

Equations: colorimetric data transfer from nce^* to elementary colour data rgb^*_3 and LCH^*

Given: nce^* data (similar NCS) of any colour $nce^* = lab^*nce^*$ (in example M located between R and J)

CIELAB data L^*_X , $C^*_{ab,X}$, $h_{ab,X}$, a^*_X , b^*_X of eight basic colours $X = RJGC'BM'NW$

Aim: Elementary colour data rgb^*_3 and LCH^* (CIELAB) of the given colour

relative whiteness of the given colour	$w^* = 1 - n^* - c^*$	(1)
--	-----------------------	-----

relative triangle lightness of the given colour	$t^* = 1 - n^* - 0,5 c^*$	(2)
---	---------------------------	-----

CIELAB hue angle of maximum colour M	$h_{ab,M} = \text{function} [e^*]$	(with table or equation) (3)
--	------------------------------------	------------------------------

Relative device hue angle ratio of M	$\alpha_M = [h_{ab,M} - h_{ab,R}] / [h_{ab,J} - h_{ab,R}]$	(4)
--	--	-----

relative rgb^*_3 data of M	$r^*_{3,M} = \alpha_M r^*_{3,J} + (1 - \alpha_M) r^*_{3,R}$	(5)
--------------------------------	---	-----

	$g^*_{3,M} = \alpha_M g^*_{3,J} + (1 - \alpha_M) g^*_{3,R}$	(6)
--	---	-----

	$b^*_{3,M} = \alpha_M b^*_{3,J} + (1 - \alpha_M) b^*_{3,R}$	(7)
--	---	-----

relative rgb^*_3 data of the given colour	$r^*_3 = w^* + c^* r^*_{3,M}$	(8)
---	-------------------------------	-----

	$g^*_3 = w^* + c^* g^*_{3,M}$	(9)
--	-------------------------------	-----

	$b^*_3 = w^* + c^* b^*_{3,M}$	(10)
--	-------------------------------	------

CIELAB data L^*_M , a^*_M , b^*_M , $C^*_{ab,M}$ of M	$L^*_M = \alpha_M L^*_J + (1 - \alpha_M) L^*_R$	(11)
---	---	------

	$a^*_M = \alpha_M a^*_J + (1 - \alpha_M) a^*_R$	(12)
--	---	------

	$b^*_M = \alpha_M b^*_J + (1 - \alpha_M) b^*_R$	(13)
--	---	------

	$C^*_{ab,M} = [a^{*2}_M + b^{*2}_M]^{1/2}$	(14)
--	--	------

relative lightness l^* of the given colour	$l^* = t^* + c^* [L^*_M - L^*_N] / [L^*_W - L^*_N] - 0,5 c^*$	(15)
--	---	------

CIELAB data LCH^* of the given colour	$L^* = L^*_N + l^* [L^*_W - L^*_N]$	(16)
---	-------------------------------------	------

	$C^*_{ab} = c^* C^*_{ab,M}$	(17)
--	-----------------------------	------

	$h_{ab} = h_{ab,M}$	(18)
--	---------------------	------