

SMPTE STANDARD

Professional Media Over Managed IP Networks: AES3 Transparent Transport



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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 its Standards Operations Manual. This SMPTE Engineering Document was prepared by Technology Committee 32NF.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

The capability and capacity of IP networking equipment has improved steadily, enabling the use of IP switching and routing technology to transport and switch video, audio, and metadata essence within television facilities. Existing standards such as SMPTE ST 2022-6 have gained some amount of use in this application, but there was a desire in the industry to switch different essence elements separately.

This family of SMPTE engineering documents builds on the work of Video Services Forum (VSF) Technical Recommendations TR03 and TR04, and of AES67, documenting a system for transporting various essence streams over IP networks, capturing the timing relationships between those streams. The system is designed to be extensible to a variety of essence types .

SMPTE ST 2110-10 covers the system as a whole, the timing model, and common requirements across all essence types. Other documents will cover specific media essence formats.

SMPTE ST 2110-31 (this part) documents the transport of AES3 signals in transparent manner, preserving the V, U, C, and P bits.

1 Scope

This Standard specifies the real-time, RTP-based transport of AES3 signals over IP networks, referenced to a network reference clock.

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.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

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; then 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 engineering document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this engineering document are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

AES3-3-2009 AES standard for digital audio — Digital input-output interfacing — Serial transmission format for two-channel linearly represented digital audio data, Part 3: Transport

Internet Engineering Task Force (IETF) RFC 3550 RTP: A Transport Protocol for Real-Time Applications [online, viewed 2017-11-07] Available at <https://www.ietf.org/rfc/rfc3550.txt>

Internet Engineering Task Force (IETF) RFC 3551 RTP Profile for Audio and Video Conferences with Minimal Control [online, viewed 2017-11-07] Available at <https://www.ietf.org/rfc/rfc3551.txt>

Internet Engineering Task Force (IETF) RFC 4566 SDP: Session Description Protocol [online, viewed 2017-11-07] Available at <https://www.ietf.org/rfc/rfc4566.txt>

Internet Engineering Task Force (IETF) RFC 8285 A General Mechanism for RTP Header Extensions [online, viewed 2017-11-07] Available at <https://www.ietf.org/rfc/rfc8285.txt>

SMPTE ST 2110-10:2017 Professional Media over Managed IP Networks: System Timing and Definitions

SMPTE ST2110-30:2017 Professional Media over Managed IP Networks -- PCM Audio

4 Terms and Definitions

For the purposes of this document, the terms and definitions of SMPTE ST 2110-10 and the following apply.

4.1 AES3 Block

Block as defined in AES3-3

4.2 AES3 Frame

Frame as defined in AES3-3

4.3 AES3 Subframe

Subframe as defined in AES3-3