

color valence metrics terms (color values: linear coordinates)

color valence metric terms	name and relationship with standard chromaticity values	notes:
luminous value	$Y = y (X + Y + Z)$	definition in: CIEXYZ 1931
chromatic value	for linear chromatic value diagram (AT, B)	
red-green	$A = [X / Y - X_n / Y_n] Y = [a - a_n] Y$ $= [x / y - x_n / y_n] Y$	definition opponent
yellow-blue	$B = -0,4 [Z / Y - Z_n / Y_n] Y = [b - b_n] Y$ $= -0,4 [z / y - z_n / y_n] Y$	color system $n=D65$ (surround)
radial	$C = [A^2 + B^2]^{1/2}$	
saturation value	= chromatic value / luminous value	definition
red-green	$S_a = A / Y = X / Y - X_n / Y_n$ $= x / y - x_n / y_n = a - a_n$	opponent color system
yellow-blue	$S_b = B / Y = -0,4 [Z / Y - Z_n / Y_n]$ $= -0,4 [z / y - z_n / y_n] = b - b_n$	
radial	$S_c = C / Y$ $= [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	
chromaticity value	for linear chromaticity diagram (a, b) definition	
red-green	$a = X / Y = x / y$	opponent
yellow-blue	$b = -0,4 [Z / Y] = -0,4 [z / y]$	color system
radial	$c = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	