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Engineers***

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Digital Video Subcommittee

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**Constraints On AVC and HEVC Structured Video
Coding for Digital Program Insertion**

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1. Introduction

1.1. Scope

This document defines additional video coding and transport constraints on ANSI/SCTE 128 [2][3] (which constrains ITU-T H.264/ ISO/IEC 14496-10 (“AVC”) video compression [7]) or on ANSI/SCTE 215 [4][5] (which constrains ITU-T H.265/ISO/IEC 23008-2 (“HEVC”) video compression [9]) for Digital Program Insertion applications using SCTE 35 messaging [1]. AVC and HEVC video uses a network abstraction layer structure to carry video and in this document “NAL structured video” will collectively refer to both AVC and HEVC Video.

Note: This standard applies only when both the insertion content and the network both use AVC video coding or both use HEVC video coding.

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. All documents are subject to revision; and while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

- [1] ANSI/SCTE 35-2016, Digital Program Insertion Cueing Message for Cable
- [2] ANSI/SCTE 128-1 2013, AVC Video Constraints for Cable Television Part 1- Coding
- [3] ANSI/SCTE 128-2 2013, AVC Video Constraints for Cable Television Part 2-Transport
- [4] ANSI/SCTE 215-1 2015, HEVC Video Constraints for Cable Television Part 1- Coding
- [5] ANSI/SCTE 215-2 2015, HEVC Video Constraints for Cable Television Part2- Transport

2.2. Standards from Other Organizations

- [6] ISO/IEC 13818-1:2016 (E), International Standard, Information technology – Generic coding of moving pictures and associated audio information: Systems.
- [7] ISO/IEC 14496-10 (ITU-T H.264), International Standard (2009), Advanced video coding for generic audiovisual services.
- [8] OC-SP-HOST2.1-CFR-I17-130418, OpenCable Host Device 2.1 Core Functional Requirements, see <https://apps.cablelabs.com/specification/opencable-host-device-2-1-core-functional-requirements-2>
- [9] ISO/IEC 23008-2 (ITU-T Rec. H.265), International Standard (2015) – MPEG H Information technology – High efficiency coding and media delivery in heterogeneous environments Part 2: High efficiency video coding.

2.3. Published Materials

- No normative references are applicable.

3. Informative References

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

3.1. SCTE References

- [10] ANSI/SCTE 104 2015, Automation System to Compression System Communications Applications Program Interface (API).
- [11] ANSI/SCTE 214-1 2016, MPEG DASH for IP-Based Cable Services Part 1: MPD Constraints and Extensions.

3.2. Standards from Other Organizations

- [12] Guidelines for Implementation: DASH-IF Interoperability Points, Version 4.0, <http://dashif.org/wp-content/uploads/2016/12/DASH-IF-IOP-v4.0-clean.pdf>

3.3. Published Materials

- No informative references are applicable.

4. Compliance Notation

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5. Abbreviations and Definitions

Note: Throughout this document, the terms used have specific meanings. Because some of the terms that are defined in ISO/IEC 13818-1 [6], ISO/IEC 14496-10 [7], and ISO/IEC 23008-2 [9] have very specific technical meanings, the reader is referred to the original sources for their definition. For terms used in this document, brief definitions are given below.