D-Cinema Distribution Master - Audio Characteristics

ST 428-2:2006 , :.

SMPTE STANDARD

D-Cinema Distribution Master — Audio Characteristics

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Foreword

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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.

Annex A (informative**)**
Bibliography

AES5-2003, AES Recommended Practice for Professional Digital Audio —Preferred Sampling Frequencies for Applications Employing Pulse-Code Modulation

AES11-2003, AES Recommended Practice for Digital Audio Engineering — Synchronization of Digital Audio Equipment in Studio Operations

AES-R2-2004, AES Project Report for Articles on Professional Audio and for Equipment Specifications