

Input	Output	Input and output media and applications		Standard
		Input media	Output media Application	
-	-	-	Basis	DIN 33866-1
analog	analog	DIN-test chart (hardcopy)	Hardcopy Copier	DIN 33866-2
analog	digital	DIN-test chart (hardcopy)	File Scanner	DIN 33866-4
digital	analog	DIN-test chart (File)	Hardcopy Printer	DIN 33866-3
			Softcopy Display	DIN 33866-5

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Input	Output	Input and output media and applications		Standard or TR
		Input media	Output media Application	Technical Report
-	-	-	Basis	ISO/IEC TR 24705
analog	analog	ISO/IEC-test chart (hardcopy)	Hardcopy Copier	ISO/IEC 15775
analog	digital	ISO/IEC-test chart (hardcopy)	File Scanner	ISO/IEC TR 24705
digital	analog	ISO/IEC-test chart (File)	Hardcopy Printer	ISO/IEC TR 24705
			Softcopy Display	ISO/IEC TR 24705

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Input	Output	Input and output media and applications		Technical Report (TR) or Standard	Method & Test: Linearization
		Input media	Output media Application		
-	-	-	Basis	ISO/IEC TR 24705	DIN 33866-1 DIN 33872-1
analog	analog	ISO/IEC-file series equally spaced in rgb + ISO/IEC-test chart (hardcopy) series equally spaced in LCH^*	Hardcopy Copier	ISO/IEC 15775	DIN 33866-2 JIS X 6933
analog	digital	ISO/IEC-test chart (hardcopy) series equally spaced in LCH^*	File Scanner	ISO/IEC TR 24705	DIN 33866-4
digital	analog	ISO/IEC-test chart (File) series equally spaced in rgb	Hardcopy Printer	ISO/IEC TR 24705	DIN 33866-3 DIN 33872-2,4
			Softcopy Display	ISO/IEC TR 24705 ISO 9241-306:2008	DIN 33866-5 DIN 33872-2,4

The ISO/IEC-input linearisation method produces an ISO/IEC-file from an ISO/IEC-original scene: Flower motif with 16 equidistant grey steps, and 14 CIE-test colours according to CIE 13.3

The ISO/IEC-output linearisation method produces from an ISO/IEC-file a linearized display, offset or printer output:

ISO/IEC-input linearisation method				ISO/IEC-output linearisation method			
Input	Output	Application	Technical Report (TR) or Standard	Input	Output media	Application	Technical Report (TR) or Standard
Original scene + CIE colours	ISO/IEC Image File	Reference Image File	ISO/IEC 15775 ISO/IEC TR 24705	ISO/IEC File	Hardcopy	Printer	ISO/IEC TR 19797
				ISO/IEC File	Softcopy	Display	ISO 9241-306:2008 8 viewing conditions
				ISO/IEC File	Hardcopy	Offset	CIE R8-09:2015 device space + device-independent visual RGB* space
				ISO/IEC File	Hardcopy	Printer	

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grafico TUB-SI20; colour image reproduction
ISO/IEC Standards & Technical Reports

What is Output Linearization? (For the elementary hues, see CIE R1-47:2009.)
The colour space of a double cone includes 6 colours. The six colours can be the device-dependent device colours (index d): (R, Y, G, B, N, W)_d or the device-independent elementary colours (index e): (R, Y, G, B, N, W)_e. Elementary red appears neither yellowish nor bluish. The hue angle is $h_{ab,e} = 26$.

For example for the sRGB colours according to IEC 61966-2-1 it is valid:
Device red R_d has the coordinates rgb^*_Rd and $LCH^*_Rd = (L^*, C^*_{ab}, h_{ab})_{Rd}$
Elementary red R_e has the coordinates rgb^*_Re and $LCH^*_Re = (L^*, C^*_{ab}, h_{ab})_{Re}$
Corresponding data are given in the following for R_d, R_e , and $W = W_d = W_e$

$$rgb^*_W = (1 \ 1 \ 1)_W$$

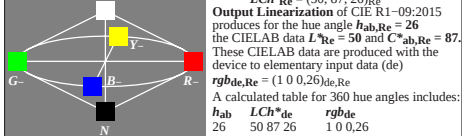
$$LCH^*_W = (L^*, C^*_{ab}, h_{ab})_W = (95, 0, -)_W$$

$$rgb^*_Rd = (1 \ 0 \ 0)_{Rd}$$

$$LCH^*_Rd = (50, 100, 40)_{Rd}$$

$$rgb^*_Re = (1 \ 0 \ 0)_{Re}$$

$$LCH^*_Re = (50, 87, 26)_{Re}$$



Three device (d) coordinates rgb^*_d describe 8 device colours RGB_d, CMY_d , and NW .

Hexagon-triangle system based on device (d) colours: rgb^*_d with linear relations between $rgb^*_d - LCH^*_d$ (compare approximately linear relations between $rgb_{d,RGB}$ and L^*)

Equations $rgb^*_d - LCH^*_d$ in both directions have been published, see: Richter, CIE-Proceedings, Beijing, 2008, Volume 3 and DIN 33872-1
Three equations (tables) are needed for office applications:

$rgb_d - LCH^*_d$ for a 9x9x9 grid of equally spaced rgb_d input data
 $rgb^*_d - LCH^*_d$ a 9x9x9 grid of equally spaced data rgb^*_d and LCH^*_d
 $rgb^*_d - LCH^*_d \sim LCH^*_d$ device linearization: $rgb_d \rightarrow rgb^*_d = rgb_{dd}$

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Three elementary (e) coordinates rgb^*_e describe 8 colours RGB_e, CMY_e , and NW .

Hexagon-triangle system based on elementary (e) colours: rgb^*_e with linear relations between $rgb^*_e - LCH^*_e$ (compare approximately linear relations between $rgb_{e,RGB}$ and L^*)

Equations $rgb^*_e - LCH^*_e$ in both directions have been published, see: Richter, CIE-Proceedings, Beijing, 2008, Volume 3 and DIN 33872-1
Three equations (tables) are needed for office applications:

$rgb_d - LCH^*_d$ for a 9x9x9 grid of equally spaced rgb_d -input data
 $rgb^*_e - LCH^*_e$ a 9x9x9 grid of equally spaced data rgb^*_e and LCH^*_e
 $rgb^*_e - LCH^*_e \sim LCH^*_e$ elementary linearization: $rgb_d \rightarrow rgb^*_e = rgb_{de}$

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immettere: w/rgb/cmyk -> w/rgb/cmyk_d
uscita: nessun cambiamento