

Second edition
2020-04

Information technology — MPEG systems technologies —

Part 10:

Carriage of timed metadata metrics of media in ISO base media file format

Technologies de l'information — Technologies des systèmes MPEG —

*Partie 10: Transport de métriques de métadonnées de temporisation
de supports au format de fichier de support en base ISO*



Reference number
ISO/IEC 23001-10:2020(E)

© ISO/IEC 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 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

This is a preview of "ISO/IEC 23001-10:202...". [Click here to purchase the full version from the ANSI store.](#)

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	2
4 Carriage of quality metadata	2
4.1 General.....	2
4.2 Quality metadata.....	2
4.2.1 Definition.....	2
4.2.2 Syntax.....	3
4.2.3 Semantics.....	3
4.3 Quality metrics.....	3
4.3.1 Peak signal to noise ratio (PSNR).....	3
4.3.2 SSIM.....	4
4.3.3 MS-SSIM.....	5
4.3.4 VQM.....	7
4.3.5 PEVQ.....	7
4.3.6 MOS.....	8
4.3.7 Frame significance (FSIG).....	8
5 Carriage of green metadata	9
5.1 General.....	9
5.2 Decoder power indication metadata.....	10
5.2.1 Definition.....	10
5.2.2 Syntax.....	10
5.2.3 Semantics.....	10
5.3 Display power reduction metadata.....	10
5.3.1 General.....	10
5.3.2 Display power indication metadata.....	11
5.3.3 Display fine control metadata.....	11
6 Carriage of coordinates	12
6.1 General.....	12
6.2 2D Cartesian coordinates.....	13
6.2.1 2D Cartesian coordinates sample entry.....	13
6.2.2 Syntax.....	13
6.2.3 Semantics.....	13
6.3 2D Cartesian coordinates sample format.....	14
6.3.1 Syntax.....	14
6.3.2 Semantics.....	14
Annex A (informative) Use cases for carriage of ROI coordinates	15
Annex B (normative) Eigen appearance metric matrix specification	17
Bibliography	21

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 document 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 and IEC 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) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

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 Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 23001-10:2015), which has been technically revised.

The main changes compared to the previous edition are as follows:

- addition of carriage of special information in new [Clause 6](#) and [Annex A](#) with support for encoded regions of interest;
- ISO/IEC 14496-12 and ISO/IEC 23008-2 moved from Bibliography to Clause 2 and other minor editorial changes to align fully with ISO/IEC Directives Part 2.

A list of all parts in the ISO/IEC 23001 series can be found on the ISO website.

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.

This is a preview of "ISO/IEC 23001-10:202...". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This document specifies the carriage of timed metadata in files belonging to the family based on ISO/IEC 14496-12. The families of metadata are 'green' metadata (related to energy conservation), quality measurements of the associated media data (related to video quality metrics) and coordinates describing relationship between media data.