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