

percieved color terms (colorness: cube root coordinates)

percieved color terms	name and relationship with standard chromaticity values	notes:
lightness	$L^* = 116 (Y / 100)^{1/3} - 16$ Aproximation: $L^* = 100 (Y / 100)^{1/3}$	<i>definition 1976 in:</i> <i>CIELUV, CIELAB</i>
chromaticness	<i>for linear chromatic value diagram (AT, B)</i>	
red-green	$a^* = 500 [(X / X_n)^{1/3} - (Y / Y_n)^{1/3}]$ $= 500 (a' - a'_n) Y^{1/3}$	<i>definition 1976 in:</i> <i>CIELAB</i>
yellow-blue	$b^* = 200 [(Y / Y_n)^{1/3} - (Z / Z_n)^{1/3}]$ $= 500 (b' - b'_n) Y^{1/3}$	<i>n=D65 (surround)</i>
radial	$C^* = [a^{*2} + b^{*2}]^{1/2}$	
saturation	= chromaticness / lightness	<i>definition</i>
red-green	$S_a^* = a^* / [100 (Y / 100)^{1/3}]$ $= 21,6 (a' - a'_n)$	<i>for:</i> <i>CIELAB 1976</i>
yellow-blue	$S_b^* = b^* / [100 (Y / 100)^{1/3}]$ $= 21,6 (b' - b'_n)$	
radial	$S_c^* = C^* / [100 (Y / 100)^{1/3}]$ $= 21,6 [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	
chromaticity	<i>for nonlinear chromaticity diagram (a', b') definition</i>	
red-green	$a' = (1 / X_n)^{1/3} (x / y)^{1/3}$	<i>opponent</i>
yellow-blue	$= 0,2191 (x / y)^{1/3} \quad \text{for D65}$	<i>color system</i>
radial	$b' = - 0,4 (1 / Z_n)^{1/3} (z / y)^{1/3}$ $= - 0,08376 (z / y)^{1/3} \quad \text{for D65}$ $c' = [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	