tuners effective July 1, 2005; 100% of such units must include DTV tuners effective July 1, 2006
- Receivers with screen sizes 13' to 24'—100% of all such units must include DTV tuners effective July 1, 2007
- Other devices (videocassette recorders (VCRs), digital video disk and digital versatile disk (DVD) players/recorders, etc.) that receive television signals—100% of all such units must include DTV tuners effective July 1, 2007.

(2) For purposes of this implementation schedule, screen sizes are to be measured diagonally across the picture viewing area. The requirement for equipping new TV broadcast receivers with DTV reception capability does not apply to units with integrated tuners/displays that have screen sizes measuring less than 7.8 inches vertically, *i.e.*, the vertical measurement of a screen in the 4:3 aspect ratio that measures 13' diagonally across the picture viewing area.

(3) Responsible parties may include combinations of DTV monitors and set-top DTV tuners in meeting the required percentages of units with a DTV tuner if such combinations are marketed together with a single price.

(j) For a TV broadcast receiver equipped with a cable input selector switch, the selector switch shall provide, in any of its set positions, isolation between the antenna and cable input terminals of at least 80 dB from 54 MHz to 216 MHz, at least 60 dB from 216 MHz to 550 MHz and at least 55 dB from 550 MHz to 806 MHz. The 80 dB standard applies at 216 MHz and the 60dB standard applies at 550 MHz. In

the case of a selector switch requiring a power source, the required isolation shall be maintained in the event the device is not connected to a power source or power is interrupted. An actual switch that can alternate between reception of cable television service and an antenna is not required for a TV broadcast receiver, provided compliance with the isolation requirement specified in this paragraph can be demonstrated and the circuitry following the antenna input terminal(s) has sufficient band-width to allow the reception of all TV broadcast channels authorized under this chapter. The provisions of this paragraph regarding frequencies in the range 550 MHz to 806 MHz are applicable as of June 30, 1997.

[54 FR 17714, Apr. 25, 1993, as amended at 59 FR 25341, May 16, 1994; 61 FR 30532, June 17, 1996; 67 FR 63294, Oct. 11, 2002]

**§ 15.118 Cable ready consumer electronics equipment.**

(a) All consumer electronics TV receiving equipment marketed in the United States as cable ready or cable compatible shall comply with the provisions of this section. Consumer electronics TV receiving equipment that includes features intended for use with cable service but does not fully comply with the provisions of this section are subject to the labelling requirements of § 15.19(d). Until such time as generally accepted testing standards are developed, paragraphs (c) and (d) of this section will apply only to the analog portion of covered consumer electronics TV receiving equipment

(b) Cable ready consumer electronics equipment shall be capable of receiving all NTSC or similar video channels on channels 1 through 125 of the channel allocation plan set forth in the Electronics Industries Association's "Cable Television Channel Identification Plan, EIA IS-132, May 1994" (EIA IS-132). This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 522(a) and 1 CFR part 51. Copies of EIA IS-132 may be obtained from: Global Engineering Documents, 3130 South Harbor Boulevard, Santa Anna, CA 92704. Copies of EIA IS-132 may be inspected during normal business hours at the following locations: Federal

Communications Commission, 1919 M Street, NW., Dockets Branch (Room 239), Washington, DC, or the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(c) Cable ready consumer electronics equipment must meet the following technical performance requirements. Compliance with these requirements shall be determined by performing measurements at the unfiltered IF output port. Where appropriate, the Commission will consider allowing alternative measurement methods.

(1) *Adjacent channel interference.* In the presence of a lower adjacent channel CW signal that is 1.5 MHz below the desired visual carrier in frequency and 10 dB below the desired visual carrier in amplitude, spurious signals within the IF passband shall be attenuated at least 55 dB below the visual carrier of the desired signal. The desired input signal shall be an NTSC visual carrier modulated with a 10 IRE flat field with color burst and the aural carrier which is 10 dB below the visual carrier should be unmodulated. Measurements are to be performed for input signal levels of 0 dBmV and +15 dBmV, with the receiver tuned to ten evenly spaced EIA IS-132 channels covering the band 54 MHz to 804 MHz.

(2) *Image channel interference.* Image channel interference within the IF passband shall be attenuated below the visual carrier of the desired channel by at least 60 dB from 54 MHz to 714 MHz and 50 dB from 714 MHz to 804 MHz. The 60 dB standard applies at 714 MHz. In testing for compliance with this standard, the desired input signal is to be an NTSC signal on which the visual carrier is modulated with a 10 IRE flat field with color burst and the aural carrier is unmodulated and 10 dB below the visual carrier. The undesired test signal shall be a CW signal equal in amplitude to the desired visual carrier and located 90 MHz above the visual carrier frequency of the desired channel. Measurements shall be performed for input signals of 0 dBmV and +15 dBmV, with the receiver tuned to at least ten evenly spaced EIA IS-132 channels covering the band 54 MHz to 804 MHz.

(3) *Direct pickup interference.* The direct pickup (DPU) of a co-channel

interfering ambient field by a cable ready device shall not exceed the following criteria. The ratio of the desired to undesired signal levels at the IF passband on each channel shall be at least 45 dB. The average ratio over the six channels shall be at least 50 dB. The desired input signal shall be an NTSC signal having a visual carrier level of 0 dBmV. The visual carrier is modulated with a 10 IRE flat field with color burst, visual to aural carrier ratio of 10 dB, aural carrier unmodulated. The equipment under test (EUT) shall be placed on a rotatable table that is one meter in height. Any excess length of the power cord and other connecting leads shall be coiled on the floor under the table. The EUT shall be immersed in a horizontally polarized uniform CW field of 100 mV/m at a frequency 2.55 MHz above the visual carrier of the EUT tuned channel. Measurements shall be made with the EUT tuned to six EIA IS-132 channels, two each in the low VHF, high VHF and UHF broadcast bands. On each channel, the levels at the IF passband due to the desired and interfering signals are to be measured.

(4) *Tuner overload.* Spurious signals within the IF passband shall be attenuated at least 55 dB below the visual carrier of the desired channel using a comb-like spectrum input with each visual carrier signal individually set at +15 dBmV from 54 to 550 MHz. The desired input signal is to be an NTSC signal on which the visual carrier is modulated with a 10 IRE flat field with color burst and the aural carrier is unmodulated and 10 dB below the visual carrier. Measurements shall be made with the receiver tuned to at least seven evenly spaced EIA IS-132 channels covering the band 54 MHz to 550 MHz. In addition, spurious signals within the IF passband shall be attenuated at least 51 dB below the visual carrier of the desired channel using a comb spectrum input with each signal individually set at +15 dBmV from 550 to 804 MHz. Measurements shall be made with the receiver tuned to at least three evenly spaced EIA IS-132 channels covering the band 550 MHz to 804 MHz.

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(5) *Cable input conducted emissions.* (i) Conducted spurious emissions that appear at the cable input to the device must meet the following criteria. The input shall be an NTSC video carrier modulated with a 10 IRE flat field with color burst at a level of 0 dBmV and with a visual to aural ratio of 10 dB. The aural carrier shall be unmodulated. The peak level of the spurious signals will be measured using a spectrum analyzer connected by a directional coupler to the cable input of the equipment under test. Spurious signal levels must not exceed the limits in the following table:

- From 54 MHz up to and including 300 MHz-26 dBmV
- From 300 MHz up to and including 450 MHz-20 dBmV
- From 450 MHz up to and including 804 MHz-15 dBmV

(ii) The average of the measurements on multiple channels from 450 MHz up to and including 804 MHz shall be no greater than -20 dBmV. Measurements shall be made with the receiver tuned to at least four EIA IS-132 channels in each of the above bands. The test channels are to be evenly distributed across each of the bands. Measurements for conducted emissions caused by sources internal to the device are to be made in a shielded room. Measurements for conducted emissions caused by external signal sources shall be made in an ambient RF field whose field strength is 100 mV/m, following the same test conditions as described in paragraph (c)(3) of this section.

(d) The field strength of radiated emissions from cable ready consumer electronics equipment shall not exceed the limits in §15.109(a) when measured in accordance with the applicable procedures specified in §§15.31 and 15.35 for unintentional radiators, with the following modifications. During testing the NTSC input signal level is to be +15 dBmV, with a visual to aural ratio of 10 dB. The visual carrier is to be modulated by a 10 IRE flat field with color burst; the aural carrier is to be unmodulated. Measurements are to be taken on six EIA IS-132 channels evenly spaced across the required RF input range of the equipment under test.

NOTE: The provisions of paragraphs (a) through (d) of this section are applicable as of June 30, 1997.

[59 FR 25341, May 16, 1994, as amended at 61 FR 18509, Apr. 26, 1996; 65 FR 64391, Oct. 27, 2000]

§ 15.119 **Closed caption decoder requirements for analog television receivers.**

(a) Effective July 1, 1993, all TV broadcast receivers with picture screens 33 cm (13 in) or larger in diameter shipped in interstate commerce, manufactured, assembled, or imported from any foreign country into the United States shall comply with the provisions of this section.

NOTE: This paragraph places no restriction on the shipping or sale of television receivers that were manufactured before July 1, 1993.

(b) *Transmission format.* Closed-caption information is transmitted on line 21 of field 1 of the vertical blanking interval of television signals, in accordance with §73.682(a)(22) of this chapter.

(c) *Operating modes.* The television receiver will employ customer-selectable modes of operation for TV and Caption. A third mode of operation, Text, may be included on an optional basis. The Caption and Text Modes may contain data in either of two operating channels, referred to in this document as C1 and C2. The television receiver must decode both C1 and C2 captioning, and must display the captioning for whichever channel the user selects. The TV Mode of operation allows the video to be viewed in its original form. The Caption and Text Modes define one or more areas (called "boxes") on the screen within which caption or text characters are displayed.

NOTE: For more information regarding Text mode, see "Television Captioning for the Deaf: Signal and Display Specifications", Engineering Report No. E-7709-C, Public Broadcasting Service, dated May 1980, and "TeleCaption II Decoder Module Performance Specification", National Captioning Institute, Inc., dated November 1985. These documents are available, respectively, from the Public Broadcasting Service, 1320 Braddock Place, Alexandria, VA 22314 and from the National Captioning Institute, Inc., 5203 Leesburg Pike, Falls Church, VA 22041.