5 steps of grey series black − white (N − W)	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* setgray*	*lab*000n* = 000n* 000n* setcmykcolor*				*lab*cmy0* = cmy0* cmy0* setcmykcolor*				*lab*olv* = olv* olv* setrgbcolor*		
1,00 N + 0,00 W (black N)	0,00	0,00	0,00	0,00	1,00	1,00	1,00	1,00	0,00	0,00	0,00	0,00
0,75 N + 0,25 W	0,25	0,00	0,00	0,00	0,75	0,75	0,75	0,75	0,00	0,25	0,25	0,25
0,50 N + 0,50 W	0,50	0,00	0,00	0,00	0,50	0,50	0,50	0,50	0,00	0,50	0,50	0,50
0,25 N + 0,75 W	0,75	0,00	0,00	0,00	0,25	0,25	0,25	0,25	0,00	0,75	0,75	0,75
0,00 N + 1,00 W (white W)	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00	1,00	1,00

Part 1 YE920−1

5 steps of colour series black − white (N − W)	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* = LAB* LAB* setcolor*			*adapted* CIELAB *LAB*LAB*$_a$ = LAB*$_a$ LAB*$_a$ setcolor*			*relative* CIELAB *lab*ncu* = ncu* ncu* setcolor*		
1,00 N + 0,00 W (black N)	18,01	0,50	-0,40	18,01	0,00	0,00	1,00	0,00	r00j
0,75 N + 0,25 W	37,35	0,10	0,80	37,35	0,00	0,00	0,75	0,00	r00j
0,50 N + 0,50 W	56,70	-0,10	2,10	56,70	0,00	0,00	0,50	0,00	r00j
0,25 N + 0,75 W	76,05	-0,50	-3,40	76,05	0,00	0,00	0,25	0,00	r00j
0,00 N + 1,00 W (white W)	95,41	-0,98	4,76	95,41	0,00	0,00	0,00	0,00	r00j

Part 2 YE920−3

5 steps of colour series cyan blue − white (C − W)	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* = LAB* LAB* setcolor*			*relative* CIELAB *lab*cmy0* = cmy0* cmy0* setcmykcolor*			*relative* CIELAB *lab*olv* = olv* olv* setrgbcolor*		
1,00 C + 0,00 W (cyan blue C)	58,62	-30,62	-42,74	1,00	0,00	0,00	0,00	1,00	1,00
0,75 C + 0,25 W	67,82	-23,21	-30,86	0,75	0,00	0,00	0,00	1,00	1,00
0,50 C + 0,50 W	77,02	-15,80	-18,98	0,50	0,00	0,00	0,00	1,00	1,00
0,25 C + 0,75 W	86,21	-8,39	-7,11	0,25	0,00	0,00	0,00	1,00	1,00
0,00 C + 1,00 W (white W)	95,41	-0,98	4,76	0,00	0,00	0,00	0,00	1,00	1,00

Part 1 YE920−5

5 steps of colour series cyan blue − white (C − W)	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*$_a$ = LAB*$_a$ LAB*$_a$ setcolor*			*relative* CIELAB *lab*tch* = tch* tch* setcolor*			*relative* CIELAB *lab*ncu* = ncu* ncu* setcolor*		
1,00 C + 0,00 W (cyan blue C)	58,62	-30,34	-45,01	0,500	1,000	0,656	0,000	1,000	g21b
0,75 C + 0,25 W	67,82	-22,75	-33,75	0,625	0,750	0,656	0,000	0,750	g21b
0,50 C + 0,50 W	77,02	-15,17	-22,50	0,750	0,500	0,656	0,000	0,500	g21b
0,25 C + 0,75 W	86,21	-7,58	-11,25	0,875	0,250	0,656	0,000	0,250	g21b
0,00 C + 1,00 W (white W)	95,41	0,00	0,00	1,000	0,000	0,000	0,000	0,000	r00j

Part 2 YE920−7

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):** ***cmy***, content of "cyan", "magenta", "yellow" **Display system (standard illuminant D65):** ***rgb/sRGB***, content of "red", "green", "blue" ***No user friendly colour coordinates*** ***Nearly no connection to colour order systems***

Aim: define user friendly connection

New: Interpretation of the *rgb* colour data in the range 0 to 1 as elementary colour data *rgb$_3$**

Linear relations between ***relative*** and ***absolute*** coordinates ***lab* − LAB****

rgb$_3$ **− *L*a*b*C***$_{ab}$***h***$_{ab}$ (CIELAB)

rgb − cmy, rgb$_3$ **− *cmy***$_3$ ("1-minus"-relation)

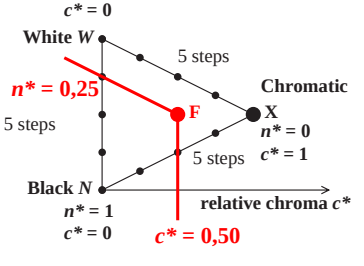
rgb$_3$ **− *nce*, rgb***$_3$ **− *ncu****

relative coordinates ***lab****: elementary redness ***r****$_3$, greenness ***g****$_3$, blueness ***b****$_3$, blackness ***n**** chroma ***c****, elementary hue ***e****, elementary hue text ***u****

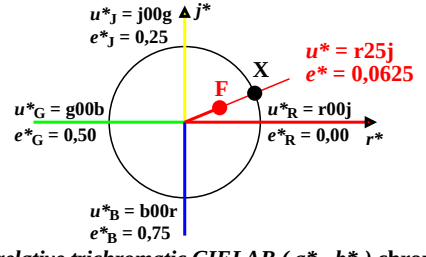
YE921−3

User friendly colorimetric colour notation *ncu or *nce** and linear relation to three *rgb**$_3$ data**

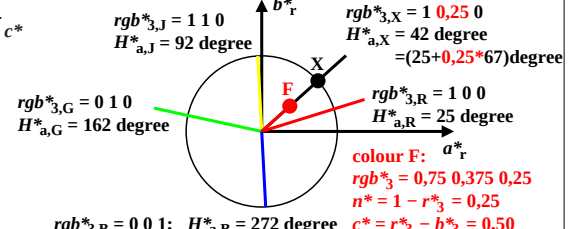
n* relative blackness
c* relative chroma
u* elementary (unique) hue text
e* elementary hue number
E* elementary hue angle



***relative opponent (r*, j*)* chroma**



relative trichromatic CIELAB (a*$_r$, b*$_r$) chroma



example for colour notation:

ncu* = 0,25 0,50 r25j

or

nce* = 0,25 0,50 0,0625 (=0,25/4)

YE921−7