
**Cinematography — Time and control
code for 24, 25 and 30 frames per
second motion-picture film systems —
Specifications**

*Cinématographie — Code de chronométrage et de commande pour
les systèmes de films cinématographiques à 24, 25 et 30 images par
seconde — Spécifications*





COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Modulation method	2
5 Code formats	2
5.1 Type C code format.....	2
5.2 Type 8 code format.....	10
5.3 Use of binary groups.....	11
5.4 Assigned and unassigned address bits.....	12
6 Time discrepancies and colour framing in film/video transfer	12
6.1 NTSC colour recording.....	12
6.2 SECAM signals.....	13
6.3 PAL signals.....	13
7 Structure of the address bits	13
8 Position of the address on motion-picture film	13
9 Addresses on motion-picture prints	13
Bibliography	15

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 36, *Cinematography*.

This second edition cancels and replaces the first edition (ISO 9642:1993), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- The title has been modified to include the word "film".

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Cinematography — Time and control code for 24, 25 and 30 frames per second motion-picture film systems — Specifications

1 Scope

This document specifies digital code for mats and modulation methods for motion-picture film to be used for timing, control, editing and synchronization purposes. This document also specifies the relationship of the codes to the motion picture frame.

Two types of code are described in this document. The first type, Type C, is a continuous code which is very similar to the continuous code specified in IEC 60461. This type of code can be used in situations where the film is moving continuously at the time of both recording and reproduction.

The second type of code, Type 8, is a non-continuous, block-type code, composed of blocks of data, each complete in itself, with gaps between the blocks. It is designed so that the code can be recorded and played back on equipment with intermittent film motion but still be decoded with the same type of electronic equipment used to read the Type C or continuous time code.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 2022, *Information technology — Character code structure and extension techniques*

ISO 4241, *Cinematography — Projection film leader (time-based), trailer and cue marks — Specifications*

ISO 8758, *Cinematography — Photographic control and data records on 16 mm and 35 mm motion-picture film and prints — Dimensions and location*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

real time

<NTSC colour recording> time elapsed during the scanning of 60 fields (or any multiple thereof) in an ideal television system at a vertical field rate of exactly 60 fields per second

3.2

colour time

<NTSC colour recording> time elapsed during the scanning of 60 fields (or any multiple thereof) in a colour television system at a vertical field rate of approximately 59,94 fields per second