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Amendment 3
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SERIES T: TERMINALS FOR TELEMATIC SERVICES
Still-image compression – JPEG-1, Bi-level and JBIG

Information technology – Lossy/lossless coding of
bi-level images: Extension to colour coding
Amendment 3

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Information technology – Lossy/lossless coding of bi-level images: Extension to colour coding

[illegible]

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INFORMATION TECHNOLOGY -- LOSSY/LOSSLESS CODING OF BI-LEVEL IMAGES

AMENDMENT 3 EXTENSION TO COLOUR CODING

Summary

This Amendment is the first amendment to introduce colour extension into JBIG2. There are many ideas and possibilities to incorporate colour information on JBIG2. In this amendment, as the first step of introducing coloured information, the following principles are adopted.

In order to show the Text Region Segment with colour support, a flag to show colour supported Text Region Segment and a flag to show its colour space (ex. sRGB) are defined. Colour information is attached to the end of Text Region Segment as colour section, and T.45 representation is used to code colour change information to keep the decodability by the current decoder. A total of 32 colours are defined by default in this Amendment. Additional colour dictionary can be defined using T.45-like expression in Colour Palette Segment. In Generic Region Segment, if background colour is needed to define, another intermediate region segment which has the colour as foreground should be placed under the segment. The order of the priority in layout is newly defined.

1 Normative References

Append a new reference as follows (with the additions underlined):

- ISO/IEC 10646-1:2000, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane.*
- ITU-T Recommendation T.45 (02/2000), *Run-length colour encoding.*

2 Subclause 4.2 (Symbol definitions)

Insert new symbols *COLEXTFLAG*, ***CPCOMPLEN***, *CPDEFCOLS*, *CPEXCOLS*, ***CPNCOMP***, ***CPNVALS***, *GBCOLS*, ***GBCOMBOP***, *GBFGCOLID*, ***SBCOLS***, *SBCOLSECTIONSIZ*E and *SBFGCOLID* as follows (with the additions underlined):

(Symbols left untouched)

Clow	Low-order 16 bits of C
<u>COLEXTFLAG</u>	<u>A parameter indicating whether the generic region segment is extended to represent coloured bitmap</u>
CONTEXT	The values of the pixels in a template used in the generic or generic refinement decoding procedure
<u>CPCOMPLEN</u>	<u>The length (in bytes) of each component's value. CPDEFCOLS The default colour set</u>
<u>CPEXCOLS</u>	<u>The colours defined in the colour palette segment</u>
<u>CPNCOMP</u>	<u>The number of colour components.</u>
<u>CPNVALS</u>	<u>The number of colour values coded in this segment.</u>

(Symbols left untouched)

GB	The prefix used for many of the variables associated with a generic (bitmap) region decoding procedure
<u>GBCOLS</u>	<u>An array containing the colours used in a generic region segment</u>
<u>GBCOMBOP</u>	<u>The combination operator used in a generic region decoding procedure</u>
<u>GBFGCOLID</u>	<u>The three 1-byte integers indicating the foreground colour of the generic region segment</u>

(Symbols left untouched)

SB	The prefix used for many of the variables associated with a symbol (bitmap) region decoding procedure
<u>SBCOLS</u>	<u>An array of colours used in a text region segment</u>
<u>SBCOLSECTSIZE</u>	<u>The colour section length</u>

(Symbols left untouched)

<u>SBDEFPIXEL</u>	<u>The default for pixels in a text region</u>
<u>SBFGCOLID</u>	<u>The three 1-byte integers indicating the foreground colour of the text region segment.</u>

(Symbols left untouched)

3 Subclause 6.2.2 (Input parameters)

Add new rows of **GBCOLS**, **GBCOMBOP** and **COLEXTFLAG** after **GBATY4**, and add new notes d) and e), in Table 2 as follows (with the additions underlined):

Table 2 – Parameters for the generic region decoding procedure

Name	Type	Size (bits)	Signed?	Description and restrictions
(Rows left untouched)				
GBATY₄	Integer	1	N	The Y location of the adaptive template pixel A ₄ . ^{b)}
<u>GBCOLS</u>	<u>Array of colours</u> <u>(colour palette)</u>			<u>An array containing the colours used in this generic region.</u> ^{d)}
<u>GBCOMBOP</u>	<u>Operator</u>			<u>The combination operator for this text region. Shall take on the value REPLACE.</u> ^{e)}
<u>COLEXTFLAG</u>	<u>Integer</u>	<u>1</u>	<u>N</u>	<u>A parameter indicating whether the generic region segment is extended to represent coloured bitmap.</u>
(Notes left untouched)				
^{d)} Unused if COLEXTFLAG = 0.				
^{e)} Unused if COLEXTFLAG = 0.				

4 Subclause 6.2.4 (Variables used in decoding)

Add a new row of **GBFGCOL** after **CONTEXT**, and add a new note b), in Table 4 as follows (with the additions underlined):

Table 4 – Variables used in the generic region decoding procedure

Name	Type	Size (bits)	Signed?	Description and restrictions
(Rows left untouched)				
CONTEXT	Integer	16	N	The values of the pixels in the template. ^{a)}
<u>GBFGCOLID</u>	<u>Integer</u>	<u>32</u>	<u>N</u>	<u>The 4-byte integer indicating the colour palette ID of foreground colour for the generic region segment.</u> ^{b)}