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:**
$\boldsymbol{Q\,[k(x-u]} = Q[k(\log L - \log L_u)]$

$\log L \rightarrow \log P$ **for color metrics:**
$Q[k(\log P - \log L_u)]$
$= Q[k(\log L - \log L_u + \log P - \log L)]$

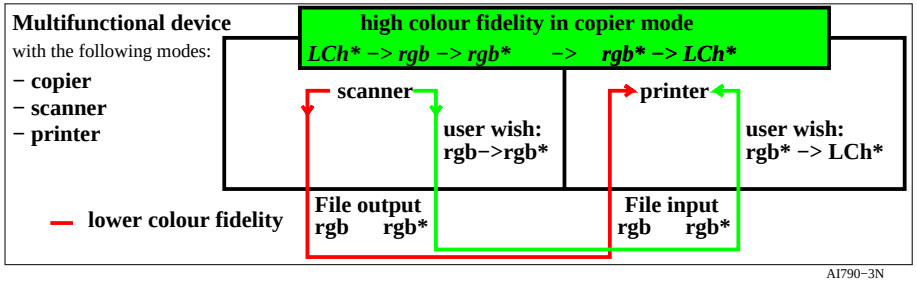
with saturation $p = \log P - \log L$
for color metrics: $\boldsymbol{Q\,[k(x - u + p)]}$

AI790−2N

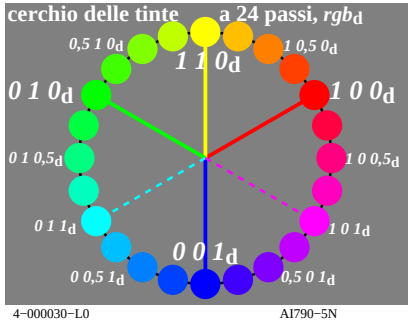
Agreement *(Y/N)* of CIELAB h_{ab} with IEC 61966-2-1 and CIE R1-47

	reference: device colours $R_{d,sRGB}$	$Y_{d,sRGB}$	$G_{d,sRGB}$	$B_{d,sRGB}$	NOTES visual standard deviation v_{SD}
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***(+9)	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 R_e	Y_e	G_e	B_e	**NOTES visual standard deviation v_{SD}**
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***(+12)	1 x v_{SD}; 0 x ***Y*** 2 x v_{SD}; 2 x ***Y*** data see [1], Fig. 33

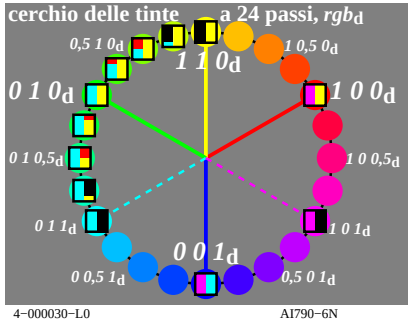
4−000030−L0 AI791−3N



AI790−3N



4−000030−L0 AI790−5N



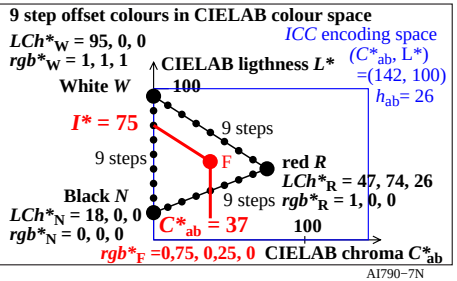
4−000030−L0 AI790−6N

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**	53, 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**

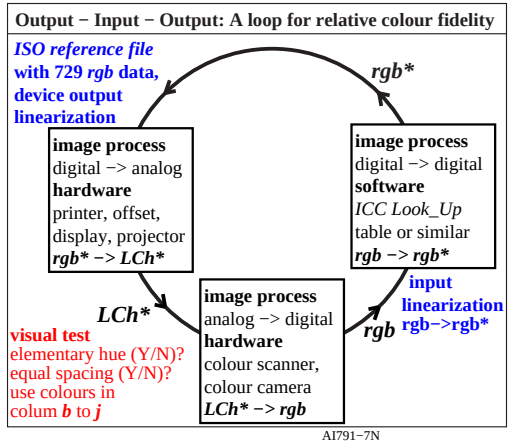
(data according to test chart DIN 33872-2, p. 9-12)
(CIELAB hue angles according to CIE R1−47)

9 step offset colours in CIELAB colour space



AI790−7N

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



AI791−7N

grafico TUB-AI79; Examples of colour metric
User coordinates and device calibration

immettere: *w/rgb/cmyk −> w/rgb/cmyk−*
uscita: nessun cambiamento