SCTE · ISBE

STANDARDS

Digital Video Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 242-2 2017

Next Generation Audio Coding Constraints for Cable Systems: Part 2 – AC-4 Audio Coding Constraints

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1. Introduction

1.1. Scope

This document is part two of a three-part standard that specifies the coding constraints of Next Generation Audio system for cable television. In conjunction with SCTE 242-1 2017 [1], this document defines the coding constraints on AC-4 for cable television.

The carriage of the streams described in this specification is defined in SCTE 243-2 2017 [9] in conjunction with SCTE 243-1 2017 [8].

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. All documents are subject to revision; and while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

[1] SCTE 242-1 2017, Next Generation Audio Coding Constraints for Cable Systems: Part 1 – Introduction and Common Constraints

2.2. Standards from Other Organizations

[2] ATSC S34-187r12, ATSC Candidate Standard: A/342 Part 1, Audio Common Elements
[3] ATSC S34-188r7, ATSC Candidate Standard: A/342 Part 2, AC-4 System
[4] ATSC A/85:2013, ATSC Recommended Practice: Techniques for Establishing and Maintaining Audio Loudness for Digital Television
[5] ETSI TS 103 190-1 V1.2.1 (2015-06), Digital Audio Compression (AC-4) Standard; Part 1: Channel based coding
[6] ETSI TS 103 190-2 V1.1.1 (2015-08-30), Digital Audio Compression (AC-4) Standard; Part 2: Immersive and personalized audio

3. Informative References

The following documents might provide valuable information to the reader but are not required when complying with this document.

3.1. SCTE References

[7] ANSI/SCTE 54 2015, Digital Video Service Multiplex and Transport Subsystem Standard for Cable Television
[8] SCTE 243-1 2017, Next Generation Audio Carriage Constraints for Cable Systems: Part 1 – Common Transport Signaling
[9] SCTE 243-2 2017, Next Generation Audio Carriage Constraints: Part 2 – AC-4 Audio Carriage Constraints

4. Compliance Notation

shall	This word or the adjective "***required***" means that the item is an absolute requirement of this document.
shall not	This phrase means that the item is an absolute prohibition of this document.
forbidden	This word means the value specified shall never be used.
should	This word or the adjective "*recommended*" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighted before choosing a different course.
should not	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
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deprecated	Use is permissible for legacy purposes only. Deprecated features may be removed from future versions of this document. Implementations should avoid use of deprecated features.

5. Abbreviations and Definitions

5.1. Abbreviations

SCTE	Society of Cable Telecommunications Engineers

6. AC-4 System Overview

AC-4 is a highly efficient audio codec that supports legacy channel-based content, object-based and channel-based immersive content, personalized content, and advanced metadata as defined in ETSI TS 103 190-2 [6].

A complete description of the AC-4 system features is available in ATSC A/342 Part 1 [2] section 5.1 and A/342 Part 2 [3] section 4.

7. AC-4 Coding Specifications

AC-4 audio elementary streams shall comply with the syntax and semantics contained in ETSI TS 103 190-2 [6] , as well as the parts of ETSI TS 103 190-1 [5] referenced by ETSI TS 103 190-2 [6] , as constrained in the following sections.

7.1. General Coding Constraints

AC-4 audio elementary streams shall comply with the constraints defined in ATSC A/342 Part 2 [3], Section 5.2.

7.2. Loudness and DRC Constraints

In order to comply with the loudness recommendations in ATSC A/85 [4], AC-4 audio elementary streams shall comply with the constraints defined in ATSC A/342 Part 2 [3], Section 5.3.

7.3. Personalized Audio Constraints

In order to provide a consistent listener experience, AC-4 audio elementary streams shall comply with the constraints defines in ATSC A/342 Part 2 [3], Section 5.4.

7.4. Multi-Stream (Hybrid) Constraints

When AC-4 presentations reference audio elements that are contained in more than one elementary stream, the relevant AC-4 audio elementary streams shall comply with the constraints defined in ATSC A/342 Part 2 [3], Section 5.5.