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Australian STANDARD®

STANDARDS Australia

Information technology — Plenoptic image coding system (JPEG Pleno)

Part 5: Holography



AS ISO/IEC 21794.5:2026

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Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

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The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee IT-029, Coding of audio, picture, multimedia and hypermedia information.

The objective of this document is to define the syntax and an accompanying decompression process that is capable of representing binary and continuous-tone holograms while supporting one or multiple colour/spectral components. The supported compression mechanisms are lossless for binary holograms and lossy for continuous-tone holograms. Additional information on the encoding tools is provided as well.

The document also defines extensions to the JPEG Pleno File Format and associated metadata descriptors specific to holographic modalities.

This document is identical to and has been reproduced from ISO/IEC 21794-5:2024, *Information technology — Plenoptic image coding system (JPEG Pleno) — Part 5: Holography.*

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The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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).

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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 21794 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 is part of a series of standards for a system known as JPEG Pleno and defines JPEG Pleno Holography. It specifies a codec mechanism for holographic modalities and associated codestream syntax and file format elements. JPEG Pleno Holography allows for efficient compression of holograms for a wide range of applications such as holographic microscopy, tomography, interferometry, printing and display and their associated hologram types. Key functionalities include support for both lossy and lossless coding, scalability, random access, and integration within the system architecture of the JPEG Pleno framework.

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Information technology — Plenoptic image coding system (JPEG Pleno)

Part 5: Holography

1 Scope

This document defines the syntax and an accompanying decompression process that is capable of representing binary and continuous-tone holograms while supporting one or multiple color/spectral components. The supported compression mechanisms are lossless for binary holograms and lossy for continuous-tone holograms. Additional information on the encoding tools is provided as well. The document also defines extensions to the JPEG Pleno File Format and associated metadata descriptors specific to holographic modalities.

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 21794-1:2020, *Information technology — Plenoptic image coding system (JPEG Pleno) — Part 1: Framework*

ISO/IEC 21794-2:2021, *Information technology — Plenoptic image coding system (JPEG Pleno) — Part 2: Light field coding*

ISO/IEC 21794-3, *Information technology — Plenoptic image coding system (JPEG Pleno) — Part 3: Conformance testing*

ISO/IEC 21794-4, *Information technology — Plenoptic image coding system (JPEG Pleno) — Part 4: Reference software*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 21794-1, ISO/IEC 21794-2, ISO/IEC 21794-3, ISO/IEC 21794-4 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/ui

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

3.1
holography
technique based on coherent light allowing for the recording and reconstruction of a wavefront, thereby encoding three-dimensional information about objects

Note 1 to entry: This has many applications, including 3D display technology, microscopy, tomography, interferometry, telecommunications, data storage, and non-destructive testing.

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