Doc. CS/TSG-758r0
29 November 2007

Candidate Standard: Amendment No. 1 to ATSC Digital Television Standard (A/53) Part 6:2007

Advanced Television Systems Committee
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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 Television 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 Video and Audio 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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1. PURPOSE OF THE AMENDMENT

The purpose of this amendment is to change the method of measuring the loudness of the average spoken program dialogue from the original "LAeq" method described in ANSI document ANSI S1.4-1983 (R 2001) "Specification for Sound Level Meters", with amendment S1.4A-1995, to the method described by ITU-R Recommendation BS.1770, "Algorithms to measure audio programme loudness and true-peak audio level" (International Telecommunications Union, Geneva, 2006).

The ITU measurement method agrees more closely with subjective loudness assessments than does the LAeq method.

Since the value of the dialnorm parameter in the AC-3 elementary bit stream "shall indicate the level of average spoken dialogue within the encoded audio program" it is appropriate to use the best measurement method available to set its value. (Receivers use the value of dialnorm to adjust the reproduced audio level so as to normalize the dialogue level.)

This amendment alters the text to point to the BS.1770 method as preferred, but still allows the LAeq method to be used during a transition period. The new text also states that legacy material that had been measured using LAeq does not need to be re-measured with BS.1770 if broadcast in the future after the transition period has ended.

Change instructions are shown in *italics*. Text to be added is shown in blue underline.

2. AMENDMENT DETAILS

In Section 2.1 – Normative References – add new reference:

[4] ITU-R, Recommendation BS.1770, "Algorithms to measure audio programme loudness and true-peak audio level ", International Telecommunications Union, Geneva, 2006.

In Section 2.2, renumber informative references 4–6 to 5–7.

Throughout Part 6, renumber the references to the informative references.

Section 5.5 is modified as indicated below:

5.5 Dialogue Level

The value of the dialnorm parameter in the Enhanced AC-3 elementary bit stream shall indicate the level of average spoken dialogue within the encoded audio program. Dialogue level should be measured by means of the algorithm specified in ITU-R Recommendation BS.1770, Annex 1 [4]. Until [date][1], dialogue level may be measured by means of an "A" weighted integrated measurement (LAeq) [3]; programs measured prior to [date] using LAeq do not need to be re-

[1] An Ad Hoc Group of TSG/S6, S6-3, is considering what the appropriate "[date]" should be.

measured with BS.1770. (Receivers use the value of dialnorm to adjust the reproduced audio level so as to normalize the dialogue level.) In order to enable clean switching (i.e., without level shifts) between main and fallback audio services (that might have a different number of audio channels), linked audio services shall have values of dialnorm that result in matched dialogue levels when decoded by compliant decoders.