
Digital source processing —

Part 2:

**Digital cinema (D-cinema) low frequency
effects (LFE) channel audio
characteristics**

Procédé de source numérique —

*Partie 2: Caractéristiques sonores de chaîne des effets basse
fréquence du cinéma D*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 26432-2 was prepared by the Society of Motion Picture and Television Engineers (as SMPTE EG 432-2-2006) 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 26432 consists of the following parts, under the general title *Digital source processing*:

— *Part 2: Digital cinema (D-cinema) low frequency effects (LFE) channel audio characteristics*

SMPTE ENGINEERING GUIDELINE

Digital Source Processing — D-Cinema Low Frequency Effects (LFE) Channel Audio Characteristics



Table of Contents

Foreword	1
Introduction	1
1 Scope	2
2 Parameters.....	2
Annex A Bibliography.....	3

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 Engineering Guideline EG 432-2 was prepared by Technology Committee DC28.

Introduction

For interoperability of digital cinema equipment used to deliver LFE channel audio to the playback equipment in D-Cinema environments, standardized electrical frequency response for the playback LFE channel is needed. The necessary characteristics are turnover frequency, slope and deviation.

1 Scope

This guideline addresses interoperability of equipment from the standpoint of the frequency response of filters used in the playback or monitor path in the theater LFE channel for digital cinema. This response curve will create standardization of these filters without specifying their design.

2 Parameters

2.1 Turnover Frequency

The turnover frequency is defined as the point at which the response of the filter is at -3 dB from the passband reference. The LFE channel shall have a turnover frequency of 125 Hz.

2.2 Filter Slope

The filter slope of the LFE Channel shall be as per the Reference Filter Response Table (section 2.4) from the turnover frequency of 125 Hz.

2.3 Deviation

Deviation within the passband shall be ± 1 dB and the deviation of the turnover frequency (-3 dB point) shall be ± 5 Hz.

2.4 Reference Filter Frequency Response Table

Frequency Hz	Attenuation dB
25Hz	0dB
31.5Hz	0dB
40Hz	0dB
50Hz	0dB
63Hz	0dB
80Hz	0dB
100Hz	0dB
125Hz	-3dB
160Hz	-45dB
200Hz	-102dB

Annex A (Informative)

Bibliography

SMPTE 202M-1998, Motion-Pictures — Dubbing Theaters, Review Rooms and Indoor Theaters — B-Chain Electroacoustic Response

SMPTE RP 200-2002, Relative and Absolute Sound Pressure Levels for Motion-Picture Multichannel Sound Systems — Applicable for Analog Photographic Film Audio, Digital Photographic Film Audio and D-Cinema

