

ISO/IEC 21122-2:2019 (E)

Information technology — JPEG XS low-latency lightweight image coding system — Part 2: Profiles and buffer models

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms, definitions, symbols and abbreviated terms
3.1	Terms and definitions
3.2	Conformance language
3.3	Operators
3.3.1	Arithmetic operators
3.3.2	Logical operators
3.3.3	Relational operators
3.3.4	Precedence order of operators
3.3.5	Mathematical functions
4	Specifications
4.1	Symbols
4.2	Abbreviated terms
4.3	General provisions
5	Buffer model
5.1	General system block diagram
5.2	Influencing variables on the required buffer sizes
5.3	Role of the buffer model
Annex A	(normative) Profiles, levels and sublevels
A.1	General
A.2	Profiles
A.2.1	Definitions of profiles
A.2.2	Profile signalling in the picture header
A.3	Levels
A.4	Sublevels
A.4.1	Definition of sublevels
A.4.2	List of sublevels
A.5	Signalling of levels and sublevels in the Plev field of picture header
Annex B	(normative) Packet-based JPEG XS decoder model
B.1	General
B.2	Codestream fragments
B.2.1	Coded codestream fragments
B.2.2	Blanking codestream fragments
B.2.3	Computation of the number of coefficient groups belonging to a horizontal blanking codestream fragment
B.2.4	Computation of the number of coefficient groups belonging to a vertical blanking codestream fragment
B.3	Decoder model block diagram
B.4	Decoder smoothing buffer
B.5	Buffer model types
Annex C	(normative) Packet-based constant bit rate buffer model

C.1	General
C.2	Decoder unit
C.3	Encoder-decoder system model
C.4	Transmission channel model
C.4.1	Transmission channel with maximum bit rate
C.4.2	Transmission channel with constant bit rate
C.4.3	Relation between the two channel models
C.5	Decoder smoothing buffer
C.6	Buffer model instance
C.7	Buffer model instance parameters
C.8	Buffer model conformance
C.8.1	Conformance of a single codestream
C.8.2	Conformance of a sequence of codestreams
C.8.3	Decoder conformance
C.8.4	Encoder conformance
C.8.5	Decoder implementation deviations
C.8.6	Transmission channel deviations

Annex D (informative) Encoder model, latency bounds and codestream conformance properties for the packet-based constant bit rate buffer model

D.1	General
D.2	Encoder model
D.3	Buffer relations
D.4	Minimum decoder delay Dc2d
D.5	Maximum decoder delay Dc2d
D.6	Properties of conforming codestreams

Annex E (informative) JPEG XS latency analysis

E.1	General
E.2	Assumptions
E.3	Encoder latency analysis
E.3.1	Reversible component transformation (RCT)
E.3.2	Discrete wavelet transform (DWT)
E.3.3	Rate allocation
E.3.4	Precinct buffer and re-ordering
E.3.5	Quantization
E.3.6	Entropy encoding
E.3.7	Smoothing buffers
E.4	Decoder latency analysis
E.4.1	Inverse reversible component transformation (IRCT)
E.4.2	Inverse discrete wavelet transform (IDWT)
E.4.3	Precinct buffer and re-ordering
E.4.4	Inverse quantization
E.4.5	Entropy decoding
E.5	Examples of end-to-end latency analysis
E.5.1	Overview
E.5.2	Example 1: no vertical wavelet decomposition
E.5.3	Example 2: 1 vertical wavelet decomposition
E.5.4	Example 3: 2 vertical wavelet decompositions