

# ISO/IEC 15444-4:2021-10 (E)

## Information technology - JPEG 2000 image coding system - Part 4: Conformance Testing

Contents	Page
1	Scope ..... 1
2	References ..... 1
3	Definitions ..... 1
4	Abbreviations and symbols ..... 4
4.1	Abbreviations ..... 4
4.2	Symbols ..... 5
5	Conventions ..... 6
6	General description ..... 6
6.1	Profiles, derived sets and compliance classes ..... 7
6.2	Decoders ..... 8
6.3	Encoders and codestreams ..... 8
6.4	Implementation compliance statement ..... 8
6.5	Abstract test suites ..... 9
6.6	Encoder compliance testing procedure ..... 9
6.7	Decoder compliance testing procedure ..... 9
7	Copyright ..... 9
8	Compliance files availability and updates ..... 9
Annex A	Decoder compliance classes ..... 10
A.1	Compliance class parameter definitions ..... 10
A.1.1	Profile: codestream guarantees ..... 10
A.1.2	$H, W, C$ : Image size guarantees ..... 10
A.1.3	$N_{cb}$ : Code-block parsing guarantee ..... 11
A.1.4	$N_{comp}$ : Component parsing guarantee ..... 11
A.1.5	$L_{body}$ : Coded data buffering guarantee ..... 11
A.1.6	$M$ : Decoded bit-plane guarantee ..... 12
A.1.7	$P$ : 9-7I precision guarantee ..... 12
A.1.8	$B$ : 5-3R precision guarantee ..... 12
A.1.9	$T_L$ : Transform level guarantee ..... 12
A.1.10	$L$ : Layer guarantee ..... 12
A.1.11	Progressions ..... 12
A.1.12	Tile-parts ..... 13
A.1.13	Precincts ..... 13
A.1.14	$M_{MAGB}$ : Magnitude bound guarantee ..... 13
A.2	Compliance class definitions ..... 13
A.3	Lossless encoding and decoding ..... 14
Annex B	Decoder compliance testing procedures ..... 15
B.1	General ..... 15
B.2	Decoder test procedure ..... 15
B.2.1	Files for testing ..... 16
B.2.2	Decoder settings ..... 16
B.2.3	Output file format conversion ..... 16
B.2.4	Compare decoded and formatted components with reference components ..... 18
B.2.5	Compare error metrics with specification ..... 18
B.2.6	Reference components file format ..... 19
Annex C	Compliance tests ..... 20
C.1	Abstract test suite (informative) ..... 20
C.1.1	Syntax and compressed data order ..... 20
C.1.2	Arithmetic entropy encoding ..... 20
C.1.3	Coefficient bit modelling ..... 21

C.1.4	Quantization .....	21
C.1.5	Discrete wavelet transform .....	21
C.1.6	DC level shift and multiple component transform .....	21
C.1.7	Region of interest .....	21
C.1.8	JP2 file format .....	22
C.1.9	High throughput cleanup pass coding .....	22
C.1.10	HT refinement pass coding .....	22
C.1.11	Placeholder passes.....	22
C.1.12	Mixing of HT and J2K code-blocks within HTJ2K codestreams .....	22
C.1.13	JPH File format .....	22
C.2	Executable test suite.....	23
C.2.1	Class 0 Profile-0.....	23
C.2.2	Class 0 Profile-1.....	27
C.2.3	Class 1 Profile-0.....	28
C.2.4	Class 1 Profile-1.....	29
Annex D	Encoder compliance test procedure.....	31
D.1	General .....	31
D.2	Reference decoder .....	31
D.3	Compliance requirement and acceptance .....	31
D.4	Encoding compliance test procedure.....	31
Annex E	Decoder implementation compliance statement .....	33
E.1	General .....	33
E.2	Decoder implementation compliance statement.....	33
E.3	Extended support.....	33
Annex F	Encoder implementation compliance statement.....	36
F.1	General .....	36
F.2	Encoder description.....	36
Annex G	JP2 and JPH file format reader compliance testing procedures.....	38
G.1	General .....	38
G.2	JP2 file compliance requirement and acceptance .....	38
G.3	Reading a JP2 file compliance test procedure .....	38
G.4	JP2 file format test codestreams and images.....	39
G.4.1	Test files.....	39
G.4.2	Reference decoded images .....	39
G.4.3	Tolerances .....	39
G.4.4	Additional information regarding the JP2 test files.....	40
G.5	JPH file format test codestreams and images.....	41
G.5.1	Test files.....	41
G.5.2	Relationship between the JP2 and JPH test files .....	41