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Engineers***

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Digital Video Subcommittee

SCTE STANDARD

SCTE 215-2 2015

HEVC Video Constraints for Cable Television
Part 2- Transport

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HEVC Constraints for Cable Television Part 2- Transport

1.0 SCOPE

This document defines the transport constraints on ITU-T Rec. H.265 | ISO/IEC 23008-2 [8] video compression (hereafter called "HEVC") for Cable Television. In particular, this document describes the transmission of a single HEVC coded video elementary stream constrained per SCTE 215-1 [2] over MPEG-2 transport (ISO/IEC 13818-1 [7] for linear delivery systems supporting ad insertion services [5]. Beyond linear delivery with DPI, signaling is provided for segmentation of contents for xDVR applications.

NOTE 1: The carriage of video in the MPEG-2 service multiplex is described in SCTE 54 [1].

1.1 Background (Informative)

This document specifies the transport of an HEVC coded video elementary stream constrained per SCTE 215-1 [2] intended for cable video services. There are other applications such as time-shifting (e.g., PVR/DVR service), Video-on-Demand services, and splicing (e.g., Ad-insertion) that could employ the specifications in this document. However, constraints specific to those applications are outside of the scope of this document at this time.

2.0 NORMATIVE REFERENCES

No informative references are applicable.

2.1 SCTE References

- [1] ANSI/SCTE 54 2009, Digital Video Service Multiplex and Transport System Standard for Cable Television.
- [2] SCTE 215-1 2015, HEVC Video Constraints for Cable Television Part 1 – Coding.
- [3] ANSI/SCTE 128-1 2013, AVC Video Constraints for Cable Television Part 1 – Coding.
- [4] ANSI/SCTE 128-2 2013, AVC Video Constraints for Cable Television Part 2 – Transport.
- [5] ANSI/SCTE 35 2014, Digital Program Insertion Cueing Message for Cable.

2.2 Standards from other Organizations

- [6] ATSC A/65:2013 Program and System Information Protocol for Terrestrial Broadcast and Cable; Section 6.9.2.
- [7] ISO/IEC 13818-1, (2013), "Information Technology – Generic coding of moving pictures and associated audio – Part 1: Systems," including FDAM 3 – "Transport of HEVC video over MPEG-2 systems."
- [8] ITU-T Rec H.265 | ISO/IEC 23008-2– MPEG-H Part 2: 2014, High Efficiency Video Coding.
- [9] ETSI TS 101 154 V1.12.1 Digital Video Broadcasting (DVB): Specification for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream, 2014.

3.0 INFORMATIVE REFERENCES

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

3.1 SCTE References

- [10] ANSI/SCTE 43 2005, Digital Video Systems Characteristics Standard for Cable Television.
- [11] ANSI/SCTE 21 2012, Standard for Carriage of NTSC VBI Data in Cable Digital Transport Streams.

- [12] ANSI/SCTE 07 2013, Digital Transmission Standard for Cable Television.
- [13] ANSI/SCTE 172 2011, Constraints on AVC Video Coding for Digital Program Insertion.
- [14] ANSI/SCTE 67 2014, Recommended Practice for SCTE 35 Digital Program Insertion Cueing Message for Cable.

3.2 Standards from other Organizations

- [15] SMPTE ST 170, Television – Composite Analog Video Signal – NTSC for Studio Applications.
- [16] SMPTE ST 274 Standard for television, 1920 x 1080 Scanning and Interface.
- [17] SMPTE ST 296M, Standard for television, 1280 x 720 Scanning, Analog and Digital Representation, and Analog Interface.
- [18] ITU-R BT.601 Encoding parameters of digital television for studios.
- [19] ITU-R BT.709, Basic Parameter Values for the HDTV Standard for the Studio and for International Programme exchange.
- [20] ITU-R BT.2020, Parameter values for ultra-high definition television systems for production and international Programme exchange.
- [21] ITU-T J.83, Digital Video Transmission Standard for Cable Television.
- [22] CEA-CEB16: Active Format Description (AFD) & Bar Data Recommended Practice.
- [23] SMPTE ST 125, Standard for television, Component Video Signal 4:2:2, Bit Parallel Digital Interface.
- [24] SMPTE ST 293, Standard for television, 720x483 Active Line at 59.95 Hz Progressive Scan Production, Digital Representation.
- [25] SMPTE ST 267, Standard for television, Bit Parallel Digital Interface- Component Video Signal 4:2:2 16x9 Aspect Ratio.
- [26] ATSC A/53, Part 3, “Service Multiplex and Transport Subsystem Characteristics”.
- [27] CEA-861 “A DTV Profile for Uncompressed High Speed Digital Interfaces”.
- [28] ISO/IEC 13818-2 (2000), Information Technology – Generic coding of moving pictures and associated audio - Part 2: Video.

4.0 COMPLIANCE NOTATION

Throughout this document, there are words that are used to define the significance of particular requirements. These words are: