

SMPTE STANDARD

For Motion-Picture Film (35-mm) —  
Prints — Two-Track Photographic  
Analog Audio Records



Table of Contents	Page
Foreword .....	2
Intellectual Property .....	2
1 Scope .....	3
2 Conformance Notation .....	3
3 Normative References .....	3
4 Audio Records.....	4
5 Reproducing Speed and Picture-Audio Displacement.....	4
6 Track Usage.....	4

## **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 ST 203 was prepared by Technology Committee 20F.

## **Intellectual Property**

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Standard. 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.

## 1 Scope

1.1 This standard specifies the lateral location and dimensions of two-track variable-area analog audio records on 35-mm motion-picture prints.

1.2 This standard also specifies the area scanned in the audio reproducer.

## 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; followed by formal languages; then figures; and then any other language forms.

## 3 Normative Reference

Note: All references in this document to other SMPTE documents use the current numbering style (e.g. SMPTE ST 40:2002) although, during a transitional phase, the document as published (printed or PDF) may bear an older designation (such as SMPTE 40-2002). Documents with the same root number (e.g. 40) and publication year (e.g. 2002) are functionally identical.

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.

SMPTE ST 40:2002, Motion-Picture Film (35-mm) — Release Prints — Photographic Audio Records

## 4 Audio Records

**4.1** The dimensions and locations of the audio records shall be as specified in Figure 1 and Table 1. In all other respects, the audio records shall comply with SMPTE ST 40.

**4.2** Track 1 and track 2 recording and reproducing slit images shall be positioned in line at an angle of  $90^\circ \pm 5'$  to the reference edge of the film.

**4.3** Channel 2 shall be recorded in the record nearest the outer edge of the film, as shown in Figure 1.

**4.4** The septum between track records shall be effectively opaque on prints. A lighter septum resulting from direct positive recordings being printed on reversal print materials shall not be cause for rejection of prints.

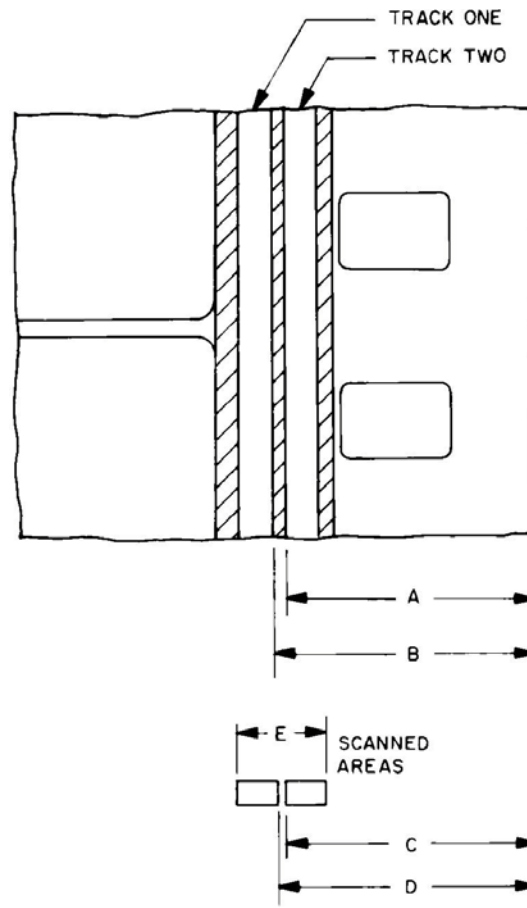
## 5 Reproducing Speed and Picture-Audio Displacement

Reproducing speed and picture-audio displacement shall be as specified in SMPTE ST 40.

## 6 Track Usage

Track 1 shall carry audio that is either intended to be routed solely to the left (as viewed from the auditorium) loudspeaker channel, or shall carry the Lt (Left Total) of a matrix encoded Lt-Rt pair. Track 2 shall carry audio that is either intended to be routed solely to the right (as viewed from the auditorium) loudspeaker channel, or shall carry the Rt (Right Total) of a matrix encoded Lt-Rt pair.

Note: Dimensions C and D were chosen to ensure separation of the channel 1 and channel 2 signals upon reproduction. Projector manufacturers will probably want to reduce the guard band between the track 1 and track 2 scanned areas as much as possible so that the projector will be compatible with audio records made in accordance with SMPTE ST 40.



**Figure 1 – Dimensions**

**Table 1 – Dimensions**

Dimensions	Inches	Millimeters
A	$0.238 \pm 0.002$	$6.05 \pm 0.05$
B	$0.248 \pm 0.002$	$6.30 \pm 0.05$
C	$0.242 \pm 0.001$	$6.15 \pm 0.03$
D	$0.244 \pm 0.001$	$6.20 \pm 0.03$
E	0.084 ref	2.13 ref