

Standards and Recommended Practices

Proposed SMPTE Standards

Four Proposed SMPTE Standards are published for your information. The first page of each appears here:

SMPTE 302M, Revision of SMPTE 302M-1998—Mapping of AES3 Data into an MPEG-2 Transport Stream (\$22.00 US)

SMPTE 352M, Revision of SMPTE 352M-2001—Video Payload Identification for Digital Interfaces (Dynamic) (\$26.00 US)

SMPTE 370M, Data Structure for DV Based Audio, Data and Compressed Video at 100 Mb/s 1080/60i, 1080/50i, 720/60p (\$66.00 US)

SMPTE 371M, 6.35-mm Component Format Digital Recording at 100 Mb/s 1080/60i, 1080/50i, 720/60p (\$72.00 US)

Proposed SMPTE Recommended Practices

Three Proposed SMPTE Recommended Practices are published for your information. The first page of each appears here:

RP 168, Revision of RP 168-1993, Definition of Vertical Interval Switching Point for Synchronous Video Switching (\$20.00 US)

RP 213-2001, MPEG-2 Operating Ranges (\$24.00 US)

RP 218, Specifications for Safe Action and Safe Title Areas for Television Systems (\$30.00 US)

All documents are available from Society Headquarters at the prices shown above.

Approved SMPTE Standards

The Society recently approved four SMPTE Standards:

SMPTE 266M-2002, Proposed Revision to ANSI/SMPTE 266M-1994 - 4:2:2 Digital Component Systems—Digital Vertical Interval Time Code (\$22.00 US)

SMPTE 345M-2002, Mapping of SYNC Stream Block in ATM Common Layer to ATM Adaptation Layer Type 1 (\$20.00 US)

SMPTE 354M-2002, ATM Common Layer for Transport of Packetized Audio, Video and Data over Asynchronous Transfer Mode using ATM Adaptation Layer Type 1 (\$26.00 US)

SMPTE 362M-2002, Object Data Format for the Exchange of DV-Based Audio, Data and Compressed Video using ATM Common Layer over Asynchronous Transfer Mode (ATM) AAL Type 1 (\$30.00 US)

All documents are available from Society Headquarters at the prices shown above.

—Carlos V. Girod, Jr., P.E., Director of Engineering

SMPTE Standards Subscription Service

The Society provides a Standards Subscription Service to assist firms, libraries, and individuals in establishing and maintaining a complete and current file of approved American National Standards, SMPTE Recommended Practices, and SMPTE Engineering Guidelines in the motion picture, television, and video magnetic recording fields. Through this service, the Society makes automatic distribution to standards subscribers of all new and revised standards, recommended practices, and guidelines that are approved during the calendar year in these fields. Documents are also available either in printed form or on CD-ROM.

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Standards Subscription Service
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595 W. Hartsdale Ave.
White Plains, NY 10607

**PROPOSED
SMPTE STANDARD**
for Television —

SMPTE 302M

Revision of SMPTE 302M-1988

**Mapping of AES3 Data into an
MPEG-2 Transport Stream**

1 Scope

- 1.1 This standard specifies the method of transporting AES3 data in an MPEG-2 transport stream for television applications. For these television applications, the AES3 frame rate is 48 kHz.
- 1.2 Some applications may require linear PCM (pulse code modulated) digital audio in conjunction with compressed video specified in the MPEG-2 4:2:2 profile. The MPEG audio standard defines compressed audio, but does not define uncompressed audio for carriage in an MPEG-2 transport system. This standard augments the MPEG standards to address the requirement to carry AES3 streams, which may consist of linear PCM audio (at 48 ksamples/sec), or data carried within the AES3 format.

2 Normative references

The following documents 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.

- AES3-1992, Digital Audio Engineering ---- Serial Transmission Format for Two-Channel Linearily Represented Digital Audio Data
ISO/IEC 13818-1:1996, Information Technology ---- Generic Coding of Moving Pictures and Associated Audio Information: Systems
SMPTE EG 32-1996, Emphasis of AES-EBU Audio in Television Systems and Preferred Audio Sampling Rate

SMPTE 337M-2000, Format for Non-PCM Audio and Data in an AES3 Serial Digital Audio Interface

3 Introduction

MPEG-2 transport streams convey one or more programs of coded data, and may be constructed from one or more elementary coded data streams, program streams, or other transport streams. This standard specifies the method to transport AES3 streams, which may consist of linear PCM digital audio, or data, within an MPEG-2 transport stream. The specifications are described in terms of a model which starts with AES3 data, constructs elementary streams (ES) from the AES3 data, then constructs packetized elementary streams (PES) from the elementary streams, and finally constructs MPEG-2 transport streams (MTS) from the packetized elementary streams. Although this model is used to describe the transport of AES3 streams in MPEG-2 transport streams, the model is not mandatory. MPEG-2 transport streams may be constructed by any method which results in a valid stream.

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**PROPOSED
SMPTE STANDARD**
for Television (Dynamic)—

SMPTE 352M

Revision of SMPTE 352M-2001

**Video Payload Identification
For Digital Interfaces**

1 SCOPE

This standard defines the specification of a 4-byte payload identifier which may be added to digital interfaces for the purpose of identifying the video payload. The payload identifier is intended for application to existing and future digital interfaces.

The standard defines how the payload identifier is placed into an Ancillary data packet according to the SMPTE standard 291M. It specifies the sample position, line number(s) and repetition rate of the Ancillary data packet for different digital interfaces.

The standard also includes definitions for the interpretation of each byte of the 4-byte payload identifier although the values for many video payloads may have custom definitions. Payload identifier values for existing video payloads are defined and these establish guidelines for the assignment of appropriate payload identifier values to future video payloads.

This standard is a dynamic document which allows individually defined parts of this document to be extended according to the procedures laid down by SMPTE 359M. This document does not allow revisions to this document which are not backwards compatible with the original document or any prior extension. Note: SMPTE 352M was first trial published in the July, 2001 issue of SMPTE Journal and although it did not reach final approval, it has been implemented and equipment is now in use. In order to distinguish this version from this newly defined dynamic document version, Bit 7 of byte 1 has been set to 1 (see clauses 5.1 and 5.2, and Annex A and B). The first trial publication version should not be used for new implementations.

2 REFERENCES (DYNAMIC)

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publications, 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.

This clause is dynamic to allow new standards to be added only as a result of the addition of new video payload standards or a new digital interface standards to this document in accordance with the Type 1 procedures defined in SMPTE 359M. The addition of such new reference standards must retain backwards compatibility with earlier versions of this document.

2.1 Normative References

- SMPTE 259M-1997 for Television: 10-Bit 4:2:2 Component and 4fsc Composite Digital Signals - Serial Digital Interface.
- ITU BT.1358: Studio Parameters of 625 and 525 Line Progressive Scan Television Systems.

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PROPOSED SMPTE STANDARD

SMPTE 370M

for Television —

Data Structure for DV Based Audio, Data and Compressed Video at 100 Mb/s - 1080/60i, 1080/50i, 720/60p

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1 Scope

This standard defines the data structure for the interface of DV-Based digital audio, subcode data, and compressed video at 100 Mb/s. The standard defines the processes required to decode the DV-based data structure into eight channels of AES-3 digital audio at 48 kHz, subcode data, and high definition video at 1080/60i, 1080/50i and 720/60p.

The following high definition video parameters are used in this standard:

1080/60i system

Input video format: 1920 x 1080 image sampling structure, 59.94 Hz field rate, interlace format.

Compressed video data rate: 100 Mb/s

1080/50i system

Input video format: 1920 x 1080 image sampling structure, 50 Hz field rate, interlace format.

Compressed video data rate: 100 Mb/s

720/60p system

Input video format: 1280 x 720 image sampling structure, 59.94 Hz frame rate, progressive format.

Compressed video data rate: 100 Mb/s

In this document, the "60 Hz system" nomenclature refers to both 1080/60i and 720/60p systems, whereas, the "50 Hz system" refers only to the 1080/50i system. The nomenclature "1080 line system" refers to both 1080/60i and 1080/50i systems, while, the "720 line system" refers only to the 720/60p system.

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PROPOSED SMPTE STANDARD

SMPTE 371M

for Television —

6.35-mm Component Format Digital Recording at 100 Mb/s 1080/60i, 1080/50i, 720/60p

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1 Scope

This standard specifies the content, format and recording method of the data blocks containing video, audio, and associated data which form the helical records on 6.35-mm tape in cassettes as specified in SMPTE 307M.

In addition, this standard specifies the content, format, and recording method for longitudinal cue and control tracks.

One compressed video channel, eight independent audio channels and sub-code data are recorded on tape in the digital form. Each of these channels is capable of independent editing.

The helical recordings are synchronized to on the following digital video formats:

- 1080 line/59.94 Hz field frequency
- 1080line/50 Hz field frequency
- 720line/59.94 Hz frame frequency

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