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Information technology — Coded representation of immersive media —

Part 19: Reference Software for V-PCC

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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).

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 https://patents.iec.ch).

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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.

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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/IEC 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.

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Introduction

Reference software is useful in aiding users of a coding standard to establish and test conformance and interoperability, and to educate users and demonstrate the capabilities of the standard. For these purposes, the accompanying software is provided as an aid for the study and implementation of ISO/IEC 23090-5 for Visual Volumetric Video-based Coding (V3C) with Video-based Point Cloud Compression (V-PCC). The reference software includes both encoder and decoder functionality

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of a patent.

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The holder of this patent right has assured ISO and IEC that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO and IEC. Information may be obtained from the patent database available at www.iso.org/patents or https://patents.iec.ch.

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Information technology — Coded representation of immersive media —

Part 19: Reference Software for V-PCC

1 Scope

This document provides reference software for ISO/IEC 23090-5 available at https://standards.iso.org/iso-iec/23090/-19/ed-1/.

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, *Information technology — Coded Representation of Immersive Media — Part 5: Visual Volumetric Video-based Coding (V3C) and Video-based Point Cloud Compression (V-PCC)*

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3 Terms and definitions

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

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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
decoder
embodiment of a process that operates on a bitstream and may conform to the decoding process requirements specified for conformance to ISO/IEC 23090-5

Note 1 to entry: The scope of decoder, as considered herein, does not include a display process, which is outside the scope of this document.

3.2
encoder
embodiment of a process, not specified in this document, that produces a bitstream

4 Abbreviated terms

V3C Visual Volumetric Video-based Coding

V-PCC Video-based Point Cloud Compression

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5 Conventions

Clause 5 of ISO/IEC 23090-5:2021 applies.

6 Reference software for ISO/IEC 23090-5

Regardless of any and all statements made herein or elsewhere regarding the possible uses of the reference software, the following disclaimers of warranty apply to the provided reference software.

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The purpose of the reference software includes:

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— serving as an example available for study (e.g. to illustrate how the standard can be implemented),

— demonstrating the capabilities and behaviour that may be expected from implementations of the standard to clarify how to interpret what is specified in ISO/IEC 23090-5,

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— providing a potential basis for the development of implementations of ISO/IEC 23090-12,

— providing a reference for comparison with the behaviour of other decoders,

— testing of bitstreams for conformance to ISO/IEC 23090-12.

The use of the reference software is not a requirement for the implementation of ISO/IEC 23090-5. An implementer is permitted to use only the text of ISO/IEC 23090-5 for creating an implementation of a conforming encoder or decoder.

The reference software for ISO/IEC 23090-5 is available at https://standards.iso.org/iso-iec/23090/-19/ed-1/ and contains:

— DIS_23090-19_VPCC_reference_software.zip

The reference software manual can be found in the jointed archive: ./doc./mpeg-pcc-tmc2-sw-manual.pdf. This manual can be used to install and use the reference software.

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