

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: <i>RAL Design System (CIELAB)</i> $L^*C^*_{ab}h_{ab}$, lightness, chroma, hue angle <i>Munsell Colour System</i> VCH, lightness (Value), Chroma, Hue text <i>Natural Colour System (NCS)</i> ncu^*_e : relative blackness, relative chroma relative elementary hue text	Device system name and coordinates: Printer system (illuminants D50 or D65): $cm y_d$, content of "cyan, magenta, yellow" Display system (standard illuminant D65): $rgb_d/sRGB_d$, 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 $lab^*_d - LAB^*_d$ and $lab^*_e - LAB^*_e$

$rgb^*_d - (L^*a^*b^*C^*_{ab}h_{ab})_d$ and $rgb^*_e - (L^*a^*b^*C^*_{ab}h_{ab})_e$ (CIELAB)

$rgb_d - cm y_d$, $rgb^*_d - cm y^*_d$ and $rgb_e - cm y_e$, $rgb^*_e - cm y^*_e$ ("1-minus"-relation)

$rgb^*_d - nce^*_d$, $rgb^*_d - ncu^*_d$ and $rgb^*_e - nce^*_e$, $rgb^*_e - ncu^*_e$

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