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Information technology — Coded representation of immersive media —

Part 10: Carriage of visual volumetric video-based coding data

Technologies de l'information — Représentation codée de média immersifs —

Partie 10: Transport de données de codage basé sur la vidéo volumétrique

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Foreword

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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*.

This second edition cancels and replaces the first edition (ISO/IEC 23090-10:2022), which has been technically revised.

The main changes are as follows:

— The support of packed video has been added.

— A single item encapsulation of a non-timed V3C data has been added.

— The document structure is changed to specify the encapsulation according to V3C applications. File format tools and brands are clarified.

— The carriage of coded media representations which comply with video-based dynamic mesh coding (specified in ISO/IEC 23090-29) has been added.

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

This document addresses the storage of visual volumetric video-based coding data in files based on ISO/IEC 14496-12, reusing existing tools for storage of video-coded components. Another important aspect considered by this document is supporting flexible extraction of component streams at delivery or decoding time, or both.

The International Organization for Standardization (ISO) and 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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Information technology — Coded representation of immersive media —

Part 10:
Carriage of visual volumetric video-based coding data

1 Scope

This document specifies carriage of coded media representations which comply with visual volumetric video content which is encoded using video-based coding and video-based point cloud compression (specified in ISO/IEC 23090-5) or its derived specification.

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.

IEEE 754-2019, *IEEE Standard for Floating-Point Arithmetic*

IETF RFC 6381, *The 'Codecs' and 'Profiles' Parameters for "Bucket" Media Types*

ISO/IEC 14496-1, *Information technology — Coding of audio-visual objects — Part 1: Systems*

ISO/IEC 14496-12, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format*

ISO/IEC 14496-15, *Information technology — Coding of audio-visual objects — Part 15: Carriage of network abstraction layer (NAL) unit structured video in the ISO based media file format*

ISO/IEC 14496-34, *Information technology — Coding of audio-visual objects — Part 34: Syntactic description language*

ISO/IEC 23008-1, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 1: MPEG media transport (MMT)*

ISO/IEC 23008-1, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 1: MPEG media transport (MMT) — Amendment 2: Additional asset descriptor*

ISO/IEC 23009-1, *Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats*

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)*

ISO/IEC 23090-12, *Information technology — Coded representation of immersive media — Part 12: MPEG Immersive Video*

ISO/IEC 23090-29, *Information technology — Coded representation of immersive media — Part 29: Video-based Dynamic Mesh Coding (V-DMC)*

W3C Recommendation, *XML schema part 1: Structures*

W3C Recommendation, *XML schema part 2: Datatypes*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 14496-1, ISO/IEC 14496-12, ISO/IEC 23090-5 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/

— The definitions of objects are given in the syntax description language (SDL) defined in ISO/IEC 14496-1 and its extensions as defined in Clause 4.2 in ISO/IEC 14496-12.

3.1
atlas parameter sets
non-ACL NAL units that have nal_unit_type equal to NAL_ASPS, NAL_AAPS, or NAL_AFPS.

3.2
V3C content
volumetric media that is encoded using V3C or its derived specifications

Note 1 to entry: V3C is defined in ISO/IEC 23090-5 and an example of derived specifications is ISO/IEC 23090-12.

3.3
volumetric visual track
track with a handler type reserved to describe volumetric visual track

3.4
V3C track
V3C bitstream track, V3C atlas track or V3C atlas tile track

3.5
V3C bitstream track
volumetric visual track containing V3C bitstream in case of single-track container

3.6
V3C atlas track
volumetric visual track containing V3C atlas sub-bitstream in case of multi-track container

3.7
V3C atlas tile track
volumetric visual track containing portion of V3C atlas bitstream corresponding to one or more tiles in case of multi-track container

3.8
V3C non-video component track
a track containing a coded V3C sub-bitstream, which is not coded with a 2D video codec.

3.9
V3C video component track
video track containing a 2D video elementary stream for any of the occupancy, geometry, or attribute component

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