INTERNATIONAL STANDARD

ISO/IEC 23090-20

First edition
2023-12

Information technology — Coded representation of immersive media —

Part 20: Conformance testing for visual volumetric video-based coding (V3C) with video-based point cloud compression (V-PCC)

Reference number
ISO/IEC 23090-20:2023(E)

© ISO/IEC 2023



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2023

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
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO/IEC 2023 – All rights reserved

Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Abbreviated terms and acronyms ... **2**
5 Conventions ... **2**
6 Conformance for ISO/IEC 23090-5 ... **2**
6.1 General ... 2
6.2 Bitstream conformance ... 2
6.3 Decoder conformance ... 2
6.4 Reconstruction conformance ... 3
6.5 Procedure to test bitstreams ... 4
6.6 Procedure to test decoder conformance ... 4
6.6.1 Conformance bitstreams ... 4
6.6.2 Contents of the bitstream file ... 4
6.6.3 Requirements on the output of the decoding process, reconstruction process, and timing ... 5
6.6.4 Bitstream validation ... 5
6.6.5 Recommendations (informative) ... 6
6.7 Test bitstreams ... 6
6.7.1 General ... 6
6.7.2 Bitstreams coded with basic toolset coding profile and reconstructed with Rec 0 profiles ... 8
6.7.3 Bitstreams coded with basic toolset still coding profile and reconstructed with Rec 0 profiles ... 19
6.7.4 Bitstreams coded with extended toolset coding profile and reconstructed with Rec 0 profiles ... 20
6.7.5 Bitstreams with soft conformance reconstructed with Rec 1 profile ... 21
6.7.6 Bitstreams with soft conformance reconstructed with Rec 2 profile ... 22
6.8 Conformance test suites ISO/IEC 23090-5 ... 24
6.8.1 Bitstreams for basic toolset ... 24
6.8.2 Bitstreams for basic toolset still profile ... 24
6.8.3 Bitstreams for extended toolset profile ... 24
6.8.4 Bitstreams for soft conformance ... 25
Annex A (informative) **Conformance bitstream generation guidelines** ... **26**
Bibliography ... **31**

© ISO/IEC 2023 – All rights reserved

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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and https://patents.iec.ch. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

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. In the IEC, see www.iec.ch/understanding-standards.

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*.

A list of all parts in the ISO 23090 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

© ISO/IEC 2023 – All rights reserved

Introduction

This document outlines the conformance testing specification for ISO/IEC 23090-5.

© ISO/IEC 2023 – All rights reserved

Information technology — Coded representation of immersive media —

Part 20: Conformance testing for visual volumetric video-based coding (V3C) with video-based point cloud compression (V-PCC)

1 Scope

This document specifies a set of tests and procedures designed to indicate whether encoders or decoders meet the requirements specified in ISO/IEC 23090-5.

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 23090-5:2023, *Information technology — Coded representation of immersive media — Part 5: Visual volumetric video-based coding (V3C) and video-based point cloud compression (V-PCC)*

ISO/IEC 23090-19, *Information technology — Coded representation of immersive media — Part 19: Reference Software for V-PCC*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 23090-5 apply, and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
bitstream
sequence of bits that conforms to specified syntax requirements or sequence of bits to be tested for conformance to such syntax requirements

3.2
decoder
embodiment of the decoding process to be tested for conformance to such a decoding process specification

Note 1 to entry: The decoder does not include the rendering and display process, which are outside the scope of this document.

© ISO/IEC 2023 – All rights reserved