

*Program related data signal.* A signal, consisting of a series of pulses representing data, which is transmitted simultaneously with and directly related to the accompanying television program.

*Reference black level.* The level corresponding to the specified maximum excursion of the luminance signal in the black direction.

*Reference white level of the luminance signal.* The level corresponding to the specified maximum excursion of the luminance signal in the white direction.

*Scanning.* The process of analyzing successively, according to a predetermined method, the light values of picture elements constituting the total picture area.

*Scanning line.* A single continuous narrow strip of the picture area containing highlights, shadows, and half-tones, determined by the process of scanning.

*Standard television signal.* A signal which conforms to the television transmission standards.

*Synchronization.* The maintenance of one operation in step with another.

*Television broadcast band.* The frequencies in the band extending from 54 to 806 megahertz which are assignable to television broadcast stations. These frequencies are 54 to 72 megahertz (channels 2 through 4), 76 to 88 megahertz (channels 5 and 6), 174 to 216 megahertz (channels 7 through 13), and 470 to 806 megahertz (channels 14 through 69).

*Television broadcast station.* A station in the television broadcast band transmitting simultaneous visual and aural signals intended to be received by the general public.

*Television channel.* A band of frequencies 6 MHz wide in the television broadcast band and designated either by number or by the extreme lower and upper frequencies.

*Television transmission standards.* The standards which determine the characteristics of a television signal as radiated by a television broadcast station.

*Television transmitter.* The radio transmitter or transmitters for the transmission of both visual and aural signals.

*Vestigial sideband transmission.* A system of transmission wherein one of the

generated sidebands is partially attenuated at the transmitter and radiated only in part.

*Visual carrier frequency.* The frequency of the carrier which is modulated by the picture information.

*Visual transmitter.* The radio equipment for the transmission of the visual signal only.

*Visual transmitter power.* The peak power output when transmitting a standard television signal.

[28 FR 13660, Dec. 14, 1963]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.681, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at [www.fdsys.gov](http://www.fdsys.gov).

#### § 73.682 TV transmission standards.

(a) *Transmission standards.* (1) The width of the television broadcast channel shall be 6 MHz.

(2) The visual carrier frequency shall be nominally 1.25 MHz above the lower boundary of the channel.

(3) The aural center frequency shall be 4.5 MHz higher than the visual carrier frequency.

(4) The visual transmission amplitude characteristic shall be in accordance with the chart designated as Figure 5 of § 73.699: *Provided, however,* That for stations operating on Channel 15 through 69 and employing a transmitter with maximum peak visual power output of 1 kW or less the visual transmission amplitude characteristic may be in accordance with the chart designated as Figure 5a of § 73.699.

(5) The chrominance subcarrier frequency is 63/88 times precisely 5 MHz (3.57954545 . . . MHz). The tolerance is  $\pm 10$  Hz and the rate of frequency drift must not exceed 0.1 Hz per second (cycles per second squared).

(6) For monochrome and color transmissions the number of scanning lines per frame shall be 525, interlaced two to one in successive fields. The horizontal scanning frequency shall be 2/455 times the chrominance subcarrier frequency; this corresponds nominally to 15,750 Hz with an actual value of 15,734.264  $\pm 0.044$  Hz). The vertical scanning frequency is 2/525 times the horizontal scanning frequency; this corresponds nominally to 60 Hz (the actual value is 59.94 Hz). For monochrome

transmissions only, the nominal values of line and field frequencies may be used.

(7) The aspect ratio of the transmitted television picture shall be 4 units horizontally to 3 units vertically.

(8) During active scanning intervals, the scene shall be scanned from left to right horizontally and from top to bottom vertically, at uniform velocities.

(9) A carrier shall be modulated within a single television channel for both picture and synchronizing signals. The two signals comprise different modulation ranges in amplitude in accordance with the following:

(i) Monochrome transmissions shall comply with synchronizing waveform specifications in Figure 7 of § 73.699.

(ii) Color transmissions shall comply with the synchronizing waveform specifications in Figure 6 of § 73.699.

(iii) All stations operating on Channels 2 through 14 and those stations operating on Channels 15 through 69 licensed for a peak visual transmitter output power greater than one kW shall comply with the picture transmission amplitude characteristics shown in Figure 5 of § 73.699.

(iv) Stations operating on Channels 15 through 69 licensed for a peak visual transmitter output power of one kW or less shall comply with the picture transmission amplitude characteristic shown in Figure 5 or 5a of § 73.699.

(10) A decrease in initial light intensity shall cause an increase in radiated power (negative transmission).

(11) The reference black level shall be represented by a definite carrier level, independent of light and shade in the picture.

(12) The blanking level shall be transmitted at  $75 \pm 2.5$  percent of the peak carrier level.

(13) The reference white level of the luminance signal shall be  $12.5 \pm 2.5$  percent of the peak carrier level.

(14) It shall be standard to employ horizontal polarization. However, circular or elliptical polarization may be employed if desired, in which case clockwise (right hand) rotation, as defined in the IEEE Standard Definition 42A65-3E2, and transmission of the horizontal and vertical components in time and space quadrature shall be used. For either omnidirectional or di-

rectional antennas the licensed effective radiated power of the vertically polarized component may not exceed the licensed effective radiated power of the horizontally polarized component. For directional antennas, the maximum effective radiated power of the vertically polarized component shall not exceed the maximum effective radiated power of the horizontally polarized component in any specified horizontal or vertical direction.

(15) The effective radiated power of the aural transmitter must not exceed 22% of the peak radiated power of the visual transmitter.

(16) The peak-to-peak variation of transmitter output within one frame of video signal due to all causes, including hum, noise, and low-frequency response, measured at both scanning synchronizing peak and blanking level, shall not exceed 5 percent of the average scanning synchronizing peak signal amplitude. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(17) The reference black level shall be separated from the blanking level by the setup interval, which shall be  $7.5 \pm 2.5$  percent of the video range from blanking level to the reference white level.

(18) For monochrome transmission, the transmitter output shall vary in substantially inverse logarithmic relation to the brightness of the subject. No tolerances are set at this time. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(19) The color picture signal shall correspond to a luminance component transmitted as amplitude modulation of the picture carrier and a simultaneous pair of chrominance components transmitted as the amplitude modulation sidebands of a pair of suppressed subcarriers in quadrature.

(20) Equation of complete color signal.

(i) The color picture signal has the following composition:

$$E_M = E_Y' + [E_Q' \sin(\omega t + 33^\circ) + E_I' \cos(\omega t + 33^\circ)]$$

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Where:

$$E_Q' = 0.41(E_B' - E_Y') + 0.48(E_R' - E_Y')$$

$$E_I' = -0.27(E_B' - E_Y') + 0.74(E_R' - E_Y')$$

$$E_Y' = 0.30E_R' + 0.59E_G' + 0. - 1E_B'$$

For color-difference frequencies below 500 kHz (see (iii) below), the signal can be represented by:

$$E_M = E_Y' + [(1/1.14)[(1/1.78)(E_B' - E_Y') \sin \omega t + (E_R' - E_Y') \cos \omega t]]$$

(ii) The symbols in paragraph (a)(20)(i) of this section have the following significance:

$E_M$  is the total video voltage, corresponding to the scanning of a particular picture element, applied to the modulator of the picture transmitter.

$E_Y'$  is the gamma-corrected voltage of the monochrome (black-and-white) portion of the color picture signal, corresponding to the given picture element.

NOTE: Forming of the high frequency portion of the monochrome signal in a different manner is permissible and may in fact be desirable in order to improve the sharpness on saturated colors.

$E_Q'$  and  $E_I'$  are the amplitudes of two orthogonal components of the chrominance signal corresponding respectively to narrow-band and wide-band axes.

$E_R'$ ,  $E_G'$ , and  $E_B'$  are the gamma-corrected voltages corresponding to red, green, and blue signals during the scanning of the given picture element.

$\omega$  is the angular frequency and is 2 times the frequency of the chrominance subcarrier.

The portion of each expression between brackets in (i) represents the chrominance subcarrier signal which carries the chrominance information.

The phase reference in the  $E_M$  equation in (i) is the phase of the burst + 180°, as shown in Figure 8 of § 73.699. The burst corresponds to amplitude modulation of a continuous sine wave.

(iii) The equivalent bandwidth assigned prior to modulation to the color difference signals  $E_Q'$  and  $E_I'$  are as follows:

Q-channel bandwidth:

- At 400 kHz less than 2 dB down.
- At 500 kHz less than 6 dB down.
- At 600 kHz at least 6 dB down.

I-channel bandwidth:

- At 1.3 MHz less than 2 dB down.
- At 3.6 MHz at least 20 dB down.

(iv) The gamma corrected voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  are suitable for a color picture tube having primary colors with the following chromaticities in the CIE system of specification:

	x	y
Red (R) .....	0.67	0.33
Green (G) .....	0.21	0.71
Blue (B) .....	0.14	0.08

and having a transfer gradient (gamma exponent) of 2.2 associated with each primary color. The voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  may be respectively of the form  $E_R^{1/\gamma}$ ,  $E_G^{1/\gamma}$ , and  $E_B^{1/\gamma}$  although other forms may be used with advances in the state of the art.

NOTE: At the present state of the art it is considered inadvisable to set a tolerance on the value of gamma and correspondingly this portion of the specification will not be enforced.

(v) The radiated chrominance subcarrier shall vanish on the reference white of the scene.

NOTE: The numerical values of the signal specification assume that this condition will be reproduced as CIE Illuminant C ( $x = 0.310$ ,  $y = 0.316$ ).

(vi)  $E_Y'$ ,  $E_Q'$ ,  $E_I'$ , and the components of these signals shall match each other in time to 0.05 μsecs.

(vii) The angles of the subcarrier measured with respect to the burst phase, when reproducing saturated primaries and their complements at 75 percent of full amplitude, shall be within ±10° and their amplitudes shall be within ±20 percent of the values specified above. The ratios of the measured amplitudes of the subcarrier to the luminance signal for the same saturated primaries and their complements shall fall between the limits of 0.8 and 1.2 of the values specified for their ratios. Closer tolerances may prove to be practicable and desirable with advance in the art.

(21) The interval beginning with line 17 and continuing through line 20 of the vertical blanking interval of each field may be used for the transmission of test signals, cue and control signals, and identification signals, subject to the conditions and restrictions set forth below. Test signals may include signals designed to check the performance of the overall transmission system or its individual components. Cue and control signals shall be related to the operation of the TV broadcast station. Identification signals may be transmitted to identify the broadcast material or its source, and the date and

time of its origination. Figures 6 and 7 of §73.699 identify the numbered lines referred to in this paragraph.

(i) Modulation of the television transmitter by such signals shall be confined to the area between the reference white level and the blanking level, except where test signals include chrominance subcarrier frequencies, in which case positive excursions of chrominance components may exceed reference white, and negative excursions may extend into the synchronizing area. In no case may the modulation excursions produced by test signals extend beyond peak-of-sync, or to zero carrier level.

(ii) The use of such signals shall not result in significant degradation of the program transmission of the television broadcast station, nor produce emission outside of the frequency band occupied for normal program transmissions.

(iii) Such signals may not be transmitted during that portion of each line devoted to horizontal blanking.

(iv) Regardless of other provisions of this paragraph, after June 30, 1994, Line 19, in each field, may be used only for the transmission of the ghost-canceling reference signal described in OET Bulletin No. 68, which is available from the FCC Warehouse, 9300 East Hampton Drive, Capitol Heights, MD 20743. Notwithstanding the modulation limits contained in paragraph (a)(23)(i) of this section, the vertical interval reference signal formerly permitted on Line 19 and described in Figure 16 of §73.699, may be transmitted on any of lines 10 through 16 without specific Commission authorization, subject to the conditions contained in paragraphs (a)(21)(ii) and (a)(22)(ii) of this section.

(22)(i) Line 21, in each field, may be used for the transmission of a program-related data signal which, when decoded, provides a visual depiction of information simultaneously being presented on the aural channel (captions). Line 21, field 2 may be used for transmission of a program-related data signal which, when decoded, identifies a rating level associated with the current program. Such data signals shall conform to the format described in figure 17 of §73.699 of this chapter, and may be transmitted during all periods

of regular operation. On a space available basis, line 21 field 2 may also be used for text-mode data and extended data service information.

NOTE: The signals on Fields 1 and 2 shall be distinct data streams, for example, to supply captions in different languages or at different reading levels.

(ii) At times when Line 21 is not being used to transmit a program related data signal, data signals which are not program related may be transmitted, *Provided*: the same data format is used and the information to be displayed is of a broadcast nature.

(iii) The use of Line 21 for transmission of other data signals conforming to other formats may be used subject to prior authorization by the Commission.

(iv) The data signal shall cause no significant degradation to any portion of the visual signal nor produce emissions outside the authorized television channel.

(v) Transmission of visual emergency messages pursuant to §73.1250 shall take precedence and shall be cause for interrupting transmission of data signals permitted under this paragraph.

(23) Specific scanning lines in the vertical blanking interval may be used for the purpose of transmitting telecommunications signals in accordance with §73.646, subject to certain conditions:

(i) Telecommunications may be transmitted on Lines 10-18 and 20, all of Field 2 and Field 1. Modulation level shall not exceed 70 IRE on lines 10, 11, and 12; and, 80 IRE on lines 13-18 and 20.

(ii) No observable degradation may be caused to any portion of the visual or aural signals.

(iii) Telecommunications signals must not produce emissions outside the authorized television channel bandwidth. Digital data pulses must be shaped to limit spectral energy to the nominal video baseband.

(iv) Transmission of emergency visual messages pursuant to §73.1250 must take precedence over, and shall be cause for interrupting, a service such as teletext that provides a visual depiction of information simultaneously transmitted on the aural channel.

(v) A reference pulse for a decoder associated adaptive equalizer filter designed to improve the decoding of telecommunications signals may be inserted on any portion of the vertical blanking interval authorized for data service, in accordance with the signal levels set forth in paragraph (a)(23)(i) of this section.

(vi) All lines authorized for telecommunications transmissions may be used for other purposes upon prior approval by the Commission.

(24) Licensees and permittees of TV broadcast and low power TV stations may insert non-video data into the active video portion of their TV transmission, subject to certain conditions:

(i) The active video portion of the visual signal begins with line 22 and continues through the end of each field, except it does not include that portion of each line devoted to horizontal blanking. Figures 6 and 7 of § 73.699 identify the numbered line referred to in this paragraph;

(ii) Inserted non-video data may be used for the purpose of transmitting a telecommunications service in accordance with § 73.646. In addition to a telecommunications service, non-video data can be used to enhance the station's broadcast program service or for purposes related to station operations. Signals relating to the operation of TV stations include, but are not limited to program or source identification, relay of broadcast materials to other stations, remote cueing and order messages, and control and telemetry signals for the transmitting system; and

(iii) A station may only use systems for inserting non-video information that have been approved in advance by the Commission. The criteria for advance approval of systems are as follows:

(A) The use of such signals shall not result in significant degradation to any portion of the visual, aural, or program-related data signals of the television broadcast station;

(B) No increase in width of the television broadcast channel (6 MHz) is permitted. Emissions outside the authorized television channel must not exceed the limitations given in § 73.687(e). Interference to reception of television service either of co-channel

or adjacent channel stations must not increase over that resulting from the transmission of programming without inserted data; and

(C) Where required, system receiving or decoding devices must meet the TV interface device provisions of Part 15, Subpart H of this chapter.

(iv) No protection from interference of any kind will be afforded to reception of inserted non-video data.

(v) Upon request by an authorized representative of the Commission, the licensee of a TV station transmitting encoded programming must make available a receiving decoder to the Commission to carry out its regulatory responsibilities.

(b) *Subscription TV technical systems.* The FCC may specify, as part of the advance approval of the technical system for transmitting encoded subscription programming, deviations from the power determination procedures, operating power levels, aural or video baseband signals, modulation levels or other characteristics of the transmitted signal as otherwise specified in this Subpart. Any decision to approve such operating deviations shall be solely at the discretion of the FCC.

(c) TV multiplex subcarrier/stereophonic aural transmission standards.

(1) The modulating signal for the main channel shall consist of the sum of the stereophonic (biphonic, quadrasonic, etc.) input signals.

(2) The instantaneous frequency of the baseband stereophonic subcarrier must at all times be within the range 15 kHz to 120 kHz. Either amplitude or frequency modulation of the stereophonic subcarrier may be used.

(3) One or more pilot subcarriers between 16 kHz and 120 kHz may be used to switch a TV receiver between the stereophonic and monophonic reception modes or to activate a stereophonic audio indicator light, and one or more subcarriers between 15 kHz and 120 kHz may be used for any other authorized purpose; except that stations employing the BTSC system of stereophonic sound transmission and audio processing may transmit a pilot subcarrier at 15,734 Hz,  $\pm 2$  Hz. Other methods of multiplex subcarrier or stereophonic aural transmission systems must limit energy at 15,734 Hz,  $\pm 20$  Hz,

to no more than  $\pm 0.125$  kHz aural carrier deviation.

(4) Aural baseband information above 120 kHz must be attenuated 40 dB referenced to 25 kHz main channel deviation of the aural carrier.

(5) For required transmitter performance, all of the requirements of § 73.687(b) shall apply to the main channel, with the transmitter in the multiplex subcarrier or stereophonic aural mode.

(6) For electrical performance standards of the transmitter, the requirements of § 73.687(b) apply to the main channel.

(7) Multiplex subcarrier or stereophonic aural transmission systems must be capable of producing and must not exceed  $\pm 25$  kHz main channel deviation of the aural carrier.

(8) The arithmetic sum of non-multiplexed baseband signals between 15 kHz and 120 kHz must not exceed  $\pm 50$  kHz deviation of the aural carrier.

(9) Total modulation of the aural carrier must not exceed  $\pm 75$  kHz.

(d) *Digital broadcast television transmission standard.* Effective October 11, 2011 transmission of digital broadcast television (DTV) signals shall comply with the standards for such transmissions set forth in ATSC A/52: "ATSC Standard Digital Audio Compression (AC-3)", ATSC A/53, Parts 1-4 and 6: 2007 "ATSC Digital Television Standard," (January 3, 2007), and ATSC A/53 Part 5:2010 "ATSC Digital Television Standard: Part 5—AC-3 Audio System Characteristic," (July 6, 2010), except for section 6.1.2 ("Compression Format Constraints") of A/53 Part 4: 2007 ("MPEG-2 Video Systems Characteristics") and the phrase "see Table 6.2" in section 6.1.1 Table 6.1 and section 6.1.3 Table 6.3, and ATSC A/65C: "ATSC Program and System Information Protocol for Terrestrial Broadcast and Cable, Revision C With Amendment No. 1 dated May 9, 2006," (January 2, 2006) (all standards incorporated by reference, see § 73.8000). Although not incorporated by reference, licensees may also consult ATSC A/54A: "Recommended Practice: Guide to Use of the ATSC Digital Television Standard, including Corrigendum No. 1," (December 4, 2003, Corrigendum No. 1 dated December 20, 2006, and ATSC A/

69: "Recommended Practice PSIP Implementation Guidelines for Broadcasters," (June 25, 2002) (Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303)). ATSC A/54A and ATSC A/69 are available from Advanced Television Systems Committee (ATSC), 1750 K Street, NW., Suite 1200, Washington, DC 20006, or at the ATSC Web site: <http://www.atsc.org/standards.html>.

(e) *Transmission of commercial advertisements by television broadcast station.*

(1) *Mandatory compliance with ATSC A/85 RP.* Effective December 13, 2012, television broadcast stations must comply with the ATSC A/85 RP incorporated by reference, see § 73.8000), insofar as it concerns the transmission of commercial advertisements.

(2) *Commercials inserted by station.* A television broadcast station that installs, utilizes, and maintains in a commercially reasonable manner the equipment and associated software to comply with ATSC A/85 RP shall be deemed in compliance with respect to locally inserted commercials, which for the purposes of this provision are commercial advertisements added to a programming stream by a station prior to or at the time of transmission to viewers. In order to be considered to have installed, utilized and maintained the equipment and associated software in a commercially reasonable manner, a television broadcast station must:

(i) Install, maintain and utilize equipment to properly measure the loudness of the content and to ensure that the dialnorm metadata value correctly matches the loudness of the content when encoding the audio into AC-3 for transmitting the content to the consumer;

(ii) Provide records showing the consistent and ongoing use of this equipment in the regular course of business and demonstrating that the equipment has undergone commercially reasonable periodic maintenance and testing to ensure its continued proper operation;

(iii) Certify that it either has no actual knowledge of a violation of the ATSC A/85 RP, or that any violation of which it has become aware has been corrected promptly upon becoming aware of such a violation; and

(iv) Certify that its own transmission equipment is not at fault for any pattern or trend of complaints.

(3) *Embedded commercials—safe harbor.* With respect to embedded commercials, which, for the purposes of this provision, are those commercial advertisements placed into the programming stream by a third party (*i.e.*, programmer) and passed through by the station to viewers, a television broadcast station must certify that its own transmission equipment is not at fault for any pattern or trend of complaints, and may demonstrate compliance with the ATSC A/85 RP through one of the following methods:

(i) Relying on a network's or other programmer's certification of compliance with the ATSC A/85 RP with respect to commercial programming, provided that:

(A) The certification is widely available by Web site or other means to any television broadcast station, cable operator, or multichannel video programming distributor that transmits that programming; and

(B) The television broadcast station has no reason to believe that the certification is false; and

(C) The television broadcast station performs a spot check, as defined in § 73.682(e)(3)(iv)(A), (B), (D), and (E), on programming in response to an enforcement inquiry concerning a pattern or trend of complaints regarding commercials contained in that programming.

(ii) If transmitting any programming that is not certified as described in § 73.682(e)(3)(i), a television broadcast station that had more than \$14,000,000 in annual receipts for the calendar year 2011 must perform annual spot checks, as defined in § 73.682(e)(3)(iv)(A), (B), (C), and (E), of all the non-certified commercial programming it receives from a network or other programmer and perform a spot check, as defined in § 73.682(e)(3)(iv)(A), (B), (D), and (E), on programming in response to an enforcement inquiry concerning a pattern or trend of complaints regarding commercials contained in that programming;

(iii) A television broadcast station that had \$14,000,000 or less in annual receipts for the year 2011 need not per-

form annual spot checks but must perform a spot check, as defined in § 73.682(e)(3)(iv)(A), (B), (D), and (E), on programming in response to an enforcement inquiry concerning a pattern or trend of complaints regarding commercials contained in that programming.

(iv) For purposes of this section, a "spot check" of embedded commercials requires monitoring 24 uninterrupted hours of programming with an audio loudness meter employing the measurement technique specified in the ATSC A/85 RP, and reviewing the records from that monitoring to detect any commercials transmitted in violation of the ATSC A/85 RP. The television broadcast station must not inform the network or programmer of the spot check prior to performing it.

(A) Spot-checking must be conducted after the signal has passed through the television broadcast station's processing equipment (*e.g.*, at the output of a television receiver). If a problem is found, the television broadcast station must determine the source of the non-compliance.

(B) To be considered valid, the television broadcast station must demonstrate appropriate maintenance records for the audio loudness meter.

(C) With reference to the annual "safe harbor" spot check in § 73.682(e)(3)(ii):

(1) To be considered valid, the television broadcast station must demonstrate, at the time of any enforcement inquiry, that appropriate spot checks had been ongoing.

(2) If there is no single 24 hour period in which all programmers of a given program stream are represented, an annual spot check may consist of a series of loudness measurements over the course of a 7 day period, totaling no fewer than 24 hours, that measure at least one program, in its entirety, provided by each non-certified programmer that supplies programming for that program stream.

(3) If annual spot checks are performed for two consecutive years without finding evidence of noncompliance with the ATSC A/85 RP, no further annual spot checks are required to remain in the safe harbor for existing programming.

(4) Non-certified program streams must be spot-checked annually using the approach described in this section. If annual spot checks of the program stream are performed for two consecutive years without finding evidence of noncompliance with the ATSC A/85 RP, no further annual spot checks are required to remain in the safe harbor for that program stream.

(5) Even after the two year period for annual spot checks, if a spot check shows noncompliance on a non-certified program stream, the station must once again perform annual spot checks of that program stream to be in the safe harbor for that programming. If these renewed annual spot checks are performed for two consecutive years without finding additional evidence of noncompliance with the ATSC A/85 RP, no further annual spot checks are required to remain in the safe harbor for that program stream.

(D) With reference to the spot checks in response to an enforcement inquiry pursuant to § 73.682(e)(3)(i)(C), (2), or (3):

(1) If notified of a pattern or trend of complaints, the television broadcast station must perform the 24-hour spot check of the program stream at issue within 30 days or as otherwise specified by the Enforcement Bureau; and

(2) If the spot check reveals actual compliance, the television broadcast station must notify the Commission in its response to the enforcement inquiry.

(E) If any spot check shows noncompliance with the ATSC A/85 RP, the television station must notify the Commission and the network or programmer within 7 days, direct the programmer's attention to any relevant complaints, and must perform a follow-up spot check within 30 days of providing such notice. The station must notify the Commission and the network or programmer of the results of the follow-up spot check. Notice to the Federal Communications Commission must be provided to the Chief, Investigations and Hearings Division, Enforcement Bureau, or as otherwise directed in a Letter of Inquiry to which the station is responding.

(1) If the follow-up spot check shows compliance with the ATSC A/85 RP, the

station remains in the safe harbor for that program stream.

(2) If the follow-up spot check shows noncompliance with the ATSC A/85 RP, the station will not be in the safe harbor with respect to commercials contained in the program stream for which the spot check showed noncompliance until a subsequent spot check shows that the program stream is in compliance.

(4) *Use of a real-time processor.* A television broadcast station that installs, maintains and utilizes a real-time processor in a commercially reasonable manner will be deemed in compliance with the ATSC A/85 RP with regard to any commercial advertisements on which it uses such a processor, so long as it also:

(i) Provides records showing the consistent and ongoing use of this equipment in the regular course of business and demonstrating that the equipment has undergone commercially reasonable periodic maintenance and testing to ensure its continued proper operation;

(ii) Certifies that it either has no actual knowledge of a violation of the ATSC A/85 RP, or that any violation of which it has become aware has been corrected promptly upon becoming aware of such a violation; and

(iii) Certifies that its own transmission equipment is not at fault for any pattern or trend of complaints.

(5) *Commercials locally inserted by a station's agent—safe harbor.* With respect to commercials locally inserted, which for the purposes of this provision are commercial advertisements added to a programming stream for the television broadcast station by a third party after it has been received from the programmer but prior to or at the time of transmission to viewers, a station may demonstrate compliance with the ATSC A/85 RP by relying on the third party local inserter's certification of compliance with the ATSC A/85 RP, provided that:

(i) The television broadcast station has no reason to believe that the certification is false;

(ii) The television broadcast station certifies that its own transmission equipment is not at fault for any pattern or trend of complaints; and

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(iii) The television broadcast station performs a spot check, as defined in § 73.682(e)(3)(iv)(A), (B), (D), and (E), on the programming at issue in response to an enforcement inquiry concerning a pattern or trend of complaints regarding commercials inserted by that third party.

(6) Instead of demonstrating compliance pursuant to paragraphs (e)(2) through (5) of this section, a station may demonstrate compliance with paragraph (e)(1) of this section in response to an enforcement inquiry prompted by a pattern or trend of complaints by demonstrating actual compliance with ATSC A/85 RP with regard to the commercial advertisements that are the subject of the inquiry, and certifying that its own transmission equipment is not at fault for any such pattern or trend of complaints.

(f) *Next Gen TV broadcast television transmission standard authorized.* (1) As an alternative to broadcasting only an ATSC 1.0 signal using the DTV transmission standard set forth in paragraph (d) of this section, DTV licensees or permittees may choose to broadcast an ATSC 3.0 signal using the Next Gen TV transmission standard set forth in this paragraph (f), provided it also broadcasts a simulcast signal in ATSC 1.0 (using the DTV transmission standard in § 73.682(d)).

(2) Effective March 5, 2018, transmission of Next Gen TV broadcast television (ATSC 3.0) signals shall comply with the standards for such transmissions set forth in ATSC A/321:2016, “System Discovery and Signaling” (March 23, 2016) (incorporated by reference, see § 73.8000). To the extent that virtual channels (specified in the DTV transmission standard referenced in ATSC A/65C:2006 in paragraph (d) of this section) are used in the transmission of Next Gen TV broadcasting, major channel numbers shall be assigned as required by ATSC A/65C:2006 Annex B (incorporated by reference, see § 73.8000). In addition, until February 2, 2023, such signals shall also comply with the standards set forth in ATSC A/322:2017 “Physical Layer Protocol” (June 6, 2017) (incorporated by reference, see § 73.8000) with respect to the transmission of at least one free

over the air primary video programming stream.

NOTE TO § 73.682: For additional information regarding this requirement, see Implementation of the Commercial Advertisement Loudness Mitigation (CALM) Act, FCC 11-182.

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

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EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 73.682, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at [www.fdsys.gov](http://www.fdsys.gov).

**§ 73.683 Field strength contours and presumptive determination of field strength at individual locations.**

(a) In the authorization of TV stations, two field strength contours are considered. These are specified as Grade A and Grade B and indicate the approximate extent of coverage over average terrain in the absence of interference from other television stations. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength charts were based. The required field strength, *F* (50,50), in dB above one micro-volt per meter (dBu) for the Grade A and Grade B contours are as follows:

	Grade A (dBu)	Grade B (dBu)
Channels 2–6 .....	68	47
Channels 7–13 .....	71	56
Channels 14–69 .....	74	64

(b) It should be realized that the *F* (50,50) curves when used for Channels 14–69 are not based on measured data at distances beyond about 48.3 kilometers (30 miles). Theory would indicate that the field strengths for Channels 14–69 should decrease more rapidly with distance beyond the horizon than for Channels 2–6, and modification of the curves for Channels 14–69 may be expected as a result of measurements to be made at a later date. For these reasons, the curves should be used with appreciation of their limitations in estimating levels of field strength. Further, the actual extent of service will usually be less than indicated by these