

5 steps of grey series black – white ($N_d - W_d$)	Colour space, colour space coordinates and PostScript operator calculations according to ISO/IEC 15775:1999-12			
Linear mixture between black and white in CIELAB colour space	relative CIELAB $lab^*w_d^a \quad lab^*000n_d^a=000n_d^a \quad lab^*cm_y0_d^a=cm_y0_d^a \quad lab^*rgb_b_d^a=rgb_b_d^a$ $setgray \quad 000n_d^a \quad setcmycolor \quad cm_y0_d^a \quad setcmycolor \quad rgb_b_d^a \quad setrgbcolor$			
1.00 $N_d+0.00W_d$ (Black N_d)	0.00	0.00	0.00	1.00
0.75 $N_d+0.25W_d$	0.25	0.00	0.00	0.75
0.50 $N_d+0.50W_d$	0.50	0.00	0.00	0.50
0.25 $N_d+0.75W_d$	0.75	0.00	0.00	0.25
0.00 $N_d+1.00W_d$ (white W_d)	1.00	0.00	0.00	0.00

SE250-1

5 steps of grey series black – white ($N_d - W_d$)	Colour space, colour space coordinates and PostScript operator calculations according to ISO/IEC 15775:1999-12			
Linear mixture between black and white in CIELAB colour space	Standard CIELAB $LAB^*LAB^*_{a,d} = LAB^*_{a,d}$ $LAB^*_{a,d} \quad setcolor$	adapted CIELAB $LAB^*LAB^*_{a,d} = LAB^*_{a,d}$ $LAB^*_{a,d} \quad setcolor$	relative CIELAB $lab^*ncu^*_{a,d} = ncu^*_{a,d}$ $ncu^*_{a,d} \quad setcolor$	relative CIELAB $lab^*rgb^*_{a,d} = rgb^*_{a,d}$ $rgb^*_{a,d} \quad setrgbcolor$
1.00 $N_d+0.00W_d$ (Black N_d)	18.01	0.50	-0.40	1.00
0.75 $N_d+0.25W_d$	37.35	0.10	0.80	0.75
0.50 $N_d+0.50W_d$	56.70	-0.10	2.10	0.50
0.25 $N_d+0.75W_d$	76.05	-0.50	-3.40	0.25
0.00 $N_d+1.00W_d$ (white W_d)	95.41	-0.98	4.76	0.00

SE250-3

5 steps of colour series cyan blue – white ($C_d - W_d$)	Colour space, colour space coordinates and PostScript operator calculations according to ISO/IEC 15775:1999-12			
Linear mixture between cyan blue and white in CIELAB colour space	Standard CIELAB $LAB^*LAB^*_{a,d} = LAB^*_{a,d}$ $LAB^*_{a,d} \quad setcolor$	relative CIELAB $lab^*cm_y0_d^a = cm_y0_d^a$ $lab^*rgb^*_{a,d} = rgb^*_{a,d}$ $cm_y0_d^a \quad setcmycolor \quad rgb^*_{a,d} \quad setrgbcolor$	relative CIELAB $lab^*rgb^*_{a,d} = rgb^*_{a,d}$ $rgb^*_{a,d} \quad setrgbcolor$	relative CIELAB $lab^*ncu^*_{a,d} = ncu^*_{a,d}$ $ncu^*_{a,d} \quad setcolor$
1.00 $C_d+0.00W_d$ (cyan blue C_d)	58.62	-30.62	-42.74	1.00
0.75 $C_d+0.25W_d$	67.82	-23.21	-30.86	0.75
0.50 $C_d+0.50W_d$	77.02	-15.80	-18.98	0.50
0.25 $C_d+0.75W_d$	86.21	-8.39	-7.11	0.25
0.00 $C_d+1.00W_d$ (white W_d)	95.41	-0.98	4.76	0.00

SE250-5

5 steps of colour series cyan blue – white ($C_d - W_d$)	Colour space, colour space coordinates and PostScript operator calculations according to ISO/IEC 15775:1999-12			
Linear mixture between cyan blue and white in CIELAB colour space	adapted CIELAB $LAB^*LAB^*_{a,d} = LAB^*_{a,d}$ $LAB^*_{a,d} \quad setcolor$	relative CIELAB $lab^*ich^*_{a,d} = ich^*_{a,d}$ $ich^*_{a,d} \quad setcolor$	relative CIELAB $lab^*ncu^*_{a,d} = ncu^*_{a,d}$ $ncu^*_{a,d} \quad setcolor$	relative CIELAB $lab^*rgb^*_{a,d} = rgb^*_{a,d}$ $rgb^*_{a,d} \quad setrgbcolor$
1.00 $C_d+0.00W_d$ (cyan blue C_d)	58.62	-30.34	-45.01	0.500
0.75 $C_d+0.25W_d$	67.82	-22.75	-33.75	0.625
0.50 $C_d+0.50W_d$	77.02	-15.17	-22.50	0.750
0.25 $C_d+0.75W_d$	86.21	-7.58	-11.25	0.875
0.00 $C_d+1.00W_d$ (white W_d)	95.41	0.00	0.00	1.000

SE250-7

TUB-test chart SE25; colour space and coordinates
5 step colour scales and user friendly coordinates

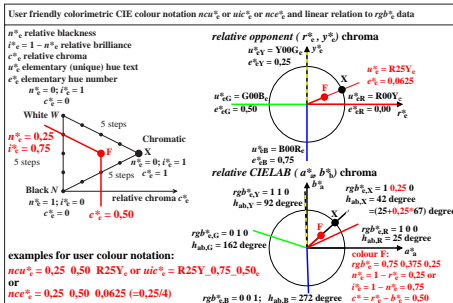
Application of colour in daily life or in Colour Information Technology (IT)	
Design, architecture, art, industrial products Measured for CIE standard illuminant D65	Colour Information Technology Measured for CIE illuminants D65 and D50
colour order system; name and coordinates: RAL Design System (CIELAB) $L^*C^*_{ab}$ h_{ab} , lightness, chroma, hue angle Munsell Colour System VCH, lightness (Value), Chroma, Hue text Natural Colour System (NCS) ncu^* : relative blackness, relative chroma relative elementary hue text	Device system name and coordinates: Printer system (illuminants D50 or D65): cm_y , content of "cyan, magenta, yellow" Display system (standard illuminant D65): $rgb^*_{a,d}/RGB^*_{a,d}$, content of "red, green, blue" <i>No user friendly colour coordinates</i> <i>Nearly no connection to colour order systems</i>

Aim: define user friendly connection

New: Interpretation of the rgb colour data in the range 0 to 1 as elementary colour data rgb^*_e

Linear relations between relative and absolute coordinates $lab^*_a - LAB^*_a$ and $lab^*_e - LAB^*_e$
 $rgb^*_a - (L^*a^*b^*C^*_{ab})_{ab,d}$ and $rgb^*_e - (L^*a^*b^*C^*_{ab})_{ab,e}$ (CIELAB)
 $rgb^*_a - cm_y$, $rgb^*_a - cm_y$ and $rgb^*_e - cm_y$, $rgb^*_e - cm_y$ ("1-minus"-relation)
 $rgb^*_a - ncu^*$, $rgb^*_a - ncu^*$ and $rgb^*_e - ncu^*$, $rgb^*_e - ncu^*$
relative coordinates lab^*_e : elementary redness r^*_e , greenness g^*_e , blueness b^*_e , blackness n^*_e
chroma c^*_a , elementary hue e^*_e , elementary hue text u^*_e

SE251-3



input: w/rgb/cmyk → w/rgb/cmyk
output: no change