INTERNATIONAL STANDARD

ISO/IEC 15444-1

First edition
2000-12-15

AMENDMENT 1
2002-03-01

Corrected version
2002-08-01

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

Reference number
ISO/IEC 15444-1:2000/Amd.1:2002(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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	Rsiz = 1	Rsiz = 2
Image Size	Xsiz, Ysiz < 2^{31}	Xsiz, Ysiz < 2^{31}
Tiles	Tiles of a dimension 128x128: YTsiz=XTsiz=128 or one tile for the whole image: YTsiz+YTOsiz>=Ysiz XTsiz+XTOsiz>=Xsiz	XTsiz/min($XRsiz^i$, $YRsiz^i$) ≤ 1024 XTsiz=YTsiz or one tile for the whole image: YTsiz+YTOsiz>=Ysiz XTsiz+XTOsiz>=Xsiz
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 ≤ 37	SPrgn ≤ 37
Sub-sampling	XR_{SIZ}^i = 1, 2, or 4 YR_{SIZ}^i = 1, 2, or 4	No restriction
Code blocks		
Code-block size	xcb=ycb=5 or xcb=ycb=6	xcb ≤ 6, ycb ≤ 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, (Xsiz – XOsiz)/D(I) ≤ 128 and (Ysiz – YOsiz)/D(I) ≤ 128 where D(I)= 2^"number of decomposition levels" in SPcod or SPcoc, for I = component 0 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 128×128. That is, floor(tx1/D(i))-floor(tx0/D(i)) <=128 and floor(ty1/D(i))-floor(ty0/D(i)) <=128 where D(i) = 2^num decomp levels in SPcod and Spcoc for I = component 0 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 TPsot=0 of every tile before any tile-parts with TPsot>0, Tile-parts Isot=0 to Isot="number of tiles" –1, in sequential order for all tile-parts with TPsot=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 PPx ≥ 7 and PPy ≥ 7 is sufficient to guarantee only one precinct per subband when XOsiz = 0 and YOsiz = 0.	No restriction