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BAM registration: 20060101-JIE23/10S/S23E00NP.PS/.PDF BAM material: code=rha4ta
application for evaluation and measurement of printer or monitor systems

F BAM material: code=rh4ta
onitor systems

Input: Colorimetric Reflective System MRS18

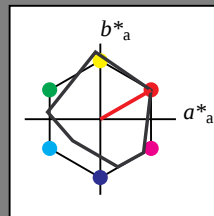
for hue $h^* = lab^*h = 30/360 = 0.083$

*lab*tch* and *lab*nch*

D65: hue R

LCH*Ma: 50 77 30

rgb*Ma: 1.0 0.0 0.0



MRS18; adapted (a) CIELAB data

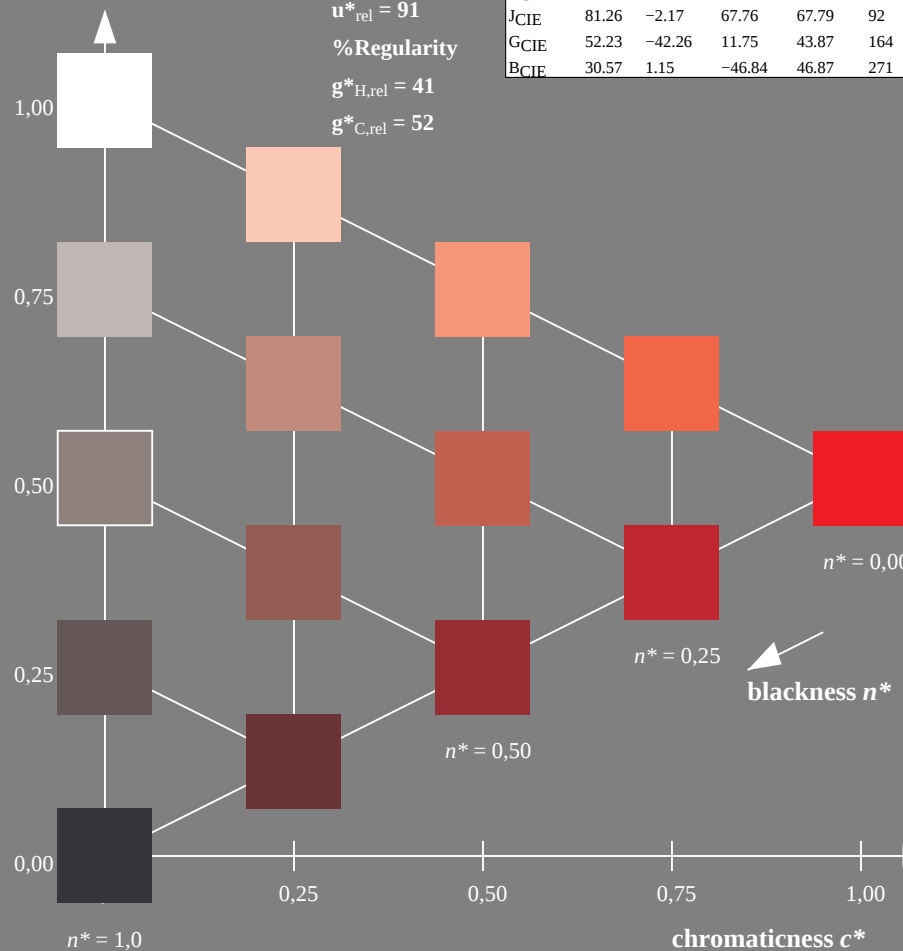
	$L^*=L_a^* a_a^*$	b_a^*	$C_{ab,a}^*$	h_{ab}^*	
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	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

triangle lightness t^*

%Gamut

$$\mathbf{u}_{rel}^* = \mathbf{91}$$

%Regularity

$$g^*_{H,rel} = 41$$
$$g^*_{C,rel} = 52$$


UE230-7, 5 step scales for constant CIELAB hue 30/360 = 0.083 (left)

Output: Colorimetric Reflective System NCS11

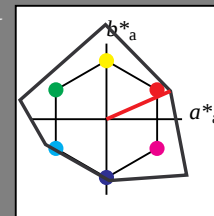
for hue $h^* = lab^*h = 24/360 = 0.066$

*LAB*LCH, LAB*NCH*

D65: hue R

LCH*Ma: 47 92 24

rgb*Ma: 1.0 0.0 0.0



NCS11; adapted (a) CIELAB data

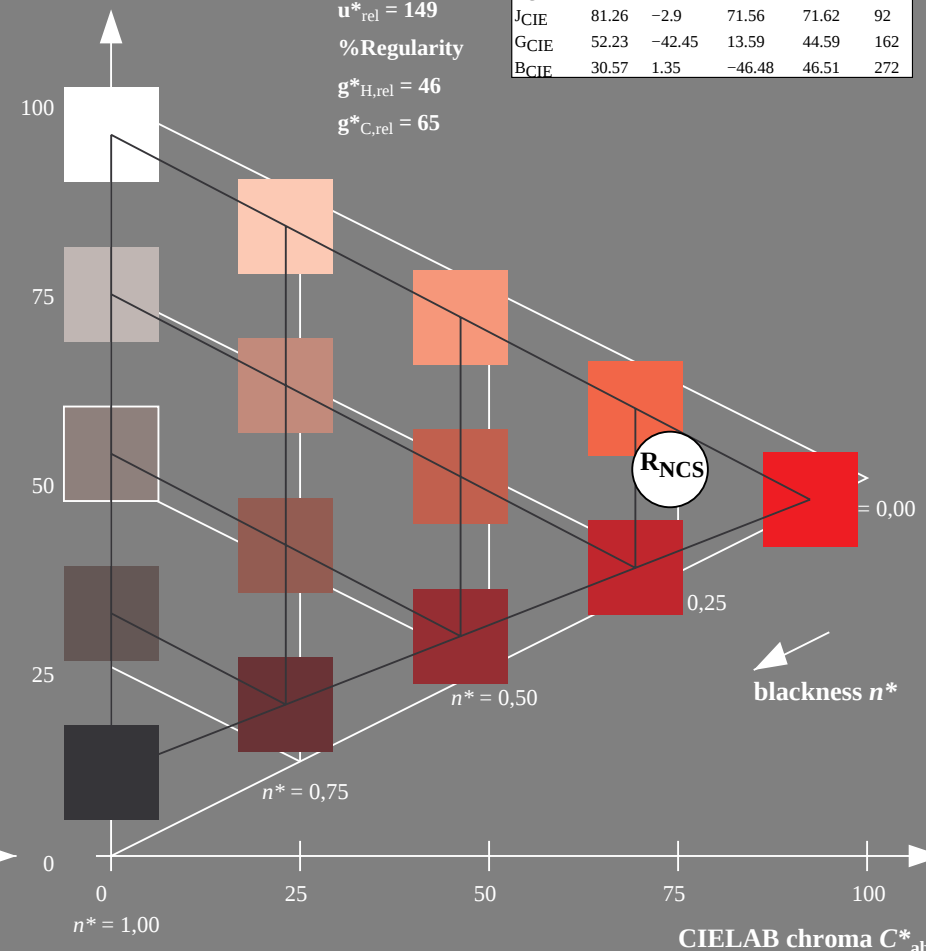
	$L^* = L_a^*$	a_a^*	b_a^*	$C_{ab,a}^*$	$h_{ab,a}^*$
R _{Ma}	47.15	84.64	37.25	92.48	24
J _{Ma}	91.37	-1.27	125.03	125.03	91
G _{Ma}	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	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

CIELAB lightness L^*

%Gamut

$$\mathbf{u}_{rel}^* = 149$$

%Regularity

$$g^*_{H,rel} = 46$$
$$g^*_{C,rel} = 65$$
5 step scales for constant CIELAB hue $24/360 = 0.066$ (right)

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: *cmy0* setcmykcolor*

D65: Coordinate systems of 5 step colour scales for 10 hues

output: *no change compared to input*

Input: Colorimetric Reflective System MRS18

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

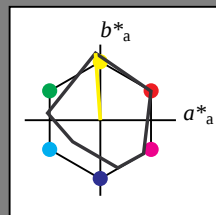
$lab \cdot tch$ and $lab \cdot nch$

D65: hue J

LCH*Ma: 91 89 94

rgb*Ma: 1.0 1.0 0.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 91$

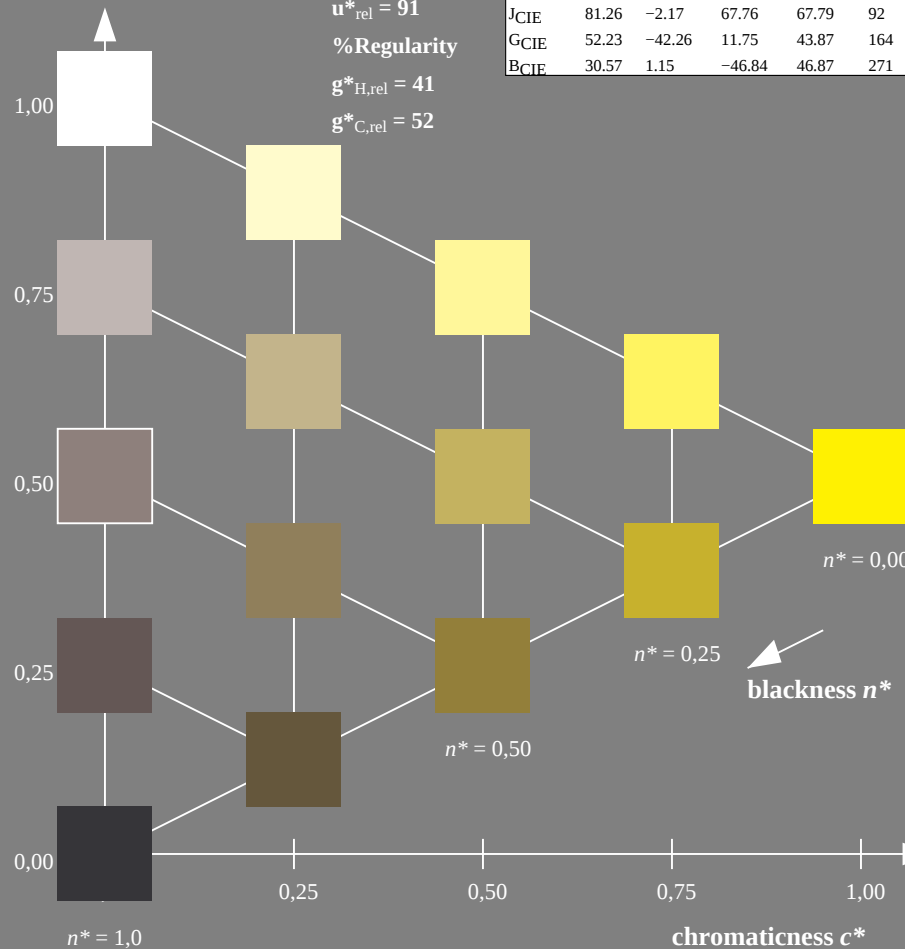
%Regularity

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

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

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
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



UE230-7, 5 step scales for constant CIELAB hue 94/360 = 0.261 (left)

Output: Colorimetric Reflective System NCS11

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

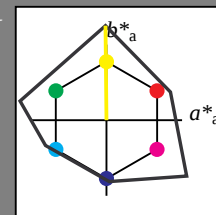
$LAB \cdot LCH$, $LAB \cdot NCH$

D65: hue J

LCH*Ma: 91 125 91

rgb*Ma: 1.0 1.0 0.0

CIELAB lightness L^*



%Gamut

$u^*_{rel} = 149$

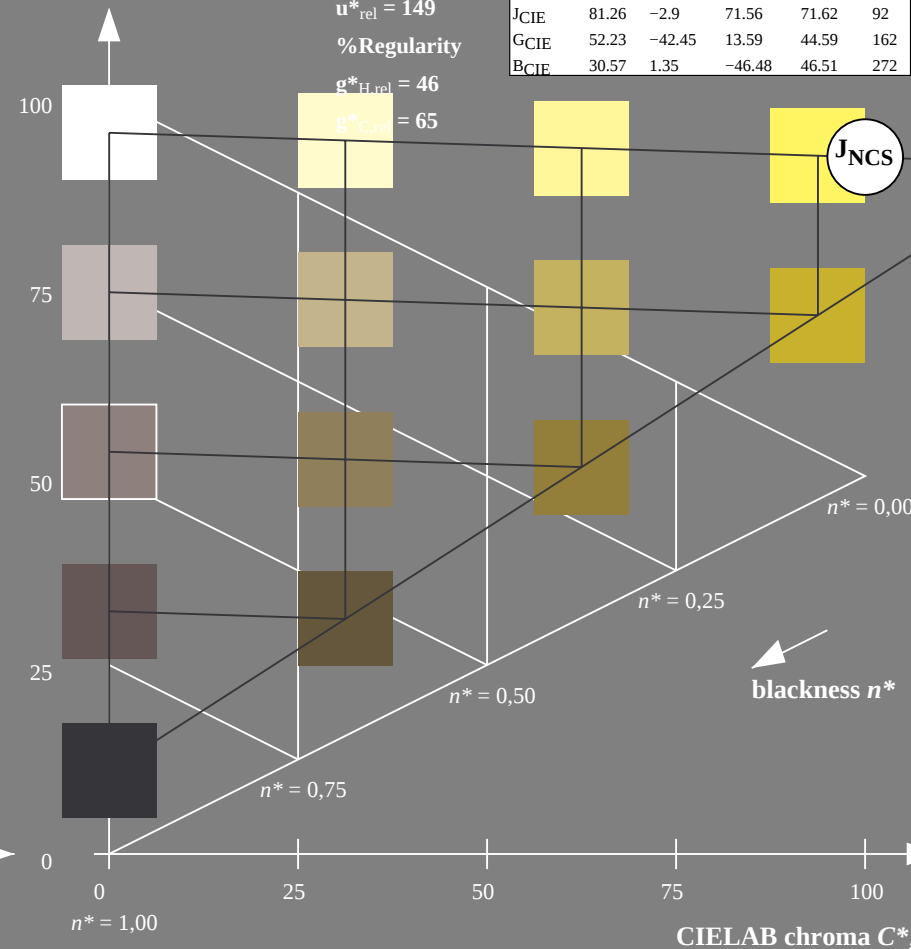
%Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: *cmY0* setcmykcolor*

D65: Coordinate systems of 5 step colour scales for 10 hues

output: *no change compared to input*

Input: Colorimetric Reflective System MRS18

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

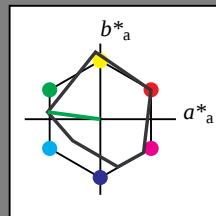
$lab \cdot tch$ and $lab \cdot nch$

D65: hue G

LCH*Ma: 52 70 172

rgb*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

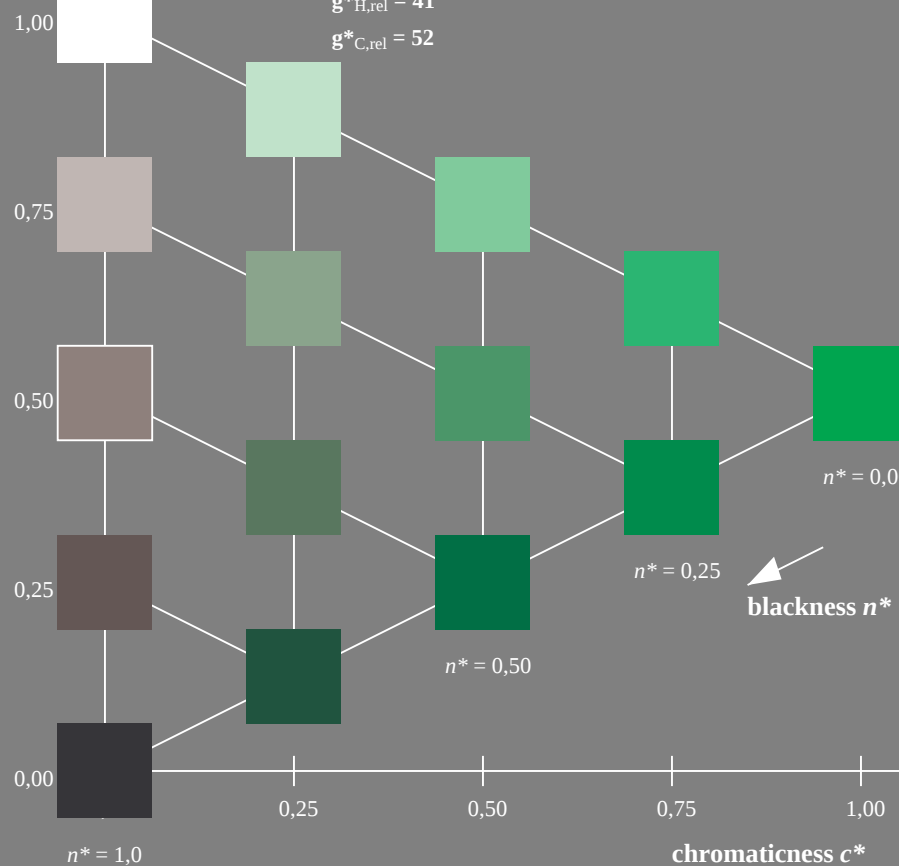
% Regularity

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

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

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



UE230-7, 5 step scales for constant CIELAB hue 172/360 = 0.479 (left)

Output: Colorimetric Reflective System NCS11

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

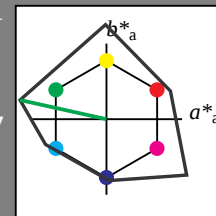
$LAB \cdot LCH$, $LAB \cdot NCH$

D65: hue G

LCH*Ma: 63 117 167

rgb*Ma: 0.0 1.0 0.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

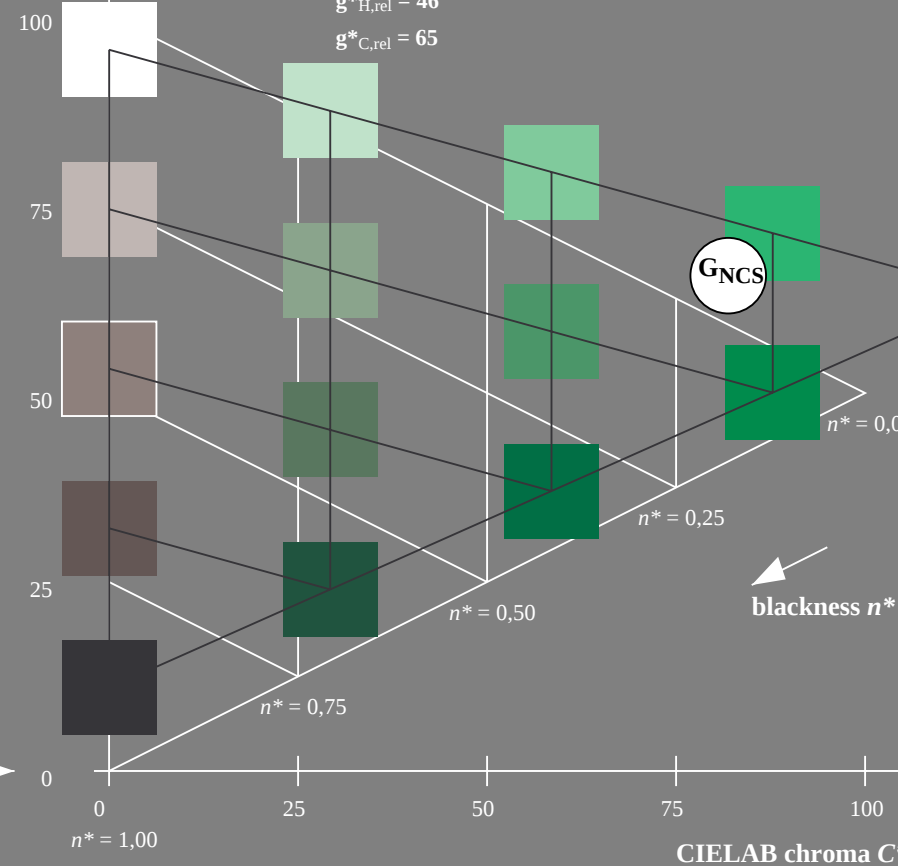
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: Coordinate systems of 5 step colour scales for 10 hues

output: no change compared to input

Input: Colorimetric Reflective System MRS18

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

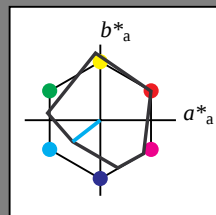
$lab \cdot tch$ and $lab \cdot nch$

D65: hue G50B

LCH*Ma: 45 46 218

rgb*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

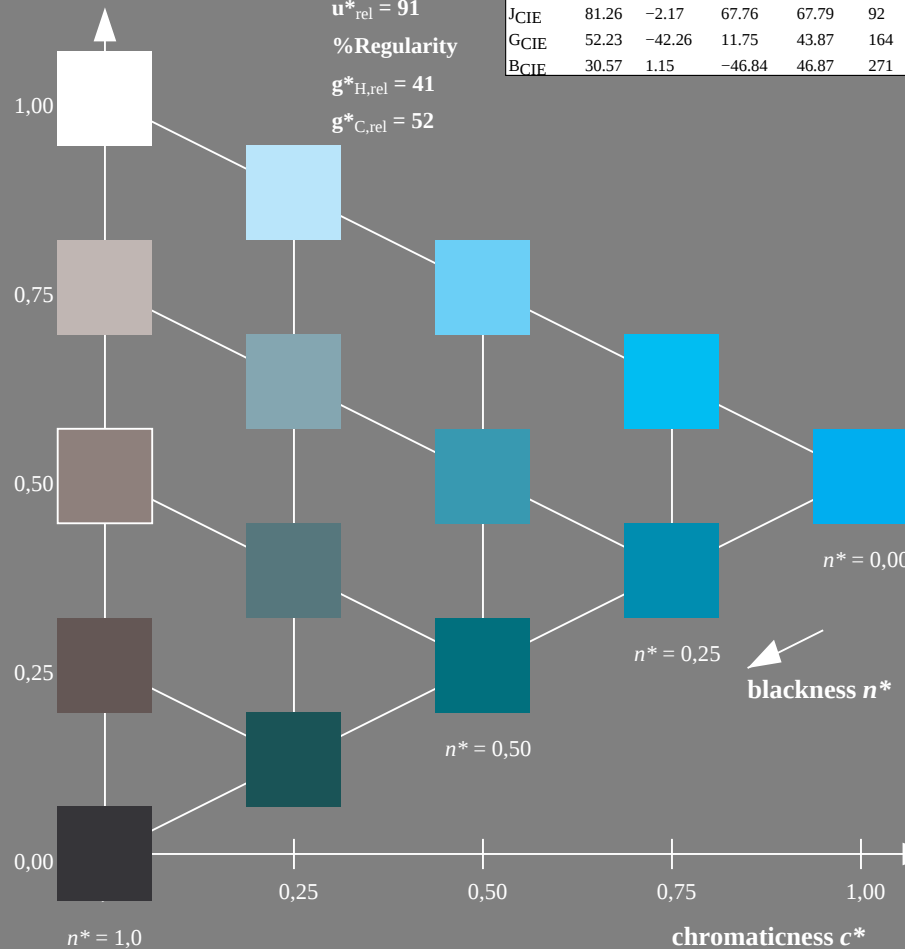
% Regularity

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

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

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



UE230-7, 5 step scales for constant CIELAB hue 218/360 = 0.605 (left)

Output: Colorimetric Reflective System NCS11

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

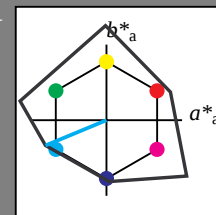
$LAB \cdot LCH$, $LAB \cdot NCH$

D65: hue G50B

LCH*Ma: 59 87 203

rgb*Ma: 0.0 1.0 1.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

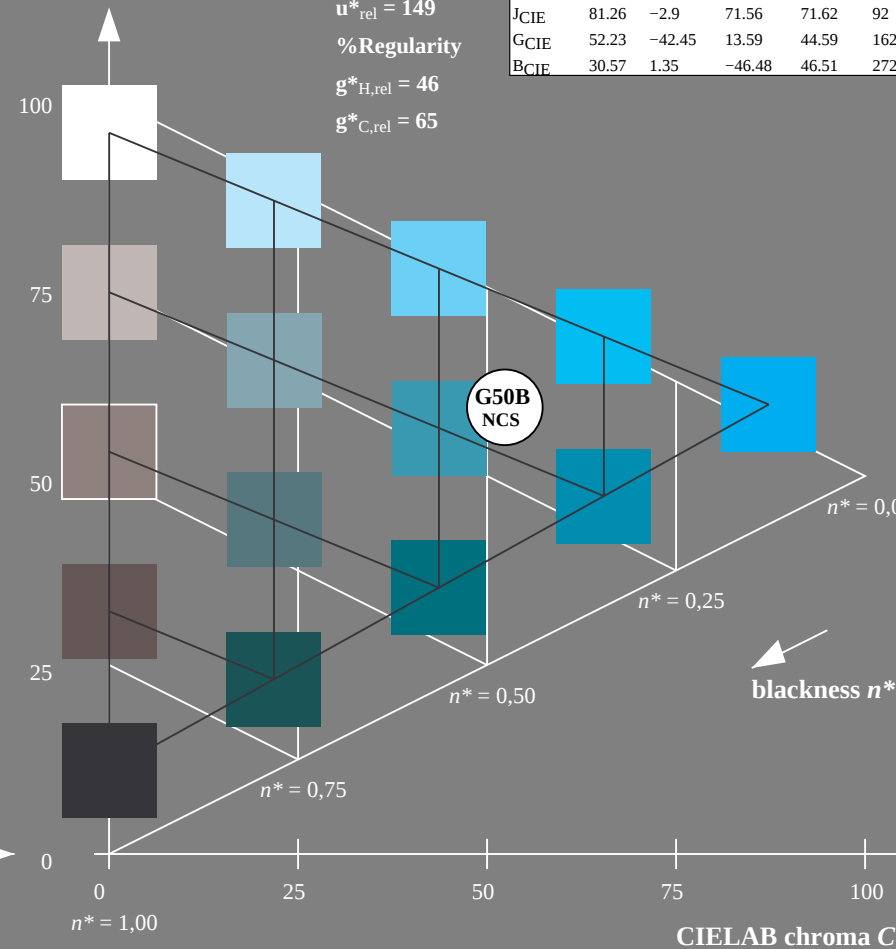
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: *cmY0* setcmykcolor*

D65: Coordinate systems of 5 step colour scales for 10 hues

output: *no change compared to input*

Input: Colorimetric Reflective System MRS18

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

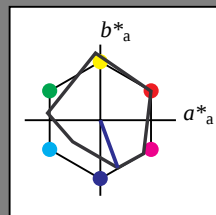
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 37 67 290

rgb*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

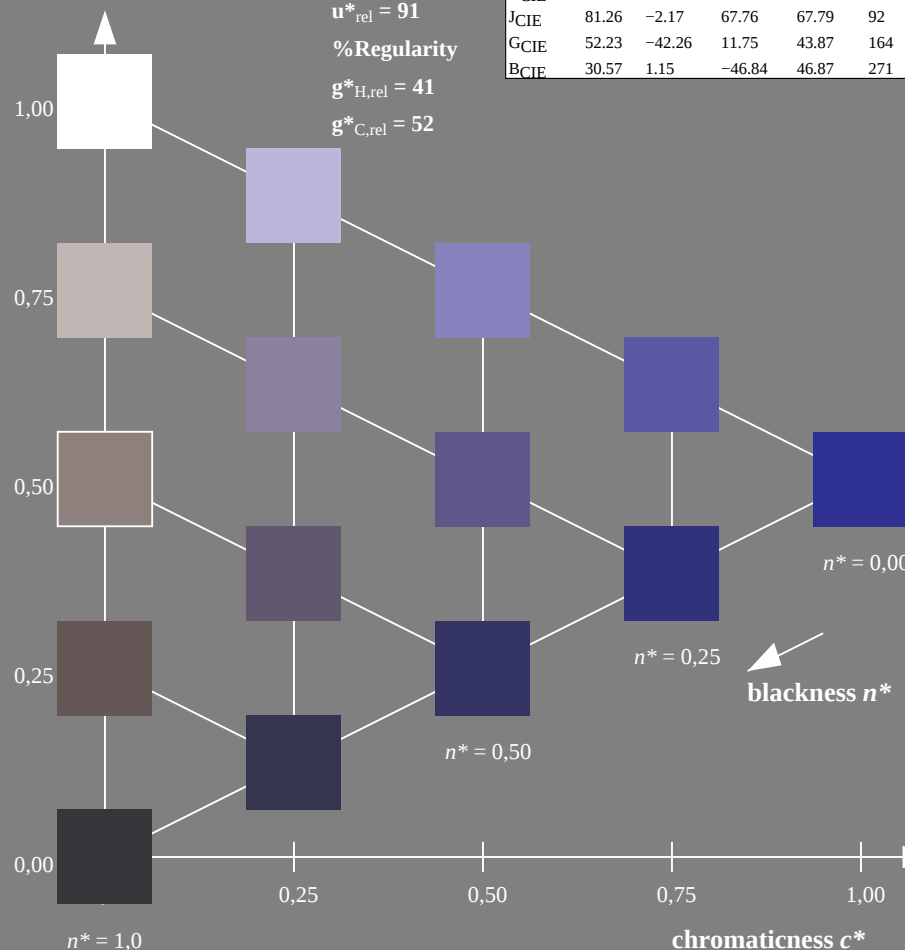
% Regularity

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

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

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
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



UE230-7, 5 step scales for constant CIELAB hue 290/360 = 0.806 (left)

Output: Colorimetric Reflective System NCS11

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

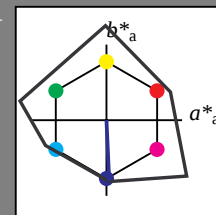
LAB^*LCH , LAB^*NCH

D65: hue B

LCH*Ma: 49 81 273

rgb*Ma: 0.0 0.0 1.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

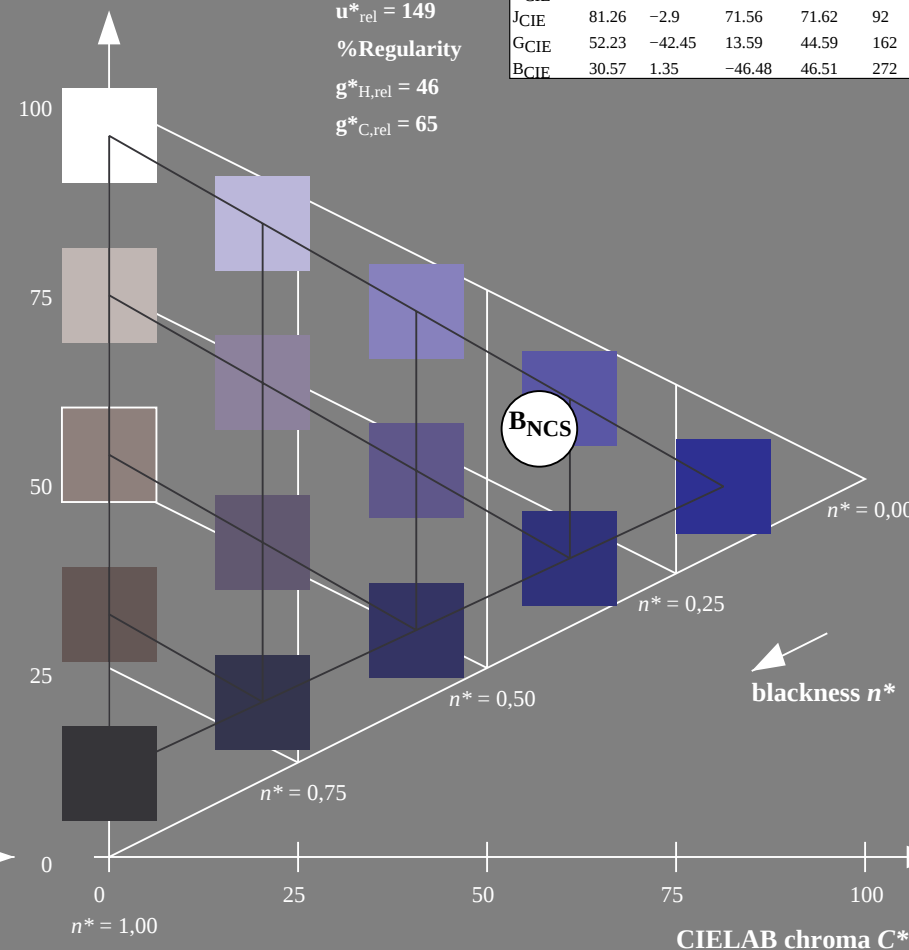
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: *cmY0* setcmykcolor*

D65: Coordinate systems of 5 step colour scales for 10 hues

output: *no change compared to input*

Input: Colorimetric Reflective System MRS18

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

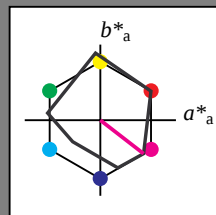
$lab \cdot tch$ and $lab \cdot nch$

D65: hue B50R

LCH*Ma: 35 72 322

rgb*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

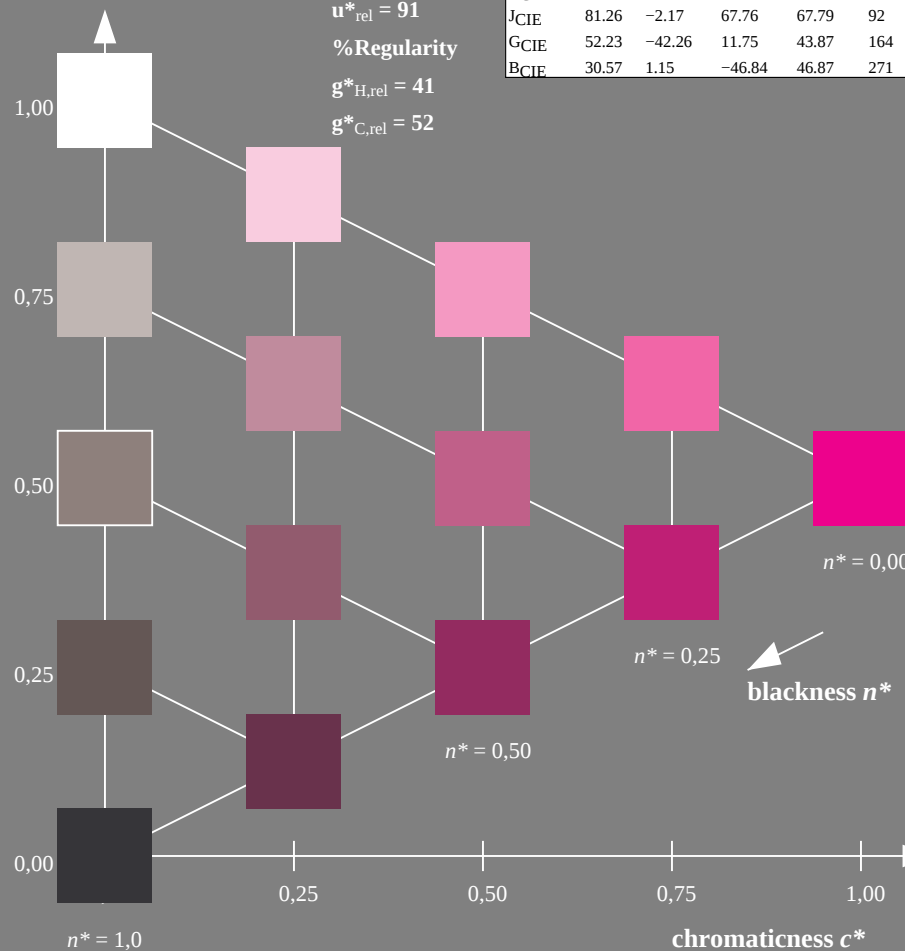
% Regularity

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

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

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
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



UE230-7, 5 step scales for constant CIELAB hue 322/360 = 0.895 (left)

Output: Colorimetric Reflective System NCS11

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

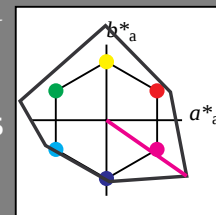
$LAB \cdot LCH$, $LAB \cdot NCH$

D65: hue B50R

LCH*Ma: 44 129 325

rgb*Ma: 1.0 0.0 1.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

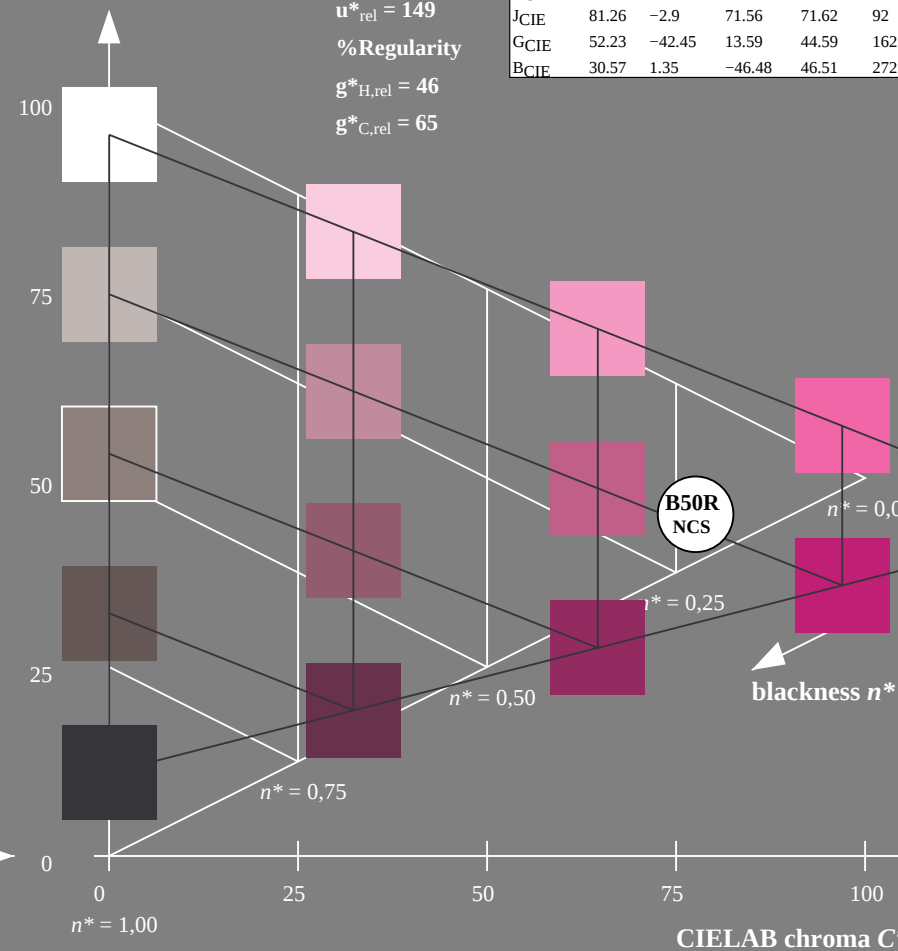
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: Coordinate systems of 5 step colour scales for 10 hues

output: no change compared to input

Input: Colorimetric Reflective System MRS18

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

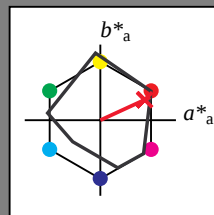
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 48 73 25

rgb*Ma: 1.0 0.0 0.1

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

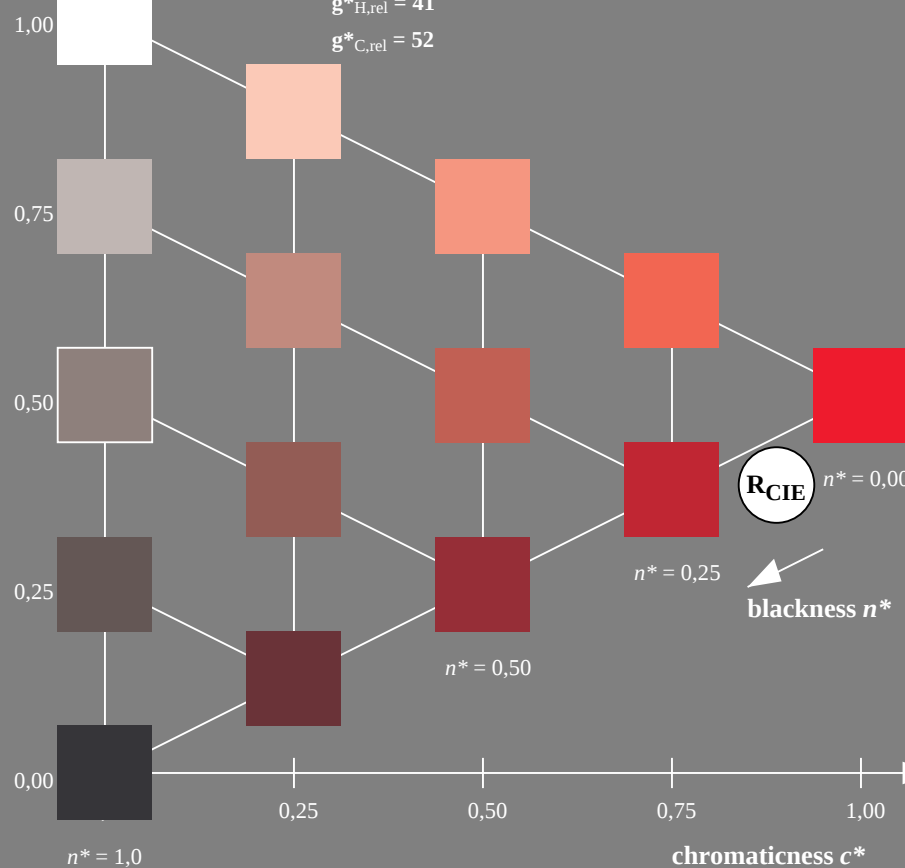
% Regularity

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

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

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



UE230-7, 5 step scales for constant CIELAB hue 25/360 = 0.069 (left)

Output: Colorimetric Reflective System NCS11

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

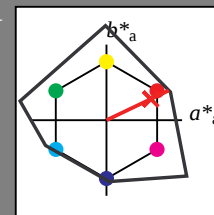
LAB^*LCH , LAB^*NCH

D65: hue R

LCH*Ma: 48 91 25

rgb*Ma: 1.0 0.02 0.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

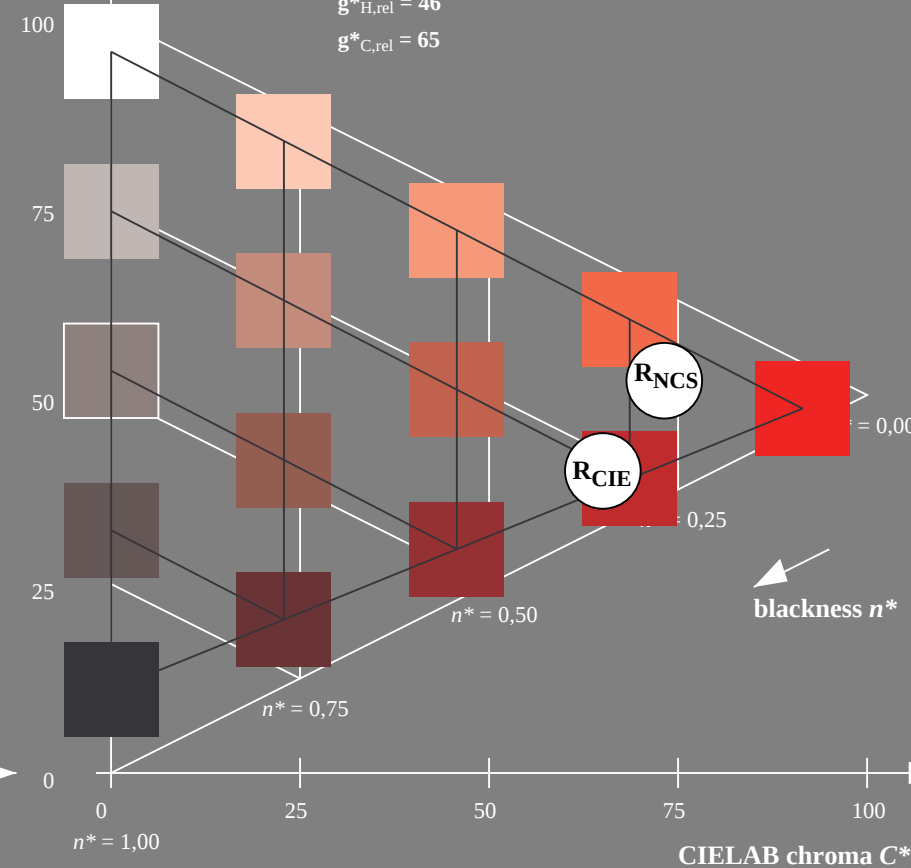
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: Coordinate systems of 5 step colour scales for 10 hues

output: no change compared to input

Input: Colorimetric Reflective System MRS18

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

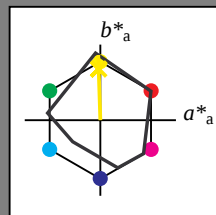
$lab \cdot tch$ and $lab \cdot nch$

D65: hue J

LCH*Ma: 89 86 92

rgb*Ma: 1.0 0.95 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 91$

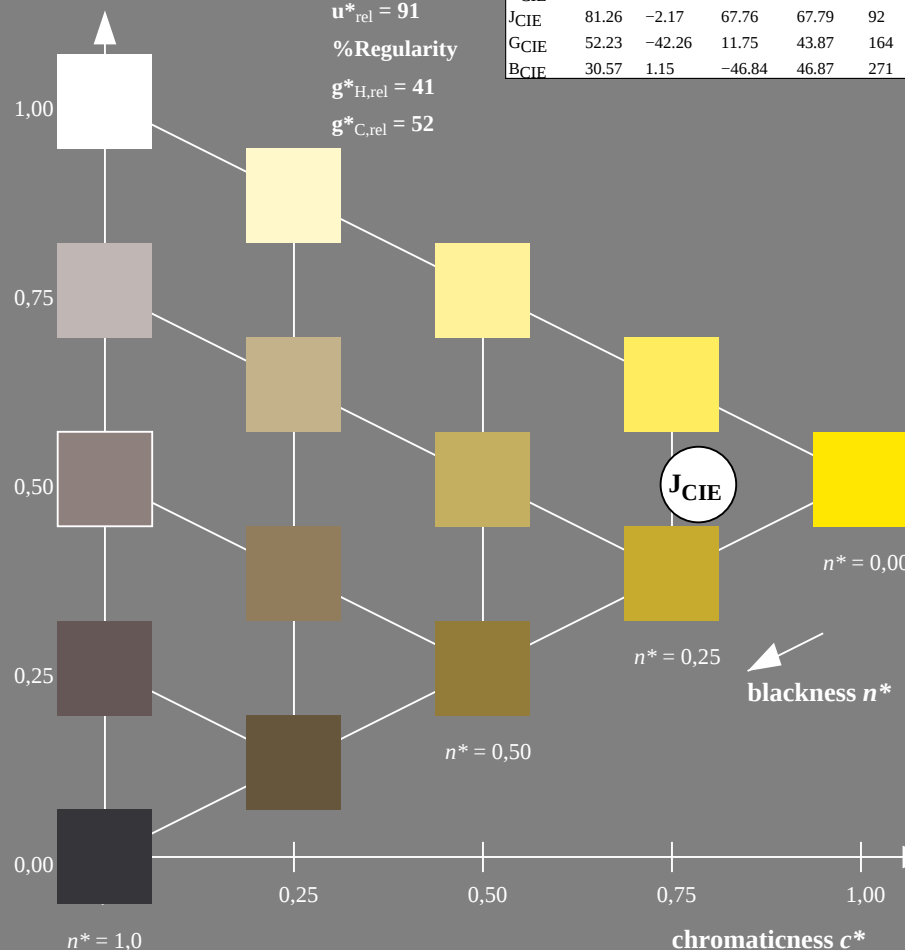
% Regularity

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

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

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



UE230-7, 5 step scales for constant CIELAB hue 92/360 = 0.255 (left)

Output: Colorimetric Reflective System NCS11

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

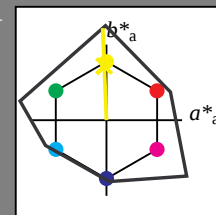
$LAB \cdot LCH$, $LAB \cdot NCH$

D65: hue J

LCH*Ma: 90 122 92

rgb*Ma: 0.97 1.0 0.0

CIELAB lightness L^*



% Gamut

$u^*_{rel} = 149$

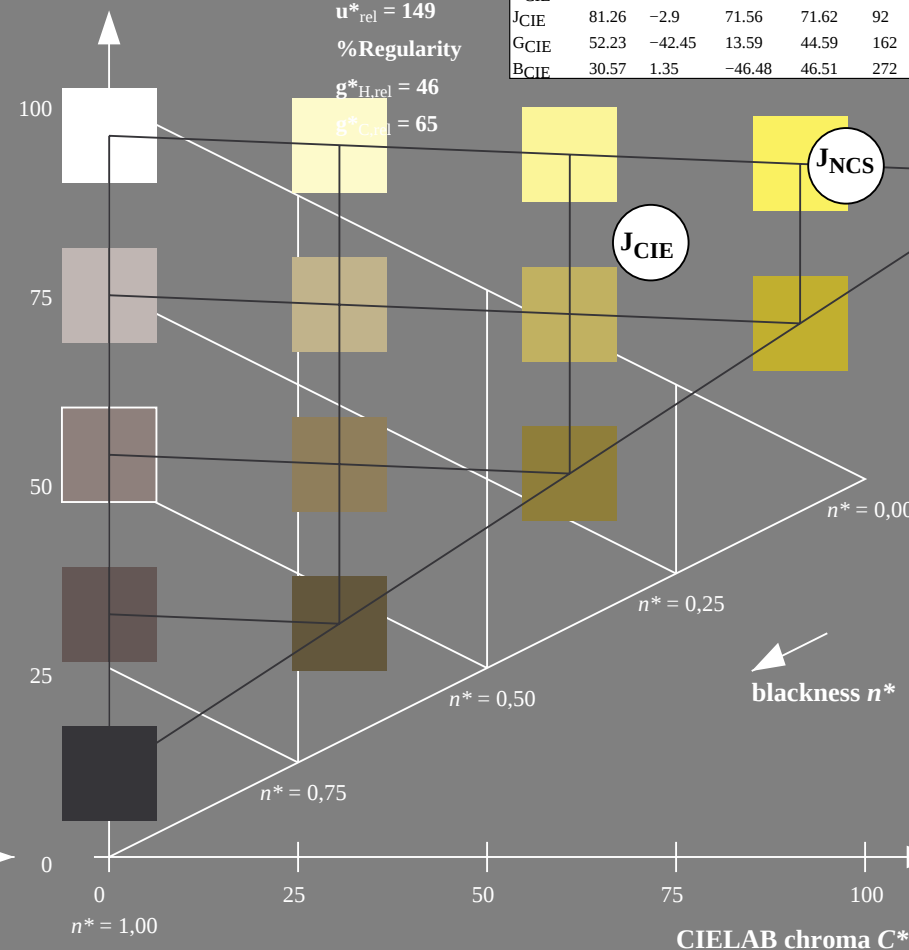
% Regularity

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

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

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



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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: Coordinate systems of 5 step colour scales for 10 hues

output: no change compared to input

Input: Colorimetric Reflective System MRS18

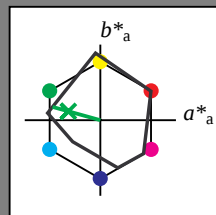
for hue $h^* = lab^*h = 164/360 = 0.457$

lab*tch and lab*nch

D65: hue G

LCH*Ma: 56 66 164

rgb*Ma: 0.1 1.0 0.0



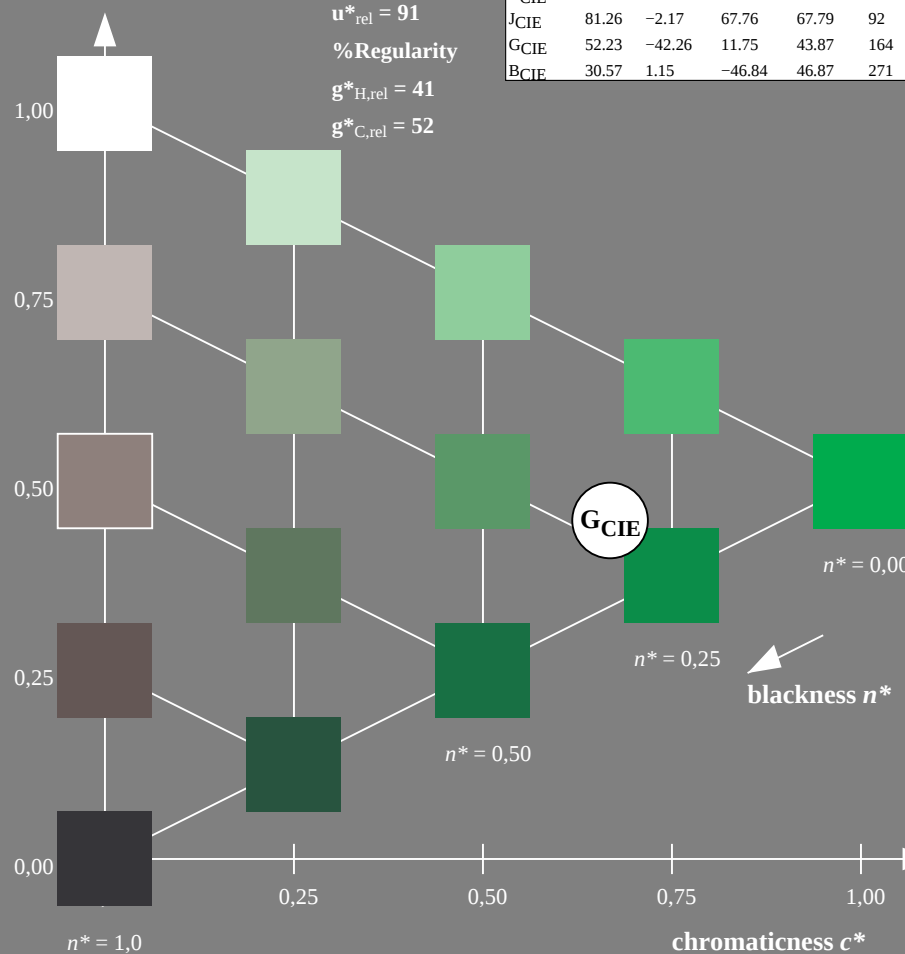
MRS18; adapted (a) CIELAB data					
	$L^* = L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
R _{Ma}	49.63	66.96	38.37	77.18	30
J _{Ma}	90.7	-6.36	88.75	88.98	94
G _{Ma}	52.11	-69.73	9.44	70.37	172
G50B _{Ma}	45.03	-36.57	-28.47	46.36	218
B _{Ma}	36.65	23.19	-63.05	67.18	290
B50R _{Ma}	34.94	57.17	-44.26	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
R _{CIE}	39.92	58.66	26.98	64.56	25
J _{CIE}	81.26	-2.17	67.76	67.79	92
G _{CIE}	52.23	-42.26	11.75	43.87	164
B _{CIE}	30.57	1.15	-46.84	46.87	271

triangle lightness t^*

% Gamut

$$\mathbf{u}_{rel}^* = 91$$

%Regularity

$$g^*_{H,rel} = 41$$
$$g^*_{C,rel} = 52$$


UE230-7, 5 step scales for constant CIELAB hue 164/360 = 0.457 (left)

Output: Colorimetric Reflective System NCS11

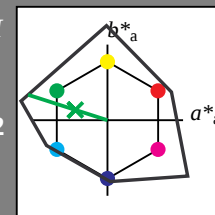
for hue $h^* = lab^*h = 162/360 = 0.451$

*LAB*LCH, LAB*NCH*

D65: hue G

LCH*Ma: 65 110 162

rgb*Ma: 0.08 1.0 0.0



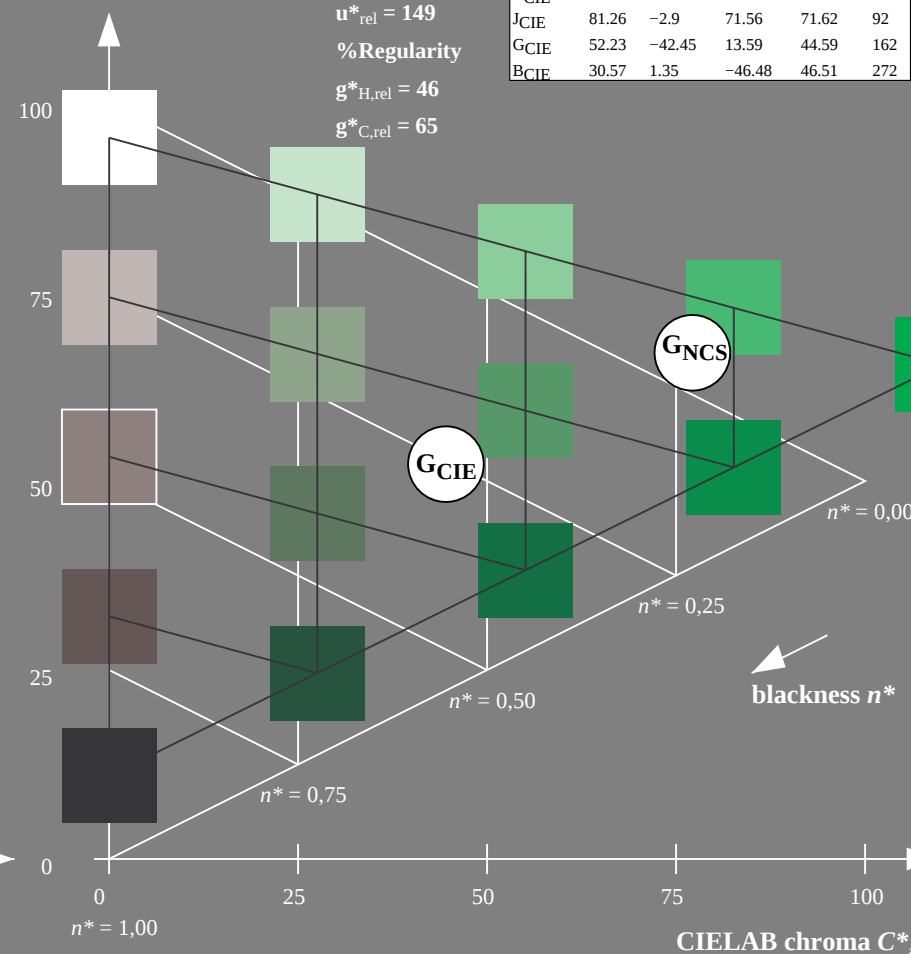
NCS11; adapted (a) CIELAB data					
	L^*_{a}	a^*_{a}	b^*_{a}	$C^*_{\text{ab,a}}$	$h^*_{\text{ab,a}}$
R _{Ma}	47.15	84.64	37.25	92.48	24
J _{Ma}	91.37	-1.27	125.03	125.03	91
G _{Ma}	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	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

CIELAB lightness L^*

%Gamut

$$\mathbf{u}_{rel}^* = 149$$

%Regularity

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


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

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: *cmy0* setcmykcolor*

D65: Coordinate systems of 5 step colour scales for 10 hues

output: *no change compared to input*

Input: Colorimetric Reflective System MRS18

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

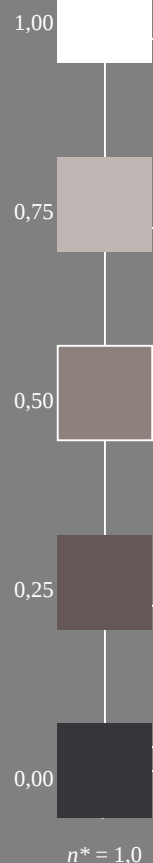
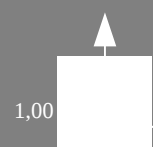
lab^*tch and lab^*nch

D65: hue B

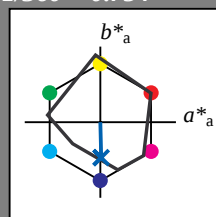
LCH*Ma: 40 50 271

rgb*Ma: 0.0 0.37 1.0

triangle lightness t^*



UE230-7, 5 step scales for constant CIE LAB hue 271/360 = 0.754 (left)



% Gamut

$u^*_{rel} = 91$

% Regularity

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

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

MRS18; adapted (a) CIE LAB 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 $h^* = lab^*h = 272/360 = 0.755$

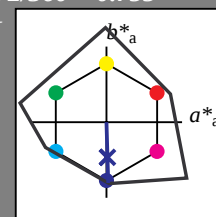
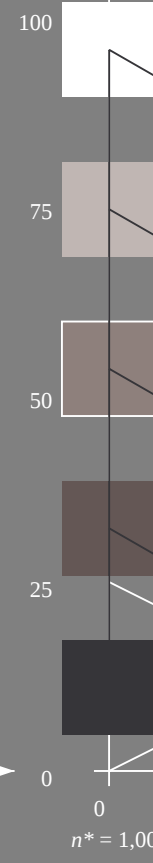
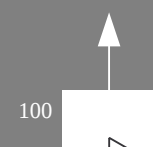
LAB^*LCH , LAB^*NCH

D65: hue B

LCH*Ma: 49 80 272

rgb*Ma: 0.0 0.02 1.0

CIE LAB lightness L^*



% Gamut

$u^*_{rel} = 149$

% Regularity

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

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

NCS11; adapted (a) CIE LAB 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

B_{NCS}

B_{CIE}

CIE LAB chroma C^*_{ab}

BAM-test chart UE23; Colorimetric systems MRS18 & NCS11a input: $cmY0^* setcmykcolor$

D65: Coordinate systems of 5 step colour scales for 10 hues

output: no change compared to input