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Engineers***

**ENGINEERING COMMITTEE
Digital Video Subcommittee**

AMERICAN NATIONAL STANDARD

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**STANDARD FOR CARRIAGE OF VBI DATA IN
CABLE DIGITAL TRANSPORT STREAMS**

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1. Scope

This document defines a standard for the carriage of Vertical Blanking Interval (VBI) services in MPEG-2 compliant bitstreams constructed in accordance with *ISO/IEC 13818-2*. The approach builds upon a data structure defined in ATSC A/53 Part 4 (*Digital Television Standard: Part 4 – MPEG-2 Video System Characteristics*), and is designed to be backwards-compatible with that method.

1.1 Document Structure

The sections in this standard describing video user data extensions to MPEG-2 are organized as follows:

- **Section 1**—Provides the document Scope and structure
- **Section 2**—Lists Normative and Informative References
- **Section 3**—Defines the Compliance Notation for the document
- **Section 4**—Defines the acronyms and abbreviations used in this specification
- **Section 5**—Provides an overview of the VBI services supported
- **Section 6**—Specifies the video bitstream syntax and semantics for picture user data extensions

2. References

2.1 Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this standard. At the time of subcommittee approval, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

1. ISO/IEC 13818-2: 2000, *Generic Coding of Moving Pictures and Associated Audio*, International Standard (MPEG-2 Video).
2. ISO/IEC 13818-1:2007, *Generic Coding of Moving Pictures and Associated Audio*, , International Standard, (MPEG-2 Systems).

3. ITU-R BT. 1700 , Characteristics of composite video signals for conventional analogue televisions systems, 2005,
4. ITU-R BT.601-5, *Encoding Parameters of Digital Television for for Standard 4:3 and Wide-Screen 16:9 Aspect Ratios*, 1995.
5. ATSC A/53 Part 4, *Digital Television Standard: Part 4 – MPEG-2 Video System Characteristics* (2009).
6. CEA-708-D, *Digital Television (DTV) Closed Captioning*, August 2008.
7. ANSI/CEA-608-E, *Line 21 Data Services*, April 2008.

2.2 Informative References

The following documents may provide valuable information to the reader but are not required when complying with this standard.

8. ANSI/SCTE 127, Carriage of Vertical Blanking Interval (VBI) Data in North American Digital Television Bitstreams, 2007.
9. EIA-516, *Joint EIA/CVCC Recommended Practice for Teletext: North American Basic Teletext Specification (NABTS)*, May 1988.
10. ITU-R BT.653-3, *Teletext Systems (World System Teletext)*, International Telecommunications Union, 1998.
11. SMPTE ST 12M-1, 2008 Section 10, VITC.
12. ANSI/SCTE 43, Digital Video Systems Characteristics standard for Cable Television, 2004.
13. SCTE 20 2012 Methods for carriage of closed captions and non-real time sampled video.

2.3 Published Materials

14. Code of Federal Regulations, Title 47 (Telecommunication), Part 73, Section 699.
15. NTC Report No. 7, Video Facility Testing Technical Performance Objectives, 1976.
16. *AMOL Signal Specification*, Nielsen Engineering and Technology, Document Number ACN 403-1122-000, Revision Level 1.4, January 16, 1995.
17. *AMOL II Signal Specification*, Nielsen Engineering and Technology, Document Number ACN 403-1193-024, Revision Level 3.2, May 19, 1995.
18. CEA-2020, Other VBI waveforms, 2006.

3. Compliance Notation

“SHALL”	This word or the adjective “REQUIRED” means that the item is an absolute requirement of this specification.
“SHALL NOT”	This phrase means that the item is an absolute prohibition of this