INTERNATIONAL STANDARD ISO/IEC 23001-8:2013
TECHNICAL CORRIGENDUM 1

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — MPEG systems technologies —

Part 8:
Coding-independent code points

TECHNICAL CORRIGENDUM 1

Technologies de l'information — Technologies des systèmes MPEG —

Partie 8: Points de code indépendants du codage

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO/IEC 23001-8:2013 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information.*

Replace 7.2 (Transfer characteristics) with the following:
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7.2 Transfer characteristics

Type: Unsigned integer, enumeration
Range: 0 – 255
TransferCharacteristics indicates the opto-electronic transfer characteristic of the source picture as specified in Table 3 as a function of a linear optical intensity input L_c with a nominal real-valued range of 0 to 1. For interpretation of entries in Table 3 that are expressed in terms of multiple curve segments parameterized by the variable α over a region bounded by the variable β or by the variables β and γ, the values of α and β are defined to be the positive constants necessary for the curve segments that meet at the value β to have continuity of value and continuity of slope at the the value β, and the value of γ, when applicable, is defined to be the positive constant necessary for the associated curve segments to meet at the

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value γ. For example, for transfer_characteristics equal to 1, 6, 14, or 15, α has the value 1 + 5.5 * β = 1.099 296 826 809 442... and β has the value 0.018 053 968 510 807....
An 8-bit field should be adequate for representation of the **TransferCharacteristics** code point.

Table 3 — Interpretation of Transfer characteristics (TransferCharacteristics) value

Value	Transfer Characteristics		Informative Remarks
0	Reserved		For future use by ISO/IEC
1	$V = \alpha * L_c^{0.45} - (\alpha - 1)$ $V = 4.500 * L_c$	for $1 >= L_c >= \beta$ for $\beta > L_c >= 0$	Rec. ITU-R BT.709-5 Rec. ITU-R BT.1361 conventional colour gamut system (functionally the same as values 6, 14, and 15; the value 1 is preferred)
2	Unspecified		Image characteristics are unknown or are determined by the application.
3	Reserved		For future use by ISO/IEC
4	Assumed display gamma 2.2		Rec. ITU-R BT.470-6 System M (historical) United States National Television System Committee 1953 Recommendation for transmission standards for colour television United States Federal Communications Commission Title 47 Code of Federal Regulations (2003) 73.682 (a) (20) Rec. ITU-R BT.1700 (2007 revision) 625 PAL and 625 SECAM
5	Assumed display gamma 2.8		Rec. ITU-R BT.470-6 System B, G (historical)
6	$V = \alpha * L_c^{0.45} - (\alpha - 1)$ $V = 4.500 * L_c$	for $1 >= L_c >= \beta$ for $\beta > L_c >= 0$	Rec. ITU-R BT.601-6 525 or 625 Rec. ITU-R BT.1358 525 or 625 Rec. ITU-R BT.1700 NTSC Society of Motion Picture and Television Engineers 170M (2004) (functionally the same as values 1, 14, and 15; the value 1 is preferred)
7	$V = \alpha * L_c^{0.45} - (\alpha - 1)$ $V = 4.0 * L_c$	for $1 >= L_c >= \beta$ for $\beta > L_c >= 0$	Society of Motion Picture and Television Engineers 240M (1999)
8	$V = L_c$	for $1 > L_c >= 0$	Linear transfer characteristics

Value	Transfer Characteristics		Informative Remarks
9	V = 1.0 + Log10(L_c) ÷ 2 V = 0.0	for 1 >= L_c >= 0.01 for 0.01 > L_c >= 0	Logarithmic transfer characteristic (100:1 range)
10	V = 1.0 + Log10(L_c) ÷ 2.5 V = 0.0	for 1 >= L_c >= Sqrt(10) ÷ 1000 for Sqrt(10) ÷ 1000 > L_c >= 0	Logarithmic transfer characteristic (100 * Sqrt(10) : 1 range)
11	V = α * $L_c^{0.45}$ – (α – 1) V = 4.500 * L_c V = –α * (–L_c)$^{0.45}$ + (α – 1)	for L_c >= β for β > L_c > –β for –β >= L_c	IEC 61966-2-4
12	V = α * $L_c^{0.45}$ – (α – 1) V = 4.500 * L_c V = –(α * (–4 * L_c)$^{0.45}$ – (α – 1)) ÷ 4	for 1.33 > L_c >= β for β > L_c >= –γ for –γ >= L_c >= –0.25	Rec. ITU-R BT.1361 extended colour gamut system
13	V = α * $L_c^{(1÷2.4)}$ – (α – 1) V = 12.92 * L_c	for 1 > L_c >= β for β > L_c >= 0	IEC 61966-2-1 (sRGB or sYCC)
14	V = α * $L_c^{0.45}$ – (α – 1) V = 4.500 * L_c	for 1 >= L_c >= β for β > L_c >= 0	Rec. ITU-R BT.2020 (10-bit system) (functionally the same as values 1, 6, and 15; the value 1 is preferred)
15	V = α * $L_c^{0.45}$ – (α – 1) V = 4.500 * L_c	for 1 >= L_c >= β for β > L_c >= 0	Rec. ITU-R BT.2020 (12-bit system) (functionally the same as values 1, 6, and 14; the value 1 is preferred)
15..255	Reserved		For future use by ISO/IEC

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In 7.3 (Matrix coefficients) replace the specification of case 10 with the following:

“

– Otherwise (MatrixCoefficients is equal to 10), the signal E'_Y is determined by application of the transfer characteristics function as follows, and Equations 30 to 37 apply for specification of the signals E'_{PB} and E'_{PR}:

$$E_Y = K_R * E_R + (1 - K_R - K_B) * E_G + K_B * E_B \quad (28)$$

$$E'_Y = (E_Y)' \quad (29)$$

NOTE 2 – In this case, E_Y is defined from the "linear-domain" signals for E_R, E_G, and E_B, prior to application of the transfer characteristics function, which is then applied to produce the signal E'_Y. E_Y and E'_Y are real values with the value 0 associated with nominal black and the value 1 associated with nominal white.

$$E'_{PB} = (E'_B - E'_Y) ÷ (2 * N_B) \quad \text{for } -N_B <= E'_B - E'_Y <= 0 \quad (30)$$

$$E'_{PB} = (E'_B - E'_Y) ÷ (2 * P_B) \quad \text{for } 0 < E'_B - E'_Y <= P_B \quad (31)$$

$$E'_{PR} = (E'_R - E'_Y) ÷ (2 * N_R) \quad \text{for } -N_R <= E'_R - E'_Y <= 0 \quad (32)$$