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Part 5: Holography

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Partie 5: Holographie

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Foreword

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A list of all parts in the ISO/IEC 21794 series can be found on the ISO and IEC websites.

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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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