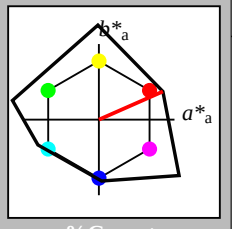
See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

BAM registration: 20060101-TE59/10Q/Q59E00FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
BAM material: code=rha4ta
/TE59/ Form: 1/10, Serie: 1/1, Page: 1 Page: count: 1

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 24/360 = 0.066$
lab*tch* and *lab*nch

D65: hue R
LCH*Ma: 47 92 24
rgb*Ma: 1.0 0.0 0.0

triangle lightness t^*

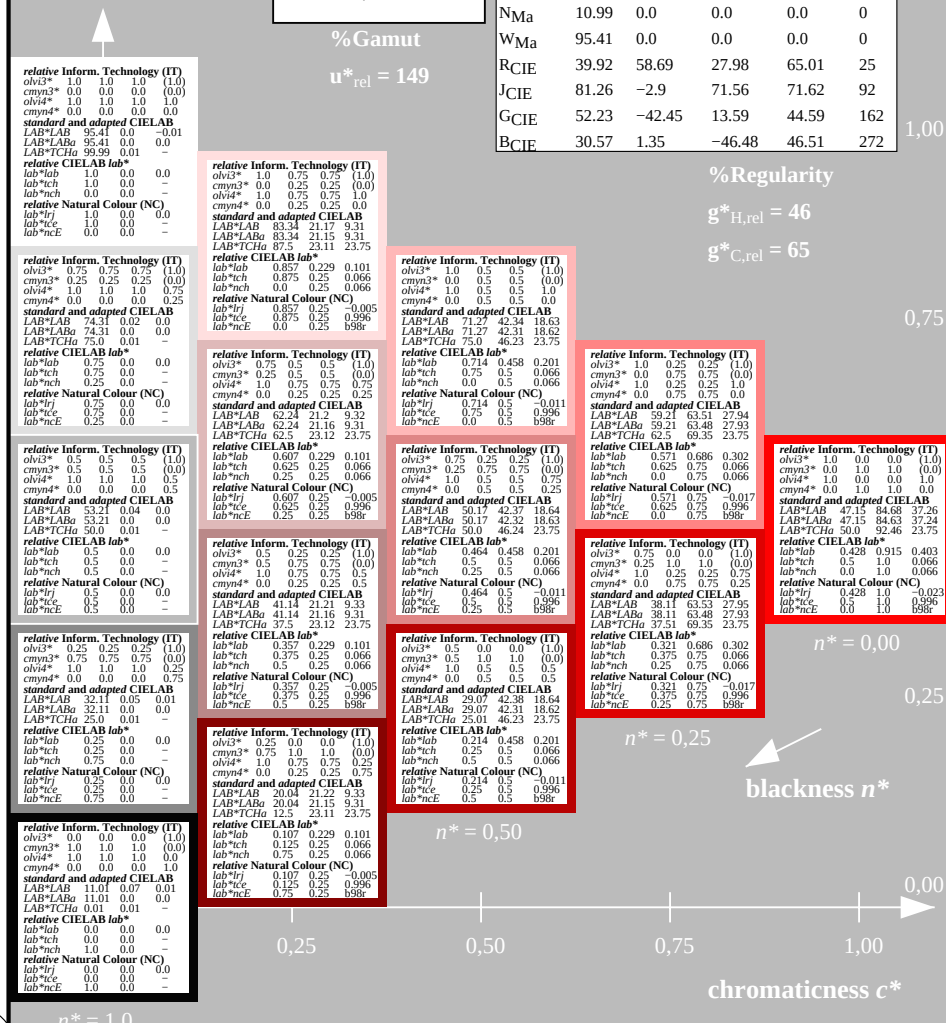


%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

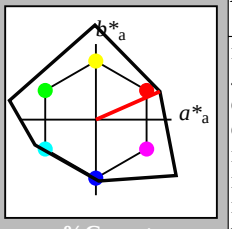


TE590−7, 5 step scales for constant CIELAB hue 24/360 = 0.066 (left)

Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 24/360 = 0.066$
lab*tch* and *lab*nch

D65: hue R
LCH*Ma: 47 92 24
rgb*Ma: 1.0 0.0 0.0

triangle lightness t^*

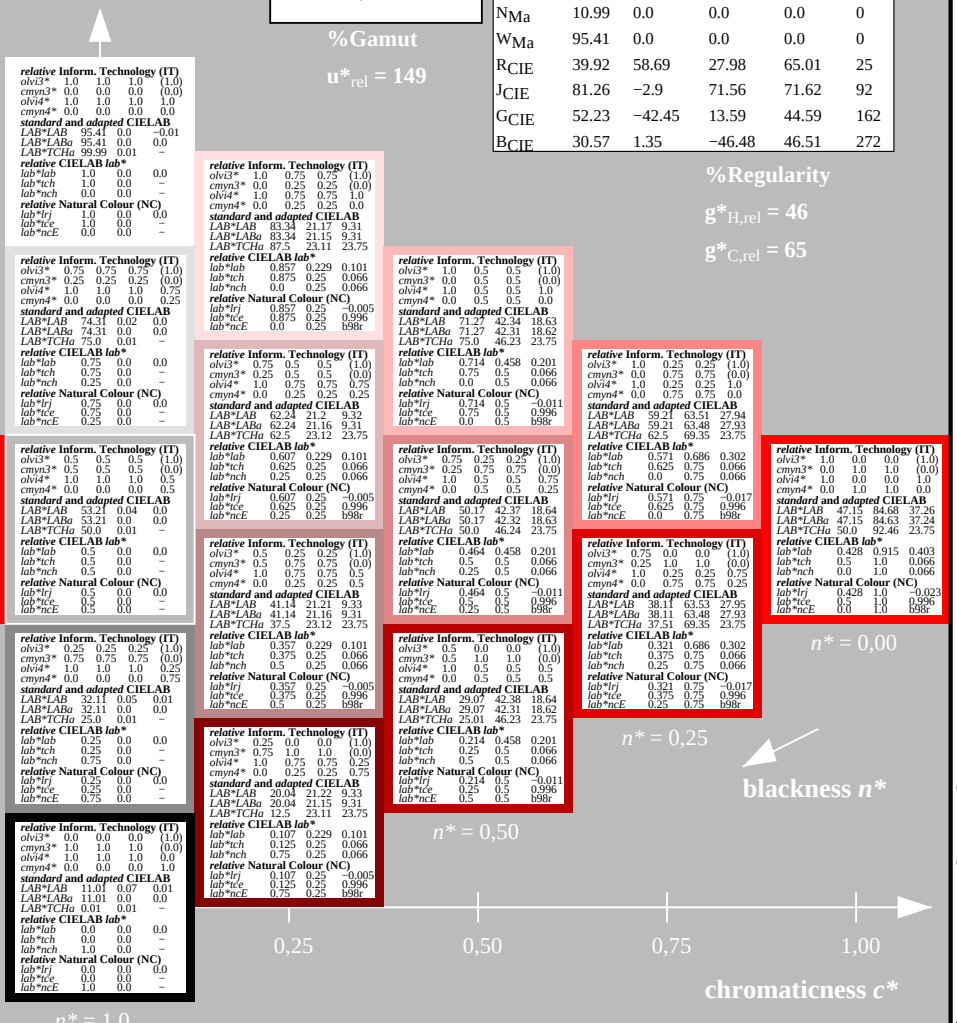


%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65



5 step scales for constant CIELAB hue 24/360 = 0.066 (right)

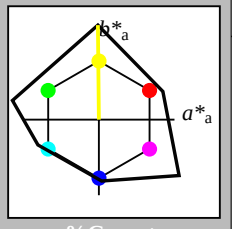
See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

BAM registration: 20060101-TE59/10Q/Q59E01FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
BAM material: code=rha4ta
/TE59/ Form: 2/10, Serie: 1/1, Page: 2 Page: count: 2

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 91/360 = 0.252$
lab*tch* and *lab*nch

D65: hue J
LCH*Ma: 91 125 91
rgb*Ma: 1.0 1.0 0.0

triangle lightness t^*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

1,00
0,75
0,25
0,00

relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
cmyn3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 1.0
cmyn4* 0.0 0.0 0.0 0.0
standard and adapted CIELAB
LAB*LAB 95.41 0.0 −0.01
LAB*LABa 95.41 0.0 0.0
LAB*TCHa 99.99 0.01 –
relative CIELAB *lab**
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 –
lab*nch 0.0 0.0 –
relative Natural Colour (NC)
lab*lrj 1.0 0.0 0.0
lab*tce 1.0 0.0 –
lab*ncE 0.0 0.0 –

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 0.75
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LABa 74.31 0.0 0.0
LAB*TCHa 75.0 0.01 –
relative CIELAB *lab**
lab*lab 0.75 0.0 0.0
lab*tch 0.75 0.0 –
lab*nch 0.25 0.0 –
relative Natural Colour (NC)
lab*lrj 0.75 0.0 0.0
lab*tce 0.75 0.0 –
lab*ncE 0.25 0.0 –

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (1.0)
cmyn3* 0.5 0.5 0.5 (0.0)
olvi4* 1.0 1.0 1.0 0.5
cmyn4* 0.0 0.0 0.0 0.5
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*LABa 53.21 0.0 0.0
LAB*TCHa 50.0 0.01 –
relative CIELAB *lab**
lab*lab 0.5 0.0 0.0
lab*tch 0.5 0.0 –
lab*nch 0.5 0.0 –
relative Natural Colour (NC)
lab*lrj 0.5 0.0 0.0
lab*tce 0.5 0.0 –
lab*ncE 0.5 0.0 –

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.75
standard and adapted CIELAB
LAB*LAB 32.11 0.05 0.01
LAB*LABa 32.11 0.0 0.0
LAB*TCHa 25.0 0.01 –
relative CIELAB *lab**
lab*lab 0.25 0.0 0.0
lab*tch 0.25 0.0 –
lab*nch 0.75 0.0 –
relative Natural Colour (NC)
lab*lrj 0.25 0.0 0.0
lab*tce 0.25 0.0 –
lab*ncE 0.75 0.0 –

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olvi4* 1.0 1.0 1.0 0.0
cmyn4* 0.0 0.0 0.0 1.0
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABa 11.01 0.0 0.0
LAB*TCHa 0.01 0.01 –
relative CIELAB *lab**
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 –
lab*nch 1.0 0.0 –
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0
lab*tce 0.0 0.0 –
lab*ncE 1.0 0.0 –

*n** = 1,0

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.75 (1.0)
cmyn3* 0.0 0.0 0.25 (0.0)
olvi4* 1.0 1.0 0.75 1.0
cmyn4* 0.0 0.0 0.25 0.0
standard and adapted CIELAB
LAB*LAB 94.39 −0.3 31.24
LAB*LABa 94.39 −0.31 31.24
LAB*TCHa 87.5 31.25 90.59
relative CIELAB *lab**
lab*lab 0.988 −0.002 0.25
lab*tch 0.875 0.25 0.252
lab*nch 0.0 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.988 0.01 0.25
lab*tce 0.875 0.25 0.243
lab*ncE 0.0 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.5 (1.0)
cmyn3* 0.25 0.25 0.5 (0.0)
olvi4* 1.0 1.0 0.75 0.75
cmyn4* 0.0 0.0 0.25 0.25
standard and adapted CIELAB
LAB*LAB 73.3 −0.28 31.26
LAB*LABa 73.3 −0.31 31.26
LAB*TCHa 62.5 31.26 90.59
relative CIELAB *lab**
lab*lab 0.738 −0.002 0.25
lab*tch 0.625 0.25 0.252
lab*nch 0.25 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.738 0.01 0.25
lab*tce 0.625 0.25 0.243
lab*ncE 0.25 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.25 (1.0)
cmyn3* 0.5 0.5 0.75 (0.0)
olvi4* 1.0 1.0 0.75 0.5
cmyn4* 0.0 0.0 0.25 0.5
standard and adapted CIELAB
LAB*LAB 52.19 −0.27 31.27
LAB*LABa 52.19 −0.31 31.26
LAB*TCHa 37.5 31.26 90.59
relative CIELAB *lab**
lab*lab 0.488 −0.002 0.25
lab*tch 0.375 0.25 0.252
lab*nch 0.5 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.488 0.01 0.25
lab*tce 0.375 0.25 0.243
lab*ncE 0.5 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.0 (1.0)
cmyn3* 0.75 0.75 1.0 (0.0)
olvi4* 1.0 1.0 0.75 0.25
cmyn4* 0.0 0.0 0.25 0.75
standard and adapted CIELAB
LAB*LAB 31.09 −0.25 31.26
LAB*LABa 31.09 −0.31 31.24
LAB*TCHa 12.5 31.25 90.59
relative CIELAB *lab**
lab*lab 0.238 −0.002 0.25
lab*tch 0.125 0.25 0.252
lab*nch 0.75 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.238 0.01 0.25
lab*tce 0.125 0.25 0.243
lab*ncE 0.75 0.25 r97j

*n** = 0,50

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.5 (1.0)
cmyn3* 0.0 0.0 0.5 (0.0)
olvi4* 1.0 1.0 0.5 1.0
cmyn4* 0.0 0.0 0.5 0.0
standard and adapted CIELAB
LAB*LAB 93.38 −0.62 62.5
LAB*LABa 93.38 −0.63 62.5
LAB*TCHa 75.0 62.5 90.59
relative CIELAB *lab**
lab*lab 0.976 −0.004 0.5
lab*tch 0.75 0.5 0.252
lab*nch 0.0 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.976 0.02 0.499
lab*tce 0.75 0.5 0.243
lab*ncE 0.0 0.5 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.25 (1.0)
cmyn3* 0.25 0.25 0.75 (0.0)
olvi4* 1.0 1.0 0.5 0.75
cmyn4* 0.0 0.0 0.5 0.25
standard and adapted CIELAB
LAB*LAB 72.29 −0.6 62.52
LAB*LABa 72.29 −0.63 62.51
LAB*TCHa 50.0 62.52 90.59
relative CIELAB *lab**
lab*lab 0.726 −0.004 0.5
lab*tch 0.5 0.5 0.252
lab*nch 0.25 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.726 0.02 0.5
lab*tce 0.5 0.5 0.243
lab*ncE 0.25 0.5 r97j

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.0 (1.0)
cmyn3* 0.5 0.5 1.0 (0.0)
olvi4* 1.0 1.0 0.5 0.5
cmyn4* 0.0 0.0 0.5 0.5
standard and adapted CIELAB
LAB*LAB 51.18 −0.59 62.51
LAB*LABa 51.18 −0.63 62.5
LAB*TCHa 25.01 62.5 90.59
relative CIELAB *lab**
lab*lab 0.476 −0.004 0.5
lab*tch 0.25 0.5 0.252
lab*nch 0.5 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.476 0.02 0.499
lab*tce 0.25 0.5 0.243
lab*ncE 0.5 0.5 r97j

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.0 (1.0)
cmyn3* 0.0 0.0 1.0 (0.0)
olvi4* 1.0 1.0 0.25 1.0
cmyn4* 0.0 0.0 0.75 0.0
standard and adapted CIELAB
LAB*LAB 91.36 −1.26 125.0
LAB*LABa 91.36 −1.27 125.0
LAB*TCHa 50.0 125.01 90.59
relative CIELAB *lab**
lab*lab 0.952 −0.009 1.0
lab*tch 0.5 1.0 0.252
lab*nch 0.0 1.0 0.252
relative Natural Colour (NC)
lab*lrj 0.952 0.041 0.999
lab*tce 0.5 1.0 0.243
lab*ncE 0.0 1.0 r97j

*n** = 0,00

relative Inform. Technology (IT)
olvi3* 0.0 0.0 1.0 (1.0)
cmyn3* 0.25 0.25 0.75 (0.0)
olvi4* 1.0 1.0 0.25 1.0
cmyn4* 0.0 0.0 0.75 0.0
standard and adapted CIELAB
LAB*LAB 92.37 −0.94 93.76
LAB*LABa 92.37 −0.95 93.76
LAB*TCHa 62.5 93.76 90.59
relative CIELAB *lab**
lab*lab 0.964 −0.007 0.75
lab*tch 0.625 0.75 0.252
lab*nch 0.0 0.75 0.252
relative Natural Colour (NC)
lab*lrj 0.964 0.031 0.749
lab*tce 0.625 0.75 0.243
lab*ncE 0.0 0.75 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.0 (1.0)
cmyn3* 0.25 0.25 1.0 (0.0)
olvi4* 1.0 1.0 0.25 0.75
cmyn4* 0.0 0.0 0.75 0.25
standard and adapted CIELAB
LAB*LAB 71.28 −0.92 93.76
LAB*LABa 71.28 −0.95 93.76
LAB*TCHa 37.51 93.76 90.59
relative CIELAB *lab**
lab*lab 0.714 −0.007 0.75
lab*tch 0.375 0.75 0.252
lab*nch 0.25 0.75 0.252
relative Natural Colour (NC)
lab*lrj 0.714 0.031 0.749
lab*tce 0.375 0.75 0.243
lab*ncE 0.25 0.75 r97j

*n** = 0,25

blackness n^*

chromaticness c^*

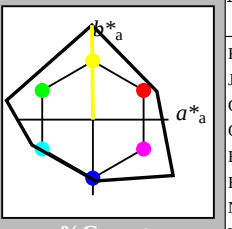
0,25 0,50 0,75 1,00

TE590−7, 5 step scales for constant CIELAB hue 91/360 = 0.252 (left)

Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 91/360 = 0.252$
lab*tch* and *lab*nch

D65: hue J
LCH*Ma: 91 125 91
rgb*Ma: 1.0 1.0 0.0

triangle lightness t^*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
cmyn3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 1.0
cmyn4* 0.0 0.0 0.0 0.0
standard and adapted CIELAB
LAB*LAB 95.41 0.0 −0.01
LAB*LABa 95.41 0.0 0.0
LAB*TCHa 99.99 0.01 –
relative CIELAB *lab**
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 –
lab*nch 0.0 0.0 –
relative Natural Colour (NC)
lab*lrj 1.0 0.0 0.0
lab*tce 1.0 0.0 –
lab*ncE 0.0 0.0 –

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 0.75
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LABa 74.31 0.0 0.0
LAB*TCHa 75.0 0.01 –
relative CIELAB *lab**
lab*lab 0.75 0.0 0.0
lab*tch 0.75 0.0 –
lab*nch 0.25 0.0 –
relative Natural Colour (NC)
lab*lrj 0.75 0.0 0.0
lab*tce 0.75 0.0 –
lab*ncE 0.25 0.0 –

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (1.0)
cmyn3* 0.5 0.5 0.5 (0.0)
olvi4* 1.0 1.0 1.0 0.5
cmyn4* 0.0 0.0 0.0 0.5
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*LABa 53.21 0.0 0.0
LAB*TCHa 50.0 0.01 –
relative CIELAB *lab**
lab*lab 0.5 0.0 0.0
lab*tch 0.5 0.0 –
lab*nch 0.5 0.0 –
relative Natural Colour (NC)
lab*lrj 0.5 0.0 0.0
lab*tce 0.5 0.0 –
lab*ncE 0.5 0.0 –

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.75
standard and adapted CIELAB
LAB*LAB 32.11 0.05 0.01
LAB*LABa 32.11 0.0 0.0
LAB*TCHa 25.0 0.01 –
relative CIELAB *lab**
lab*lab 0.25 0.0 0.0
lab*tch 0.25 0.0 –
lab*nch 0.75 0.0 –
relative Natural Colour (NC)
lab*lrj 0.25 0.0 0.0
lab*tce 0.25 0.0 –
lab*ncE 0.75 0.0 –

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (1.0)
cmyn3* 1.0 1.0 1.0 (0.0)
olvi4* 1.0 1.0 1.0 0.0
cmyn4* 0.0 0.0 0.0 1.0
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LABa 11.01 0.0 0.0
LAB*TCHa 0.01 0.01 –
relative CIELAB *lab**
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 –
lab*nch 1.0 0.0 –
relative Natural Colour (NC)
lab*lrj 0.0 0.0 0.0
lab*tce 0.0 0.0 –
lab*ncE 1.0 0.0 –

*n** = 1,0

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.75 (1.0)
cmyn3* 0.0 0.0 0.25 (0.0)
olvi4* 1.0 1.0 0.75 1.0
cmyn4* 0.0 0.0 0.25 0.0
standard and adapted CIELAB
LAB*LAB 94.39 −0.3 31.24
LAB*LABa 94.39 −0.31 31.24
LAB*TCHa 87.5 31.25 90.59
relative CIELAB *lab**
lab*lab 0.988 −0.002 0.25
lab*tch 0.875 0.25 0.252
lab*nch 0.0 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.988 0.01 0.25
lab*tce 0.875 0.25 0.243
lab*ncE 0.0 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.5 (1.0)
cmyn3* 0.25 0.25 0.5 (0.0)
olvi4* 1.0 1.0 0.75 0.75
cmyn4* 0.0 0.0 0.25 0.25
standard and adapted CIELAB
LAB*LAB 73.3 −0.28 31.26
LAB*LABa 73.3 −0.31 31.26
LAB*TCHa 62.5 31.26 90.59
relative CIELAB *lab**
lab*lab 0.738 −0.002 0.25
lab*tch 0.625 0.25 0.252
lab*nch 0.25 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.738 0.01 0.25
lab*tce 0.625 0.25 0.243
lab*ncE 0.25 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.25 (1.0)
cmyn3* 0.5 0.5 0.75 (0.0)
olvi4* 1.0 1.0 0.75 0.5
cmyn4* 0.0 0.0 0.25 0.5
standard and adapted CIELAB
LAB*LAB 52.19 −0.27 31.27
LAB*LABa 52.19 −0.31 31.26
LAB*TCHa 37.5 31.26 90.59
relative CIELAB *lab**
lab*lab 0.488 −0.002 0.25
lab*tch 0.375 0.25 0.252
lab*nch 0.5 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.488 0.01 0.25
lab*tce 0.375 0.25 0.243
lab*ncE 0.5 0.25 r97j

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.0 (1.0)
cmyn3* 0.75 0.75 1.0 (0.0)
olvi4* 1.0 1.0 0.75 0.25
cmyn4* 0.0 0.0 0.25 0.75
standard and adapted CIELAB
LAB*LAB 31.09 −0.25 31.26
LAB*LABa 31.09 −0.31 31.24
LAB*TCHa 12.5 31.25 90.59
relative CIELAB *lab**
lab*lab 0.238 −0.002 0.25
lab*tch 0.125 0.25 0.252
lab*nch 0.75 0.25 0.252
relative Natural Colour (NC)
lab*lrj 0.238 0.01 0.25
lab*tce 0.125 0.25 0.243
lab*ncE 0.75 0.25 r97j

*n** = 0,50

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.5 (1.0)
cmyn3* 0.0 0.0 0.5 (0.0)
olvi4* 1.0 1.0 0.5 1.0
cmyn4* 0.0 0.0 0.5 0.0
standard and adapted CIELAB
LAB*LAB 93.38 −0.62 62.5
LAB*LABa 93.38 −0.63 62.5
LAB*TCHa 75.0 62.5 90.59
relative CIELAB *lab**
lab*lab 0.976 −0.004 0.5
lab*tch 0.75 0.5 0.252
lab*nch 0.0 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.976 0.02 0.499
lab*tce 0.75 0.5 0.243
lab*ncE 0.0 0.5 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.25 (1.0)
cmyn3* 0.25 0.25 0.75 (0.0)
olvi4* 1.0 1.0 0.5 0.75
cmyn4* 0.0 0.0 0.5 0.25
standard and adapted CIELAB
LAB*LAB 72.29 −0.6 62.52
LAB*LABa 72.29 −0.63 62.51
LAB*TCHa 50.0 62.52 90.59
relative CIELAB *lab**
lab*lab 0.726 −0.004 0.5
lab*tch 0.5 0.5 0.252
lab*nch 0.25 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.726 0.02 0.5
lab*tce 0.5 0.5 0.243
lab*ncE 0.25 0.5 r97j

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.0 (1.0)
cmyn3* 0.5 0.5 1.0 (0.0)
olvi4* 1.0 1.0 0.5 0.5
cmyn4* 0.0 0.0 0.5 0.5
standard and adapted CIELAB
LAB*LAB 51.18 −0.59 62.51
LAB*LABa 51.18 −0.63 62.5
LAB*TCHa 25.01 62.5 90.59
relative CIELAB *lab**
lab*lab 0.476 −0.004 0.5
lab*tch 0.25 0.5 0.252
lab*nch 0.5 0.5 0.252
relative Natural Colour (NC)
lab*lrj 0.476 0.02 0.499
lab*tce 0.25 0.5 0.243
lab*ncE 0.5 0.5 r97j

relative Inform. Technology (IT)
olvi3* 1.0 1.0 0.0 (1.0)
cmyn3* 0.0 0.0 1.0 (0.0)
olvi4* 1.0 1.0 0.25 1.0
cmyn4* 0.0 0.0 0.75 0.0
standard and adapted CIELAB
LAB*LAB 91.36 −1.26 125.0
LAB*LABa 91.36 −1.27 125.0
LAB*TCHa 50.0 125.01 90.59
relative CIELAB *lab**
lab*lab 0.952 −0.009 1.0
lab*tch 0.5 1.0 0.252
lab*nch 0.0 1.0 0.252
relative Natural Colour (NC)
lab*lrj 0.952 0.041 0.999
lab*tce 0.5 1.0 0.243
lab*ncE 0.0 1.0 r97j

*n** = 0,00

relative Inform. Technology (IT)
olvi3* 0.0 0.0 1.0 (1.0)
cmyn3* 0.25 0.25 0.75 (0.0)
olvi4* 1.0 1.0 0.25 1.0
cmyn4* 0.0 0.0 0.75 0.0
standard and adapted CIELAB
LAB*LAB 92.37 −0.94 93.76
LAB*LABa 92.37 −0.95 93.76
LAB*TCHa 62.5 93.76 90.59
relative CIELAB *lab**
lab*lab 0.964 −0.007 0.75
lab*tch 0.625 0.75 0.252
lab*nch 0.0 0.75 0.252
relative Natural Colour (NC)
lab*lrj 0.964 0.031 0.749
lab*tce 0.625 0.75 0.243
lab*ncE 0.0 0.75 r97j

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.0 (1.0)
cmyn3* 0.25 0.25 1.0 (0.0)
olvi4* 1.0 1.0 0.25 0.75
cmyn4* 0.0 0.0 0.75 0.25
standard and adapted CIELAB
LAB*LAB 71.28 −0.92 93.76
LAB*LABa 71.28 −0.95 93.76
LAB*TCHa 37.51 93.76 90.59
relative CIELAB *lab**
lab*lab 0.714 −0.007 0.75
lab*tch 0.375 0.75 0.252
lab*nch 0.25 0.75 0.252
relative Natural Colour (NC)
lab*lrj 0.714 0.031 0.749
lab*tce 0.375 0.75 0.243
lab*ncE 0.25 0.75 r97j

*n** = 0,25

blackness n^*

chromaticness c^*

0,25 0,50 0,75 1,00

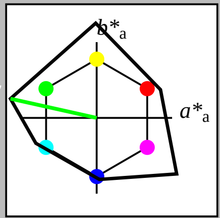
5 step scales for constant CIELAB hue 91/360 = 0.252 (right)

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

Input: Colorimetric Reflective System NCS11
for hue *h* = lab*h = 167/360 = 0.465*
lab*tch* and *lab*nch

D65: hue G
LCH*Ma: 63 117 167
rgb*Ma: 0.0 1.0 0.0

triangle lightness *t**



%Gamut

u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity

$g^*_{H,rel}$ = 46

$g^*_{C,rel}$ = 65

relative Inform. Technology (IT)				
olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0
standard and *adapted* CIELAB				
LAB*LAB	95.41	0.0	−0.01	
LAB*LABa	95.41	0.0	0.0	
LAB*TCHa	99.99	0.01	−	
relative CIELAB *lab**				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	−	
lab*nch	0.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	−	
lab*ncE	0.0	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.75	1.0	0.75	(1.0)
cmyn3*	0.25	0.0	0.25	(0.0)
olvi4*	0.75	1.0	0.75	1.0
cmyn4*	0.25	0.0	0.25	0.0
standard and *adapted* CIELAB				
LAB*LAB	87.32	−28.53	6.33	
LAB*LABa	87.32	−28.55	6.33	
LAB*TCHa	87.5	29.25	167.5	
relative CIELAB *lab**				
lab*lab	0.904	−0.243	0.054	
lab*tch	0.875	0.25	0.465	
lab*nch	0.0	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.904	−0.248	−0.018	
lab*tce	0.875	0.25	0.512	
lab*ncE	0.0	0.25	g04b	

1,00

relative Inform. Technology (IT)				
olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	0.75
cmyn4*	0.0	0.0	0.0	0.25
standard and *adapted* CIELAB				
LAB*LAB	74.31	0.02	0.0	
LAB*LABa	74.31	0.0	0.0	
LAB*TCHa	75.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.75	0.0	0.0	
lab*tch	0.75	0.0	−	
lab*nch	0.25	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.75	0.0	0.0	
lab*tce	0.75	0.0	−	
lab*ncE	0.25	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.5	1.0	0.5	(1.0)
cmyn3*	0.5	0.0	0.5	(0.0)
olvi4*	0.5	1.0	0.5	1.0
cmyn4*	0.5	0.0	0.5	0.0
standard and *adapted* CIELAB				
LAB*LAB	79.24	−57.1	12.67	
LAB*LABa	79.24	−57.12	12.67	
LAB*TCHa	75.0	58.52	167.5	
relative CIELAB *lab**				
lab*lab	0.808	−0.487	0.108	
lab*tch	0.75	0.5	0.465	
lab*nch	0.0	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.808	−0.497	−0.037	
lab*tce	0.75	0.5	0.512	
lab*ncE	0.0	0.5	g04b	

relative Inform. Technology (IT)				
olvi3*	0.5	0.75	0.5	(1.0)
cmyn3*	0.5	0.25	0.5	(0.0)
olvi4*	0.75	1.0	0.75	0.75
cmyn4*	0.25	0.0	0.25	0.25
standard and *adapted* CIELAB				
LAB*LAB	66.22	−28.53	6.34	
LAB*LABa	66.22	−28.56	6.34	
LAB*TCHa	62.5	29.27	167.5	
relative CIELAB *lab**				
lab*lab	0.654	−0.243	0.054	
lab*tch	0.625	0.25	0.465	
lab*nch	0.25	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.654	−0.248	−0.018	
lab*tce	0.625	0.25	0.512	
lab*ncE	0.25	0.25	g04b	

relative Inform. Technology (IT)				
olvi3*	0.25	1.0	0.25	(1.0)
cmyn3*	0.75	0.0	0.75	(0.0)
olvi4*	0.25	1.0	0.25	1.0
cmyn4*	0.75	0.0	0.75	0.0
standard and *adapted* CIELAB				
LAB*LAB	71.15	−85.66	19.01	
LAB*LABa	71.15	−85.69	19.01	
LAB*TCHa	62.5	87.78	167.5	
relative CIELAB *lab**				
lab*lab	0.713	−0.731	0.162	
lab*tch	0.625	0.75	0.465	
lab*nch	0.0	0.75	0.465	
relative Natural Colour (NC)				
lab*lrj	0.713	−0.747	−0.055	
lab*tce	0.625	0.75	0.512	
lab*ncE	0.0	0.75	g04b	

0,75

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and *adapted* CIELAB				
LAB*LAB	53.21	0.04	0.0	
LAB*LABa	53.21	0.0	0.0	
LAB*TCHa	50.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.5	0.0	0.0	
lab*tch	0.5	0.0	−	
lab*nch	0.5	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.5	0.0	0.0	
lab*tce	0.5	0.0	−	
lab*ncE	0.5	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.25	0.75	0.25	(1.0)
cmyn3*	0.75	0.25	0.75	(0.0)
olvi4*	0.5	1.0	0.5	0.75
cmyn4*	0.5	0.0	0.5	0.25
standard and *adapted* CIELAB				
LAB*LAB	58.14	−57.09	12.68	
LAB*LABa	58.14	−57.13	12.67	
LAB*TCHa	50.0	58.53	167.5	
relative CIELAB *lab**				
lab*lab	0.558	−0.487	0.108	
lab*tch	0.5	0.5	0.465	
lab*nch	0.25	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.558	−0.498	−0.037	
lab*tce	0.5	0.5	0.512	
lab*ncE	0.25	0.5	g04b	

relative Inform. Technology (IT)				
olvi3*	0.0	1.0	0.0	(1.0)
cmyn3*	1.0	0.0	1.0	(0.0)
olvi4*	0.0	1.0	0.0	1.0
cmyn4*	1.0	0.0	1.0	0.0
standard and *adapted* CIELAB				
LAB*LAB	63.07	−114.22	25.35	
LAB*LABa	63.07	−114.25	25.34	
LAB*TCHa	50.0	117.04	167.5	
relative CIELAB *lab**				
lab*lab	0.617	−0.975	0.216	
lab*tch	0.5	1.0	0.465	
lab*nch	0.0	1.0	0.465	
relative Natural Colour (NC)				
lab*lrj	0.617	−0.996	−0.074	
lab*tce	0.5	1.0	0.512	
lab*ncE	0.0	1.0	g04b	

relative Inform. Technology (IT)				
olvi3*	0.25	0.5	0.25	(1.0)
cmyn3*	0.75	0.5	0.75	(0.0)
olvi4*	0.75	1.0	0.75	0.5
cmyn4*	0.25	0.0	0.25	0.5
standard and *adapted* CIELAB				
LAB*LAB	45.12	−28.51	6.35	
LAB*LABa	45.12	−28.56	6.34	
LAB*TCHa	37.5	29.27	167.5	
relative CIELAB *lab**				
lab*lab	0.404	−0.243	0.054	
lab*tch	0.375	0.25	0.465	
lab*nch	0.5	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.404	−0.248	−0.018	
lab*tce	0.375	0.25	0.512	
lab*ncE	0.5	0.25	g04b	

relative Inform. Technology (IT)				
olvi3*	0.0	0.75	0.0	(1.0)
cmyn3*	1.0	0.25	1.0	(0.0)
olvi4*	0.25	1.0	0.25	0.75
cmyn4*	0.75	0.0	0.75	0.25
standard and *adapted* CIELAB				
LAB*LAB	50.06	−85.65	19.02	
LAB*LABa	50.06	−85.69	19.01	
LAB*TCHa	37.51	87.78	167.5	
relative CIELAB *lab**				
lab*lab	0.463	−0.731	0.162	
lab*tch	0.375	0.75	0.465	
lab*nch	0.25	0.75	0.465	
relative Natural Colour (NC)				
lab*lrj	0.463	−0.747	−0.055	
lab*tce	0.375	0.75	0.512	
lab*ncE	0.25	0.75	g04b	

*n** = 0,00

relative Inform. Technology (IT)				
olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	0.25
cmyn4*	0.0	0.0	0.0	0.75
standard and *adapted* CIELAB				
LAB*LAB	32.11	0.05	0.01	
LAB*LABa	32.11	0.0	0.0	
LAB*TCHa	25.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.25	0.0	0.0	
lab*tch	0.25	0.0	−	
lab*nch	0.75	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.25	0.0	0.0	
lab*tce	0.25	0.0	−	
lab*ncE	0.75	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.0	0.5	0.0	(1.0)
cmyn3*	1.0	0.5	1.0	(0.0)
olvi4*	0.5	1.0	0.5	0.5
cmyn4*	0.5	0.0	0.5	0.5
standard and *adapted* CIELAB				
LAB*LAB	37.04	−57.07	12.69	
LAB*LABa	37.04	−57.12	12.67	
LAB*TCHa	25.01	58.52	167.5	
relative CIELAB *lab**				
lab*lab	0.309	−0.487	0.108	
lab*tch	0.25	0.5	0.465	
lab*nch	0.5	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.309	−0.497	−0.037	
lab*tce	0.25	0.5	0.512	
lab*ncE	0.5	0.5	g04b	

0,25

*n** = 0,25

blackness *n**

relative Inform. Technology (IT)				
olvi3*	0.0	0.25	0.0	(1.0)
cmyn3*	1.0	0.75	1.0	(0.0)
olvi4*	0.75	1.0	0.75	0.25
cmyn4*	0.25	0.0	0.25	0.75
standard and *adapted* CIELAB				
LAB*LAB	24.02	−28.48	6.35	
LAB*LABa	24.02	−28.55	6.33	
LAB*TCHa	12.5	29.25	167.5	
relative CIELAB *lab**				
lab*lab	0.154	−0.243	0.054	
lab*tch	0.125	0.25	0.465	
lab*nch	0.75	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.154	−0.248	−0.018	
lab*tce	0.125	0.25	0.512	
lab*ncE	0.75	0.25	g04b	

*n** = 0,50

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0
standard and *adapted* CIELAB				
LAB*LAB	11.01	0.07	0.01	
LAB*LABa	11.01	0.0	0.0	
LAB*TCHa	0.01	0.01	−	
relative CIELAB *lab**				
lab*lab	0.0	0.0	0.0	
lab*tch	0.0	0.0	−	
lab*nch	1.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.0	0.0	0.0	
lab*tce	0.0	0.0	−	
lab*ncE	1.0	0.0	−	

0,00

0,25 0,50 0,75 1,00

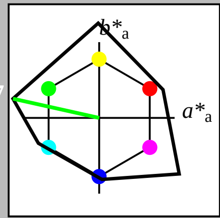
chromaticness *c**

*n** = 1,0

Output: Colorimetric Reflective System NCS11
for hue *h* = lab*h = 167/360 = 0.465*
lab*tch* and *lab*nch

D65: hue G
LCH*Ma: 63 117 167
rgb*Ma: 0.0 1.0 0.0

triangle lightness *t**



%Gamut

u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity

$g^*_{H,rel}$ = 46

$g^*_{C,rel}$ = 65

relative Inform. Technology (IT)				
olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0
standard and *adapted* CIELAB				
LAB*LAB	95.41	0.0	−0.01	
LAB*LABa	95.41	0.0	0.0	
LAB*TCHa	99.99	0.01	−	
relative CIELAB *lab**				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	−	
lab*nch	0.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	−	
lab*ncE	0.0	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.75	1.0	0.75	(1.0)
cmyn3*	0.25	0.0	0.25	(0.0)
olvi4*	0.75	1.0	0.75	1.0
cmyn4*	0.25	0.0	0.25	0.0
standard and *adapted* CIELAB				
LAB*LAB	87.32	−28.53	6.33	
LAB*LABa	87.32	−28.55	6.33	
LAB*TCHa	87.5	29.25	167.5	
relative CIELAB *lab**				
lab*lab	0.904	−0.243	0.054	
lab*tch	0.875	0.25	0.465	
lab*nch	0.0	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.904	−0.248	−0.018	
lab*tce	0.875	0.25	0.512	
lab*ncE	0.0	0.25	g04b	

relative Inform. Technology (IT)				
olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	0.75
cmyn4*	0.0	0.0	0.0	0.25
standard and *adapted* CIELAB				
LAB*LAB	74.31	0.02	0.0	
LAB*LABa	74.31	0.0	0.0	
LAB*TCHa	75.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.75	0.0	0.0	
lab*tch	0.75	0.0	−	
lab*nch	0.25	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.75	0.0	0.0	
lab*tce	0.75	0.0	−	
lab*ncE	0.25	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.5	1.0	0.5	(1.0)
cmyn3*	0.5	0.0	0.5	(0.0)
olvi4*	0.5	1.0	0.5	1.0
cmyn4*	0.5	0.0	0.5	0.0
standard and *adapted* CIELAB				
LAB*LAB	79.24	−57.1	12.67	
LAB*LABa	79.24	−57.12	12.67	
LAB*TCHa	75.0	58.52	167.5	
relative CIELAB *lab**				
lab*lab	0.808	−0.487	0.108	
lab*tch	0.75	0.5	0.465	
lab*nch	0.0	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.808	−0.497	−0.037	
lab*tce	0.75	0.5	0.512	
lab*ncE	0.0	0.5	g04b	

relative Inform. Technology (IT)				
olvi3*	0.5	0.75	0.5	(1.0)
cmyn3*	0.5	0.25	0.5	(0.0)
olvi4*	0.75	1.0	0.75	0.75
cmyn4*	0.25	0.0	0.25	0.25
standard and *adapted* CIELAB				
LAB*LAB	66.22	−28.53	6.34	
LAB*LABa	66.22	−28.56	6.34	
LAB*TCHa	62.5	29.27	167.5	
relative CIELAB *lab**				
lab*lab	0.654	−0.243	0.054	
lab*tch	0.625	0.25	0.465	
lab*nch	0.25	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.654	−0.248	−0.018	
lab*tce	0.625	0.25	0.512	
lab*ncE	0.25	0.25	g04b	

relative Inform. Technology (IT)				
olvi3*	0.25	1.0	0.25	(1.0)
cmyn3*	0.75	0.0	0.75	(0.0)
olvi4*	0.25	1.0	0.25	1.0
cmyn4*	0.75	0.0	0.75	0.0
standard and *adapted* CIELAB				
LAB*LAB	71.15	−85.66	19.01	
LAB*LABa	71.15	−85.69	19.01	
LAB*TCHa	62.5	87.78	167.5	
relative CIELAB *lab**				
lab*lab	0.713	−0.731	0.162	
lab*tch	0.625	0.75	0.465	
lab*nch	0.0	0.75	0.465	
relative Natural Colour (NC)				
lab*lrj	0.713	−0.747	−0.055	
lab*tce	0.625	0.75	0.512	
lab*ncE	0.0	0.75	g04b	

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and *adapted* CIELAB				
LAB*LAB	53.21	0.04	0.0	
LAB*LABa	53.21	0.0	0.0	
LAB*TCHa	50.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.5	0.0	0.0	
lab*tch	0.5	0.0	−	
lab*nch	0.5	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.5	0.0	0.0	
lab*tce	0.5	0.0	−	
lab*ncE	0.5	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.25	0.75	0.25	(1.0)
cmyn3*	0.75	0.25	0.75	(0.0)
olvi4*	0.5	1.0	0.5	0.75
cmyn4*	0.5	0.0	0.5	0.25
standard and *adapted* CIELAB				
LAB*LAB	58.14	−57.09	12.68	
LAB*LABa	58.14	−57.13	12.67	
LAB*TCHa	50.0	58.53	167.5	
relative CIELAB *lab**				
lab*lab	0.558	−0.487	0.108	
lab*tch	0.5	0.5	0.465	
lab*nch	0.25	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.558	−0.498	−0.037	
lab*tce	0.5	0.5	0.512	
lab*ncE	0.25	0.5	g04b	

relative Inform. Technology (IT)				
olvi3*	0.0	1.0	0.0	(1.0)
cmyn3*	1.0	0.0	1.0	(0.0)
olvi4*	0.0	1.0	0.0	1.0
cmyn4*	1.0	0.0	1.0	0.0
standard and *adapted* CIELAB				
LAB*LAB	63.07	−114.22	25.35	
LAB*LABa	63.07	−114.25	25.34	
LAB*TCHa	50.0	117.04	167.5	
relative CIELAB *lab**				
lab*lab	0.617	−0.975	0.216	
lab*tch	0.5	1.0	0.465	
lab*nch	0.0	1.0	0.465	
relative Natural Colour (NC)				
lab*lrj	0.617	−0.996	−0.074	
lab*tce	0.5	1.0	0.512	
lab*ncE	0.0	1.0	g04b	

relative Inform. Technology (IT)				
olvi3*	0.25	0.5	0.25	(1.0)
cmyn3*	0.75	0.5	0.75	(0.0)
olvi4*	0.75	1.0	0.75	0.5
cmyn4*	0.25	0.0	0.25	0.5
standard and *adapted* CIELAB				
LAB*LAB	45.12	−28.51	6.35	
LAB*LABa	45.12	−28.56	6.34	
LAB*TCHa	37.5	29.27	167.5	
relative CIELAB *lab**				
lab*lab	0.404	−0.243	0.054	
lab*tch	0.375	0.25	0.465	
lab*nch	0.5	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.404	−0.248	−0.018	
lab*tce	0.375	0.25	0.512	
lab*ncE	0.5	0.25	g04b	

relative Inform. Technology (IT)				
olvi3*	0.0	0.75	0.0	(1.0)
cmyn3*	1.0	0.25	1.0	(0.0)
olvi4*	0.25	1.0	0.25	0.75
cmyn4*	0.75	0.0	0.75	0.25
standard and *adapted* CIELAB				
LAB*LAB	50.06	−85.65	19.02	
LAB*LABa	50.06	−85.69	19.01	
LAB*TCHa	37.51	87.78	167.5	
relative CIELAB *lab**				
lab*lab	0.463	−0.731	0.162	
lab*tch	0.375	0.75	0.465	
lab*nch	0.25	0.75	0.465	
relative Natural Colour (NC)				
lab*lrj	0.463	−0.747	−0.055	
lab*tce	0.375	0.75	0.512	
lab*ncE	0.25	0.75	g04b	

*n** = 0,00

relative Inform. Technology (IT)				
olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	0.25
cmyn4*	0.0	0.0	0.0	0.75
standard and *adapted* CIELAB				
LAB*LAB	32.11	0.05	0.01	
LAB*LABa	32.11	0.0	0.0	
LAB*TCHa	25.0	0.01	−	
relative CIELAB *lab**				
lab*lab	0.25	0.0	0.0	
lab*tch	0.25	0.0	−	
lab*nch	0.75	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.25	0.0	0.0	
lab*tce	0.25	0.0	−	
lab*ncE	0.75	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.0	0.5	0.0	(1.0)
cmyn3*	1.0	0.5	1.0	(0.0)
olvi4*	0.5	1.0	0.5	0.5
cmyn4*	0.5	0.0	0.5	0.5
standard and *adapted* CIELAB				
LAB*LAB	37.04	−57.07	12.69	
LAB*LABa	37.04	−57.12	12.67	
LAB*TCHa	25.01	58.52	167.5	
relative CIELAB *lab**				
lab*lab	0.309	−0.487	0.108	
lab*tch	0.25	0.5	0.465	
lab*nch	0.5	0.5	0.465	
relative Natural Colour (NC)				
lab*lrj	0.309	−0.497	−0.037	
lab*tce	0.25	0.5	0.512	
lab*ncE	0.5	0.5	g04b	

*n** = 0,25

blackness *n**

relative Inform. Technology (IT)				
olvi3*	0.0	0.25	0.0	(1.0)
cmyn3*	1.0	0.75	1.0	(0.0)
olvi4*	0.75	1.0	0.75	0.25
cmyn4*	0.25	0.0	0.25	0.75
standard and *adapted* CIELAB				
LAB*LAB	24.02	−28.48	6.35	
LAB*LABa	24.02	−28.55	6.33	
LAB*TCHa	12.5	29.25	167.5	
relative CIELAB *lab**				
lab*lab	0.154	−0.243	0.054	
lab*tch	0.125	0.25	0.465	
lab*nch	0.75	0.25	0.465	
relative Natural Colour (NC)				
lab*lrj	0.154	−0.248	−0.018	
lab*tce	0.125	0.25	0.512	
lab*ncE	0.75	0.25	g04b	

*n** = 0,50

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0
standard and *adapted* CIELAB				
LAB*LAB	11.01	0.07	0.01	
LAB*LABa	11.01	0.0	0.0	
LAB*TCHa	0.01	0.01	−	
relative CIELAB *lab**				
lab*lab	0.0	0.0	0.0	
lab*tch	0.0	0.0	−	
lab*nch	1.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.0	0.0	0.0	
lab*tce	0.0	0.0	−	
lab*ncE	1.0	0.0	−	

0,25 0,50 0,75 1,00

chromaticness *c**

*n** = 1,0

BAM registration: 20060101-TE59/10Q/Q59E02FP.PS/.PDF BAM material: code=rha4ta
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
/TE59/ Form: 3/10, Serie: 1/1, Page: 3 Page: count: 3

TE590−7, 5 step scales for constant CIELAB hue 167/360 = 0.465 (left) 5 step scales for constant CIELAB hue 167/360 = 0.465 (right)

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

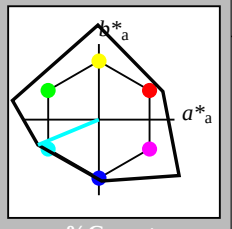
BAM registration: 20060101-TE59/10Q/Q59E03FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ

BAM material: code=rha4ta
/TE59/ Form: 4/10, Serie: 1/1, Page: 4 Page: count: 4

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 203/360 = 0.563$
lab*tch* and *lab*nch

D65: hue G50B
LCH*Ma: 59 87 203
rgb*Ma: 0.0 1.0 1.0

triangle lightness t^*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

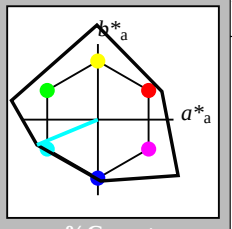
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 203/360 = 0.563$
lab*tch* and *lab*nch

D65: hue G50B
LCH*Ma: 59 87 203
rgb*Ma: 0.0 1.0 1.0

triangle lightness t^*

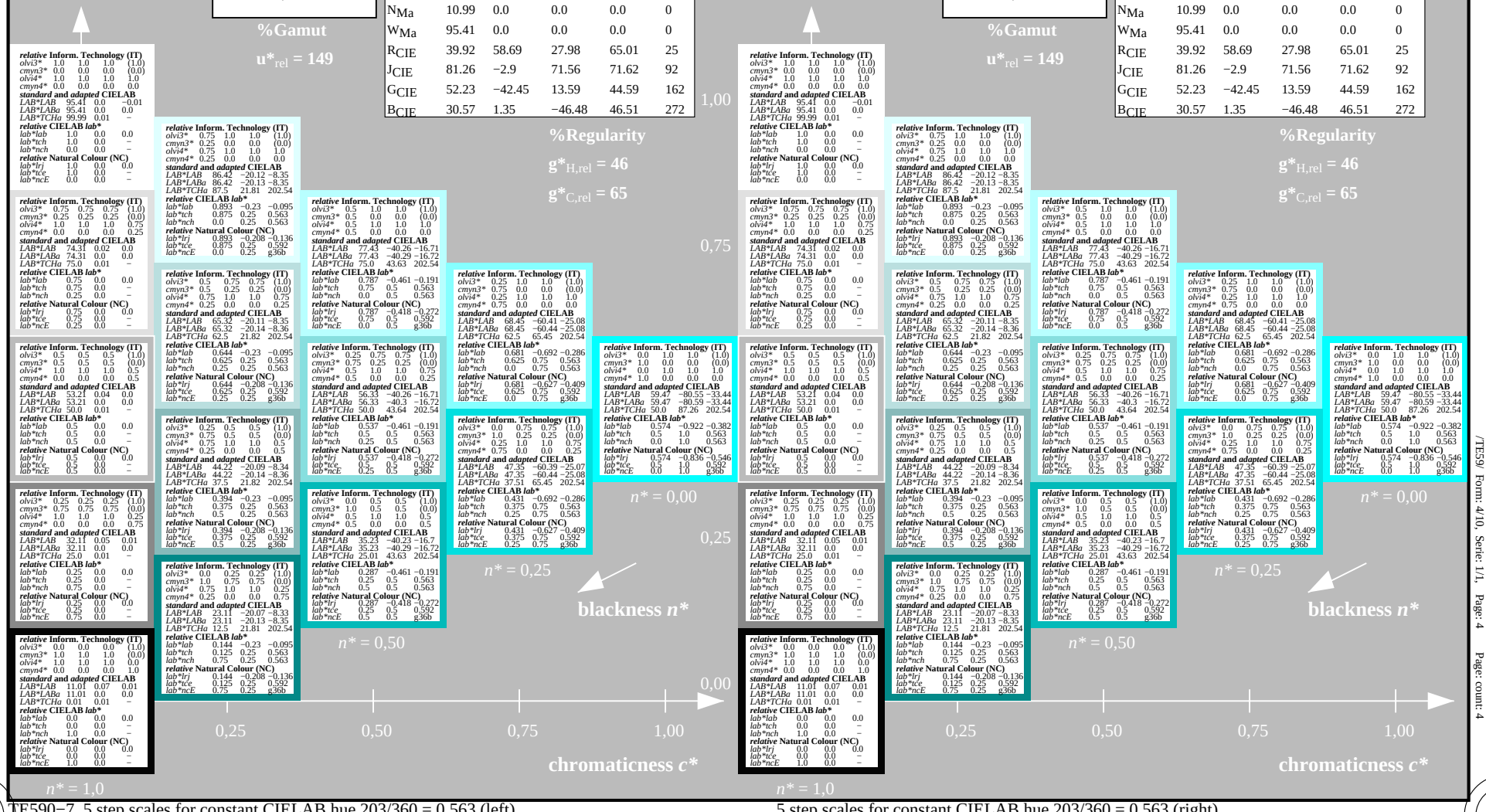


%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65



TE590−7, 5 step scales for constant CIELAB hue 203/360 = 0.563 (left)

5 step scales for constant CIELAB hue 203/360 = 0.563 (right)

BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a input: *olv* setrgbcolor*
D65: 2 coordinate data of 5 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*

www.ps.bam.de/TE59/10Q/Q59E04FP.PS/.PDF; linearized output
F: Output Linearization (OL) data TE59/10Q/Q59E04FP.DAT in File (F)

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

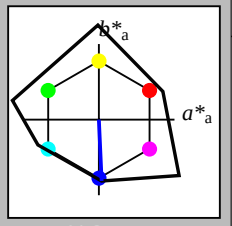
BAM registration: 20060101-TE59/10Q/Q59E04FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
/TE59/ Form: 5/10, Serie: 1/1, Page: 5 Page: count: 5

BAM material: code=rha4ta

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 273/360 = 0.757$
lab*tch* and *lab*nch

D65: hue B
LCH*Ma: 49 81 273
rgb*Ma: 0.0 0.0 1.0

triangle lightness t^*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

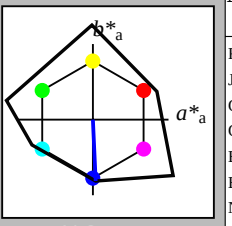
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 273/360 = 0.757$
lab*tch* and *lab*nch

D65: hue B
LCH*Ma: 49 81 273
rgb*Ma: 0.0 0.0 1.0

triangle lightness t^*

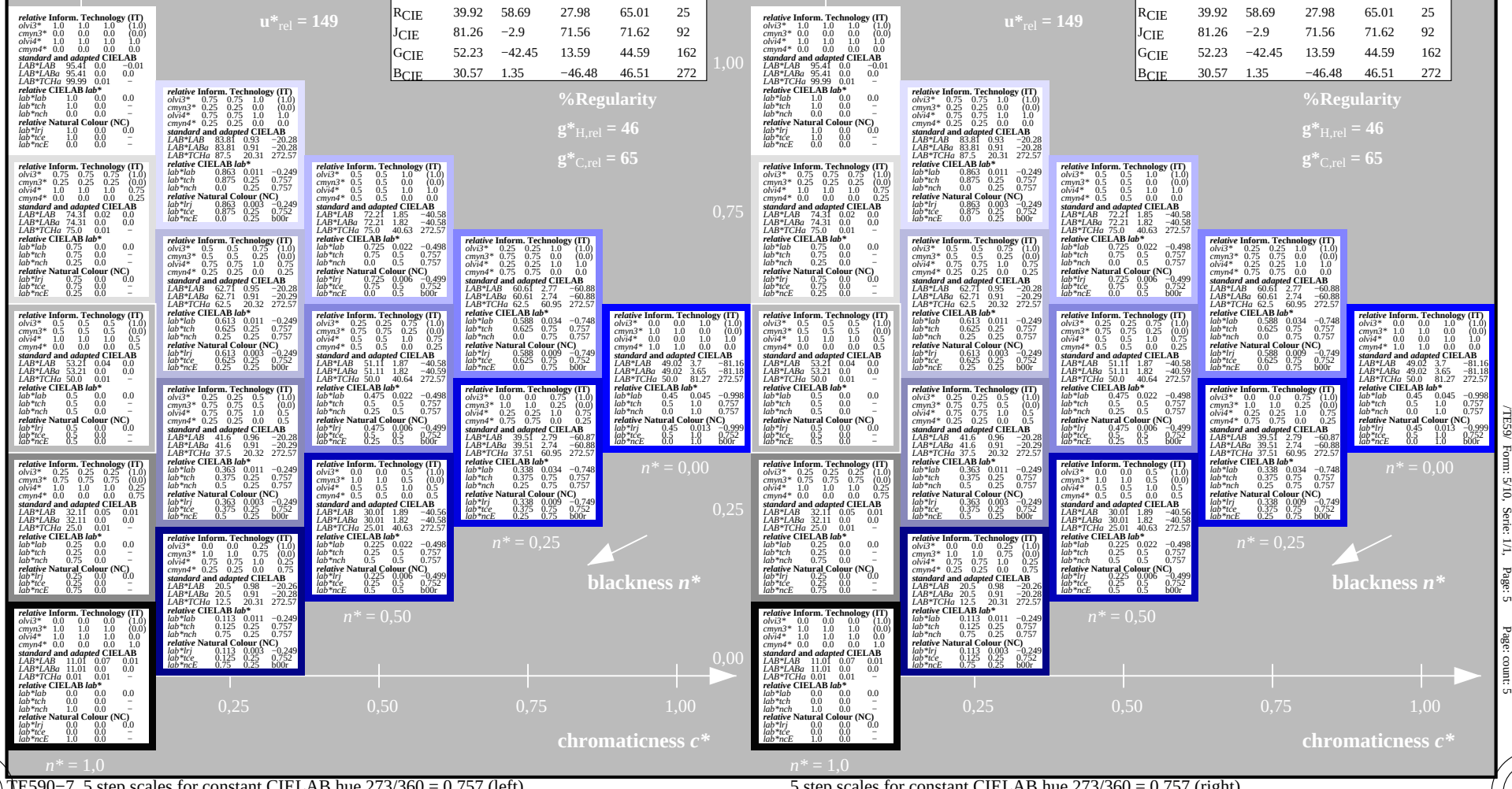


%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65



TE590−7, 5 step scales for constant CIELAB hue 273/360 = 0.757 (left)

5 step scales for constant CIELAB hue 273/360 = 0.757 (right)

BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a
D65: 2 coordinate data of 5 step colour scales for 10 hues

input: *olv* setrgbcolor*
output: *olv* setrgbcolor / w* setgray*

www.ps.bam.de/TE59/10Q/Q59E05FP.PS/.PDF; linearized output
F: Output Linearization (OL) data TE59/10Q/Q59E05FP.DAT in File (F)

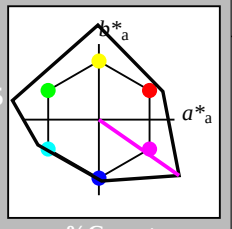
See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

BAM registration: 20060101-TE59/10Q/Q59E05FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
BAM material: code=rha4ta
/TE59/ Form: 6/10, Serie: 1/1, Page: 6 Page: count: 6

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 325/360 = 0.903$
lab*tch* and *lab*nch

D65: hue B50R
LCH*Ma: 44 129 325
rgb*Ma: 1.0 0.0 1.0

triangle lightness t^*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

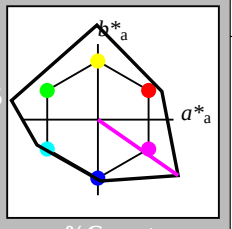
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 325/360 = 0.903$
lab*tch* and *lab*nch

D65: hue B50R
LCH*Ma: 44 129 325
rgb*Ma: 1.0 0.0 1.0

triangle lightness t^*

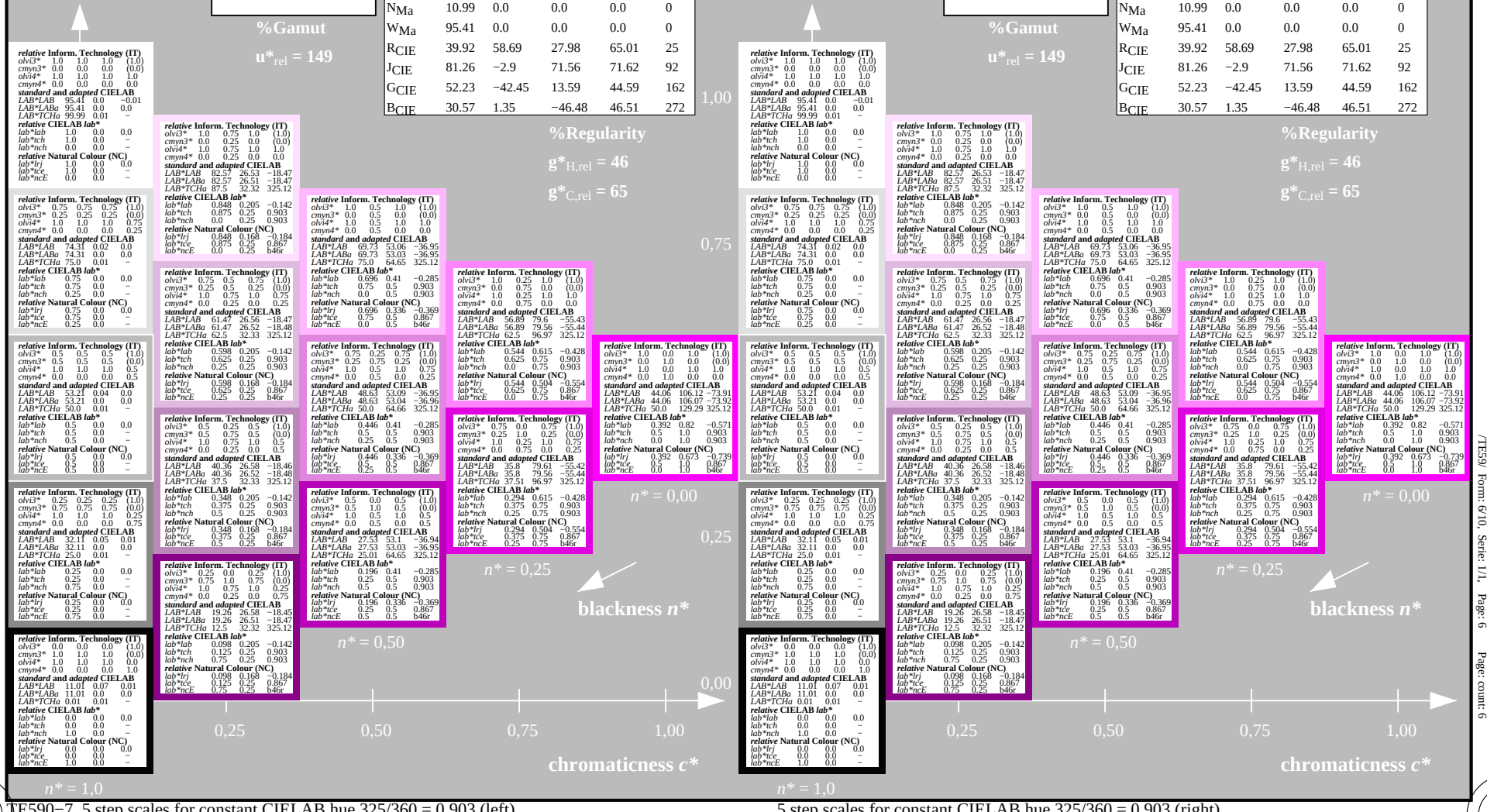


%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65



TE590−7, 5 step scales for constant CIELAB hue 325/360 = 0.903 (left)

5 step scales for constant CIELAB hue 325/360 = 0.903 (right)

BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a input: *olv* setrgbcolor*
D65: 2 coordinate data of 5 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*

www.ps.bam.de/TE59/10Q/Q59E06FP.PS/.PDF; linearized output
F: Output Linearization (OL) data TE59/10Q/Q59E06FP.DAT in File (F)

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

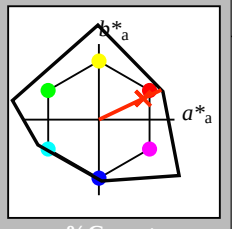
BAM registration: 20060101-TE59/10Q/Q59E06FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ

BAM material: code=rha4ta
/TE59/ Form: 7/10, Serie: 1/1, Page: 7 Page: count: 7

Input: Colorimetric Reflective System NCS11
for hue *h* = lab*h = 25/360 = 0.071*
lab*tch* and *lab*nch

D65: hue R
LCH*Ma: 48 91 25
rgb*Ma: 1.0 0.02 0.0

triangle lightness *t**



%Gamut
u*rel = 149

NCS11; adapted (a) CIELAB data

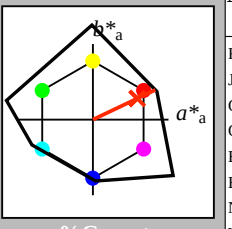
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
g*H,rel = 46
g*C,rel = 65

Output: Colorimetric Reflective System NCS11
for hue *h* = lab*h = 25/360 = 0.071*
lab*tch* and *lab*nch

D65: hue R
LCH*Ma: 48 91 25
rgb*Ma: 1.0 0.02 0.0

triangle lightness *t**

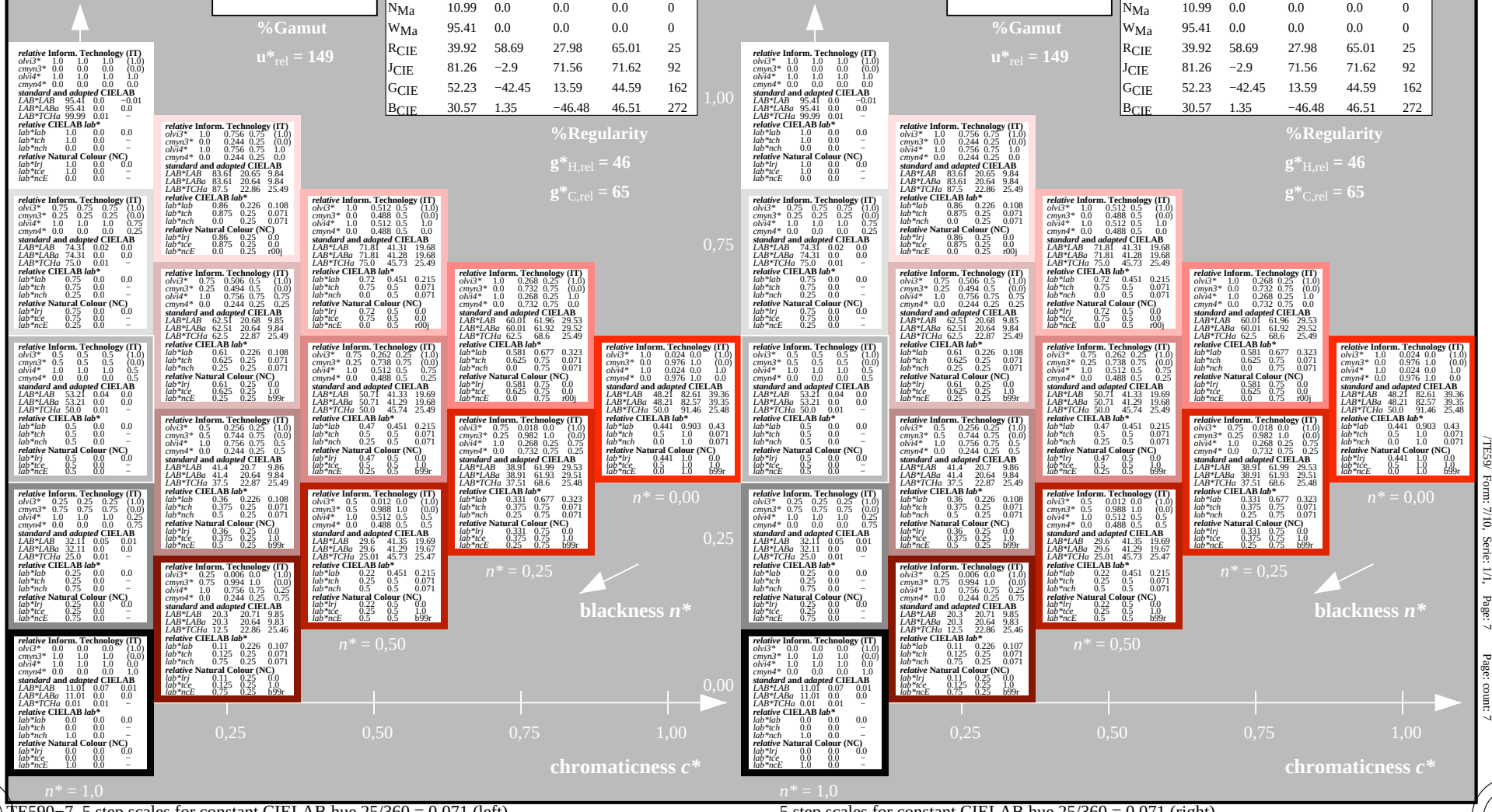


%Gamut
u*rel = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
g*H,rel = 46
g*C,rel = 65



TE590−7, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

5 step scales for constant CIELAB hue 25/360 = 0.071 (right)

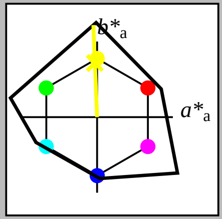
BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a input: *olv* setrgbcolor*
D65: 2 coordinate data of 5 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de
Version 2.1, io=1,1, CIEXYZ

Input: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 92/360 = 0.256$
*lab*tch* and *lab*nch*

D65: hue J
LCH*Ma: 90 122 92
rgb*Ma: 0.97 1.0 0.0
triangle lightness t^*



%Gamut
$u^*_{rel} = 149$

NCS11; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel} = 46$
$g^*_{C,rel} = 65$

relative Inform. Technology (IT)				
olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	95.41	0.0	−0.01	
LAB*LABa	95.41	0.0	0.0	
LAB*TCHa	99.99	0.01	–	
relative CIELAB lab*				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	–	
lab*nch	0.0	0.0	–	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	–	
lab*ncE	0.0	0.0	–	

relative Inform. Technology (IT)				
olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	0.75
cmyn4*	0.0	0.0	0.0	0.25
standard and adapted CIELAB				
LAB*LAB	74.31	0.02	0.0	
LAB*LABa	74.31	0.0	0.0	
LAB*TCHa	75.0	0.01	–	
relative CIELAB lab*				
lab*lab	0.75	0.0	0.0	
lab*tch	0.75	0.0	–	
lab*nch	0.25	0.0	–	
relative Natural Colour (NC)				
lab*lrj	0.75	0.0	0.0	
lab*tce	0.75	0.0	–	
lab*ncE	0.25	0.0	–	

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	53.21	0.04	0.0	
LAB*LABa	53.21	0.0	0.0	
LAB*TCHa	50.0	0.01	–	
relative CIELAB lab*				
lab*lab	0.5	0.0	0.0	
lab*tch	0.5	0.0	–	
lab*nch	0.5	0.0	–	
relative Natural Colour (NC)				
lab*lrj	0.5	0.0	0.0	
lab*tce	0.5	0.0	–	
lab*ncE	0.5	0.0	–	

relative Inform. Technology (IT)				
olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	0.25
cmyn4*	0.0	0.0	0.0	0.75
standard and adapted CIELAB				
LAB*LAB	32.11	0.05	0.01	
LAB*LABa	32.11	0.0	0.0	
LAB*TCHa	25.0	0.01	–	
relative CIELAB lab*				
lab*lab	0.25	0.0	0.0	
lab*tch	0.25	0.0	–	
lab*nch	0.75	0.0	–	
relative Natural Colour (NC)				
lab*lrj	0.25	0.0	0.0	
lab*tce	0.25	0.0	–	
lab*ncE	0.75	0.0	–	

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0
standard and adapted CIELAB				
LAB*LAB	11.01	0.07	0.01	
LAB*LABa	11.01	0.0	0.0	
LAB*TCHa	0.01	0.01	–	
relative CIELAB lab*				
lab*lab	0.0	0.0	0.0	
lab*tch	0.0	0.0	–	
lab*nch	1.0	0.0	–	
relative Natural Colour (NC)				
lab*lrj	0.0	0.0	0.0	
lab*tce	0.0	0.0	–	
lab*ncE	1.0	0.0	–	

relative Inform. Technology (IT)				
olvi3*	0.992	1.0	0.75	(1.0)
cmyn3*	0.008	0.0	0.25	(0.0)
olvi4*	0.992	1.0	0.75	1.0
cmyn4*	0.008	0.0	0.25	0.0
standard and adapted CIELAB				
LAB*LAB	94.16	−1.21	30.44	
LAB*LABa	94.16	−1.22	30.44	
LAB*TCHa	87.5	30.47	92.31	
relative CIELAB lab*				
lab*lab	0.985	−0.009	0.25	
lab*tch	0.875	0.25	0.256	
lab*nch	0.0	0.25	0.256	
relative Natural Colour (NC)				
lab*lrj	0.985	0.0	0.25	
lab*tce	0.875	0.25	0.25	
lab*ncE	0.0	0.25	r99j	

relative Inform. Technology (IT)				
olvi3*	0.742	0.75	0.5	(1.0)
cmyn3*	0.258	0.25	0.5	(0.0)
olvi4*	0.992	1.0	0.75	0.75
cmyn4*	0.008	0.0	0.25	0.25
standard and adapted CIELAB				
LAB*LAB	73.07	−1.2	30.45	
LAB*LABa	73.07	−1.23	30.45	
LAB*TCHa	62.5	30.47	92.33	
relative CIELAB lab*				
lab*lab	0.735	−0.009	0.25	
lab*tch	0.625	0.25	0.256	
lab*nch	0.25	0.25	0.256	
relative Natural Colour (NC)				
lab*lrj	0.735	0.0	0.25	
lab*tce	0.625	0.25	0.25	
lab*ncE	0.25	0.25	r99j	

relative Inform. Technology (IT)				
olvi3*	0.492	0.5	0.25	(1.0)
cmyn3*	0.508	0.5	0.75	(0.0)
olvi4*	0.992	1.0	0.75	0.5
cmyn4*	0.008	0.0	0.25	0.5
standard and adapted CIELAB				
LAB*LAB	51.96	−1.18	30.46	
LAB*LABa	51.96	−1.23	30.45	
LAB*TCHa	37.5	30.47	92.33	
relative CIELAB lab*				
lab*lab	0.485	−0.009	0.25	
lab*tch	0.375	0.25	0.256	
lab*nch	0.5	0.25	0.256	
relative Natural Colour (NC)				
lab*lrj	0.485	0.0	0.25	
lab*tce	0.375	0.25	0.25	
lab*ncE	0.5	0.25	r99j	

relative Inform. Technology (IT)				
olvi3*	0.242	0.25	0.0	(1.0)
cmyn3*	0.758	0.75	1.0	(0.0)
olvi4*	0.992	1.0	0.75	0.25
cmyn4*	0.008	0.0	0.25	0.75
standard and adapted CIELAB				
LAB*LAB	30.86	−1.17	30.45	
LAB*LABa	30.86	−1.23	30.43	
LAB*TCHa	12.5	30.46	92.33	
relative CIELAB lab*				
lab*lab	0.235	−0.009	0.25	
lab*tch	0.125	0.25	0.256	
lab*nch	0.75	0.25	0.256	
relative Natural Colour (NC)				
lab*lrj	0.235	0.0	0.25	
lab*tce	0.125	0.25	0.25	
lab*ncE	0.75	0.25	j00g	

relative Inform. Technology (IT)				
olvi3*	0.984	1.0	0.5	(1.0)
cmyn3*	0.016	0.0	0.5	(0.0)
olvi4*	0.984	1.0	0.5	1.0
cmyn4*	0.016	0.0	0.5	0.0
standard and adapted CIELAB				
LAB*LAB	92.92	−2.44	60.89	
LAB*LABa	92.92	−2.46	60.89	
LAB*TCHa	75.0	60.94	92.32	
relative CIELAB lab*				
lab*lab	0.971	−0.019	0.499	
lab*tch	0.75	0.5	0.256	
lab*nch	0.0	0.5	0.256	
relative Natural Colour (NC)				
lab*lrj	0.971	0.0	0.5	
lab*tce	0.75	0.5	0.25	
lab*ncE	0.0	0.5	r99j	

relative Inform. Technology (IT)				
olvi3*	0.734	0.75	0.25	(1.0)
cmyn3*	0.266	0.25	0.75	(0.0)
olvi4*	0.984	1.0	0.5	0.75
cmyn4*	0.016	0.0	0.5	0.25
standard and adapted CIELAB				
LAB*LAB	71.83	−2.44	60.9	
LAB*LABa	71.83	−2.47	60.89	
LAB*TCHa	50.0	60.94	92.33	
relative CIELAB lab*				
lab*lab	0.721	−0.019	0.5	
lab*tch	0.5	0.5	0.256	
lab*nch	0.25	0.5	0.256	
relative Natural Colour (NC)				
lab*lrj	0.721	0.0	0.5	
lab*tce	0.5	0.5	0.25	
lab*ncE	0.25	0.5	r99j	

relative Inform. Technology (IT)				
olvi3*	0.484	0.5	0.0	(1.0)
cmyn3*	0.516	0.5	1.0	(0.0)
olvi4*	0.984	1.0	0.5	0.5
cmyn4*	0.016	0.0	0.5	0.5
standard and adapted CIELAB				
LAB*LAB	50.72	−2.42	60.89	
LAB*LABa	50.72	−2.47	60.88	
LAB*TCHa	25.01	60.93	92.33	
relative CIELAB lab*				
lab*lab	0.471	−0.019	0.499	
lab*tch	0.25	0.5	0.256	
lab*nch	0.5	0.5	0.256	
relative Natural Colour (NC)				
lab*lrj	0.471	0.0	0.5	
lab*tce	0.25	0.5	0.25	
lab*ncE	0.5	0.5	j00g	

relative Inform. Technology (IT)				
olvi3*	0.976	1.0	0.25	(1.0)
cmyn3*	0.024	0.0	0.75	(0.0)
olvi4*	0.976	1.0	0.25	1.0
cmyn4*	0.024	0.0	0.75	0.0
standard and adapted CIELAB				
LAB*LAB	91.68	−3.68	91.34	
LAB*LABa	91.68	−3.69	91.34	
LAB*TCHa	62.5	91.41	92.32	
relative CIELAB lab*				
lab*lab	0.956	−0.029	0.749	
lab*tch	0.625	0.75	0.256	
lab*nch	0.0	0.75	0.256	
relative Natural Colour (NC)				
lab*lrj	0.956	0.0	0.75	
lab*tce	0.625	0.75	0.25	
lab*ncE	0.0	0.75	r99j	

relative Inform. Technology (IT)				
olvi3*	0.726	0.75	0.0	(1.0)
cmyn3*	0.274	0.25	1.0	(0.0)
olvi4*	0.976	1.0	0.25	0.75
cmyn4*	0.024	0.0	0.75	0.25
standard and adapted CIELAB				
LAB*LAB	70.59	−3.68	91.33	
LAB*LABa	70.59	−3.71	91.33	
LAB*TCHa	37.51	91.4	92.33	
relative CIELAB lab*				
lab*lab	0.706	−0.029	0.749	
lab*tch	0.375	0.75	0.256	
lab*nch	0.25	0.75	0.256	
relative Natural Colour (NC)				
lab*lrj	0.706	0.0	0.75	
lab*tce	0.375	0.75	0.25	
lab*ncE	0.25	0.75	j00g	

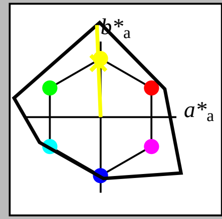
relative Inform. Technology (IT)				
olvi3*	0.967	1.0	0.0	(1.0)
cmyn3*	0.033	0.0	1.0	(0.0)
olvi4*	0.968	1.0	0.0	1.0
cmyn4*	0.032	0.0	1.0	0.0
standard and adapted CIELAB				
LAB*LAB	90.45	−4.92	121.77	
LAB*LABa	90.45	−4.93	121.77	
LAB*TCHa	50.0	121.87	92.32	
relative CIELAB lab*				
lab*lab	0.941	−0.04	0.999	
lab*tch	0.5	1.0	0.256	
lab*nch	0.0	1.0	0.256	
relative Natural Colour (NC)				
lab*lrj	0.941	0.0	1.0	
lab*tce	0.5	1.0	0.25	
lab*ncE	0.0	1.0	r99j	

1,00
0,75
0,25
0,00
$n^* = 0,00$
$n^* = 0,25$
$n^* = 0,50$
$n^* = 1,0$
blackness n^*
0,25 0,50 0,75 1,00
chromaticness c^*

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 92/360 = 0.256$
*lab*tch* and *lab*nch*

D65: hue J
LCH*Ma: 90 122 92
rgb*Ma: 0.97 1.0 0.0
triangle lightness t^*



%Gamut
$u^*_{rel} = 149$

NCS11; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel} = 46$
$g^*_{C,rel} = 65$

(The 15 data boxes of the output chart repeat those of the input chart above.)

$n^* = 0,00$
$n^* = 0,25$
$n^* = 0,50$
$n^* = 1,0$
blackness n^*
0,25 0,50 0,75 1,00
chromaticness c^*

TE590−7, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)
5 step scales for constant CIELAB hue 92/360 = 0.256 (right)

BAM registration: 20060101-TE59/10Q/Q59E07FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems
BAM material: code=rha4ta
Yr=2.5, XYZ

BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a input: *olv* setrgbcolor*
D65: 2 coordinate data of 5 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*

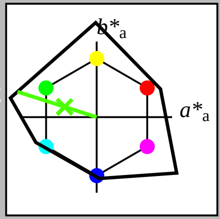
See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de Version 2.1, io=1,1, CIEXYZ

Input: Colorimetric Reflective System NCS11

for hue *h* = lab*h = 162/360 = 0.451*
lab*tch* and *lab*nch

D65: hue G
LCH*Ma: 65 110 162
rgb*Ma: 0.08 1.0 0.0

triangle lightness *t*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

relative Inform. Technology (IT)				
olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	95.41	0.0	−0.01	
LAB*LABa	95.41	0.0	0.0	
LAB*TCHa	99.99	0.01	−	
relative CIELAB lab*				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	−	
lab*nch	0.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	−	
lab*ncE	0.0	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.771	1.0	0.75	(1.0)
cmyn3*	0.229	0.0	0.25	(0.0)
olvi4*	0.771	1.0	0.75	1.0
cmyn4*	0.229	0.0	0.25	0.0
standard and adapted CIELAB				
LAB*LAB	87.9	−26.2	8.39	
LAB*LABa	87.9	−26.22	8.39	
LAB*TCHa	87.5	27.54	162.25	
relative CIELAB lab*				
lab*lab	0.911	−0.237	0.076	
lab*tch	0.875	0.25	0.451	
lab*nch	0.0	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.911	−0.249	0.0	
lab*tce	0.875	0.25	0.5	
lab*ncE	0.0	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	0.75
cmyn4*	0.0	0.0	0.0	0.25
standard and adapted CIELAB				
LAB*LAB	74.31	0.02	0.0	
LAB*LABa	74.31	0.0	0.0	
LAB*TCHa	75.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.75	0.0	0.0	
lab*tch	0.75	0.0	−	
lab*nch	0.25	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.75	0.0	0.0	
lab*tce	0.75	0.0	−	
lab*ncE	0.25	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.541	1.0	0.5	(1.0)
cmyn3*	0.459	0.0	0.5	(0.0)
olvi4*	0.541	1.0	0.5	1.0
cmyn4*	0.459	0.0	0.5	0.0
standard and adapted CIELAB				
LAB*LAB	80.4	−52.43	16.79	
LAB*LABa	80.4	−52.45	16.79	
LAB*TCHa	75.0	55.08	162.25	
relative CIELAB lab*				
lab*lab	0.822	−0.475	0.152	
lab*tch	0.75	0.5	0.451	
lab*nch	0.0	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.822	−0.499	0.0	
lab*tce	0.75	0.5	0.5	
lab*ncE	0.0	0.5	j99g	

relative Inform. Technology (IT)				
olvi3*	0.521	0.75	0.5	(1.0)
cmyn3*	0.479	0.25	0.5	(0.0)
olvi4*	0.771	1.0	0.75	0.75
cmyn4*	0.229	0.0	0.25	0.25
standard and adapted CIELAB				
LAB*LAB	66.81	−26.19	8.4	
LAB*LABa	66.81	−26.23	8.4	
LAB*TCHa	62.5	27.55	162.25	
relative CIELAB lab*				
lab*lab	0.661	−0.237	0.076	
lab*tch	0.625	0.25	0.451	
lab*nch	0.25	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.661	−0.249	0.0	
lab*tce	0.625	0.25	0.5	
lab*ncE	0.25	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.312	1.0	0.25	(1.0)
cmyn3*	0.688	0.0	0.75	(0.0)
olvi4*	0.312	1.0	0.25	1.0
cmyn4*	0.688	0.0	0.75	0.0
standard and adapted CIELAB				
LAB*LAB	72.9	−78.66	25.19	
LAB*LABa	72.9	−78.69	25.19	
LAB*TCHa	62.5	82.63	162.25	
relative CIELAB lab*				
lab*lab	0.733	−0.713	0.229	
lab*tch	0.625	0.75	0.451	
lab*nch	0.0	0.75	0.451	
relative Natural Colour (NC)				
lab*lrj	0.733	−0.749	0.0	
lab*tce	0.625	0.75	0.5	
lab*ncE	0.0	0.75	j99g	

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	53.21	0.04	0.0	
LAB*LABa	53.21	0.0	0.0	
LAB*TCHa	50.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.5	0.0	0.0	
lab*tch	0.5	0.0	−	
lab*nch	0.5	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.5	0.0	0.0	
lab*tce	0.5	0.0	−	
lab*ncE	0.5	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.291	0.75	0.25	(1.0)
cmyn3*	0.709	0.25	0.75	(0.0)
olvi4*	0.541	1.0	0.5	0.75
cmyn4*	0.459	0.0	0.5	0.25
standard and adapted CIELAB				
LAB*LAB	59.31	−52.42	16.8	
LAB*LABa	59.31	−52.46	16.79	
LAB*TCHa	50.0	55.09	162.25	
relative CIELAB lab*				
lab*lab	0.572	−0.475	0.152	
lab*tch	0.5	0.5	0.451	
lab*nch	0.25	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.572	−0.499	0.0	
lab*tce	0.5	0.5	0.5	
lab*ncE	0.25	0.5	g00b	

relative Inform. Technology (IT)				
olvi3*	0.083	1.0	0.0	(1.0)
cmyn3*	0.917	0.0	1.0	(0.0)
olvi4*	0.083	1.0	0.0	1.0
cmyn4*	0.917	0.0	1.0	0.0
standard and adapted CIELAB				
LAB*LAB	65.41	−104.89	33.58	
LAB*LABa	65.41	−104.92	33.57	
LAB*TCHa	50.0	110.17	162.26	
relative CIELAB lab*				
lab*lab	0.645	−0.951	0.305	
lab*tch	0.5	1.0	0.451	
lab*nch	0.0	1.0	0.451	
relative Natural Colour (NC)				
lab*lrj	0.645	−0.999	0.0	
lab*tce	0.5	1.0	0.5	
lab*ncE	0.0	1.0	g00b	

relative Inform. Technology (IT)				
olvi3*	0.271	0.5	0.25	(1.0)
cmyn3*	0.729	0.5	0.75	(0.0)
olvi4*	0.771	1.0	0.75	0.5
cmyn4*	0.229	0.0	0.25	0.5
standard and adapted CIELAB				
LAB*LAB	45.7	−26.18	8.41	
LAB*LABa	45.7	−26.23	8.4	
LAB*TCHa	37.5	27.55	162.25	
relative CIELAB lab*				
lab*lab	0.411	−0.237	0.076	
lab*tch	0.375	0.25	0.451	
lab*nch	0.5	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.411	−0.249	0.0	
lab*tce	0.375	0.25	0.5	
lab*ncE	0.5	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.062	0.75	0.0	(1.0)
cmyn3*	0.938	0.25	1.0	(0.0)
olvi4*	0.312	1.0	0.25	0.75
cmyn4*	0.688	0.0	0.75	0.25
standard and adapted CIELAB				
LAB*LAB	51.81	−78.65	25.19	
LAB*LABa	51.81	−78.7	25.18	
LAB*TCHa	37.51	82.64	162.26	
relative CIELAB lab*				
lab*lab	0.483	−0.713	0.228	
lab*tch	0.375	0.75	0.451	
lab*nch	0.25	0.75	0.451	
relative Natural Colour (NC)				
lab*lrj	0.483	−0.749	0.0	
lab*tce	0.375	0.75	0.5	
lab*ncE	0.25	0.75	g00b	

*n** = 0,00

relative Inform. Technology (IT)				
olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	0.25
cmyn4*	0.0	0.0	0.0	0.75
standard and adapted CIELAB				
LAB*LAB	32.11	0.05	0.01	
LAB*LABa	32.11	0.0	0.0	
LAB*TCHa	25.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.25	0.0	0.0	
lab*tch	0.25	0.0	−	
lab*nch	0.75	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.25	0.0	0.0	
lab*tce	0.25	0.0	−	
lab*ncE	0.75	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.041	0.5	0.0	(1.0)
cmyn3*	0.959	0.5	1.0	(0.0)
olvi4*	0.541	1.0	0.5	0.5
cmyn4*	0.459	0.0	0.5	0.5
standard and adapted CIELAB				
LAB*LAB	38.2	−52.41	16.8	
LAB*LABa	38.2	−52.46	16.78	
LAB*TCHa	25.01	55.09	162.27	
relative CIELAB lab*				
lab*lab	0.322	−0.475	0.152	
lab*tch	0.25	0.5	0.451	
lab*nch	0.5	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.322	−0.499	0.0	
lab*tce	0.25	0.5	0.5	
lab*ncE	0.5	0.5	g00b	

*n** = 0,25

blackness *n*

relative Inform. Technology (IT)				
olvi3*	0.021	0.25	0.0	(1.0)
cmyn3*	0.979	0.75	1.0	(0.0)
olvi4*	0.771	1.0	0.75	0.25
cmyn4*	0.229	0.0	0.25	0.75
standard and adapted CIELAB				
LAB*LAB	24.6	−26.16	8.4	
LAB*LABa	24.6	−26.23	8.38	
LAB*TCHa	12.5	27.54	162.28	
relative CIELAB lab*				
lab*lab	0.161	−0.237	0.076	
lab*tch	0.125	0.25	0.451	
lab*nch	0.75	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.161	−0.249	0.0	
lab*tce	0.125	0.25	0.5	
lab*ncE	0.75	0.25	g00b	

*n** = 0,50

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0
standard and adapted CIELAB				
LAB*LAB	11.01	0.07	0.01	
LAB*LABa	11.01	0.0	0.0	
LAB*TCHa	0.01	0.01	−	
relative CIELAB lab*				
lab*lab	0.0	0.0	0.0	
lab*tch	0.0	0.0	−	
lab*nch	1.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.0	0.0	0.0	
lab*tce	0.0	0.0	−	
lab*ncE	1.0	0.0	−	

1,00 0,75 0,25 0,00

0,25 0,50 0,75 1,00

chromaticness *c*

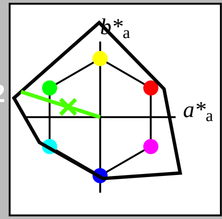
*n** = 1,0

Output: Colorimetric Reflective System NCS11

for hue *h* = lab*h = 162/360 = 0.451*
lab*tch* and *lab*nch

D65: hue G
LCH*Ma: 65 110 162
rgb*Ma: 0.08 1.0 0.0

triangle lightness *t*



%Gamut
u^*_{rel} = 149

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

%Regularity
$g^*_{H,rel}$ = 46
$g^*_{C,rel}$ = 65

relative Inform. Technology (IT)				
olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	95.41	0.0	−0.01	
LAB*LABa	95.41	0.0	0.0	
LAB*TCHa	99.99	0.01	−	
relative CIELAB lab*				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	−	
lab*nch	0.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	−	
lab*ncE	0.0	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.771	1.0	0.75	(1.0)
cmyn3*	0.229	0.0	0.25	(0.0)
olvi4*	0.771	1.0	0.75	1.0
cmyn4*	0.229	0.0	0.25	0.0
standard and adapted CIELAB				
LAB*LAB	87.9	−26.2	8.39	
LAB*LABa	87.9	−26.22	8.39	
LAB*TCHa	87.5	27.54	162.25	
relative CIELAB lab*				
lab*lab	0.911	−0.237	0.076	
lab*tch	0.875	0.25	0.451	
lab*nch	0.0	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.911	−0.249	0.0	
lab*tce	0.875	0.25	0.5	
lab*ncE	0.0	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	0.75
cmyn4*	0.0	0.0	0.0	0.25
standard and adapted CIELAB				
LAB*LAB	74.31	0.02	0.0	
LAB*LABa	74.31	0.0	0.0	
LAB*TCHa	75.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.75	0.0	0.0	
lab*tch	0.75	0.0	−	
lab*nch	0.25	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.75	0.0	0.0	
lab*tce	0.75	0.0	−	
lab*ncE	0.25	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.541	1.0	0.5	(1.0)
cmyn3*	0.459	0.0	0.5	(0.0)
olvi4*	0.541	1.0	0.5	1.0
cmyn4*	0.459	0.0	0.5	0.0
standard and adapted CIELAB				
LAB*LAB	80.4	−52.43	16.79	
LAB*LABa	80.4	−52.45	16.79	
LAB*TCHa	75.0	55.08	162.25	
relative CIELAB lab*				
lab*lab	0.822	−0.475	0.152	
lab*tch	0.75	0.5	0.451	
lab*nch	0.0	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.822	−0.499	0.0	
lab*tce	0.75	0.5	0.5	
lab*ncE	0.0	0.5	j99g	

relative Inform. Technology (IT)				
olvi3*	0.521	0.75	0.5	(1.0)
cmyn3*	0.479	0.25	0.5	(0.0)
olvi4*	0.771	1.0	0.75	0.75
cmyn4*	0.229	0.0	0.25	0.25
standard and adapted CIELAB				
LAB*LAB	66.81	−26.19	8.4	
LAB*LABa	66.81	−26.23	8.4	
LAB*TCHa	62.5	27.55	162.25	
relative CIELAB lab*				
lab*lab	0.661	−0.237	0.076	
lab*tch	0.625	0.25	0.451	
lab*nch	0.25	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.661	−0.249	0.0	
lab*tce	0.625	0.25	0.5	
lab*ncE	0.25	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.312	1.0	0.25	(1.0)
cmyn3*	0.688	0.0	0.75	(0.0)
olvi4*	0.312	1.0	0.25	1.0
cmyn4*	0.688	0.0	0.75	0.0
standard and adapted CIELAB				
LAB*LAB	72.9	−78.66	25.19	
LAB*LABa	72.9	−78.69	25.19	
LAB*TCHa	62.5	82.63	162.25	
relative CIELAB lab*				
lab*lab	0.733	−0.713	0.229	
lab*tch	0.625	0.75	0.451	
lab*nch	0.0	0.75	0.451	
relative Natural Colour (NC)				
lab*lrj	0.733	−0.749	0.0	
lab*tce	0.625	0.75	0.5	
lab*ncE	0.0	0.75	j99g	

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	53.21	0.04	0.0	
LAB*LABa	53.21	0.0	0.0	
LAB*TCHa	50.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.5	0.0	0.0	
lab*tch	0.5	0.0	−	
lab*nch	0.5	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.5	0.0	0.0	
lab*tce	0.5	0.0	−	
lab*ncE	0.5	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.291	0.75	0.25	(1.0)
cmyn3*	0.709	0.25	0.75	(0.0)
olvi4*	0.541	1.0	0.5	0.75
cmyn4*	0.459	0.0	0.5	0.25
standard and adapted CIELAB				
LAB*LAB	59.31	−52.42	16.8	
LAB*LABa	59.31	−52.46	16.79	
LAB*TCHa	50.0	55.09	162.25	
relative CIELAB lab*				
lab*lab	0.572	−0.475	0.152	
lab*tch	0.5	0.5	0.451	
lab*nch	0.25	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.572	−0.499	0.0	
lab*tce	0.5	0.5	0.5	
lab*ncE	0.25	0.5	g00b	

relative Inform. Technology (IT)				
olvi3*	0.083	1.0	0.0	(1.0)
cmyn3*	0.917	0.0	1.0	(0.0)
olvi4*	0.083	1.0	0.0	1.0
cmyn4*	0.917	0.0	1.0	0.0
standard and adapted CIELAB				
LAB*LAB	65.41	−104.89	33.58	
LAB*LABa	65.41	−104.92	33.57	
LAB*TCHa	50.0	110.17	162.26	
relative CIELAB lab*				
lab*lab	0.645	−0.951	0.305	
lab*tch	0.5	1.0	0.451	
lab*nch	0.0	1.0	0.451	
relative Natural Colour (NC)				
lab*lrj	0.645	−0.999	0.0	
lab*tce	0.5	1.0	0.5	
lab*ncE	0.0	1.0	g00b	

relative Inform. Technology (IT)				
olvi3*	0.271	0.5	0.25	(1.0)
cmyn3*	0.729	0.5	0.75	(0.0)
olvi4*	0.771	1.0	0.75	0.5
cmyn4*	0.229	0.0	0.25	0.5
standard and adapted CIELAB				
LAB*LAB	45.7	−26.18	8.41	
LAB*LABa	45.7	−26.23	8.4	
LAB*TCHa	37.5	27.55	162.25	
relative CIELAB lab*				
lab*lab	0.411	−0.237	0.076	
lab*tch	0.375	0.25	0.451	
lab*nch	0.5	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.411	−0.249	0.0	
lab*tce	0.375	0.25	0.5	
lab*ncE	0.5	0.25	j99g	

relative Inform. Technology (IT)				
olvi3*	0.062	0.75	0.0	(1.0)
cmyn3*	0.938	0.25	1.0	(0.0)
olvi4*	0.312	1.0	0.25	0.75
cmyn4*	0.688	0.0	0.75	0.25
standard and adapted CIELAB				
LAB*LAB	51.81	−78.65	25.19	
LAB*LABa	51.81	−78.7	25.18	
LAB*TCHa	37.51	82.64	162.26	
relative CIELAB lab*				
lab*lab	0.483	−0.713	0.228	
lab*tch	0.375	0.75	0.451	
lab*nch	0.25	0.75	0.451	
relative Natural Colour (NC)				
lab*lrj	0.483	−0.749	0.0	
lab*tce	0.375	0.75	0.5	
lab*ncE	0.25	0.75	g00b	

*n** = 0,00

relative Inform. Technology (IT)				
olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	0.25
cmyn4*	0.0	0.0	0.0	0.75
standard and adapted CIELAB				
LAB*LAB	32.11	0.05	0.01	
LAB*LABa	32.11	0.0	0.0	
LAB*TCHa	25.0	0.01	−	
relative CIELAB lab*				
lab*lab	0.25	0.0	0.0	
lab*tch	0.25	0.0	−	
lab*nch	0.75	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.25	0.0	0.0	
lab*tce	0.25	0.0	−	
lab*ncE	0.75	0.0	−	

relative Inform. Technology (IT)				
olvi3*	0.041	0.5	0.0	(1.0)
cmyn3*	0.959	0.5	1.0	(0.0)
olvi4*	0.541	1.0	0.5	0.5
cmyn4*	0.459	0.0	0.5	0.5
standard and adapted CIELAB				
LAB*LAB	38.2	−52.41	16.8	
LAB*LABa	38.2	−52.46	16.78	
LAB*TCHa	25.01	55.09	162.27	
relative CIELAB lab*				
lab*lab	0.322	−0.475	0.152	
lab*tch	0.25	0.5	0.451	
lab*nch	0.5	0.5	0.451	
relative Natural Colour (NC)				
lab*lrj	0.322	−0.499	0.0	
lab*tce	0.25	0.5	0.5	
lab*ncE	0.5	0.5	g00b	

*n** = 0,25

blackness *n*

relative Inform. Technology (IT)				
olvi3*	0.021	0.25	0.0	(1.0)
cmyn3*	0.979	0.75	1.0	(0.0)
olvi4*	0.771	1.0	0.75	0.25
cmyn4*	0.229	0.0	0.25	0.75
standard and adapted CIELAB				
LAB*LAB	24.6	−26.16	8.4	
LAB*LABa	24.6	−26.23	8.38	
LAB*TCHa	12.5	27.54	162.28	
relative CIELAB lab*				
lab*lab	0.161	−0.237	0.076	
lab*tch	0.125	0.25	0.451	
lab*nch	0.75	0.25	0.451	
relative Natural Colour (NC)				
lab*lrj	0.161	−0.249	0.0	
lab*tce	0.125	0.25	0.5	
lab*ncE	0.75	0.25	g00b	

*n** = 0,50

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0
standard and adapted CIELAB				
LAB*LAB	11.01	0.07	0.01	
LAB*LABa	11.01	0.0	0.0	
LAB*TCHa	0.01	0.01	−	
relative CIELAB lab*				
lab*lab	0.0	0.0	0.0	
lab*tch	0.0	0.0	−	
lab*nch	1.0	0.0	−	
relative Natural Colour (NC)				
lab*lrj	0.0	0.0	0.0	
lab*tce	0.0	0.0	−	
lab*ncE	1.0	0.0	−	

0,25 0,50 0,75 1,00

chromaticness *c*

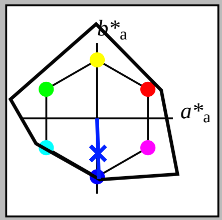
*n** = 1,0

BAM registration: 20060101-TE59/10Q/Q59E08FP.PS/.PDF BAM material: code=rha4ta
application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ
/TE59/ Form: 9/10, Serie: 1/1, Page: 9 Page: count: 9

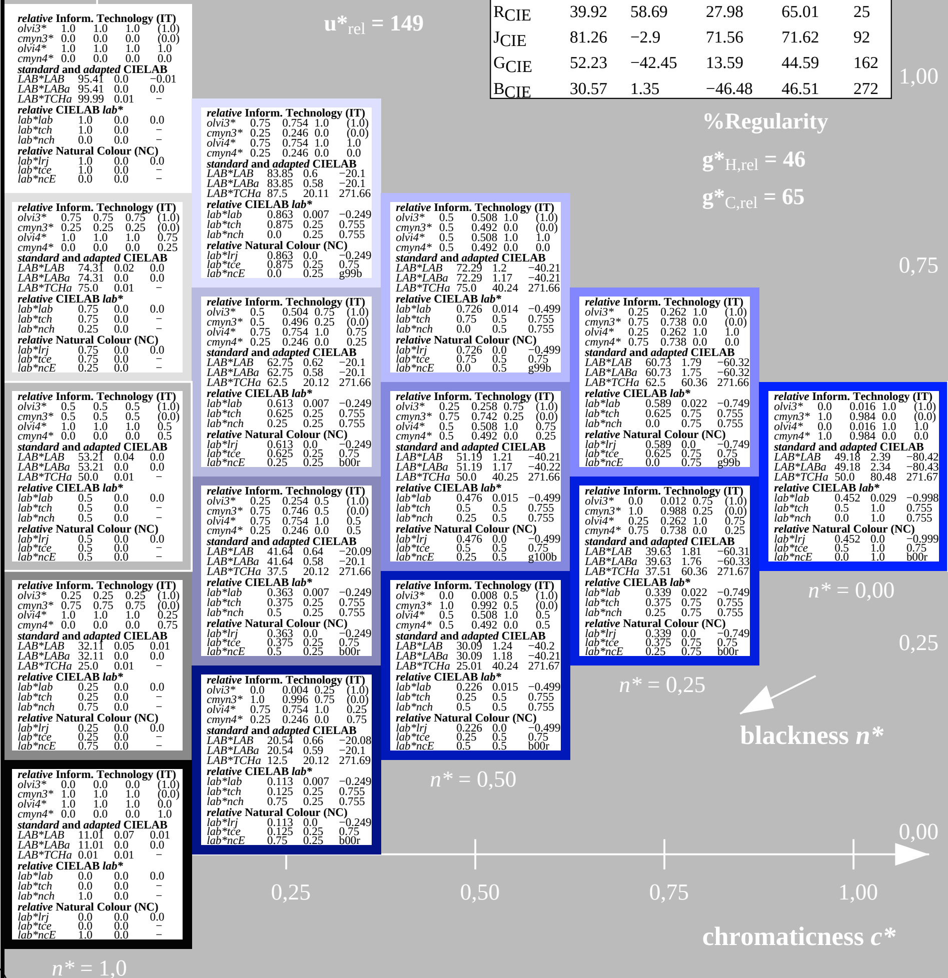
TE590−7, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)
5 step scales for constant CIELAB hue 162/360 = 0.451 (right)

Input: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 272/360 = 0.755$
*lab*tch and lab*nch*

D65: hue B
LCH*Ma: 49 80 272
rgb*Ma: 0.0 0.02 1.0
triangle lightness t^*

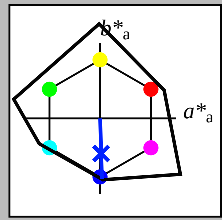


NCS11; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272

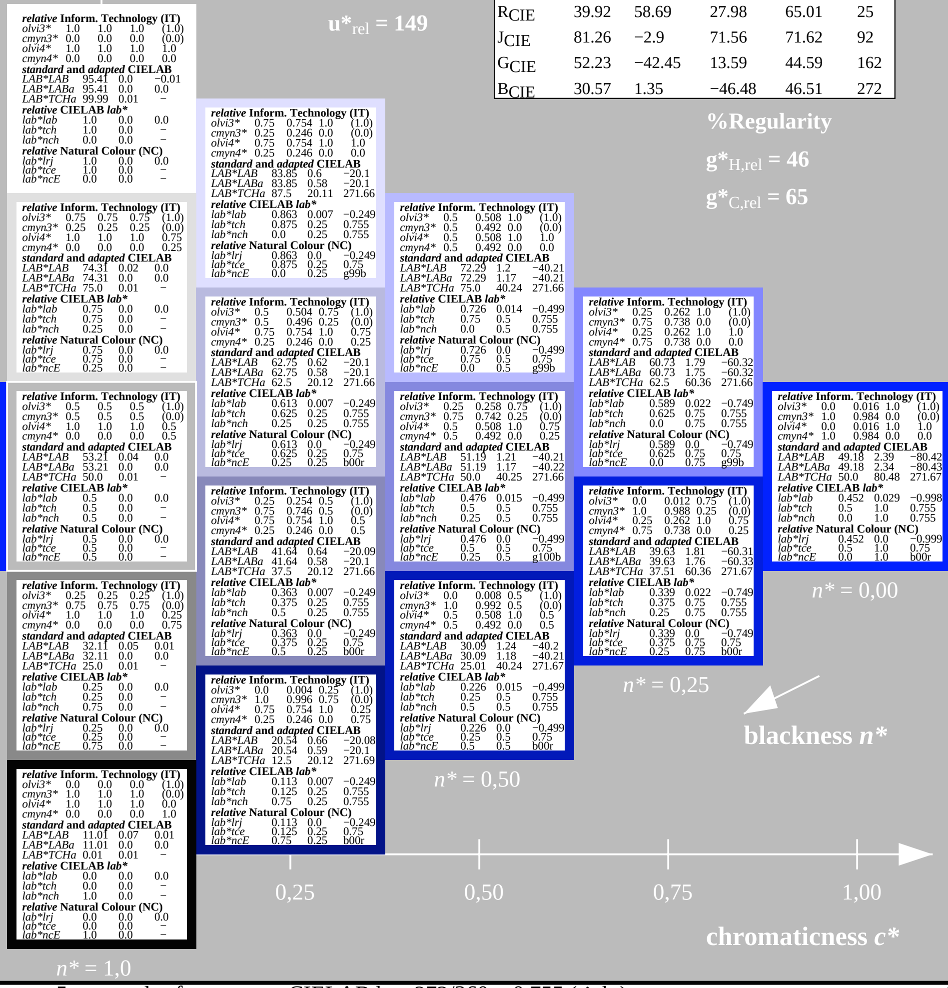


Output: Colorimetric Reflective System NCS11
for hue $h^* = lab^*h = 272/360 = 0.755$
*lab*tch and lab*nch*

D65: hue B
LCH*Ma: 49 80 272
rgb*Ma: 0.0 0.02 1.0
triangle lightness t^*



NCS11; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R_{Ma}	47.15	84.64	37.25	92.48	24
J_{Ma}	91.37	−1.27	125.03	125.03	91
G_{Ma}	63.07	−114.28	25.35	117.06	167
$G50B_{Ma}$	59.47	−80.6	−33.45	87.28	203
B_{Ma}	49.01	3.65	−81.19	81.28	273
$B50R_{Ma}$	44.06	106.09	−73.93	129.32	325
N_{Ma}	10.99	0.0	0.0	0.0	0
W_{Ma}	95.41	0.0	0.0	0.0	0
R_{CIE}	39.92	58.69	27.98	65.01	25
J_{CIE}	81.26	−2.9	71.56	71.62	92
G_{CIE}	52.23	−42.45	13.59	44.59	162
B_{CIE}	30.57	1.35	−46.48	46.51	272



TE590−7, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)
5 step scales for constant CIELAB hue 272/360 = 0.755 (right)

BAM-test chart TE59; Colorimetric systems NCS11a & NCS11a input: *olv* setrgbcolor*
D65: 2 coordinate data of 5 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*

See for similar files: http://www.ps.bam.de/TE59/
Technical information: http://www.ps.bam.de
Version 2.1, io=1,1, CIEXYZ

BAM registration: 20060101-TE59/10Q/Q59E09FP.PS/.PDF
application for evaluation and measurement of printer or monitor systems
BAM material: code=rha4ta
Yr=2.5, XYZ