Equations: colorimetric data transfer from rgb_e to nce^*_e data and LCH^*_e data Given: rgb_e elementary colour data of any colour $rgb_e = lab^*rgb_e$ and of 48 step colour circle j=0 to 47 $rgb_{Me,j}$ and CIELAB data $L^*_{Me,j}$, $C^*_{ab,Me,j}$, $h_{ab,Me,j} = LCH^*_{Me,j}$ Aim: calculate nce^*_e with $(0 <= n^*_e, c^*_e, e^*_e <= 1)$ (similar to NCS data) and LCH^*_e data of elementary colour Data of a give elementary (e) colour

C

relative chroma of the elementary colour relative blackness of the elementary colour relative triangle lightness of the elementary colour relative red-green chroma in 4x90 degree system s relative yellow-blue chroma in 4x90 degree system s hue angle in 4x90 degree system s hue number in 4x90 degree system s CIELAB hue angle in elementary system CIELAB LCH*_e data of maximum colour M_e

relative lightness of maximum colour M_{e} relative lightness of the elementary colour CIELAB *LCH*^{*}_e data of the elementary colour

$$c^*_{e} = max [rgb_{e}] - min [rgb_{e}]$$
⁽¹⁾

$$n_{e}^{*} = 1 - max \left[rgb_{e} \right] \tag{2}$$

$$t^*_{e} = 1 - n^*_{e} - 0.5 \ c^*_{e} \tag{3}$$

$$a_{rs,e}^* = r_e \cos(0) + g_e \cos(180)$$
 (4)

$$b_{rs,e}^* = r_e \sin(0) + g_e \sin(180) + b_e \sin(270)$$
 (5)

$$h_{ab,s,e} = \arctan[b_{rs,e}^* / a_{rs,e}^*] \quad (0 \le h_{ab,s,e}^* \le 360) \quad (6)$$

$$e^*_e = h_{ab,s,d}/360$$
 (0<= e^*_e <=1) (7)
 $h_{ab,s,d}$ (with table/equations) (8)

$$h_{ab,a,e} =$$
function $[h_{ab,s,e}]$ (with table/equations) (8)
 $L^*M_a =$ function $[h_{ab,a}]$ (with table/equations) (9)

$$Me = function [h_{ab,e}] \qquad (with table/equations) (9)$$

$$ab,Me = function [h_{ab,e}]$$
 (with table/equations)(10)

$$h_{\rm ab,Me} = h_{\rm ab,e} \tag{11}$$

$$l_{Me} = [L_{Me} - L_{Ne}] / [L_{We} - L_{Ne}]$$
(12)

$$l_{e}^{*} = t_{e}^{*} + l_{Me}^{*} c_{e}^{*} + 0.5 c_{e}^{*}$$
(13)

$$L^*_{e} = l^*_{e} \left[L^*_{We} - L^*_{Ne} \right] + L^*_{Ne}$$
(14)

$$C_{ab,e}^* = c_e^* C_{ab,Me}^* \tag{15}$$