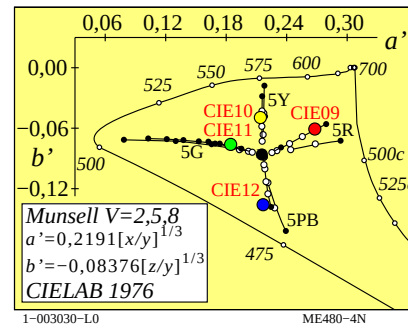
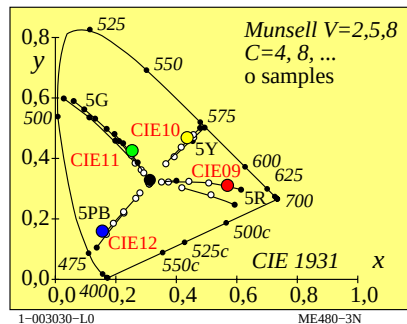
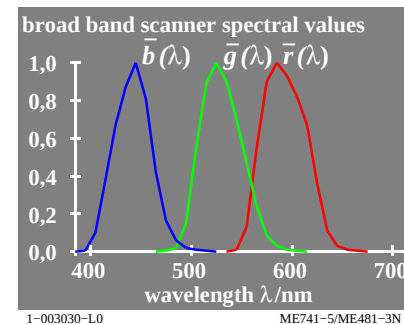
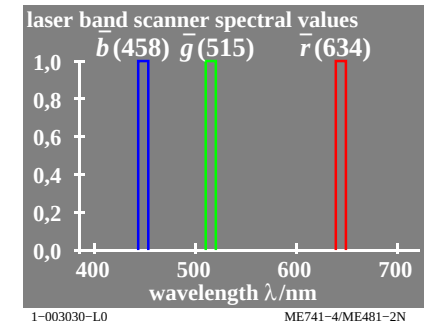
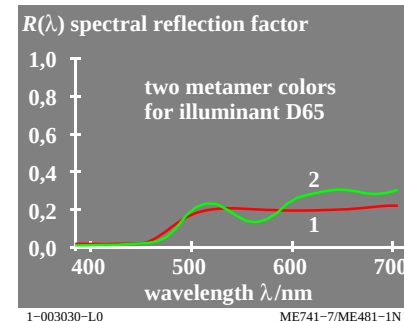


colour attributes of low and high colour metric	mode of colour mixture	
	dichromatic	trichromatic
low colour- or valence metric	(for $Y_- \geq B_-$)	(for $R_- \geq G_- \geq B_-$)
white value W	B_-	B_-
black value N	$100 - Y_-$	$100 - R_-$
chromatic value C	$Y_- - B_-$	$R_- - B_-$
high colour- or sensation metric	(for $Y^*_- \geq B^*_-$)	(for $R^*_- \geq G^*_- \geq B^*_-$)
whiteness W^*	B^*_-	B^*_-
blackness N^*	$100 - Y^*_-$	$100 - R^*_-$
chromaticness C^*	$Y^*_- - B^*_-$	$R^*_- - B^*_-$



colour valence metric (color data: linear relation to CIE 1931 data)		
linear color terms	name and relationship to CIE tristimulus or chromaticity values	notes
tristimulus values	X, Y, Z	
chromatic value	linear chromatic value diagram (A, B)	$n=D65$
red-green	$A = [X / Y - X_n / Y_n] Y = [a - a_n] Y$ $= [x / y - x_n / y_n] Y$	(background)
yellow-blue	$B = -0,4 [Z/Y - Z_n/Y_n] Y = [b - b_n] Y$ $= -0,4 [z / y - z_n / y_n] Y$	
radial	$C_{AB} = [A^2 + B^2]^{1/2}$	
chromaticity	linear chromaticity diagram (a, b)	compare to linear
red-green	$a = X / Y = x / y$	cone excitation
yellow-blue	$b = -0,4 [Z / Y] = -0,4 [z / y]$	$L/(L+M) = P/(P+D)$
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$S/(L+M) = T/(P+D)$



Colour rendering index R_i of two metameric BAM-scanner test colours			
scanner		TC colour rendering index	colour difference
broad band	1	82	3
	2	84	
laser	1	63	10
	2	69	
ideal	1	100	0
	2	100	

D65, colour adjustment with white paper

higher colour metric (color data: nonlinear relation to CIE 1931 data)		
nonlinear color terms	name and relationship with tristimulues or chromaticity values	notes
lightness	$L^* = 116 (Y / 100)^{1/3} - 16 \quad (Y > 0,8)$ approximation: $L^* = 100 (Y/100)^{1/2,4} \quad (Y > 0)$	CIELAB 1976
chroma	nonlinear transform chromatic values A, B	
red-green	$a^* = 500 [(X / X_n)^{1/3} - (Y / Y_n)^{1/3}]$ $= 500 (a' - a'_n) Y^{1/3}$	CIELAB 1976
yellow-blue	$b^* = 200 [(Y / Y_n)^{1/3} - (Z / Z_n)^{1/3}]$ $= 500 (b' - b'_n) Y^{1/3}$	CIELAB 1976
radial	$C^*_{ab} = [a^{*2} + b^{*2}]^{1/2}$	$n=D65$ (background)
chromaticity	nonlinear transform chromaticities x/y, z/y	compare to log
red-green	$a' = (1 / X_n)^{1/3} (x / y)^{1/3}$ $= 0,2191 (x / y)^{1/3} \quad \text{for D65}$	cone excitation $\log[L / (L+M)]$
yellow-blue	$b' = -0,4 (1 / Z_n)^{1/3} (z / y)^{1/3}$ $= -0,08376 (z / y)^{1/3} \quad \text{for D65}$	$= \log[P / (P+D)]$ $\log[S / (L+M)]$
radial	$c^*_{ab} = [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	$= \log[T / (P+D)]$

TUB-test chart ME48; Computer graphics and colorimetry
Image series ME48, 3D=0, de=0

input: *rgb/cmyk* -> *rgb/cmyk*
output: no change