Doc. CS/TSG-674r3
Formerly S6-493r11
12 May 2008

Candidate Standard: Amendment No. 2 to ATSC Digital Television Standard A/53 Part 4:2007 – MPEG-2 Video System Characteristics

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The Advanced Television Systems Committee, Inc., is an international, non-profit organization developing voluntary standards for digital television. The ATSC member organizations represent the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

Specifically, ATSC is working to coordinate television standards among different communications media focusing on digital television, interactive systems, and broadband multimedia communications. ATSC is also developing digital television implementation strategies and presenting educational seminars on the ATSC standards.

ATSC was formed in 1982 by the member organizations of the Joint Committee on InterSociety Coordination (JCIC): the Electronic Industries Association (EIA), the Institute of Electrical and Electronic Engineers (IEEE), the National Association of Broadcasters (NAB), the National Cable Telecommunications Association (NCTA), and the Society of Motion Picture and Television Engineers (SMPTE). Currently, there are approximately 140 members representing the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

ATSC Digital TV Standards include digital high definition television (HDTV), standard definition television (SDTV), data broadcasting, multichannel surround-sound audio, and satellite direct-to-home broadcasting.

About the Candidate Standard

This specification is being put forth as a Candidate Standard by the TSG/S6 Specialist Group on Audio and Video Coding. ATSC members and non-members are encouraged to review and implement this specification and return comments to cs_amend_editor@atsc.org. ATSC Members can also send comments directly to the TSG/S6 Specialist Group. The ATSC believes this specification is stable. It is expected to progress to Proposed Standard within a period of time ending 31 December 2008.

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PURPOSE OF THE AMENDMENT

The purpose of this amendment is to expand the table of MPEG-2 video formats from the original ATSC standard (Table 3 of Annex A from the old A/53) by documenting a new resolution and frame rates known to be in use for television applications. The amendment does not change in any way the definition of a "legal" ATSC-compliant bitstream emission, because (like the original table in A/53) it does not state mandatory requirements.

Change instructions are given in *italics*. New text that is to be added is shown in blue underline. Text that is to be deleted is shown in ~~red strikethrough~~.

CHANGES

The following changes are specified by this amendment:

1) *Add new Informative Reference 18 as follows:*

[18] SCTE: "Digital Video Systems Characteristics Standard for Cable Television," Doc. ANSI/SCTE 43 2005, Society of Cable Telecommunications Engineers.

2) *Change Section 6.1.2, "Compression Format Constraints" to read as follows:*

6.1.2 Compression Format Constraints

Table 6.2 lists the allowed compression formats.

Table 6.2 separates the image formats into 2 categories as follows:

A: Only these formats were included in the original Table 3 of Annex A of A/53.

B: These formats were not included in the original Table 3 of Annex A of A/53, but have been in use by broadcasters for several years without reported complaint. These formats are included in Table 3 of ANSI/SCTE 43 2005 [18].

3) *Change Table 6.2, "Compression Format Constraints" to read as follows:*

Table 6.2 Compression Format Constraints

vertical_ size_value	horizontal_ size_value	aspect_ratio_ information	frame_rate_code	progressive_sequence	Cat.
1080[1]	1920	1,3	1,2,4,5	1	A
			4,5	0	A
720	1280	1,3	1,2,4,5,7,8	1	A
480	720	2,3	1,2,4,5,7,8	1	B
			4,5	0	B
480	704	2,3	1,2,4,5,7,8	1	A
			4,5	0	A
480	640	1,2	1,2,4,5,7,8	1	A
			4,5	0	A
Legend for MPEG-2 coded values: aspect_ratio_information: 1 = square samples, 2 = 4:3 display aspect ratio, 3 = 16:9 display aspect ratio frame_rate_code: 1 = 23.976 Hz, 2 = 24 Hz, 4 = 29.97 Hz, 5 = 30 Hz, 7 = 59.94 Hz, 8 = 60 Hz progressive_sequence: 0 = interlaced scan, 1 = progressive scan					

[1] Note that 1088 lines are actually coded in order to satisfy the MPEG-2 requirement that the coded vertical size be a multiple of 16 (progressive scan) or 32 (interlaced scan). The bottom 8 lines are black, per MPEG rules.