

SMPTE RECOMMENDED PRACTICE

Packing KLV Encoded Metadata and Data Essence into SMPTE 291M Ancillary Data Packets

1 Scope

This practice describes a means for packing SMPTE metadata and data essence, encoded by the SMPTE KLV protocol, into SMPTE 291M ancillary data packets for transport. Packing of KLV encoded metadata and data essence in this practice is defined only for a 10-bit SDI component video signal interface.

2 Normative references

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

ANSI/SMPTE 259M-1997, Television — 10-Bit 4:2:2 Component and 4_{fs}c Composite Digital Signals — Serial Digital Interface

SMPTE 291M-1998, Television — Ancillary Data Packet and Space Formatting

SMPTE 292M-1998, Television — Bit-Serial Digital Interface for High-Definition Television Systems

SMPTE 336M-2001, Television — Data Encoding Protocol Using Key-Length-Value

Proposed SMPTE RP 168-2002, Definition of Vertical Interval Switching Point for Synchronous Video Switching

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3 Introduction

This practice describes a means for packing SMPTE KLV encoded metadata and/or essence into SMPTE 291M ancillary data packets. There is strong interest in carrying audio/visual data, metadata, and/or essence, within the same digital stream. The use of one data stream facilitates delivery of the overall multimedia presentation. Metadata is classified as information about the essence. An example of metadata is information such as camera angle, scene identifier, or property rights. Other information about the essence is supplemental content to the audio and video such as closed captioning, sports statistics, or hyperlinked advertisements.

NOTE — ANSI/SMPTE 272M and SMPTE 299M already define the carriage of embedded digital audio in ANSI/SMPTE 259M (SDI) and SMPTE 292M (HD-SDI), respectively. Carriage of data essence types in SMPTE 291M ancillary data packets is under consideration.

4 Transport Packing

Ancillary data may be present within the horizontal ancillary data space and the vertical ancillary data space of the ANSI/SMPTE 259M or SMPTE 292M video signals. (Note that SMPTE 291M does not specify ancillary data packets over SMPTE 292M (HD-SDI), but the specification is readily carried over to HD-SDI.)

A possible data structure for a 10-bit ancillary data packet type 2 (ancillary packet type 2) carrying KLV encoded data is shown in figure 1 (informative). The KLV packet(s) shall be placed in the user data words of an ancillary data packet. The reader is urged to review SMPTE 291M for a detailed description of each field in the packet.

PROPOSED SMPTE RECOMMENDED PRACTICE

High-Definition, Standard-Definition Compatible Color Bar Signal

Page 1 of 15 pages

1 Scope

This practice specifies a color bar pattern compatible with both high- and standard-definition environments. The multi-format color bar signal is originated as an HDTV signal with an aspect ratio of 16:9 and may be down converted to an SDTV color bar signal with an aspect ratio of either 4:3 or 16:9.

The color bar signal is generated with unconventionally slow rise and fall time value, and is therefore intended to facilitate video level control and monitor color adjustments (see note) of HDTV and SDT equipment. It can be applied to HDTV video productions, especially in a multi-format environment where HDTV video sources are frequently converted and used as SDTV video content either in 525 or 625 environment with same frame frequencies as in the original HDTV signal.

NOTE — This signal should not be used to set luminance level or black or white color balance on monitors. The size and off-center locations of the black and white bars are not suitable for this purpose, especially on CRT-base displays

2 Color bar signal structure

The multi-format color bar signal shall be composed of four specific patterns, shown in figure 1.

Arrangement of patterns

The first part of the color bar signal represents a signal for the 4x3 aspect ratio; a second part of the total signal adds additional side panels for the 16x9 aspect ratio. A third part adds black and white ramps an additional color information, and the last part completes the total signal by adding white and black bars, in addition to a set of near-black-level steps for monitor black level adjustment.

Pattern 1 shall consist of a 75% color bar signal within a 4:3 aspect ratio area, with 40% gray signals (see note 1) positioned on either side of the 4:3 area. (sub-pattern *1 in figure 1).

Pattern 2 shall consist of the chroma setting signal (75% white) within the 4:3 area, with 100% cyan an 100% blue signals to the left and right sides respectively. Additionally, a signal in the sub-pattern are marked *2 in figure 1 shall be selectable from 75% white, 100% white, +1 signal and -1 signal option according to the user's operational preference (see note 4)

The +1 signal shall have the following component values:

R = 41.2545 [IRE], G = 16.6946 [IRE] and B = 0 [IRE] (see note 6)

The -1 signal shall have the following component values:

R = 0 [IRE], G = 24.5600 [IRE] and B = 41.2545 [IRE]

**PROPOSED
SMPTTE RECOMMENDED PRACTICE**
**PAL/SECAM IP and
Trigger Binding to VBI**

RP 220

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1 Scope

This practice defines a standard manner for the delivery of SMPTTE DDE content for both transport (broadcast of triggers and pulling of data by the return channel) and transport B (broadcast of triggers and data) for 625-line television system. Both transport types are based on carriage of IP multicast packets in V lines of a PAL/SECAM system by means of teletext packets with address 30 or 31.

NOTE – Since teletext data can be transported in any DVB transport stream, any SMPTTE DDE-1 content carried follow this practice may also be conveyed by encapsulating the teletext data in a DVB MPEG-2 transport stream.

2 Normative references

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

SMPTTE 357M-2002, Television — Declarative Data Essence — IP Multicast Encapsulation

SMPTTE 363M-2002, Television — Declarative Data Essence — Content Level 1

IETF RFC 1055, A Nonstandard for Transmission of IP Datagrams Over Serial Lines: Slip

ETSI ETS-300706, Enhanced Teletext Specification

ETSI ETS-300708, Data Transmission within Teletext (edition 2)

ETSI TR 101 231 v1.2.3 (2000-09), Television Systems; Register of Country and Network Identification (C and of Video Programming System (VPS) Codes)

3 Acronyms

DDE: Declarative Data Essence
DVB: Digital Video Broadcast
ETSI: European Telecommunication Standard Institute
IDL: Independent Data Line
IETF: Internet Engineering Task Force
IP: Internet Protocol

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**PROPOSED
SMPTTE ENGINEERING GUIDELINE**

EG 39

**Overview of Declarative
Data Essence**

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1 Scope

This guideline provides an overview of the declarative data essence standards, describes how the various documents and technical components are related, and provides informative material useful to the users of these standards.

2 Introduction

The initial group of standards were developed in SMPTTE based on the Advanced Television Enhancement Forum (ATVEF) specification [ATVEF]. These are collectively known as declarative data essence (DDE) derived from the terminology developed in the joint SMPTTE/EBU work found in [SMPTTE-EBU]. This was further labeled as content level 1 after the ATVEF specification for 1.0, and in anticipation of both lower and higher content levels. Hence, the shorthand, DDE-1.

The ATVEF specification was broken into six separate SMPTTE documents that cover the original ATVEF specification. These specifications are:

- SMPTTE 343M-2002, Television — Declarative Data Essence — Local Identifier (lid;) URI Scheme
- SMPTTE 357M-2002, Television — Declarative Data Essence — IP Multicast Encapsulation
- SMPTTE 361M-2002, Television — NTSC IP and Trigger Binding to VBI
- SMPTTE 363M-2002, Television — Declarative Data Essence — Content Level 1
- SMPTTE 364M-2001, Television — Declarative Data Essence — Unidirectional Hypertext Transport Protocol

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