

SMPTE RECOMMENDED PRACTICE

Closed-Caption CDP and "Grand Alliance" Serial Interfaces for DTV



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Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in Part XIII of its Administrative Practices.

This SMPTE Engineering Document was prepared by Technology Committee D27 on Data Essence in cooperation with the Consumer Electronics Association (CEA).

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document. This Recommended Practice defines two serial interfaces for carrying closed captioning data between DTV devices. The CDP interface was originally specified by Section 11.3 of CEA-708-B with amendments specified by CEB-10-A. CEA has transferred copyright on this material to SMPTE and it appears here on the basis of that agreement.

1 Scope

This document defines two serial interfaces which may be used to convey closed captioning streams.

The CDP Interface carries the CEA-708/SMPTE 334-2 Caption Distribution Packet (CDP). This is principally intended for use in cases where there is a desire to provide some or all of the following information for downstream use: caption data; caption service descriptors; and time codes. In one typical application, a DTVCC caption server could use this interface to send CDPs to a 334M VANC encoder.

SMPTE 333M specifies an interface that is widely used for providing caption data and service information to ATSC emission encoders. The older Grand Alliance interface can also be used for this same purpose. It is included here as Annex B to document its use in this application.

2 Conformance Notation

Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any section explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords, "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword "reserved" indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword "forbidden" indicates "reserved" and in addition indicates that the provision will never be defined in the future.

Unless otherwise specified the order of precedence of the types of normative information in this document shall be as follows. Normative prose shall be the authoritative definition. Tables shall be next, followed by formal languages, then figures, and then any other language forms.

3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this recommended practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this recommended practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ATSC A/53, Part 4:2007, ATSC Digital Television Standard, Part 4 – MPEG-2 Video System Characteristics

CEA-708-C, Digital Television (DTV) Closed Captioning

SMPTE 334-2-2007, Caption Distribution Packet (CDP) Definition