



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

**Third edition
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Contents

| | Page |
|--|------------|
| Foreword | iv |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions, abbreviated terms and symbols | 1 |
| 3.1 Terms and definitions..... | 1 |
| 3.2 Abbreviated terms..... | 6 |
| 3.3 Symbols..... | 6 |
| 4 Conventions | 10 |
| 4.1 Conformance language..... | 10 |
| 4.2 Operators..... | 10 |
| 4.2.1 Arithmetic operators..... | 10 |
| 4.2.2 Logical operators..... | 10 |
| 4.2.3 Relational operators..... | 10 |
| 4.2.4 Precedence order of operators..... | 10 |
| 4.2.5 Mathematical functions..... | 11 |
| 5 Functional concepts | 11 |
| 5.1 Sample grid, sampling and components..... | 11 |
| 5.2 Interpretation of CFA data..... | 12 |
| 5.3 Wavelet decomposition..... | 12 |
| 5.4 Codestream..... | 13 |
| 6 Encoder requirements | 13 |
| 7 Decoder | 13 |
| 7.1 Decoding process general provisions..... | 13 |
| 7.2 Decoder requirements..... | 15 |
| Annex A (normative) Codestream syntax | 16 |
| Annex B (normative) Image data structures | 32 |
| Annex C (normative) Entropy decoding | 45 |
| Annex D (normative) Quantization | 65 |
| Annex E (normative) Discrete wavelet transformation | 70 |
| Annex F (normative) Multiple component transformations | 80 |
| Annex G (normative) DC level shifting, non-linear transform and output clipping | 91 |
| Annex H (normative) Frame buffer | 98 |
| Annex I (informative) Example weight tables | 106 |
| Bibliography | 114 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO 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).

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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.

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.

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

Part 1: Core coding system

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