iscrizione TUB: 20160501-AI79/AI79L0N1.TXT /.PS
la domanda per la misura di stampa di display

TUB materiale: code=rha4ta

CIELAB 1976 L*a*b*–color space definition and reversal

$L^* = 116 (Y/Y_n)^{1/3} - 16$

$a^* = 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}]$

$b^* = 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}]$

$X = X_n (L^* + 16) / 116 + a^*/500]^3$

$Y = Y_n [(L^* + 16) / 116]^3$

$Z = Z_n [(L^* + 16) / 116 - b^*/200]^3$

AI790–1N

Q-function changes; transition from light- to color metrics

scaling function of **light metrics:**

$Q [k(x - u] = Q[k(\log L - \log L_u)]$

$\log L -> \log P$ **for color metrics:**

$Q[k(\log P - \log L_u)]$
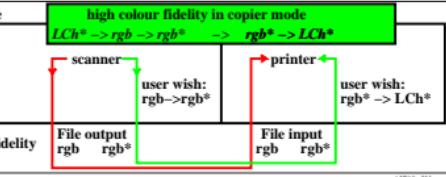
$= Q[k(\log L - \log L_u + \log P - \log L)]$

with saturation $p = \log P - \log L$

**for color metrics:** $Q[k(x - u + p)]$
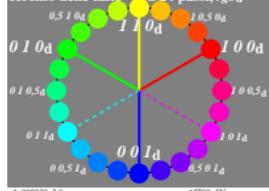
AI790–2N

Multifunctional device
with the following modes:
– copier
– scanner
– printer

high colour fidelity in copier mode

$LCh^* -> rgb -> rgb^*$ -> $rgb^* -> LCh^*$

scanner → → printer

user wish: rgb->rgb*   user wish: rgb* -> LCh*

— lower colour fidelity

File output rgb rgb*   File input rgb rgb*
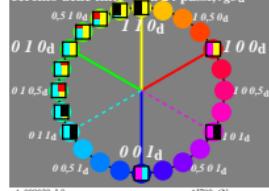
AI790–3N

cerchio delle tinte   a 24 passi, rgb_d

4–000030–L0   AI790–5N

cerchio delle tinte   a 24 passi, rgb_d

4–000030–L0   AI790–6N
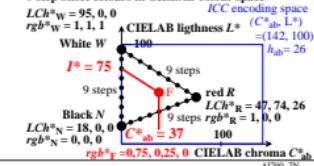
Offset rgb* input data and LCh* output data

Color	rgb*	LCh*
R_e elementary red	1 0 0	47, 74, 26
Y_e elementary yellow	1 1 0	86, 88, 92
G_e elementary green	0 1 0	55, 57, 164
B_e elementary blue	0 0 1	42, 45, 271
N black	0 0 0	18, 0, 0
W white	1 1 1	95, 0, 0

(data according to test chart DIN 33872-2, p. 9-12)
(CIELAB hue angles according to CIE R1–47)

9 step offset colours in CIELAB colour space

ICC encoding space (C^*_{ab}, L^*)
$LCh^*_W = 95, 0, 0$
$rgb^*_W = 1, 1, 1$

CIELAB lightness L^*
White W   100   =(142, 100) $h_{ab}=26$

$I^* = 75$ 9 steps

9 steps   red R
$LCh^*_R = 47, 74, 26$
$rgb^*_R = 1, 0, 0$

Black N   0   9 steps
$LCh^*_N = 18, 0, 0$
$rgb^*_N = 0, 0, 0$ $C^*_{ab} = 75$

$rgb^*_F = 0.75, 0.25, 0$ CIELAB chroma C^*_{ab}

AI791–7N

Output – Input – Output: A loop for relative colour fidelity

ISO reference file with 729 rgb data, device output linearization

rgb*

image process digital → analog **hardware** printer, offset, display, projector $rgb^* -> LCh^*$

image process digital → digital **software** ICC Look_Up table or similar $rgb -> rgb^*$

LCh^*

image process analog → digital **hardware** colour scanner, colour camera $LCh^* -> rgb$

visual test elementary hue (Y/N)? equal spacing (Y/N)? use colours in colum b to j

input linearization $rgb -> rgb^*$

AI791–7N

immettere: w/rgb/cmyk –> w/rgb/cmyk_
uscita: nessun cambiamento

Agreement (Y/N) of CIELAB h_{ab} with IEC 61966-2-1 and CIE R1–47

	reference: device colours			NOTES visual standard deviation v_{SD}
	$R_{d,sRGB}$	$Y_{d,sRGB}$	$G_{d,sRGB}$	$B_{d,sRGB}$	
definition for display output in IEC 61966–2–1	40 +/– 4 / 40 +/– 8	103 +/– 4 / 103 +/– 8	136 +/– 4 / 136 +/– 8	306 +/– 8 / 306 +/– 16	1 x v_{SD} / 2 x v_{SD} data see [1], Tab. B.2
measurement of printer output *rgb* in file	34 N(–2) / 34 Y	100 Y / 100 Y	146 N(+8) / 146 N(+2)	264 N(–34) / 264 N(–26)	1 x v_{SD}; 1 x Y / 2 x v_{SD}; 2 x Y data see [1], Fig. 32
measurement of printer output *cmy0* in file	34 N(–2) / 34 Y	100 Y / 100 Y	153 N(+15) / 153 N(+1)	300 Y / 300 Y	1 x v_{SD}; 2 x Y / 2 x v_{SD}; 3 x Y data see [1], Fig. 33

	reference: elementary colours			NOTES visual standard deviation v_{SD}
	R_e	Y_e	G_e	B_e	
definition for any output in CIE R1–47	26 +/– 4 / 26 +/– 8	92 +/– 4 / 92 +/– 8	162 +/– 4 / 162 +/– 8	272 +/– 8 / 272 +/– 16	1 x v_{SD} / 2 x v_{SD} data see CIE R1–47
measurement of printer output *rgb* in file	34 N(+4) / 34 Y	100 N(+4) / 100 Y	146 N(–12) / 146 N(–8)	264 N(–4) / 264 Y	1 x v_{SD}; 0 x Y / 2 x v_{SD}; 3 x Y data see [1], Fig. 32
measurement of printer output *cmy0* in file	34 N(+4) / 34 Y	100 N(+4) / 100 Y	153 N(–5) / 153 N(–1)	300 N(+20) / 300 N(+8)	1 x v_{SD}; 0 x Y / 2 x v_{SD}; 2 x Y data see [1], Fig. 33

4–000030–L0   AI791–3N