

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 30/360 = 0.083$

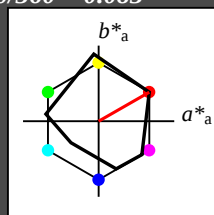
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 50 77 30

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 24/360 = 0.066$

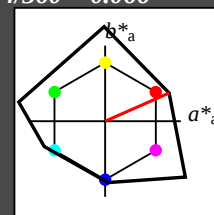
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 47 92 24

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Gamut

$u^*_{rel} = 149$

%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*	0.5	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*	0.0	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*	1.0	0.5	0.5	(1.0)
cmyn3*	0.0	0.5	0.5	(0.0)
olvi4*	1.0	0.5	0.5	1.0
cmyn4*	0.0	0.5	0.5	0.0

standard and adapted CIELAB

LAB*LAB	71.27	42.34	18.63
LAB*LABa	71.27	42.31	18.62
LAB*TCHa	75.0	46.23	23.75

relative CIELAB lab*

lab*lab	0.714	0.458	0.201
lab*tch	0.75	0.5	0.066
lab*nch	0.0	0.5	0.066

relative Natural Colour (NC)

lab*lrj	0.714	0.5	-0.011
lab*tce	0.75	0.5	0.996
lab*nce	0.0	0.5	b98r

relative Inform. Technology (IT)

olvi3*	0.5	0.0	0.0	(1.0)
cmyn3*	0.5	1.0	1.0	(0.0)
olvi4*	1.0	0.5	0.5	0.5
cmyn4*	0.0	0.5	0.5	0.5

standard and adapted CIELAB

LAB*LAB	29.07	42.38	18.64
LAB*LABa	29.07	42.31	18.62
LAB*TCHa	25.01	46.23	23.75

relative CIELAB lab*

lab*lab	0.214	0.458	0.201
lab*tch	0.25	0.5	0.066
lab*nch	0.5	0.5	0.066

relative Natural Colour (NC)

lab*lrj	0.214	0.5	-0.011
lab*tce	0.25	0.5	0.996
lab*nce	0.5	0.5	b98r

relative Inform. Technology (IT)

olvi3*	1.0	0.0	0.0	(1.0)
cmyn3*	0.0	1.0	1.0	(0.0)
olvi4*	1.0	0.0	0.0	1.0
cmyn4*	0.0	1.0	1.0	0.0

standard and adapted CIELAB

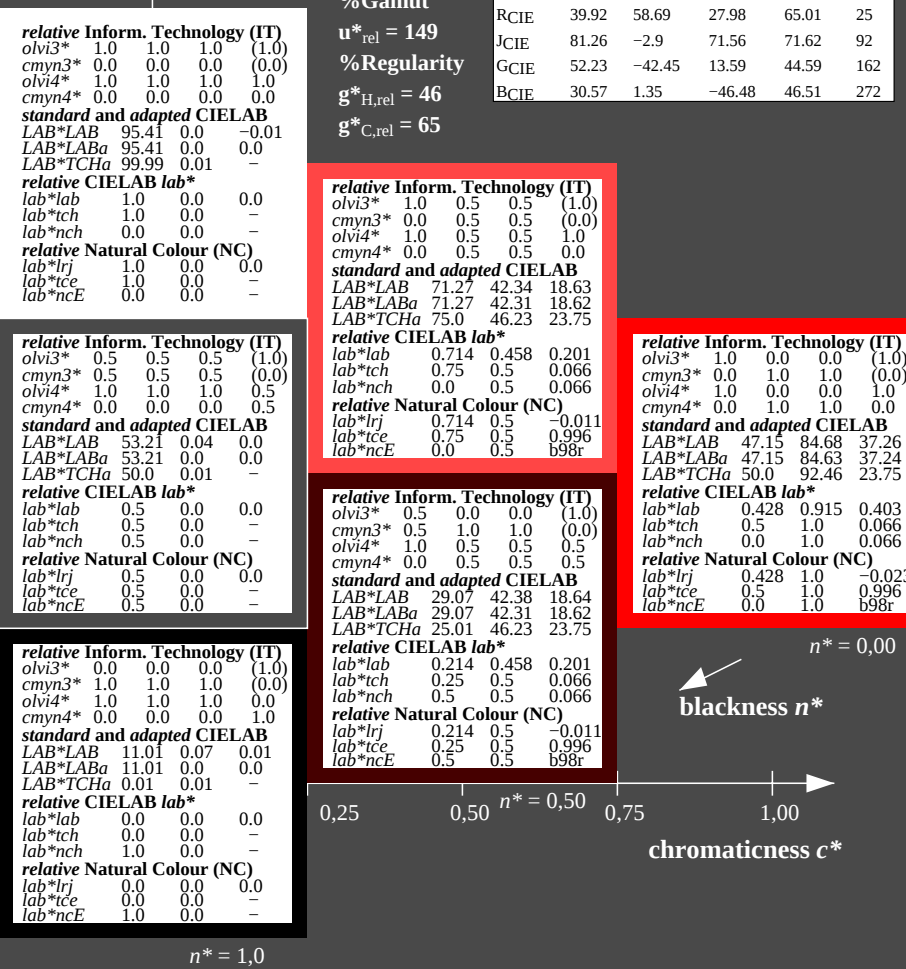
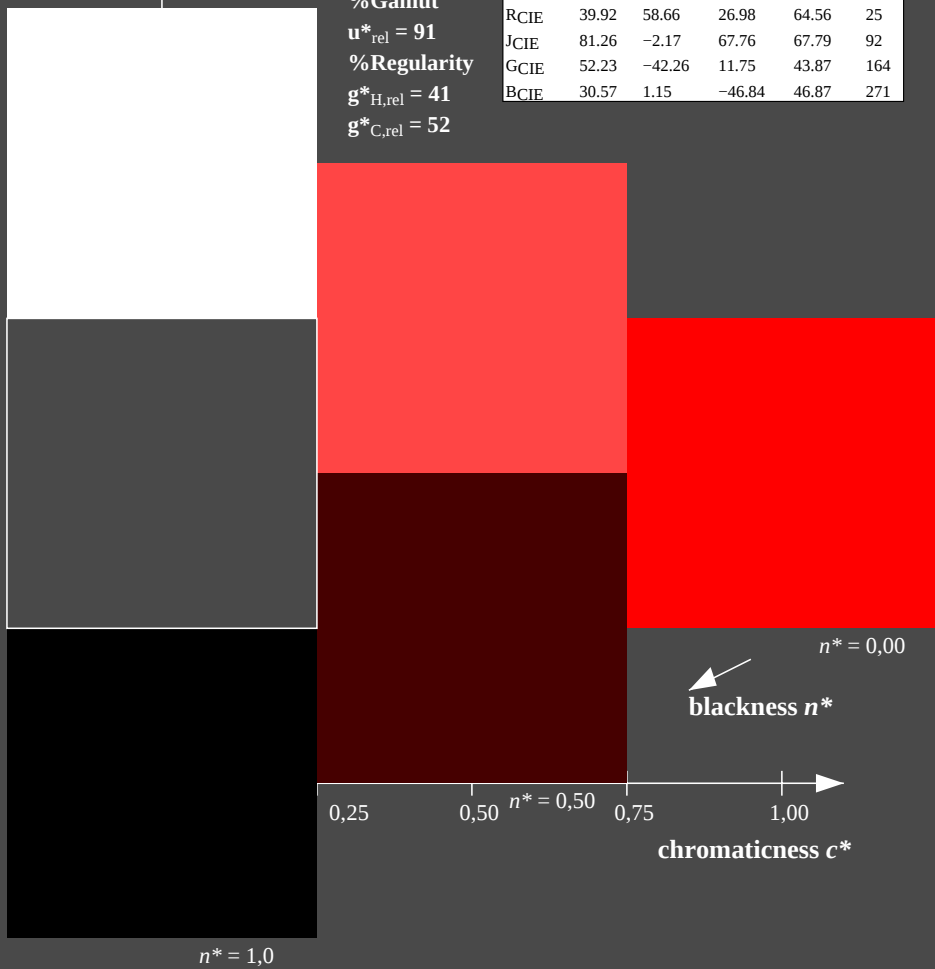
LAB*LAB	47.15	84.68	37.26
LAB*LABa	47.15	84.63	37.24
LAB*TCHa	50.0	92.46	23.75

relative CIELAB lab*

lab*lab	0.428	0.915	0.403
lab*tch	0.5	1.0	0.066
lab*nch	0.0	1.0	0.066

relative Natural Colour (NC)

lab*lrj	0.428	1.0	-0.023
lab*tce	0.5	1.0	0.996
lab*nce	0.0	1.0	b98r



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

UE030-7, 3 step scales for constant CIELAB hue 30/360 = 0.083 (left)

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: *cmv0* setcmkcolor*

D65: 3 step colour scales and coordinate data for 10 hues

output: *olv* setrgbcolor / w* setgray*

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 94/360 = 0.261$

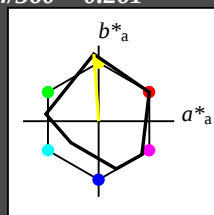
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 91 89 94

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 91/360 = 0.252$

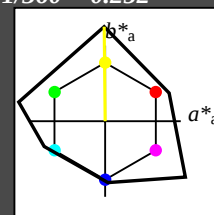
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 91 125 91

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Gamut

$u^*_{rel} = 149$

%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* 0.5 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* 0.0 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* 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* 0.5 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 0.0 1.0
cmyn4* 0.0 0.0 1.0 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

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

blackness n^*

$n^* = 1,0$

UE030-7, 3 step scales for constant CIELAB hue 94/360 = 0.261 (left)

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

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

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 172/360 = 0.479$

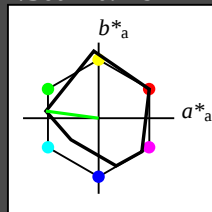
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 52 70 172

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 167/360 = 0.465$

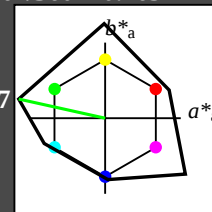
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 63 117 167

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Gamut

$u^*_{rel} = 149$

%Regularity

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

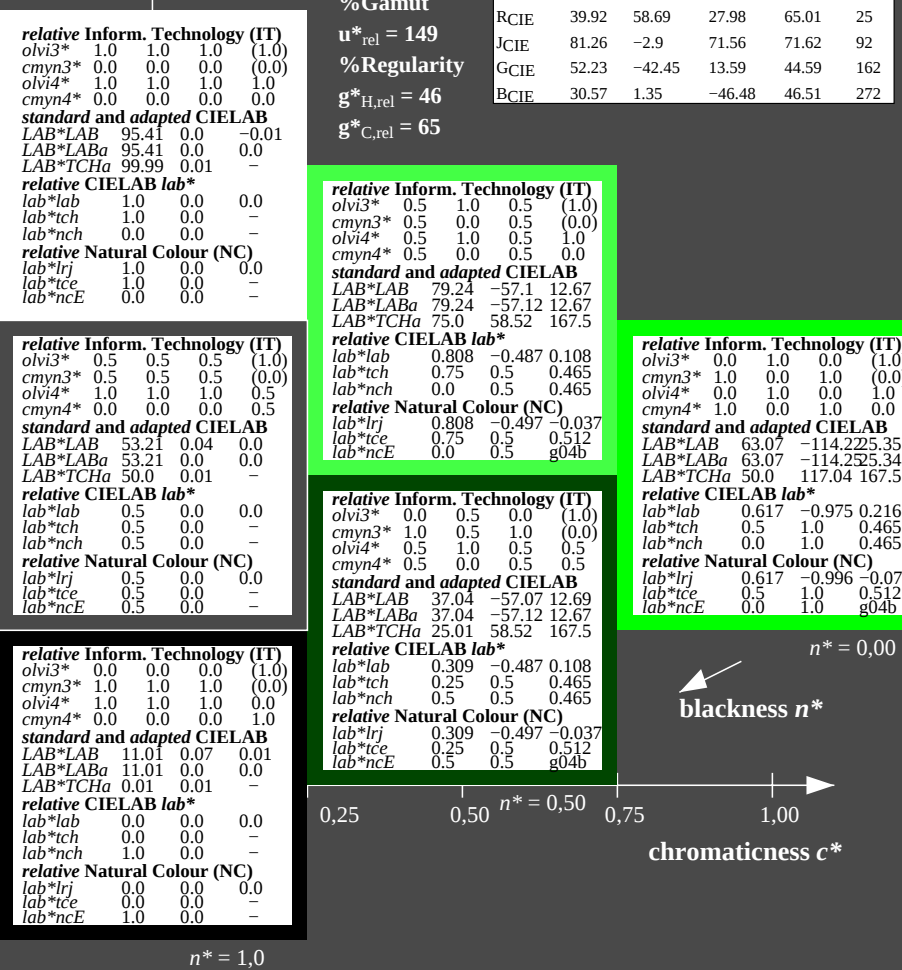
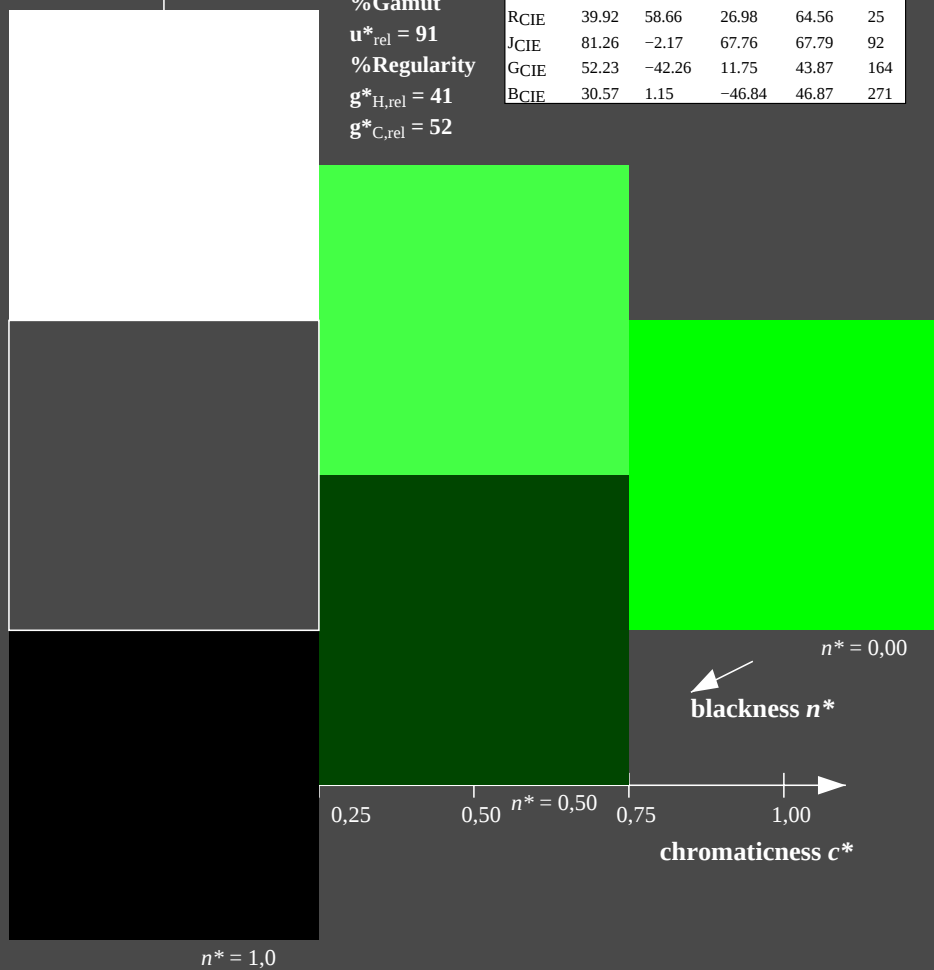
$g^*_{C,rel} = 65$

relative Inform. Technology (IT)	$olvi3^*$	$cmyn3^*$	$olvi4^*$	$cmyn4^*$
	1.0	0.0	1.0	0.0
	0.0	0.0	0.0	0.0
	1.0	1.0	1.0	1.0
	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)	$olvi3^*$	$cmyn3^*$	$olvi4^*$	$cmyn4^*$
	0.5	0.0	0.5	0.0
	0.5	0.0	0.5	0.0
	0.5	1.0	0.5	1.0
	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)	$olvi3^*$	$cmyn3^*$	$olvi4^*$	$cmyn4^*$
	0.0	0.5	0.0	1.0
	0.25	0.5	1.0	0.0
	0.5	1.0	0.5	0.5
	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

relative Inform. Technology (IT)	$olvi3^*$	$cmyn3^*$	$olvi4^*$	$cmyn4^*$
	0.0	1.0	0.0	1.0
	1.0	0.0	1.0	0.0
	0.0	1.0	0.0	1.0
	1.0	0.0	1.0	0.0
standard and adapted CIELAB	LAB^*LAB	63.07	-114.2	25.35
	LAB^*LABa	63.07	-114.2	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



UE030-7, 3 step scales for constant CIELAB hue 172/360 = 0.479 (left)

3 step scales for constant CIELAB hue 167/360 = 0.465 (right)

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmv0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 218/360 = 0.605$

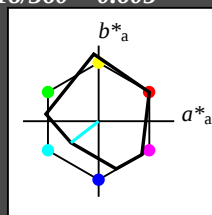
lab^*tch and lab^*nch

D65: hue G50B

LCH*Ma: 45 46 218

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50B _{Ma}	45.03	-36.57	-28.47	46.36	218
B _{Ma}	36.65	23.19	-63.05	67.18	290
B50R _{Ma}	34.94	57.17	-44.26	72.31	322
N _{Ma}	18.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 203/360 = 0.563$

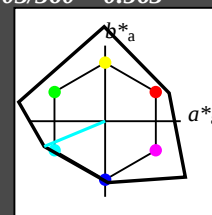
lab^*tch and lab^*nch

D65: hue G50B

LCH*Ma: 59 87 203

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	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
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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* 0.5 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* 0.0 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* 0.5 1.0 1.0 (1.0)
cmyn3* 0.5 0.0 0.0 (0.0)
olvi4* 0.5 1.0 1.0 1.0
cmyn4* 0.5 0.0 0.0 0.0

standard and adapted CIELAB
LAB*LAB 77.43 -40.26 -16.71
LAB*LABa 77.43 -40.29 -16.72
LAB*TCHa 75.0 43.63 202.54

relative CIELAB lab*
lab*lab 0.787 -0.461 -0.191
lab*tch 0.75 0.5 0.563
lab*nch 0.0 0.5 0.563

relative Natural Colour (NC)
lab*lrj 0.787 -0.418 -0.272
lab*tce 0.75 0.5 0.592
lab*nce 0.0 0.5 g36b

relative Inform. Technology (IT)
olvi3* 0.0 0.5 0.5 (1.0)
cmyn3* 1.0 0.5 0.5 (0.0)
olvi4* 0.5 1.0 1.0 0.5
cmyn4* 0.5 0.0 0.0 0.5

standard and adapted CIELAB
LAB*LAB 35.23 -40.23 -16.7
LAB*LABa 35.23 -40.29 -16.72
LAB*TCHa 25.01 43.63 202.54

relative CIELAB lab*
lab*lab 0.287 -0.461 -0.191
lab*tch 0.25 0.5 0.563
lab*nch 0.5 0.5 0.563

relative Natural Colour (NC)
lab*lrj 0.287 -0.418 -0.272
lab*tce 0.25 0.5 0.592
lab*nce 0.5 0.5 g36b

relative Inform. Technology (IT)
olvi3* 0.0 1.0 1.0 (1.0)
cmyn3* 1.0 0.0 0.0 (0.0)
olvi4* 0.0 1.0 1.0 1.0
cmyn4* 1.0 0.0 0.0 0.0

standard and adapted CIELAB
LAB*LAB 59.47 -80.55 -33.44
LAB*LABa 59.47 -80.59 -33.44
LAB*TCHa 50.0 87.26 202.54

relative CIELAB lab*
lab*lab 0.574 -0.922 -0.382
lab*tch 0.5 1.0 0.563
lab*nch 0.0 1.0 0.563

relative Natural Colour (NC)
lab*lrj 0.574 -0.836 -0.546
lab*tce 0.5 1.0 0.592
lab*nce 0.0 1.0 g36b

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

blackness n^*

$n^* = 0,00$

$n^* = 1,0$

UE030-7, 3 step scales for constant CIELAB hue 218/360 = 0.605 (left)

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

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmv0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 290/360 = 0.806$

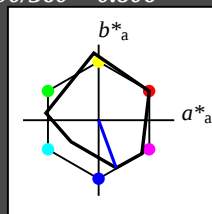
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 37 67 290

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 273/360 = 0.757$

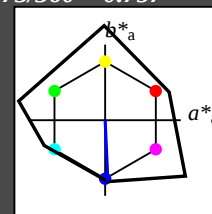
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 49 81 273

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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*TCa	99.99	0.01	-	

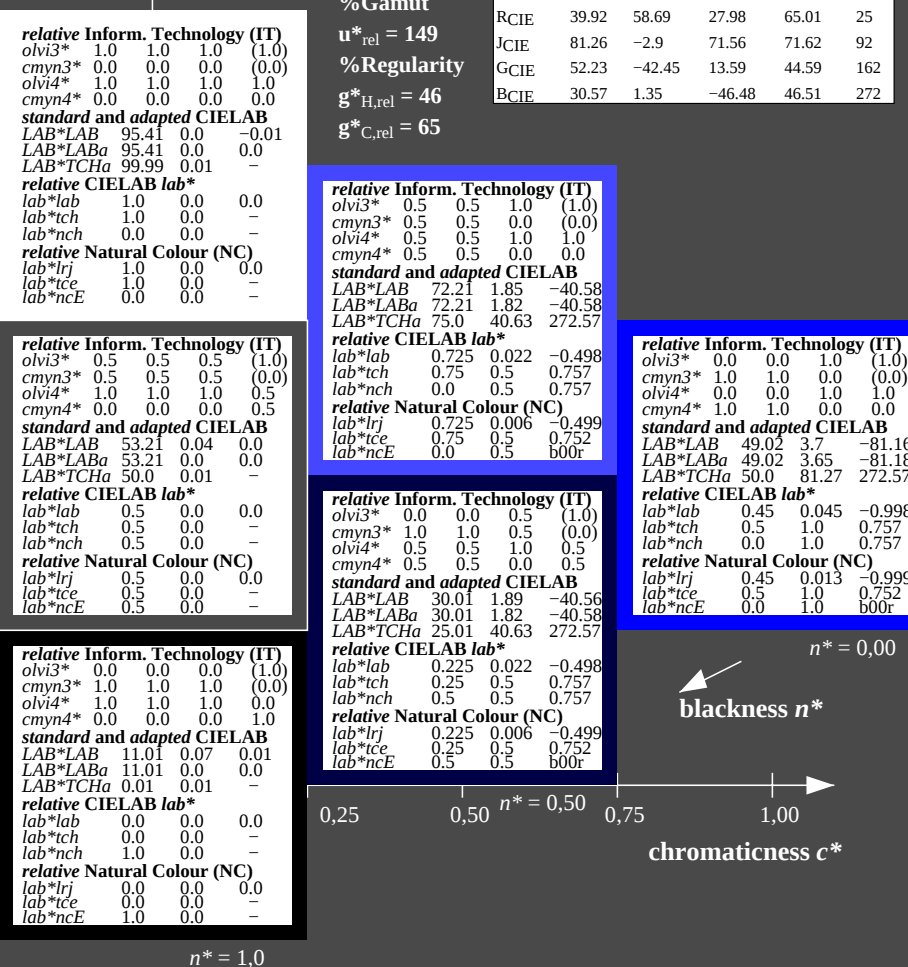
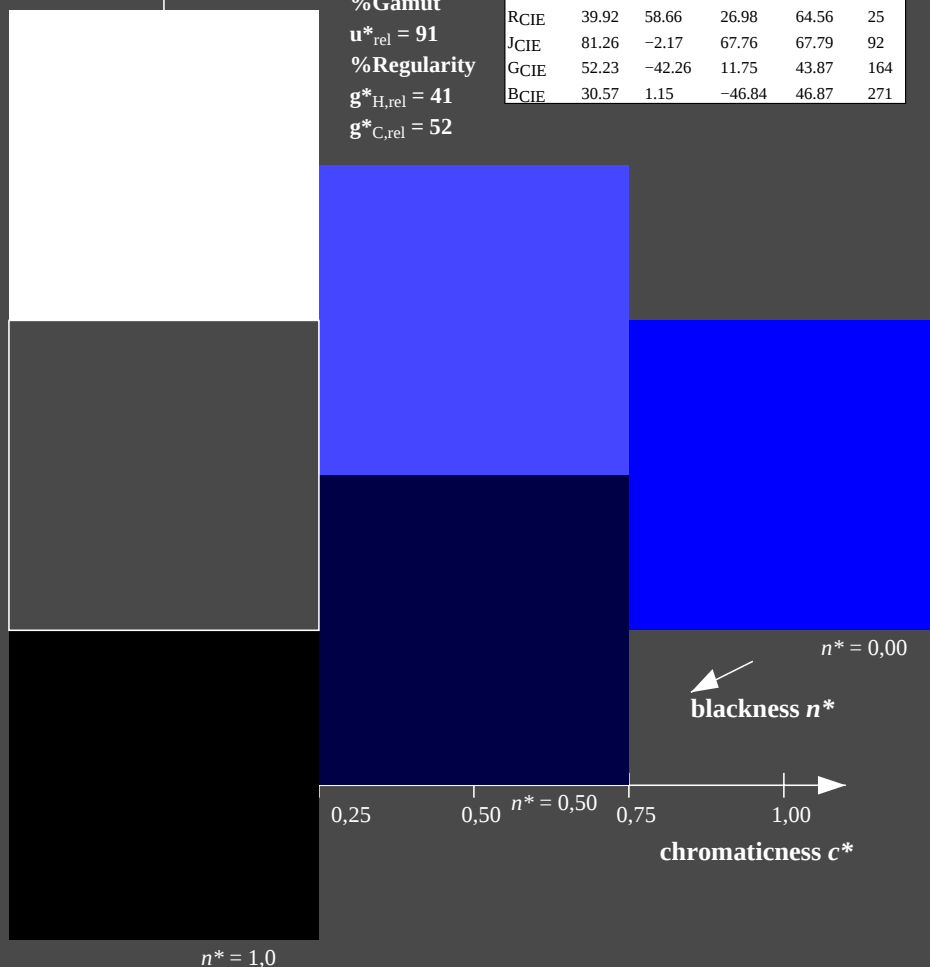
relative CIELAB lab*				
lab*lab	1.0	0.0	0.0	
lab*tch	1.0	0.0	-	
lab*nch	0.0	0.0	-	
relative Natural Colour (NC)				
lab*lrj	1.0	0.0	0.0	
lab*tce	1.0	0.0	-	
lab*nce	0.0	0.0	-	

relative Inform. Technology (IT)				
olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	0.5	0.5	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	72.21	1.85	-40.58	
LAB*LABa	72.21	1.82	-40.58	
LAB*TCa	75.0	40.63	272.57	

relative CIELAB lab*				
lab*lab	0.725	0.022	-0.498	
lab*tch	0.75	0.5	0.757	
lab*nch	0.0	0.5	0.757	
relative Natural Colour (NC)				
lab*lrj	0.725	0.006	-0.499	
lab*tce	0.75	0.5	0.752	
lab*nce	0.0	0.5	0.752	

relative Inform. Technology (IT)				
olvi3*	0.0	0.0	1.0	(1.0)
cmyn3*	1.0	1.0	0.0	(0.0)
olvi4*	0.0	0.0	1.0	1.0
cmyn4*	1.0	1.0	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	49.02	3.7	-81.16	
LAB*LABa	49.02	3.65	-81.18	
LAB*TCa	50.0	81.27	272.57	

relative CIELAB lab*				
lab*lab	0.45	0.045	-0.998	
lab*tch	0.5	1.0	0.757	
lab*nch	0.0	1.0	0.757	
relative Natural Colour (NC)				
lab*lrj	0.45	0.013	-0.999	
lab*tce	0.5	1.0	0.752	
lab*nce	0.0	1.0	0.752	



UE030-7, 3 step scales for constant CIELAB hue 290/360 = 0.806 (left)

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

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmv0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 322/360 = 0.895$

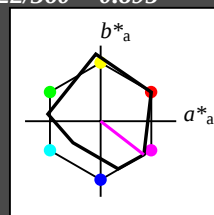
lab^*tch and lab^*nch

D65: hue B50R

LCH*Ma: 35 72 322

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50B _{Ma}	45.03	-36.57	-28.47	46.36	218
B _{Ma}	36.65	23.19	-63.05	67.18	290
B50R _{Ma}	34.94	57.17	-44.26	72.31	322
N _{Ma}	18.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 325/360 = 0.903$

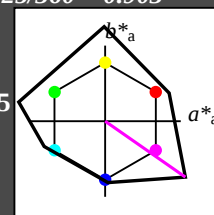
lab^*tch and lab^*nch

D65: hue B50R

LCH*Ma: 44 129 325

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	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
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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* 0.5 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* 0.0 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* 1.0 0.5 1.0 (1.0)
cmyn3* 0.0 0.5 0.0 (0.0)
olvi4* 1.0 0.5 1.0 1.0
cmyn4* 0.0 0.5 0.0 0.0

standard and adapted CIELAB
LAB*LAB 69.73 53.06 -36.95
LAB*LABa 69.73 53.03 -36.95
LAB*TCHa 75.0 64.65 325.12

relative CIELAB lab*
lab*lab 0.696 0.41 -0.285
lab*tch 0.75 0.5 0.903
lab*nch 0.0 0.5 0.903

relative Natural Colour (NC)
lab*lrj 0.696 0.336 -0.369
lab*tce 0.75 0.5 0.867
lab*nce 0.0 0.5 b46r

relative Inform. Technology (IT)
olvi3* 0.5 0.0 0.5 (1.0)
cmyn3* 0.5 1.0 0.5 (0.0)
olvi4* 1.0 0.5 1.0 0.5
cmyn4* 0.0 0.5 0.0 0.5

standard and adapted CIELAB
LAB*LAB 27.53 53.1 -36.94
LAB*LABa 27.53 53.03 -36.95
LAB*TCHa 25.01 64.65 325.12

relative CIELAB lab*
lab*lab 0.196 0.41 -0.285
lab*tch 0.25 0.5 0.903
lab*nch 0.5 0.5 0.903

relative Natural Colour (NC)
lab*lrj 0.196 0.336 -0.369
lab*tce 0.25 0.5 0.867
lab*nce 0.5 0.5 b46r

relative Inform. Technology (IT)
olvi3* 1.0 0.0 1.0 (1.0)
cmyn3* 0.0 1.0 0.0 (0.0)
olvi4* 1.0 0.0 1.0 1.0
cmyn4* 0.0 1.0 0.0 0.0

standard and adapted CIELAB
LAB*LAB 44.06 106.12 -73.91
LAB*LABa 44.06 106.07 -73.92
LAB*TCHa 50.0 129.29 325.12

relative CIELAB lab*
lab*lab 0.392 0.82 -0.571
lab*tch 0.5 1.0 0.903
lab*nch 0.0 1.0 0.903

relative Natural Colour (NC)
lab*lrj 0.392 0.673 -0.739
lab*tce 0.5 1.0 0.867
lab*nce 0.0 1.0 b46r

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

blackness n^*

$n^* = 0,00$

$n^* = 1,0$

UE030-7, 3 step scales for constant CIELAB hue 322/360 = 0.895 (left)

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

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 25/360 = 0.069$

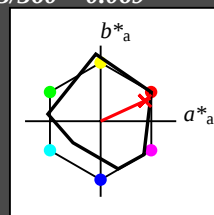
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 48 73 25

olv*Ma: 1.0 0.0 0.1

triangle lightness t^*



MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 25/360 = 0.071$

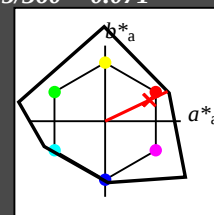
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 48 91 25

olv*Ma: 1.0 0.02 0.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

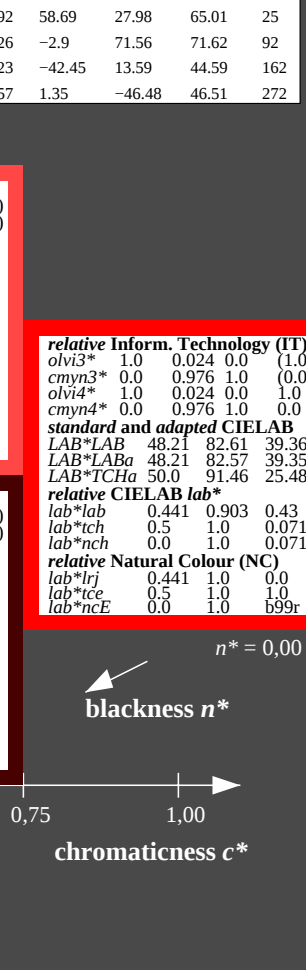
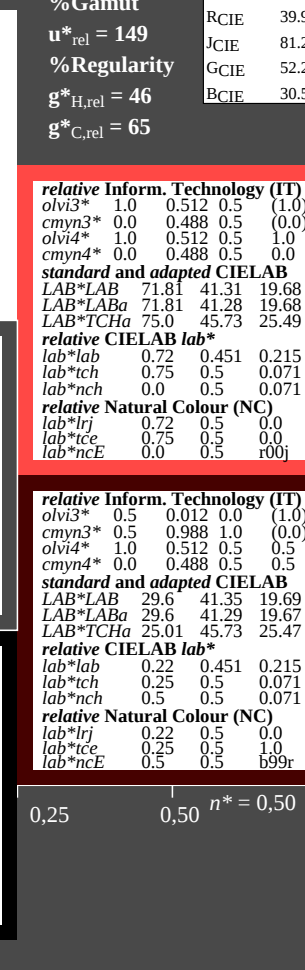
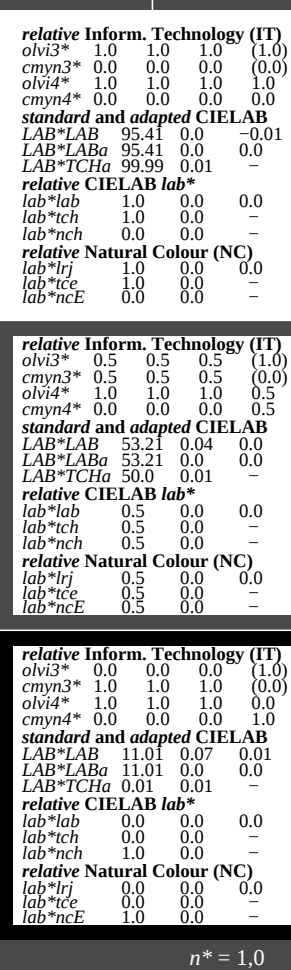
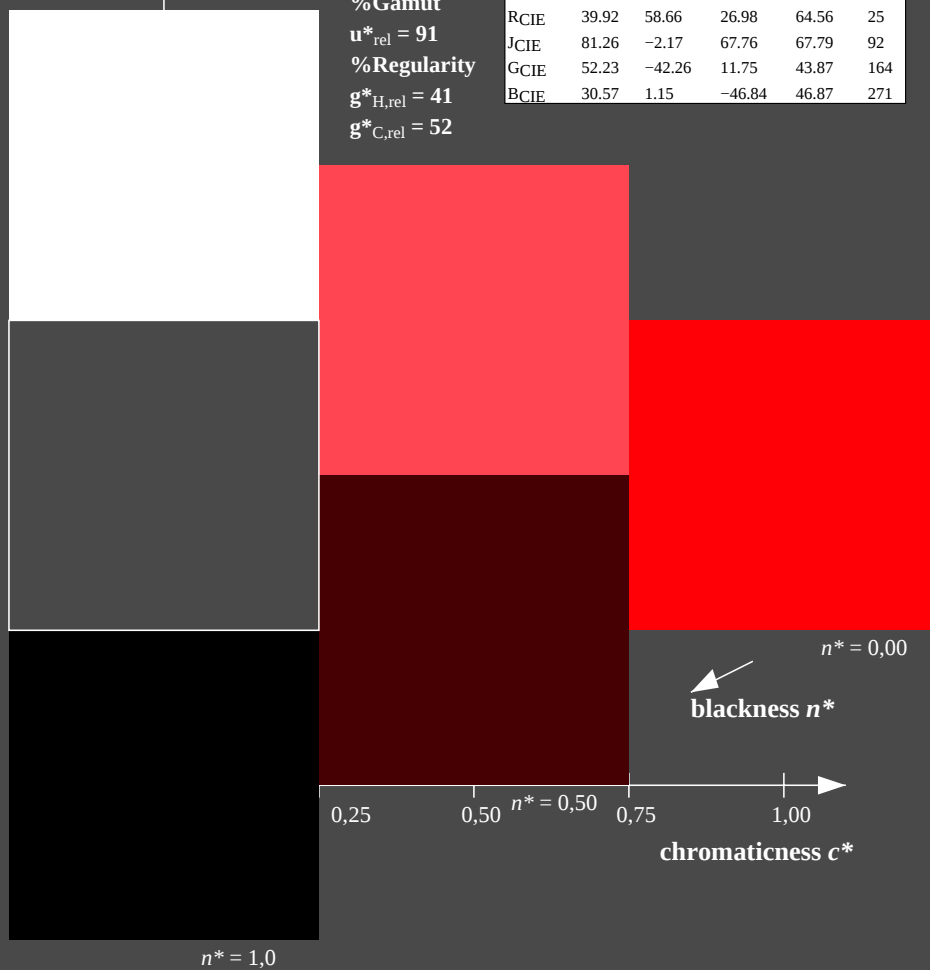
relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
cmyn3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 1.0
cmyn4* 0.0 0.0 0.0 0.0
standard and adapted CIELAB
LAB*LAB 95.41 0.0 -0.01
LAB*LABa 95.41 0.0 0.0
LAB*TCHa 99.99 0.01 -

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* 1.0 0.512 0.5 (1.0)
cmyn3* 0.0 0.488 0.5 (0.0)
olvi4* 1.0 0.512 0.5 1.0
cmyn4* 0.0 0.488 0.5 0.0
standard and adapted CIELAB
LAB*LAB 71.81 41.31 19.68
LAB*LABa 71.81 41.28 19.68
LAB*TCHa 75.0 45.73 25.49
relative CIELAB lab*
lab*lab 0.72 0.451 0.215
lab*tch 0.75 0.5 0.071
lab*nch 0.0 0.5 0.071
relative Natural Colour (NC)
lab*lrj 0.72 0.5 0.0
lab*tce 0.75 0.5 0.0
lab*nce 0.0 0.5 r00j

relative Inform. Technology (IT)
olvi3* 0.5 0.012 0.0 (1.0)
cmyn3* 0.5 0.988 1.0 (0.0)
olvi4* 1.0 0.512 0.5 0.5
cmyn4* 0.0 0.488 0.5 0.5
standard and adapted CIELAB
LAB*LAB 29.6 41.35 19.69
LAB*LABa 29.6 41.29 19.67
LAB*TCHa 25.01 45.73 25.47
relative CIELAB lab*
lab*lab 0.22 0.451 0.215
lab*tch 0.25 0.5 0.071
lab*nch 0.5 0.5 0.071
relative Natural Colour (NC)
lab*lrj 0.22 0.5 0.0
lab*tce 0.25 0.5 1.0
lab*nce 0.5 0.5 b99r

relative Inform. Technology (IT)
olvi3* 1.0 0.024 0.0 (1.0)
cmyn3* 0.0 0.976 1.0 (0.0)
olvi4* 1.0 0.024 0.0 1.0
cmyn4* 0.0 0.976 1.0 0.0
standard and adapted CIELAB
LAB*LAB 48.21 82.61 39.36
LAB*LABa 48.21 82.57 39.35
LAB*TCHa 50.0 91.46 25.48
relative CIELAB lab*
lab*lab 0.441 0.903 0.43
lab*tch 0.5 1.0 0.071
lab*nch 0.0 1.0 0.071
relative Natural Colour (NC)
lab*lrj 0.441 1.0 0.0
lab*tce 0.5 1.0 1.0
lab*nce 0.0 1.0 b99r



BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 92/360 = 0.255$

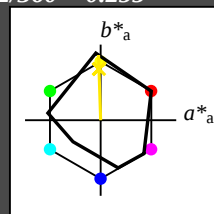
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 89 86 92

olv*Ma: 1.0 0.95 0.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

Output: Colorimetric Reflective System NCS11

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

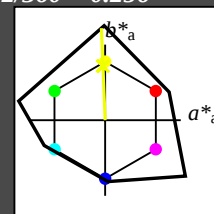
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 90 122 92

olv*Ma: 0.97 1.0 0.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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* 0.5 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* 0.0 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* 0.984 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* 0.484 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

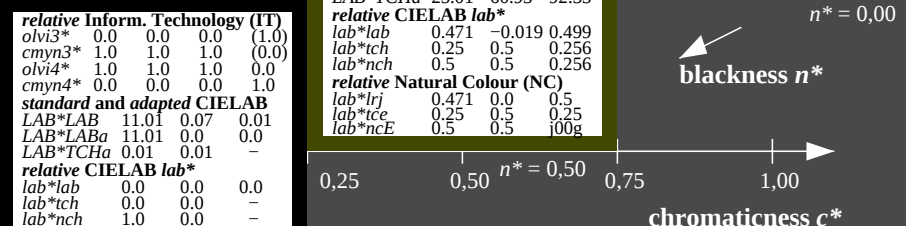
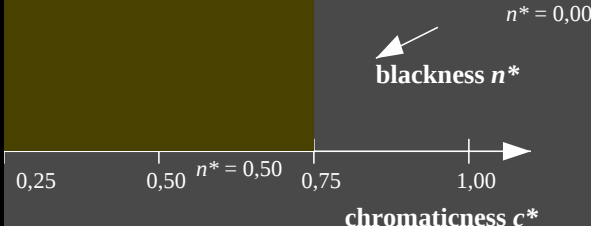
relative Natural Colour (NC)
lab*lrj 0.471 0.0 0.5
lab*tce 0.25 0.5 0.25
lab*nce 0.5 0.5 r00g

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



UE030-7, 3 step scales for constant CIELAB hue 92/360 = 0.255 (left)

3 step scales for constant CIELAB hue 92/360 = 0.256 (right)

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmv0^* setcmykcolor$

D65: 3 step colour scales and coordinate data for 10 hues

output: $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 164/360 = 0.457$

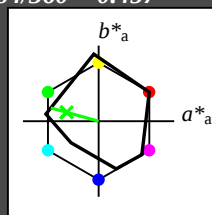
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 56 66 164

olv*Ma: 0.1 1.0 0.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 162/360 = 0.451$

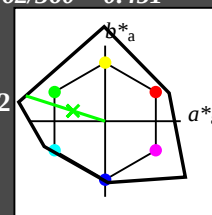
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 65 110 162

olv*Ma: 0.08 1.0 0.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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* 0.541 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 0.99g

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 0.5g00b

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 -104.893.58
LAB*LABa 65.41 -104.923.57
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 0.5g00b

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

blackness n^*

$n^* = 1,0$

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

blackness n^*

$n^* = 1,0$

3 step scales for constant CIELAB hue 162/360 = 0.451 (right)

UE030-7, 3 step scales for constant CIELAB hue 164/360 = 0.457 (left)

BAM-test chart UE03; Colorimetric systems MRS18 & NCS11a input: $cmY0^*$ setcmykcolor

D65: 3 step colour scales and coordinate data for 10 hues

output: olv^* setrgbcolor / w^* setgray

Input: Colorimetric Reflective System MRS18

for hue $h^* = lab^*h = 271/360 = 0.754$

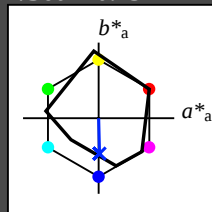
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 40 50 271

olv*Ma: 0.0 0.37 1.0

triangle lightness t^*



MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.66	26.98	64.56	25
JCIE	81.26	-2.17	67.76	67.79	92
GCIE	52.23	-42.26	11.75	43.87	164
BCIE	30.57	1.15	-46.84	46.87	271

%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 272/360 = 0.755$

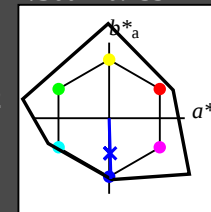
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 49 80 272

olv*Ma: 0.0 0.02 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 149$

%Regularity

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

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

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

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*TCa	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*	0.5	0.508	1.0	(1.0)
cmyn3*	0.5	0.492	0.0	(0.0)
olvi4*	0.5	0.508	1.0	1.0
cmyn4*	0.5	0.492	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	72.29	1.2	-40.21	
LAB*LABa	72.29	1.17	-40.21	
LAB*TCa	75.0	40.24	271.66	
relative CIELAB lab*				
lab*lab	0.726	0.014	-0.499	
lab*tch	0.75	0.5	0.755	
lab*nch	0.0	0.5	0.755	
relative Natural Colour (NC)				
lab*lrj	0.726	0.0	-0.499	
lab*tce	0.75	0.5	0.75	
lab*nce	0.0	0.5	g99b	

relative Inform. Technology (IT)				
olvi3*	0.0	0.016	1.0	(1.0)
cmyn3*	1.0	0.984	0.0	(0.0)
olvi4*	0.0	0.016	1.0	1.0
cmyn4*	1.0	0.984	0.0	0.0
standard and adapted CIELAB				
LAB*LAB	49.18	2.39	-80.42	
LAB*LABa	49.18	2.34	-80.43	
LAB*TCa	50.0	80.48	271.67	
relative CIELAB lab*				
lab*lab	0.452	0.029	-0.998	
lab*tch	0.5	1.0	0.755	
lab*nch	0.0	1.0	0.755	
relative Natural Colour (NC)				
lab*lrj	0.452	0.0	-0.999	
lab*tce	0.5	1.0	0.75	
lab*nce	0.0	1.0	b00r	

relative Inform. Technology (IT)				
olvi3*	0.0	0.008	0.5	(1.0)
cmyn3*	1.0	0.992	0.5	(0.0)
olvi4*	0.5	0.508	1.0	0.5
cmyn4*	0.5	0.492	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	30.09	1.24	-40.2	
LAB*LABa	30.09	1.18	-40.21	
LAB*TCa	25.01	40.24	271.67	
relative CIELAB lab*				
lab*lab	0.226	0.015	-0.499	
lab*tch	0.25	0.5	0.755	
lab*nch	0.5	0.5	0.755	
relative Natural Colour (NC)				
lab*lrj	0.226	0.0	-0.499	
lab*tce	0.25	0.5	0.75	
lab*nce	0.5	0.5	b00r	

relative Inform. Technology (IT)				
olvi3*	0.0	0.008	0.5	(1.0)
cmyn3*	1.0	0.992	0.5	(0.0)
olvi4*	0.5	0.508	1.0	0.5
cmyn4*	0.5	0.492	0.0	0.5
standard and adapted CIELAB				
LAB*LAB	30.09	1.24	-40.2	
LAB*LABa	30.09	1.18	-40.21	
LAB*TCa	25.01	40.24	271.67	
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lab*lab	0.226	0.015	-0.499	
lab*tch	0.25	0.5	0.755	
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lab*lrj	0.226	0.0	-0.499	
lab*tce	0.25	0.5	0.75	
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olvi4*	0.5	0.508	1.0	0.5
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standard and adapted CIELAB				
LAB*LAB	30.09	1.24	-40.2	
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