



# COVERING NOTE

GENERAL SECRETARIAT INTERNATIONAL TELECOMMUNICATION UNION

Geneva, 9 June 2005

ITU – TELECOMMUNICATION  
STANDARDIZATION SECTOR

**Subject: Erratum 1 (06/2005) to**  
ITU-T Recommendation T.44 (01/2005), *Mixed Raster Content (MRC)*

*Modify the note in Table 1/T.44 – "Mask (even-numbered layer) coder octet(s)" as follows:*

NOTE – New bi-level coders (i.e., a ~~5th~~, 6th and 7th coder) would be assigned bit numbers ~~4~~, 5 and 6 respectively. Bit 7, the extend bit, would be set when adding another octet to accommodate additional coders, such as an 8th which would be assigned to bit number 8.

*Modify "Table 2/T.44 – Image (odd-numbered layer) coder octet(s)" as follows:*

Octet bit number	Coder used
LSB 0	T.81 (JPEG) coding and ITU-T Rec. T.42/LAB
1	T.82 (JBIG <del>1</del> ) coding applying ITU-T Recs T.43 and T.42/LAB
2	T.45 "Run-length Colour Encoding" and ITU-T Rec. T.42/LAB, Annex B/T.44 is required (Note 1)
3	T.81 (JPEG) coding and ITU-T Rec. T.42/YCC
4	T.82 (JBIG1) coding applying ITU-T Recs T.43 and T.42/YCC
5	T.45 "Run-length Colour Encoding" and ITU-T Rec. T.42/YCC, Annex B/T.44 is required (Note 1)
6	Reserved
MSB 7	Extend, add another octet that follows immediately

NOTE 1 – Coding scheme(s) referencing this Note shall use the SLC (Start of Layer Coded data) marker segment, defined in the Layer Data Structure clause of Annex A/T.44. This means that Mode 1 shall not be used with the referencing coding scheme.

NOTE 2 – New multi-level coders (i.e., ~~4th through~~ 7th coder) would be assigned bit numbers ~~2 through~~ 6 respectively. Bit 7, the extend bit, would be set when adding another octet to accommodate additional coders, such as an 8th which would be assigned to bit number 8.

NOTE 3 – In Mode 1, the image code shall use either LAB (bits 0, 1 and 2) or YCC (bits 3, 4 and 5), but not both. Therefore, if any of bits 0, 1 or 2 is set, bits 3, 4 and 5 shall not be set. Conversely, if any of bits 3, 4 or 5 is set, bits 0, 1 and 2 shall not be set.

*In Clause A.9.1 "Overview", change paragraphs order as follows:*

### **A.9.1 Overview**

The MRC image data consist of a series of: markers; parameters; data that specify the image coder, image size, bit resolution and spatial resolution; coded image data. The conventions of Annex B/T.81 are used broadly here. The JPEG registration body, per ITU-T Rec. T.86, has been used to register the marker code, APP13, classified as an application marker.

~~Markers and/or marker segments used in association with the coding methods (i.e., encoder marker and/or marker segments) may be defined outside of this Recommendation (i.e., foreign encoder markers and/or marker segments). Foreign encoder markers and/or marker segments may be located within or outside of the data stream. A foreign encoder marker located outside the data stream shall be of the APPn form (i.e., an X'FF' octet followed by an octet not equal to X'00' or X'FF' and optionally preceded by extra X'FF' octet codes). Structure of a foreign encoder marker segment located outside the data stream shall be as follows:~~

~~APPn, Length of segment, identifier, parameter and/or data.~~

The MRC page structure for this application has the following elements: Parameters, markers, and entropy-coded data segments. Parameters and markers are often organized into marker segments. Parameters are integers of length ½, 1, 2 or more octets. Markers are assigned two or more octet codes, an X'FF' octet followed by an octet not equal to X'00' or X'FF' and optionally preceded by extra X'FF' octet codes. This application defines marker segments to denote the start of page (SOP), optional marker segments, the start of a stripe (SOST), the start of layer coded data (SLC), encoder marker segments and end of header (EOH). The MRC Magic Number (JPEG SOI) is used immediately preceding the application marker as part of the SOP marker segment. The JPEG EOI is used as a termination number located directly after the last SOP parameter. The end of a page (EOP) is defined as X'FFD9FFD9'. These markers are inserted by the encoder, and understood by the decoder in addition to all markers used for the coding methods such as the SOI of ITU-T Rec. T.81.

Markers and/or marker segments used in association with the coding methods (i.e., encoder marker and/or marker segments) may be defined outside of this Recommendation (i.e., foreign encoder markers and/or marker segments). Foreign encoder markers and/or marker segments may be located within or outside of the data stream. A foreign encoder marker located outside the data stream shall be of the APPn form (i.e., an X'FF' octet followed by an octet not equal to X'00' or X'FF' and optionally preceded by extra X'FF' octet codes). Structure of a foreign encoder marker segment located outside the data stream shall be as follows:

APPn, Length of segment, identifier, parameter and/or data.