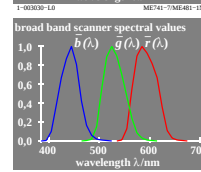
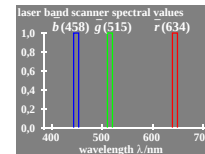
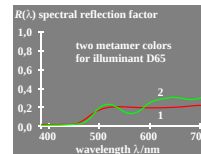
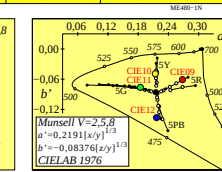
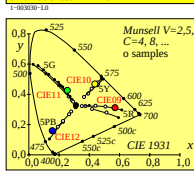


colour attributes of low and high colour metric	mode of colour mixture
low colour- or valence metric	dichromatic
white value W	(for $Y_{*} > B_{*}$)
black value N	$100 - Y_{*}$
chromatic value C	$Y_{*} - B_{*}$
high colour- or sensation metric	trichromatic
whiteness W^{*}	(for $Y^{*} > B^{*}$)
blackness N^{*}	$100 - Y^{*}$
chromaticness C^{*}	$Y^{*} - B^{*}$



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

D65, colour adjustment with white paper

colour valence metric (color data: linear relation to CIE 1931 data)	colour valence metric (color data: nonlinear relation to CIE 1931 data)
linear color terms	nonlinear color terms
name and relationship to CIE tristimulus or chromaticity values	name and relationship with tristimulus or chromaticity values
notes	notes
tristimulus values	lightness
X, Y, Z	$L^{*} = 116 (Y / 100)^{1/3} - 16 (Y > 0,8)$ approximation: $L^{*} = 100 (Y/100)^{1/2,4} (Y > 0)$
chromatic value	chroma
linear chromatic value diagram (A, B)	nonlinear transform chromatic values A, B
$n=D65$	
(background)	
red-green	red-green
$A = [X/Y - X_n/Y_n] Y = [a - a_n] Y$	$a^{*} = 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}]$ $= 500 (a' - a_n') Y^{1/3}$
$= [x/y - x_n/y_n] Y$	
yellow-blue	yellow-blue
$B = -0,4 [Z/Y - Z_n/Y_n] Y = [b - b_n] Y$	$b^{*} = 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}]$ $= 500 (b' - b_n') Y^{1/3}$
$= -0,4 [z/y - z_n/y_n] Y$	
radial	radial
$C_{AB} = [A^2 + B^2]^{1/2}$	$C^{*}_{ab} = [a^{*2} + b^{*2}]^{1/2}$
chromaticity	chromaticity
linear chromaticity diagram (a, b)	nonlinear transform chromaticities x/y, z/y
compare to linear cone excitation	compare to log cone excitation
red-green	red-green
$a = X/Y = x/y$	$a' = (1/X_n)^{1/3} (x/y)^{1/3}$ $= 0,2191 (x/y)^{1/3}$ for D65
yellow-blue	yellow-blue
$b = -0,4 [Z/Y] = -0,4 [z/y]$	$b' = -0,4 (1/Z_n)^{1/3} (z/y)^{1/3}$ $= -0,08376 (z/y)^{1/3}$ for D65
radial	radial
$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$c'_{ab} = [(a' - a_n')^2 + (b' - b_n')^2]^{1/2}$

higher colour metric (color data: nonlinear relation to CIE 1931 data)	higher colour metric (color data: nonlinear relation to CIE 1931 data)
nonlinear color terms	nonlinear color terms
name and relationship with tristimulus or chromaticity values	name and relationship with tristimulus or chromaticity values
notes	notes
lightness	lightness
$L^{*} = 116 (Y / 100)^{1/3} - 16 (Y > 0,8)$ approximation: $L^{*} = 100 (Y/100)^{1/2,4} (Y > 0)$	$L^{*} = 116 (Y / 100)^{1/3} - 16 (Y > 0,8)$ approximation: $L^{*} = 100 (Y/100)^{1/2,4} (Y > 0)$
chroma	chroma
nonlinear transform chromatic values A, B	nonlinear transform chromatic values A, B
red-green	red-green
$a^{*} = 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}]$ $= 500 (a' - a_n') Y^{1/3}$	$a^{*} = 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}]$ $= 500 (a' - a_n') Y^{1/3}$
yellow-blue	yellow-blue
$b^{*} = 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}]$ $= 500 (b' - b_n') Y^{1/3}$	$b^{*} = 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}]$ $= 500 (b' - b_n') Y^{1/3}$
radial	radial
$C^{*}_{ab} = [a^{*2} + b^{*2}]^{1/2}$	$C^{*}_{ab} = [a^{*2} + b^{*2}]^{1/2}$
chromaticity	chromaticity
nonlinear transform chromaticities x/y, z/y	nonlinear transform chromaticities x/y, z/y
compare to log cone excitation	compare to log cone excitation
red-green	red-green
$a' = (1/X_n)^{1/3} (x/y)^{1/3}$ $= 0,2191 (x/y)^{1/3}$ for D65	$a' = (1/X_n)^{1/3} (x/y)^{1/3}$ $= 0,2191 (x/y)^{1/3}$ for D65
yellow-blue	yellow-blue
$b' = -0,4 (1/Z_n)^{1/3} (z/y)^{1/3}$ $= -0,08376 (z/y)^{1/3}$ for D65	$b' = -0,4 (1/Z_n)^{1/3} (z/y)^{1/3}$ $= -0,08376 (z/y)^{1/3}$ for D65
radial	radial
$c'_{ab} = [(a' - a_n')^2 + (b' - b_n')^2]^{1/2}$	$c'_{ab} = [(a' - a_n')^2 + (b' - b_n')^2]^{1/2}$