INTERNATIONAL STANDARD

ISO 26428-2

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Digital cinema (D-cinema) distribution master —

Part 2: Audio characteristics

Souche de la distribution du cinéma numérique (cinéma D) —

Partie 2: Caractéristiques d'écoute

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO 26428-2 was prepared by the Society of Motion Picture and Television Engineers (as SMPTE 428-2-2006) and was adopted, under a special "fast-track procedure", by Technical Committee ISO/TC 36, *Cinematography*, in parallel with its approval by the ISO member bodies.

ISO 26428 consists of the following parts, under the general title *Digital cinema (D-cinema) distribution master*:

— *Part 1: Image characteristics*

— *Part 2: Audio characteristics*

— *Part 3: Audio channel mapping and channel labeling*

SMPTE 428-2-2006

SMPTE STANDARD

D-Cinema Distribution Master — Audio Characteristics

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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 Part XIII of its Administrative Practices.

SMPTE Standard SMPTE 428-2 was prepared by Technology Committee DC28.

Introduction

This standard addresses interoperability of equipment used to deliver audio in digital cinema theaters by defining the sample rate, bit depth, channel count and reference level of the digital audio.

Approved
August 16, 2006

1 Scope

For interoperability of digital cinema equipment used to create an Audio D-Cinema Distribution Master. The necessary characteristics of digital audio to be specified are bit depth, sample rate, minimum channel count, and reference levels.

2 Normative references

The following standard contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was 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 standard indicated below.

AES3-2003, AES Recommended Practice for Digital Audio Engineering — Serial Transmission Format for Two-Channel Linearly Represented Digital Audio Data

3 Parameter values

3.1 Bit depth

The bit depth shall be a maximum of 24 bits per sample. Material having other bit depths shall be justified to the most significant bit (AES3, clause 4.1.1). The audio sample word shall be linear 2's complement representation as defined in AES3, clause 4.1.1.

3.2 Sample rate

Irrespective of the associated image frame rate or rates, the delivered audio sample rate contained within the D-Cinema Distribution Master (DCDM) shall be either forty-eight thousand samples per second per channel, commonly expressed as 48.000 kHz, or ninety-six thousand samples per second per channel, commonly expressed as 96.000 kHz. Audio sample rate jitter shall be as specified in AES3.

NOTE – The called out sample rates are an average over time. Instantaneous deviation of the sample rates from their average (jitter) affects the quality of the audio output in digital-to-analog conversions and so must be considered in implementation designs.

3.3 Channel count

The digital cinema distribution master (DCDM) shall support a channel count of sixteen full-bandwidth channels. Not all sixteen channels need be used on any given title.

3.4 Reference level, Digital

Digital inputs and outputs shall have a reference level of –20 dB FS.