International Standard

ISO/IEC 21122-1

Information technology — JPEG XS low-latency lightweight image coding system —

Part 1: Core coding system

Technologies de l'information — Système de codage d'images léger à faible latence JPEG XS —

Partie 1: Système de codage de noyau

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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

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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 third edition cancels and replaces the second edition (ISO/IEC 21122-1:2022), which has been technically revised.

The main changes are as follows:

— coding tools for improving the compression rates for screen content images have been added;

— coding tools that enable lossless coding of images with up to 16 bits per sample have been added.

A list of all parts in the ISO/IEC 21122 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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1 Scope

This document specifies the syntax and an accompanying decompression process that is capable to represent continuous-tone grey-scale, or continuous-tone colour digital images without visual loss at moderate compression rates. Typical compression rates are between 2:1 and 18:1 but can also be higher depending on the nature of the image. In particular, the syntax and the decoding process specified in this document allow lightweight encoder and decoder implementations that limit the end-to-end latency to a fraction of the frame size. However, the definition of transmission channel buffer models necessary to ensure such latency is beyond the scope of this document.

This document:

— specifies decoding processes for converting compressed image data to reconstructed image data;

— specifies a codestream syntax containing information for interpreting the compressed image data;

— provides guidance on encoding processes for converting source image data to compressed image data.

2 Normative references

There are no normative references in this document.

3 Terms and definitions, abbreviated terms and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions 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/

3.1.1
band
input data to a specific *wavelet filter type* (3.1.54) that contributes to the generation of one of the *components* (3.1.14) of the image

3.1.2
band type
single number collapsing the information on the component, and horizontal and vertical wavelet filter types that are applied in the filter cascade reconstructing spatial image samples from inversely quantized wavelet coefficients