

ISO/IEC 15444-13:2008-07 (E)

Information technology_ - JPEG_2000 image coding system: An entry level JPEG_2000 encoder

CONTENTS

	<i>Page</i>
1 Scope	1
1.1 Context	1
1.2 Requirements	1
2 References	1
2.1 Identical Recommendations International Standards	1
3 Definitions	2
4 Abbreviations and symbols.....	5
4.1 Abbreviations.....	5
4.2 Symbols	5
5 General description	6
5.1 Codestream.....	6
5.2 Coding principles.....	6
6 Encoder requirements.....	8
6.1 General	8
6.2 Encoder function definition.....	8
6.3 Implementation.....	12
6.4 Codestream description	13
7 Optional file format requirements	13
Annex A – Codestream syntax.....	14
Annex B – Image and compressed image data ordering	15
Annex C – Arithmetic entropy coding	16
C.1 Binary encoding.....	16
C.2 Description of the arithmetic encoder.....	17
Annex D – Coefficient bit modelling	25
D.1 Code-block scan pattern within code-blocks	25
D.2 Coefficient bits and significance	25
D.3 Encoding passes over the bit-planes	26
D.4 Initializing and terminating	29
D.5 Error resilience segmentation symbol.....	31
D.6 Selective arithmetic coding bypass	31
D.7 Vertically causal context formation.....	32
D.8 Flow diagram of the code-block coding	32
Annex E – Quantization	35
E.1 Inverse quantization procedure (Informative).....	35
E.2 Scalar coefficient quantization	36
Annex F – Discrete wavelet transformation of tile-components	37
F.1 Tile-component parameters	37
F.2 Discrete wavelet transformations.....	37
F.3 Forward transformation	37
F.4 Sub-sampling of components.....	45
F.5 Visual frequency weighting.....	45

Annex G – DC level shifting and multiple component transformations	48
G.1 DC level shifting of tile-components	48
G.2 Forward reversible multiple component transformation (RCT).....	48
G.3 Forward irreversible multiple component transformation (ICT).....	49
G.4 Chrominance component sub-sampling and the reference grid	49
Annex H – Coding of images with regions of interest.....	50
H.1 Description of the Maxshift method	50
H.2 Remarks on region of interest coding	51
Annex I – JP2 file format syntax	53