

Standards and Recommended Practices

Proposed SMPTE Standards

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

SMPTE 266M, Television – 4:2:2 Digital Component Systems – Digital Vertical Interval Time Code

SMPTE 345M, Television – Mapping of SYNC Stream Block in ATM Common Layer to ATM Adaptation Layer Type 1

SMPTE 354M, Television – ATM Common Layer for Transport of Packetized Audio, Video and Data over Asynchronous Transfer Mode using ATM Adaptation Layer Type 1

SMPTE 362M, Television – 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

Available from Society Headquarters, SMPTE 266M is \$22.00; SMPTE 345M is \$20.00; SMPTE 354M is \$26.00; and SMPTE 362M is \$30.00.

Approved SMPTE Standards

The Society recently approved five SMPTE Standards:

SMPTE 343M-2002, Television – Declarative Data Essence – Local Identifier (lid:) URI Scheme

SMPTE 357M-2002, Television – Declarative Data Essence – Internet Protocol Multicast Encapsulation

SMPTE 361M-2002, Television – NTSC IP and Trigger Binding to VBI

SMPTE 363M-2002, Television – Declarative Data Essence – Content Level 1

SMPTE 366M-2002, Television – Declarative Data Essence – Document Object Model Level 0 (DOM 0) and Related Object Environment

SMPTE 343M is available from Society Headquarters for \$20.00; SMPTE 357M for \$24.00; SMPTE 361M for \$15.00; and SMPTE 363M and 366M for \$32.00 each.

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

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PROPOSED SMPTE STANDARD

for Television —

4:2:2 Digital Component Systems — Digital Vertical Interval Time Code

SMPTE 266M
Revision of
ANSI/SMPTE 266M-1994

1 Scope

This standard describes the signal format of a digital vertical interval time code (D-VITC) suitable for use with the digital coding given in ANSI/SMPTE 125M (for 525-line, 59.94-Hz field rate, 4:2:2 component digital signals) or ITU-R 601-2 (for 625-line, 50-Hz field rate, 4:2:2 component digital signals).

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 125M-1995, Television — Component Video Signal 4:2:2 — Bit-Parallel Digital Interface

SMPTE 12M-1999, Television, Audio and Film — Time and Control Code

IEC 60461 (1986-09), Time and Control Code for Video Tape Recorders

ITU-R BT.601-5 (10/95), Studio Encoding Parameters of Digital Television for Standard 4:3 and Wide-Screen 16:9 Aspect Ratios

3 D-VITC general

3.1 Signal definition

D-VITC is an 8-bit digital data representation of the band-limited analog signal corresponding to the

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vertical interval time code (VITC) of SMPTE 12M and IEC 60461. The 8 bits of D-VITC shall be carried in the 8 most significant bits of the 10 bits of the ANSI/SMPTE 125M or ITU-R BT.601 coding. Since some equipment may be built using only 8 of the 10 bits, both 10- and 8-bit interpretations of the values are given in this standard, with 10 bits the preferred expression.

3.2 Data assignment

The 90 bits of information in the VITC defined in SMPTE 12M and IEC 60461 are carried by 675 consecutive luminance samples (see figure 1) of the data stream defined in ANSI/SMPTE 125M and ITU-R BT.601. Each D-VITC bit is therefore represented by 7.5 luminance samples.

3.3 Transitions

The shape of transitions between D-VITC bits is defined by the values assigned to luminance samples in the transition region. Because the number of luminance samples chosen is an odd integer multiple (15) of one-half the total number of bits, it is necessary to define two distinct transition data sets (see figure 2). When viewed in the analog domain, the resulting transitions are a close approximation to a raised cosine shape.

3.4 Digital data

In the following clauses, 10-bit expressions are given and preferred. Equivalent values for 8-bit representations used in earlier documentation of ANSI/SMPTE 125M are given in parentheses.

3.4.1 The data value associated with a binary state of 1 in the D-VITC shall be 300h (C0h).

PROPOSED SMPTE STANDARD

for Television —

Mapping of SYNC Stream Block in ATM Common Layer to ATM Adaptation Layer Type 1

SMPTE 345M

Page 1 of 3 pages

1 Scope

This standard defines the mapping format of the SYNC stream block (SSB), defined in SMPTE 354M, to ATM adaptation layer type 1 (AAL1).

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.

SMPTE 354M, Television — ATM Common Layer for Transport of Packetized Audio, Video and Data over Asynchronous Transfer Mode using ATM Adaptation Layer Type 1

ITU-T I.363.1 (08/96), B-ISDN ATM Adaptation Layer (AAL) Specification: Type 1 (AAL)

3 Specification of AAL type 1

The ATM adaptation layer (AAL) supports the mapping between the ATM layer and the next higher layer and functions required by the next higher layer.

3.1 Functions of AAL type 1 for packetized audio, video and data transport

Functions and protocols of AAL type 1 (AAL-1) to be used are those described in ITU-T I.363.1.

The layer services at the AAL service access point (AAL-SAP) provided by AAL1 to the AAL user are:

- transfer of AAL-service data units (AAL-SDU) with a constant source bit rate and the delivery of them with the same bit rate;
- transfer of timing information between source and destination;
- cell loss and cell error correction capability.

AAL1 is composed of two sublayers. The lower layer is the segmentation and reassembly (SAR) sublayer and the upper layer is the convergence sublayer (CS). SAR is in conformity with ITU-T I.363.1. CS for video signal transport defined in ITU-T I.363.1/closure 2.5.1.2 shall be used for AAL application. These functions are listed in detail below.

3.1.1 Handling of AAL user information

The length of the AAL-SDU is one byte and the time interval between two consecutive AAL-SDU should be constant, when utilizing the correction methods described in ITU-T I.363.1/closure 2.5.2.4.

3.1.2 Handling of cell delay variation (CDV)

It is mandatory to perform this function to reduce CDV values. A buffer is used to perform this function. In the event of buffer underflow, it may be necessary for the CS to maintain bit counter integrity by inserting the appropriate number of dummy bits. In the event of buffer overflow, it may be necessary for the CS to maintain bit counter integrity by dropping the appropriate number of bits.

PROPOSED SMPTE STANDARD SMPTE 354M

for Television — ATM Common Layer for Transport of Packetized Audio, Video and Data over Asynchronous Transfer Mode using ATM Adaptation Layer Type 1

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1 Scope

This standard defines a common layer for transport of packetized audio, video, and data over asynchronous transfer mode (ATM) using ATM adaptation layer type 1 (AAL1). This standard covers the transmission of packetized audio, video, and data including rates at standard time and faster-than-real time, and multiprogram transmission as well. The common layer shall be a higher layer located immediately above the AAL1 layer, and which does not depend on any application. The usage of the transmission packets for particular applications is defined in other documents.

3 Common layer

The common layer is the next higher layer located immediately above AAL1 and transports packets of applications. The common layer consists of two sublayers. The lower sublayer is the SYNC layer and the higher sublayer is the container layer.

3.1 SYNC layer

The SYNC layer defines the SYNC stream block (SSB) which includes containers, but does not define the usage of such containers. The container is defined as follows for transmitting packetized audio, video, and data.

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. The standard is 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 298M-1997, Television — Universal Labels for Unique Identification of Digital Data

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

ISO/IEC 8825-1:1998 (ITU-T X.690), Information Technology — ASN.1 Encoding Rules — Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER), Pars. 8.1.3.4 and 8.1.3.5

ITU-T I.363.1 (08/96), B-ISDN ATM Adaptation Layer Specification: Type 1 AAL

- UL key: 16 bytes
— UL header: 2 bytes
— UL designators: 6 bytes
— Item designator: 8 bytes

SSB value length: Variable (defined in 3.1.3)

- SSB value: Variable
— Reserved: 4 bytes
— Number of containers: 1 byte
— Number of programs: 1 byte
— Container information blocks: 9 bytes
— Containers: The length of each container is indicated in each container information block.

PROPOSED SMPTE STANDARD SMPTE 362M

for Television — 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

Page 1 of 14 pages

1 Scope

This standard defines the object data format for the exchange of DV-based audio, data, and compressed video (which data structure is defined in SMPTE 314M) over the common layer defined in SMPTE 354M. The standard covers the transmission of audio, compressed video, and subcode data with DV-based 25-Mb/s and 50-Mb/s data structures for 525/60 and 625/50 systems and the transmission of the header data of serial data transport interface defined in SMPTE 305.2M.

3.1 SYNC layer

The SYNC stream block (SSB), which is defined in the SYNC layer, includes containers. The SSB has one or more containers, and the transmission order of the SSB is defined in SMPTE 354M.

3.2 Container layer

The container layer defines the structure of the container in the SSB. Each container is intended to hold a video frame (optionally two fields) worth of packetized audio, video, and data.

3.2.1 Container format

The container has two basic modes: the simple mode and the extended header mode. The simple mode supports four objects of several restricted types. The extended header mode supports up to 16 objects.

3.2.2 Object classification system

As described in SMPTE 354M, the container system provides a mechanism for defining the bit and byte packing of audio-video data types. Object classification is represented in the header by the object class word. This word is composed of two key elements: the type byte and the index byte object. The type byte is a coarse classification of the data type, and the index type is the key into the table (which is defined in figure 6 of SMPTE 354M) which represents data types.

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.

SMPTE 305.2M-2000, Television — Serial Data Transport Interface (SDTI)

SMPTE 314M-1999, Television — Data Structure for DV-Based Audio, Data and Compressed Video — 25 and 50 Mb/s

SMPTE 354M, Television — ATM Common Layer for Transport of Packetized Audio, Video and Data over Asynchronous Transfer Mode using ATM Adaptation Layer Type 1

3 Common layer

As defined in SMPTE 354M, the common layer is the next higher layer of the AAL1 and provides transmission

2001 SMPTE STANDARDS CD-ROMS

SMPTE Standards, Recommended Practices and Engineering Guidelines for Motion Picture or Television

TELEVISION STANDARDS *TV Volume 8, October 1, 2001*

New Approved Documents

- SMPTE 312M-2001 Television -- Splice Points for MPEG-2 Transport Streams
- SMPTE 336M-2001 Television -- Data Encoding Protocol using Key-Length-Value
- SMPTE 347M-2001 Television -- 540 Mb/s Serial Digital Interface --Source Image Format Mapping
- SMPTE 349M-2001 Television -- Transport of Alternate Source Image Formats through SMPTE 292M
- SMPTE 352M-2001 Television -- Video Payload Identification for Digital Television Interfaces
- SMPTE 355M-2001 Television -- Format for Non-PCM Audio and Data in AES3 -- KLV Data Type
- SMPTE 358M-2001 Television -- Four-Circuit Fiber Optic Connector
- SMPTE 359M-2001 Television and Motion Pictures -- Dynamic Documents
- SMPTE 360M-2001 Television -- General Exchange Format (GXF)

New Proposal Documents

- SMPTE 279M Television -- 1/2-in Type D-5 Standard-Definition Component Video and Type HD-D5 High-Definition Video Compressed Data
- SMPTE 335M Television -- Metadata Dictionary Structure
- SMPTE 356M Television -- Type D-10 Stream Specifications --MPEG-2 4:2:2:P @ ML for 525/60 and 625/50
- SMPTE 364M Television -- Declarative Data Essence -- Unidirectional Hypertext Transport Protocol
- SMPTE 365M Digital Television Tape Recording -- 12.65-mm Type D-10 Format for MPEG-2 Compressed Video -- 525/60 and 625/50
- RP 213 MPEG-2 Operating Ranges
- RP 215 Encoding Film Transfer Information into Vertical Ancillary Data for SMPTE 292M Bit-Serial Interface
- RP 217 Nonsynchronized Mapping of KLV Packets into MPEG-2 Systems Streams
- EG 37 Node Structure for the SMPTE Metadata Dictionary
- EG 38 MPEG-2 Operating Range Applications



MOTION PICTURE STANDARDS *MP Volume 4, April 1, 2001*

Additions:

- SMPTE 55-2000Motion-Picture Film -- 35- and 16-mm Television Release Prints -- Leaders and Cue Marks [revision of ANSI/SMPTE 55-1992]
- SMPTE 195-2000Motion-Picture Film (35-mm) -- Motion-Picture Prints -- Projectable Image Area [revision of ANSI/SMPTE 195-1993]
- RP 65-2000Motion-Picture Enlargement/Reduction Ratios [revision of RP 65-1995]
- RP 94-2000Gain Determination of Front Projection Screens [revision of RP 94-1993]
- RP 116-2000Dimensions of Photographic Control and Data Record on 35-mm Motion-Picture Camera Negatives [revision of RP 116-1995]
- RP 150-2000Channel Assignments and Test Leader for Magnetic Film Masters Intended for Transfer to Video Media Having Stereo Audio [revision of RP 150-1993]

Includes New Proposal Document:

- SMPTE 359MTelevision and Motion Pictures -- Dynamic Documents

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