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ANSI/CEA Standard

A DTV Profile for Uncompressed High Speed Digital Interfaces

ANSI/CEA-861-F

August 2013

Approved American National Standard

ANSI

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Consumer Electronics Association

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(Formulated under the cognizance of the CEA **R4.8 DTV Interface Subcommittee**.)

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FOREWORD

This standard was developed under the auspices of the Consumer Electronics Association (CEA) R4.8 DTV Interface Subcommittee.

CEA-861-F supersedes CEA-861-E and incorporates Errata, issued in April 2009 and July 2011, as well as the CEA-861.1 Audio Format Extensions standard of August 2010.

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A DTV Profile for Uncompressed High Speed Digital Interfaces

1 Scope

CEA-861 establishes protocols, requirements, and recommendations for the utilization of uncompressed digital interfaces by consumer electronics devices such as Digital Televisions (DTVs), digital cable, satellite or terrestrial set-top boxes (STBs), and related peripheral devices including, but not limited to DVD players/recorders, and other related Sources or Sinks.

CEA-861 is applicable to a variety of standard DTV-related high-speed digital physical interfaces - such as Digital Visual Interface (DVI) 1.0 [4], Open LVDS Display Interface (LDI) [8], and High-Definition Multimedia Interface (HDMI) [52] specifications. Protocols, requirements, and recommendations that are defined include Video Formats and waveforms; colorimetry and quantization; transport of compressed and uncompressed, as well as Linear Pulse Code Modulation (L-PCM), audio; carriage of auxiliary data; and implementations of the Video Electronics Standards Association (VESA) *Enhanced Extended Display Identification Data Standard* (E-EDID) [9], which is used by Sinks to declare display capabilities and characteristics.

CEA-861 adopters are strongly encouraged to implement High-bandwidth Digital Content Protection (HDCP) [3] content protection, defined by the Digital Content Protection, LLC (DCP) method, in order to be compatible with digital cable STBs as authorized by 47 C.F.R. § 76.602 [50] and 47 C.F.R. §76.640 [51]. HDCP [3] permits viewing of high-value content that may be available from other video Sources in a home network.

2 General

2.1 References

CEA-861 includes mechanisms that allow a digital video Source (such as a cable, satellite or terrestrial STB, digital VCR, or DVD player) to supply displayable, baseband, digital video to High Definition Television (HDTV) and Enhanced Definition Television (EDTV) devices, as well as peripheral devices such as repeaters, switchers, and recorders, as defined in *CEA Expands Definitions for Digital Television Products* [45].

2.1.1 Normative References

The following standards contain provisions that, through reference in this text, constitute normative provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision. Users of this Standard are cautioned that a newer edition might or might not be compatible.

2.1.1.1 Normative Reference List

1. SMPTE ST 170:2004 (Archived 2010) Television – Composite Analog Video Signal – NTSC for Studio Applications
2. SMPTE ST 274:2008 Television – 1920 x 1080 Image Sample Structure, Digital Representation and Digital Timing Reference Sequences for Multiple Picture Rates
3. DCP, L.L.C., High-bandwidth Digital Content Protection System, Revison 1.1, June 9, 2003
4. DDWG, Digital Visual Interface, Revision 1.0, April 2, 1999
5. IEC 61966-2-4: Multimedia systems and equipment - Colour measurement and management - Part 2-4: Colour management - Extended-gamut YCC colour space for video applications, January 2006
6. Recommendation ITU-R BT.601-5, Studio Encoding parameters of Digital Television for standard 4:3 and wide-screen 16:9 aspect ratios, 1995
7. Recommendation ITU-R BT.709-5, Parameter Values for the HDTV standards for production and International Programme Exchange, 2002 – Part 2: HDTV system with square pixel common image format – 3: Signal format
8. Open LVDS Display Interface (Open LDI) Specification, Version 0.95, May 13, 1999
9. VESA E-EDID™ Standard, VESA Enhanced Extended Display Identification Data Standard, Release A, Revision 1, February 9, 2000 --- Defines EDID Structure Version 1, Revision 3
10. VESA DDC/CI Standard, VESA Display Data Channel Command Interface (DDC/CI) Standard, Version 1.1, October 29, 2004