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Information technology — JPEG 2000 image coding system —

Part 1: Core coding system

AMENDMENT 1: Codestream restrictions

*Technologies de l'information — Système de codage d'image
JPEG 2000 —*

Partie 1: Système de codage de noyau

AMENDEMENT 1: Restrictions de flux de codes



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Foreword

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The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this Amendment may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to International Standard ISO/IEC 15444-1:2000 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*, in collaboration with ITU-T, but is not published as common text at this time.

This corrected version of ISO/IEC 15444-1:2000/Amd.1:2002 incorporates corrections to Amended Table A-45.

INFORMATION TECHNOLOGY – JPEG 2000 IMAGE CODING SYSTEM – PART 1: CORE CODING SYSTEM

AMENDMENT 1

CODESTREAM RESTRICTIONS

1) Replace Table A-10 with the following table:

PIMA 7667:2001, *Photography – Electronic still picture imaging – Extended sRGB color encoding – e-sRGB*

Amended Table A-10 — Capability Rsiz parameter

Value (bits) MSB	LSB	Capability
0000 0000 0000 0000		Capabilities specified in this Recommendation International Standard only
0000 0000 0000 0001		Codestream restricted as described for Profile 0 from Annex A.10 Table A-45
0000 0000 0000 0010		Codestream restricted as described for Profile 1 from Annex A.10 Table A-45
		All other values reserved

2) Add new Annex A.10 as follows:

Annex A.10 Codestream restrictions conforming to ISO/IEC 15444-1

In order to promote the wide interoperability of JPEG-2000 codestream, codestream restrictions are introduced. “Codestream Restrictions” have two profiles, profile-0 and profile-1. The case of “No Restrictions” meaning conforming to JPEG-2000 Part-1 standard can be called profile-2. Profile-0 and Profile-1 are defined as follows. Maximum interchange will be achieved for codestreams corresponding to Profile-0, and medium interchange for codestreams corresponding to Profile-1.

Amended Table A-45 --- Codestream Restrictions

Restrictions	Profile-0	Profile-1
SIZ Marker		
Profile Indication	$R_{siz} = 1$	$R_{siz} = 2$
Image Size	$X_{siz}, Y_{siz} < 2^{31}$	$X_{siz}, Y_{siz} < 2^{31}$
Tiles	Tiles of a dimension 128x128: $Y_{tsiz} = X_{tsiz} = 128$ or one tile for the whole image: $Y_{tsiz} + Y_{tosiz} \geq Y_{siz}$ $X_{tsiz} + X_{tosiz} \geq X_{siz}$	$X_{tsiz}/\min(X_{rsiz}^i, Y_{rsiz}^j) \leq 1024$ $X_{tsiz} = Y_{tsiz}$ or one tile for the whole image: $Y_{tsiz} + Y_{tosiz} \geq Y_{siz}$ $X_{tsiz} + X_{tosiz} \geq X_{siz}$
Image & tile origin	$XO_{siz} = YO_{siz} = XTO_{siz} = YTO_{siz} = 0$	$XO_{siz}, YO_{siz}, XTO_{siz}, YTO_{siz} < 2^{31}$
RGN marker segment	$SPrgn \leq 37$	$SPrgn \leq 37$
Sub-sampling	$XR_{siz}^i = 1, 2, \text{ or } 4$ $YR_{siz}^j = 1, 2, \text{ or } 4$	No restriction
Code blocks		
Code-block size	$xcb = ycb = 5$ or $xcb = ycb = 6$	$xcb \leq 6, ycb \leq 6$
Code-block style	$SPcod, SPcoc = 00sp\ 0t00$ (where t, p, s can be 0 or 1) Note: t=1 for termination on each coding pass p=1 for predictive termination s=1 for segmentation symbols	No restriction
Marker Locations		
Packed headers(PPM,PPT)	Disallowed	No restriction
COD/COC/QCD/QCC	Main header only	No restriction
Subset Requirements		
LL resolution	If one tile is used for whole image, $(X_{siz} - XO_{siz})/D(I) \leq 128$ and $(Y_{siz} - YO_{siz})/D(I) \leq 128$ where $D(I) = 2^{\text{"number of decomposition levels"}}$ in $SPcod$ or $SPcoc$, for $I = \text{component } 0 \text{ to } 3$	For each tile in the image, there should be sufficient DWT levels for that tile to be reconstructed at a size no larger than 128x128. That is, $\text{floor}(tx1/D(i)) - \text{floor}(tx0/D(i)) \leq 128$ and $\text{floor}(ty1/D(i)) - \text{floor}(ty0/D(i)) \leq 128$ where $D(i) = 2^{\text{num decomp levels}}$ in $SPcod$ and $SPcoc$ for $I = \text{component } 0 \text{ to } 3$, and $tx0, tx1, ty0$ and $ty1$ are as defined by equations B.7 through B.10 in 15444-1.
Parsability	If the POC marker is present, the POC marker shall have $RS_{POC}^0 = 0$ and $CS_{POC}^0 = 0$. (Note some compliant decoders might decode only packets associated with the first progression)	No restriction
Tile-parts	Tile-parts with $TP_{sot} = 0$ of every tile before any tile-parts with $TP_{sot} > 0$, Tile-parts $Isot = 0$ to $Isot = \text{"number of tiles"} - 1$, in sequential order for all tile-parts with $TP_{sot} = 0$	No restriction
Precinct size	"Precinct size" defined by $SPcod$ or $SPcoc$ (Table A-15 and Table A-21) must be large enough so there is only one precinct in all resolution levels with dimension less than or equal to 128 by 128. NOTE – Precinct size $PP_x \geq 7$ and $PP_y \geq 7$ is sufficient to guarantee only one precinct per subband when $XO_{siz} = 0$ and $YO_{siz} = 0$.	No restriction