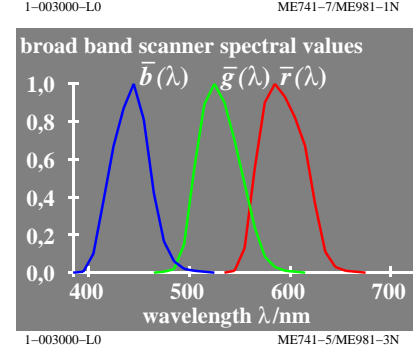
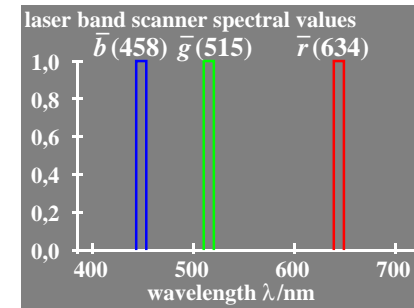
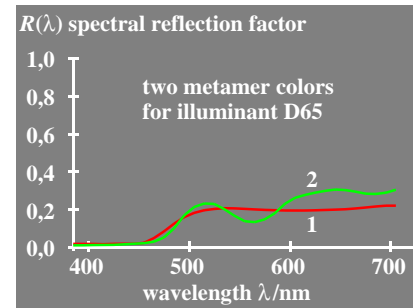
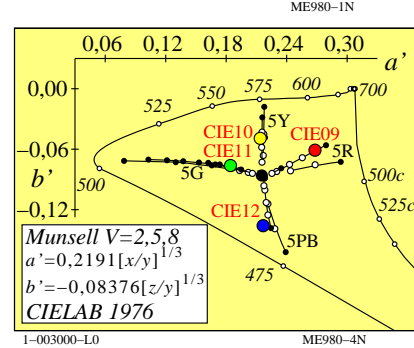
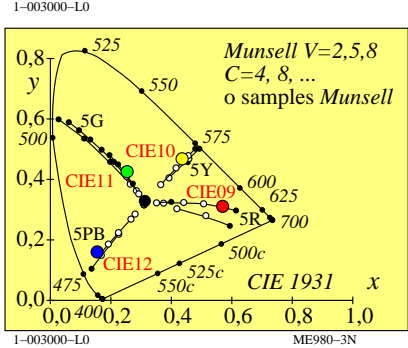


see similar files: http://farbe.li.tu-berlin.de/ME98/ME98.HTM
 http://130.149.60.45/~farbmetrik or http://farbe.li.tu-berlin.de

TUB registration: 20160501-ME98/ME98LONP.PDF /.PS
 application for measurement of display output

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 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

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 cone excitation
red-green	$a = X/Y = x/y$	
yellow-blue	$b = -0,4 [Z/Y] = -0,4 [z/y]$	
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$L/(L+M) = P/(P+D)$ $S/(L+M) = T/(P+D)$

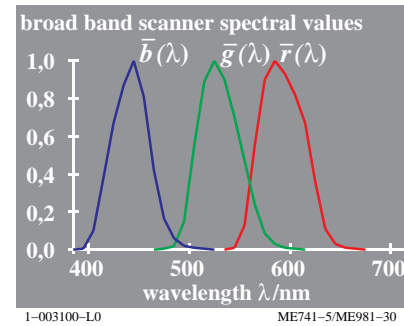
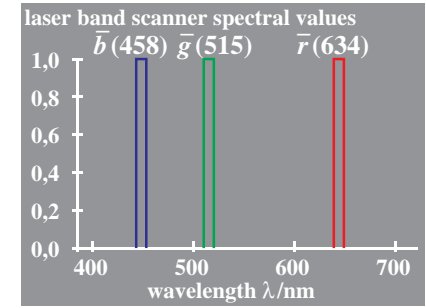
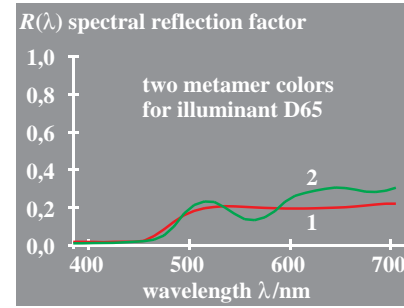
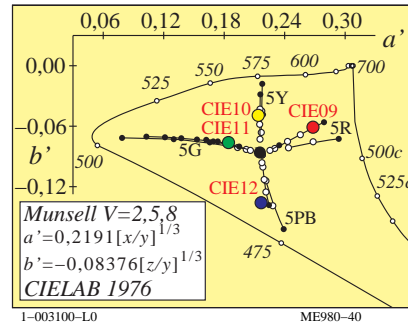
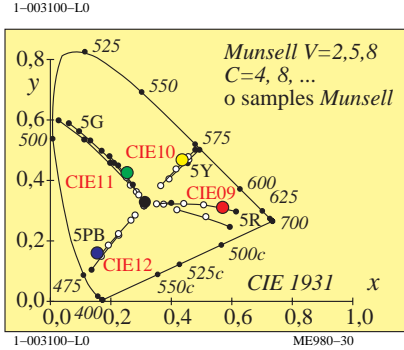
higher colour metric (color data: nonlinear relation to CIE 1931 data)		
nonlinear color terms	name and relationship with tristimulus or chromaticity values	notes
lightness	$L^* = 116 (Y/100)^{1/3} - 16 \quad (Y > 0,8)$ approximation: $L^* = 100 (Y/100)^{1/2,4} \quad (Y > 0)$	CIELAB 1976
chroma	nonlinear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

see similar files: http://farbe.li.tu-berlin.de/ME98/ME98.HTM
 http://130.149.60.45/~farbmeterik or http://farbe.li.tu-berlin.de

TUB registration: 20160501-ME98/ME98LONP.PDF /.PS
 application for measurement of display output, no separation

TUB material: code=rh4ta

colour attributes of low and high colour metric		mode of colour mixture	
		dichromatic	trichromatic
low colour- or valence metric		(for $Y_d \geq B_d$)	(for $R_d \geq G_d \geq B_d$)
white value	W	B_d	B_d
black value	N	$100 - Y_d$	$100 - R_d$
chromatic value	C	$Y_d - B_d$	$R_d - B_d$
high colour- or sensation metric		(for $Y^*_d \geq B^*_d$)	(for $R^*_d \geq G^*_d \geq B^*_d$)
whiteness	W^*	B^*_d	B^*_d
blackness	N^*	$100 - Y^*_d$	$100 - R^*_d$
chromaticness	C^*	$Y^*_d - B^*_d$	$R^*_d - B^*_d$



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

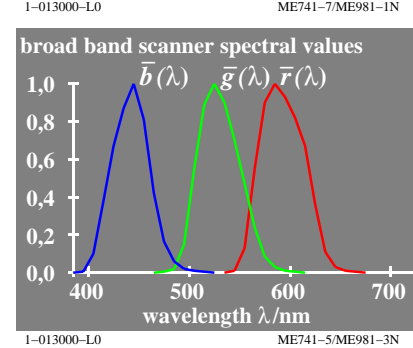
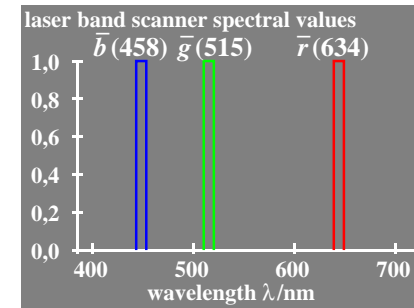
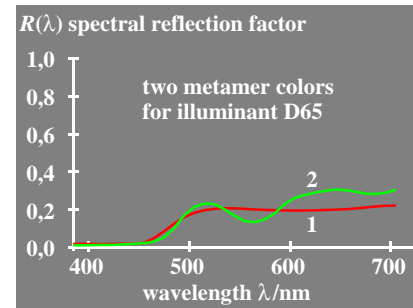
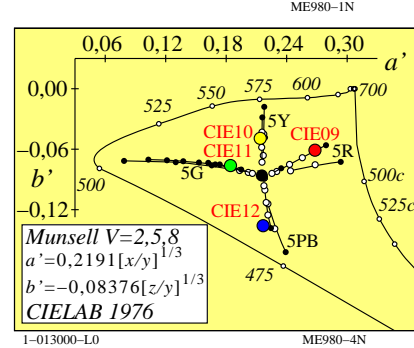
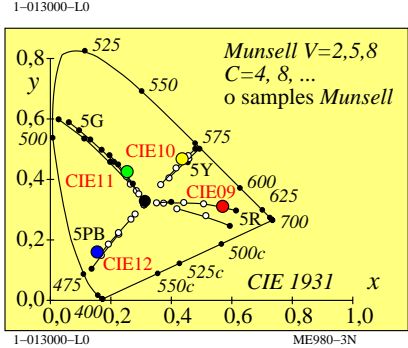
colour valence metric (color data: linear relation to CIE 1931 data)		
linear color terms	name and relationship to CIE tristimulus or chromaticity values	notes
tristimulus values	X, Y, Z	
chromatic value	linear chromatic value diagram (A, B) red-green: $A = [X/Y - X_n/Y_n] Y = [a - a_n] Y = [x/y - x_n/y_n]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

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

see similar files: http://farbe.li.tu-berlin.de/ME98/ME98.HTM
 http://130.149.60.45/~farbmetrik or http://farbe.li.tu-berlin.de

TUB registration: 20160501-ME98/ME98LONP.PDF /.PS
 application for measurement of display output

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 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

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 cone excitation
red-green	$a = X/Y = x/y$	
yellow-blue	$b = -0,4 [Z/Y] = -0,4 [z/y]$	
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$L/(L+M) = P/(P+D)$ $S/(L+M) = T/(P+D)$

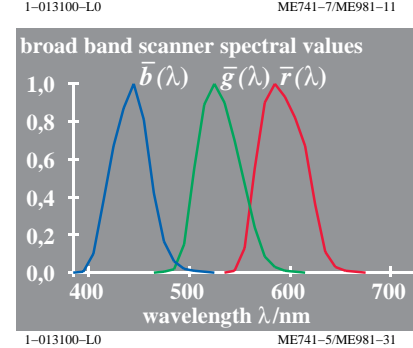
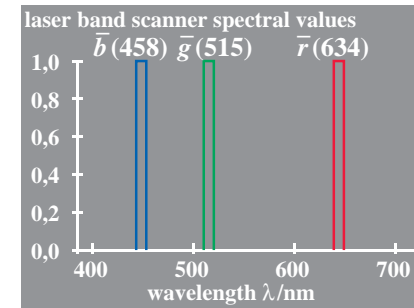
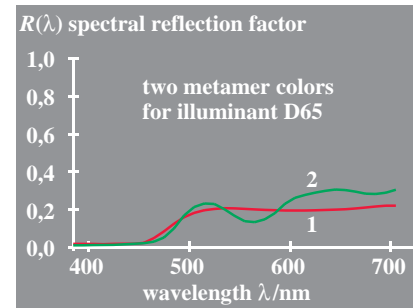
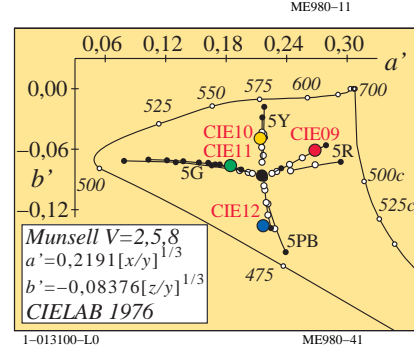
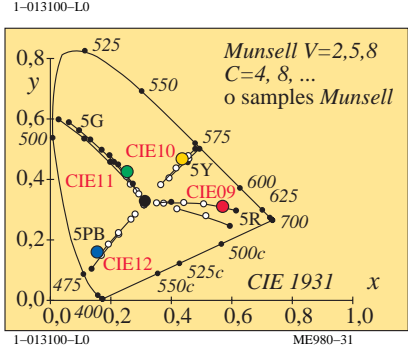
higher colour metric (color data: nonlinear relation to CIE 1931 data)		
nonlinear color terms	name and relationship with tristimulus or chromaticity values	notes
lightness	$L^* = 116 (Y/100)^{1/3} - 16 \quad (Y > 0,8)$ approximation: $L^* = 100 (Y/100)^{1/2,4} \quad (Y > 0)$	CIELAB 1976
chroma	nonlinear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

see similar files: http://farbe.li.tu-berlin.de/ME98/ME98.HTM
 http://130.149.60.45/~farbmeterik or http://farbe.li.tu-berlin.de

TUB registration: 20160501-ME98/ME98LONP.PDF /.PS
 application for measurement of display output, no separation

TUB material: code=rh4ta

colour attributes of low and high colour metric		mode of colour mixture	
		dichromatic	trichromatic
<i>low colour- or valence metric</i>		(for $Y_e \gg B_e$)	(for $R_e \gg G_e \gg B_e$)
white value	W	B_e	B_e
black value	N	$100 - Y_e$	$100 - R_e$
chromatic value	C	$Y_e - B_e$	$R_e - B_e$
<i>high colour- or sensation metric</i>		(for $Y^*_e \gg B^*_e$)	(for $R^*_e \gg G^*_e \gg B^*_e$)
whiteness	W^*	B^*_e	B^*_e
blackness	N^*	$100 - Y^*_e$	$100 - R^*_e$
chromaticness	C^*	$Y^*_e - B^*_e$	$R^*_e - B^*_e$



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

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 cone excitation
red-green	$a = X/Y = x/y$	
yellow-blue	$b = -0,4 [Z/Y] = -0,4 [z/y]$	
radial	$c_{ab} = [(a - a_n)^2 + (b - b_n)^2]^{1/2}$	$L/(L+M) = P/(P+D)$ $S/(L+M) = T/(P+D)$

higher colour metric (color data: nonlinear relation to CIE 1931 data)		
nonlinear color terms	name and relationship with tristimulus or chromaticity values	notes
lightness	$L^* = 116 (Y/100)^{1/3} - 16$ ($Y > 0,8$) approximation: $L^* = 100 (Y/100)^{1/2,4}$ ($Y > 0$)	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 cone excitation
red-green	$a' = (1/X_n)^{1/3} (x/y)^{1/3}$ $= 0,2191 (x/y)^{1/3}$ for D65	
yellow-blue	$b' = -0,4 (1/Z_n)^{1/3} (z/y)^{1/3}$ $= -0,08376 (z/y)^{1/3}$ for D65	$\log[L/(L+M)]$ $= \log[P/(P+D)]$ $\log[S/(L+M)]$ $= \log[T/(P+D)]$
radial	$c'_{ab} = [(a' - a'_n)^2 + (b' - b'_n)^2]^{1/2}$	