

See original or copy: <http://web.me.com/klaus.richter/IE39/IE39L0NP.PDF> /.PS
Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmetrik>

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 40/360 = 0.111$

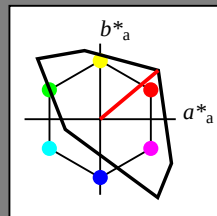
lab*tch and lab*nch

D65: hue O

LCH*Ma: 51 100 40

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



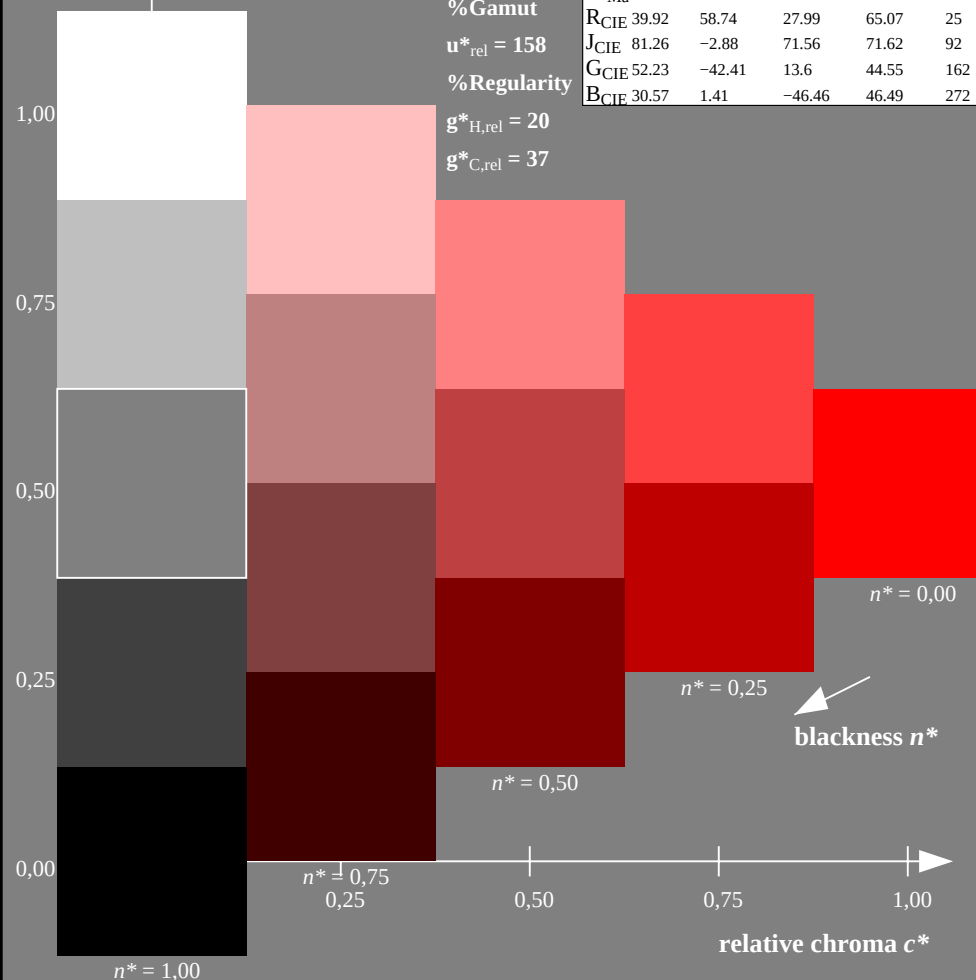
%Gamut

$$\mathbf{u}_{\text{rel}}^* = 158$$

%Regularity

$$g^*_{H,rel} = 20$$
$$g^*_{C,rel} = 37$$

	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 40/360 = 0.111 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 1/80
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

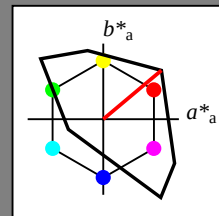
for hue $h^* = lab^*h = 40/360 = 0.111$

lab*tch and lab*nch

D65: hue O

LCH*Ma: 51 100 40

olv*Ma: 1.0 0.0 0.0

triangle lightness t^* 

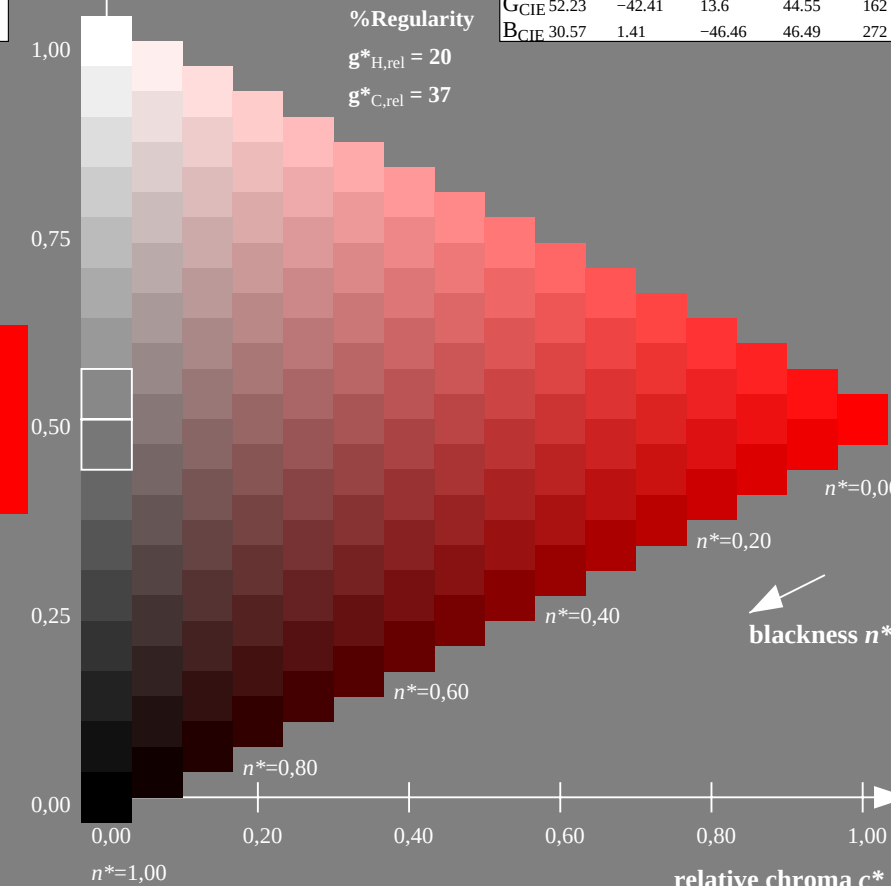
% Gamut

$$\mathbf{u}_{\text{rel}}^* = 158$$

%Regularity

$$g^*_{H,rel} = 20$$
$$g^*_{C,rel} = 37$$

TLS00a; adapted (a) CIELAB data					
	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	h^*_{ab}
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 40/360 = 0.111 (right)

input: *rgb* ($\rightarrow$ *olv**) *setrgbcolor*
output: no change compared to input

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PS
- application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 38/360 = 0.106$

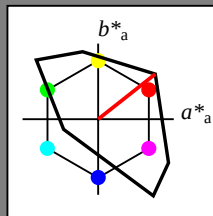
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 51 96 38

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

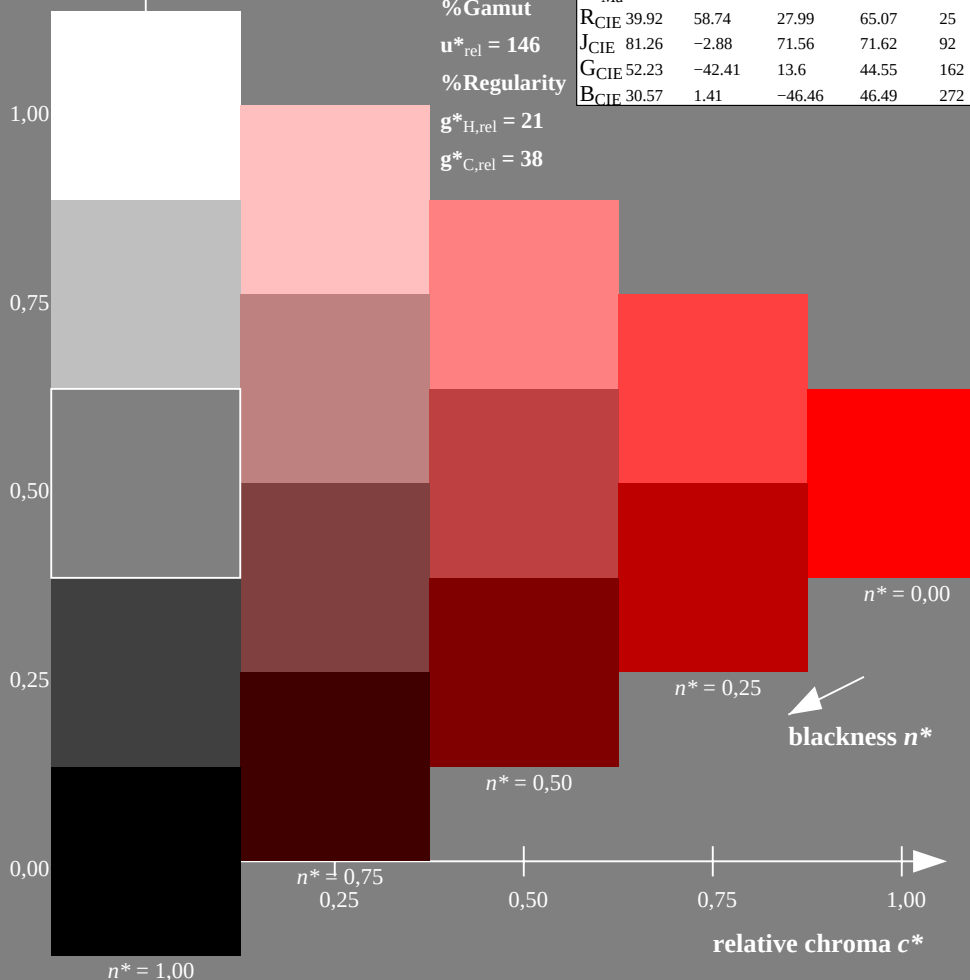
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 38/360 = 0.106 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 2/80
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 38/360 = 0.106$

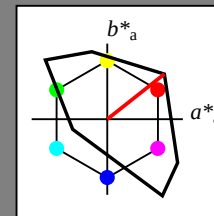
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 51 96 38

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

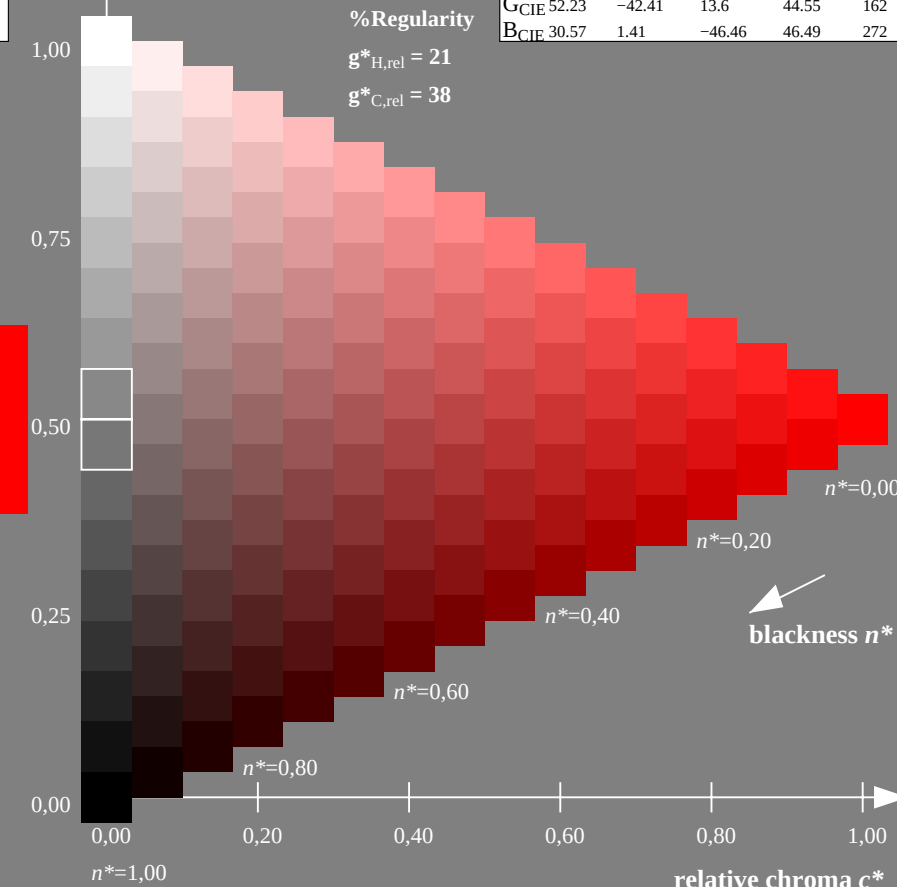
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 38/360 = 0.106 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 37/360 = 0.103$

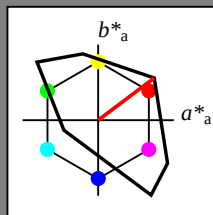
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 52 93 37

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

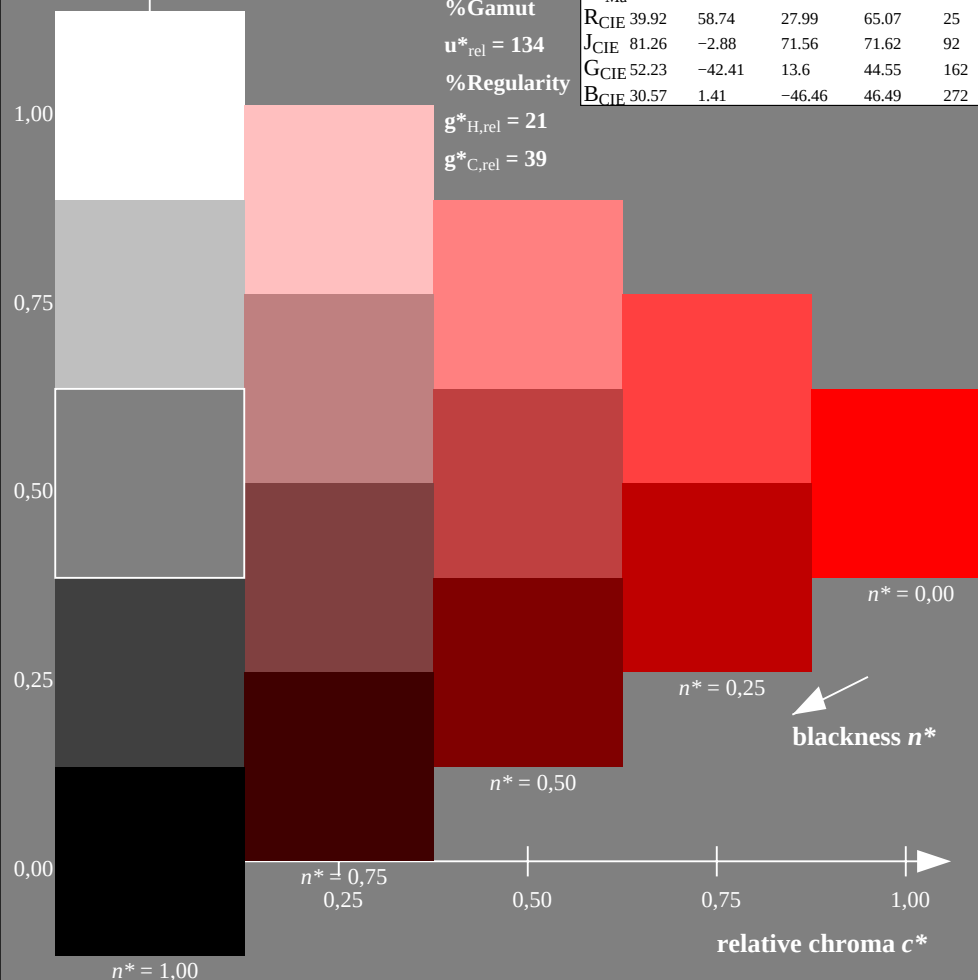
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 37/360 = 0.103 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 3/80
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 37/360 = 0.103$

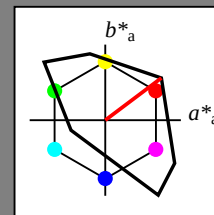
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 52 93 37

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

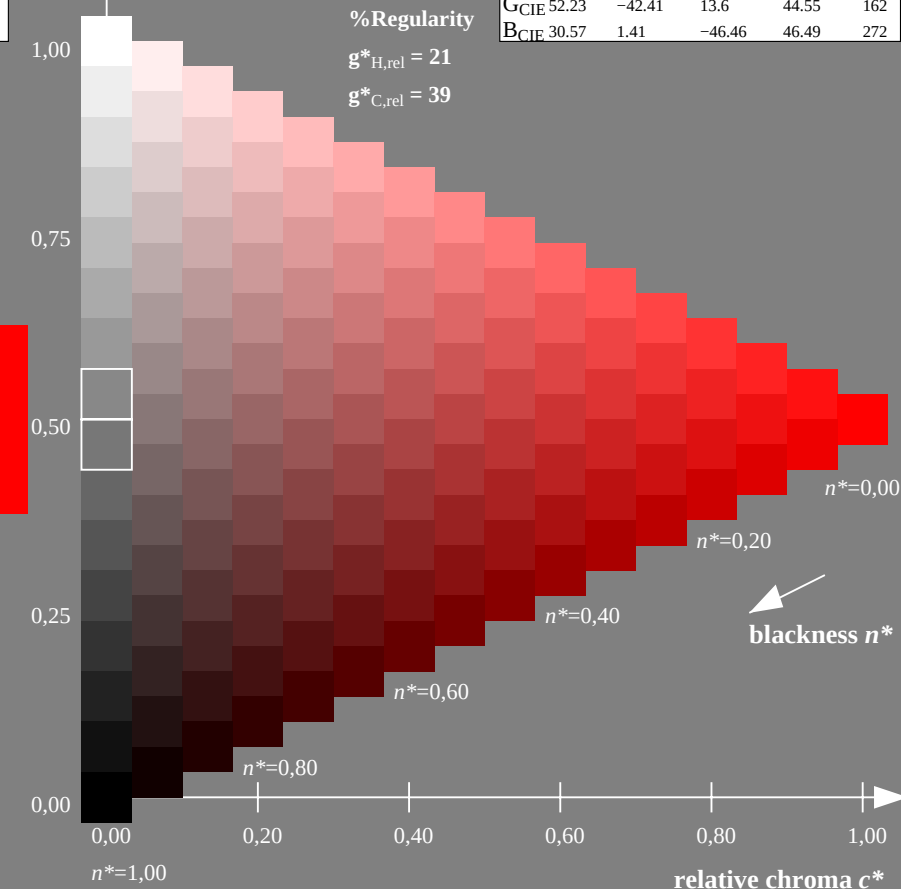
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 37/360 = 0.103 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 35/360 = 0.097$

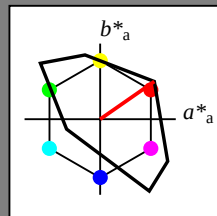
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 53 87 35

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 35/360 = 0.097$

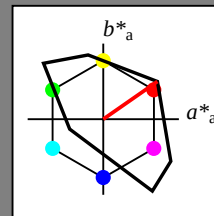
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 53 87 35

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

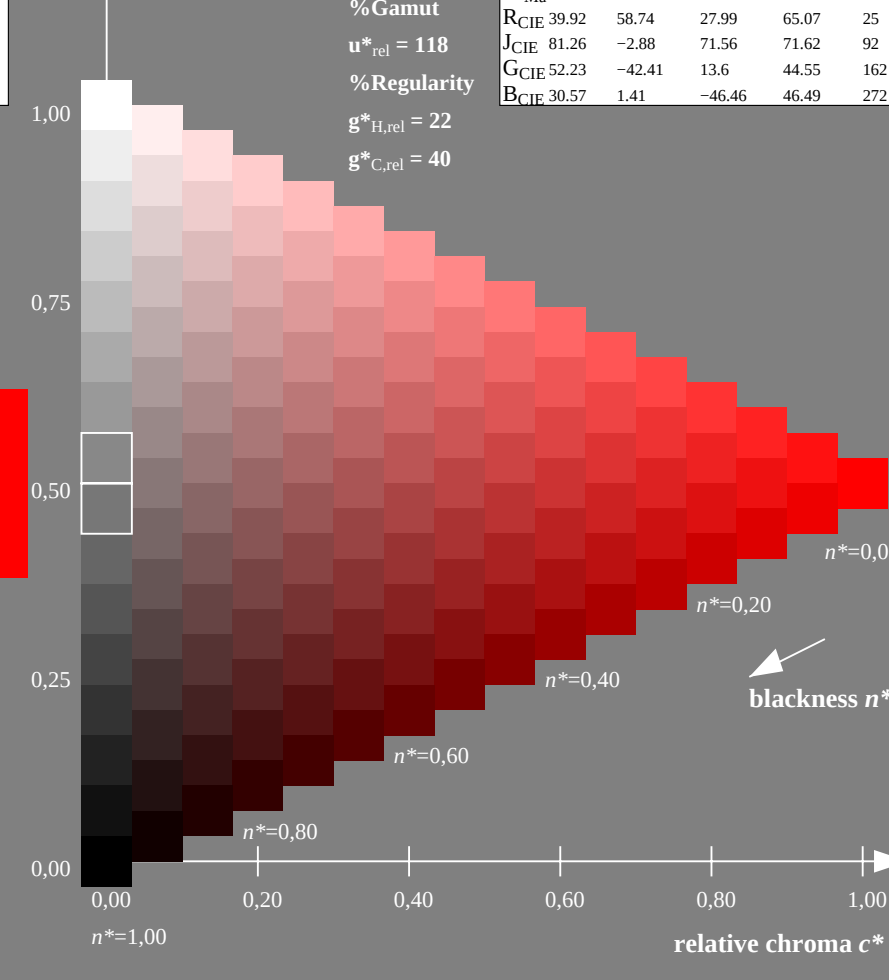
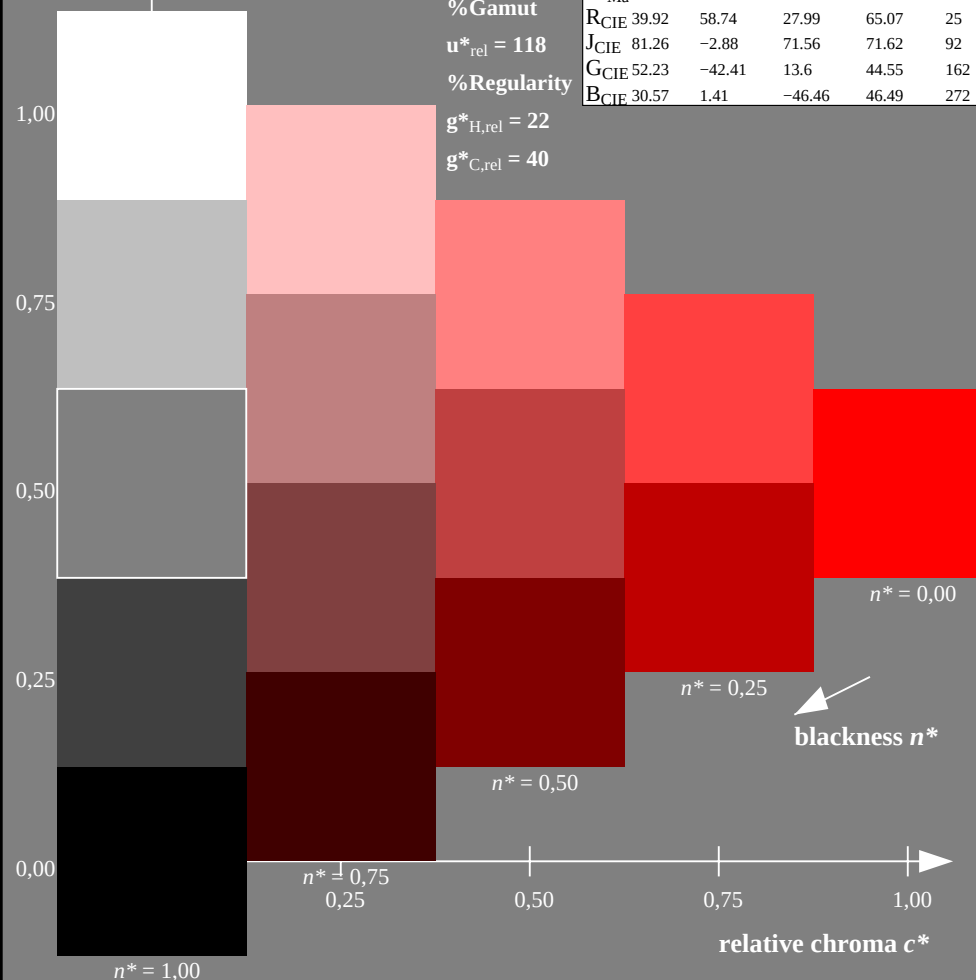
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 35/360 = 0.097 (left)

16 step scales for constant CIELAB hue 35/360 = 0.097 (right)

TUB-test chart IE39 for visual displays, Hue O, Page 4/80
Discrimination of 5 and 16 step colour scales, TLS00a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 32/360 = 0.089$

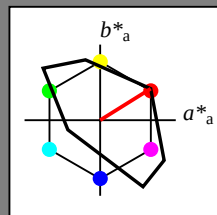
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 55 79 32

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 32/360 = 0.089$

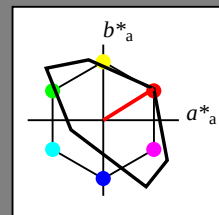
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 55 79 32

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

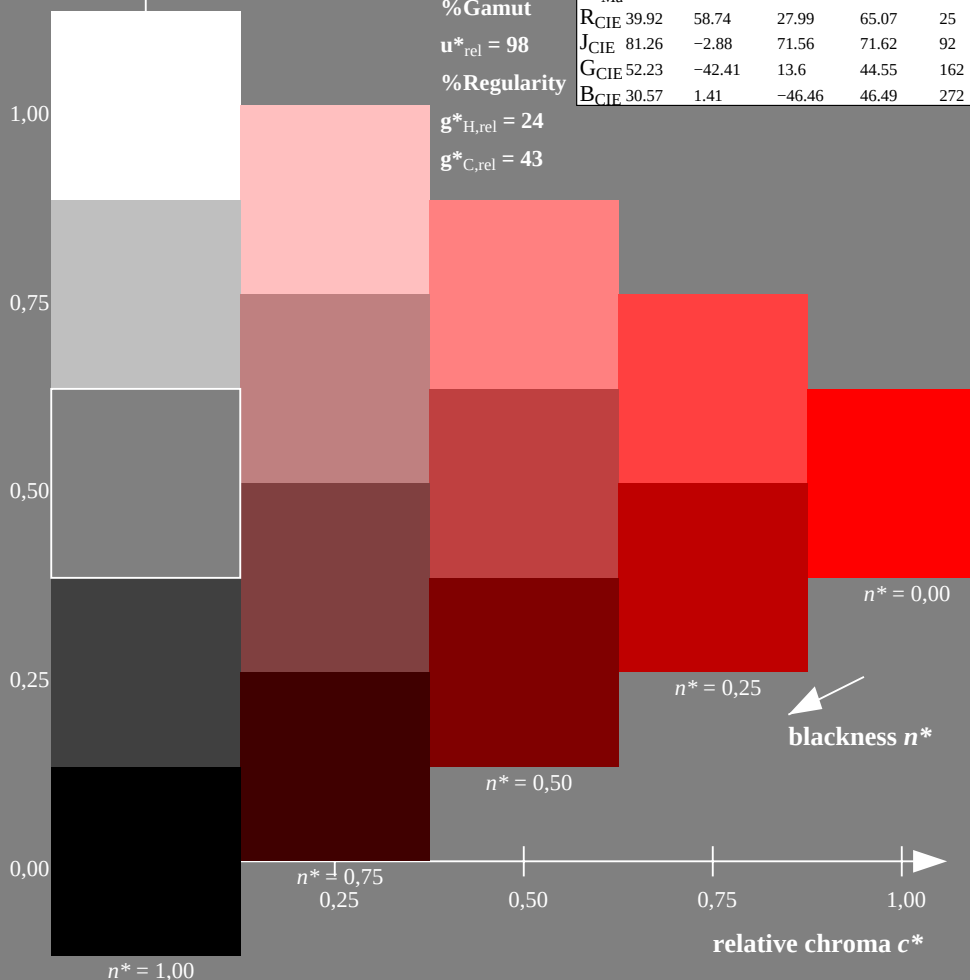
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

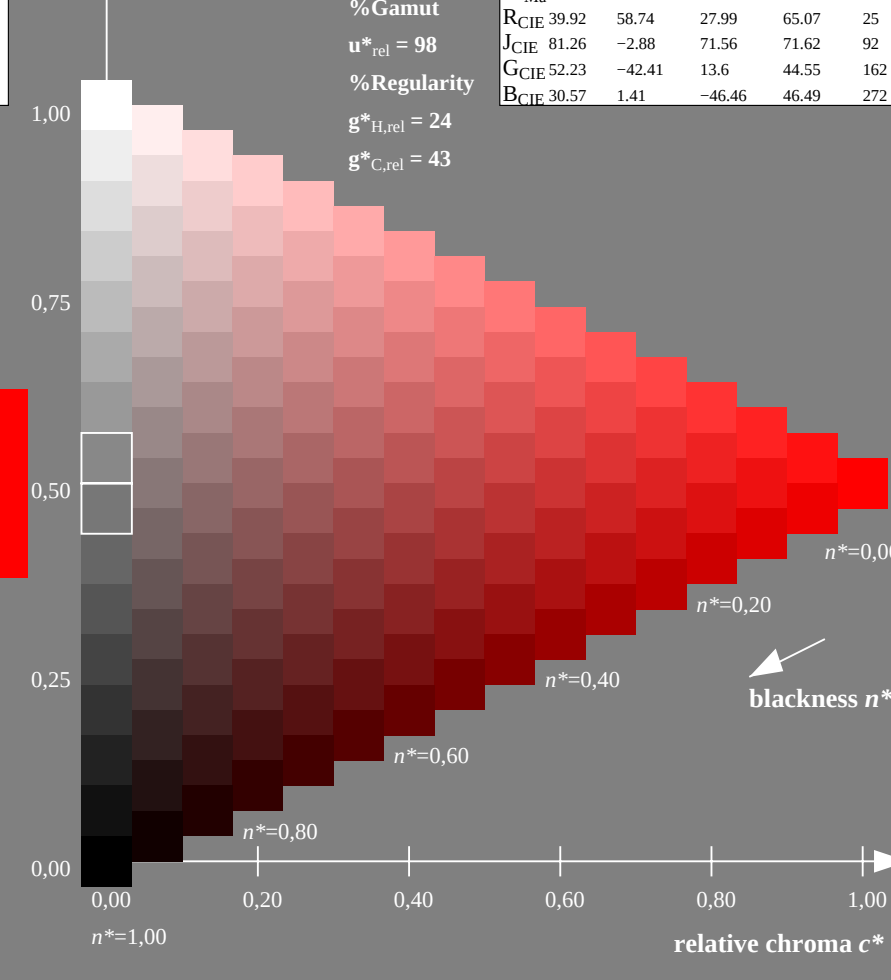
TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 32/360 = 0.089 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 5/80
Discrimination of 5 and 16 step colour scales, TLS00a



16 step scales for constant CIELAB hue 32/360 = 0.089 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 28/360 = 0.079$

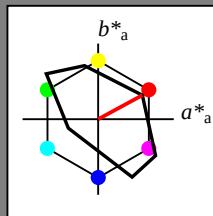
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 59 67 28

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 28/360 = 0.079$

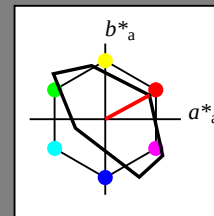
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 59 67 28

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

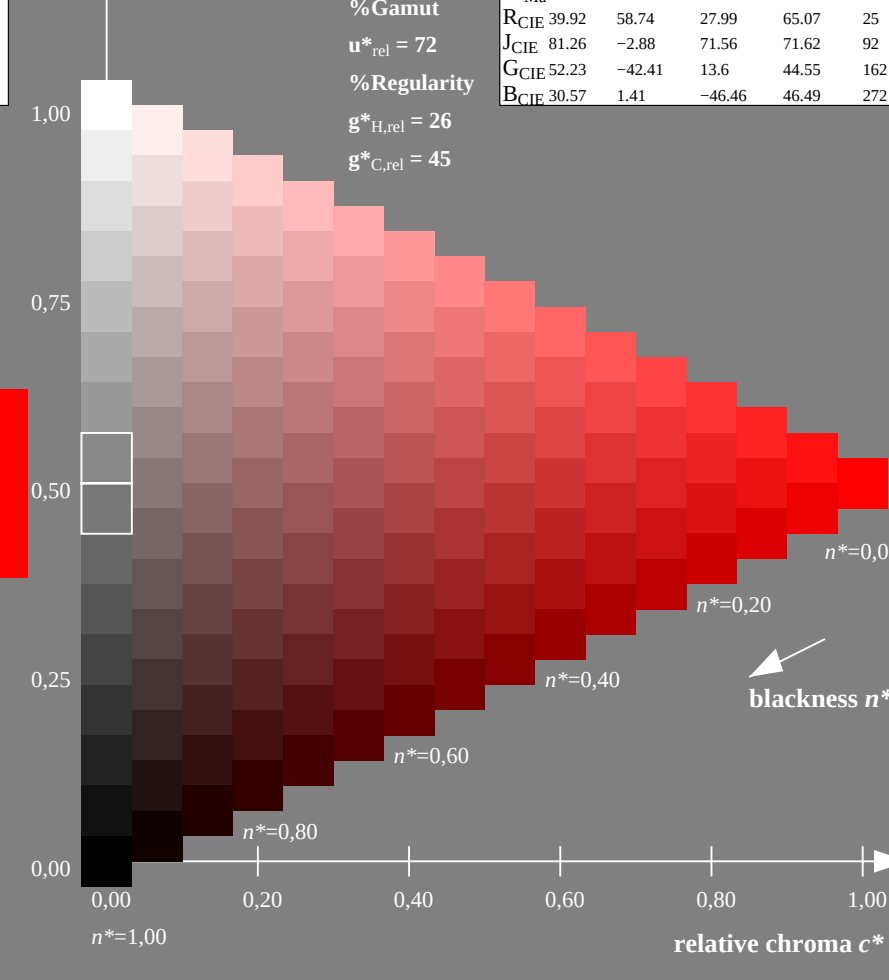
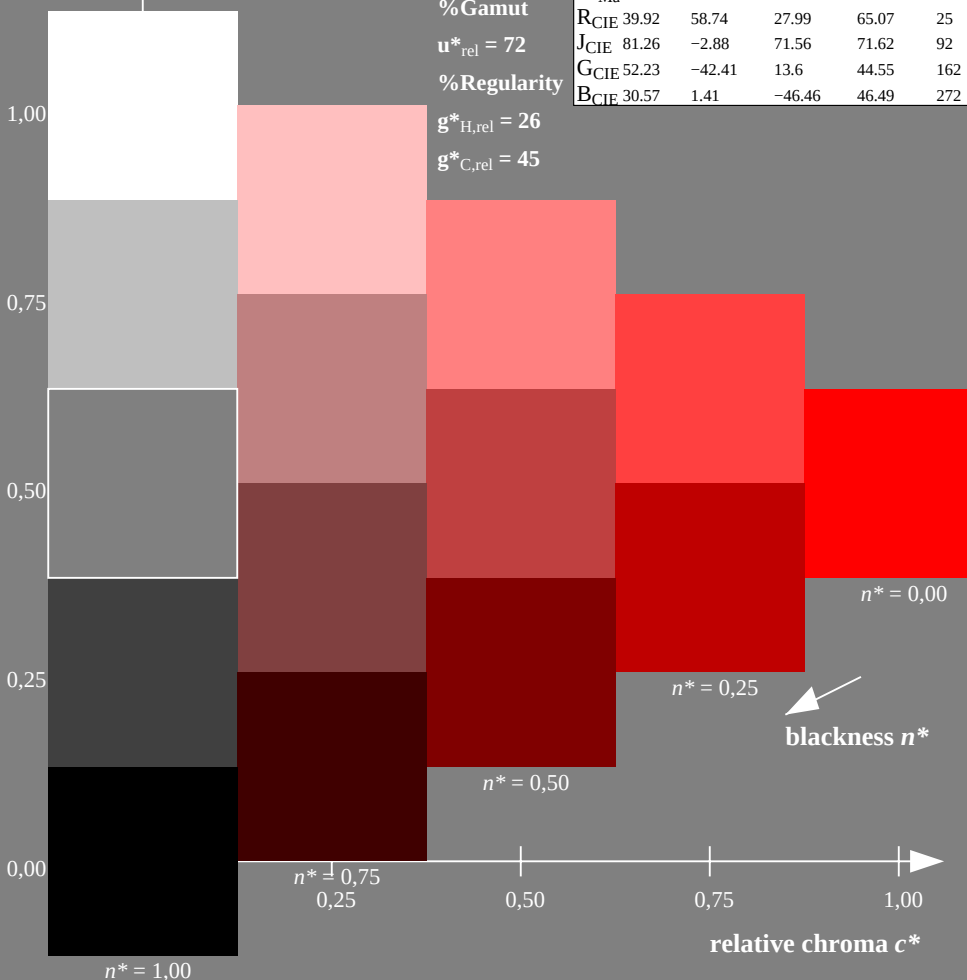
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 28/360 = 0.079 (left)

16 step scales for constant CIELAB hue 28/360 = 0.079 (right)

TUB-test chart IE39 for visual displays, Hue O, Page 6/80
Discrimination of 5 and 16 step colour scales, TLS00a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

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

lab^*tch and lab^*nch

D65: hue O

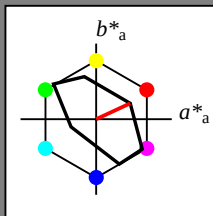
LCH*Ma: 66 50 25

ol v^* Ma: 1.0 0.0 0.0

triangle lightness t^*

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



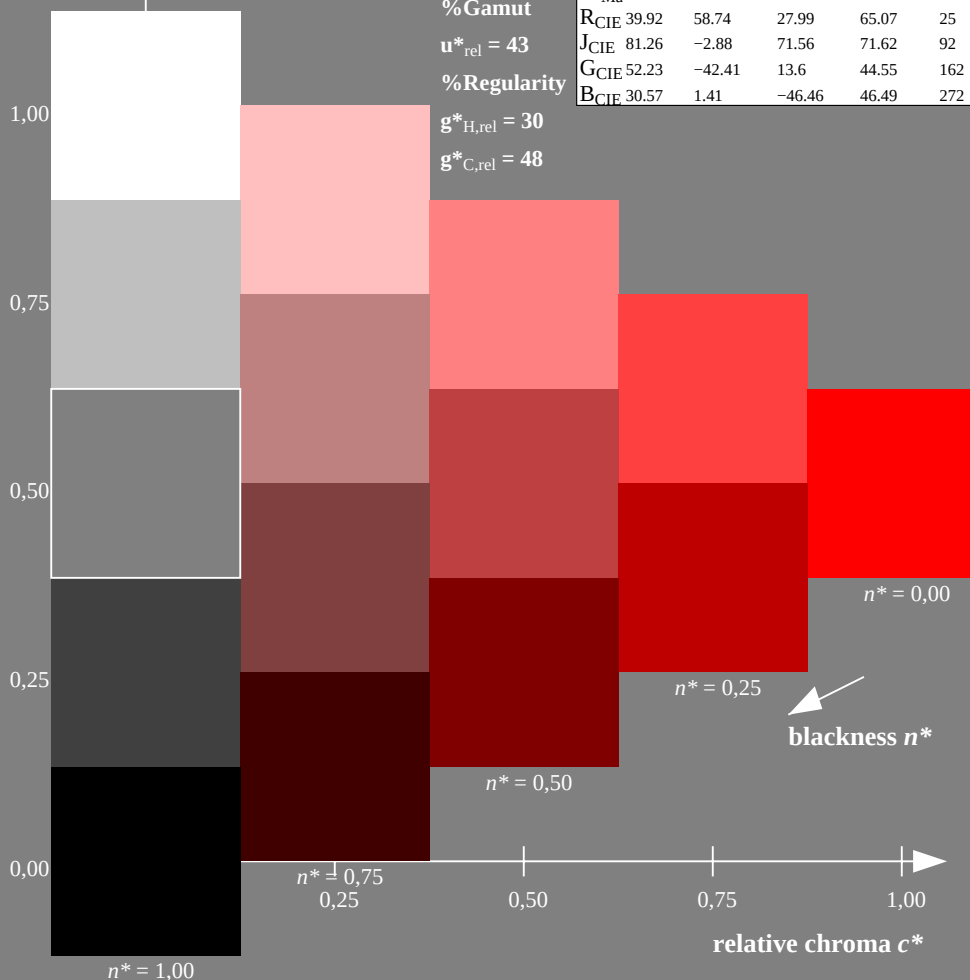
% Gamut

$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.069 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 7/80
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS52a

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

lab^*tch and lab^*nch

D65: hue O

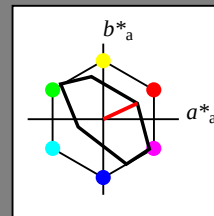
LCH*Ma: 66 50 25

ol v^* Ma: 1.0 0.0 0.0

triangle lightness t^*

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



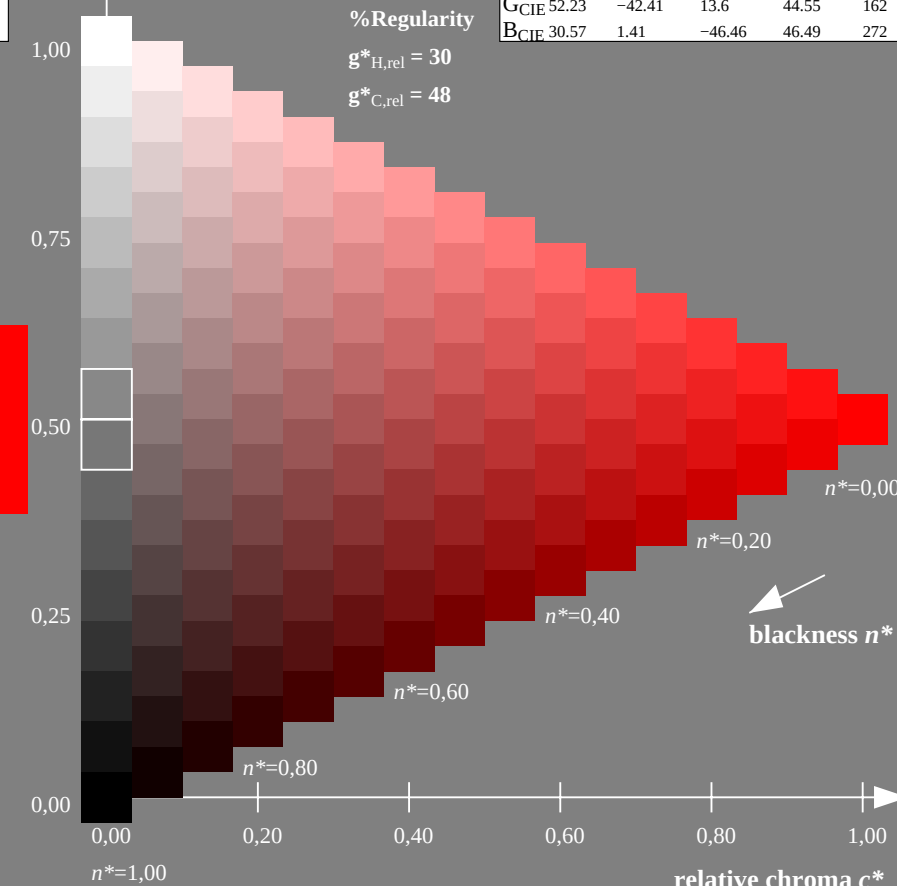
% Gamut

$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$



16 step scales for constant CIELAB hue 25/360 = 0.069 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 22/360 = 0.061$

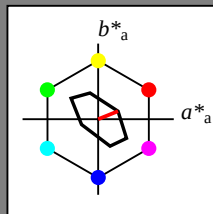
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 76 28 22

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

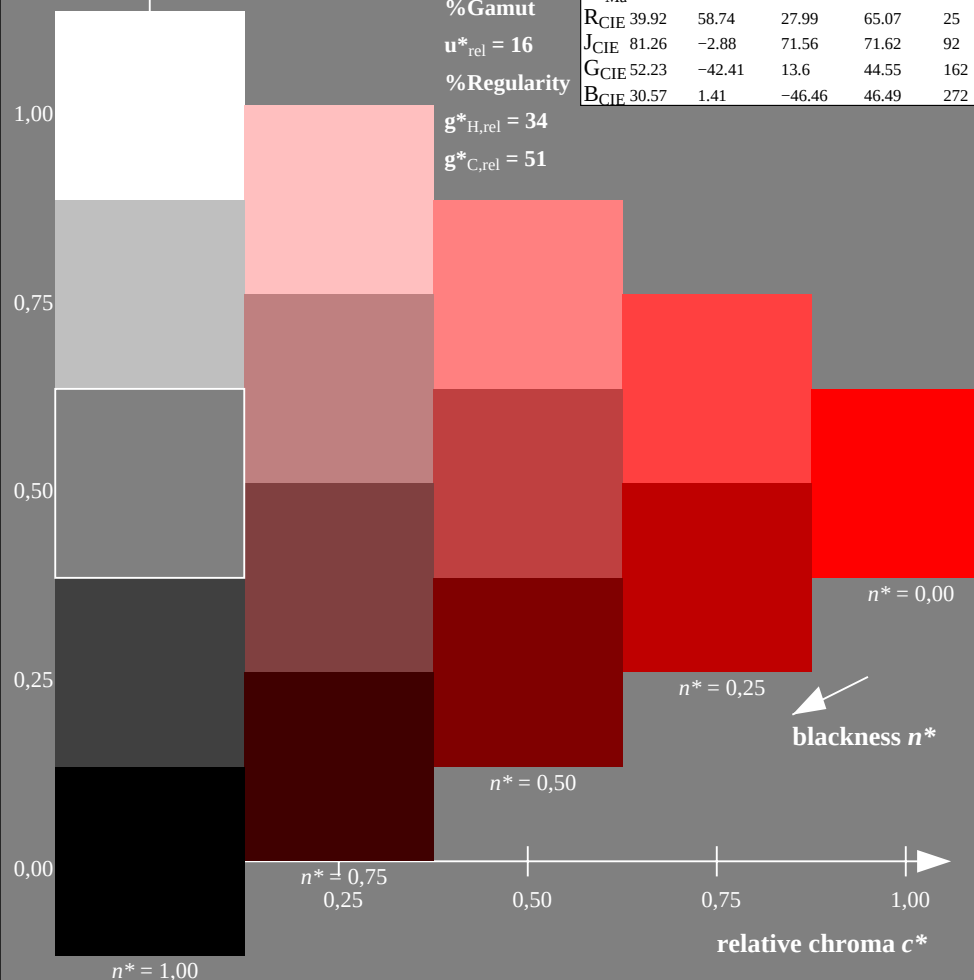
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	76.43	26.27	10.57	28.32	22
YMa	93.93	-10.76	34.63	36.27	107
LMa	89.32	-35.8	27.64	45.24	142
CMa	90.93	-21.95	-7.07	23.07	198
VMa	72.1	15.76	-35.63	38.97	294
MMa	78.5	37.52	-25.23	45.22	326
NMa	69.7	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 22/360 = 0.061 (left)

TUB-test chart IE39 for visual displays, Hue O, Page 8/80
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 22/360 = 0.061$

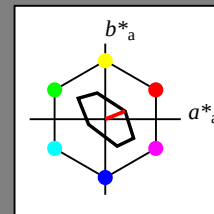
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 76 28 22

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

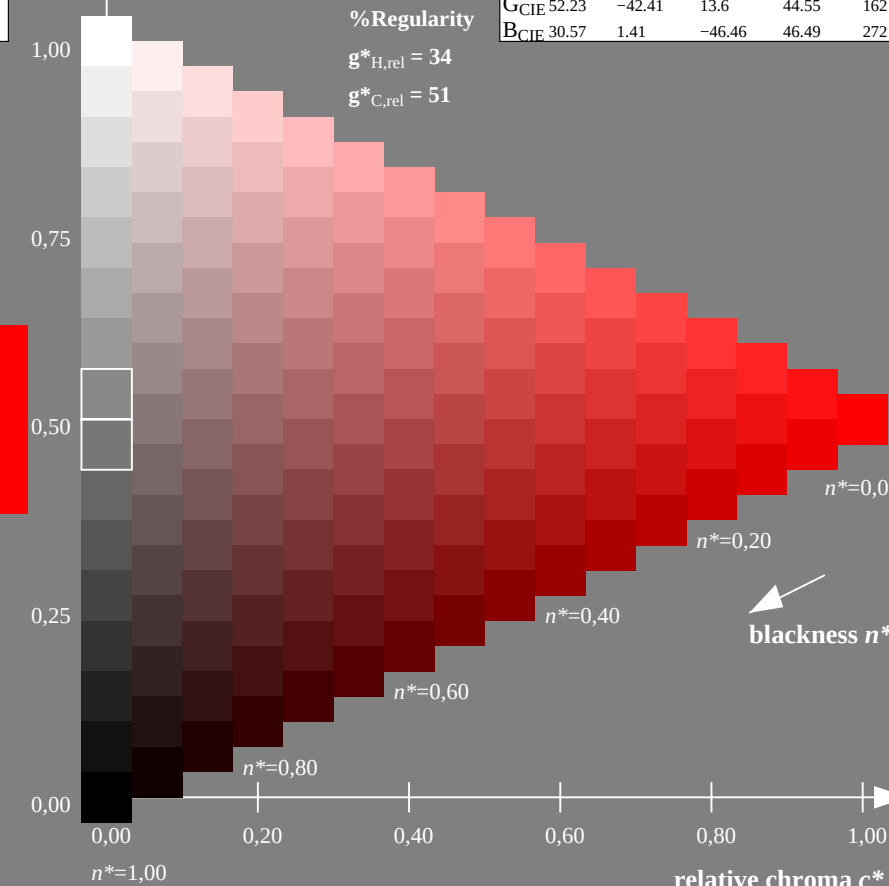
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	76.43	26.27	10.57	28.32	22
YMa	93.93	-10.76	34.63	36.27	107
LMa	89.32	-35.8	27.64	45.24	142
CMa	90.93	-21.95	-7.07	23.07	198
VMa	72.1	15.76	-35.63	38.97	294
MMa	78.5	37.52	-25.23	45.22	326
NMa	69.7	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 22/360 = 0.061 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 103/360 = 0.286$

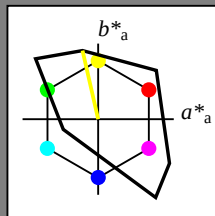
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 93 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 103/360 = 0.286$

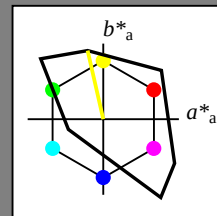
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 93 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

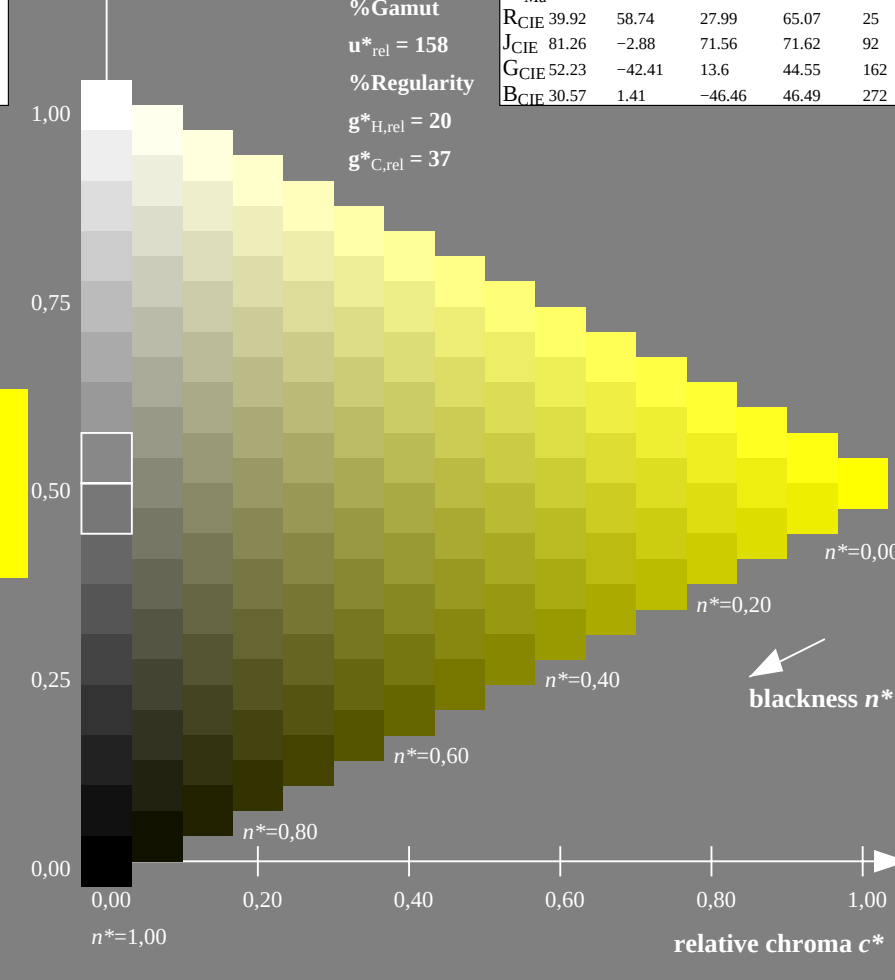
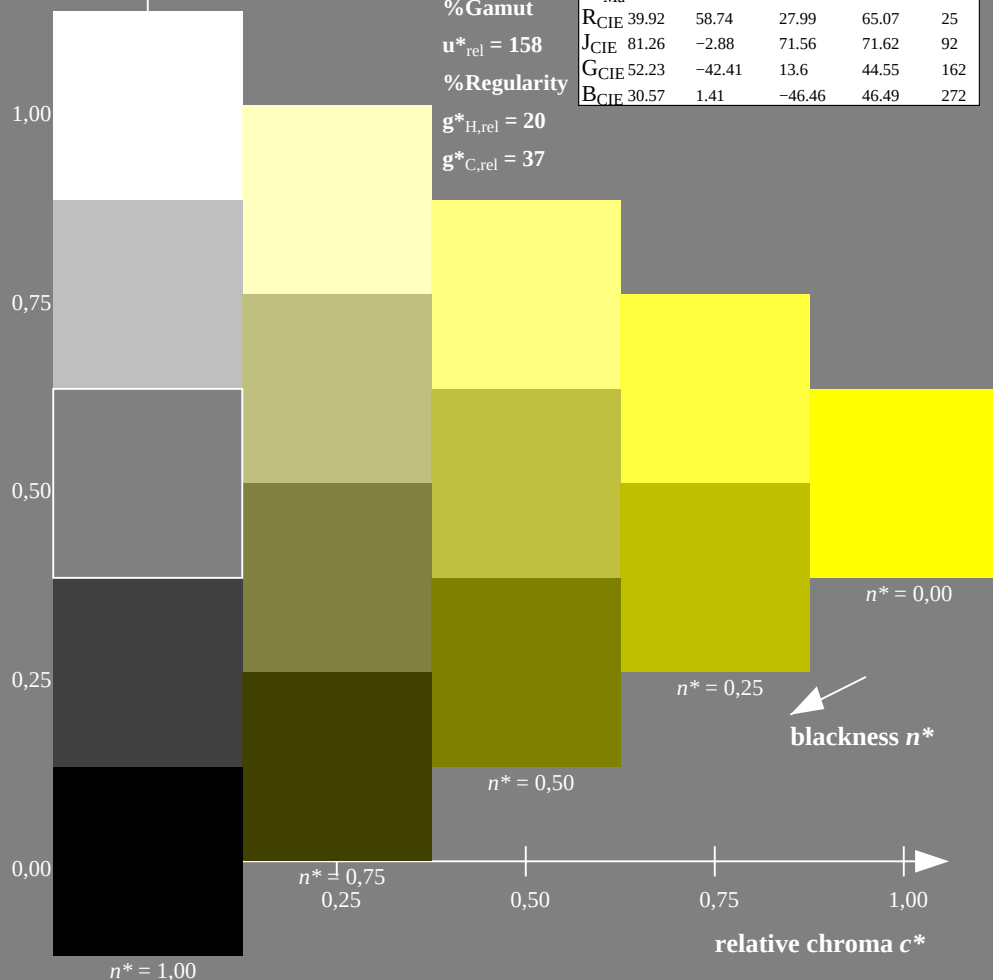
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 103/360 = 0.286 (left)

16 step scales for constant CIELAB hue 103/360 = 0.286 (right)

TUB-test chart IE39 for visual displays, Hue Y, Page 9/80
Discrimination of 5 and 16 step colour scales, TLS00a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 103/360 = 0.286$

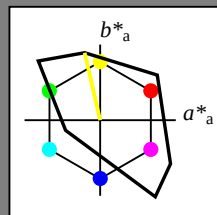
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 92 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 103/360 = 0.286$

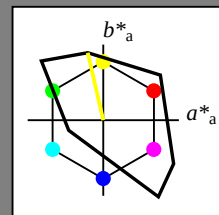
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 92 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

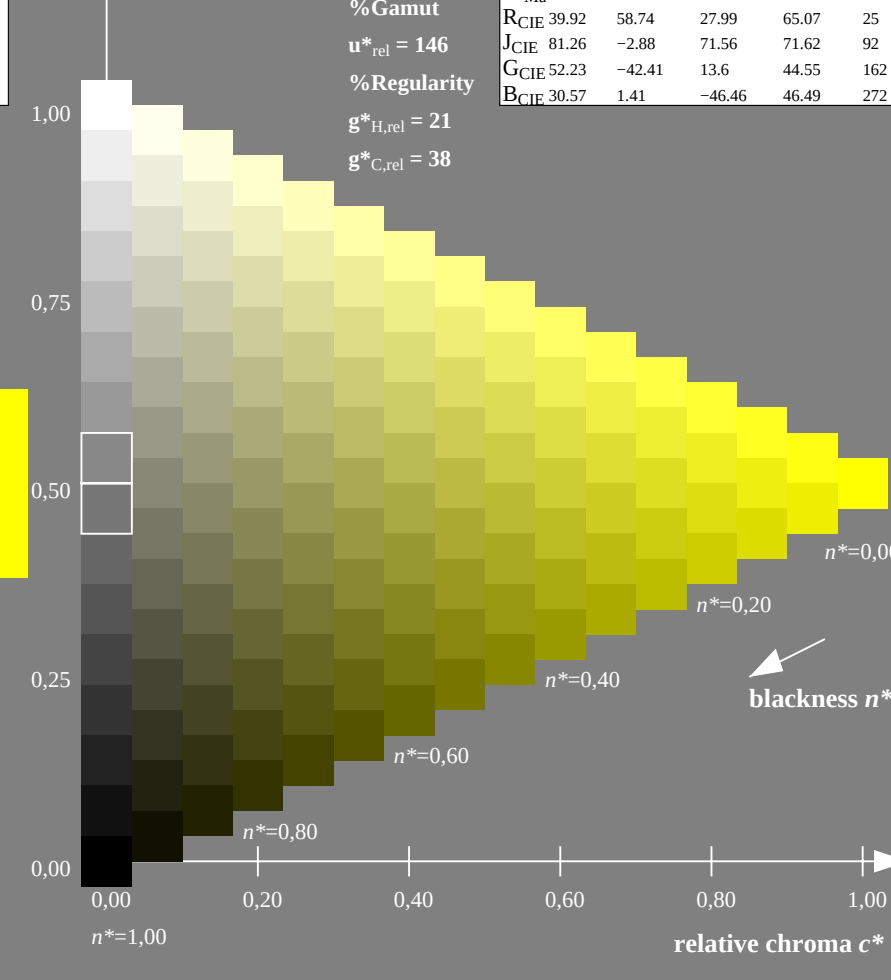
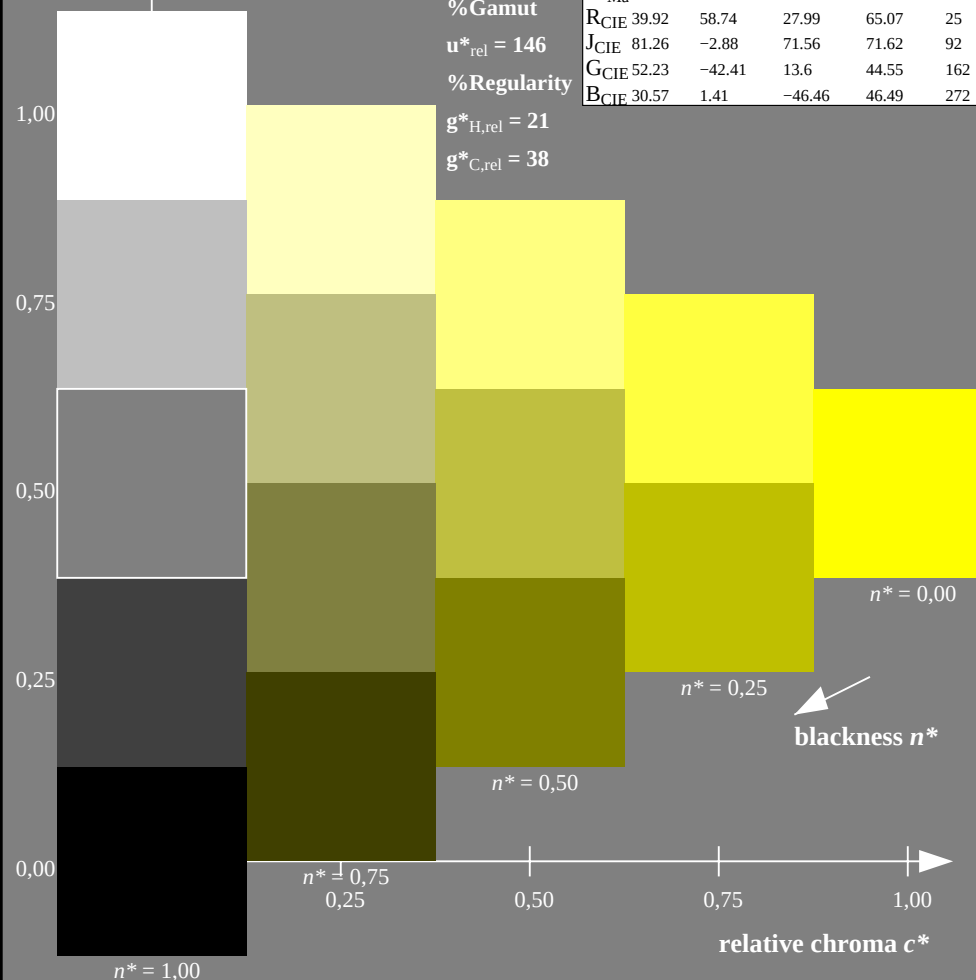
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 103/360 = 0.286 (left)

16 step scales for constant CIELAB hue 103/360 = 0.286 (right)

TUB-test chart IE39 for visual displays, Hue Y, Page 10/80
Discrimination of 5 and 16 step colour scales, TLS06a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 103/360 = 0.286$

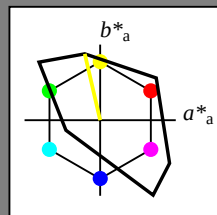
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 90 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 103/360 = 0.286$

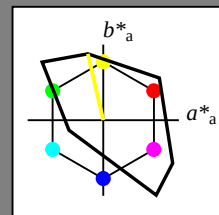
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 90 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

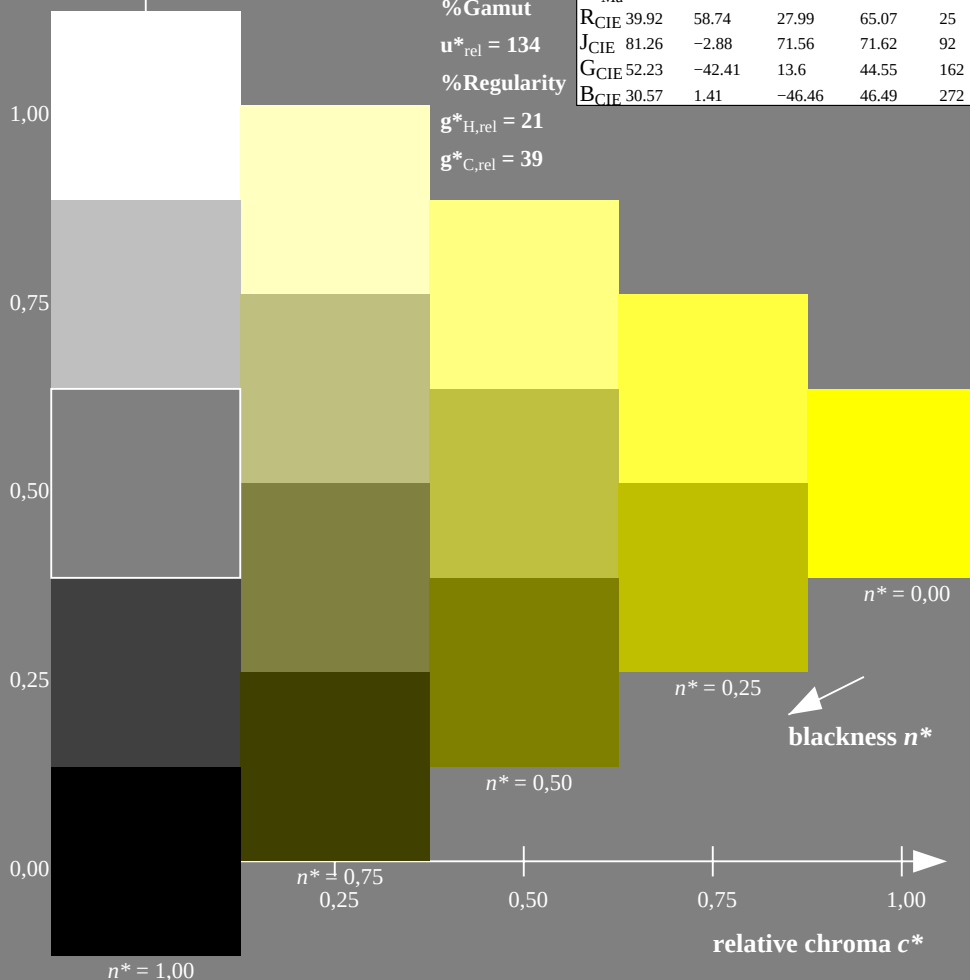
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

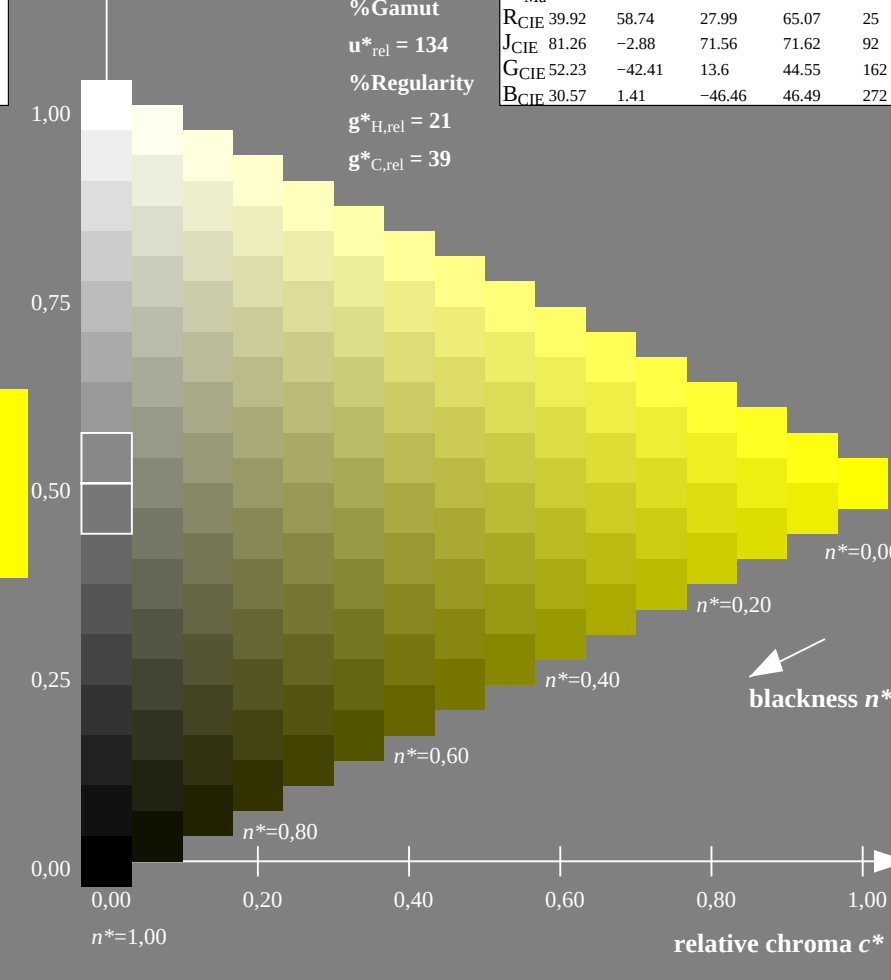
TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 103/360 = 0.286 (left)

TUB-test chart IE39 for visual displays, Hue Y, Page 11/80
Discrimination of 5 and 16 step colour scales, TLS06a



16 step scales for constant CIE LAB hue 103/360 = 0.286 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 103/360 = 0.287$

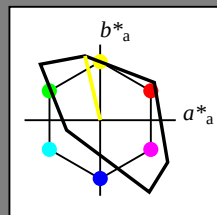
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 87 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 103/360 = 0.287$

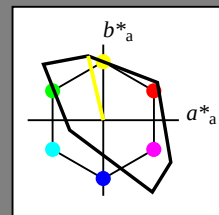
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 87 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

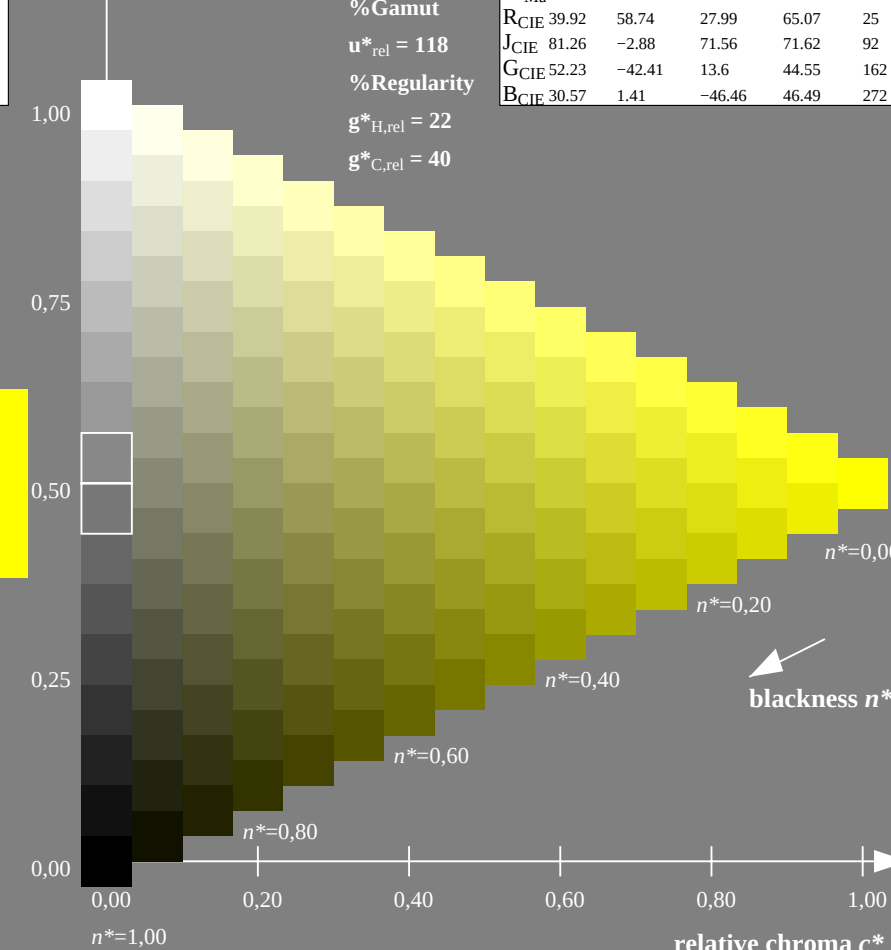
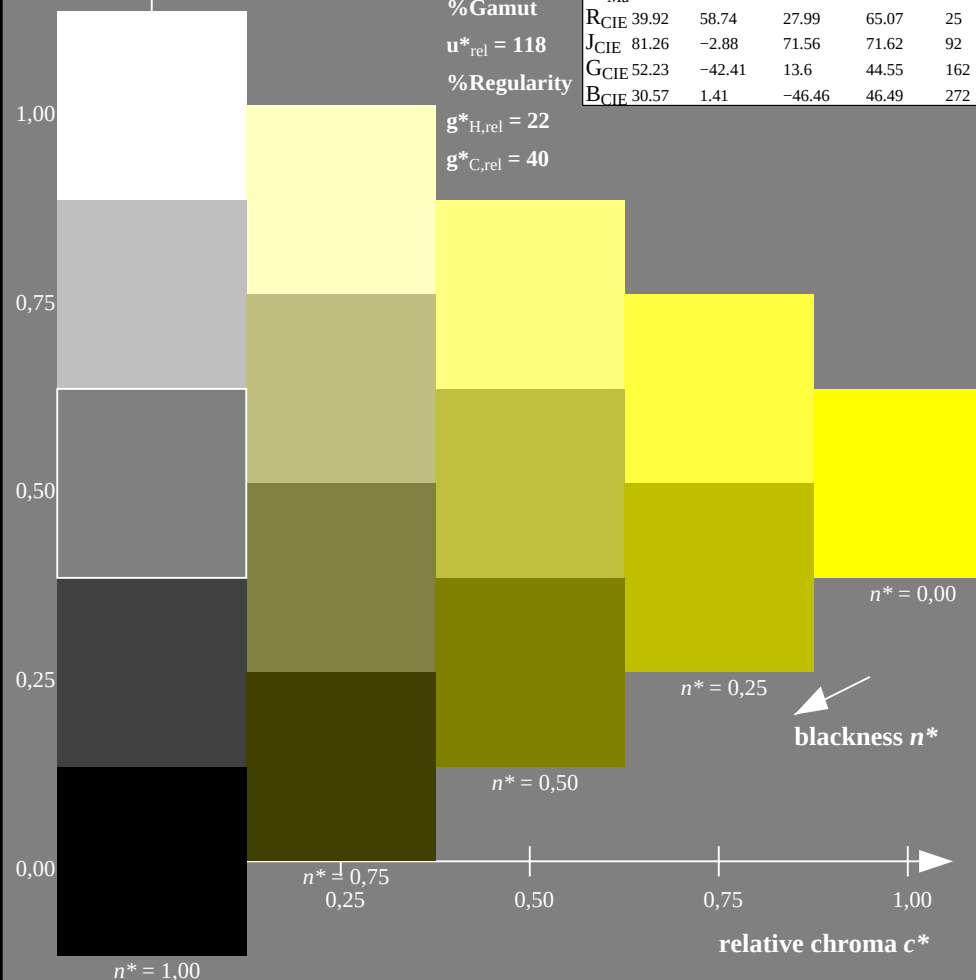
% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$



IE390-7N, 5 step scales for constant CIELAB hue 103/360 = 0.287 (left)

16 step scales for constant CIELAB hue 103/360 = 0.287 (right)

TUB-test chart IE39 for visual displays, Hue Y, Page 12/80

Discrimination of 5 and 16 step colour scales, TLS06a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 104/360 = 0.288$

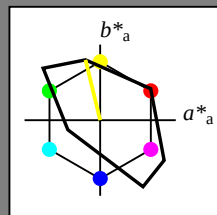
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 82 104

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
NMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 104/360 = 0.288$

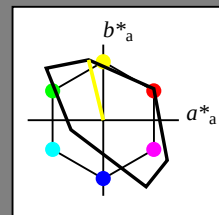
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 82 104

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

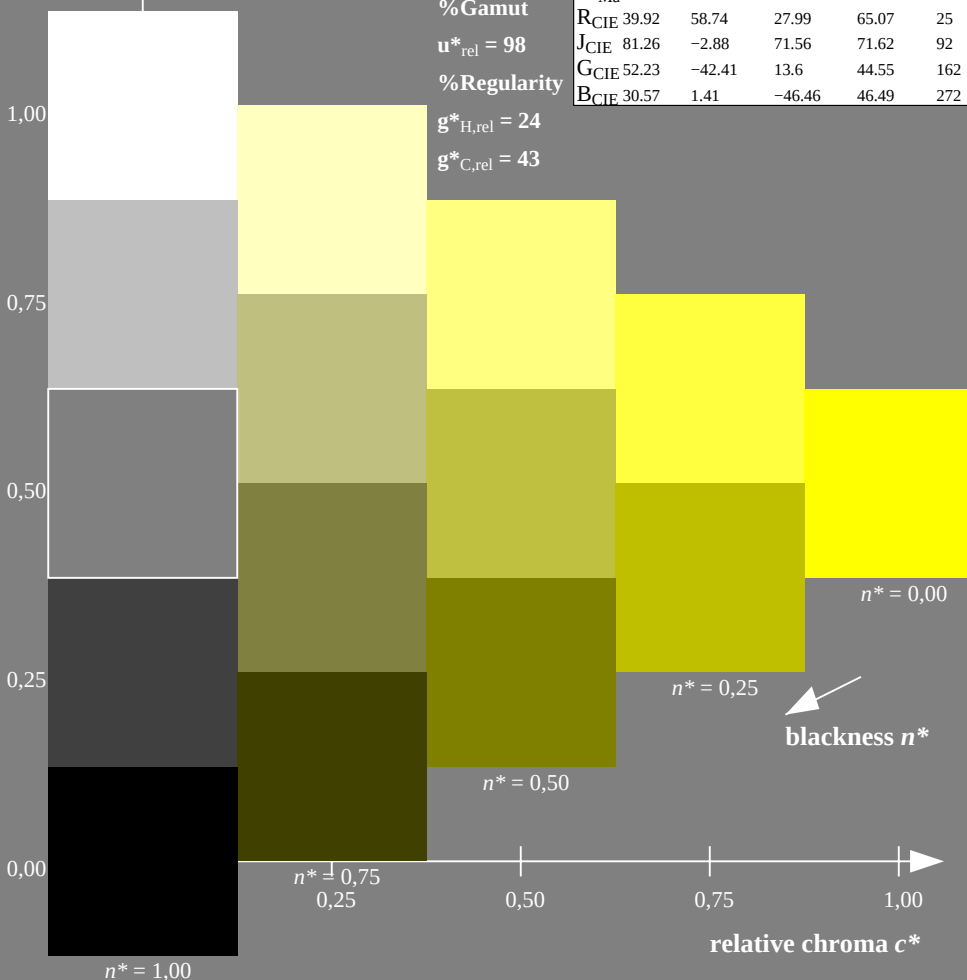
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

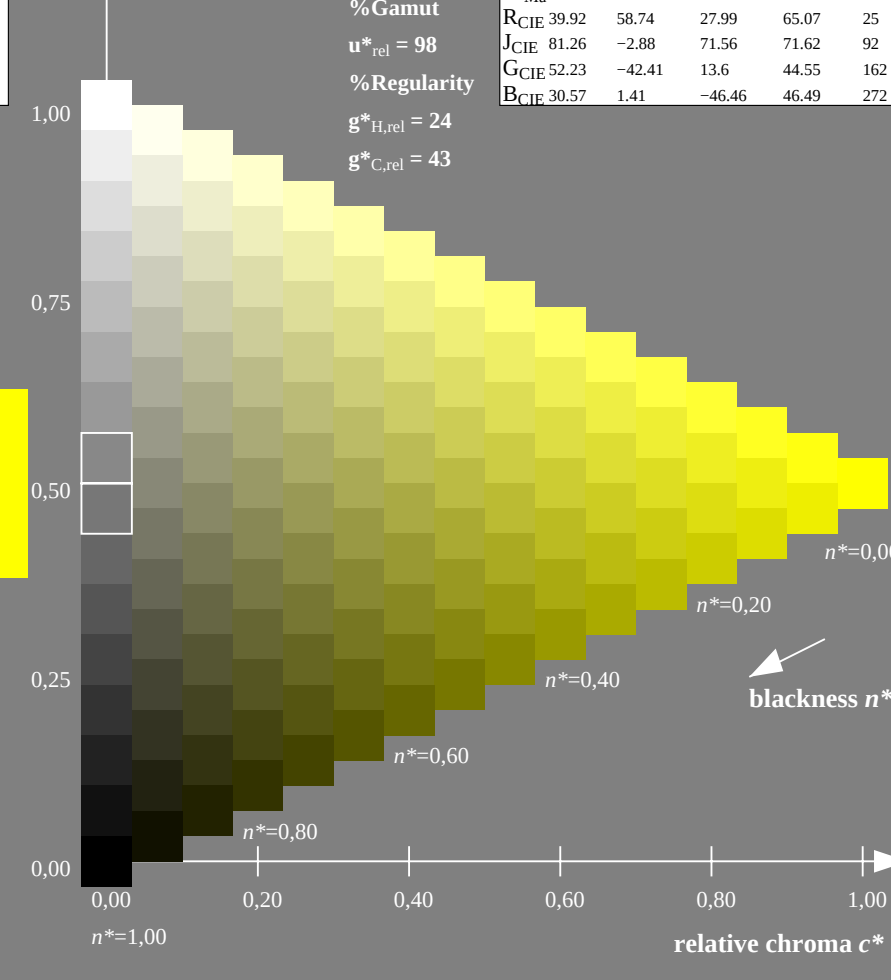
TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
NMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 104/360 = 0.288 (left)

TUB-test chart IE39 for visual displays, Hue Y, Page 13/80
Discrimination of 5 and 16 step colour scales, TLS06a



16 step scales for constant CIE LAB hue 104/360 = 0.288 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 104/360 = 0.29$

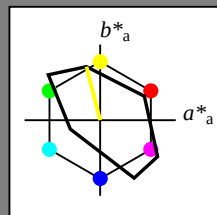
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 73 104

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 104/360 = 0.29$

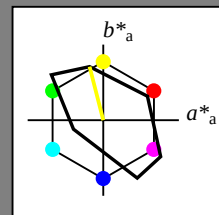
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 73 104

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

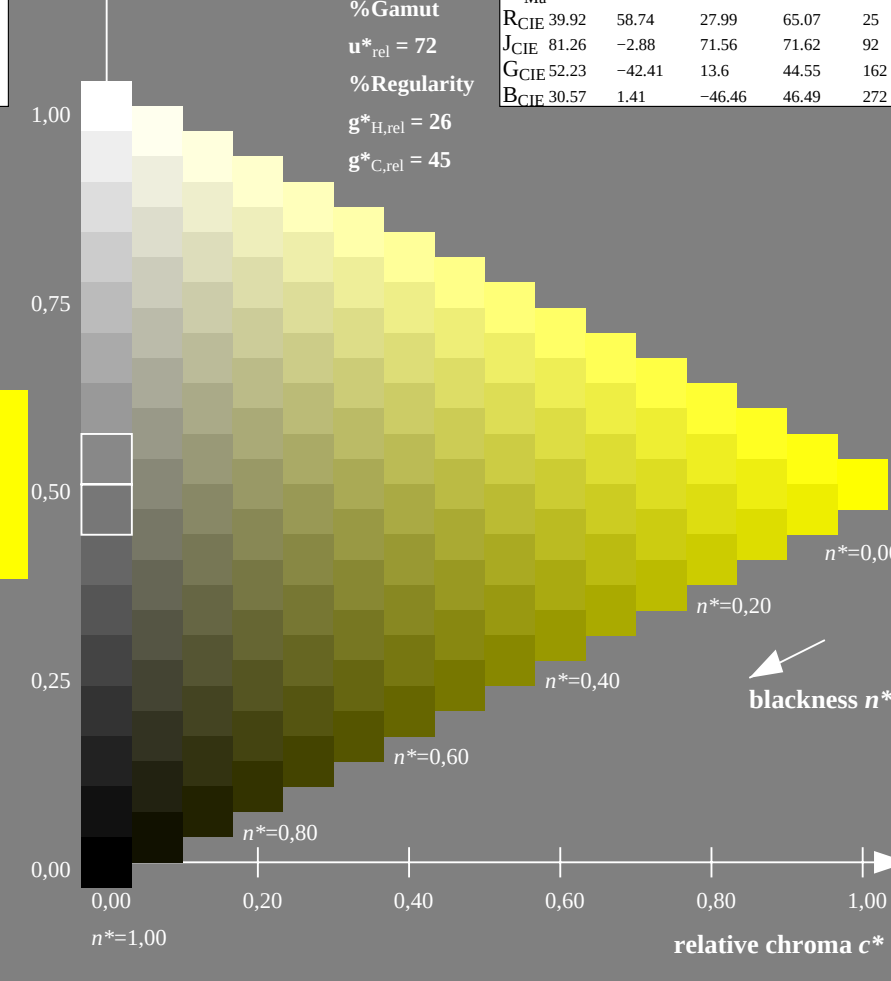
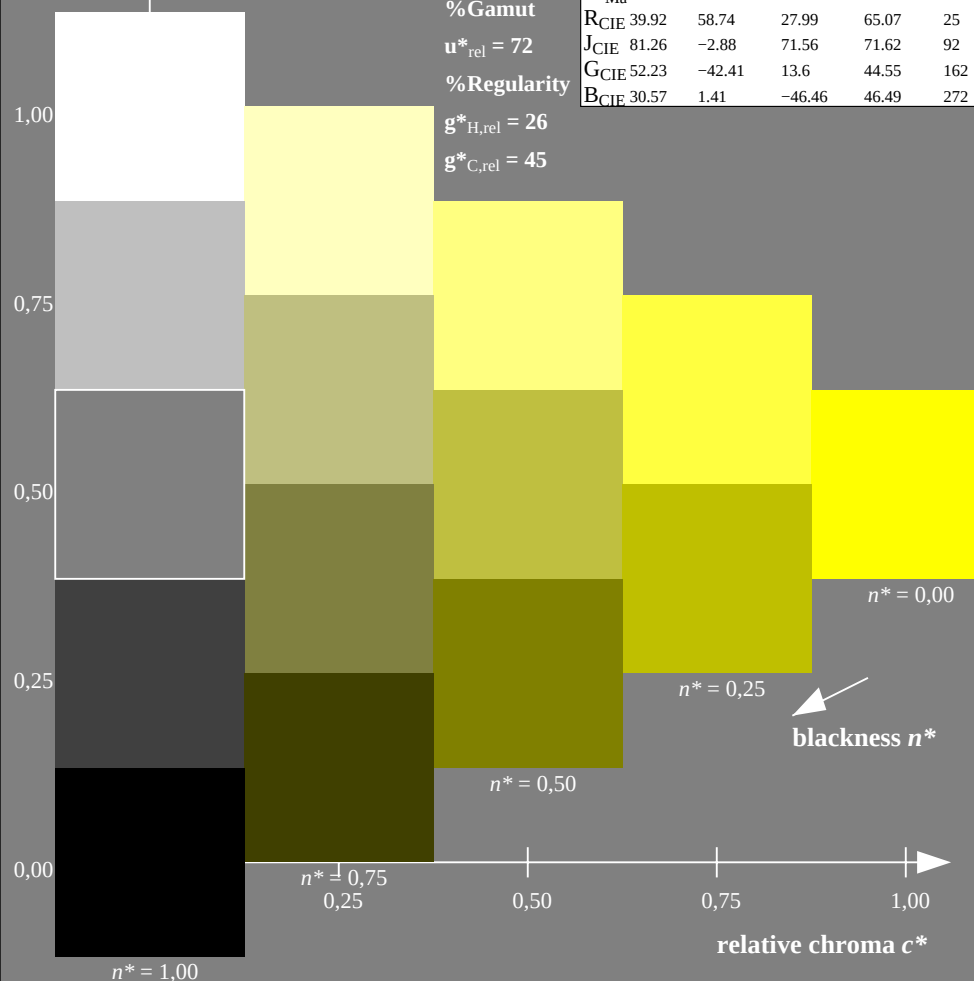
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 104/360 = 0.29 (left)

16 step scales for constant CIELAB hue 104/360 = 0.29 (right)

TUB-test chart IE39 for visual displays, Hue Y, Page 14/80
Discrimination of 5 and 16 step colour scales, TLS06a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 106/360 = 0.293$

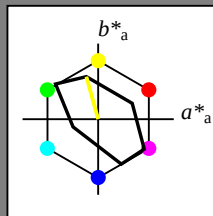
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 58 106

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 106/360 = 0.293$

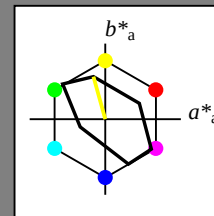
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 58 106

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

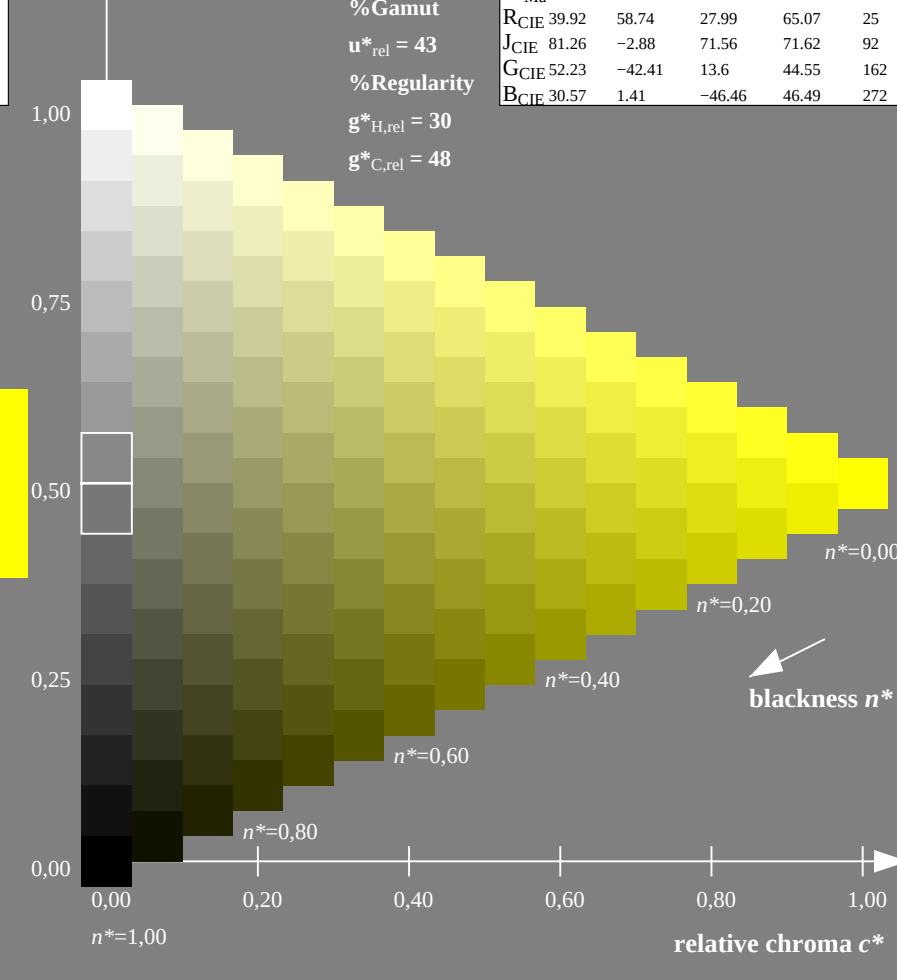
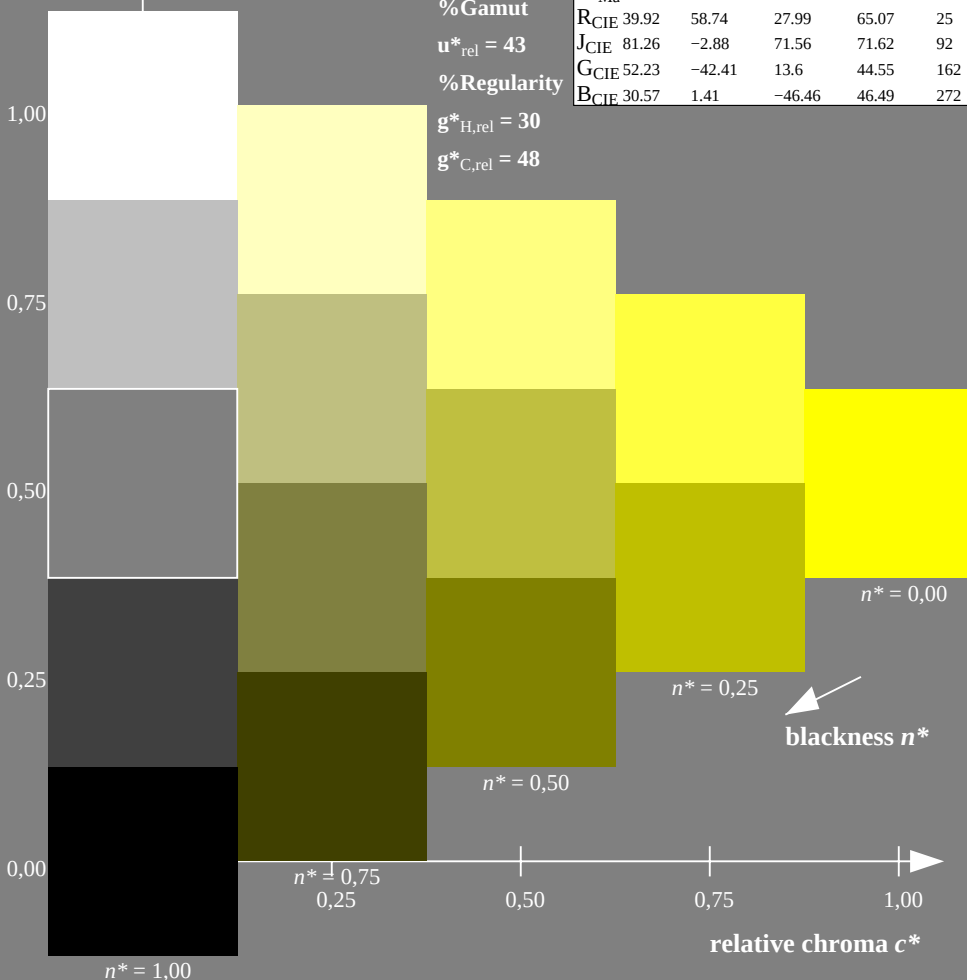
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 106/360 = 0.293 (left)

16 step scales for constant CIELAB hue 106/360 = 0.293 (right)

TUB-test chart IE39 for visual displays, Hue Y, Page 15/80
Discrimination of 5 and 16 step colour scales, TLS06a

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

See original or copy: <http://web.me.com/klaus.richter/IE39/IE39L0NP.PDF> /.PS
 Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmantik>

Input: Colorimetric Television Luminous System TLS70a

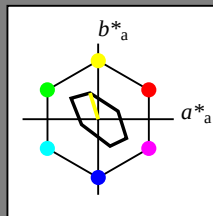
for hue $h^* = lab^*h = 107/360 = 0.298$

lab*tch and lab*nch

D65: hue Y

LCH*Ma: 94 36 107

olv*Ma: 1.0 1.0 0.0

triangle lightness t^* 

%Gamut

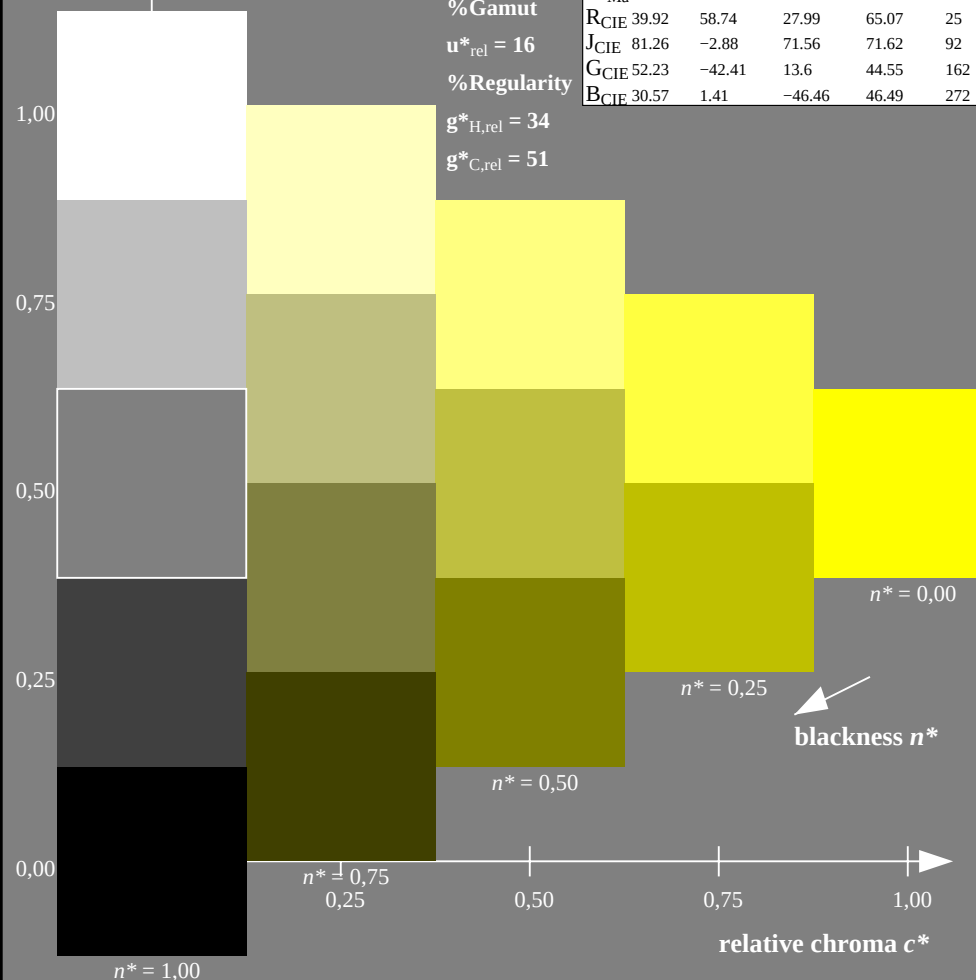
$$\mathbf{u}_{rel}^* = 16$$

%Regularity

$$g^*_{H,rel} = 34$$
$$g^*_{C,rel} = 51$$

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	$L^* = L^*_a$	$a^* = a^*_a$	$b^* = b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue $107/360 = 0.298$ (left)

TUB-test chart IE39 for visual displays, Hue Y, Page 16/80
Discrimination of 5 and 16 step colour scales, TLS06a

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 107/360 = 0.298$

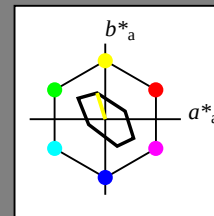
lab*tch and lab*nch

D65: hue Y

LCH*Ma: 94 36 107

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



%Gamut

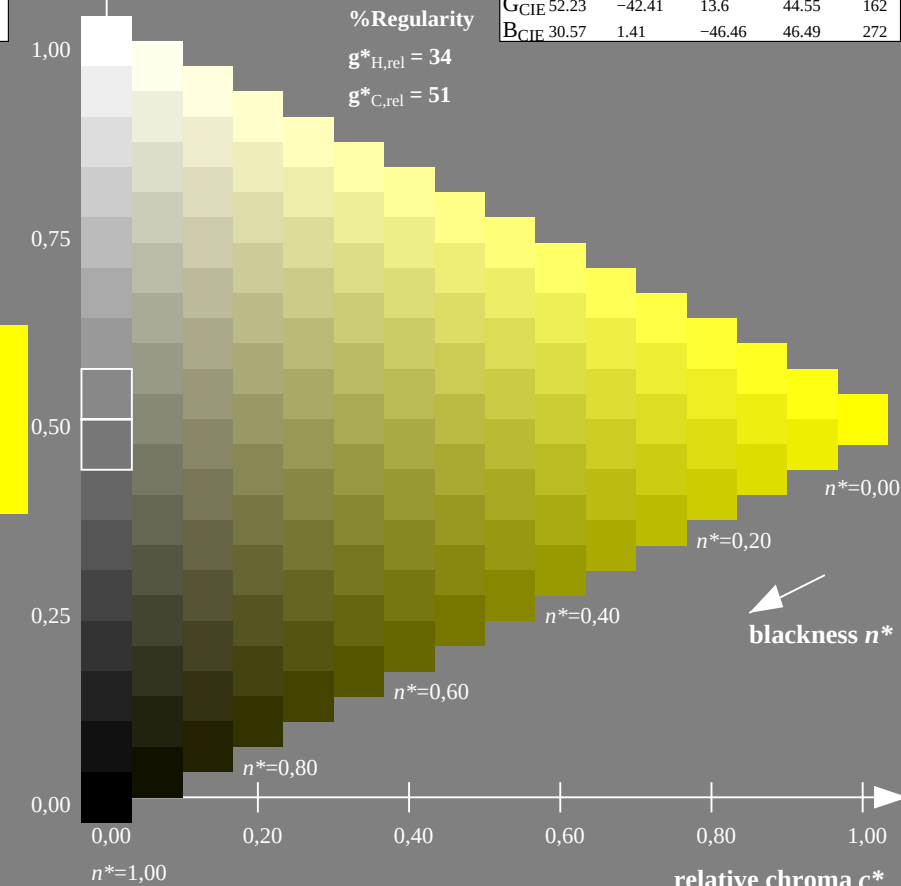
$$\mathbf{u}_{rel}^* = 16$$

%Regularity

$$g^*_{H,rel} = 34$$
$$g^*_{C_{rel}} = 51$$

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

TLS70a; adapted (a) CIELAB data					
	L^*_{*a}	a^*_{*a}	b^*_{*a}	$C^*_{ab,a}$	h^*_{ab}
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue $107/360 = 0.298$ (right)

input: *rgb* ($\rightarrow$ *rgb**) *setrgbcolor*
output: no change compared to input

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PS
- application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 136/360 = 0.378$

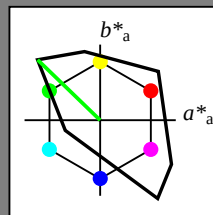
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 115 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

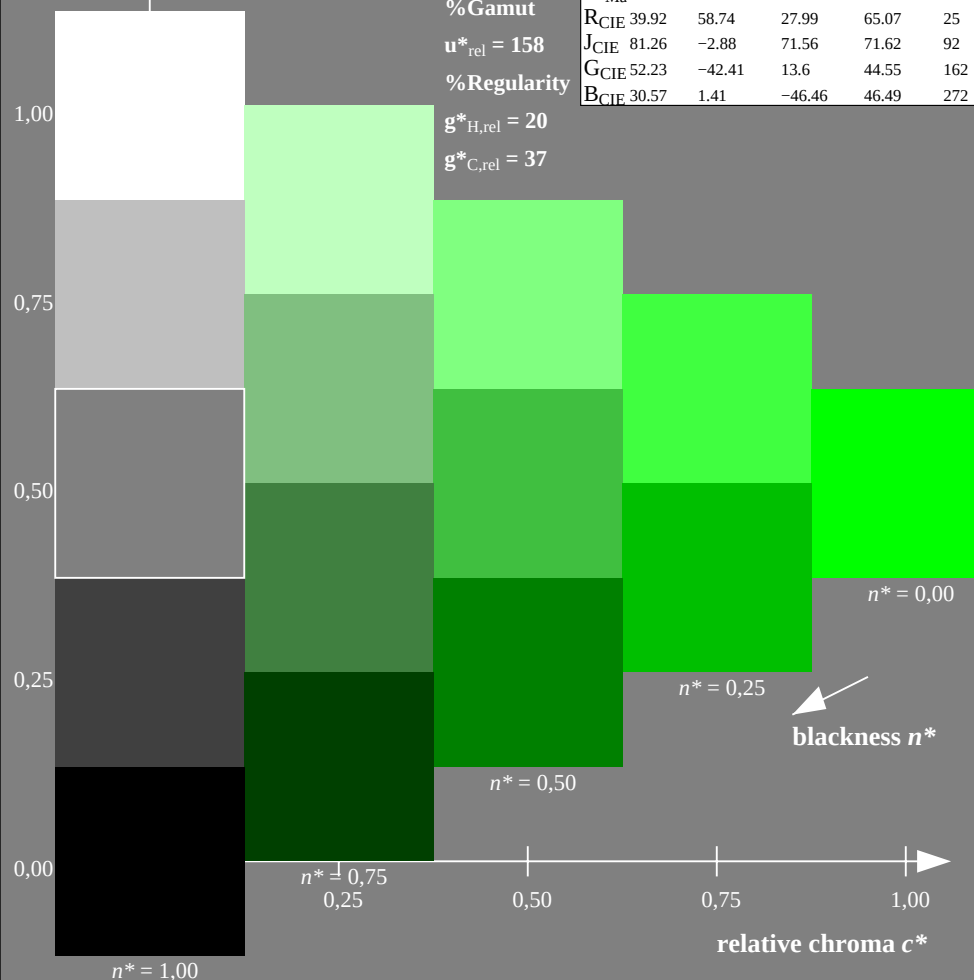
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 136/360 = 0.378 (left)

TUB-test chart IE39 for visual displays, Hue L, Page 17/80
Discrimination of 5 and 16 step colour scales, TLS11a

Output: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 136/360 = 0.378$

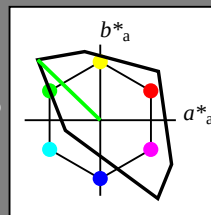
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 115 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

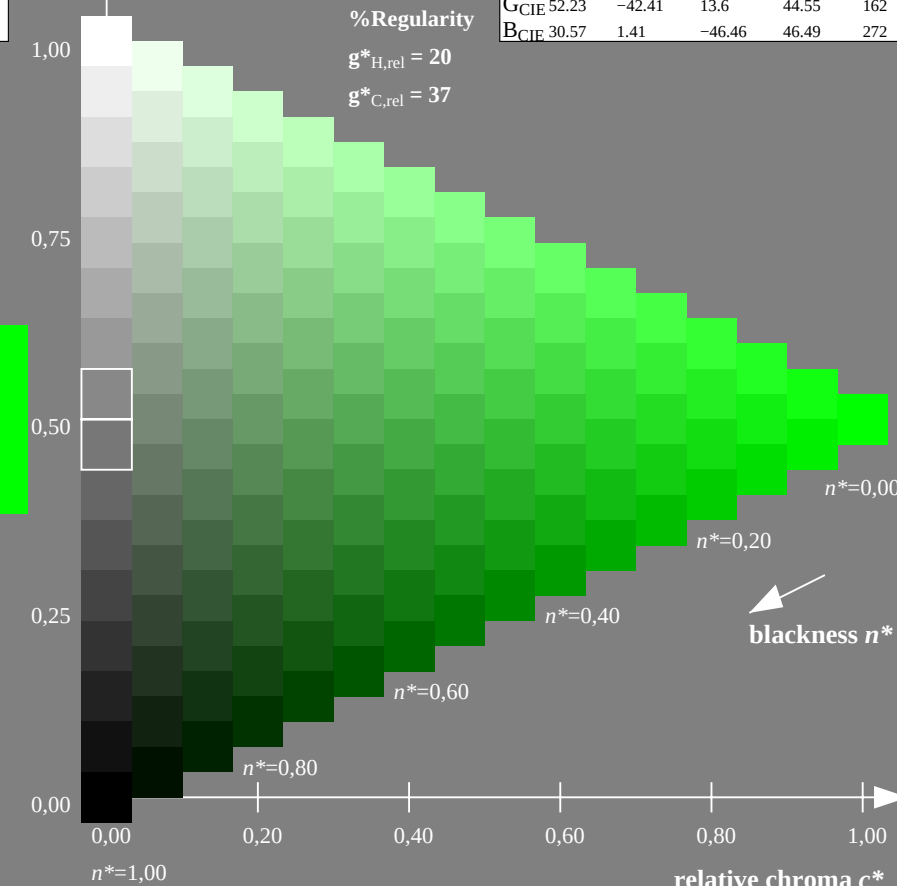
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 136/360 = 0.378 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 136/360 = 0.378$

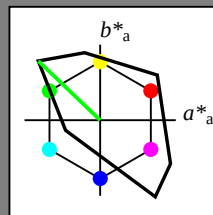
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 113 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

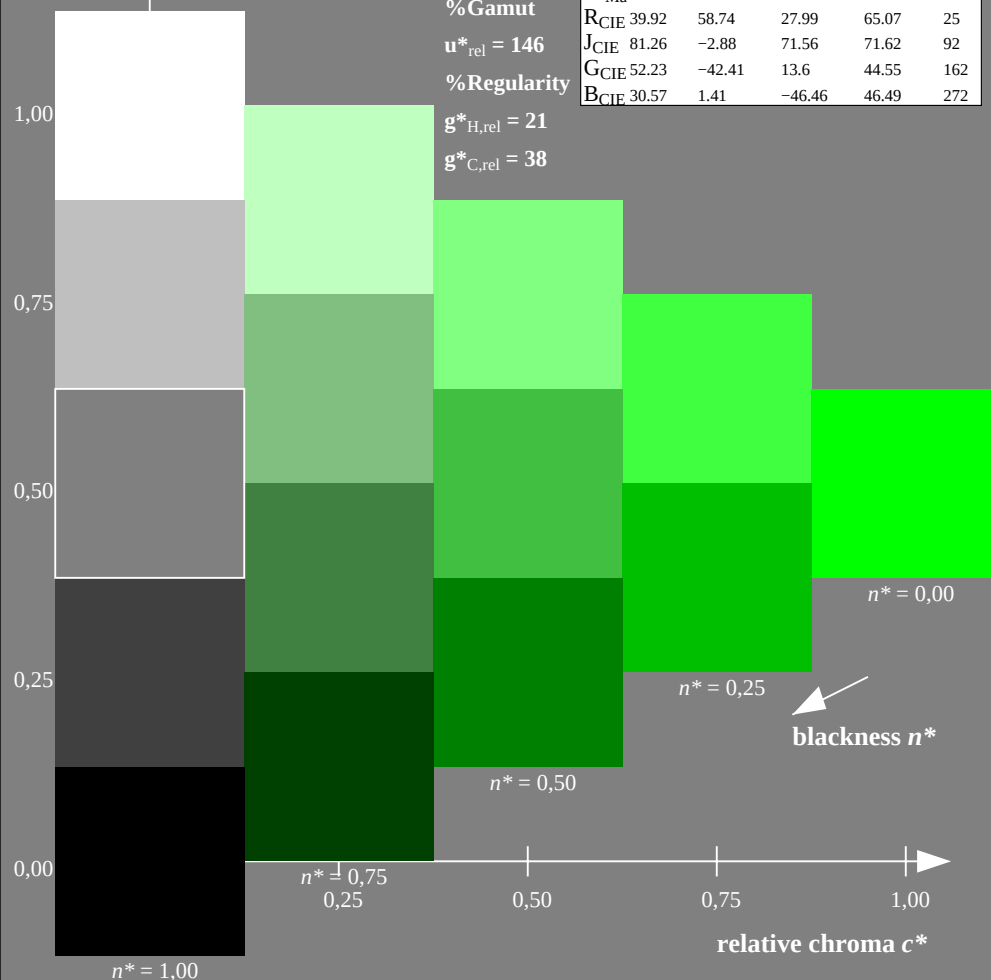
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 136/360 = 0.378 (left)

TUB-test chart IE39 for visual displays, Hue L, Page 18/80
Discrimination of 5 and 16 step colour scales, TLS11a

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 136/360 = 0.378$

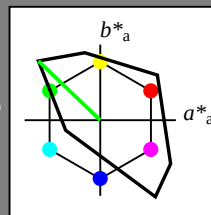
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 113 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

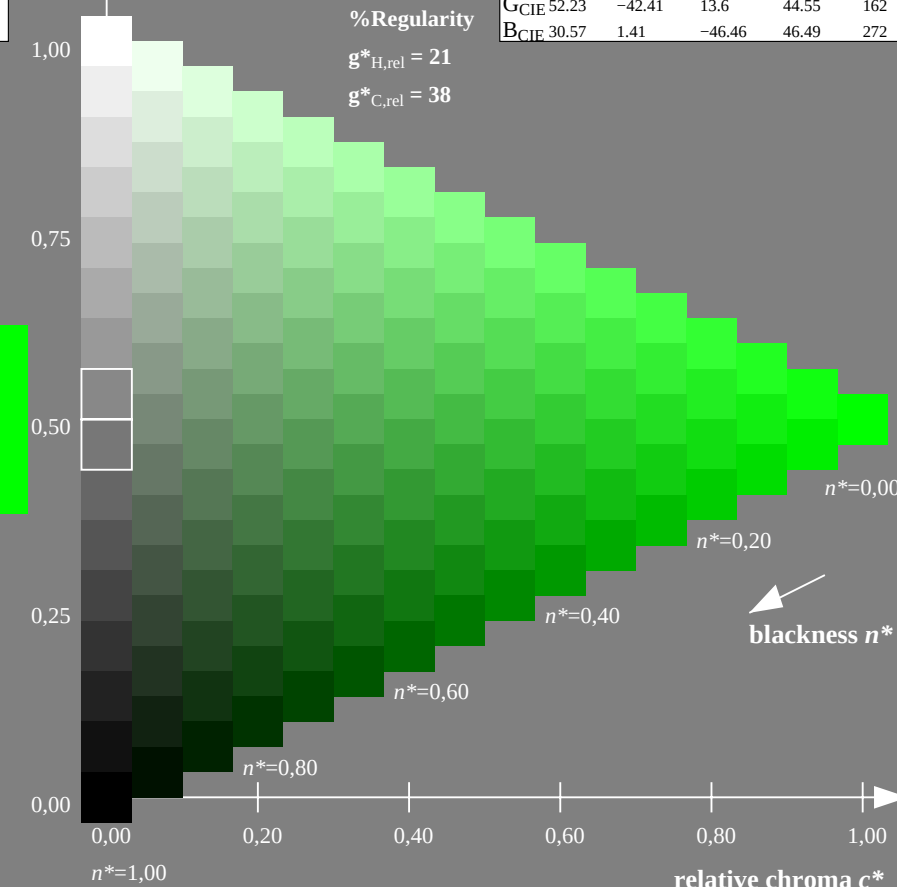
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 136/360 = 0.378 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 136/360 = 0.379$

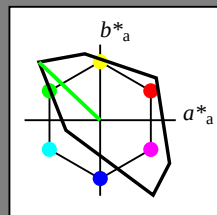
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 112 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

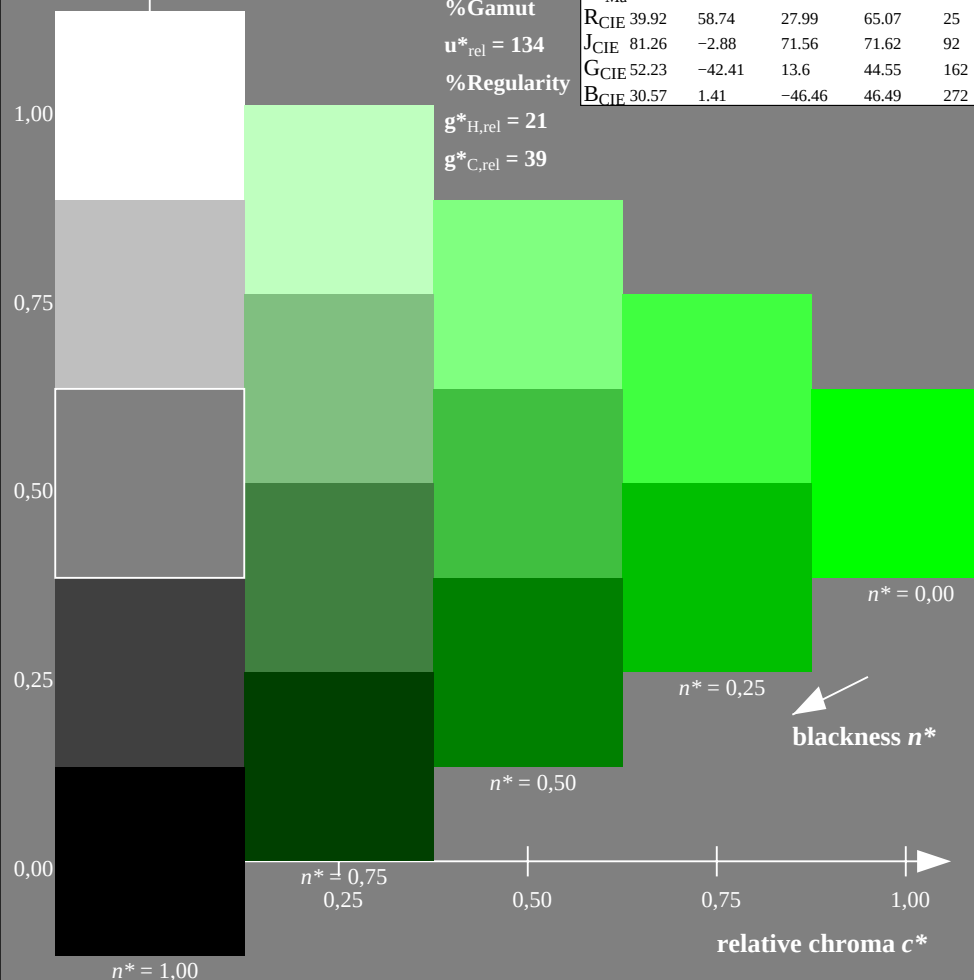
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 136/360 = 0.379 (left)

TUB-test chart IE39 for visual displays, Hue L, Page 19/80
Discrimination of 5 and 16 step colour scales, TLS11a

Output: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 136/360 = 0.379$

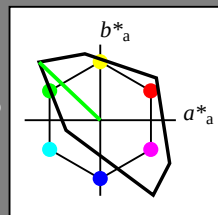
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 112 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

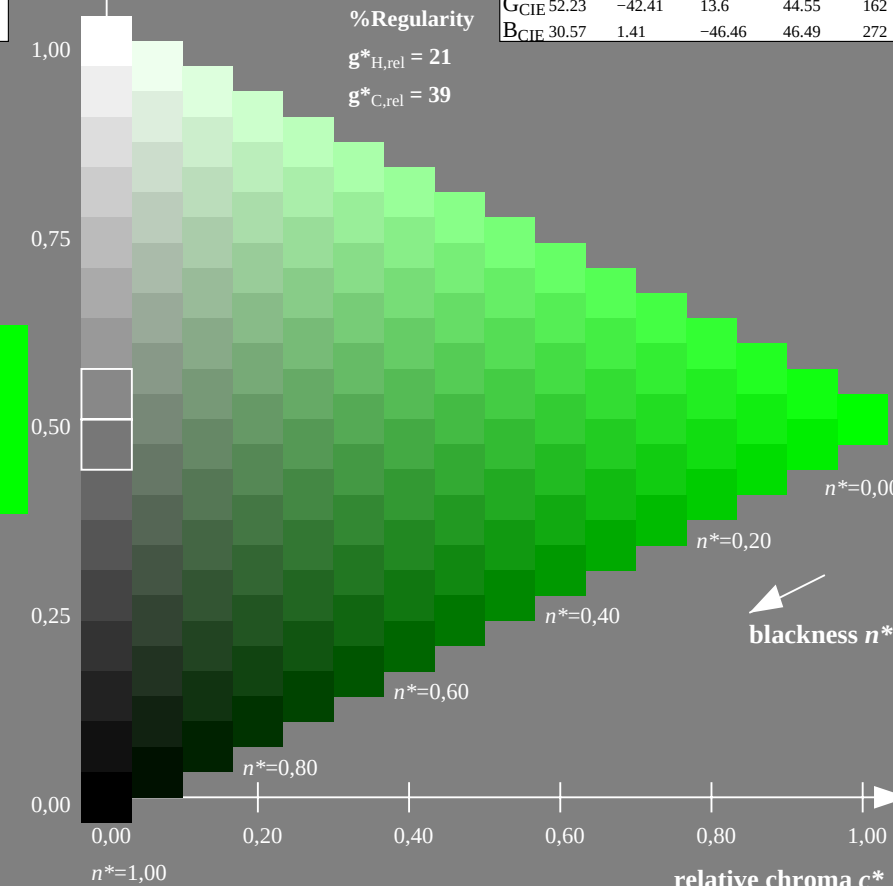
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 136/360 = 0.379 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 137/360 = 0.38$

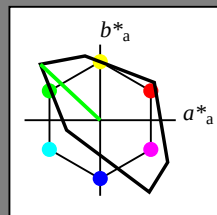
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 108 137

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 137/360 = 0.38$

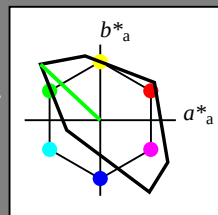
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 108 137

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

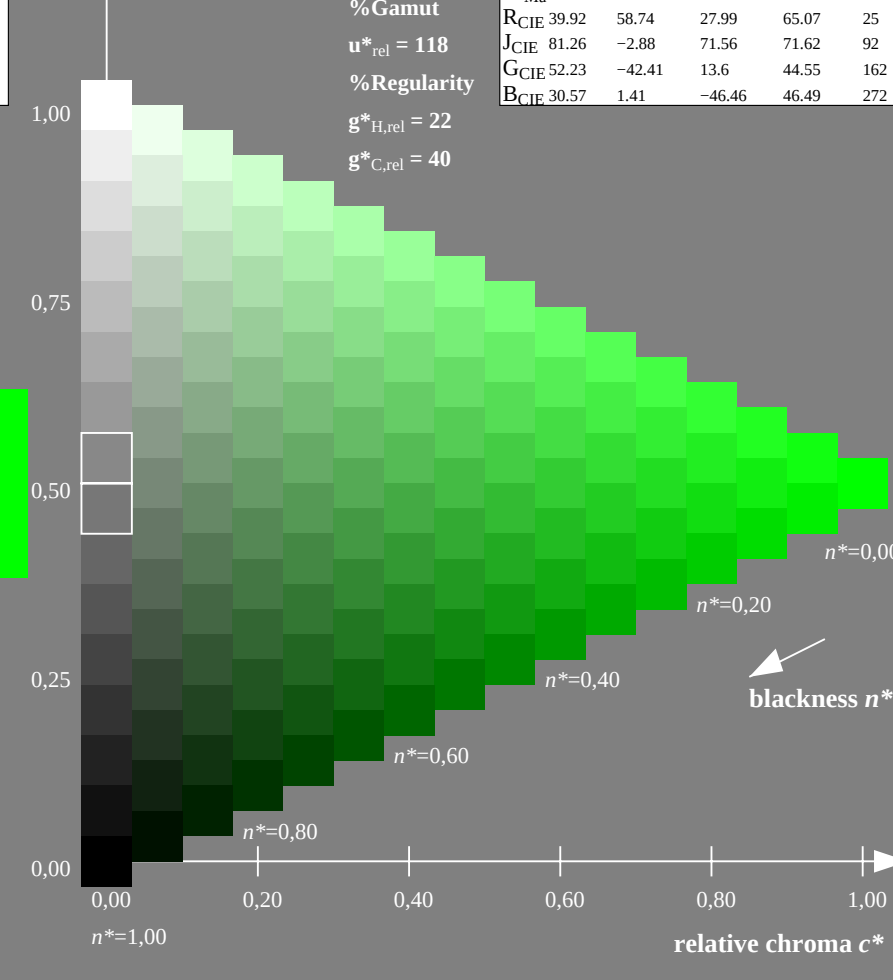
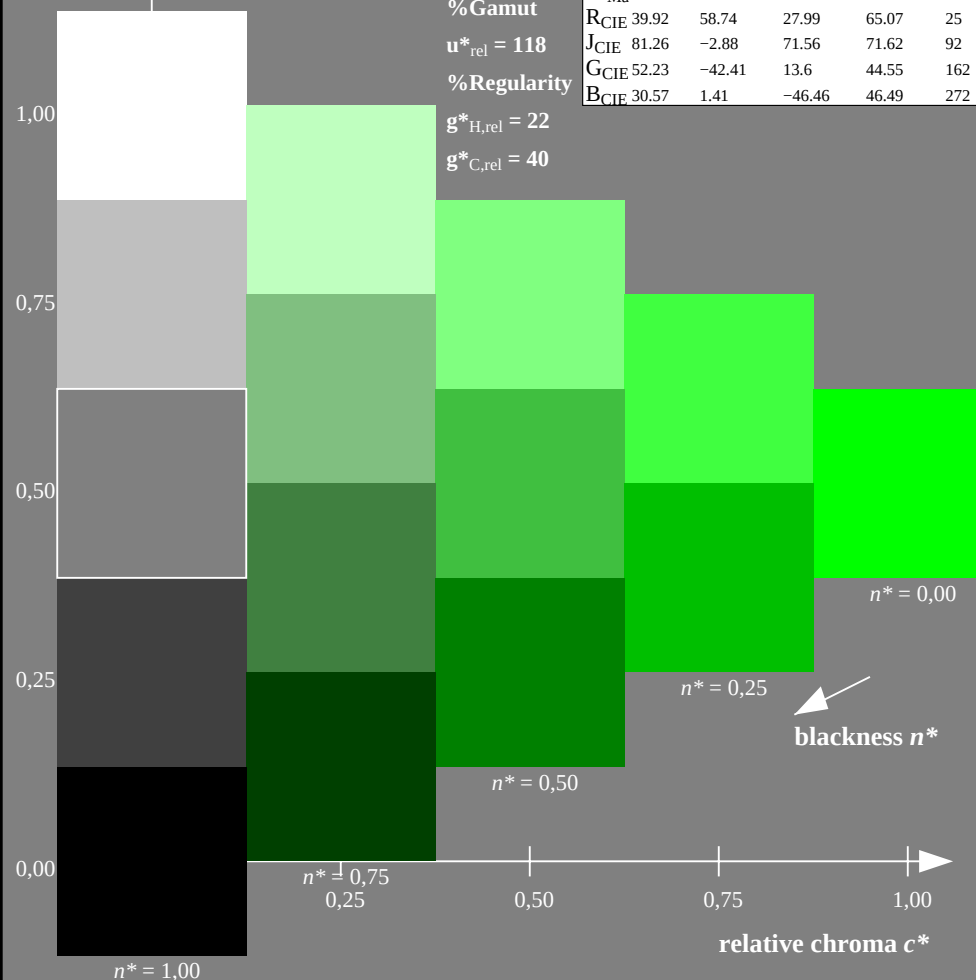
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 137/360 = 0.38 (left)

16 step scales for constant CIELAB hue 137/360 = 0.38 (right)

TUB-test chart IE39 for visual displays, Hue L, Page 20/80
Discrimination of 5 and 16 step colour scales, TLS11a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 138/360 = 0.382$

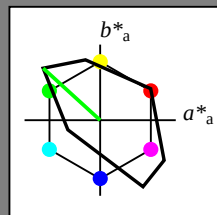
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 102 138

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 138/360 = 0.382$

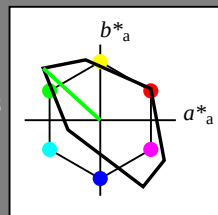
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 102 138

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

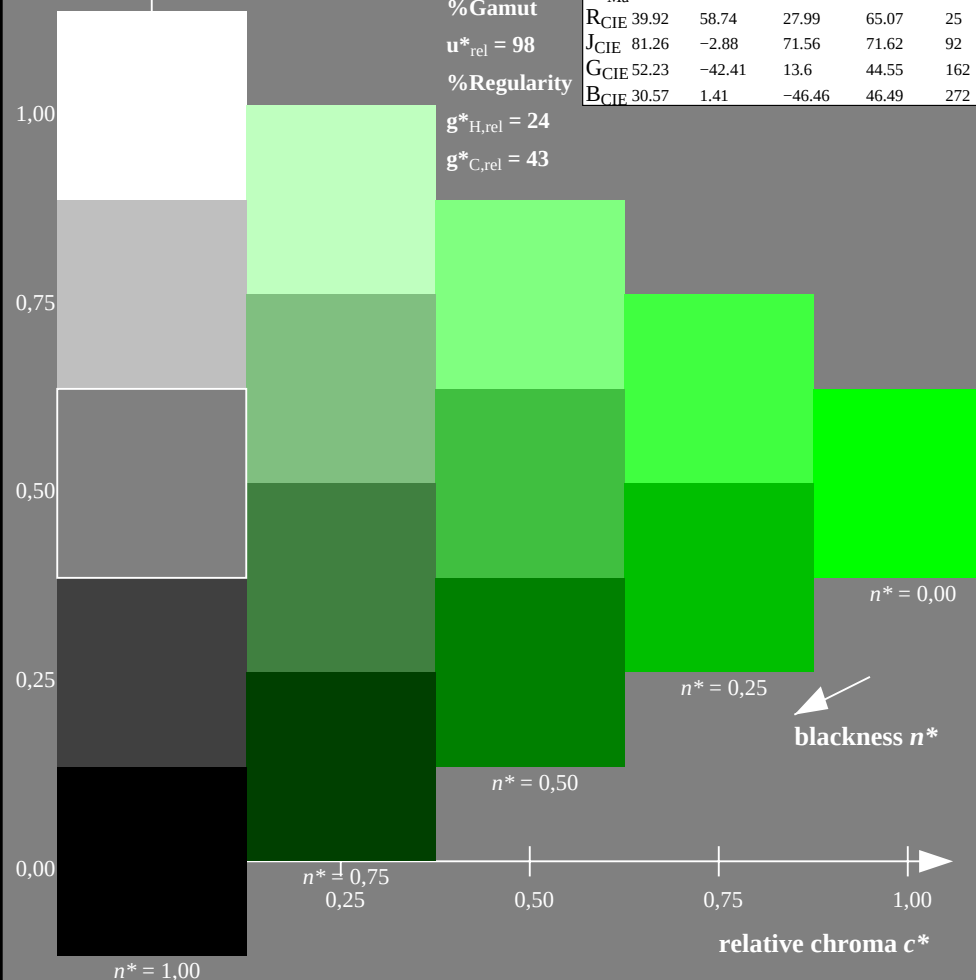
% Gamut

$u^*_{rel} = 98$

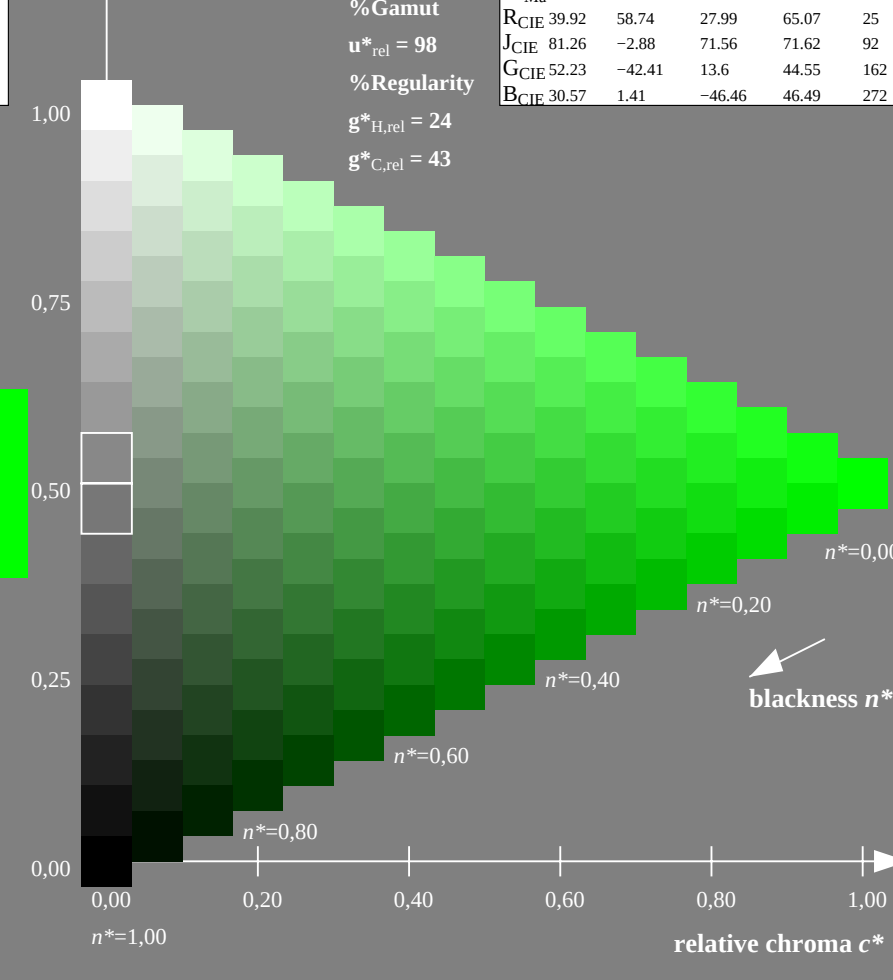
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$



IE390-7N, 5 step scales for constant CIE LAB hue 138/360 = 0.382 (left)



16 step scales for constant CIE LAB hue 138/360 = 0.382 (right)

TUB-test chart IE39 for visual displays, Hue L, Page 21/80
Discrimination of 5 and 16 step colour scales, TLS11a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 139/360 = 0.386$

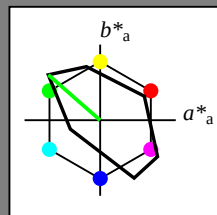
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 85 91 139

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 139/360 = 0.386$

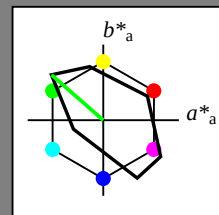
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 85 91 139

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

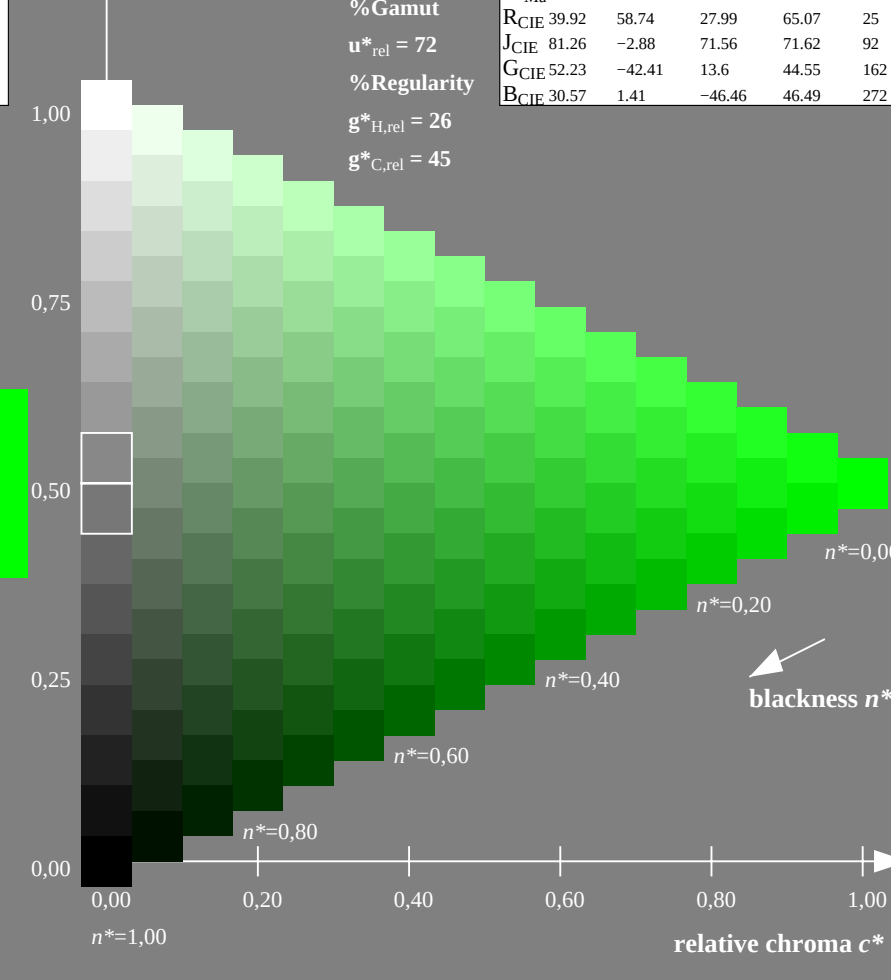
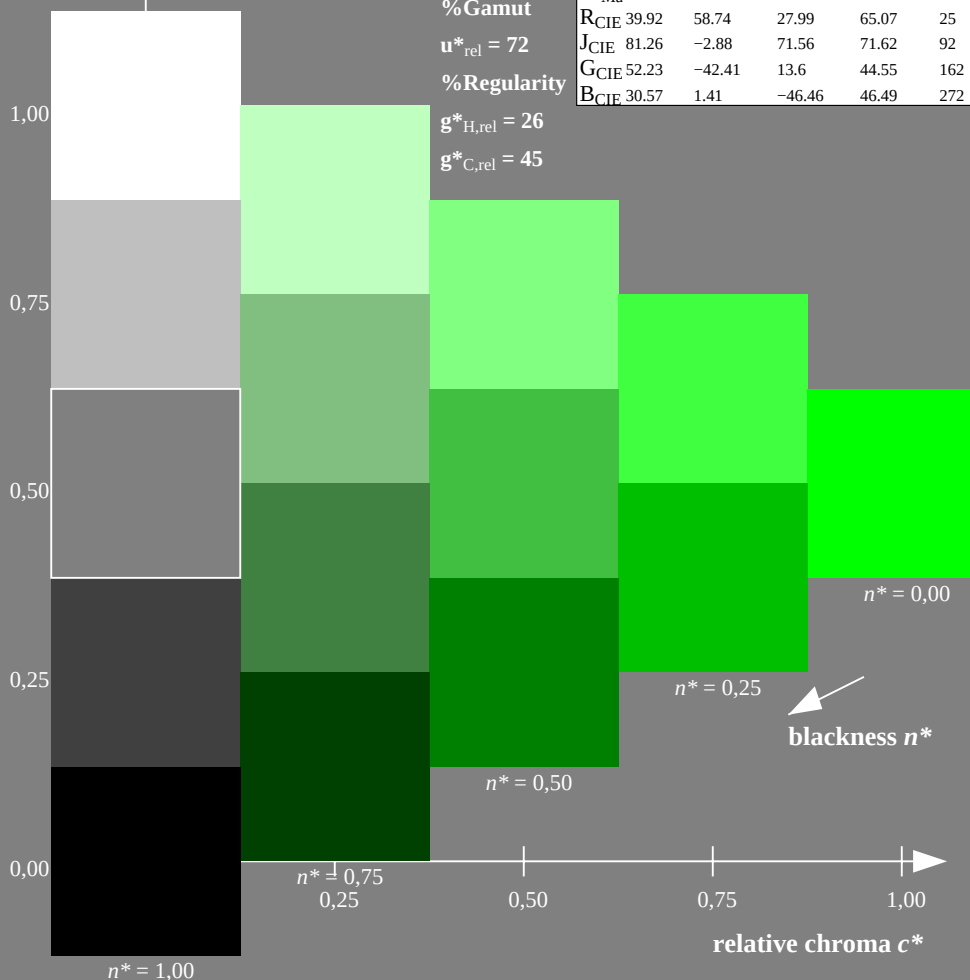
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 139/360 = 0.386 (left)

16 step scales for constant CIELAB hue 139/360 = 0.386 (right)

TUB-test chart IE39 for visual displays, Hue L, Page 22/80
Discrimination of 5 and 16 step colour scales, TLS11a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PS
application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 140/360 = 0.39$

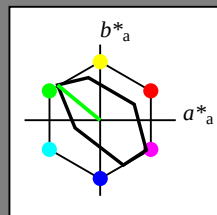
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 87 73 140

ol v^* Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

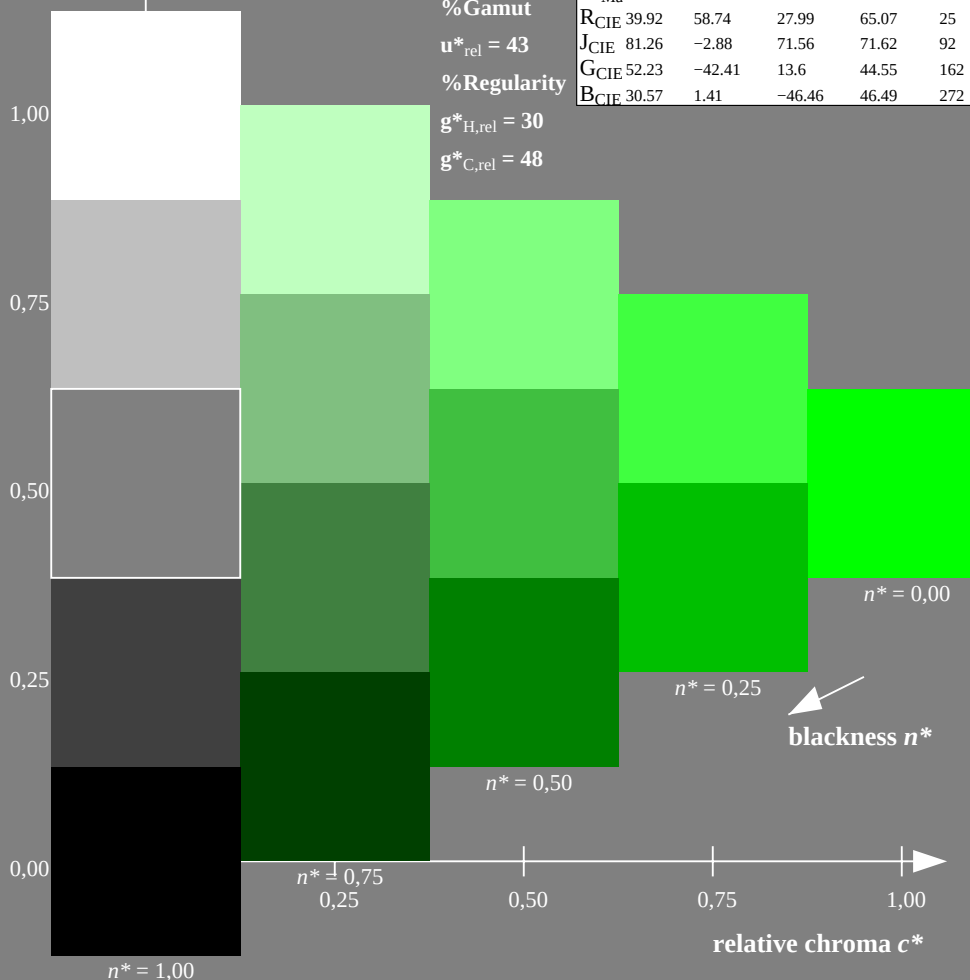
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 140/360 = 0.39 (left)

TUB-test chart IE39 for visual displays, Hue L, Page 23/80
Discrimination of 5 and 16 step colour scales, TLS11a

Output: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 140/360 = 0.39$

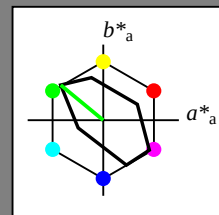
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 87 73 140

ol v^* Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

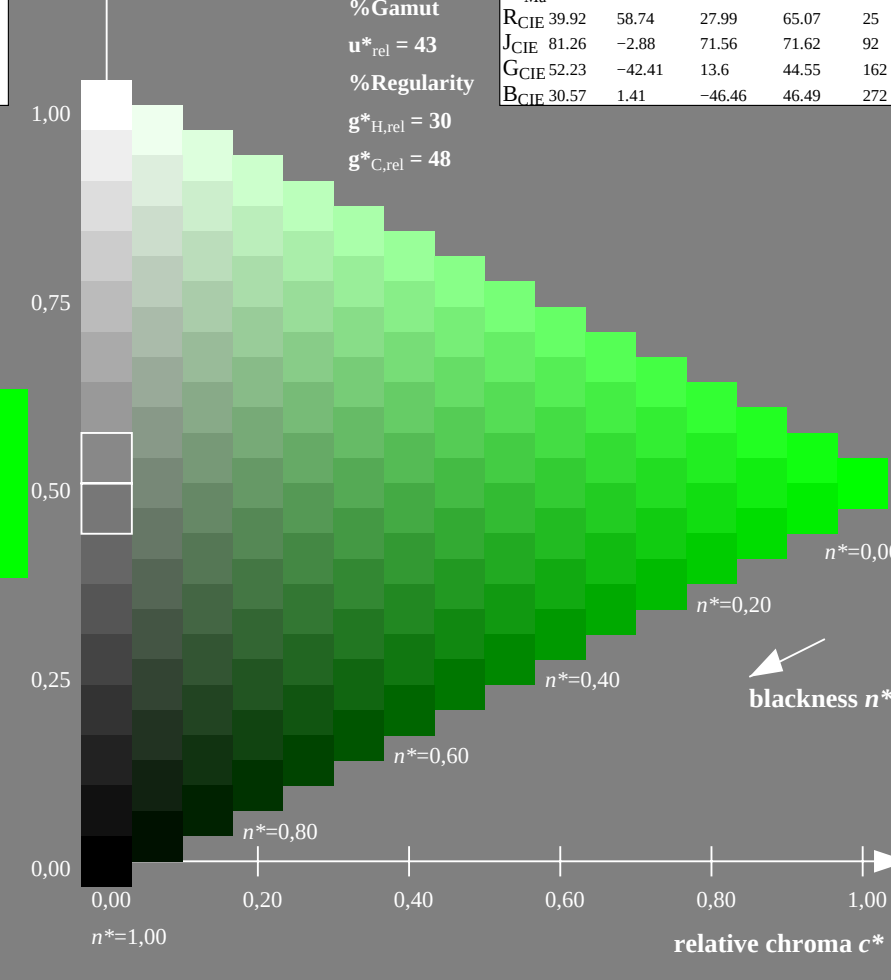
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 140/360 = 0.39 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 142/360 = 0.395$

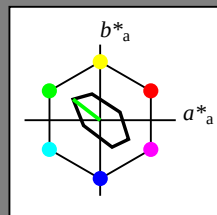
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 89 45 142

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 142/360 = 0.395$

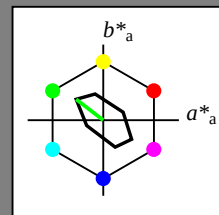
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 89 45 142

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

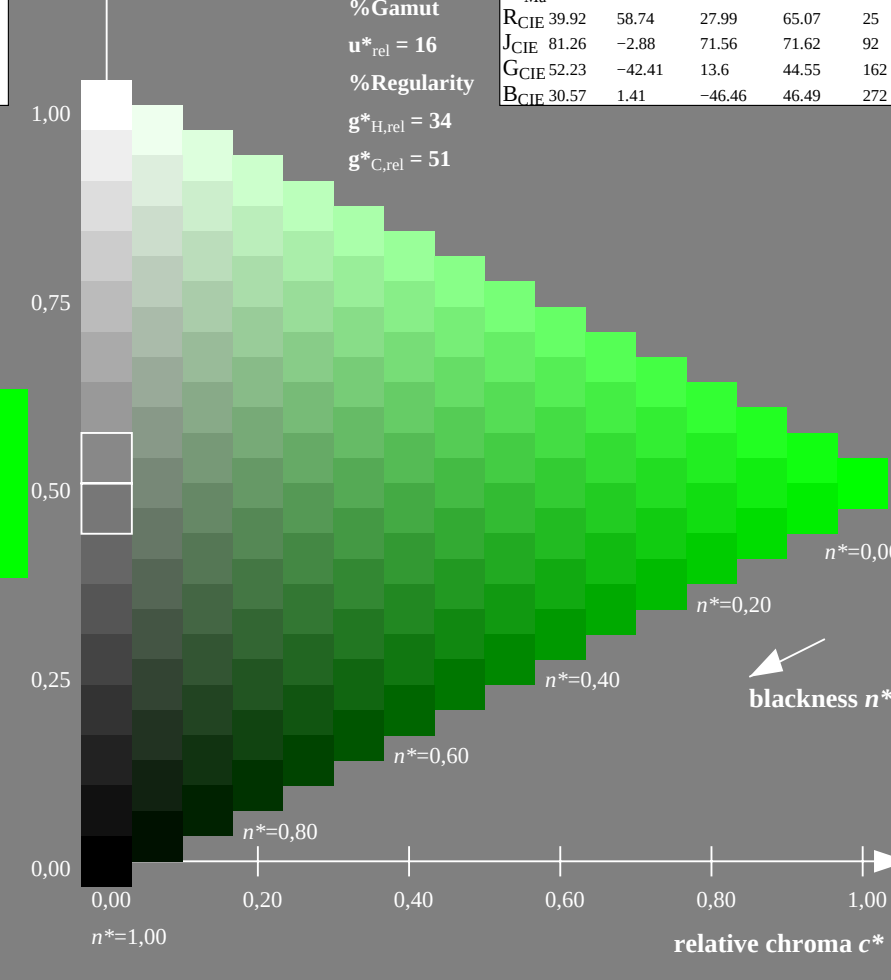
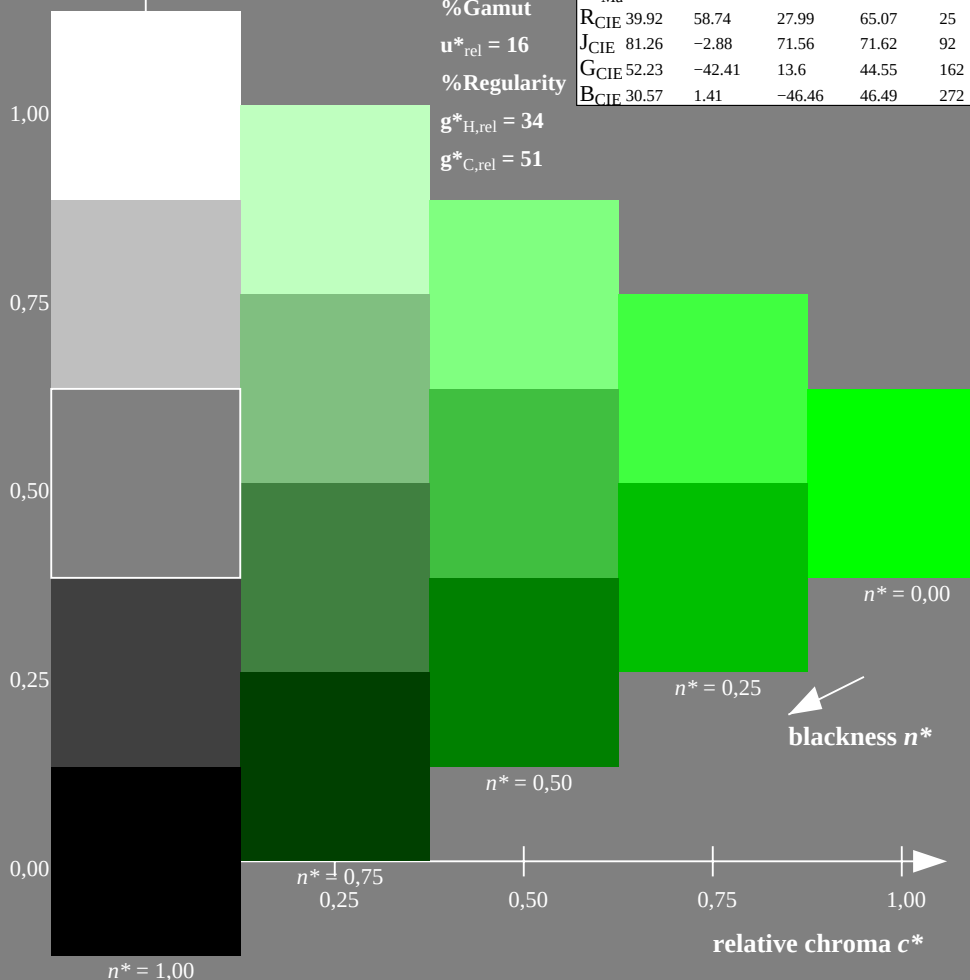
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



IE390-7N, 5 step scales for constant CIELAB hue 142/360 = 0.395 (left)

16 step scales for constant CIELAB hue 142/360 = 0.395 (right)

TUB-test chart IE39 for visual displays, Hue L, Page 24/80
Discrimination of 5 and 16 colour scales, TLS11a

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 196/360 = 0.545$

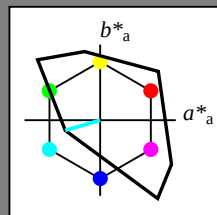
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 196/360 = 0.545$

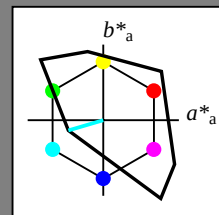
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

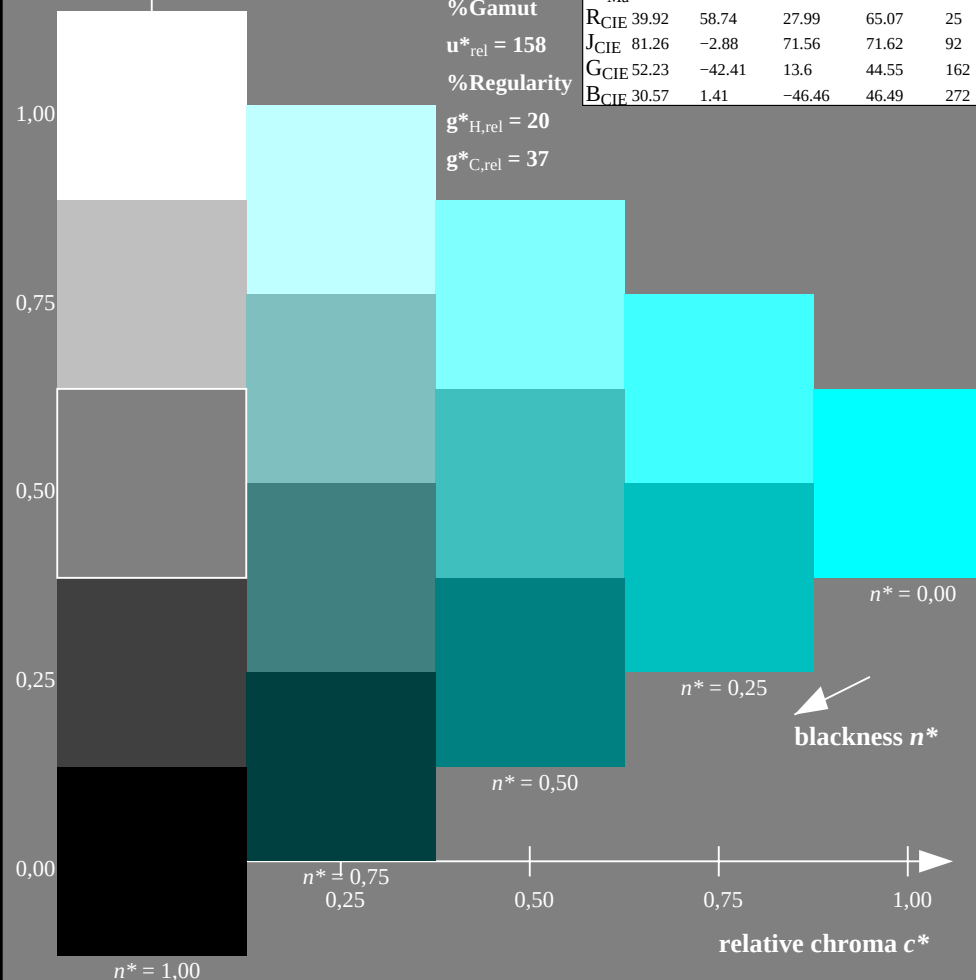
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

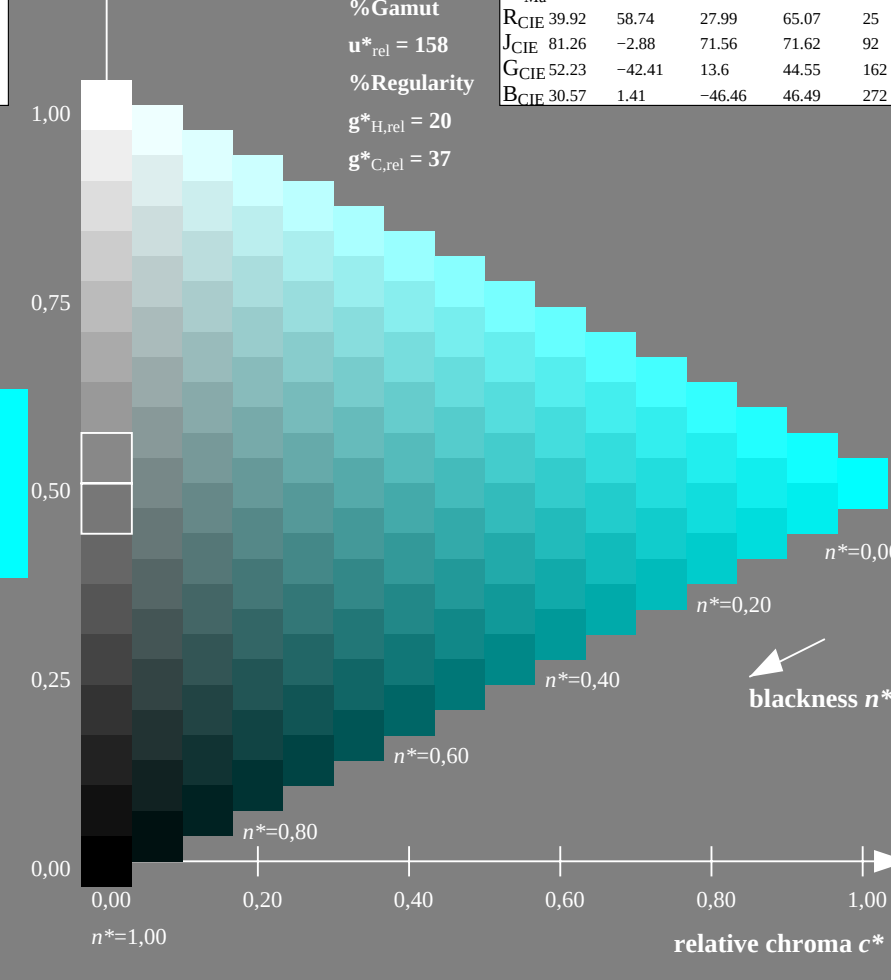
TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 196/360 = 0.545 (left)

TUB-test chart IE39 for visual displays, Hue C, Page 25/80
Discrimination of 5 and 16 step colour scales, TLS18a



16 step scales for constant CIELAB hue 196/360 = 0.545 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 196/360 = 0.545$

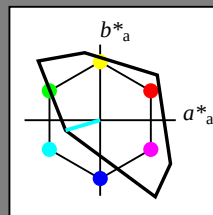
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

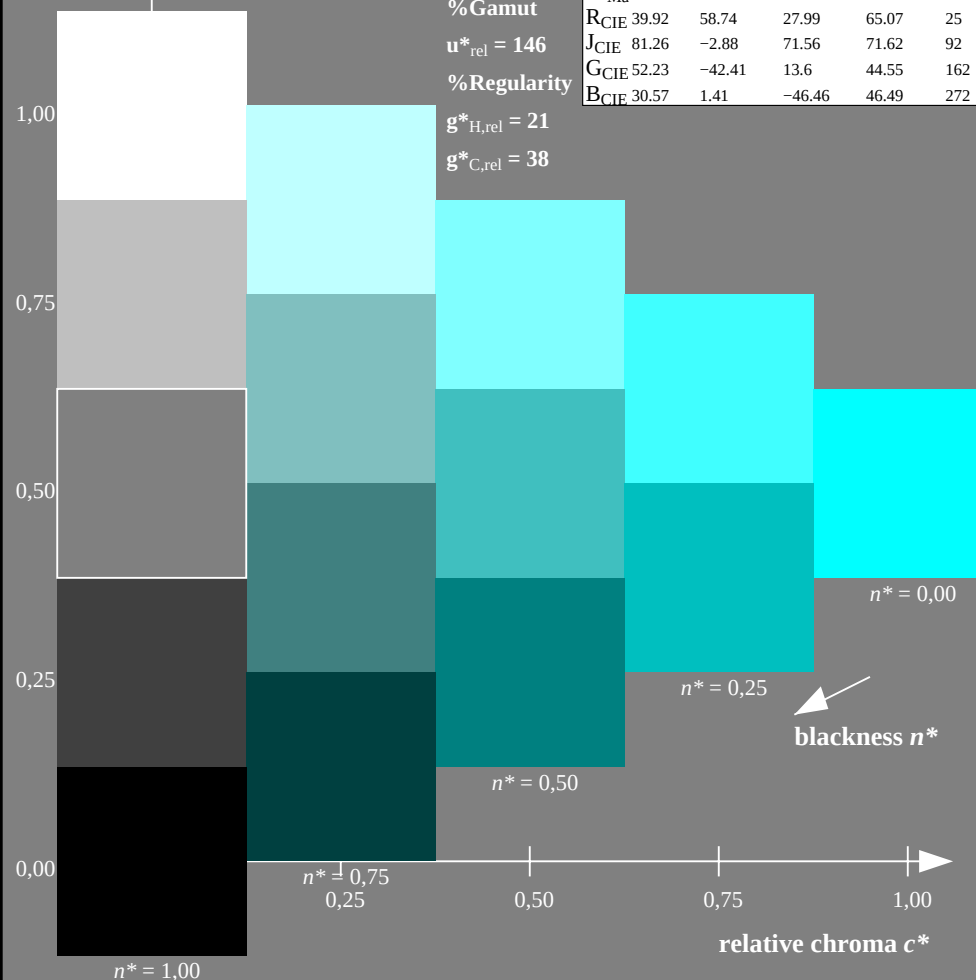
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 196/360 = 0.545 (left)

TUB-test chart IE39 for visual displays, Hue C, Page 26/80
Discrimination of 5 and 16 step colour scales, TLS18a

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 196/360 = 0.545$

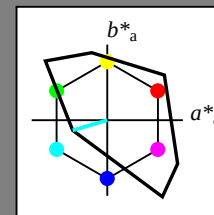
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

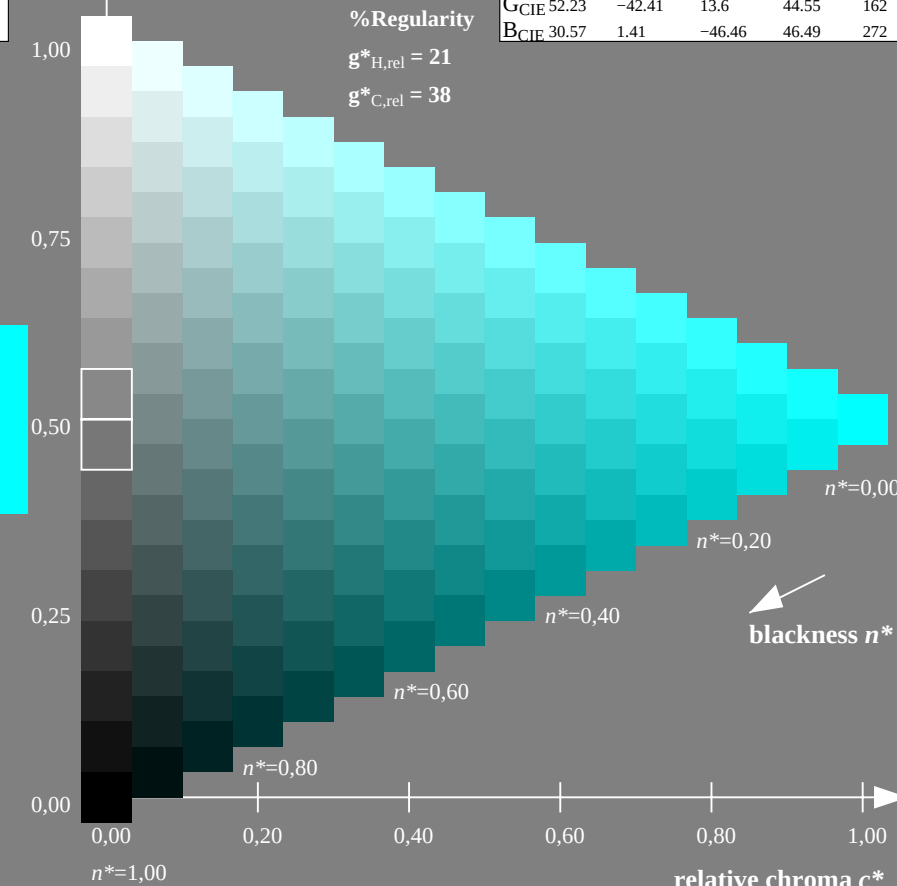
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 196/360 = 0.545 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 196/360 = 0.546$

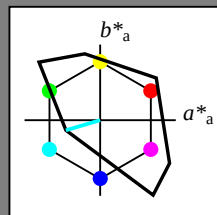
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 47 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

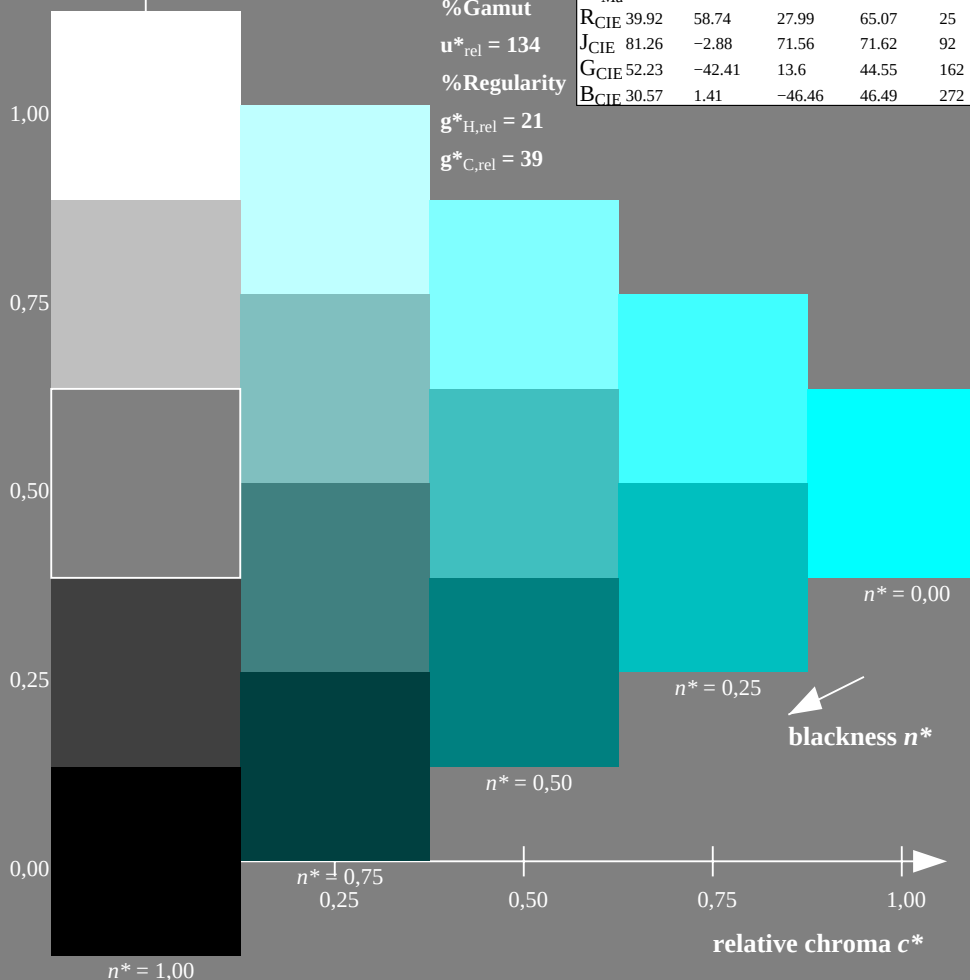
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 196/360 = 0.546 (left)

TUB-test chart IE39 for visual displays, Hue C, Page 27/80
Discrimination of 5 and 16 step colour scales, TLS18a

Output: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 196/360 = 0.546$

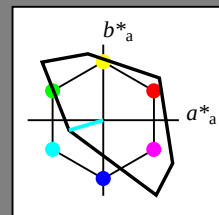
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 47 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

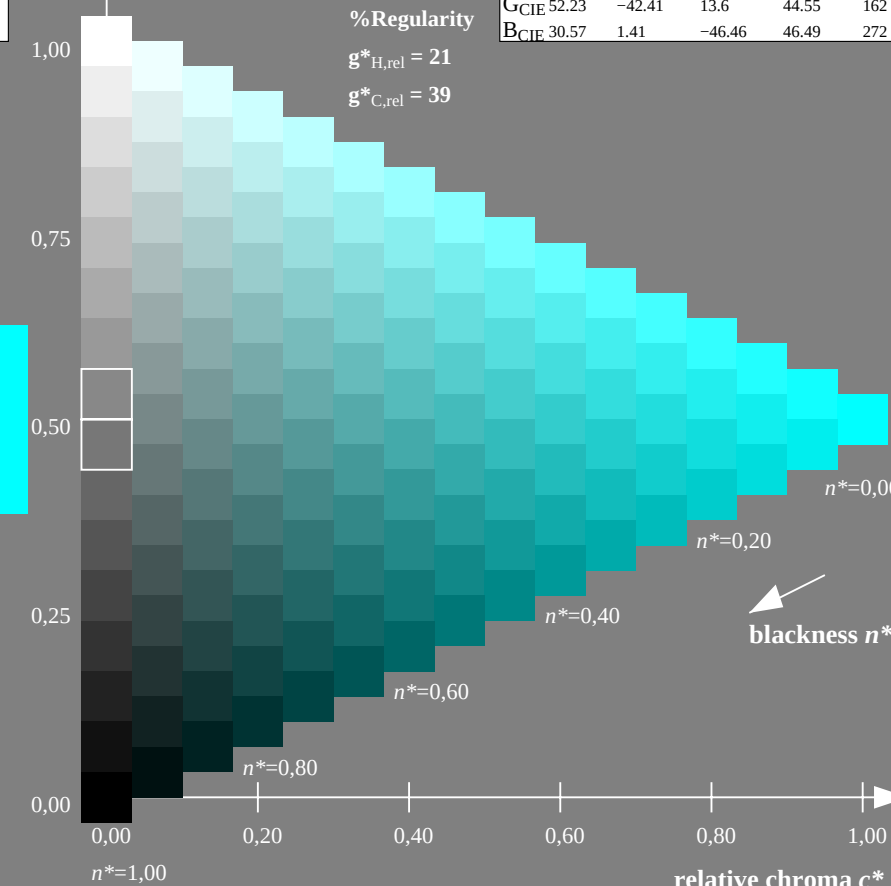
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 196/360 = 0.546 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 196/360 = 0.546$

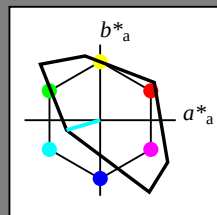
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 46 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

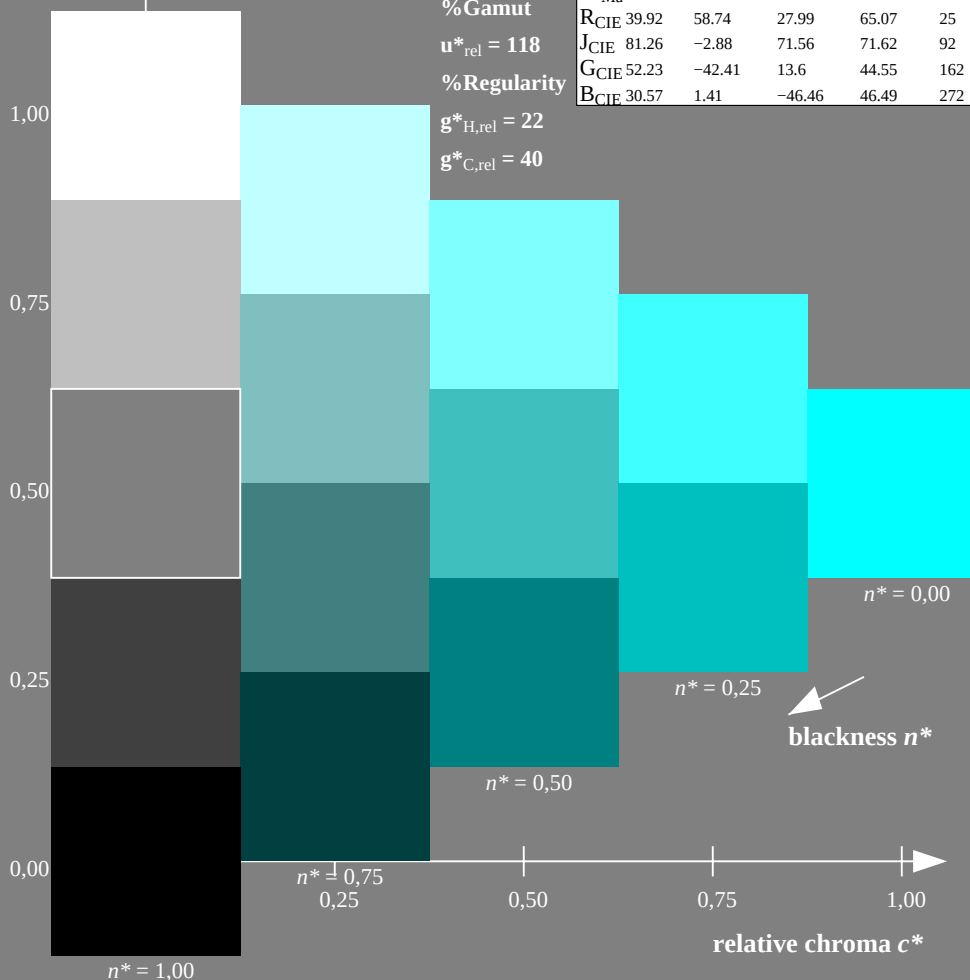
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 196/360 = 0.546$

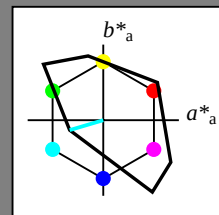
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 46 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

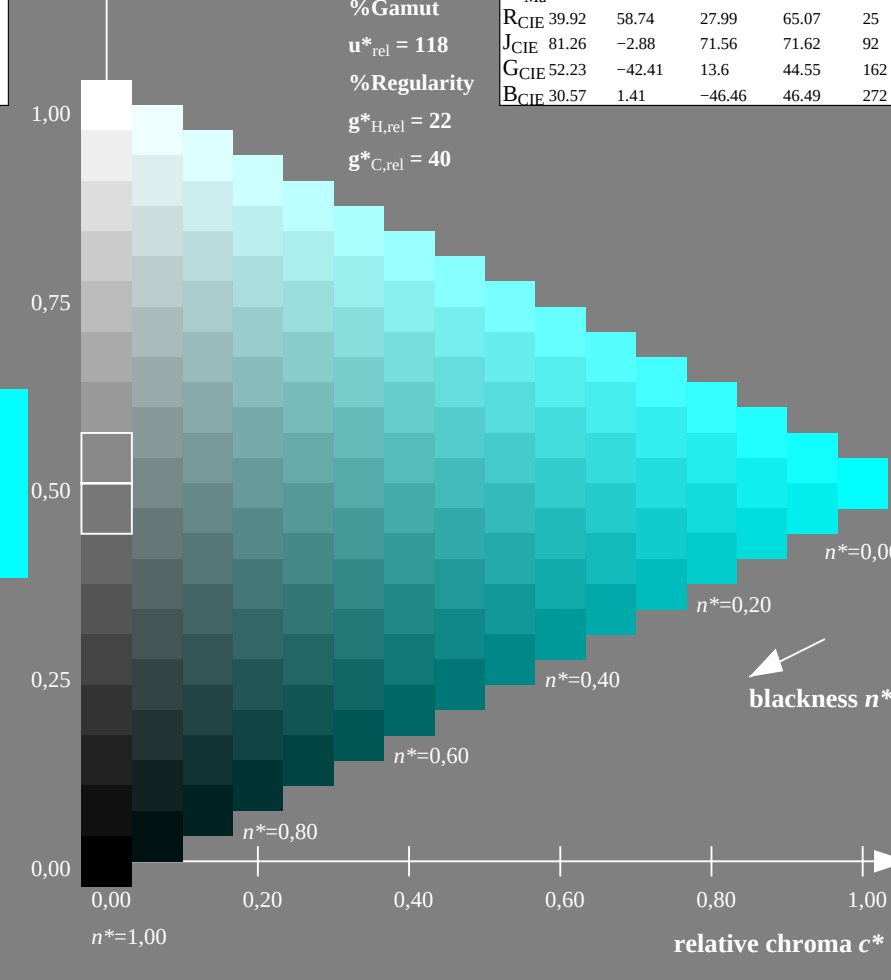
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 196/360 = 0.546 (left)

16 step scales for constant CIELAB hue 196/360 = 0.546 (right)

TUB-test chart IE39 for visual displays, Hue C, Page 28/80
Discrimination of 5 and 16 step colour scales, TLS18a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 197/360 = 0.546$

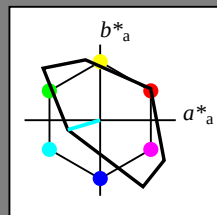
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 45 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 197/360 = 0.546$

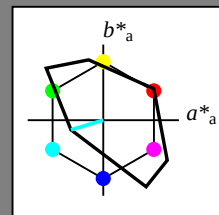
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 45 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

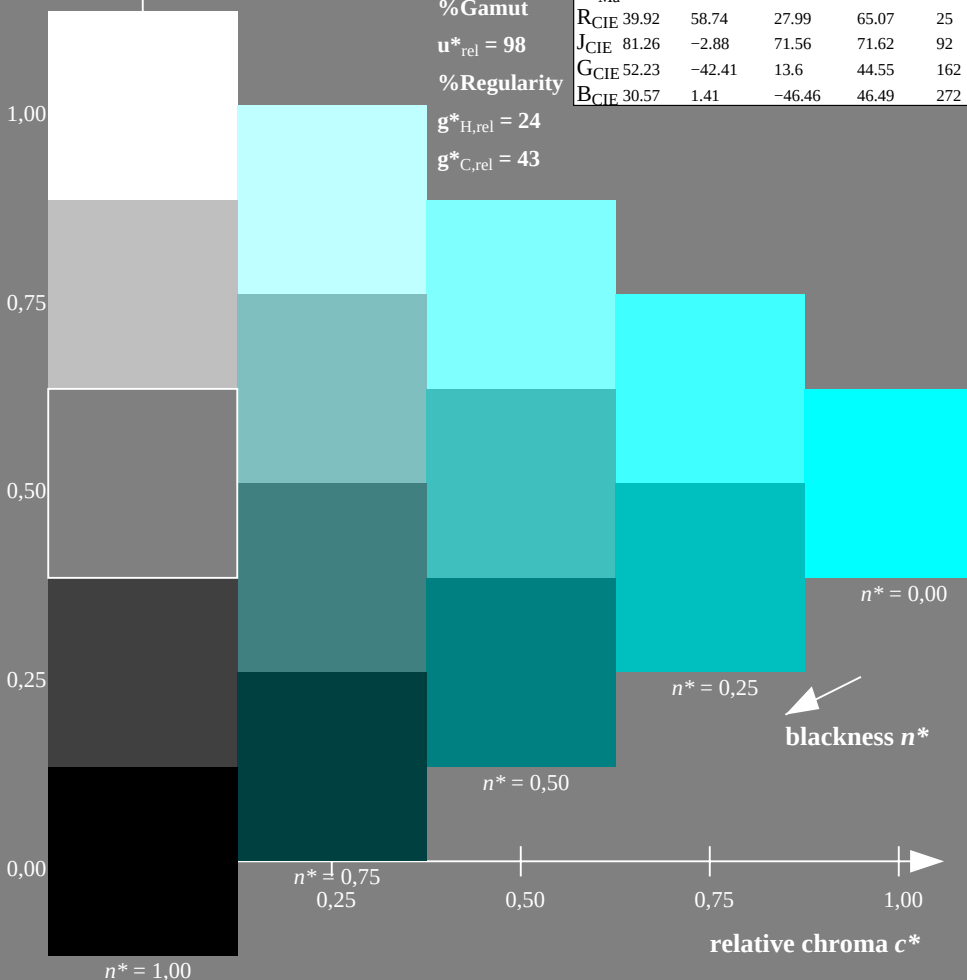
% Regularity

$g^*_{H,rel} = 24$

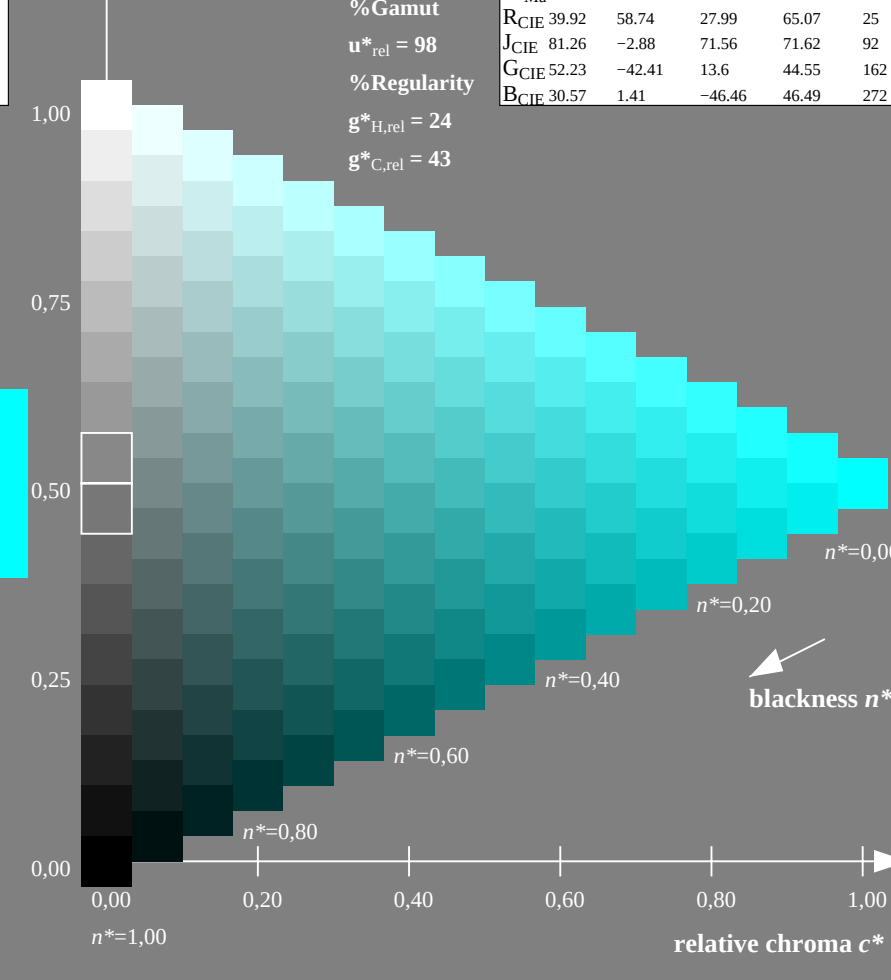
$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 197/360 = 0.546 (left)



16 step scales for constant CIELAB hue 197/360 = 0.546 (right)

TUB-test chart IE39 for visual displays, Hue C, Page 29/80
Discrimination of 5 and 16 step colour scales, TLS18a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 197/360 = 0.547$

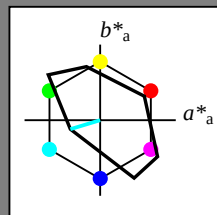
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 88 41 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

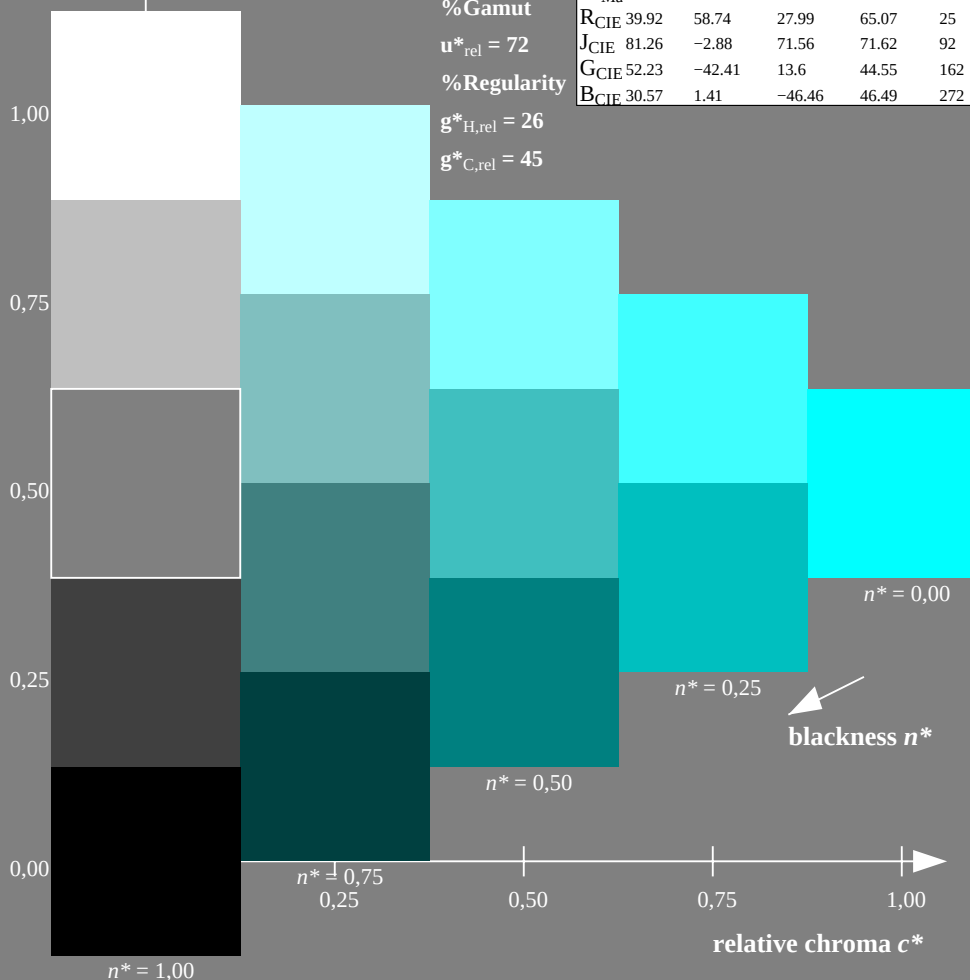
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 197/360 = 0.547 (left)

TUB-test chart IE39 for visual displays, Hue C, Page 30/80
Discrimination of 5 and 16 step colour scales, TLS18a

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 197/360 = 0.547$

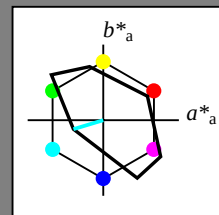
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 88 41 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

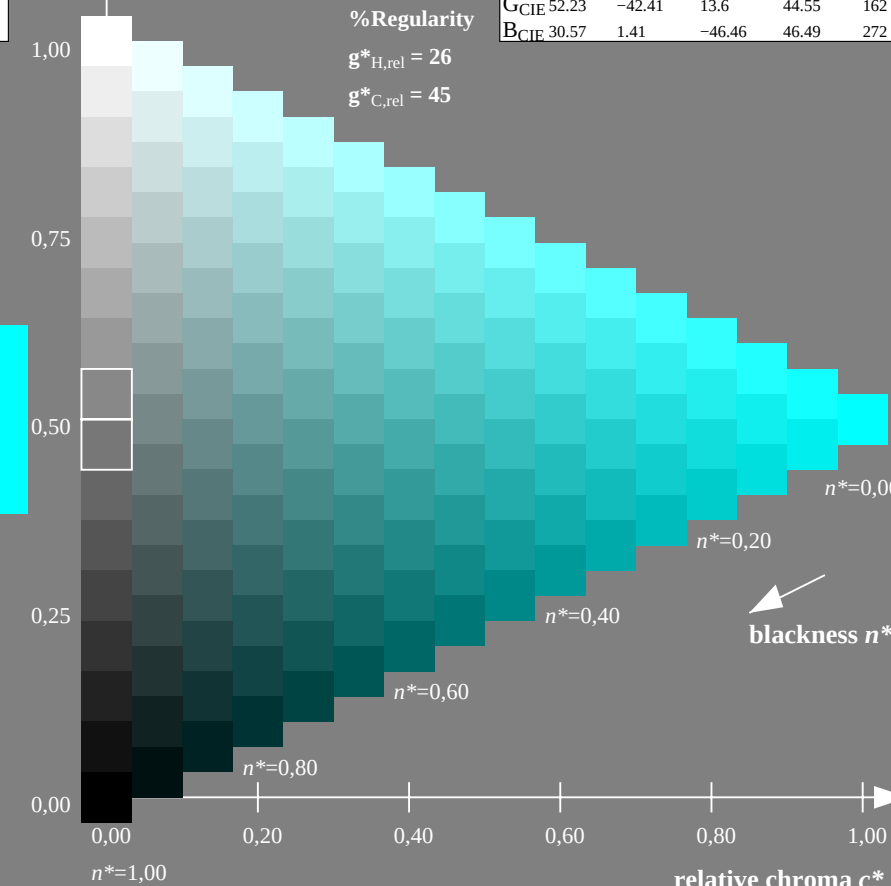
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 197/360 = 0.547 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 197/360 = 0.548$

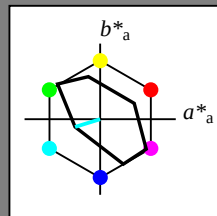
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 89 35 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

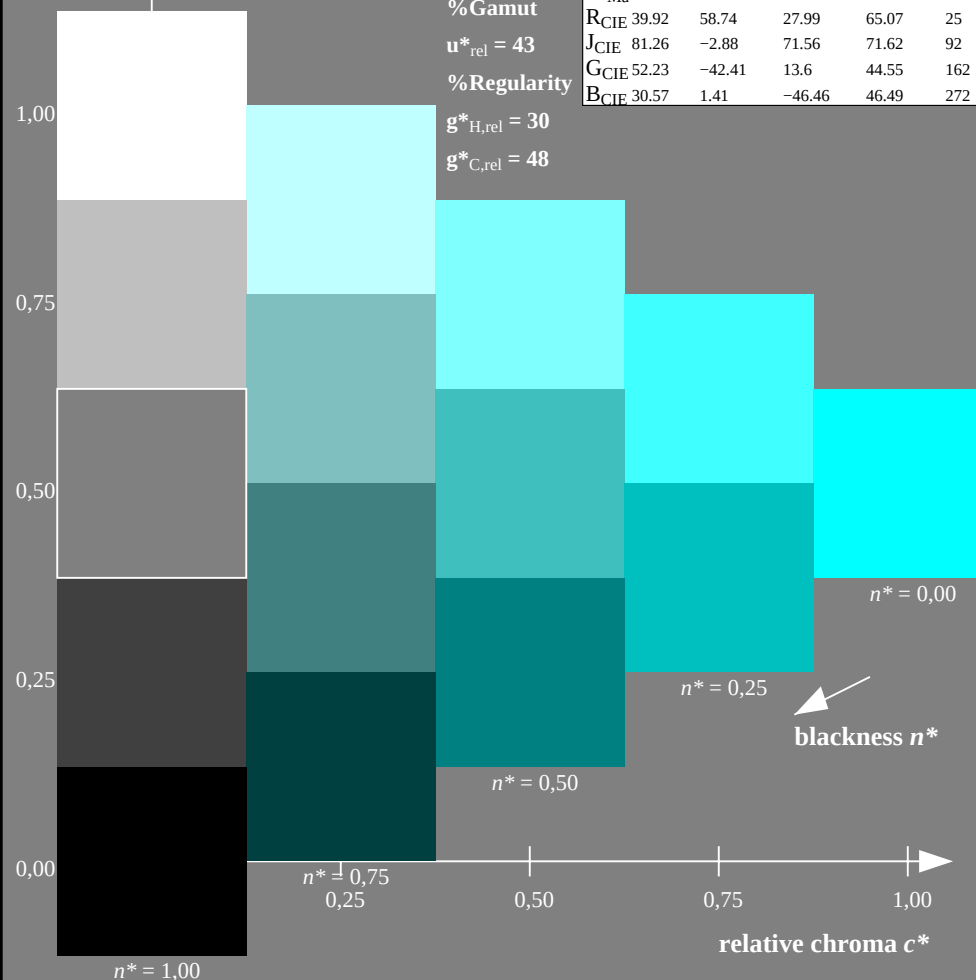
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 197/360 = 0.548 (left)

TUB-test chart IE39 for visual displays, Hue C, Page 31/80
Discrimination of 5 and 16 step colour scales, TLS18a

Output: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 197/360 = 0.548$

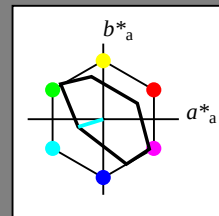
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 89 35 197

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

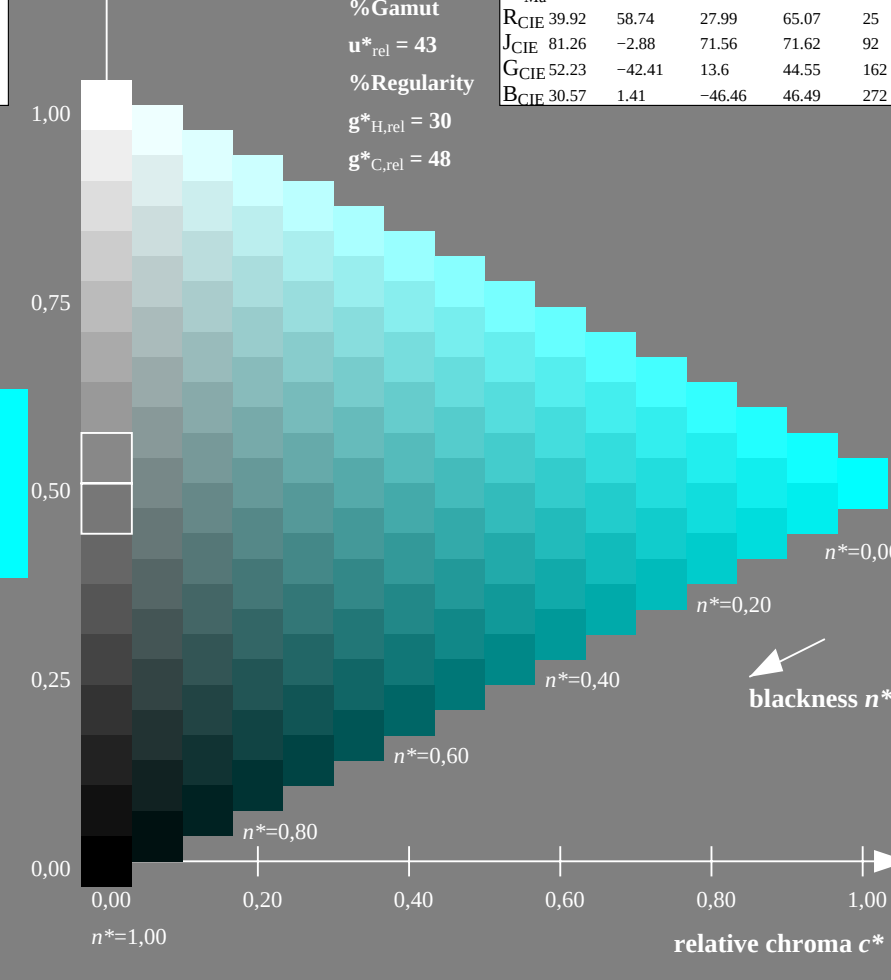
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 197/360 = 0.548 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 198/360 = 0.55$

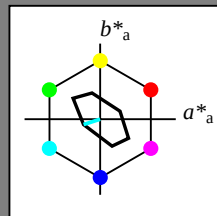
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 91 23 198

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 198/360 = 0.55$

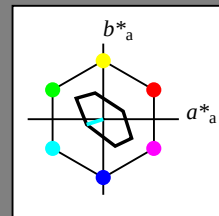
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 91 23 198

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

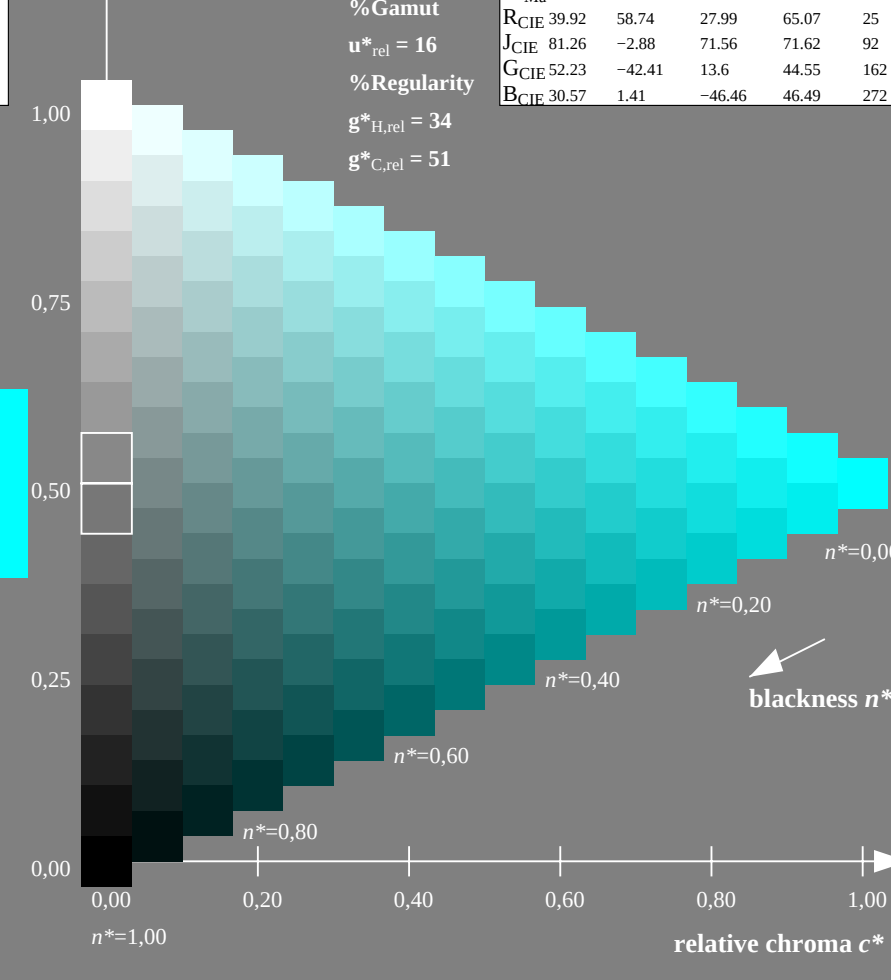
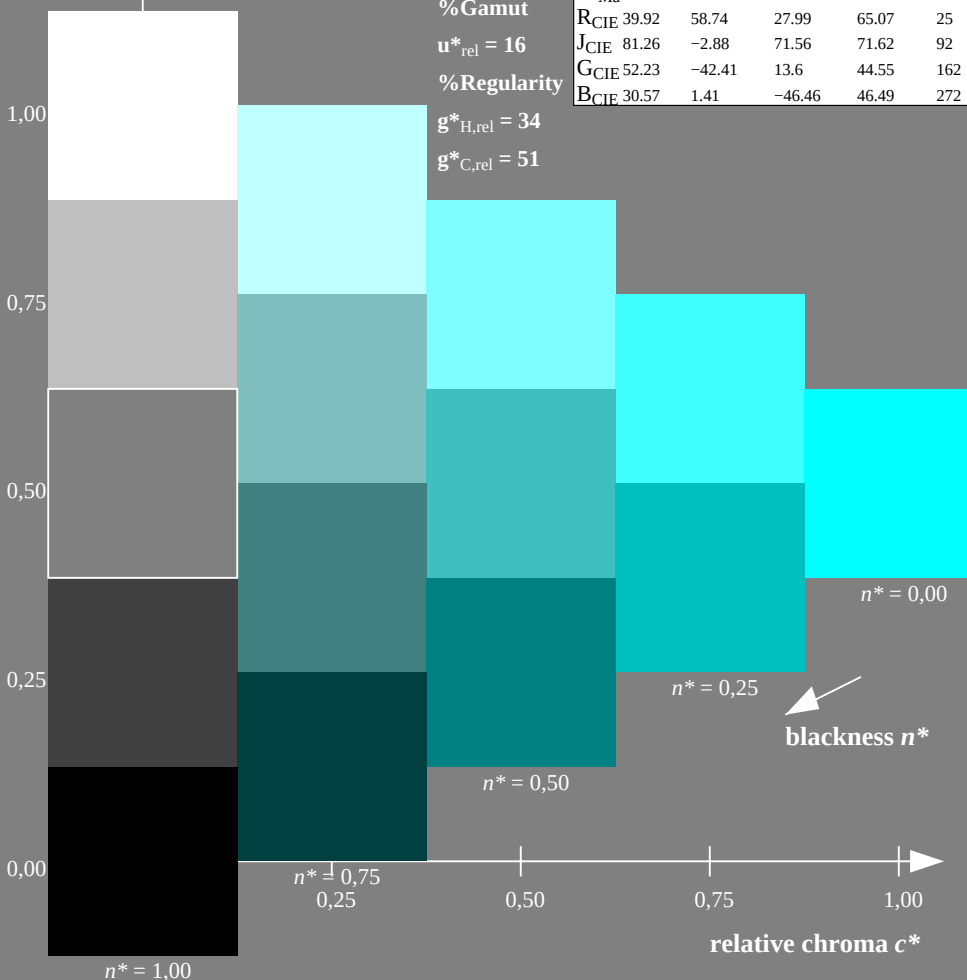
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 198/360 = 0.55 (left)

16 step scales for constant CIELAB hue 198/360 = 0.55 (right)

TUB-test chart IE39 for visual displays, Hue C, Page 32/80
Discrimination of 5 and 16 colour scales, TLS18a

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 306/360 = 0.851$

lab^*tch and lab^*nch

D65: hue V

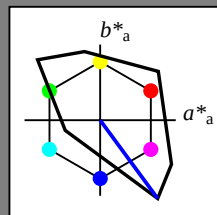
LCH*Ma: 30 129 306

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



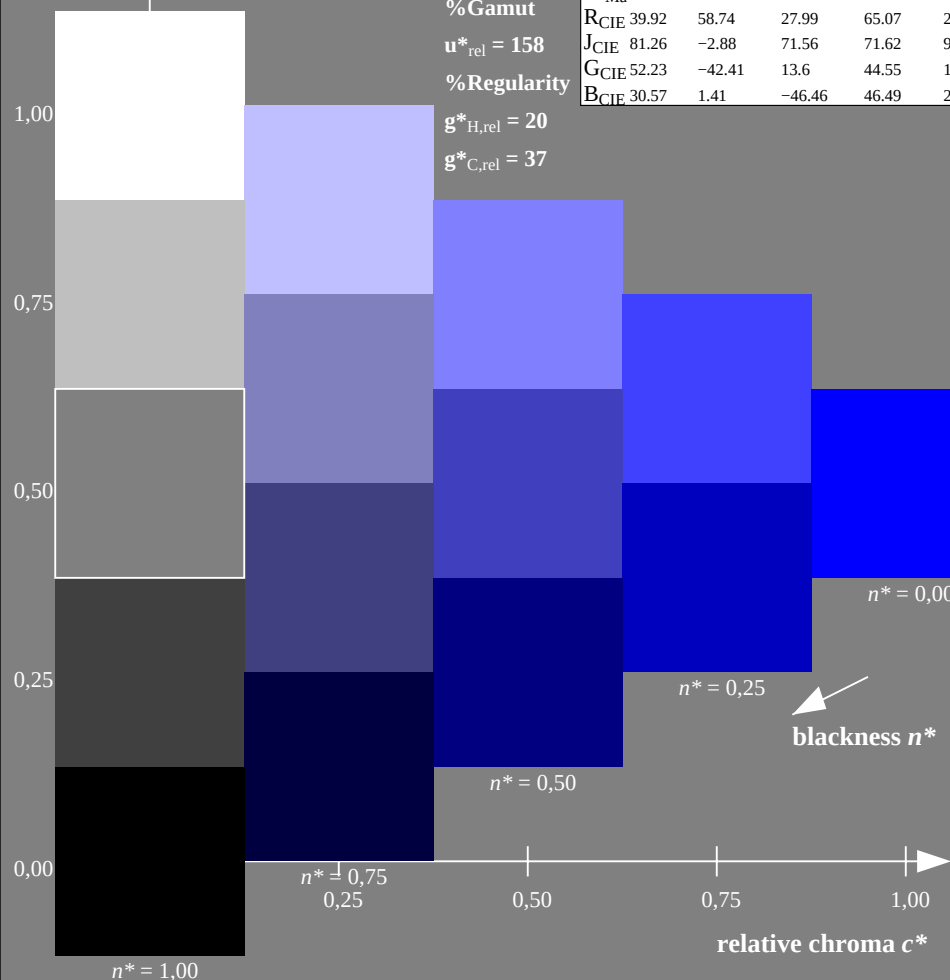
% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$



Output: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 306/360 = 0.851$

lab^*tch and lab^*nch

D65: hue V

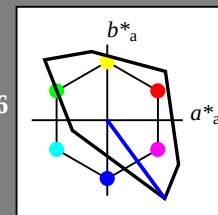
LCH*Ma: 30 129 306

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



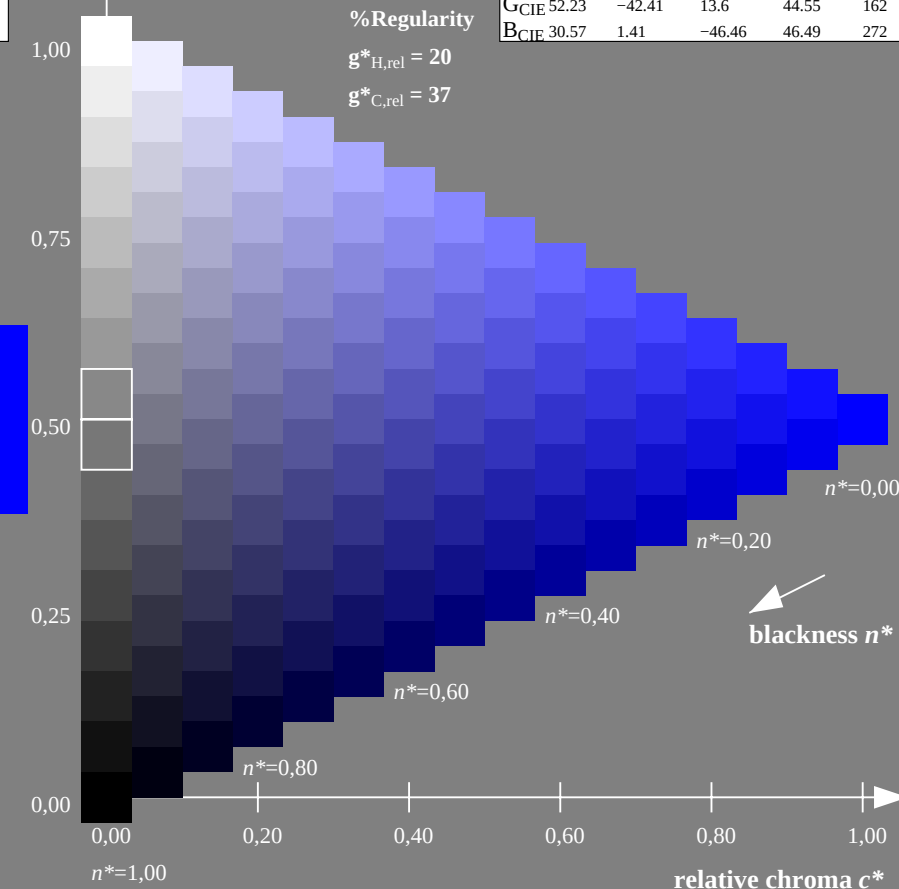
% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$



IE390-7N, 5 step scales for constant CIELAB hue 306/360 = 0.851 (left)

16 step scales for constant CIELAB hue 306/360 = 0.851 (right)

TUB-test chart IE39 for visual displays, Hue V, Page 33/80
Discrimination of 5 and 16 step colour scales, TLS27a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 306/360 = 0.849$

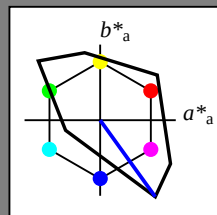
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 32 125 306

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

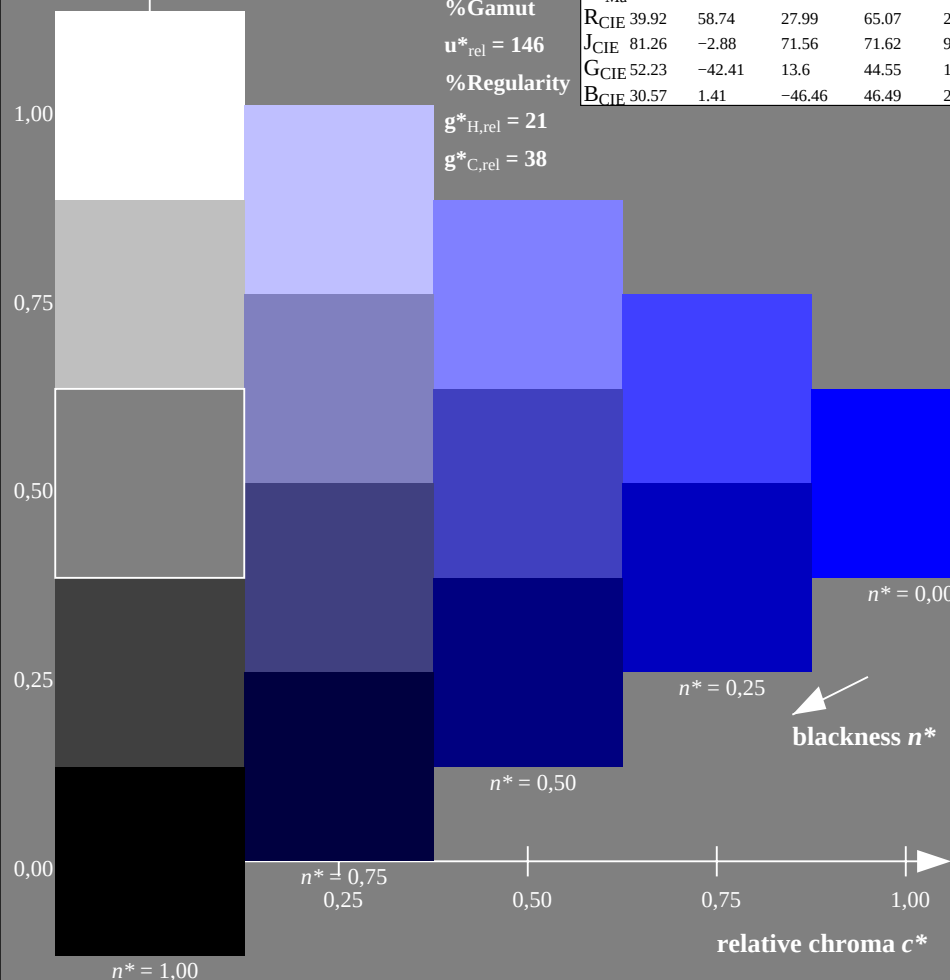
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 306/360 = 0.849 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 34/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 306/360 = 0.849$

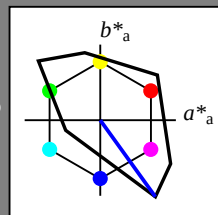
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 32 125 306

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

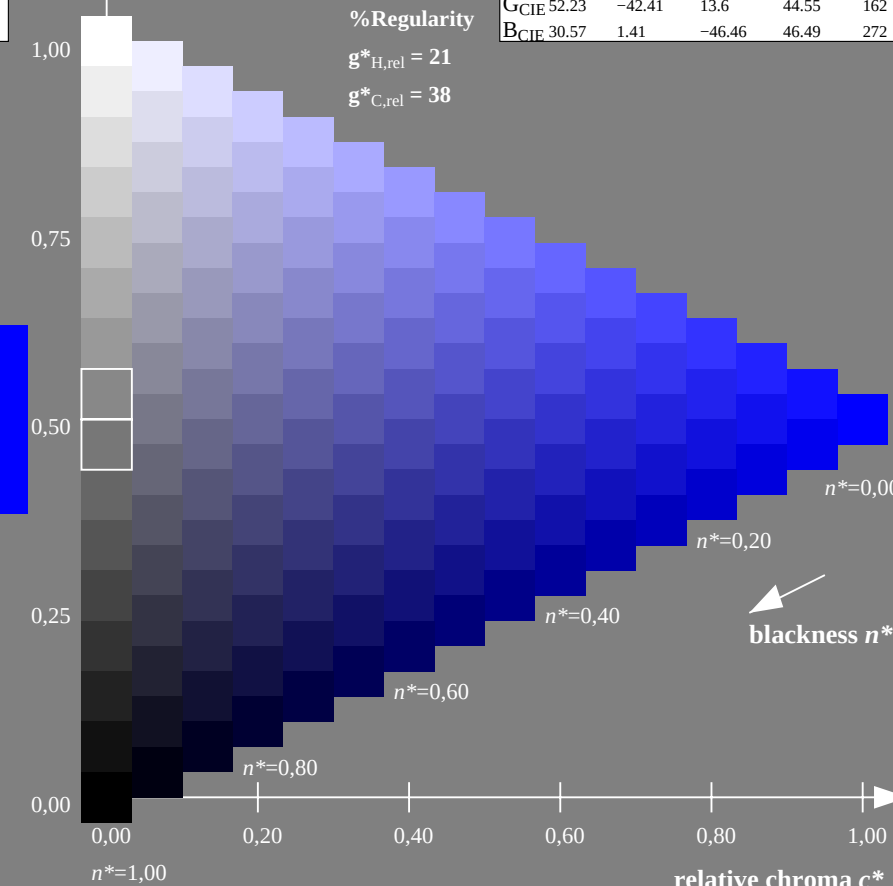
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 306/360 = 0.849 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 305/360 = 0.848$

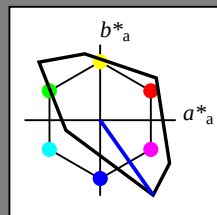
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 33 121 305

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

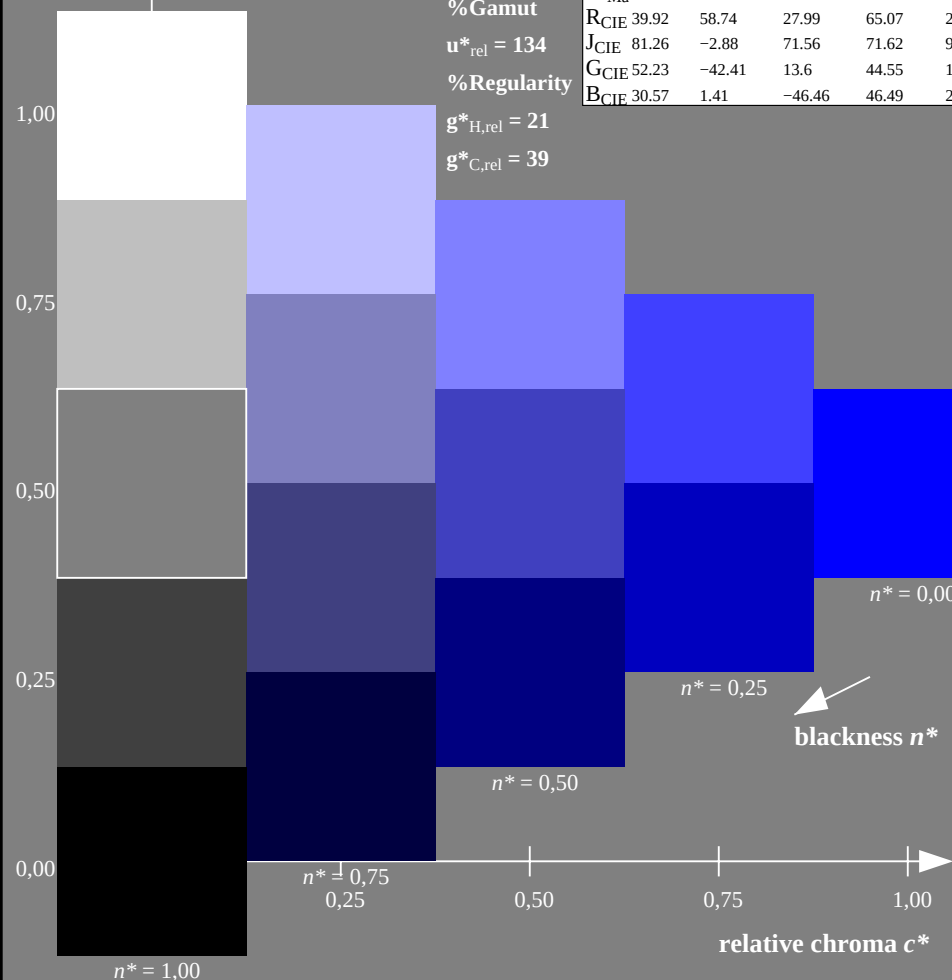
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 305/360 = 0.848 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 35/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 305/360 = 0.848$

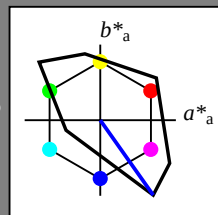
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 33 121 305

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

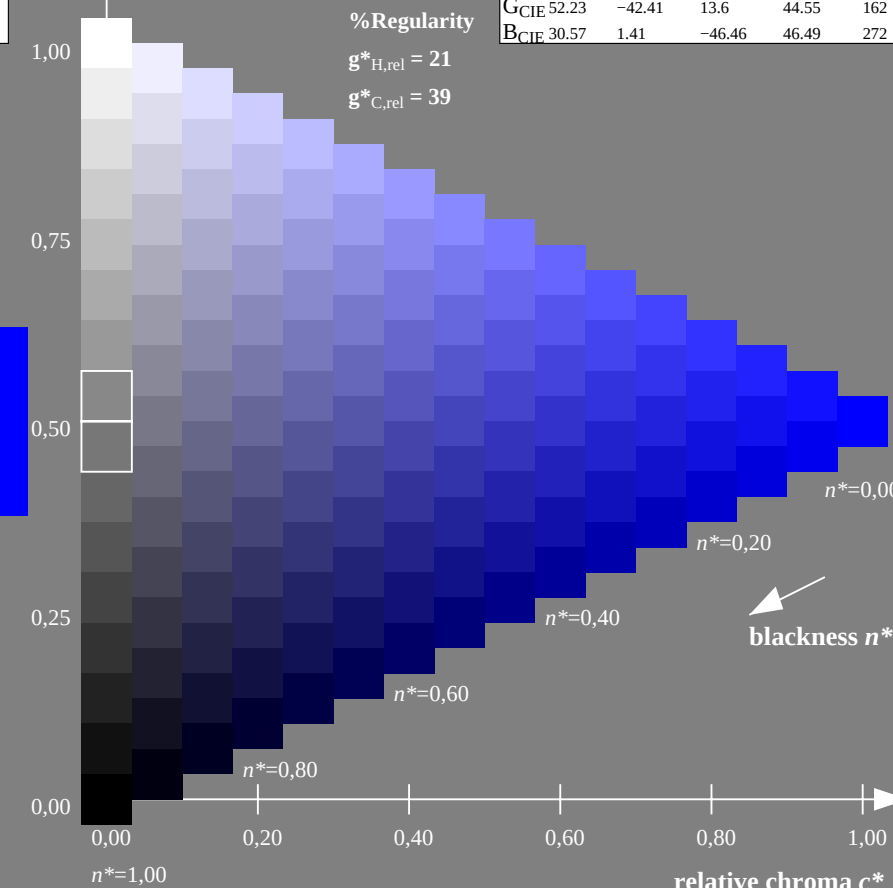
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 305/360 = 0.848 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 304/360 = 0.845$

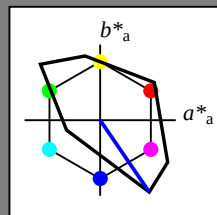
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 35 115 304

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

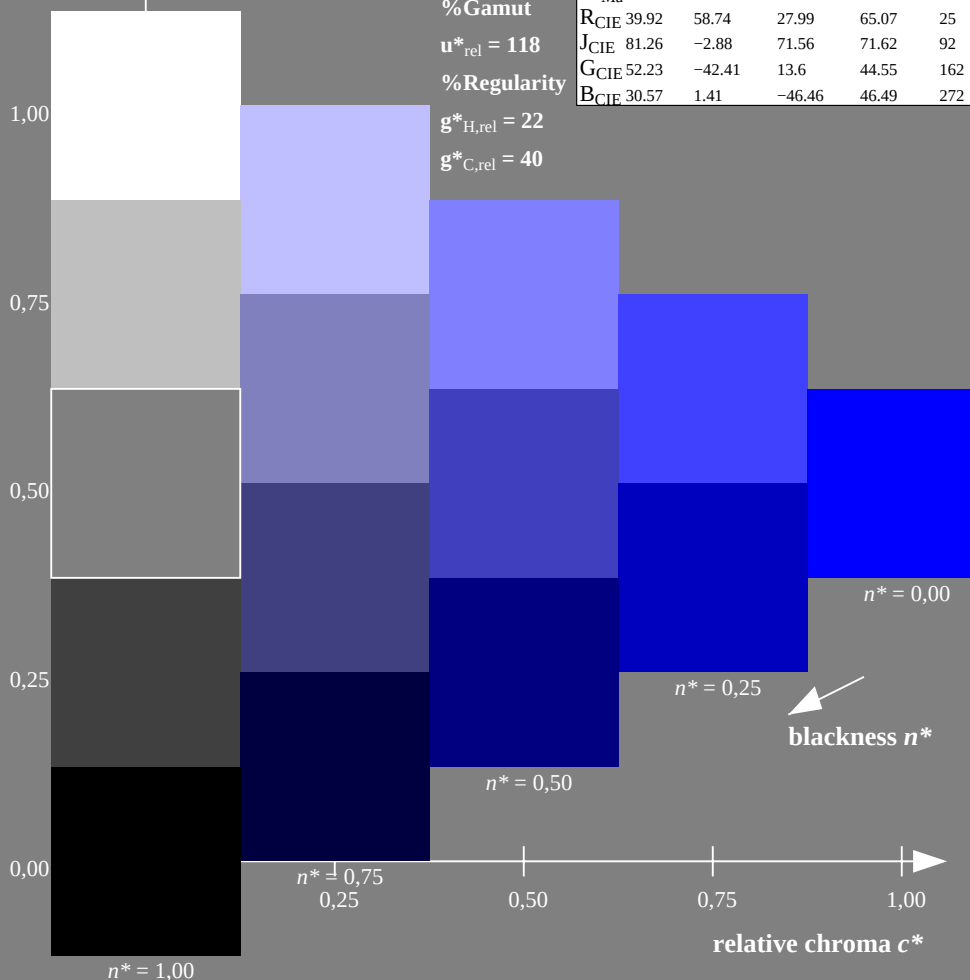
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 304/360 = 0.845 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 36/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 304/360 = 0.845$

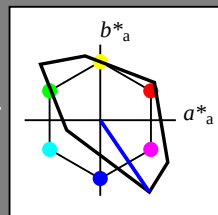
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 35 115 304

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

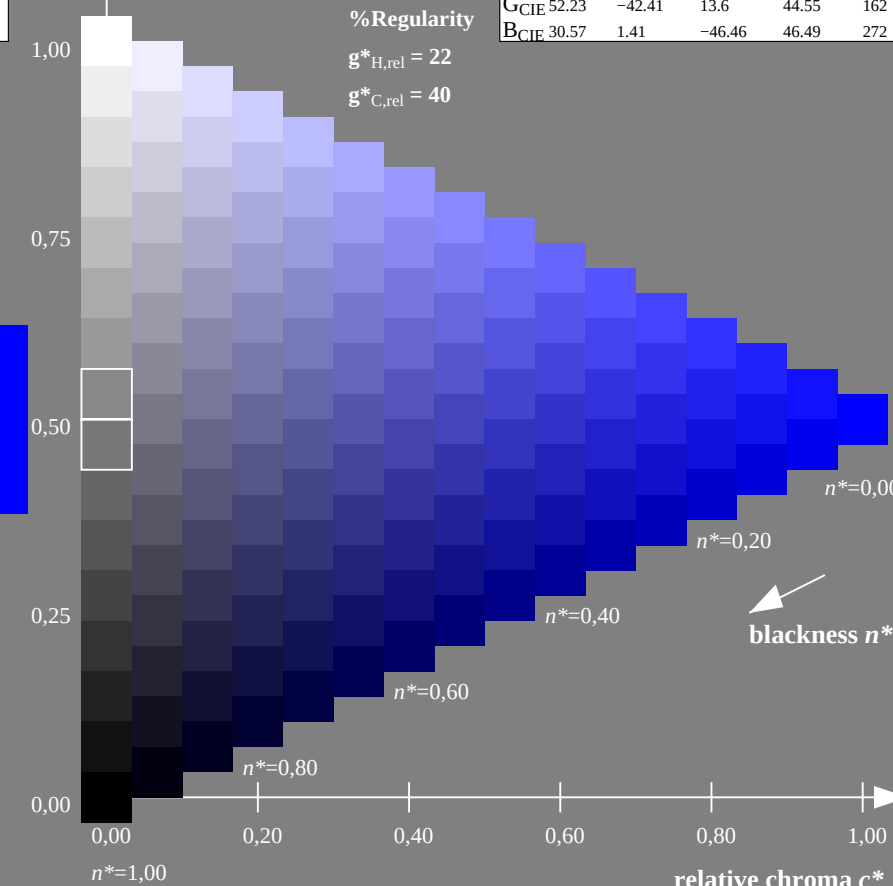
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 304/360 = 0.845 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 303/360 = 0.841$

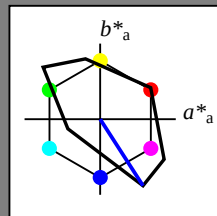
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 40 105 303

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

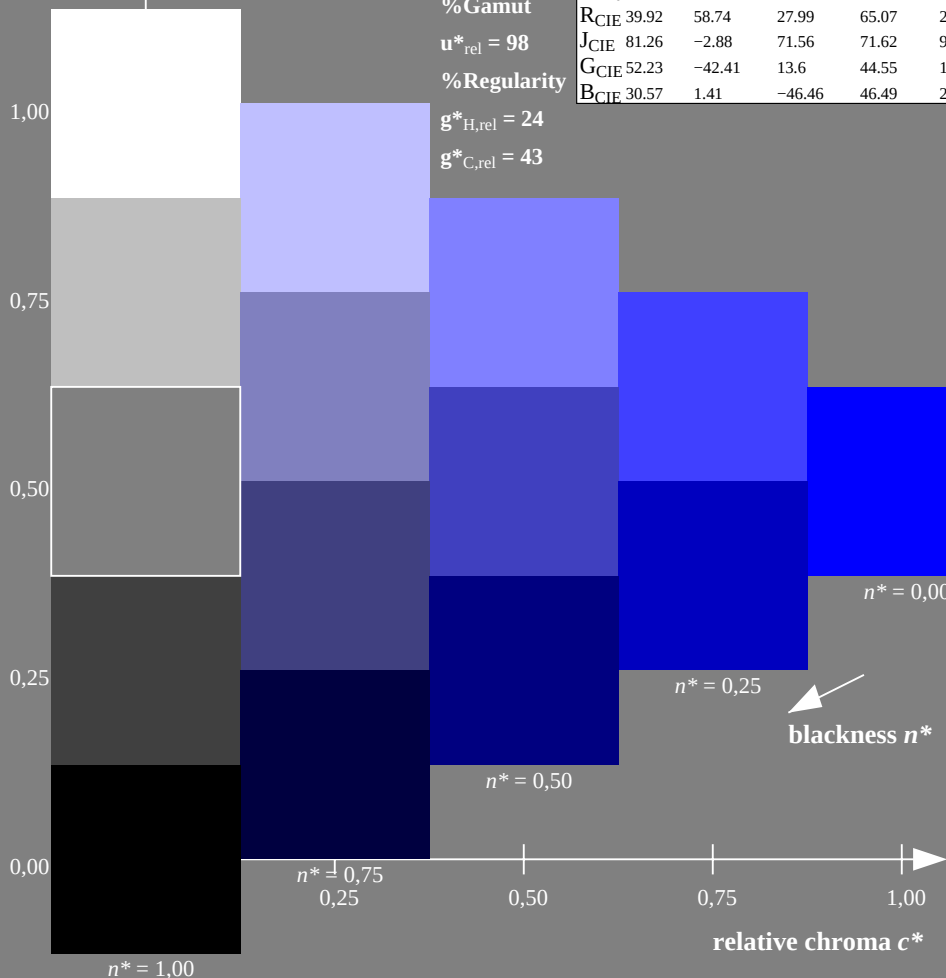
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 303/360 = 0.841 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 37/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 303/360 = 0.841$

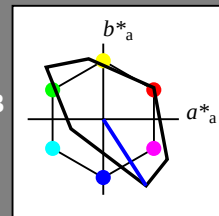
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 40 105 303

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

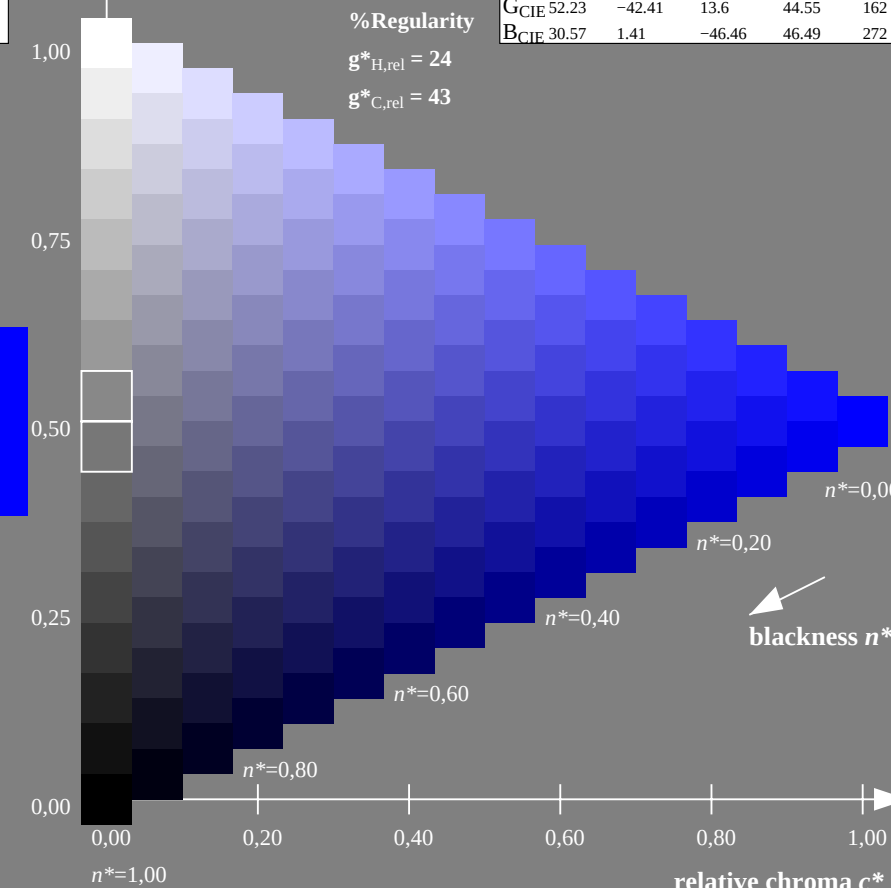
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 303/360 = 0.841 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 300/360 = 0.834$

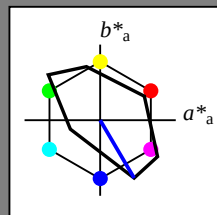
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 47 89 300

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

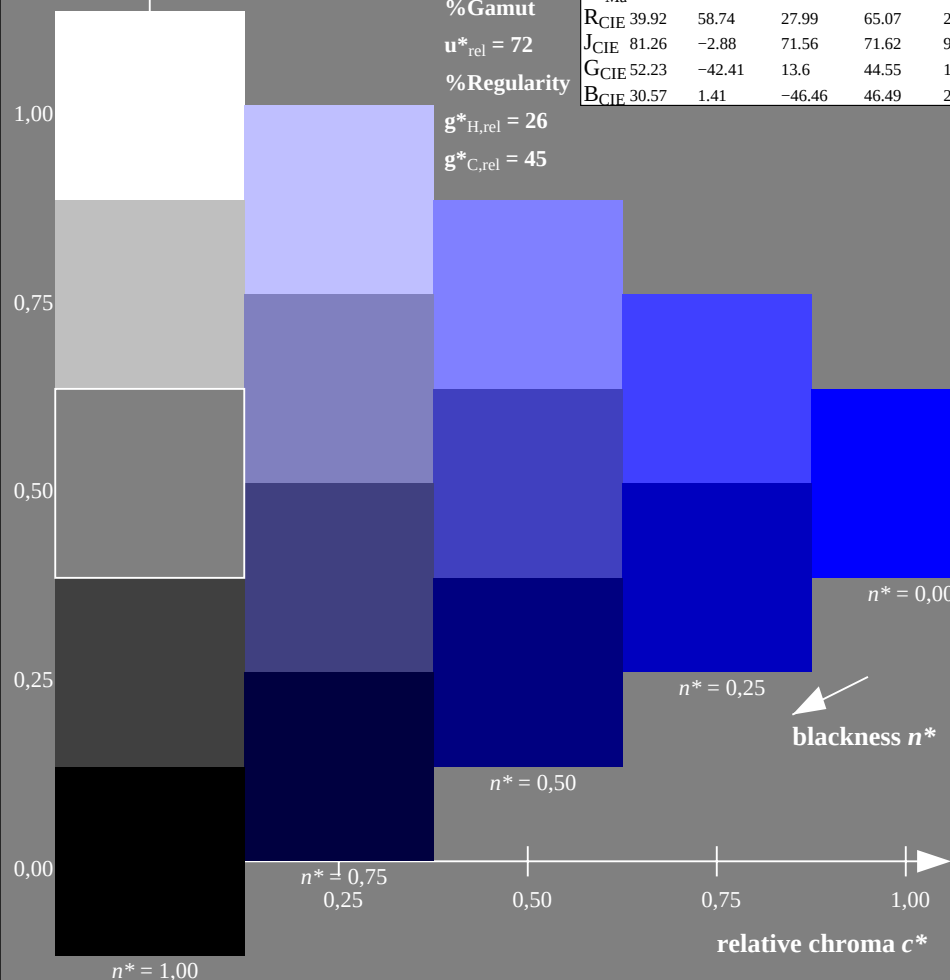
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 300/360 = 0.834 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 38/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 300/360 = 0.834$

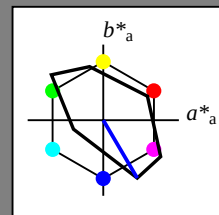
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 47 89 300

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

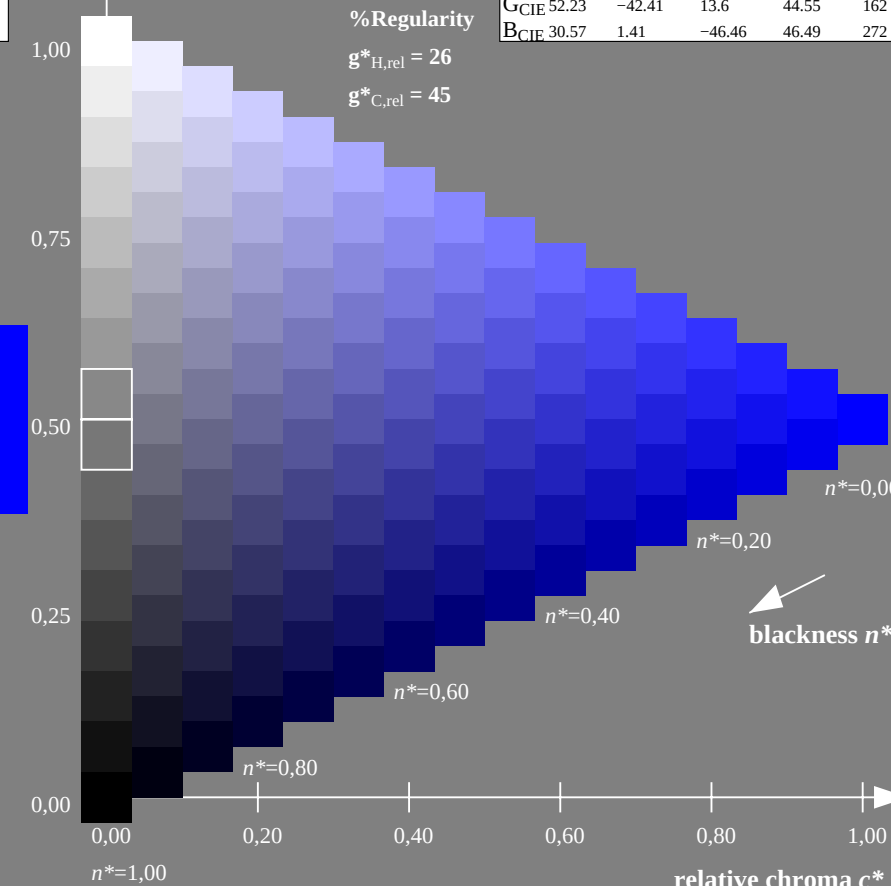
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 300/360 = 0.834 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 297/360 = 0.826$

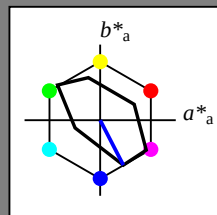
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 57 67 297

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

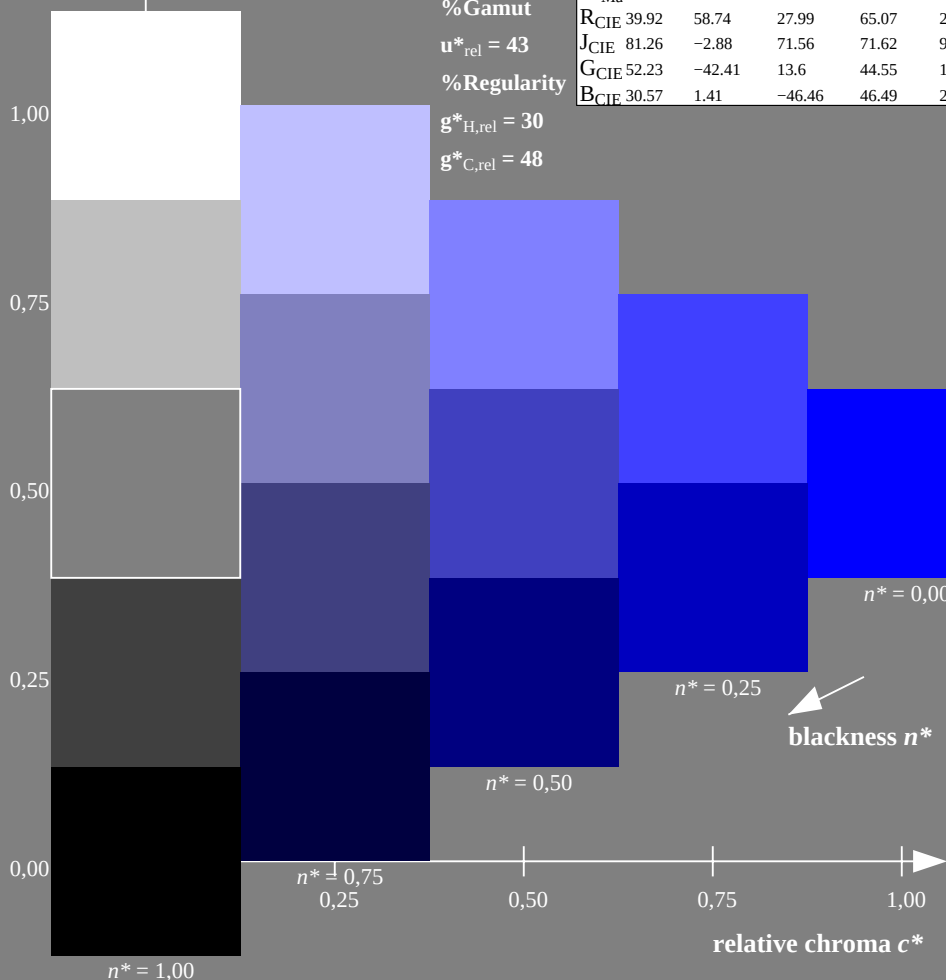
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 297/360 = 0.826 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 39/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 297/360 = 0.826$

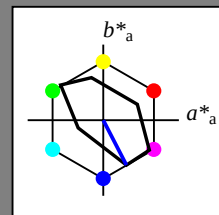
lab^*tch and lab^*nch

D65: hue V

LCH*Ma: 57 67 297

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

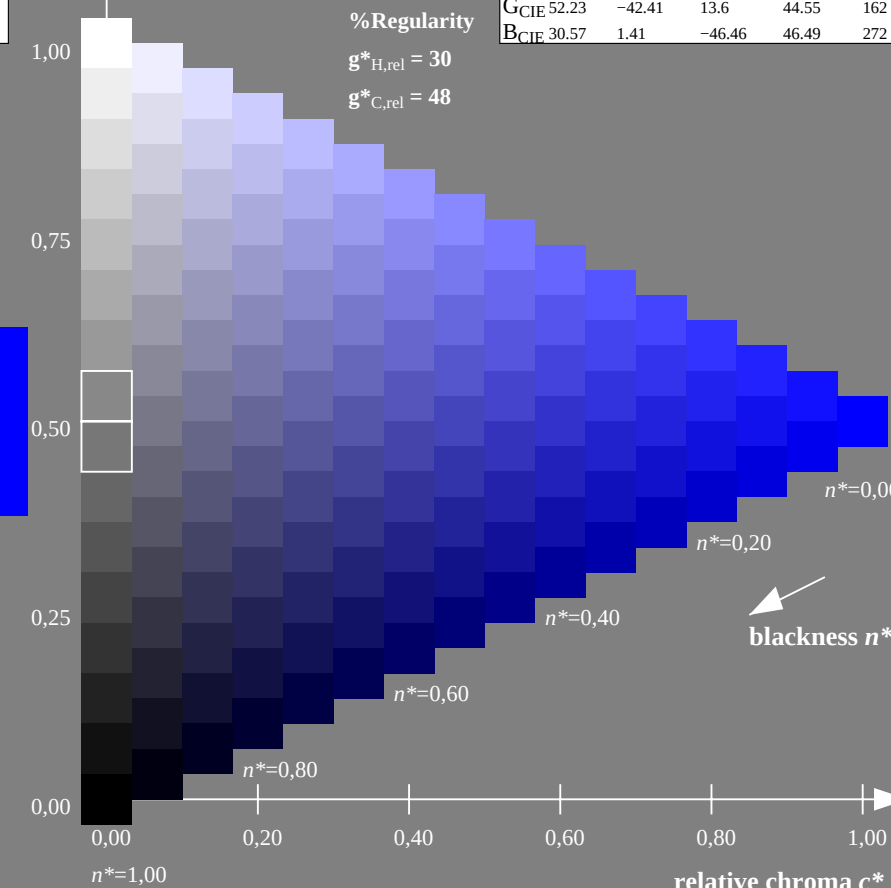
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 297/360 = 0.826 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 294/360 = 0.816$

lab^*tch and lab^*nch

D65: hue V

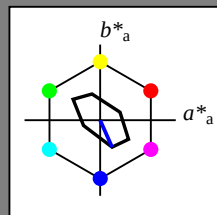
LCH*Ma: 72 39 294

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



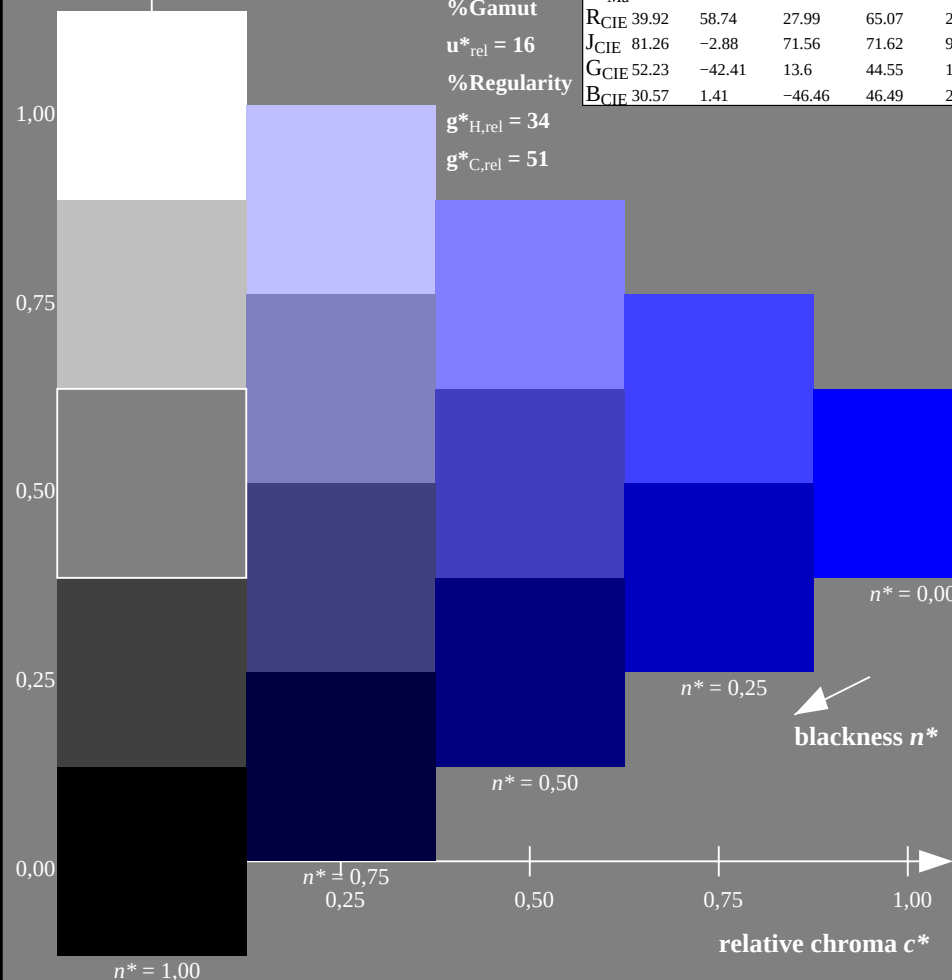
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



IE390-7N, 5 step scales for constant CIELAB hue 294/360 = 0.816 (left)

TUB-test chart IE39 for visual displays, Hue V, Page 40/80
Discrimination of 5 and 16 step colour scales, TLS27a

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 294/360 = 0.816$

lab^*tch and lab^*nch

D65: hue V

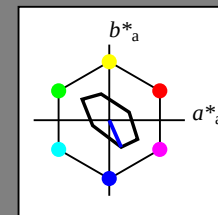
LCH*Ma: 72 39 294

olv*Ma: 0.0 0.0 1.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



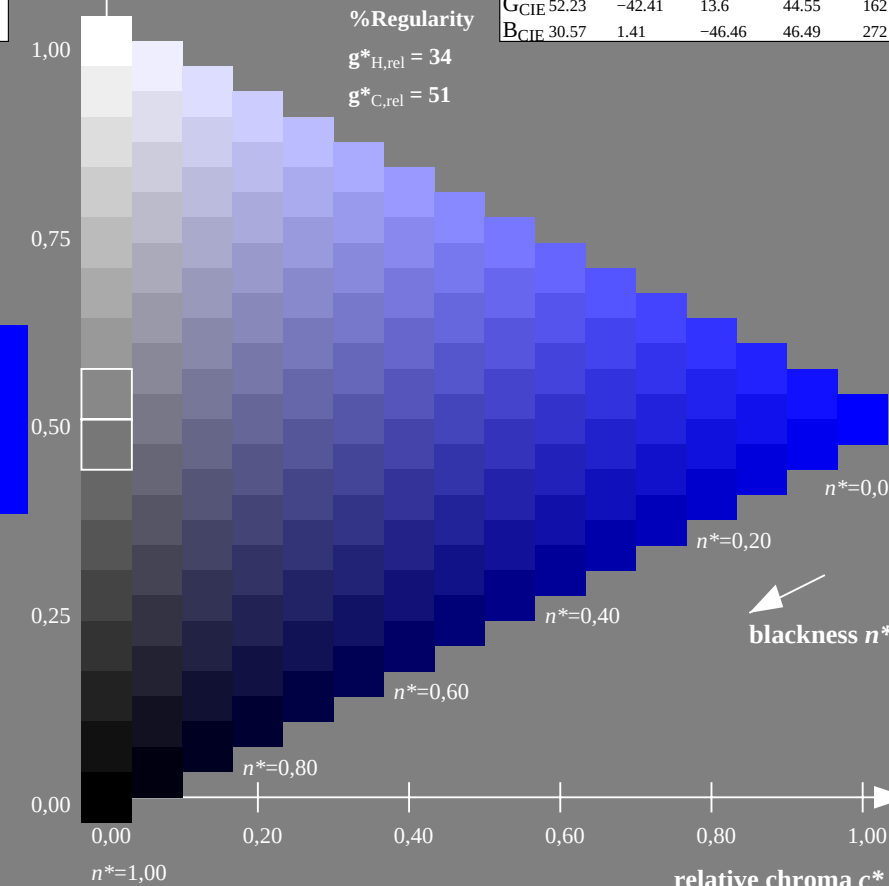
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



16 step scales for constant CIELAB hue 294/360 = 0.816 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 328/360 = 0.912$

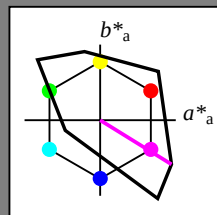
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 57 111 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

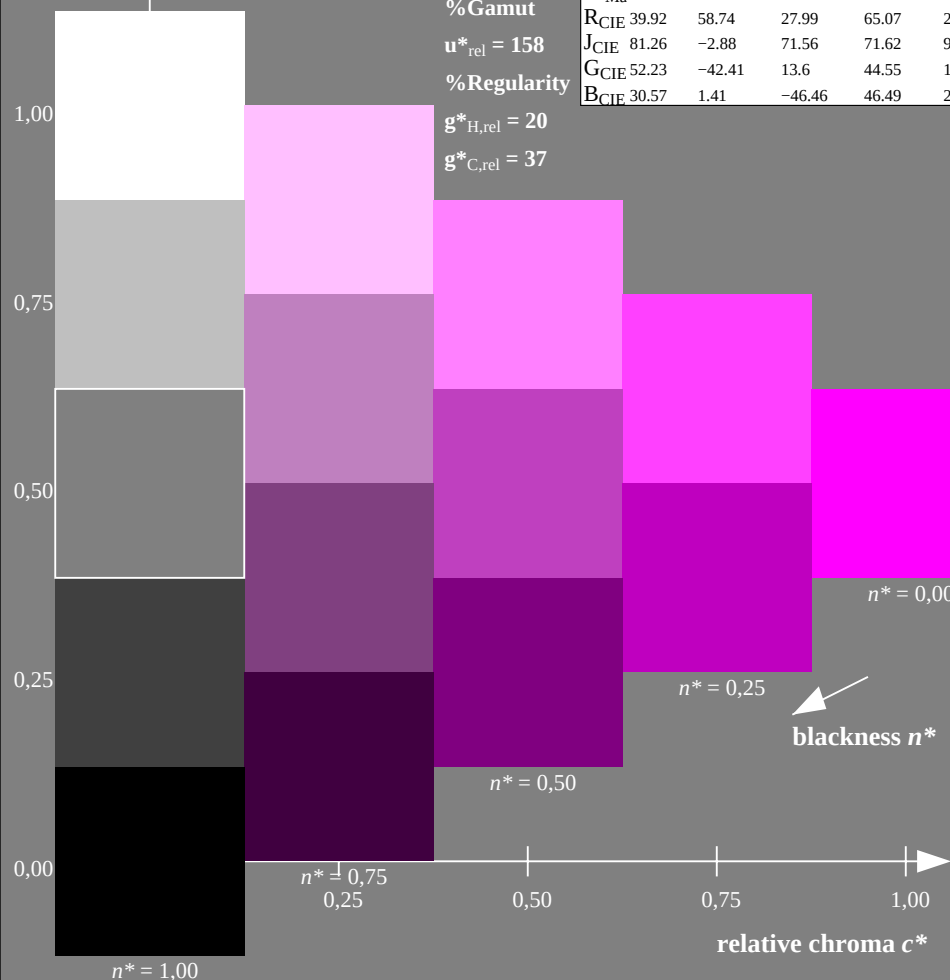
% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$



IE390-7N, 5 step scales for constant CIELAB hue 328/360 = 0.912 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 41/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS00a

for hue $h^* = lab^*h = 328/360 = 0.912$

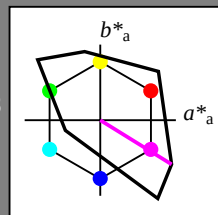
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 57 111 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

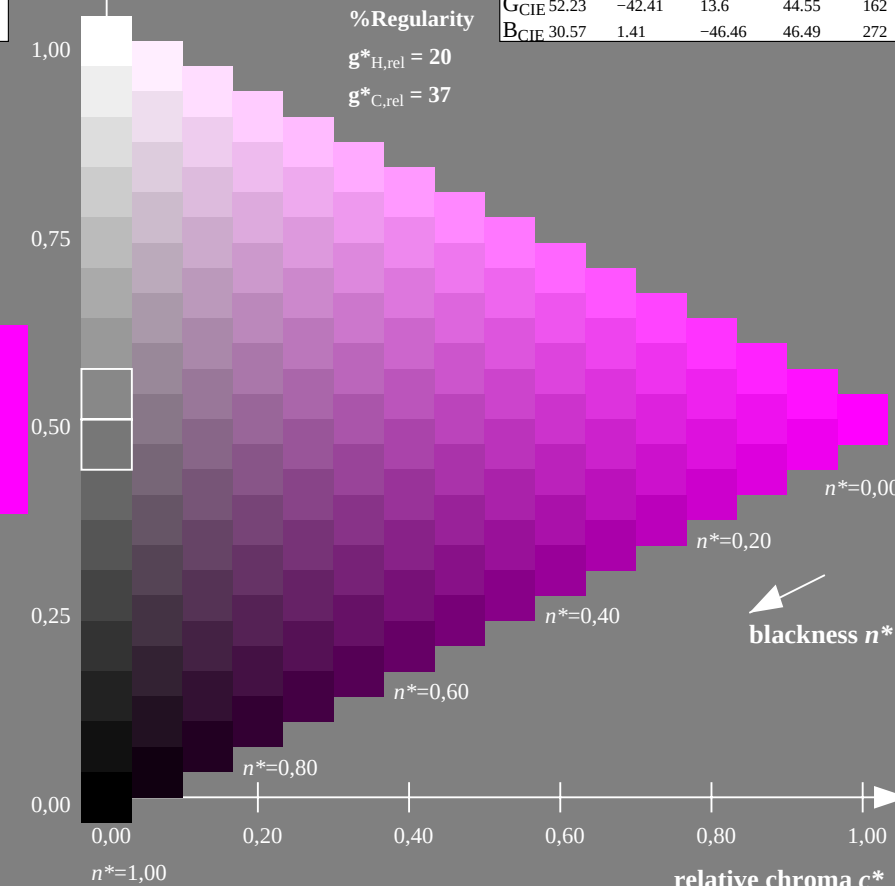
% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$



16 step scales for constant CIELAB hue 328/360 = 0.912 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 328/360 = 0.912$

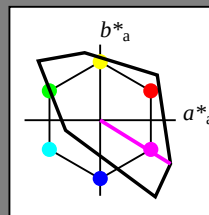
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 58 110 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

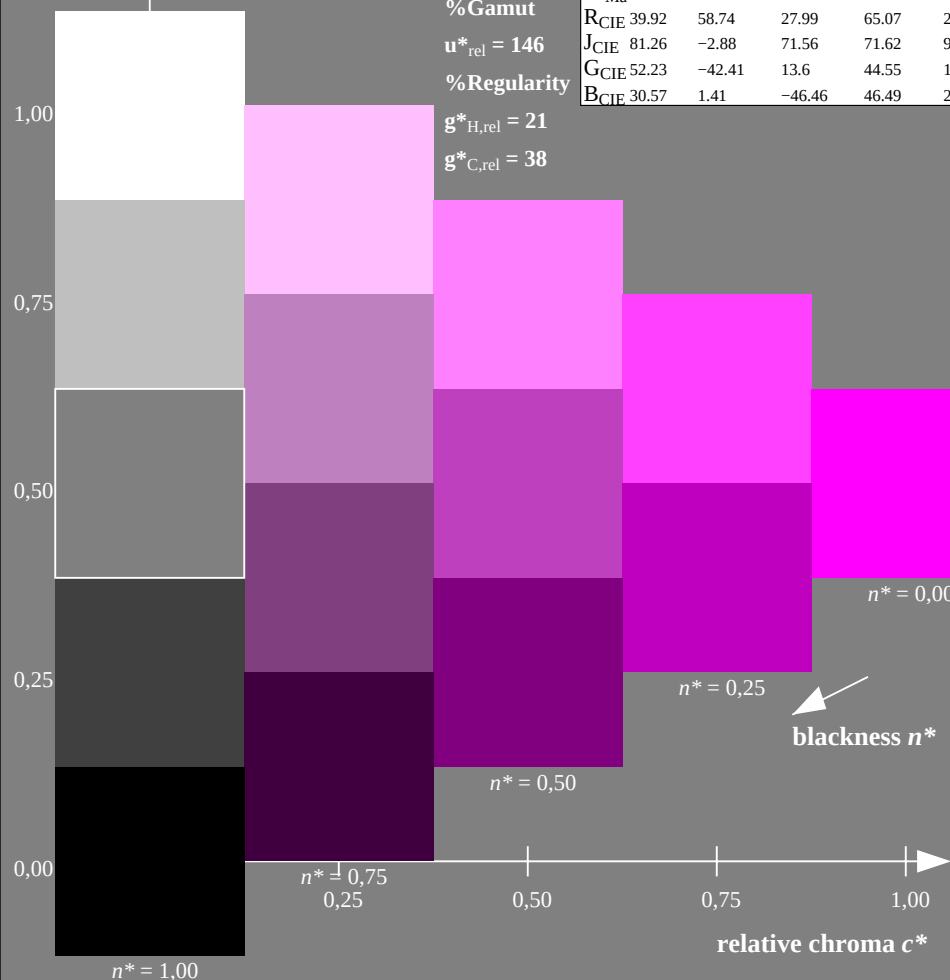
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 328/360 = 0.912 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 42/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS06a

for hue $h^* = lab^*h = 328/360 = 0.912$

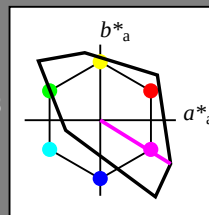
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 58 110 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

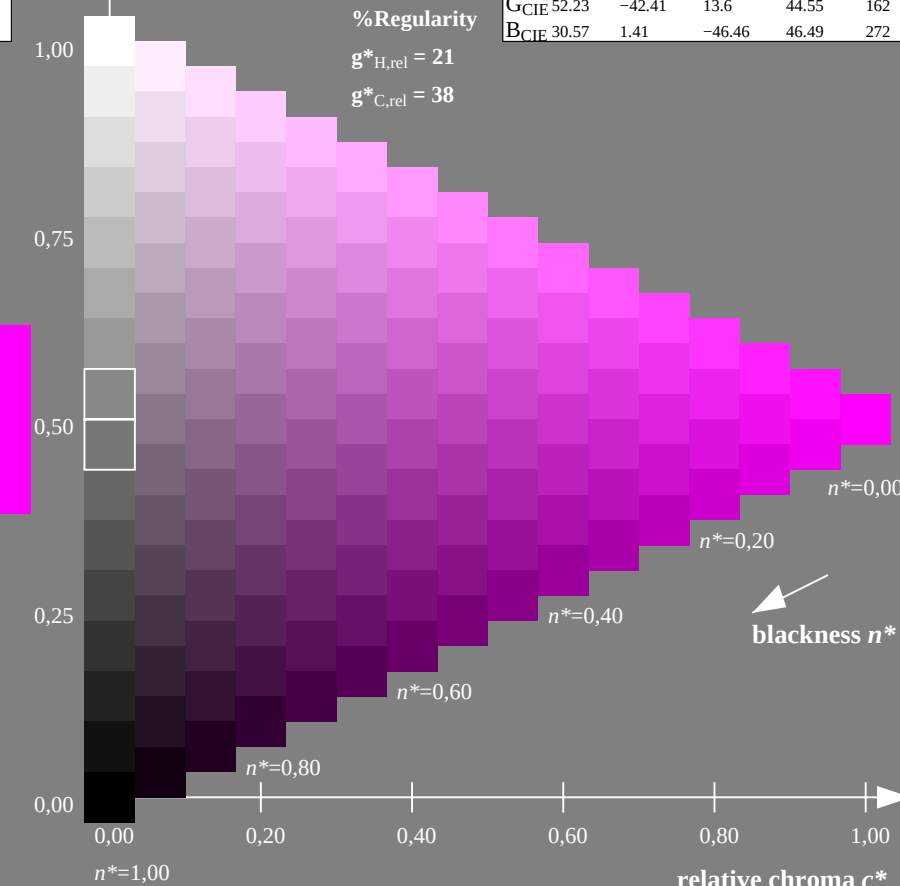
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 328/360 = 0.912 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

See original or copy: <http://web.me.com/klaus.richter/IE39/IE39L0NP.PDF> / .PS
Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmantik>

Input: Colorimetric Television Luminous System TLS11a

for hue $h^* = lab^*h = 328/360 = 0.912$

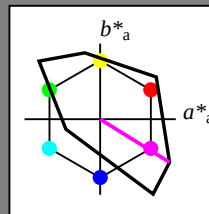
lab*tch* and *lab*nch

D65: hue M

LCH*Ma: 58 108 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



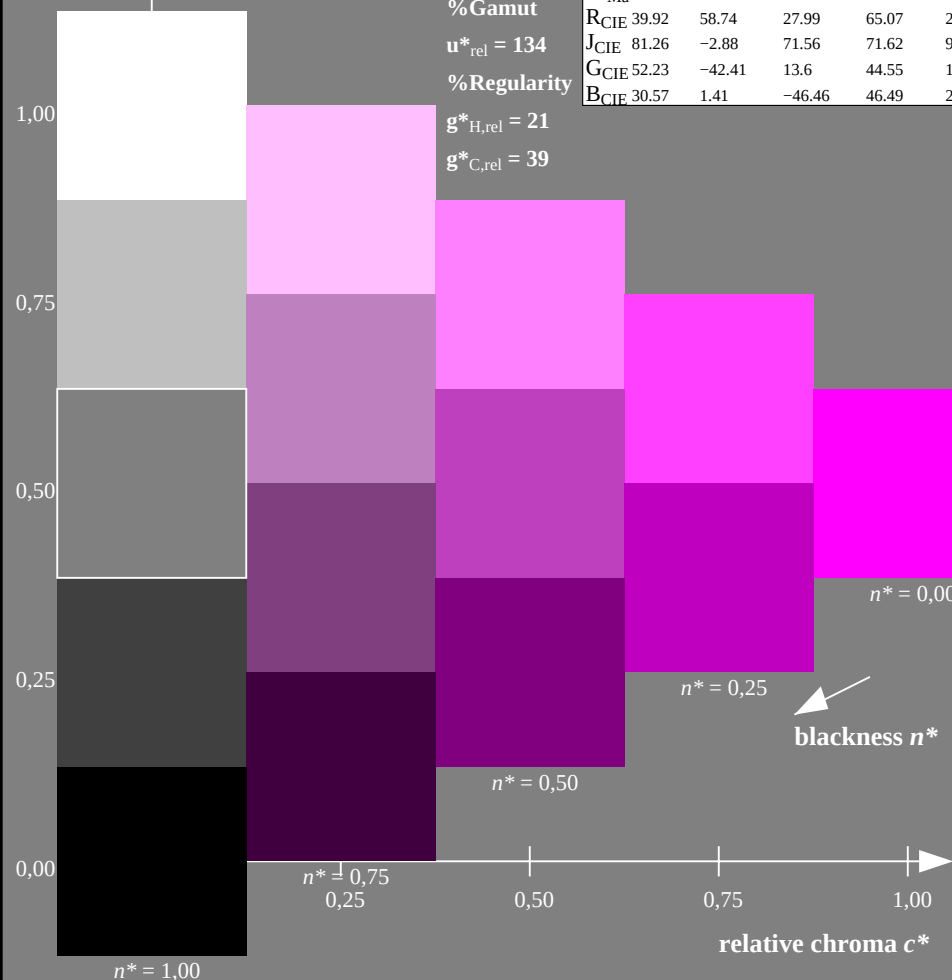
%Gamut

$$\mathbf{u}_{rel}^* = 134$$

%Regularity

$$g^*_{H,rel} = 21$$
$$g^*_{C,rel} = 39$$

	$L^* = L^*_a$	$a^* = a^*_a$	$b^* = b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 328/360 = 0.912 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 43/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS11a

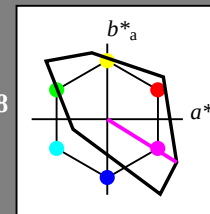
```
for hue  $h^* = lab^*h = 328/360 = 0.912$ 
```

lab*tch* and *lab*nch

D65: hue M

LCH*Ma: 58 108 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^* 

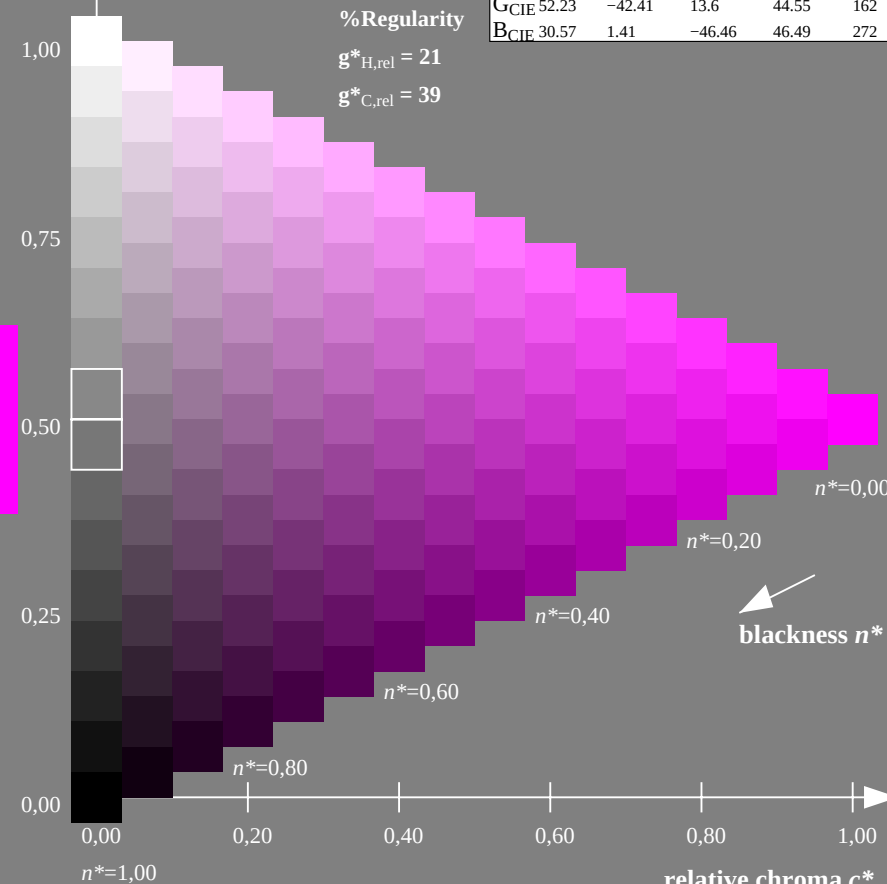
%Gamut

$$\mathbf{u}_{\text{rel}}^* = 134$$

%Regularity

$$g^*_{H,rel} = 21$$
 $\eta_{\text{C,rel}}^* = 39$

TLS11a; adapted (a) CIELAB data					
	L^*_{*a}	a^*_{*a}	b^*_{*a}	$C^*_{ab,a}$	h^*_{ab}
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 328/360 = 0.912 (right)

input: *rgb* ($\rightarrow$ *olv**) *setrgbcolor*
output: no change compared to input

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PSS
application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 328/360 = 0.911$

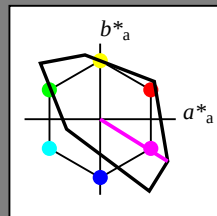
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 59 105 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

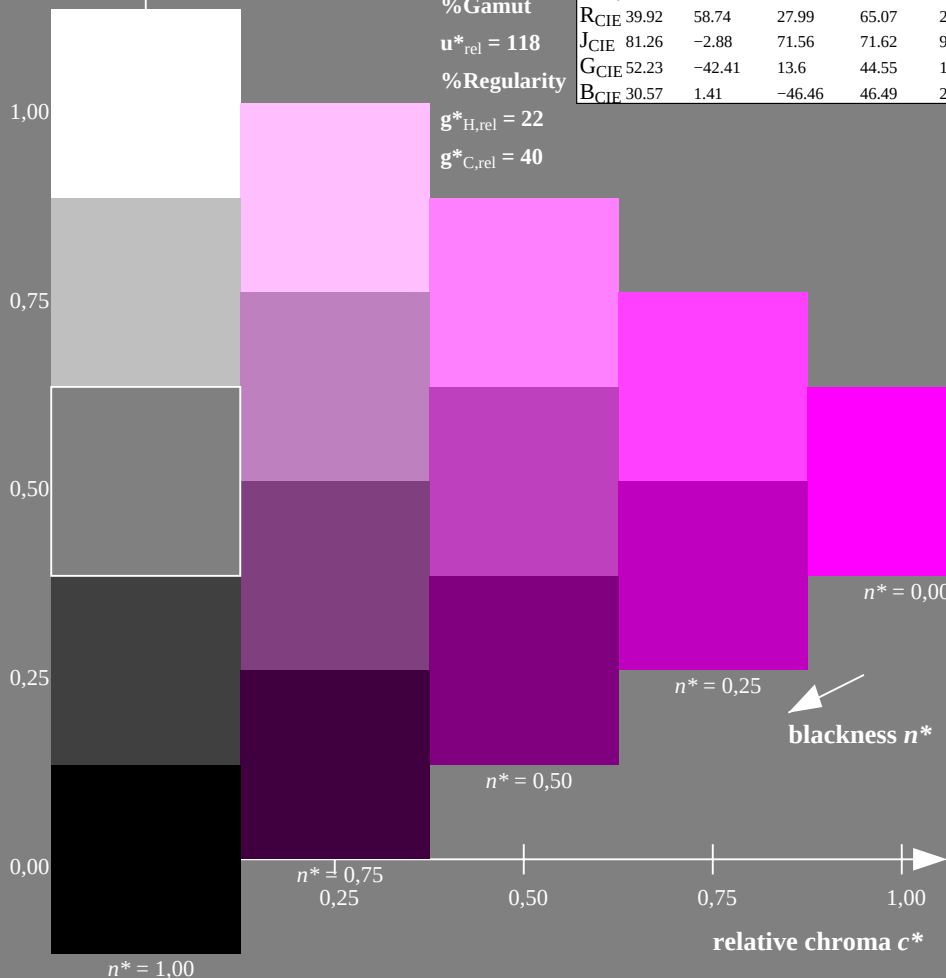
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 328/360 = 0.911 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 44/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS18a

for hue $h^* = lab^*h = 328/360 = 0.911$

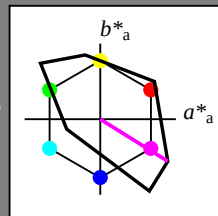
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 59 105 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

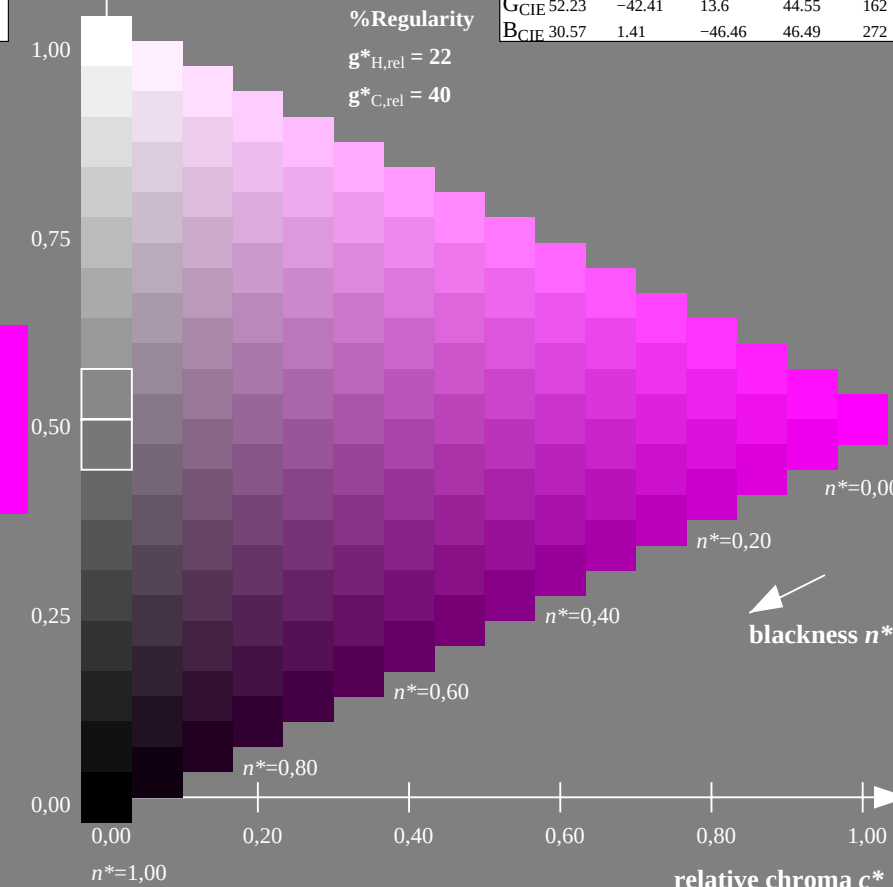
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 328/360 = 0.911 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 328/360 = 0.911$

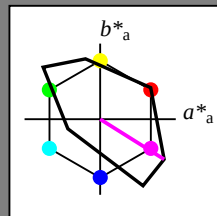
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 61 100 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

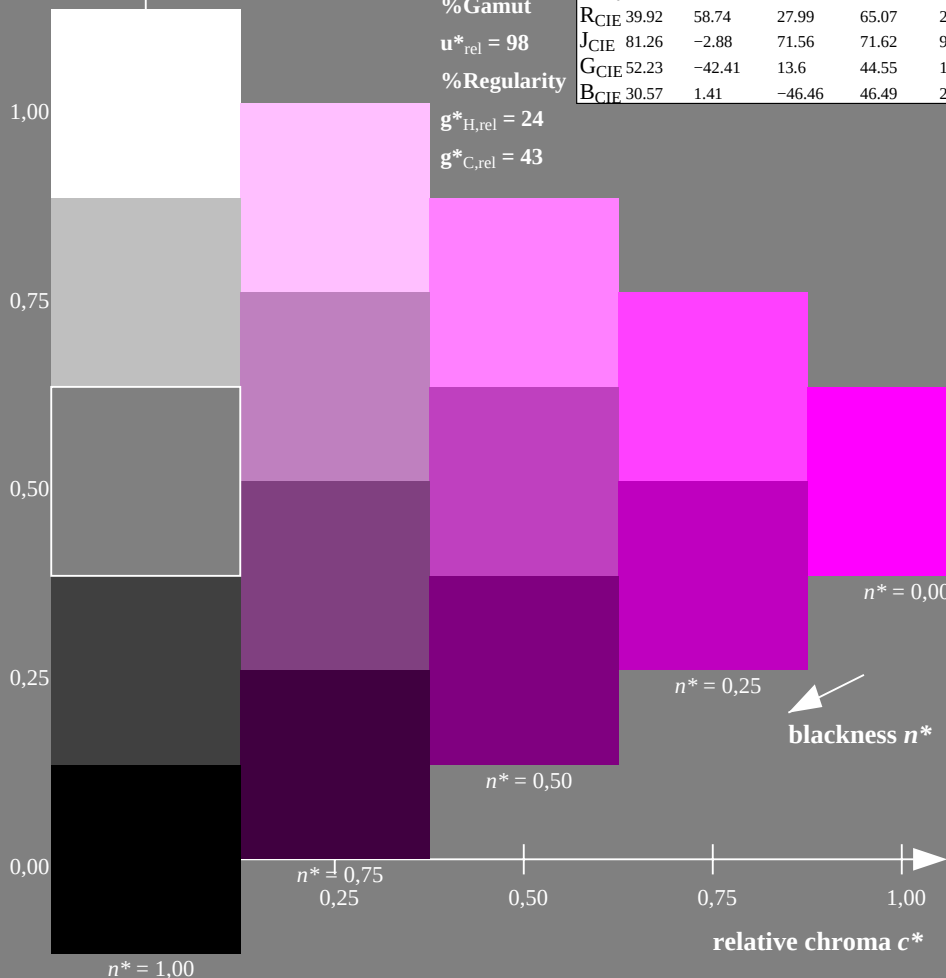
$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
NMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 328/360 = 0.911 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 45/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS27a

for hue $h^* = lab^*h = 328/360 = 0.911$

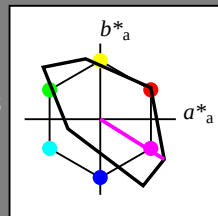
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 61 100 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

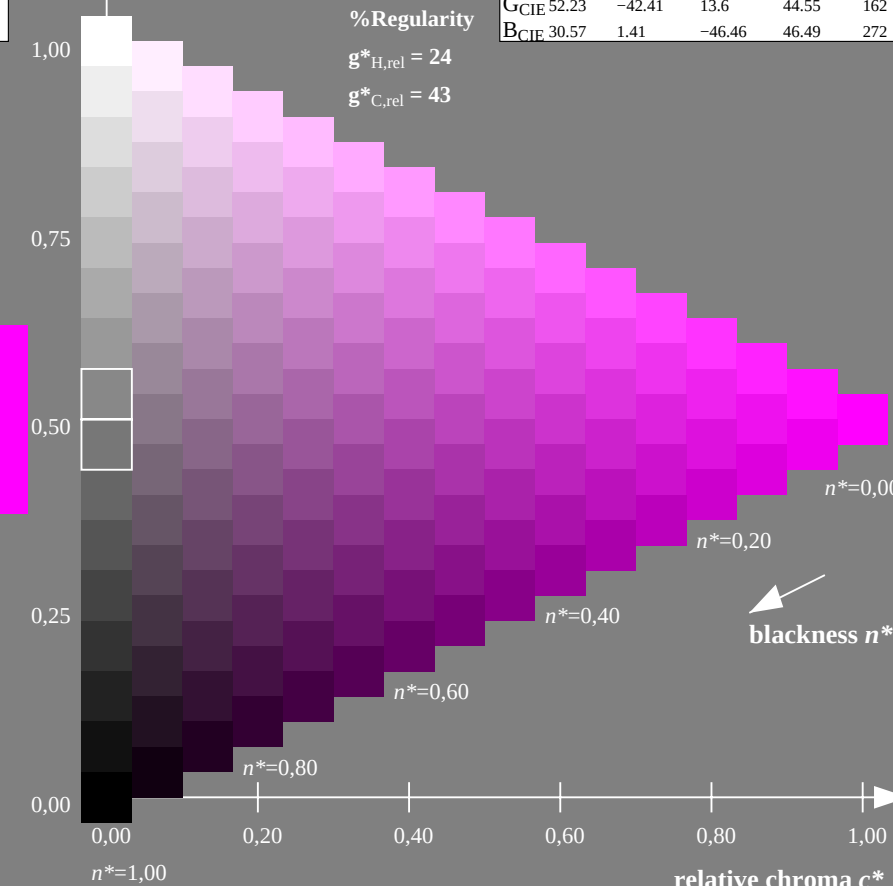
$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
NMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 328/360 = 0.911 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 328/360 = 0.91$

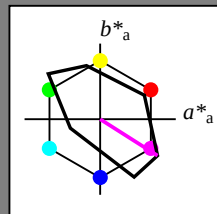
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 64 90 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

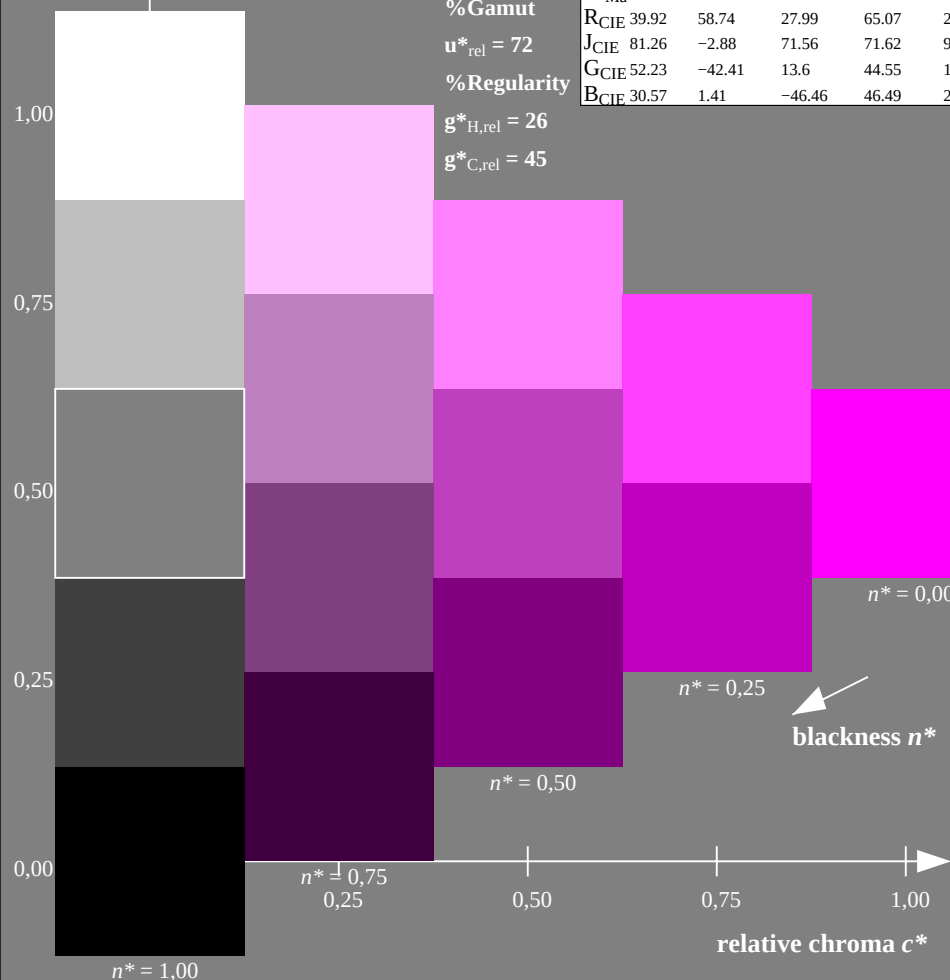
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 328/360 = 0.91 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 46/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS38a

for hue $h^* = lab^*h = 328/360 = 0.91$

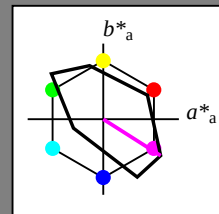
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 64 90 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

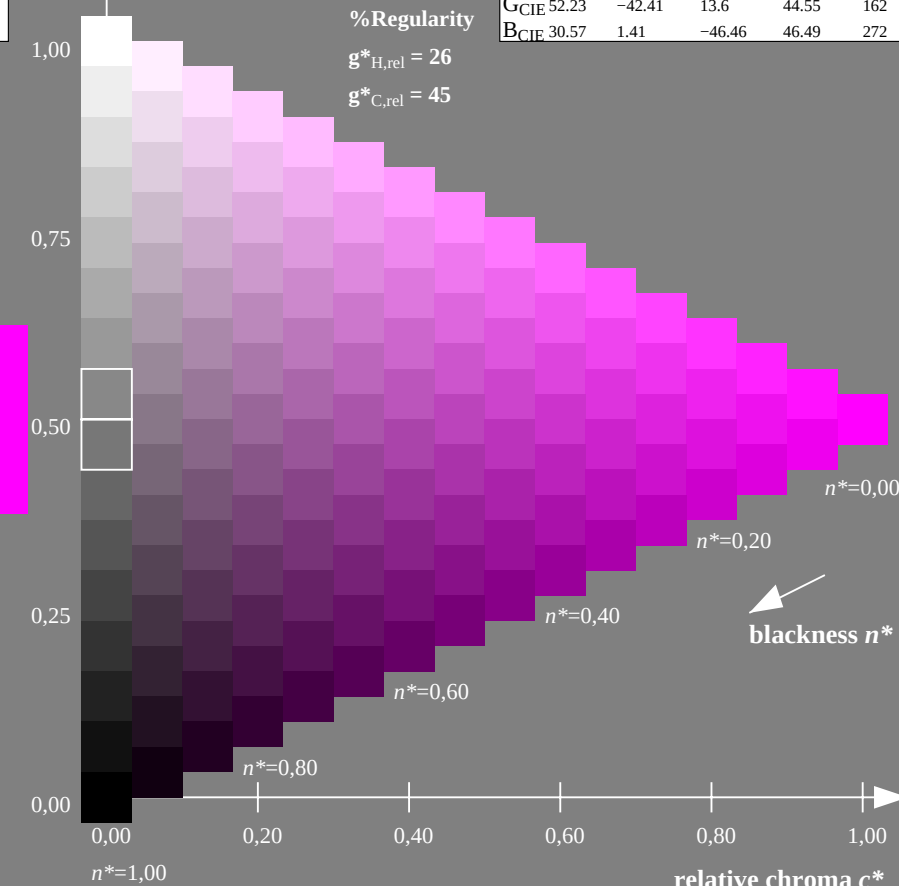
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 328/360 = 0.91 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 327/360 = 0.908$

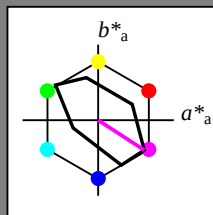
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 69 73 327

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

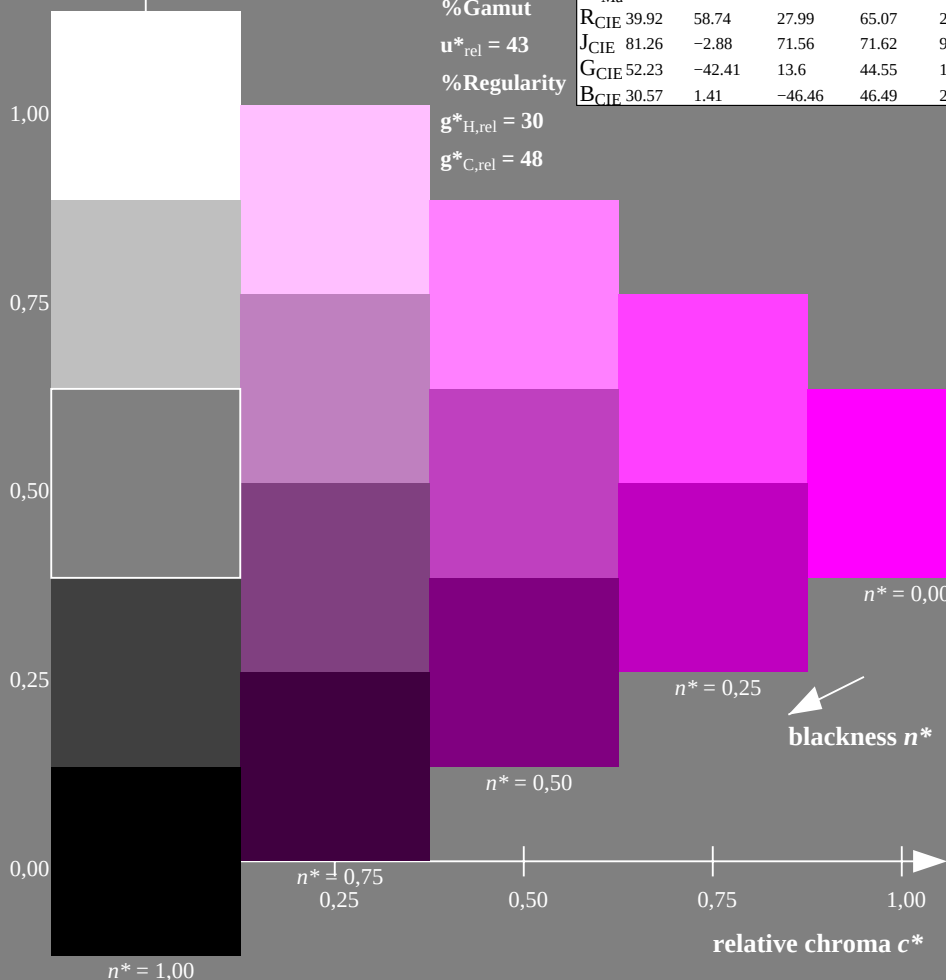
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



Output: Colorimetric Television Luminous System TLS52a

for hue $h^* = lab^*h = 327/360 = 0.908$

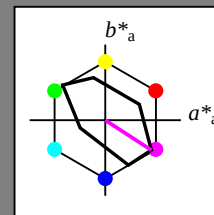
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 69 73 327

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

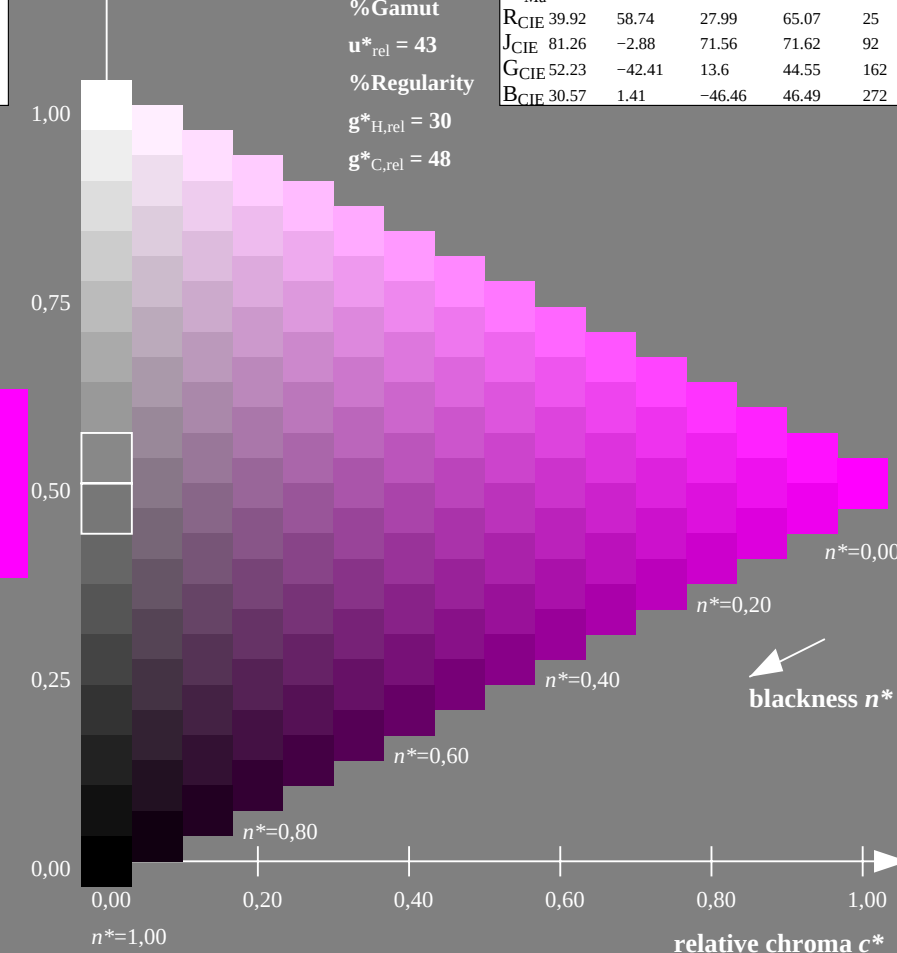
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 327/360 = 0.908 (left)

16 step scales for constant CIELAB hue 327/360 = 0.908 (right)

TUB-test chart IE39 for visual displays, Hue M, Page 47/80
Discrimination of 5 and 16 step colour scales, TLS38a

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 326/360 = 0.906$

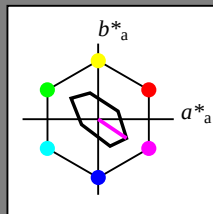
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 79 45 326

ol v^* Ma: 1.0 0.0 1.0

triangle lightness t^*



TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

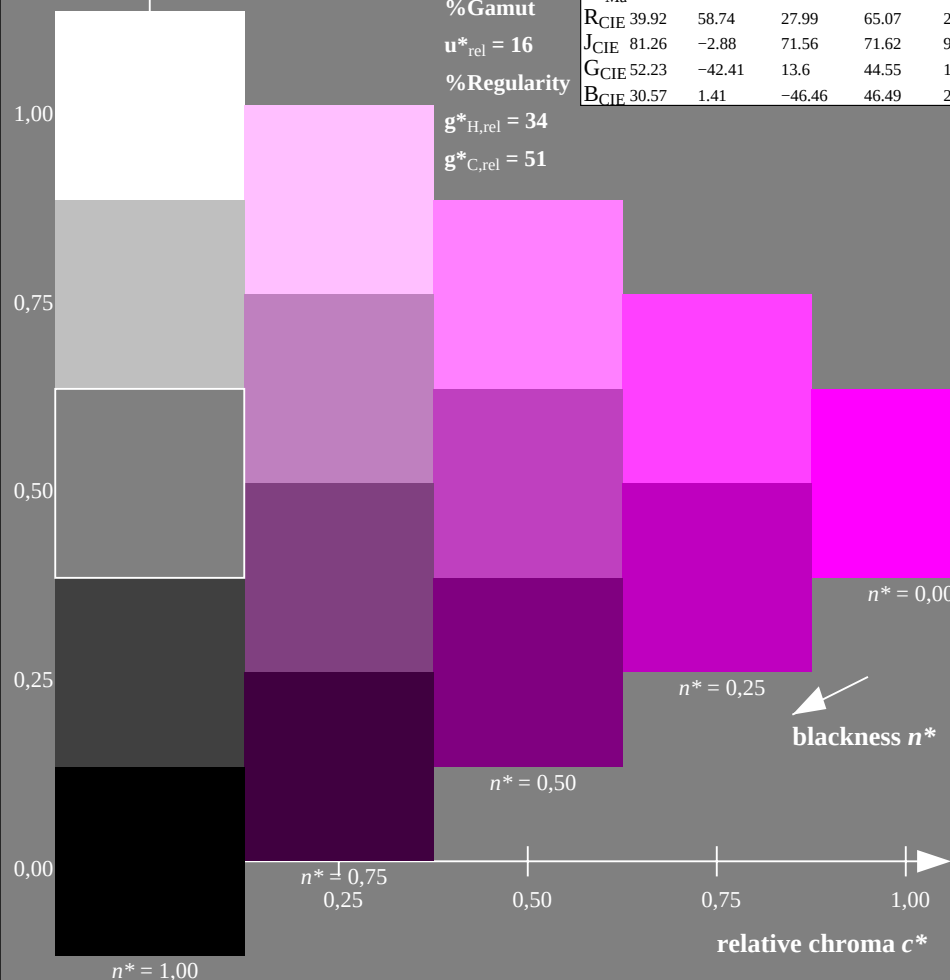
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



IE390-7N, 5 step scales for constant CIELAB hue 326/360 = 0.906 (left)

TUB-test chart IE39 for visual displays, Hue M, Page 48/80
Discrimination of 5 and 16 step colour scales, TLS38a

Output: Colorimetric Television Luminous System TLS70a

for hue $h^* = lab^*h = 326/360 = 0.906$

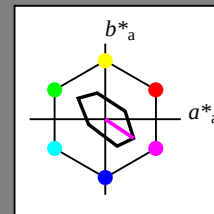
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 79 45 326

ol v^* Ma: 1.0 0.0 1.0

triangle lightness t^*



TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

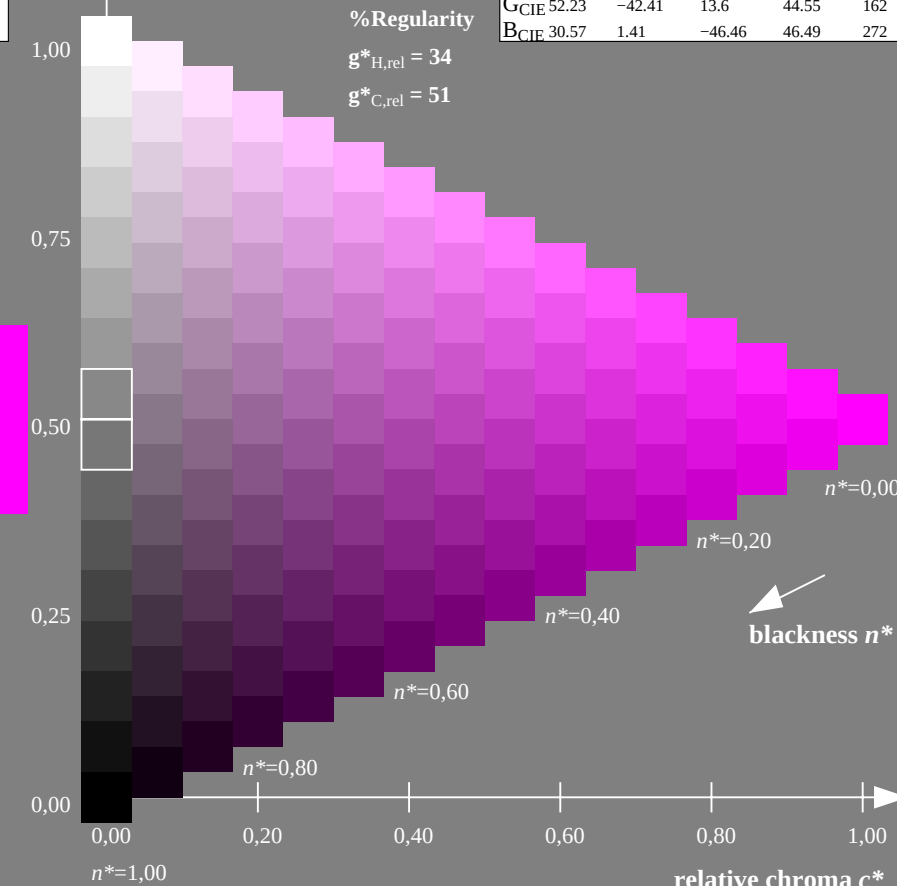
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



16 step scales for constant CIELAB hue 326/360 = 0.906 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

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

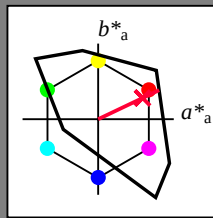
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 52 89 25

olv*Ma: 1.0 0.0 0.21

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS00a

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

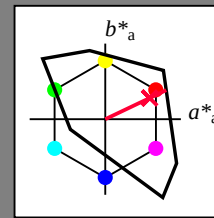
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 52 89 25

olv*Ma: 1.0 0.0 0.21

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

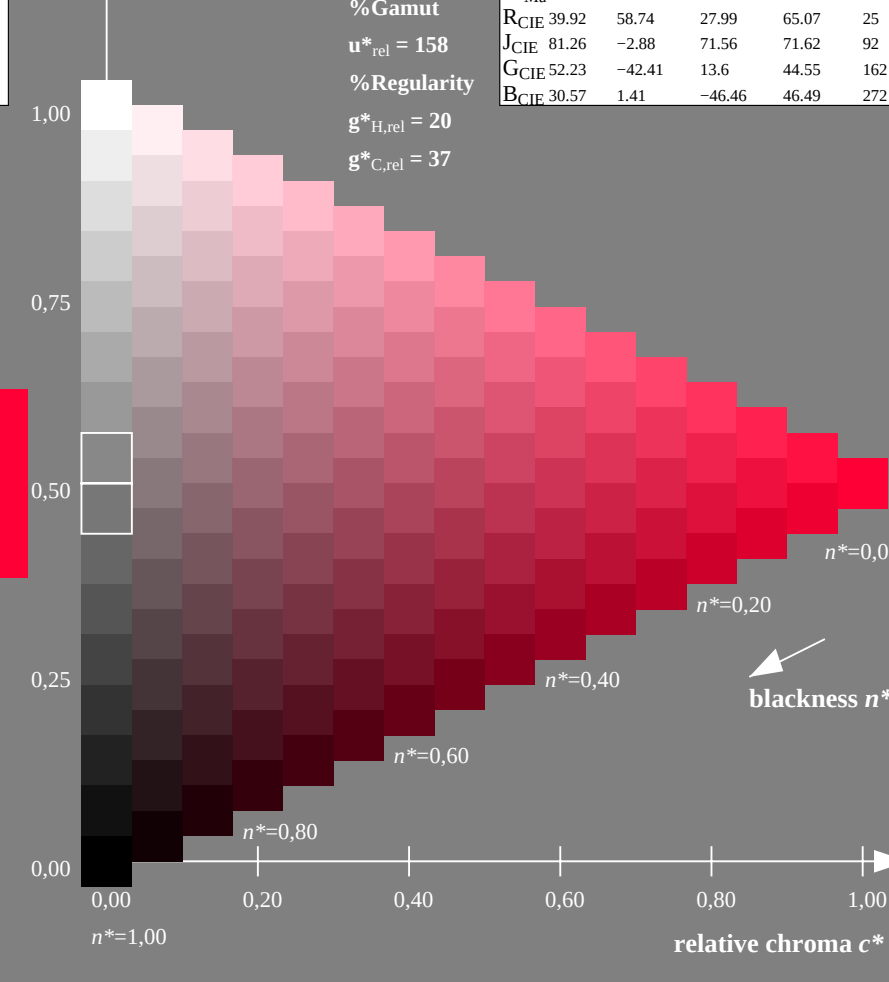
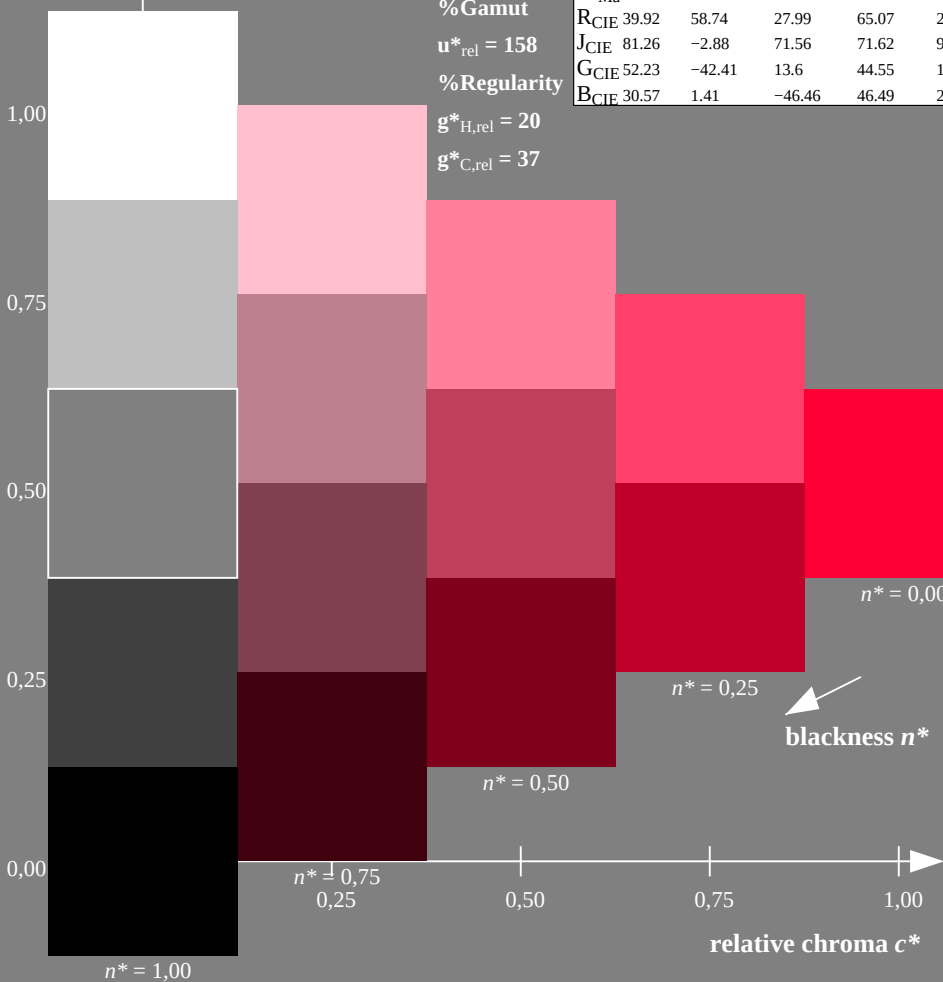
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

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

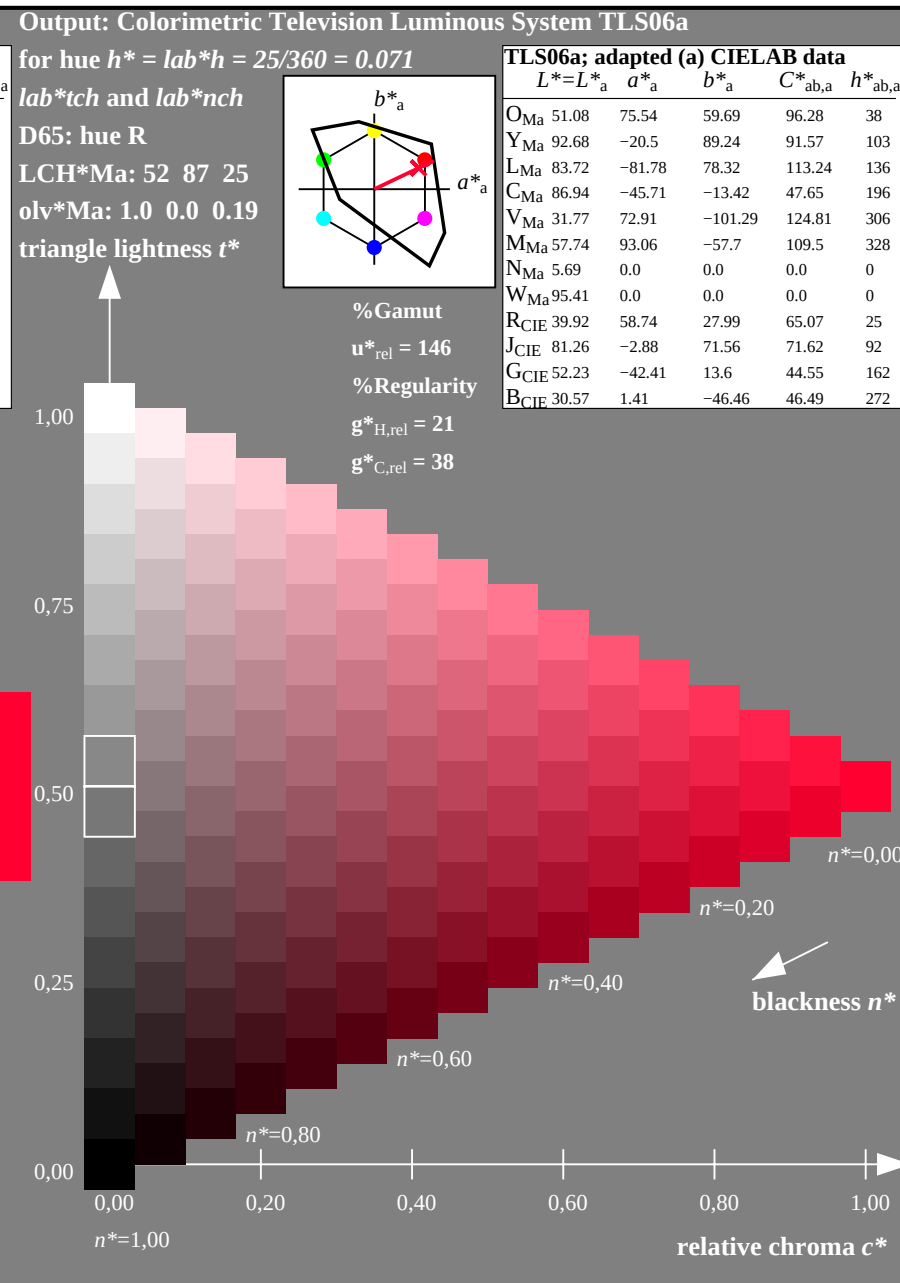
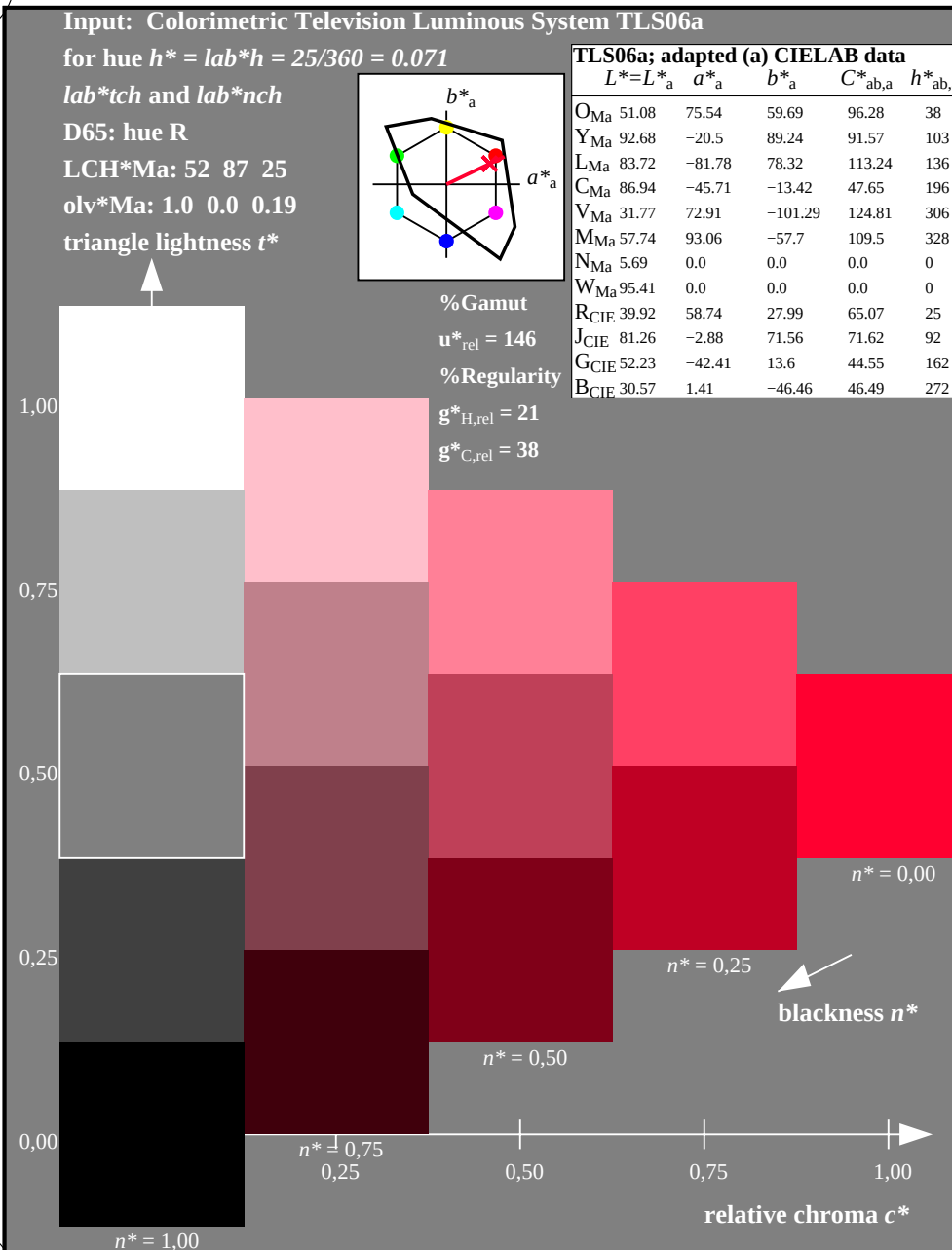
TUB-test chart IE39 for visual displays, Hue R, Page 49/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

See original or copy: <http://web.me.com/klaus.richter/IE39/IE39L0NP.PDF> / .PS
 Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmetrik>

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PS
- application for output of visual display systems

TUB material: code=rha4ta

IE390-7N, 5 step scales for constant CIELAB hue $25/360 = 0.071$ (left)

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

TUB-test chart IE39 for visual displays, Hue R, Page 50/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: *rgb* ($\rightarrow$ *olv**) *setrgbcolor*
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

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

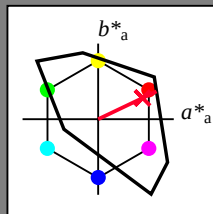
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 53 85 25

olv*Ma: 1.0 0.0 0.17

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

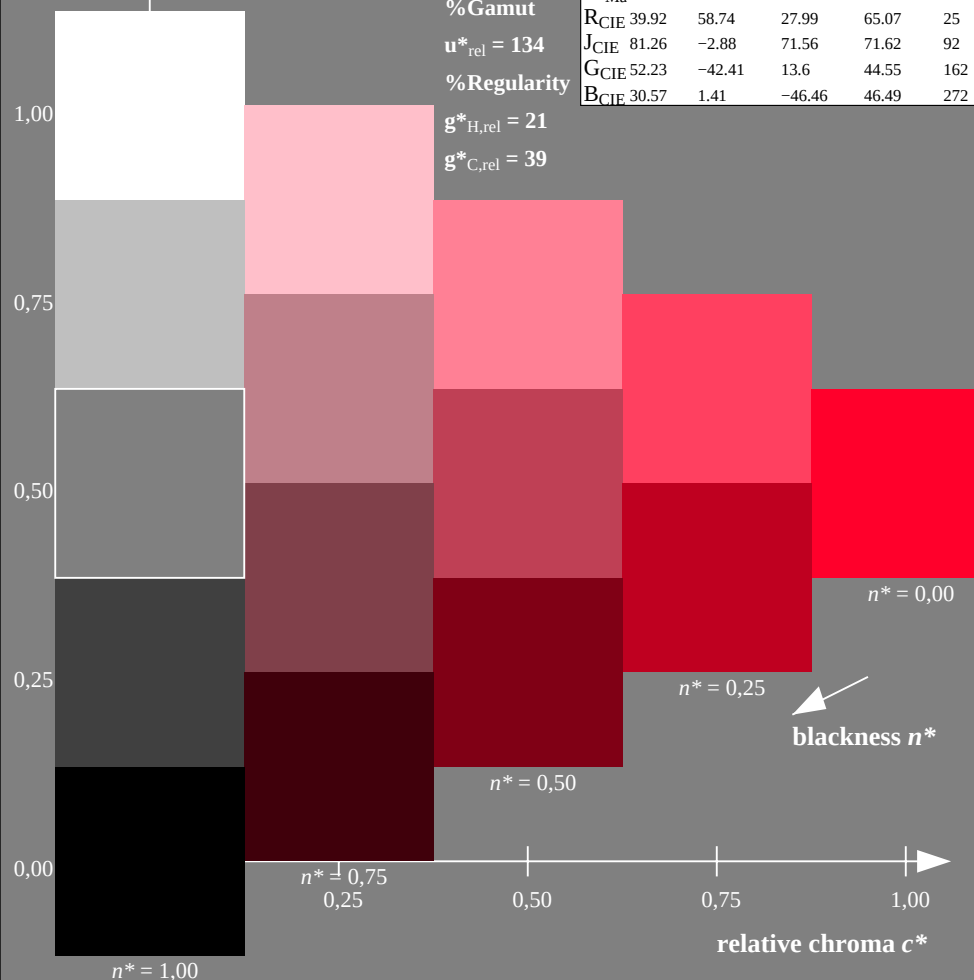
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



Output: Colorimetric Television Luminous System TLS11a

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

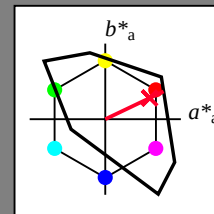
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 53 85 25

olv*Ma: 1.0 0.0 0.17

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

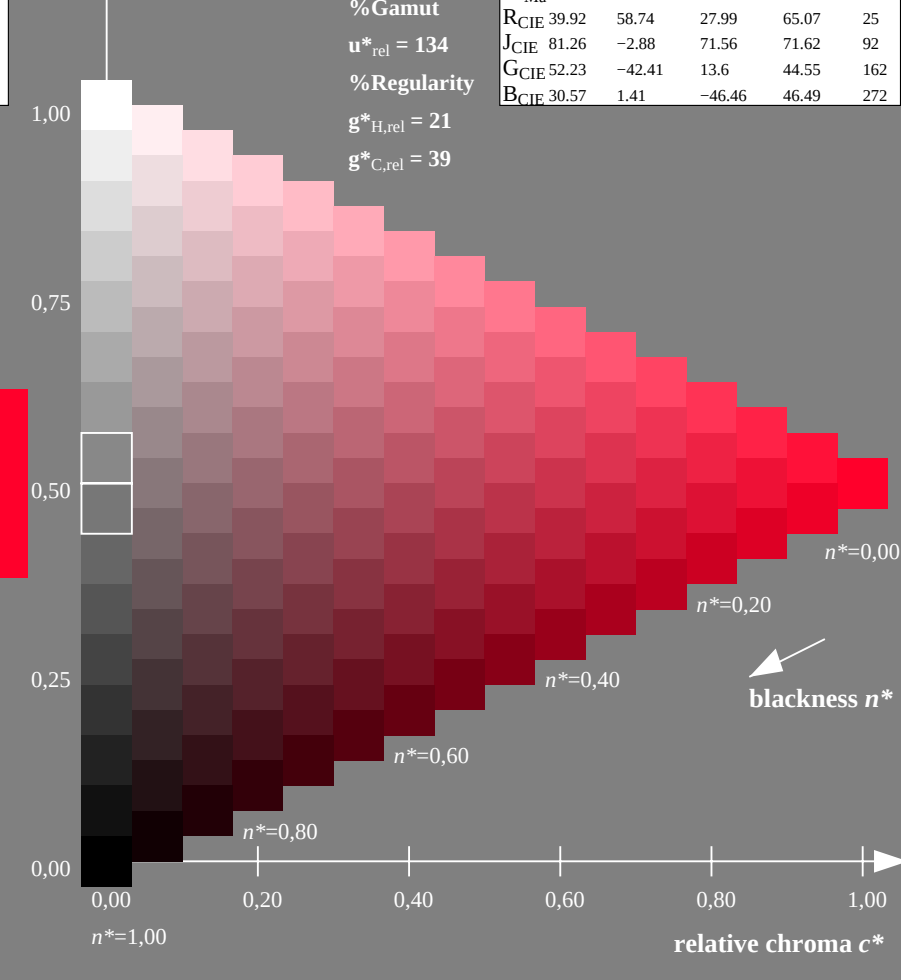
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

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

TUB-test chart IE39 for visual displays, Hue R, Page 51/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

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

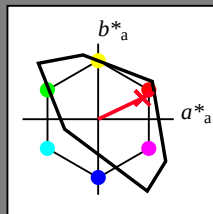
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 54 82 25

olv*Ma: 1.0 0.0 0.14

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS18a

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

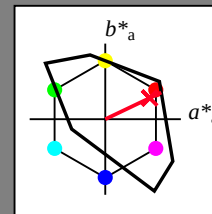
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 54 82 25

olv*Ma: 1.0 0.0 0.14

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

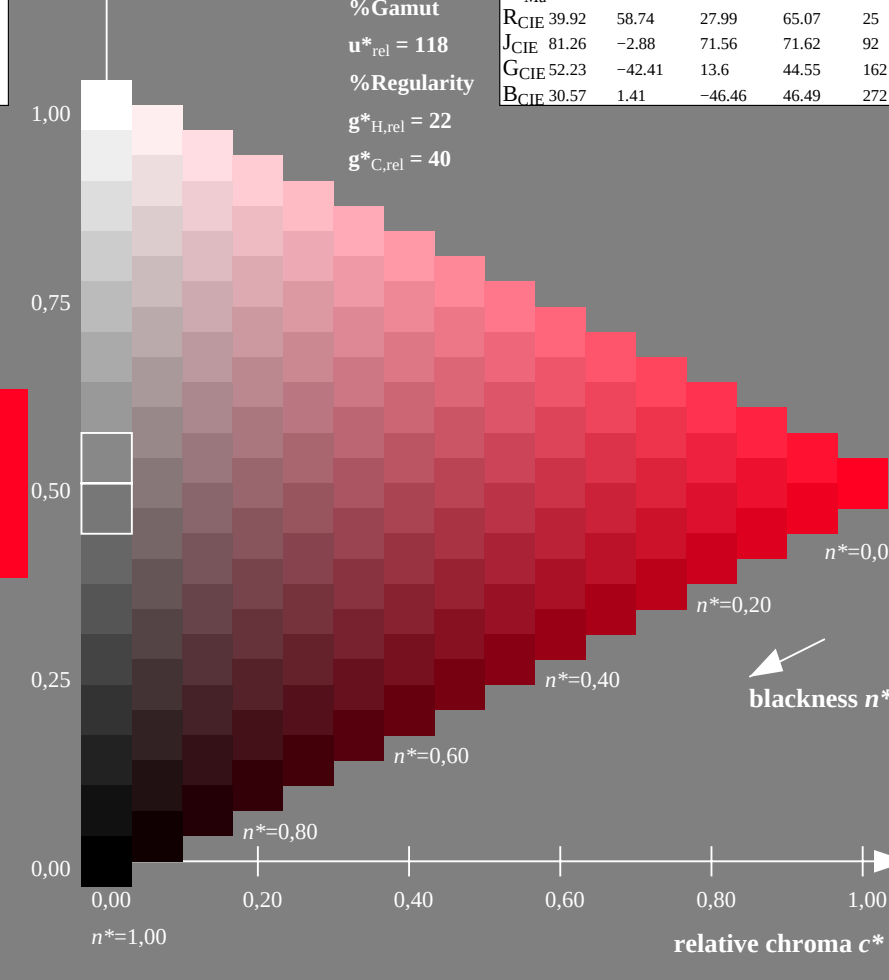
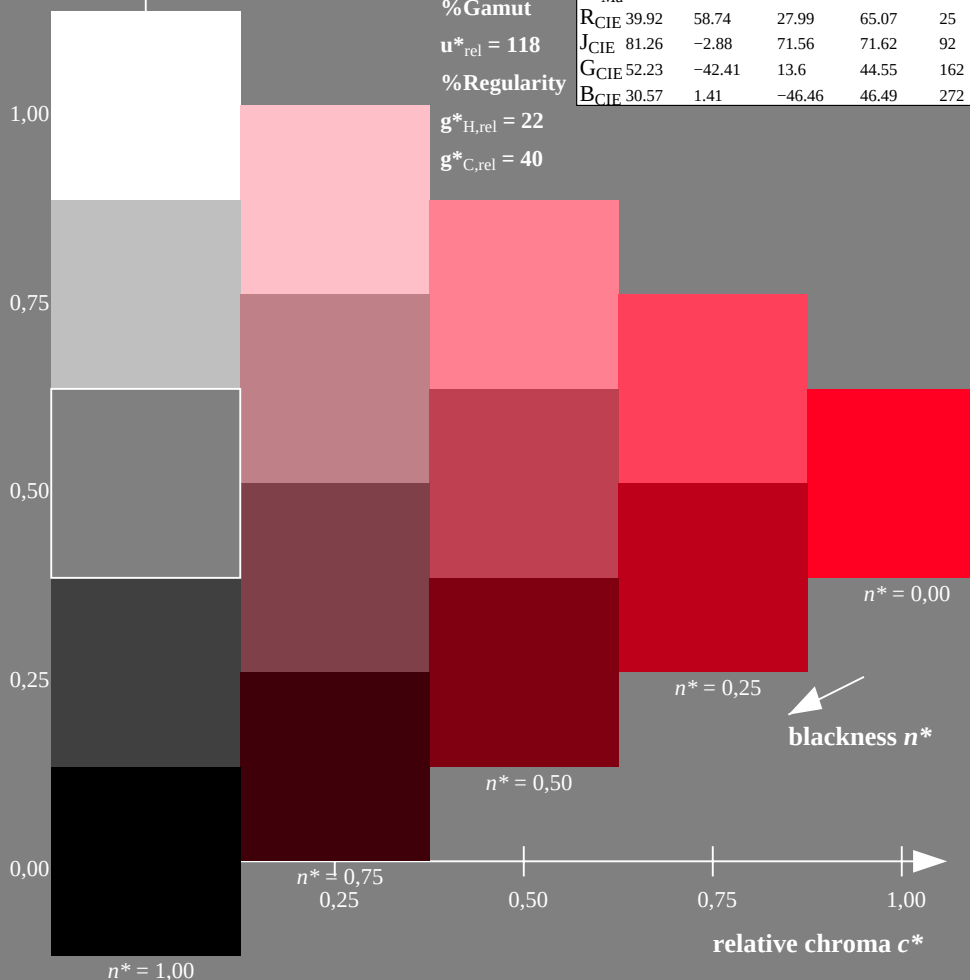
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

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

TUB-test chart IE39 for visual displays, Hue R, Page 52/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

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

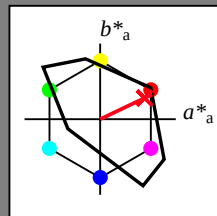
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 55 76 25

olv*Ma: 1.0 0.0 0.1

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

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

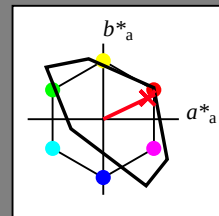
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 55 76 25

olv*Ma: 1.0 0.0 0.1

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

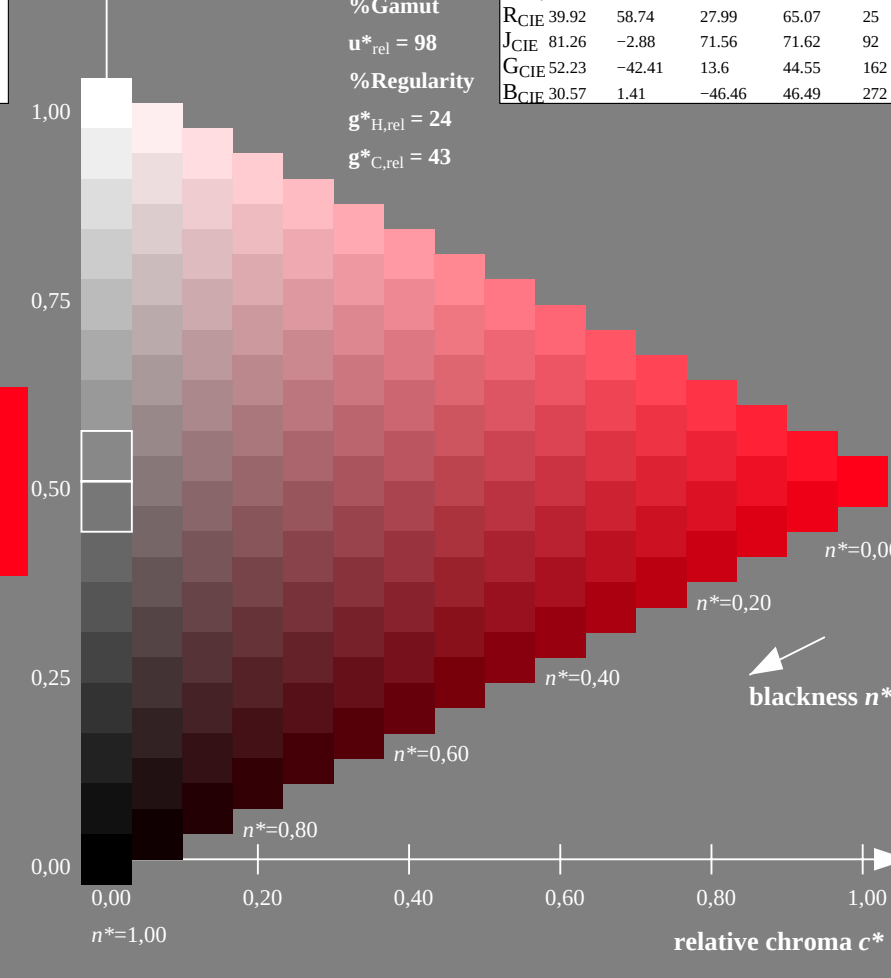
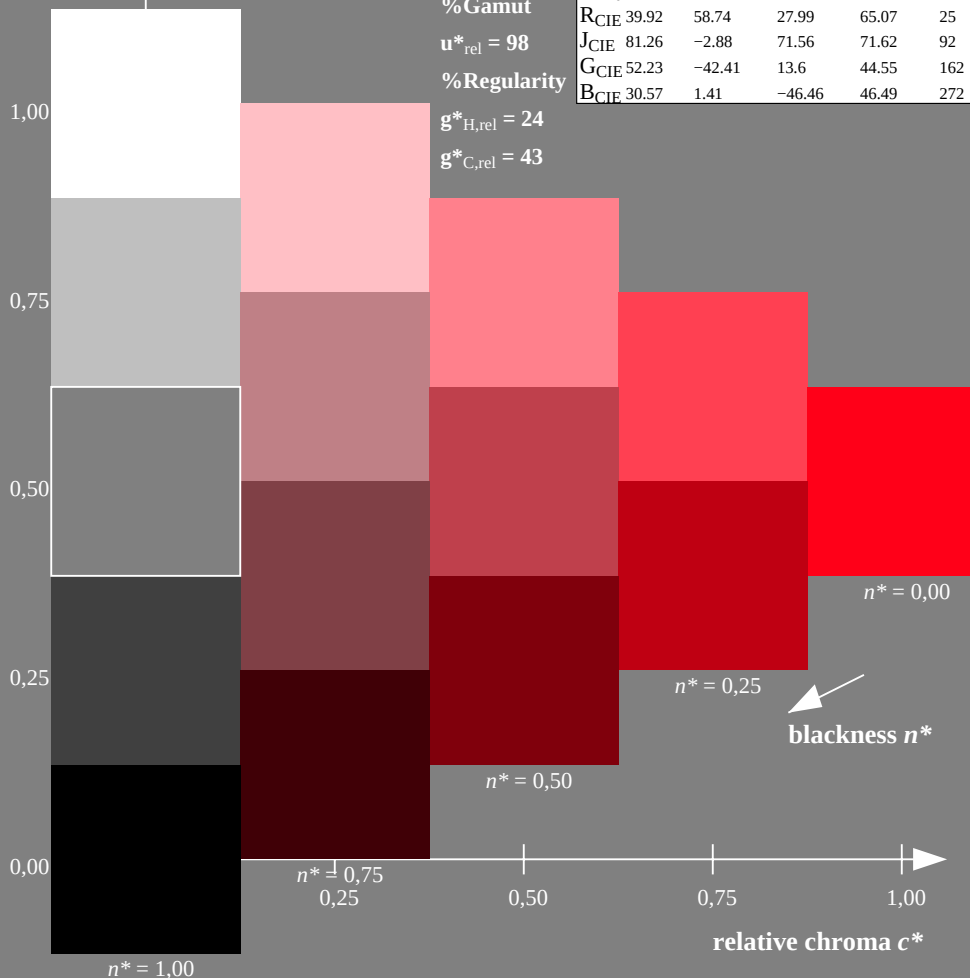
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

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

TUB-test chart IE39 for visual displays, Hue R, Page 53/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

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

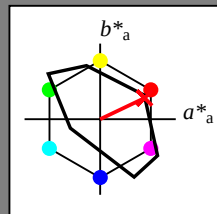
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 59 66 25

olv*Ma: 1.0 0.0 0.04

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	58.77	58.45	31.73	66.51	28
YMa	92.98	-18.1	70.81	73.09	104
LMa	85.11	-68.57	60.02	91.14	139
CMa	87.92	-39.41	-11.86	41.17	197
VMa	46.64	44.93	-76.55	88.77	300
MMa	63.71	75.92	-48.21	89.94	328
NMa	37.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS38a

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

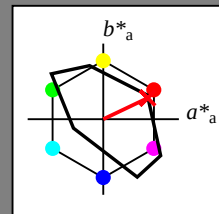
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 59 66 25

olv*Ma: 1.0 0.0 0.04

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	58.77	58.45	31.73	66.51	28
YMa	92.98	-18.1	70.81	73.09	104
LMa	85.11	-68.57	60.02	91.14	139
CMa	87.92	-39.41	-11.86	41.17	197
VMa	46.64	44.93	-76.55	88.77	300
MMa	63.71	75.92	-48.21	89.94	328
NMa	37.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

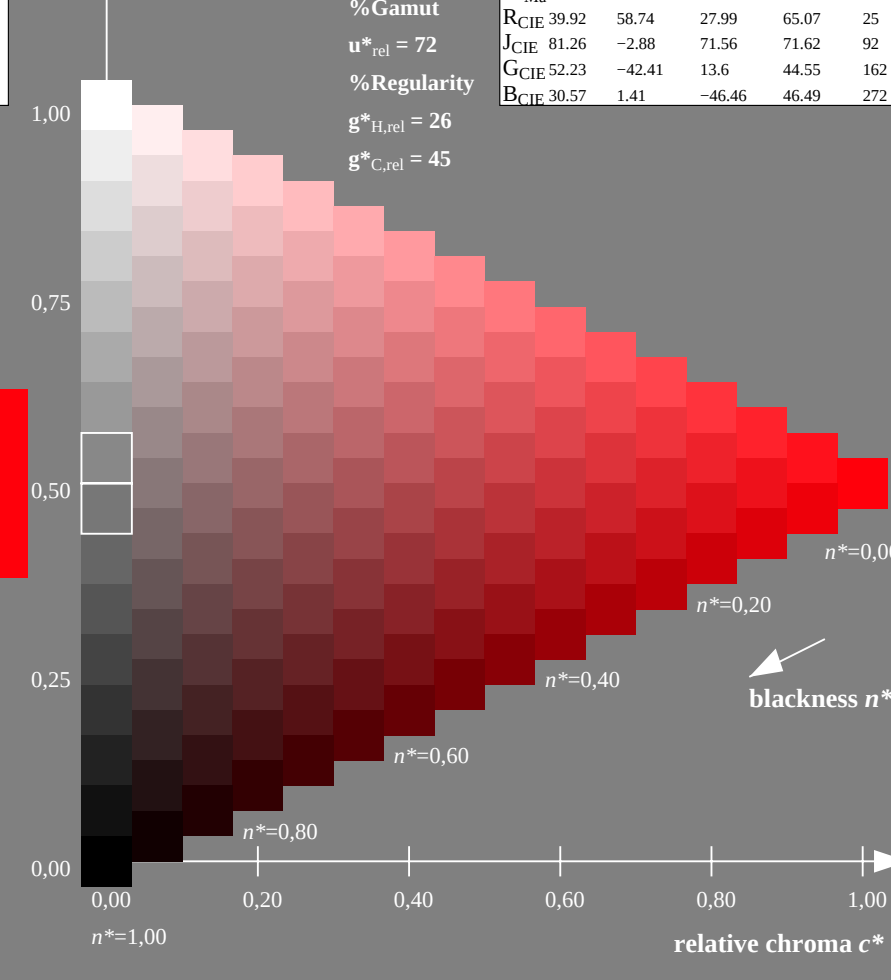
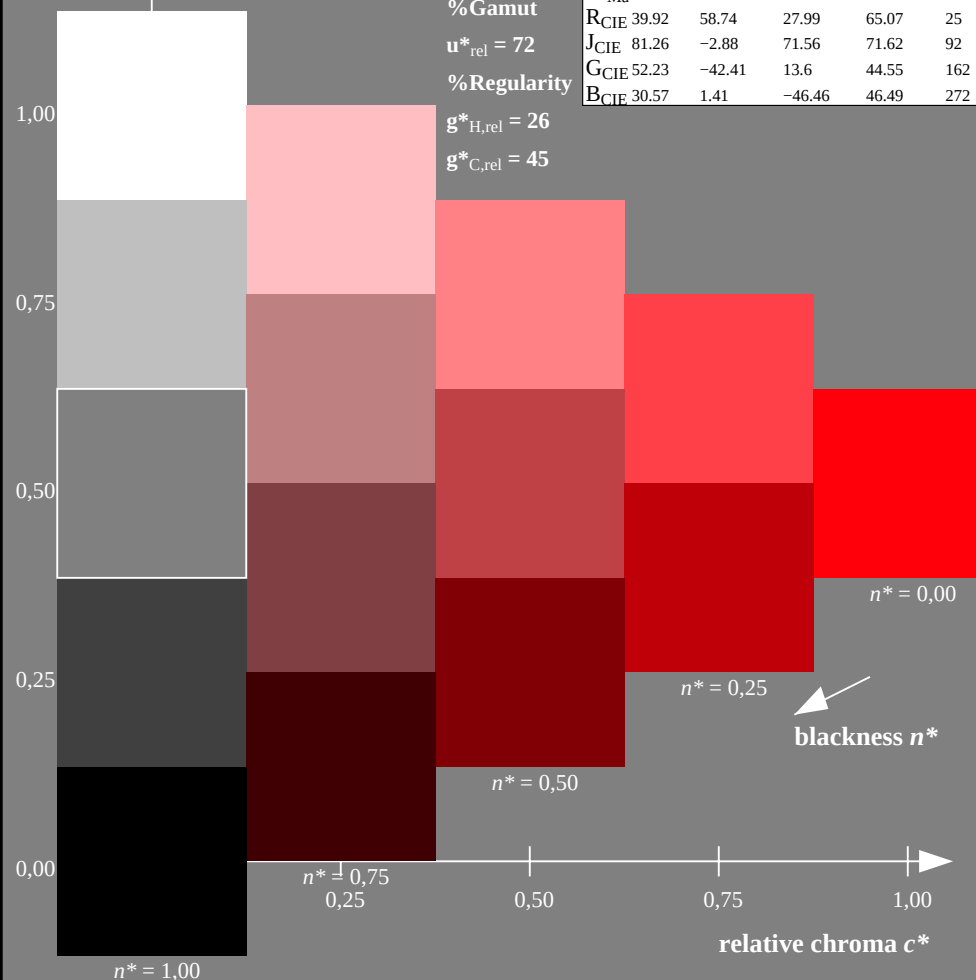
% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$



IE390-7N, 5 step scales for constant CIE LAB hue 25/360 = 0.071 (left)

16 step scales for constant CIE LAB hue 25/360 = 0.071 (right)

TUB-test chart IE39 for visual displays, Hue R, Page 54/80
Discrimination of 5 and 16 step colour scales, TLS52a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

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

lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 66 49 25

ol v^* Ma: 1.0 0.01 0.0

triangle lightness t^*

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

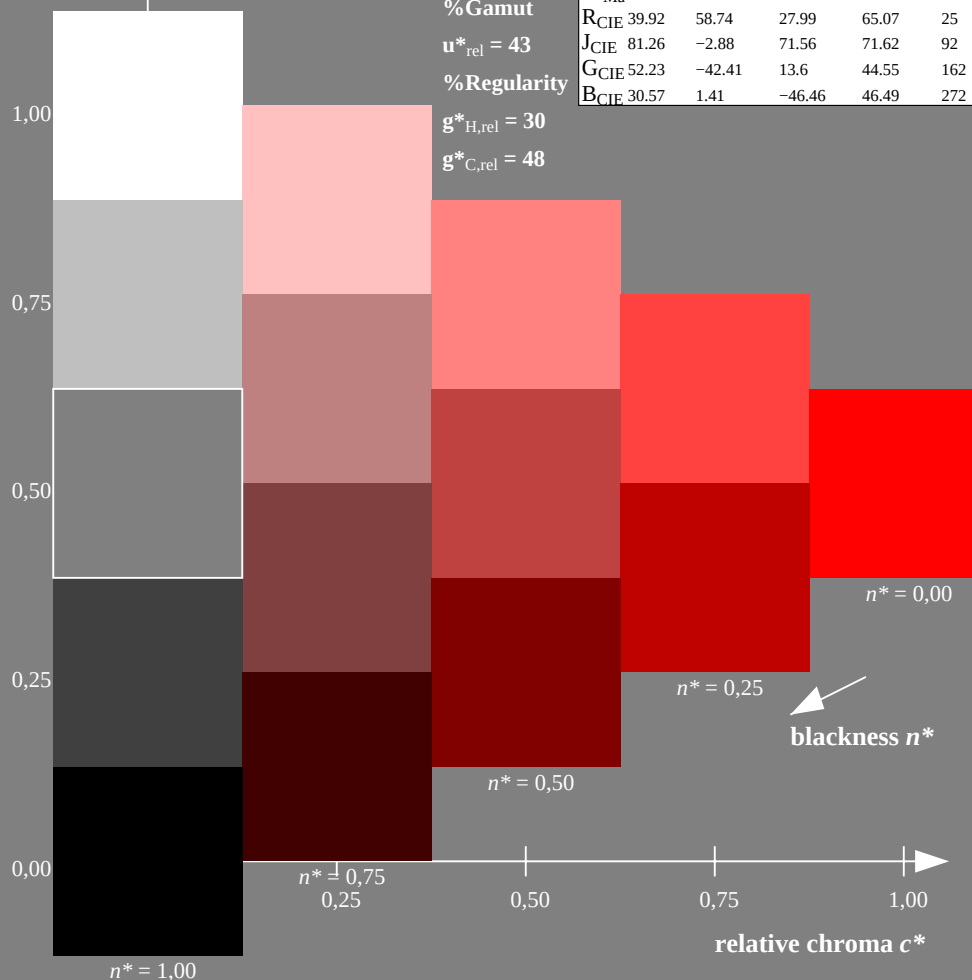
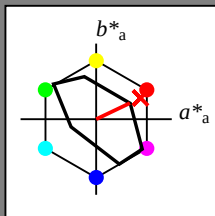
% Gamut

$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

TUB-test chart IE39 for visual displays, Hue R, Page 55/80
Discrimination of 5 and 16 step colour scales, TLS52a

Output: Colorimetric Television Luminous System TLS52a

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

lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 66 49 25

ol v^* Ma: 1.0 0.01 0.0

triangle lightness t^*

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

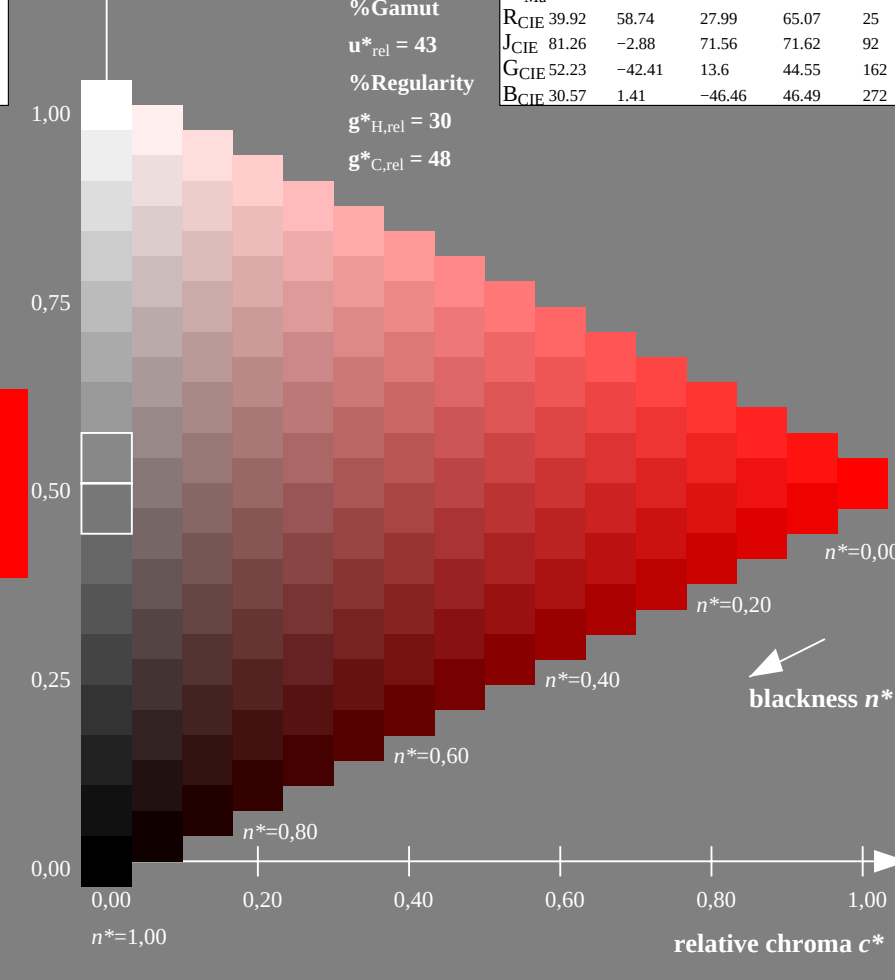
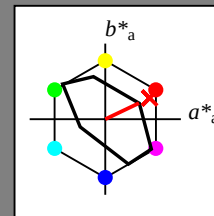
% Gamut

$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$



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

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

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

lab^*tch and lab^*nch

D65: hue R

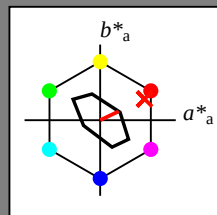
LCH*Ma: 77 27 25

olv*Ma: 1.0 0.05 0.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



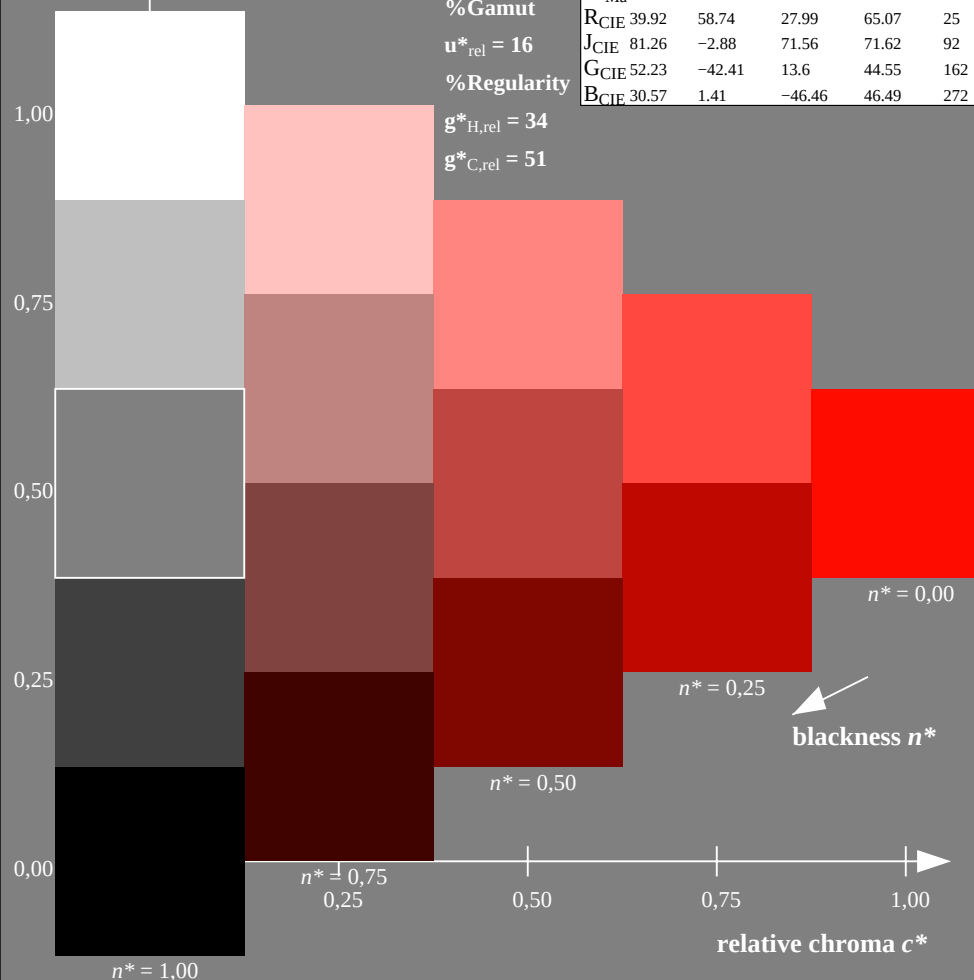
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



IE390-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

TUB-test chart IE39 for visual displays, Hue R, Page 56/80
Discrimination of 5 and 16 step colour scales, TLS52a

Output: Colorimetric Television Luminous System TLS70a

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

lab^*tch and lab^*nch

D65: hue R

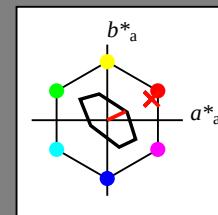
LCH*Ma: 77 27 25

olv*Ma: 1.0 0.05 0.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



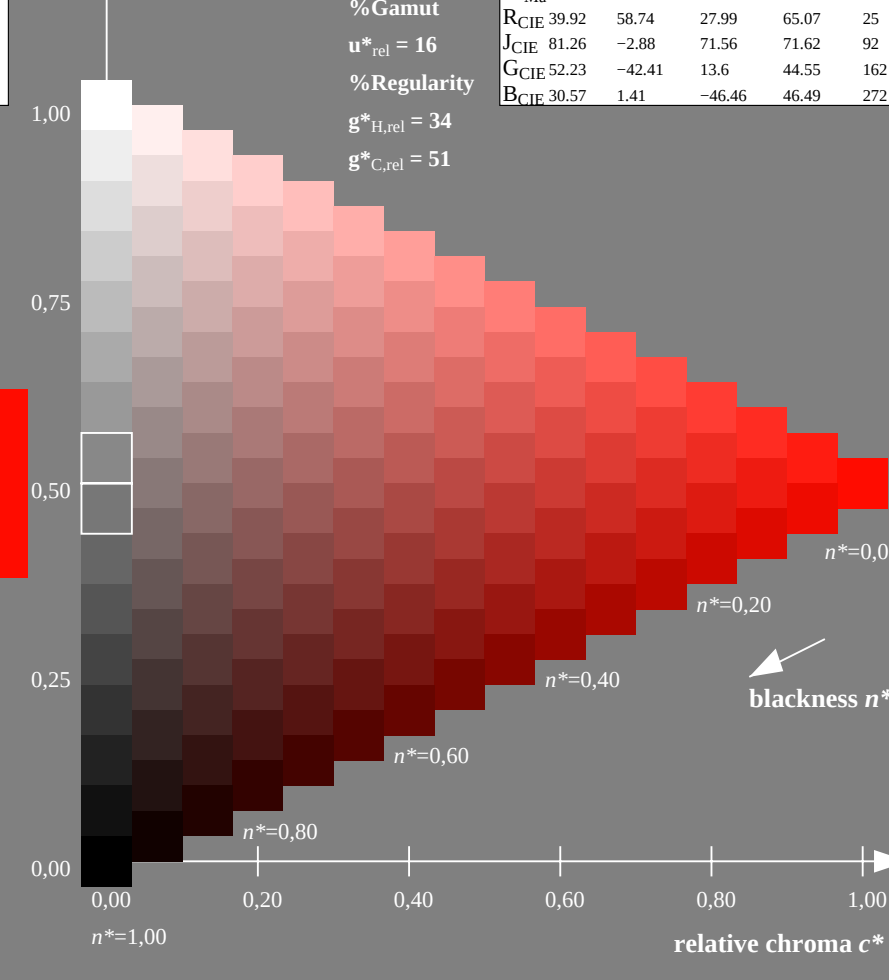
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



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

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

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

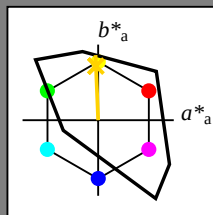
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 86 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	50.5	76.91	64.55	100.41	40
YMa	92.66	-20.67	90.75	93.08	103
LMa	83.62	-82.73	79.9	115.02	136
CMa	86.88	-46.14	-13.53	48.1	196
VMa	30.39	76.06	-103.59	128.52	306
NMa	57.31	94.35	-58.39	110.96	328
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS00a

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

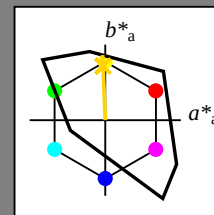
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 86 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

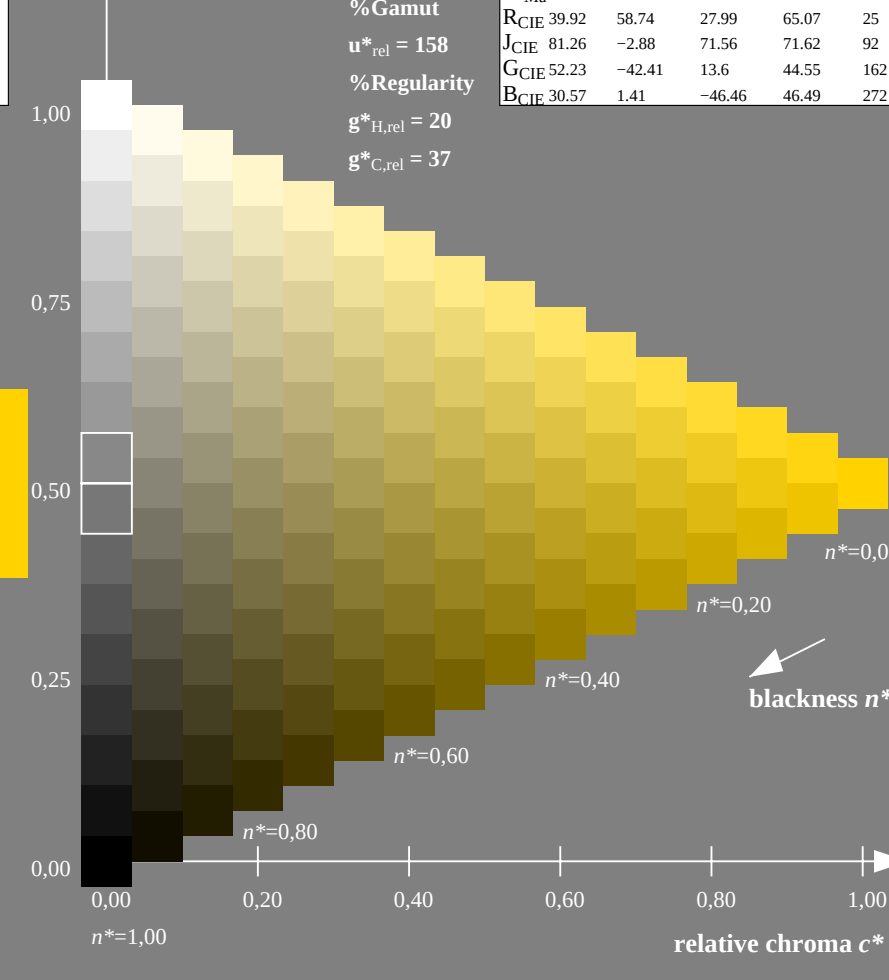
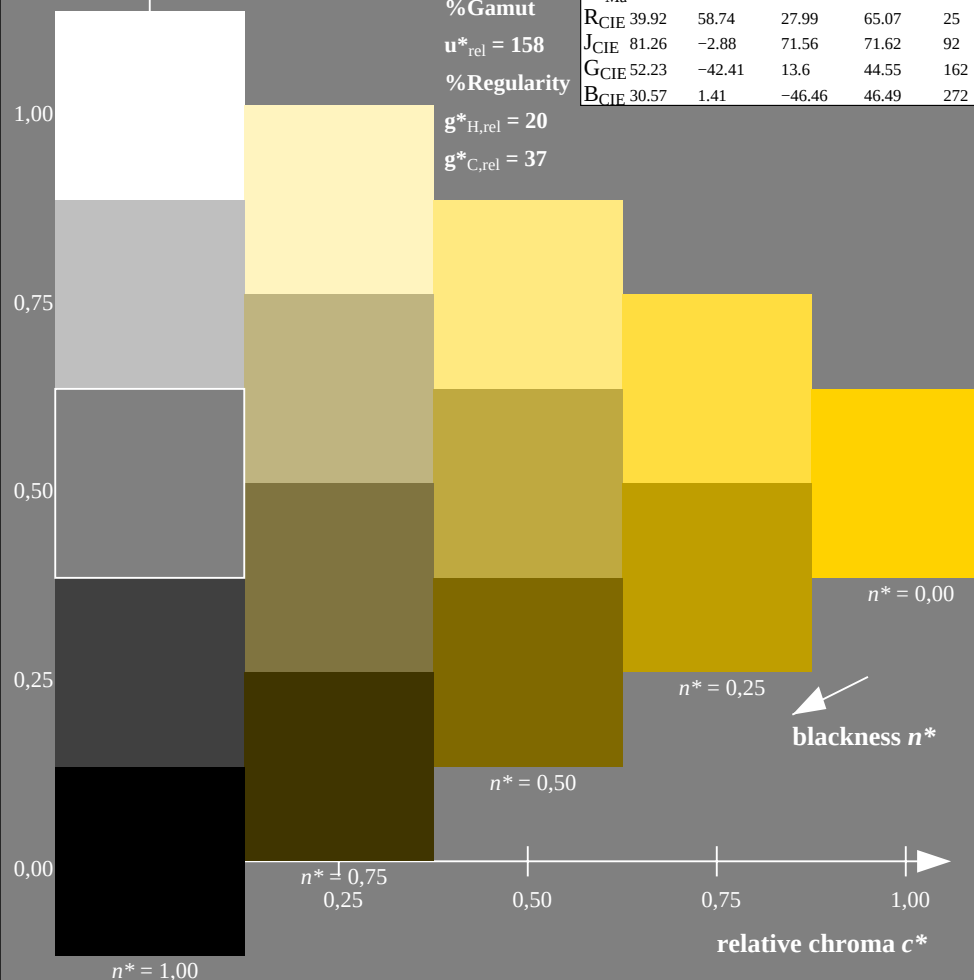
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	50.5	76.91	64.55	100.41	40
YMa	92.66	-20.67	90.75	93.08	103
LMa	83.62	-82.73	79.9	115.02	136
CMa	86.88	-46.14	-13.53	48.1	196
VMa	30.39	76.06	-103.59	128.52	306
NMa	57.31	94.35	-58.39	110.96	328
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 92/360 = 0.256 (left)

16 step scales for constant CIE LAB hue 92/360 = 0.256 (right)

TUB-test chart IE39 for visual displays, Hue J, Page 57/80
Discrimination of 5 and 16 step colour scales, TLS70a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

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

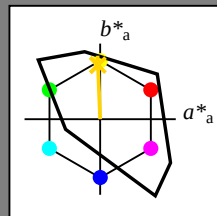
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 84 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS06a

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

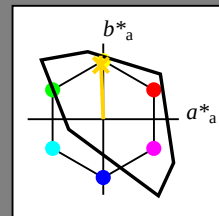
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 84 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

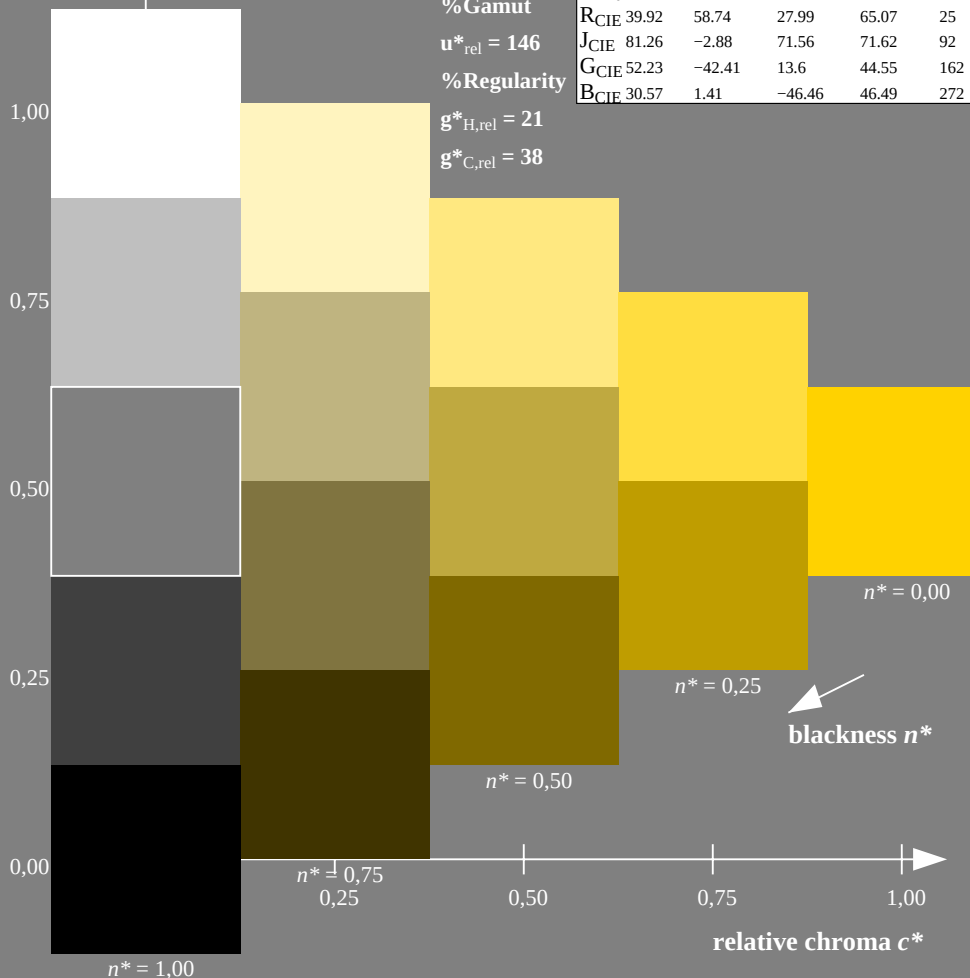
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

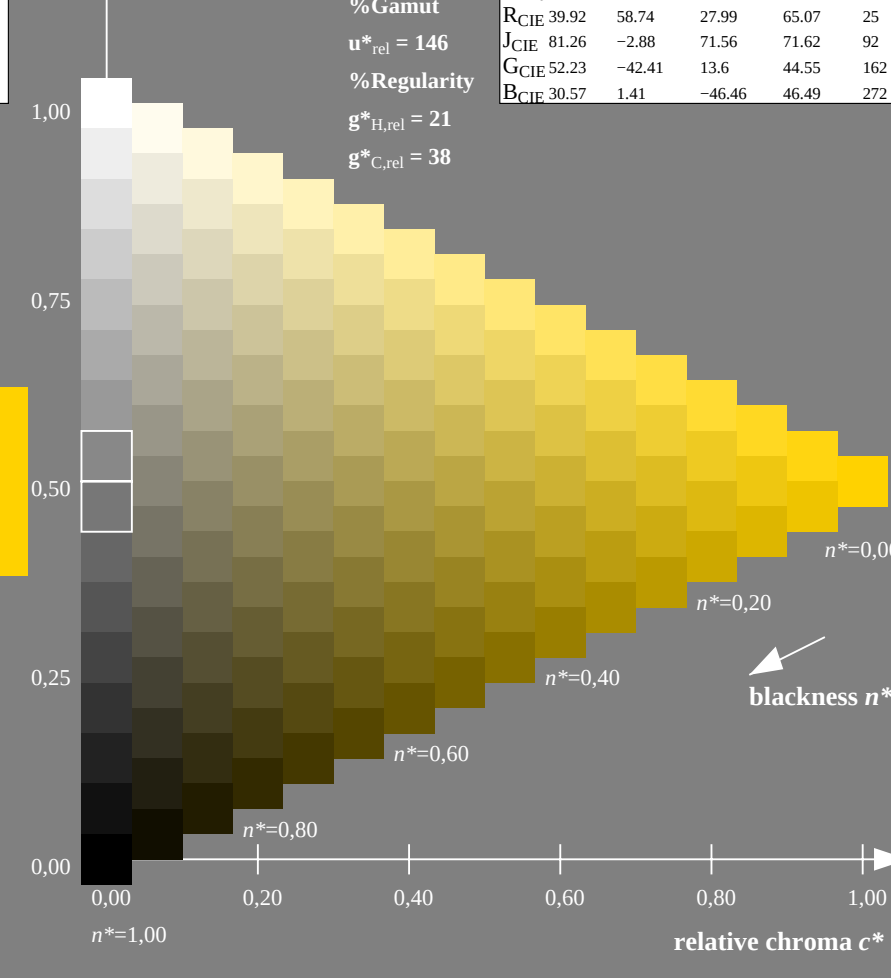
TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 92/360 = 0.256 (left)

TUB-test chart IE39 for visual displays, Hue J, Page 58/80
Discrimination of 5 and 16 step colour scales, TLS70a



16 step scales for constant CIE LAB hue 92/360 = 0.256 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

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

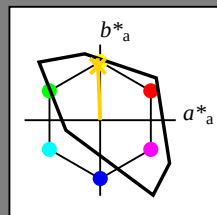
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 82 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS11a

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

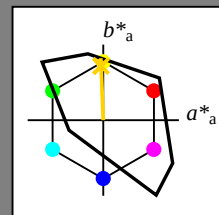
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 82 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

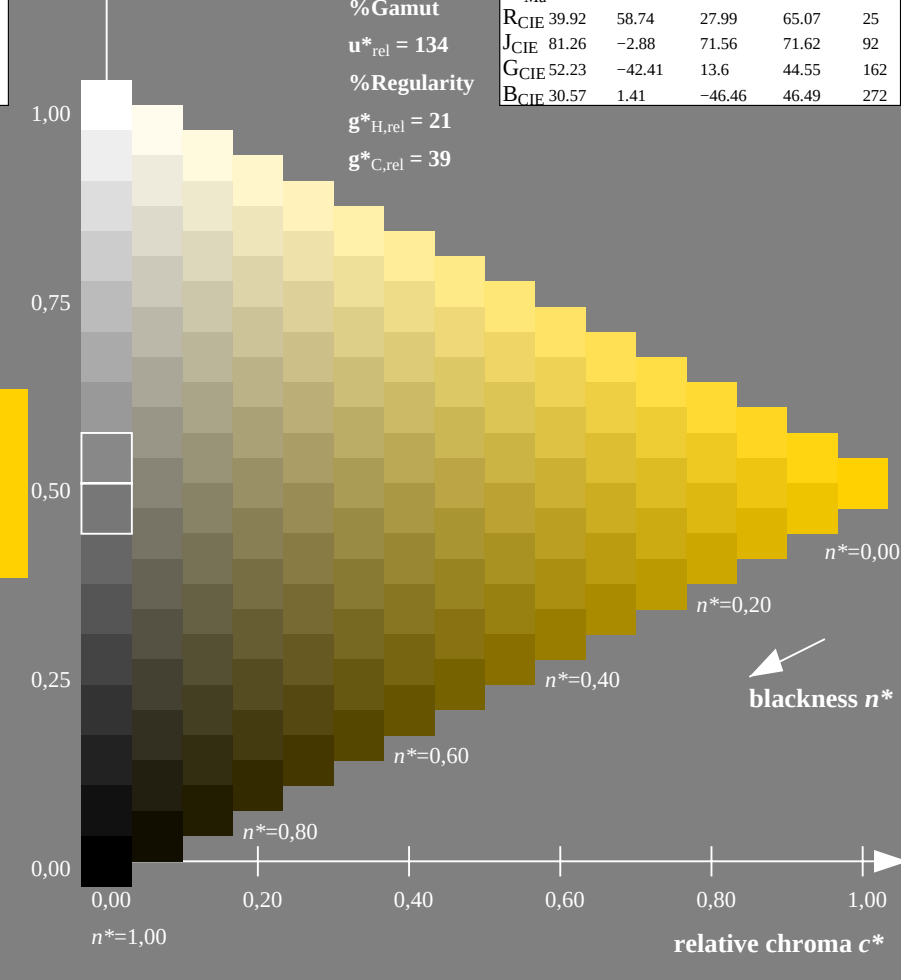
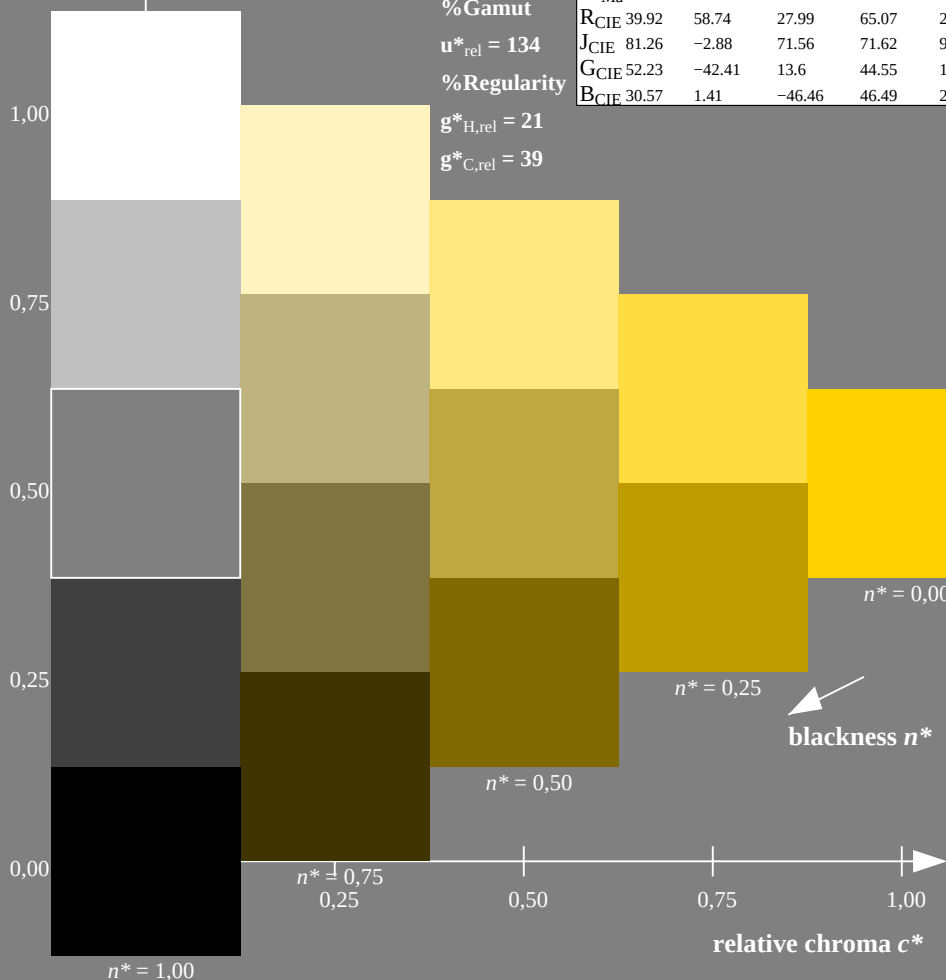
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

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

TUB-test chart IE39 for visual displays, Hue J, Page 59/80
Discrimination of 5 and 16 step colour scales, TLS70a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

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

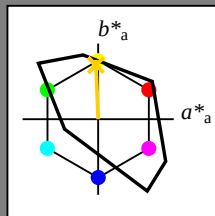
lab*tch and lab*nch

D65: hue J

LCH*Ma: 85 79 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



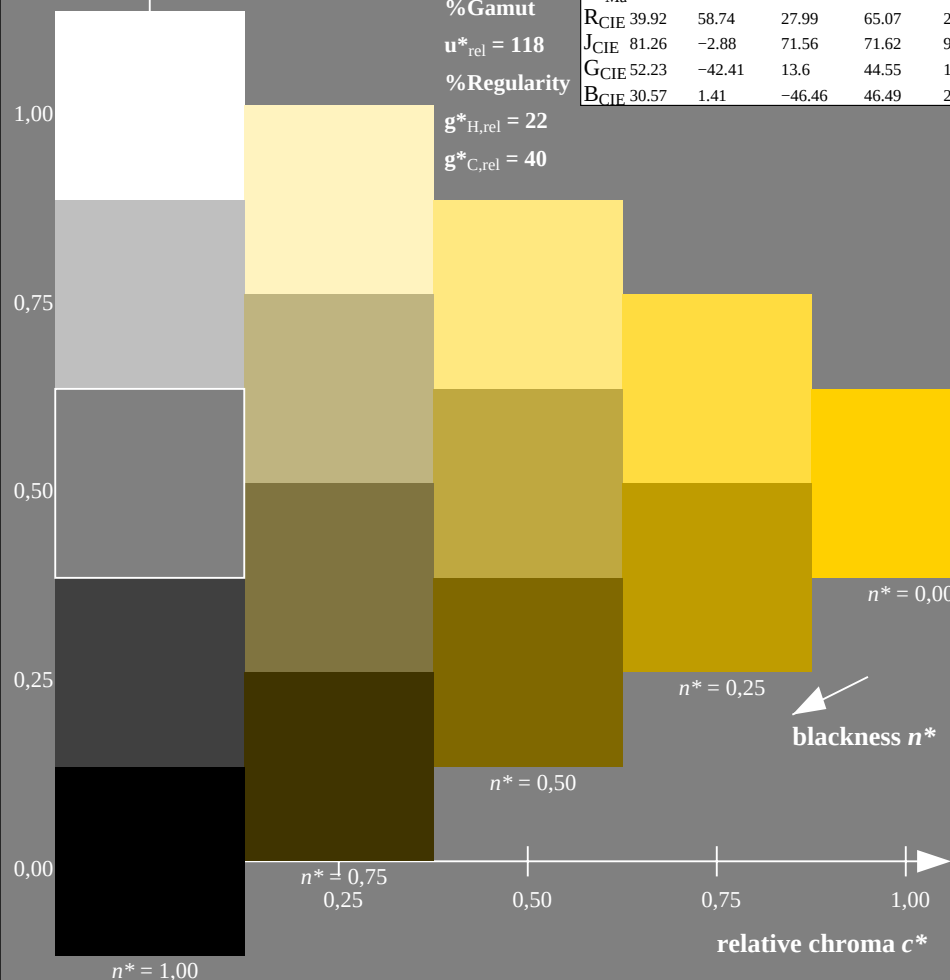
% Gamut

$$\mathbf{u}_{\text{rel}}^* = 118$$

%Regularity

$$g^*_{H,rel} = 22$$
$$g^*_{C,rel} = 40$$

	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

TUB-test chart IE39 for visual displays, Hue J, Page 60/80
Discrimination of 5 and 16 step colour scales, TLS70a

Output: Colorimetric Television Luminous System TLS18a

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

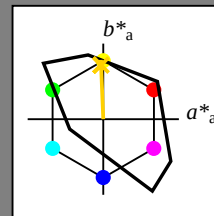
lab*tch and lab*nch

D65: hue J

LCH*Ma: 85 79 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



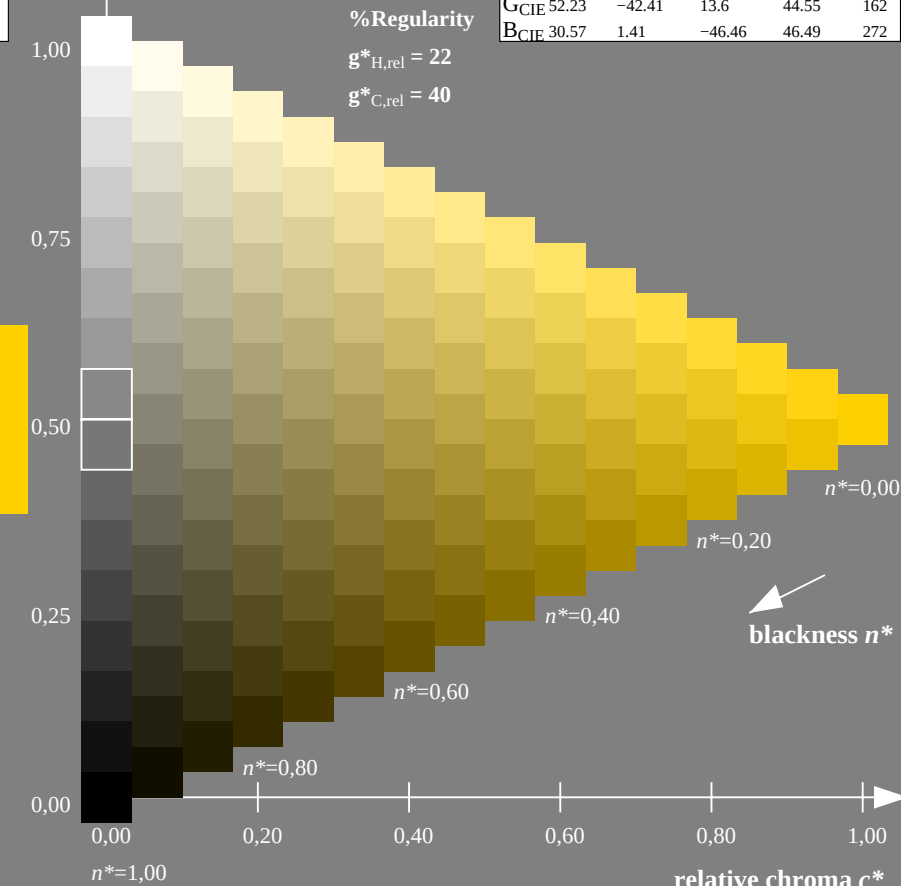
%Gamut

$$\mathbf{u}_{\text{rel}}^* = 118$$

%Regularity

$$g^*_{H,rel} = 22$$
$$g^*_{C,rel} = 40$$

TLS18a; adapted (a) CIELAB data					
	$L^* = L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



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

input: *rqb* ($\rightarrow olv^*$) *setrqbc*olor

output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

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

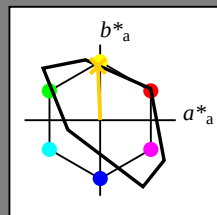
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 86 73 92

olv*Ma: 1.0 0.81 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

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

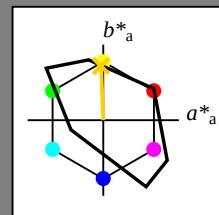
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 86 73 92

olv*Ma: 1.0 0.81 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	54.88	66.84	41.69	78.78	32
YMa	92.82	-19.38	79.81	82.13	104
LMa	84.37	-75.38	68.76	102.04	138
CMa	87.4	-42.71	-12.69	44.57	197
VMa	39.7	56.66	-88.01	104.68	303
MMa	60.64	84.61	-53.07	99.88	328
NMa	26.85	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

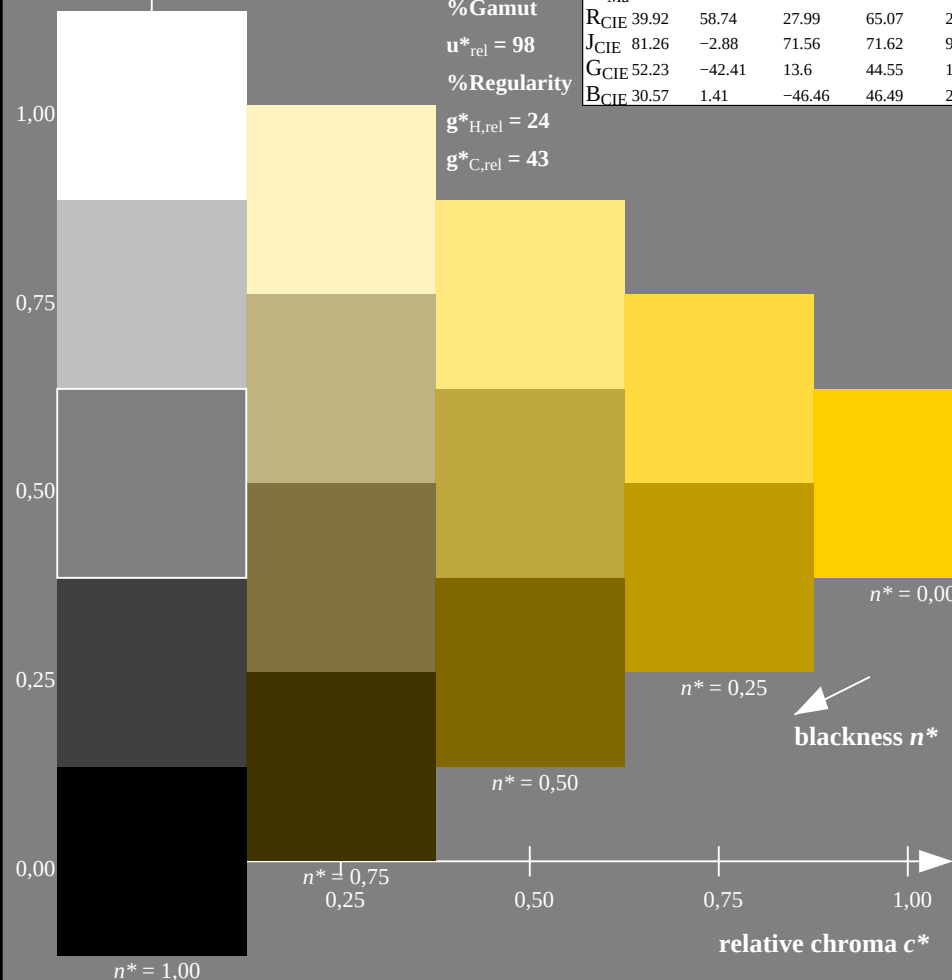
% Gamut

$u^*_{rel} = 98$

% Regularity

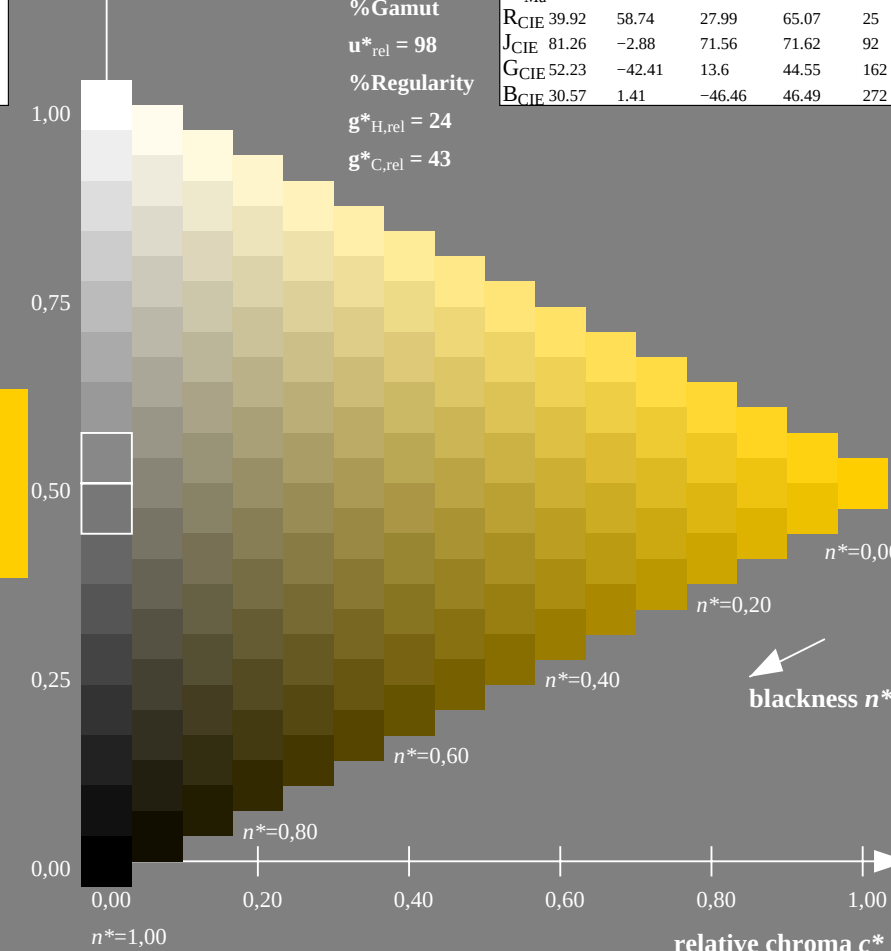
$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$



IE390-7N, 5 step scales for constant CIE LAB hue 92/360 = 0.256 (left)

TUB-test chart IE39 for visual displays, Hue J, Page 61/80
Discrimination of 5 and 16 step colour scales, TLS70a



16 step scales for constant CIE LAB hue 92/360 = 0.256 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

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

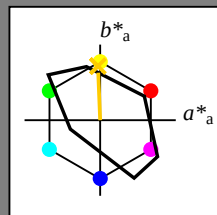
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 86 63 92

olv*Ma: 1.0 0.8 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS38a

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

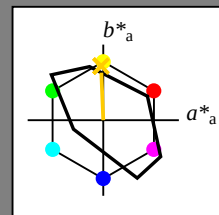
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 86 63 92

olv*Ma: 1.0 0.8 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

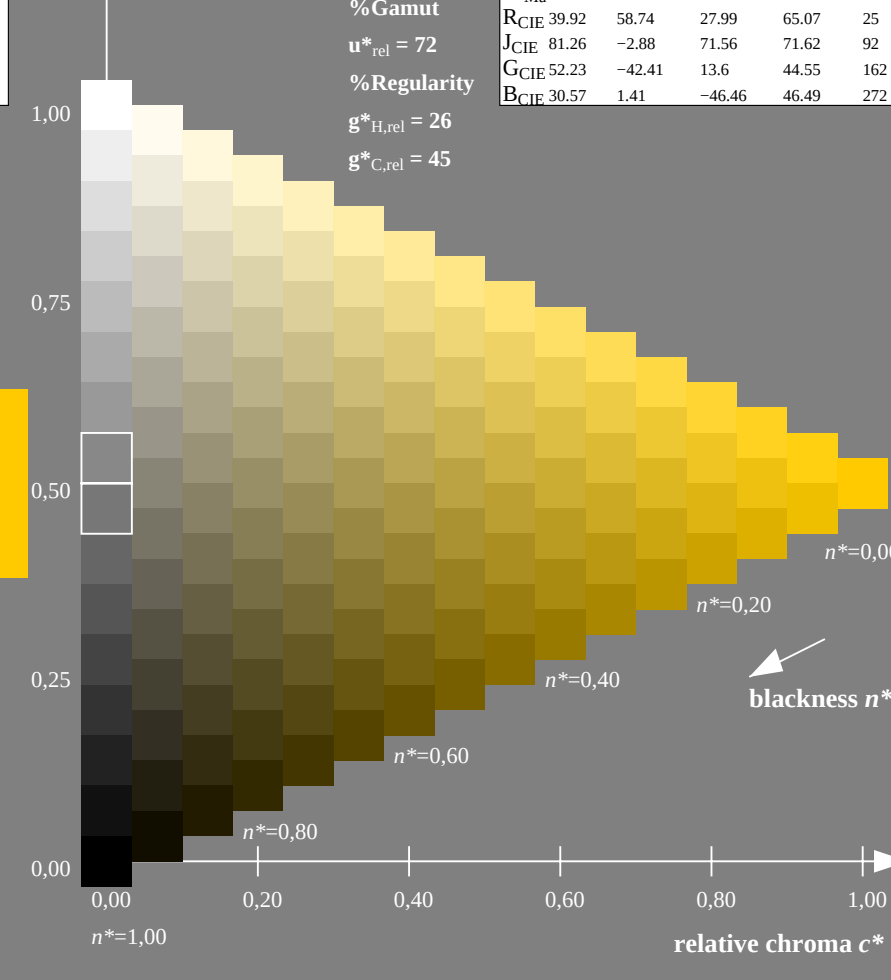
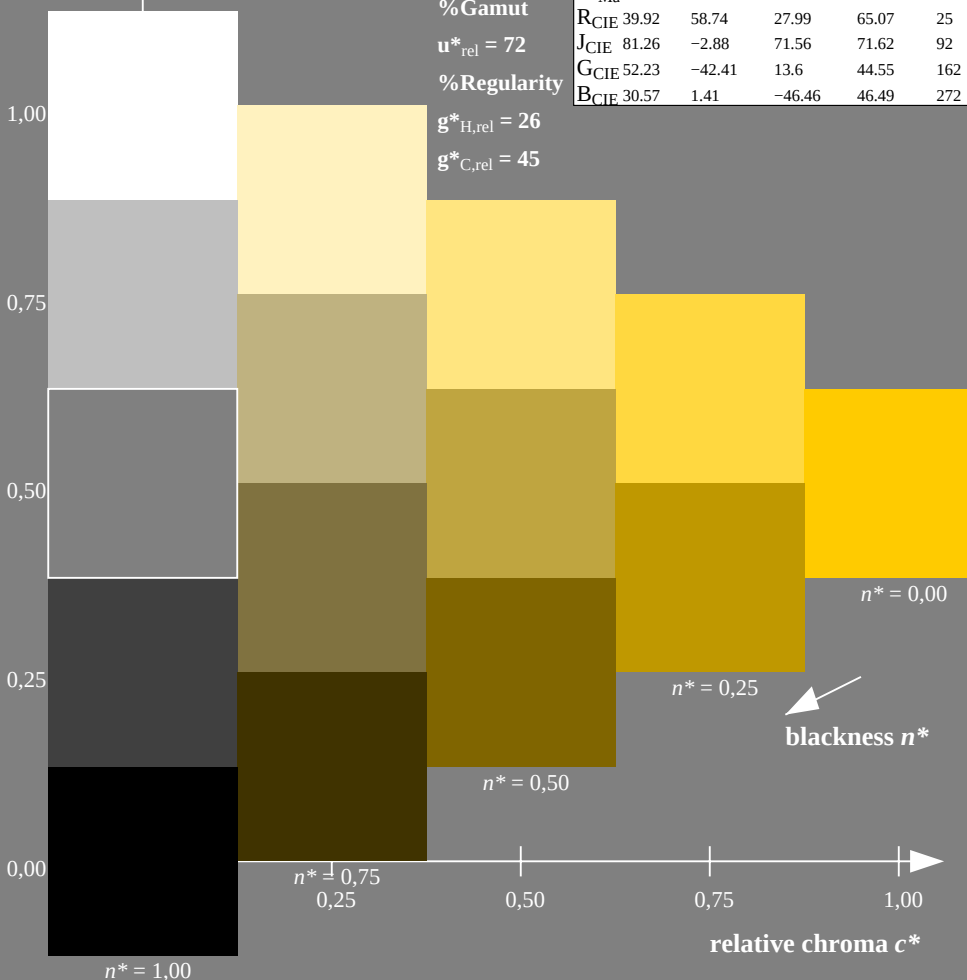
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

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

TUB-test chart IE39 for visual displays, Hue J, Page 62/80
Discrimination of 5 and 16 step colour scales, TLS70a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

See original or copy: <http://web.me.com/klaus.richter/IE39/IE39L0NP.PDF> / .PS
Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmantik>

Input: Colorimetric Television Luminous System TLS52a

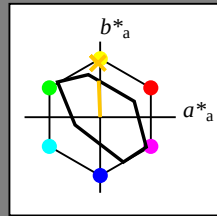
for hue $h^* = lab^*h = 92/360 = 0.256$

*lab*tch* and *lab*nch*

D65: hue J

LCH*Ma: 87 48 92

olv*Ma: 1.0 0.77 0.0

triangle lightness t^* 

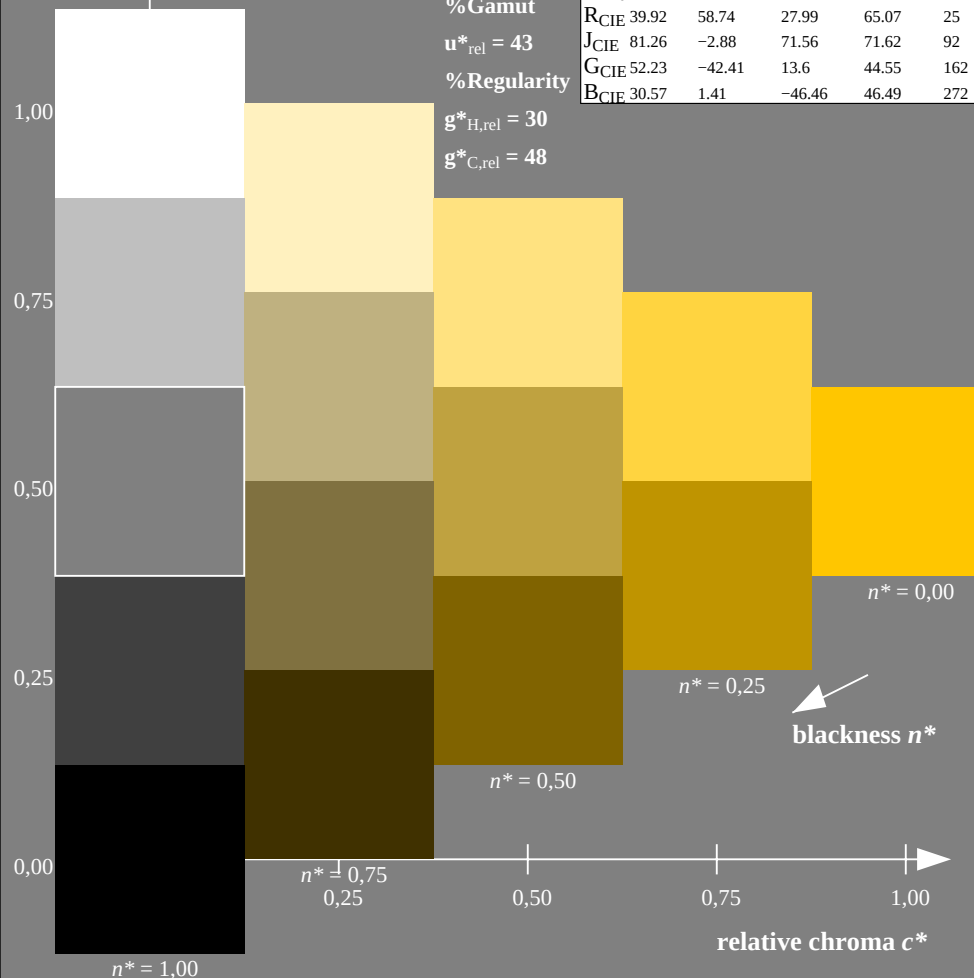
%Gamut

$$\mathbf{u}_{\text{rel}}^* = 43$$

%Regularity

$$g^*_{H,rel} = 30$$
$$g^*_{C,rel} = 48$$

	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

TUB-test chart IE39 for visual displays, Hue J, Page 63/80
Discrimination of 5 and 16 step colour scales, TLS70a

Output: Colorimetric Television Luminous System TLS52a

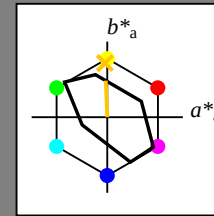
for hue $h^* = lab^*h = 92/360 = 0.256$

lab*tch and lab*nch

D65: hue J

LCH*Ma: 87 48 92

olv*Ma: 1.0 0.77 0.0

triangle lightness t^* 

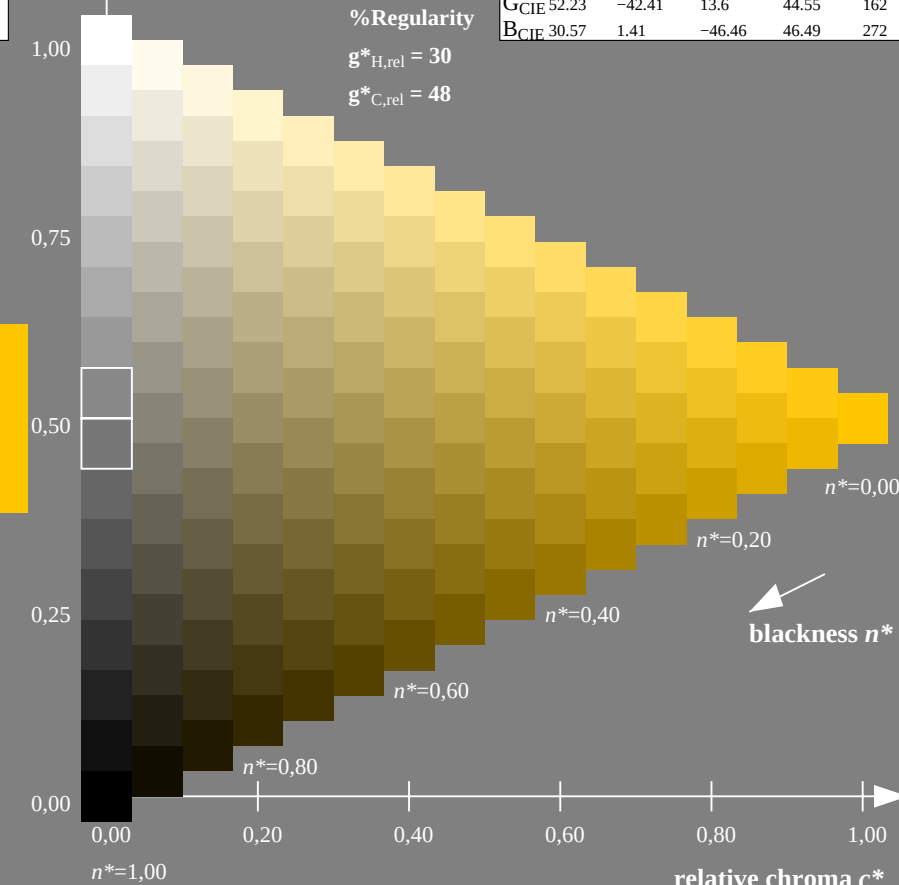
%Gamut

$$\mathbf{u}_{\text{rel}}^* = 43$$

%Regularity

$$g_{H,rel}^* = 30$$
$$g^*_{C,rel} = 48$$

TLS52a; adapted (a) CIELAB data					
	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	h^*_{ab}
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
Br _{CIE}	30.57	1.41	-46.46	46.49	272

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

input: *rgb* ($\rightarrow$ *rgb**) *setrgbcolor*
output: no change compared to input

TUB registration: 20090901-IE39/IE39L0NP.PDF /.PS
- application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS70a

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

lab^*tch and lab^*nch

D65: hue J

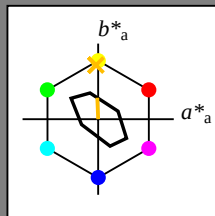
LCH*Ma: 89 28 92

ol v^* Ma: 1.0 0.74 0.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



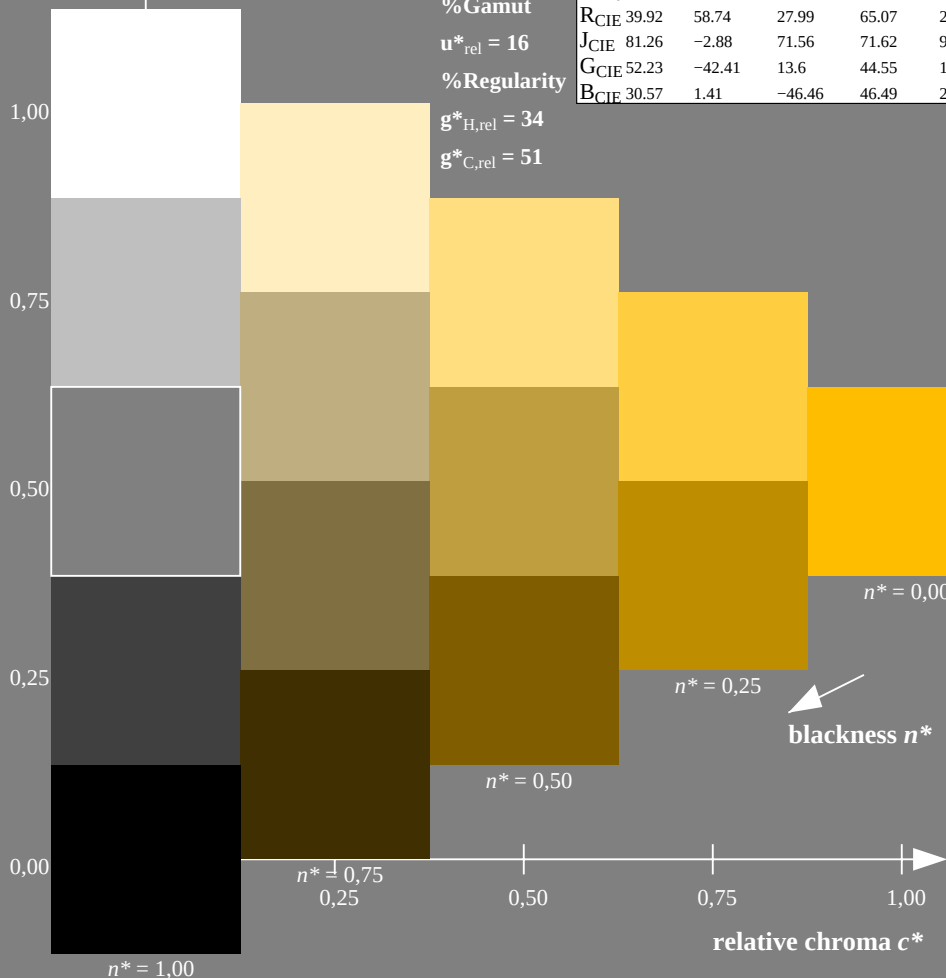
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



IE390-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

TUB-test chart IE39 for visual displays, Hue J, Page 64/80
Discrimination of 5 and 16 step colour scales, TLS70a

Output: Colorimetric Television Luminous System TLS70a

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

lab^*tch and lab^*nch

D65: hue J

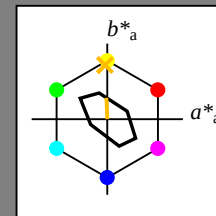
LCH*Ma: 89 28 92

ol v^* Ma: 1.0 0.74 0.0

triangle lightness t^*

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



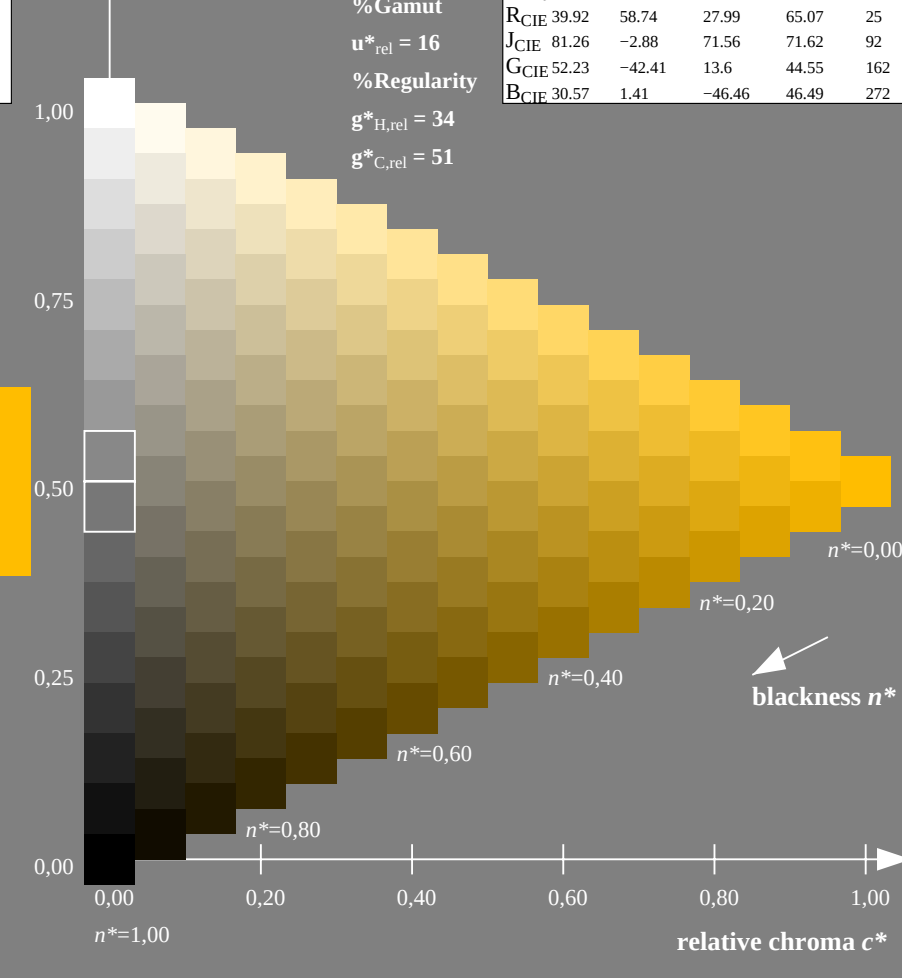
% Gamut

$u^*_{rel} = 16$

% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$



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

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

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

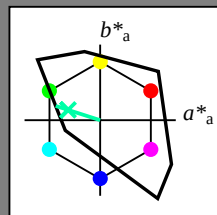
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 62 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

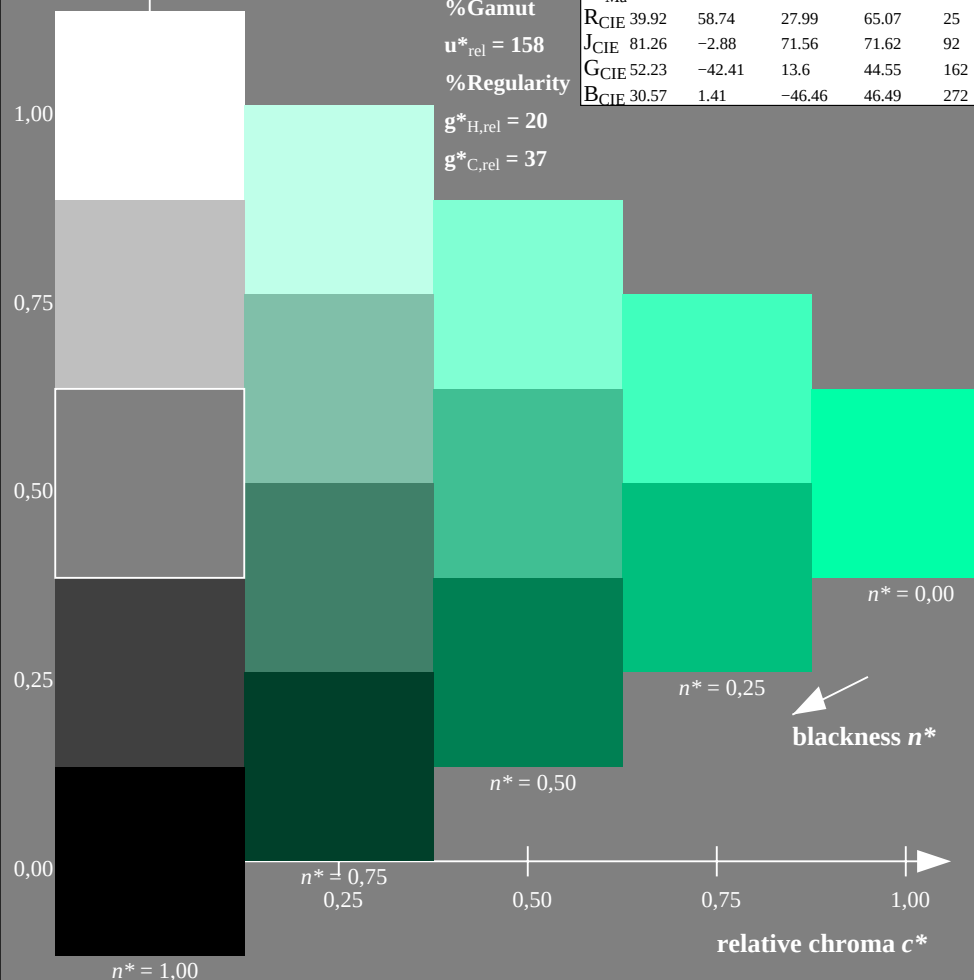
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 65/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS00a

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

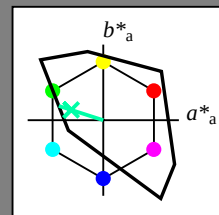
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 62 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

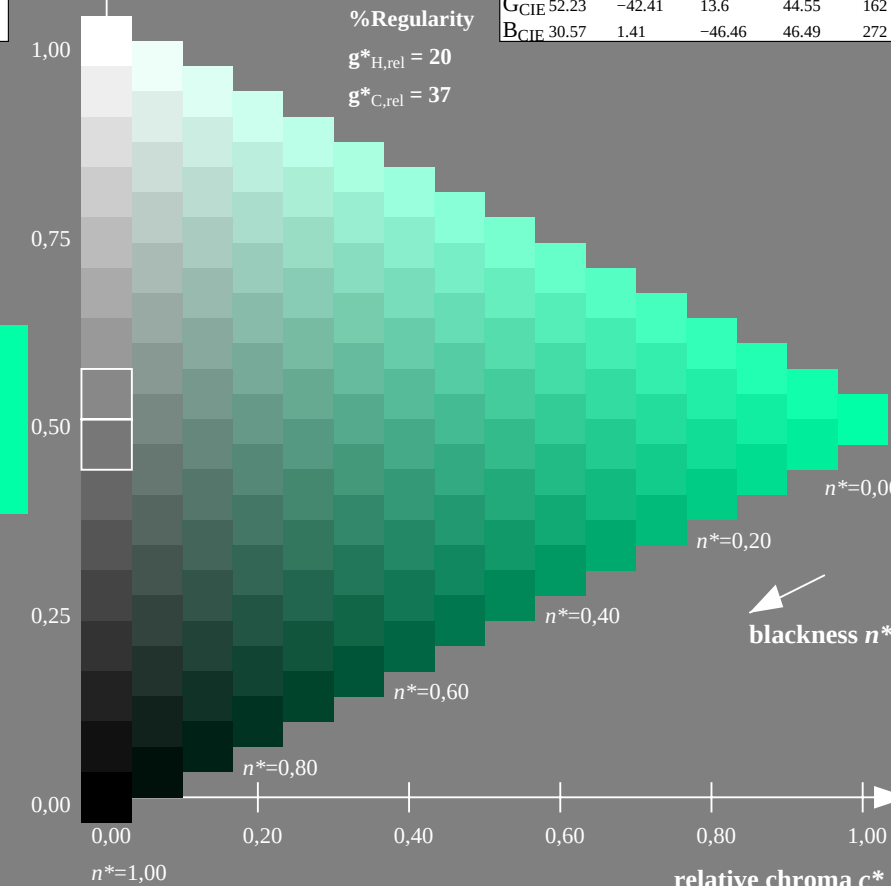
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



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

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

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

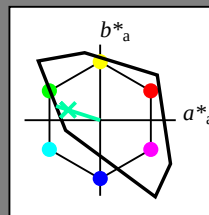
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 61 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS06a

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

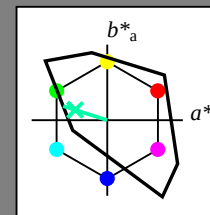
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 61 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

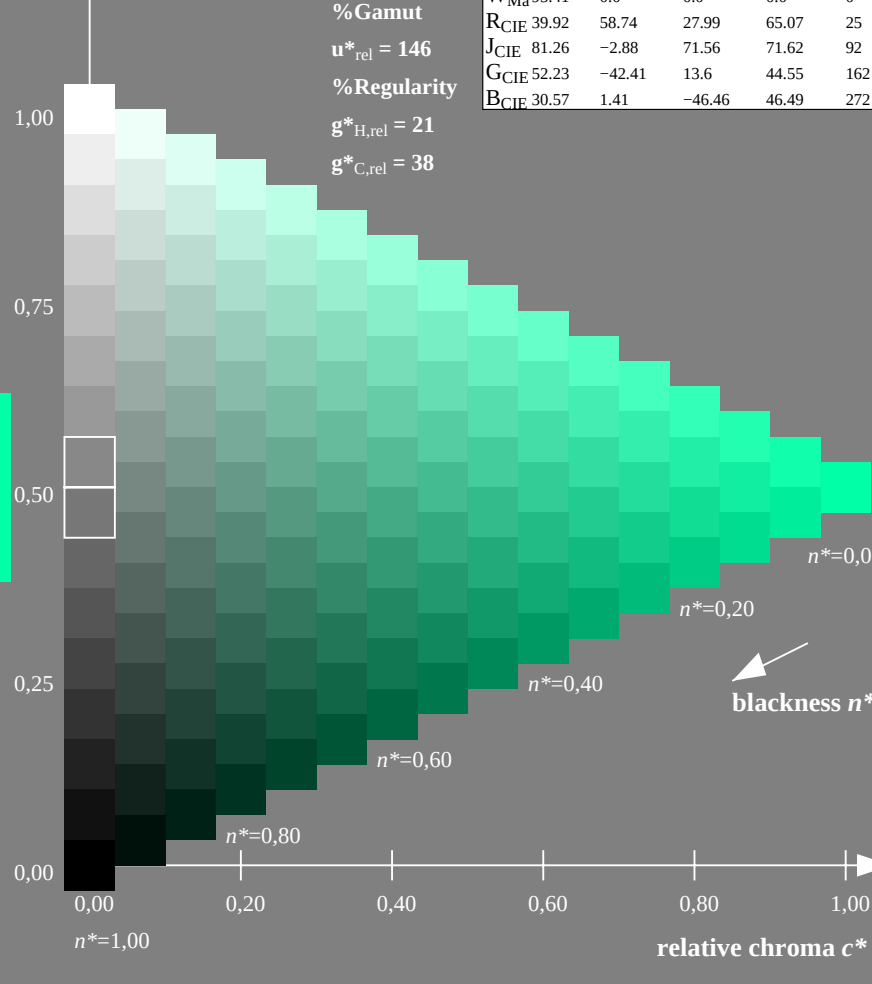
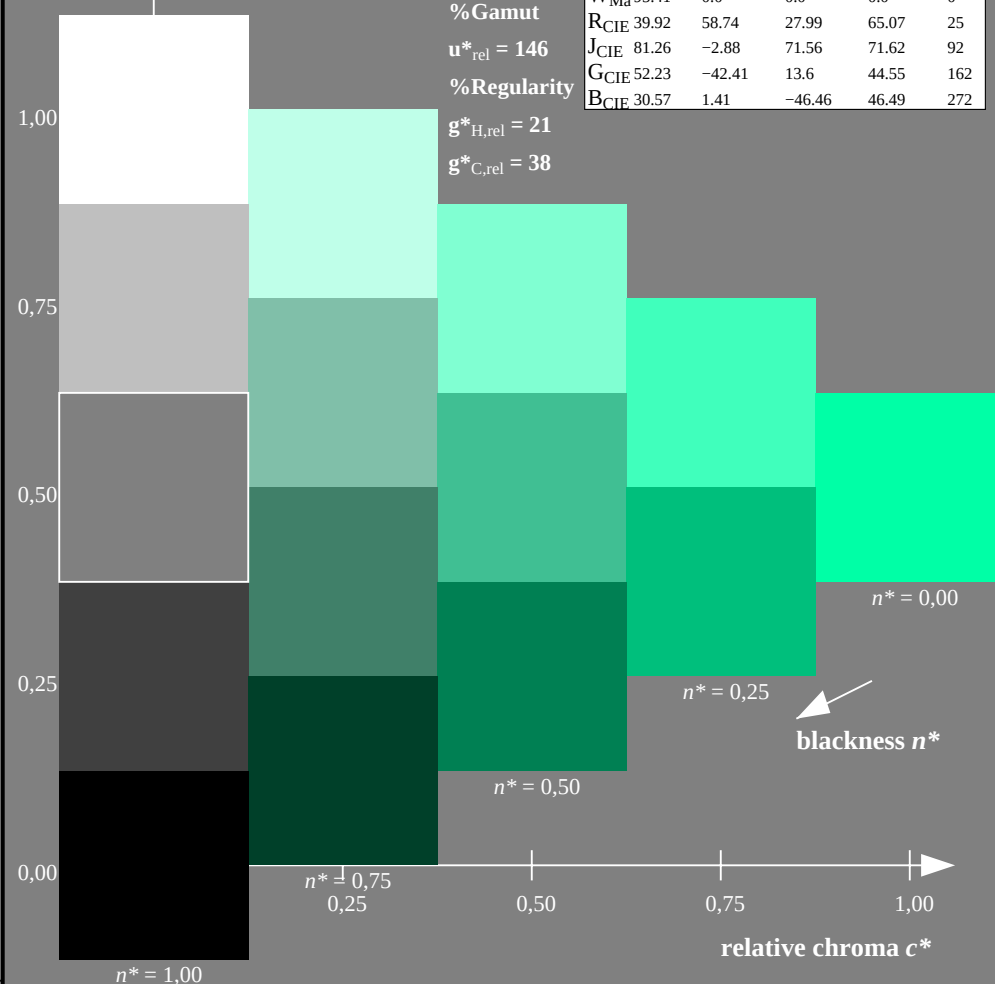
$u^*_{rel} = 146$

% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.08	75.54	59.69	96.28	38
Y _{Ma}	92.68	-20.5	89.24	91.57	103
L _{Ma}	83.72	-81.78	78.32	113.24	136
C _{Ma}	86.94	-45.71	-13.42	47.65	196
V _{Ma}	31.77	72.91	-101.29	124.81	306
M _{Ma}	57.74	93.06	-57.7	109.5	328
N _{Ma}	5.69	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

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

TUB-test chart IE39 for visual displays, Hue G, Page 66/80
Discrimination of 5 and 16 step colour scales, a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

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

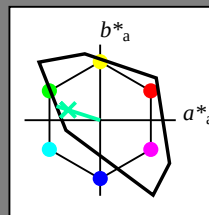
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 61 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

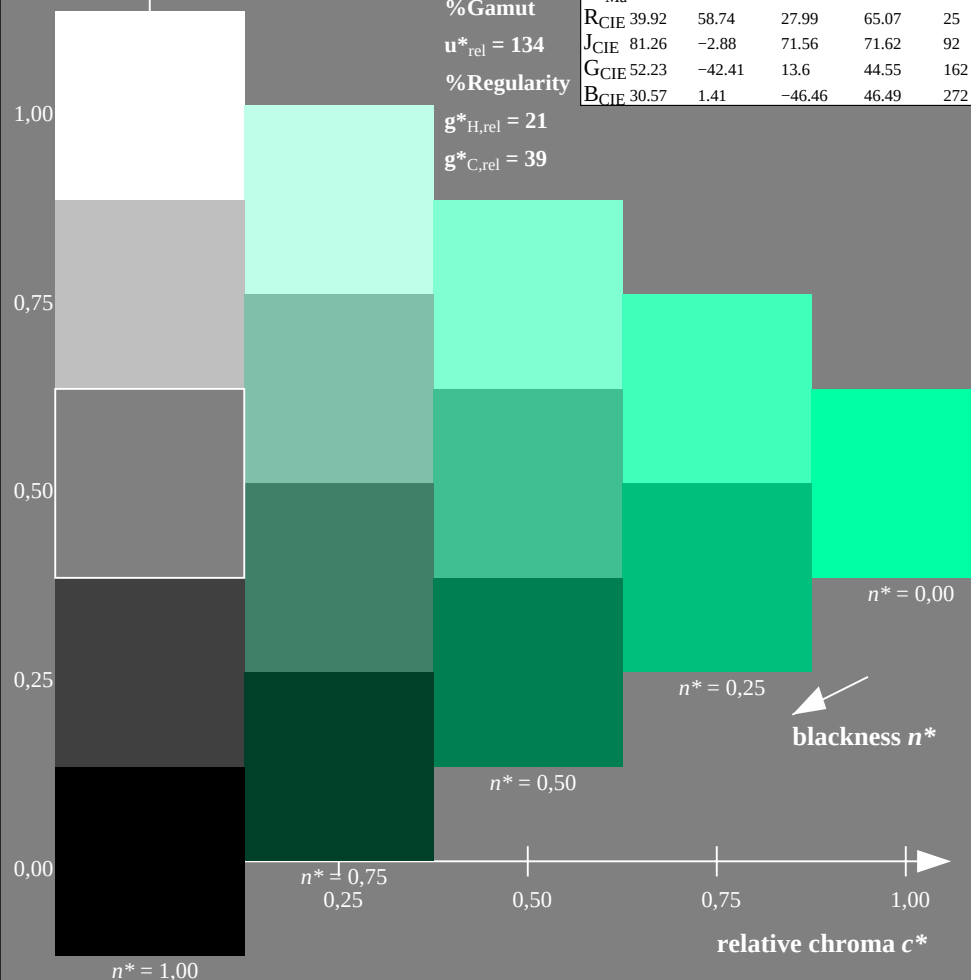
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 67/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS11a

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

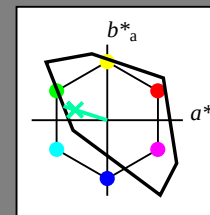
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 61 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

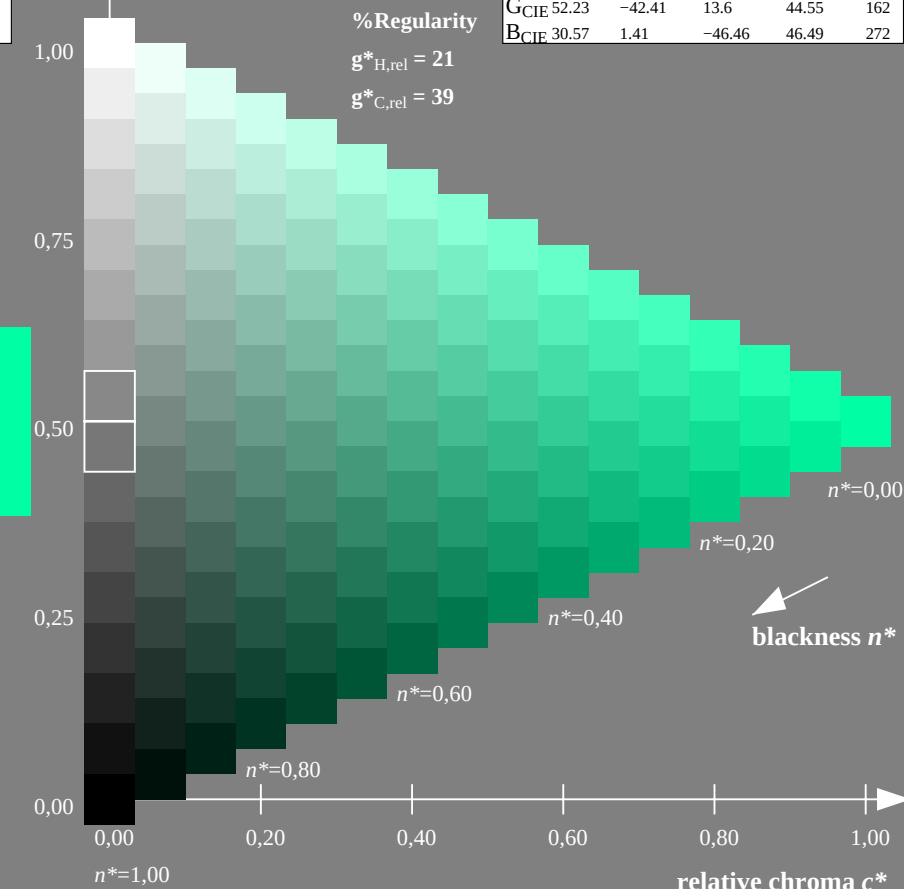
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 162/360 = 0.451 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

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

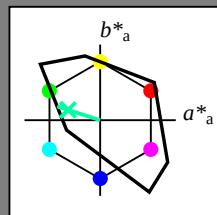
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 60 162

olv*Ma: 0.0 1.0 0.64

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

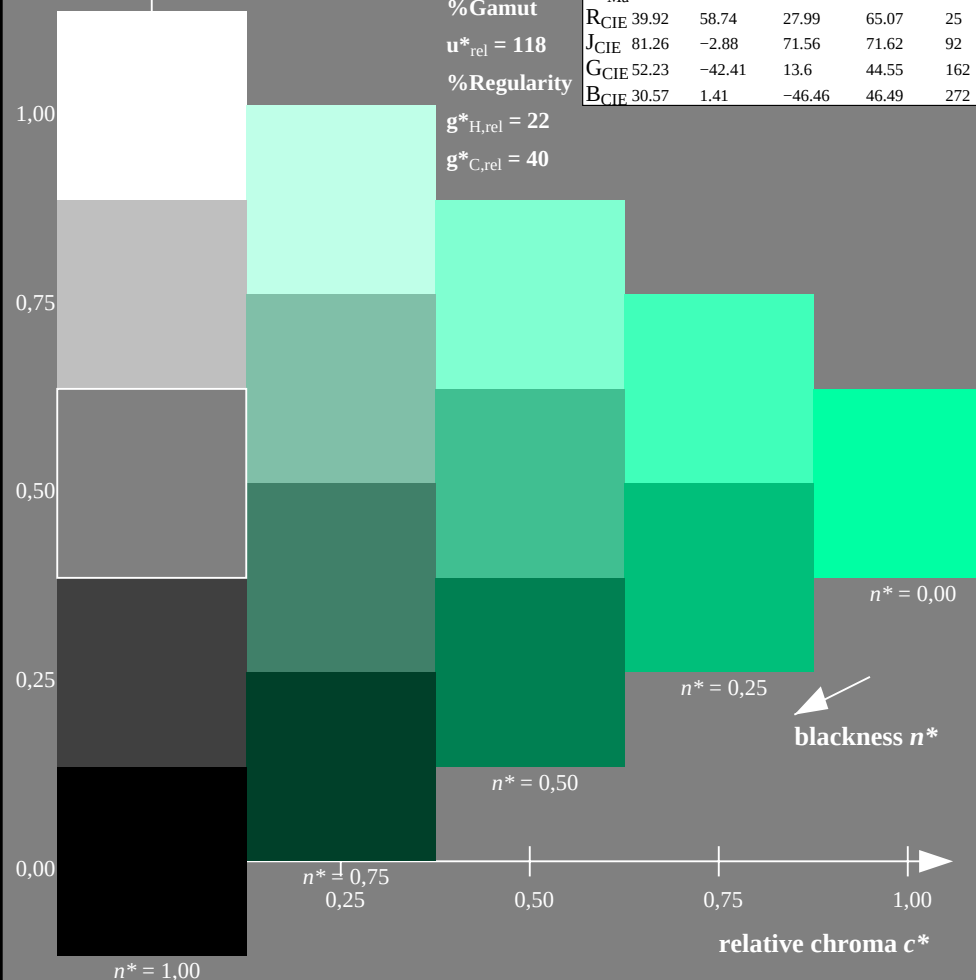
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 68/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS18a

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

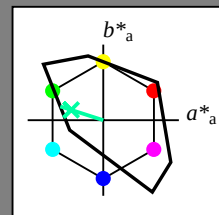
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 60 162

olv*Ma: 0.0 1.0 0.64

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

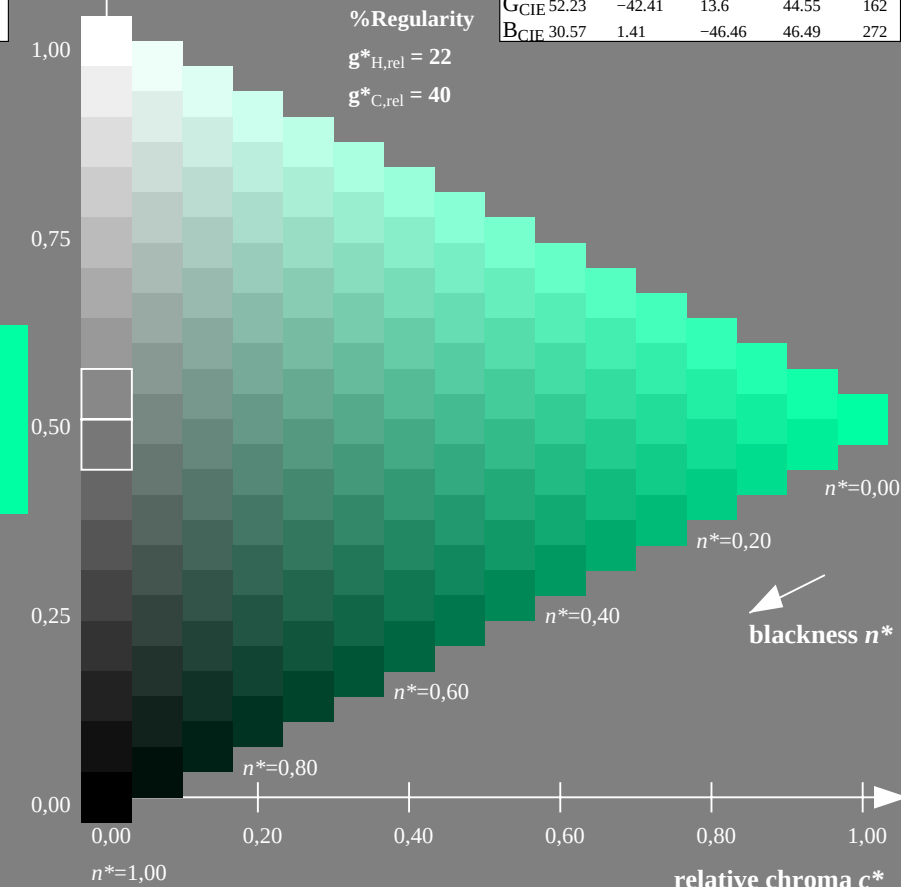
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



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

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

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

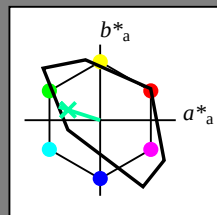
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 58 162

olv*Ma: 0.0 1.0 0.63

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS27a

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

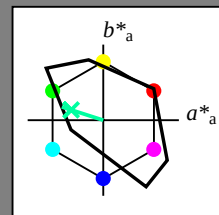
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 58 162

olv*Ma: 0.0 1.0 0.63

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

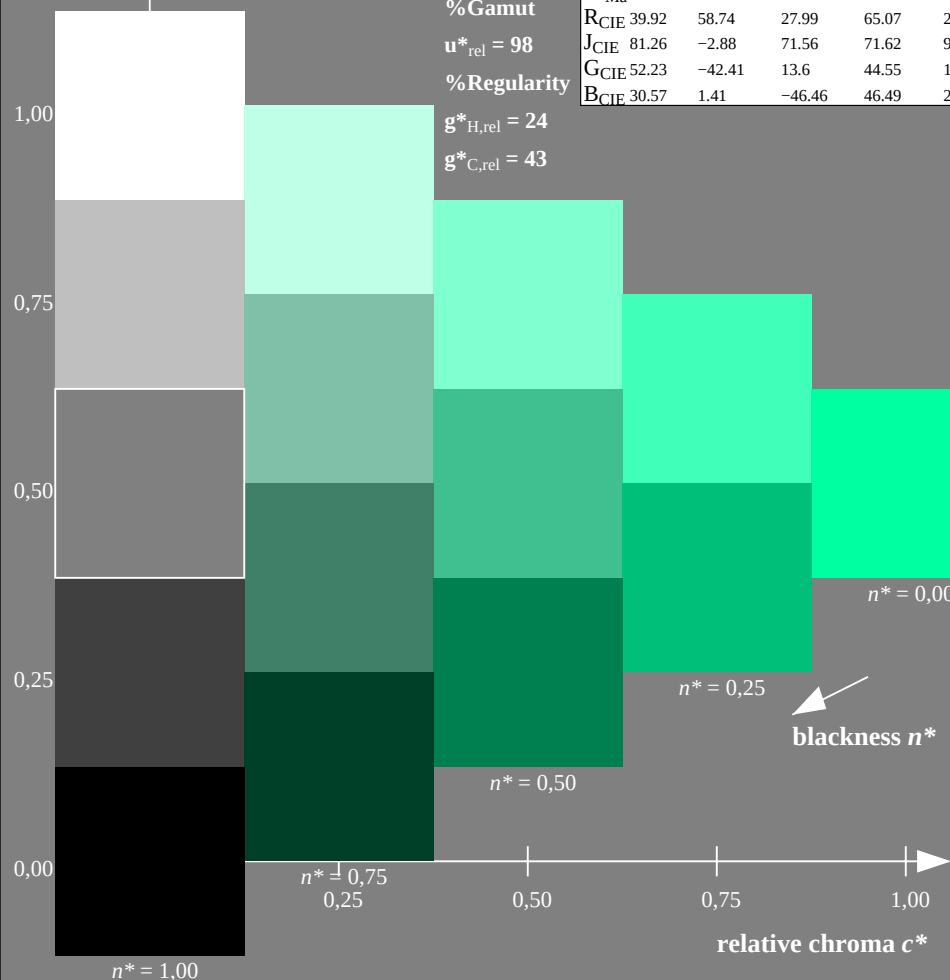
% Gamut

$u^*_{rel} = 98$

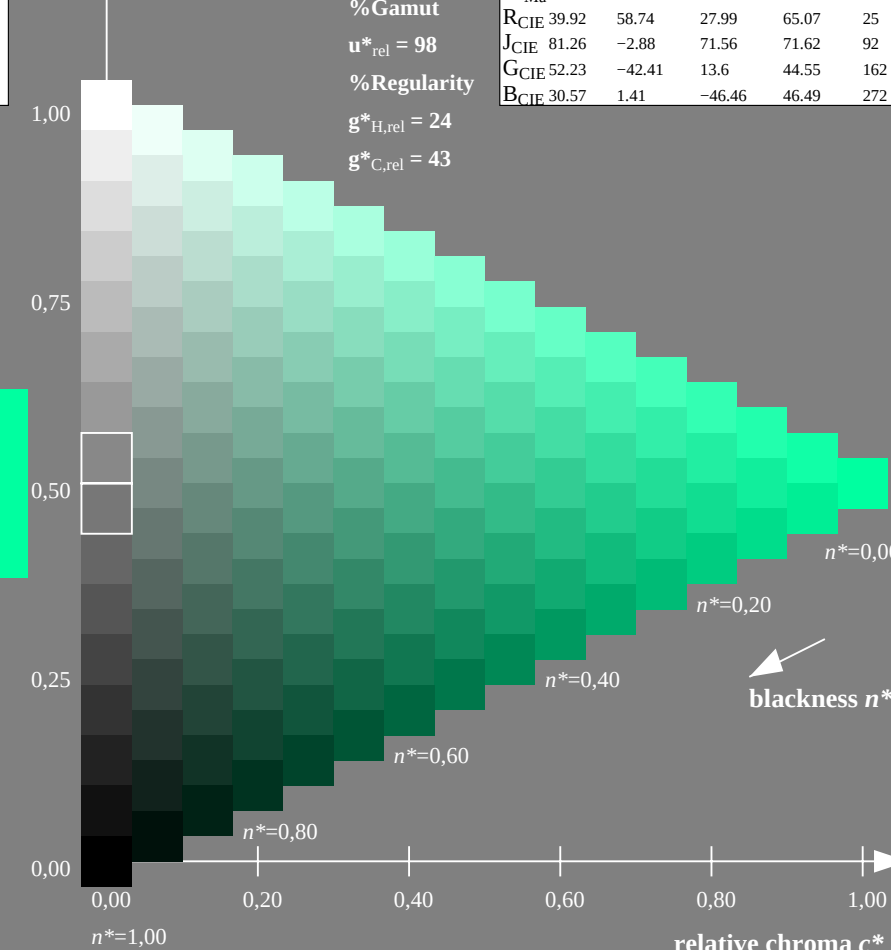
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)



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

TUB-test chart IE39 for visual displays, Hue G, Page 69/80
Discrimination of 5 and 16 step colour scales,a

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

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

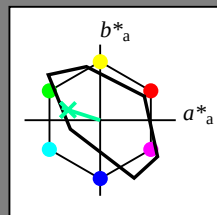
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 87 53 162

olv*Ma: 0.0 1.0 0.61

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

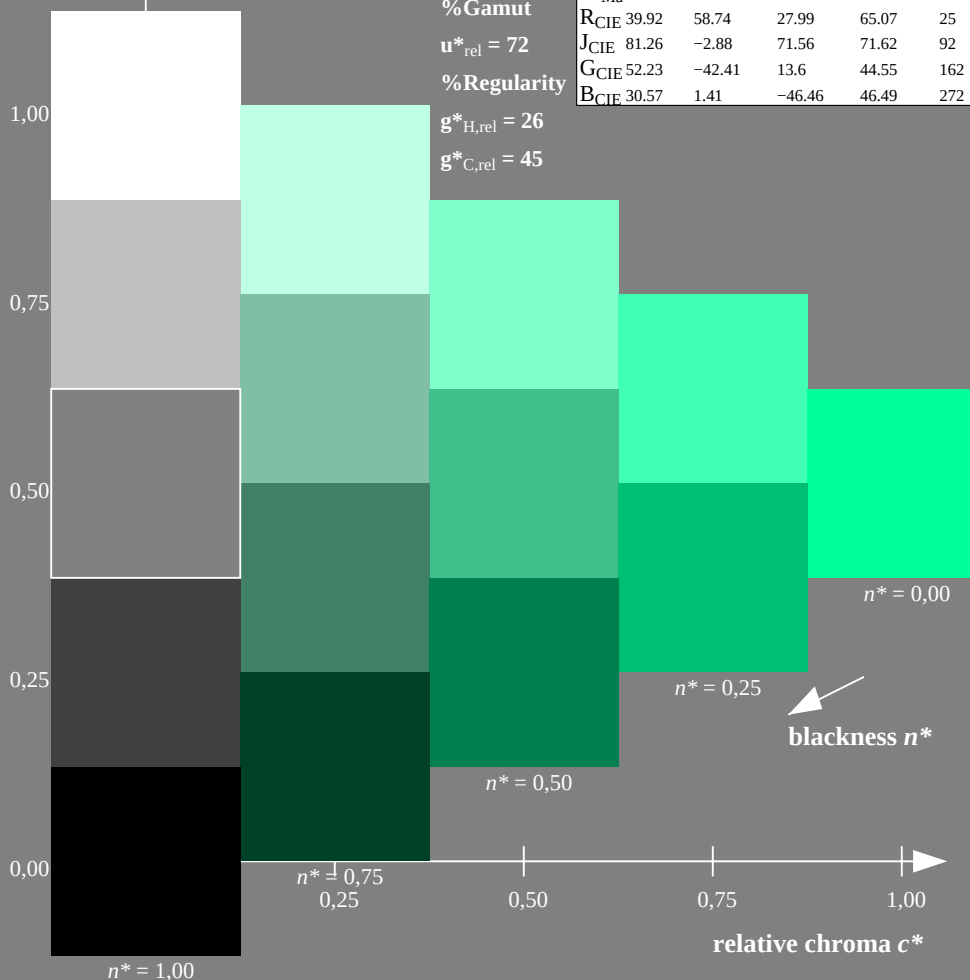
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 70/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS38a

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

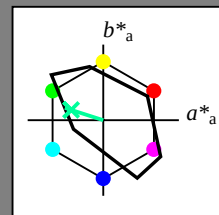
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 87 53 162

olv*Ma: 0.0 1.0 0.61

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

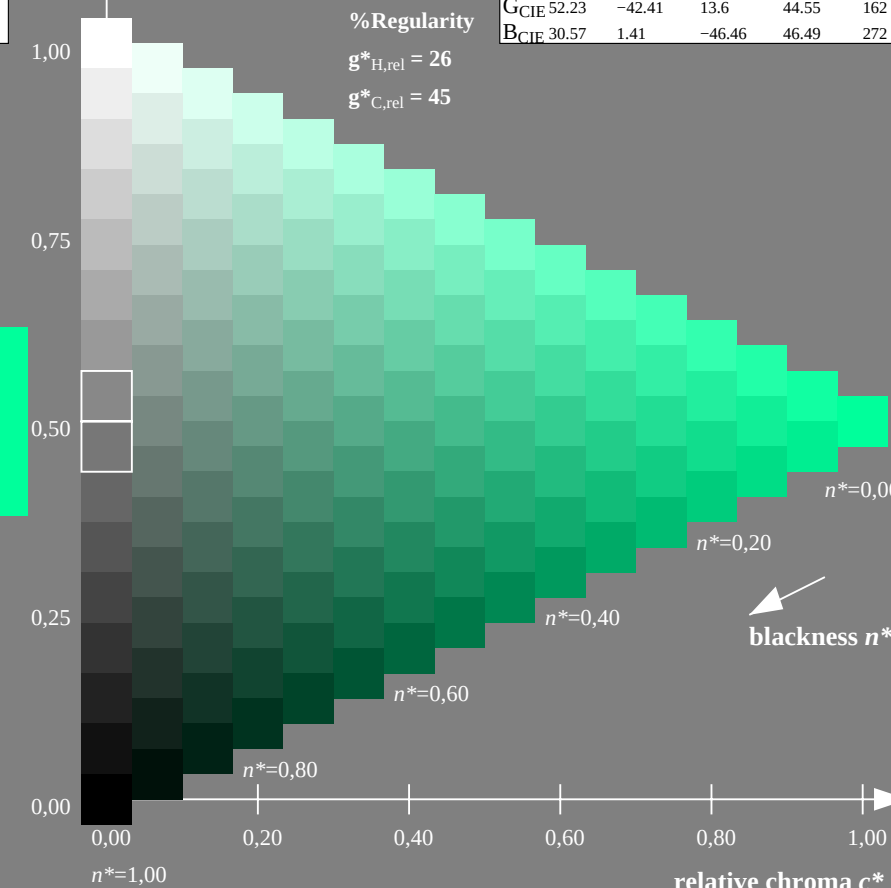
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



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

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

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

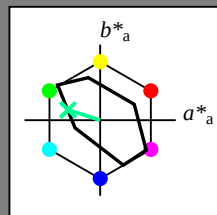
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 88 45 162

olv*Ma: 0.0 1.0 0.58

triangle lightness t^*



% Gamut

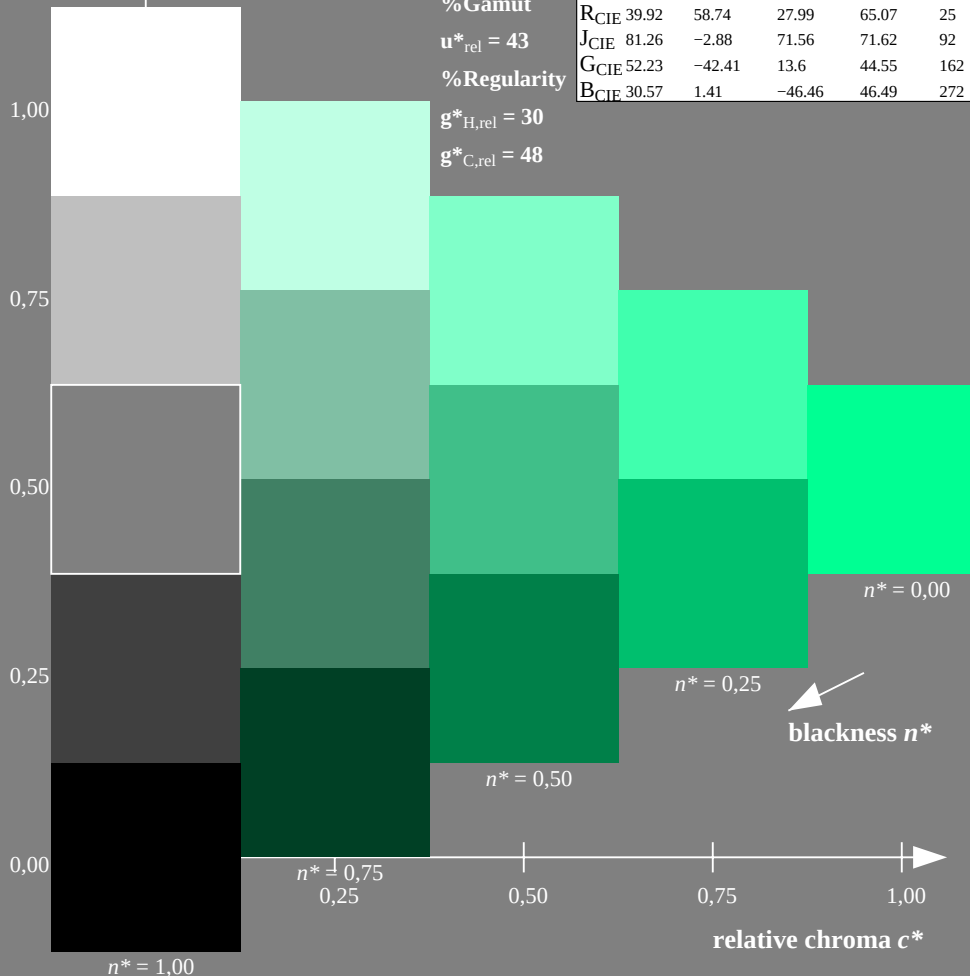
$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.53	45.06	20.98	49.7	25
YMa	93.3	-15.6	56.27	58.4	106
LMa	86.55	-56.3	46.52	73.04	140
CMa	88.94	-33.18	-10.23	34.73	197
VMa	57.17	30.66	-59.39	66.85	297
MMa	69.22	60.95	-39.56	72.67	327
NMa	52.02	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 71/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS52a

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

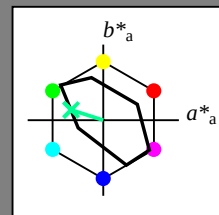
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 88 45 162

olv*Ma: 0.0 1.0 0.58

triangle lightness t^*



% Gamut

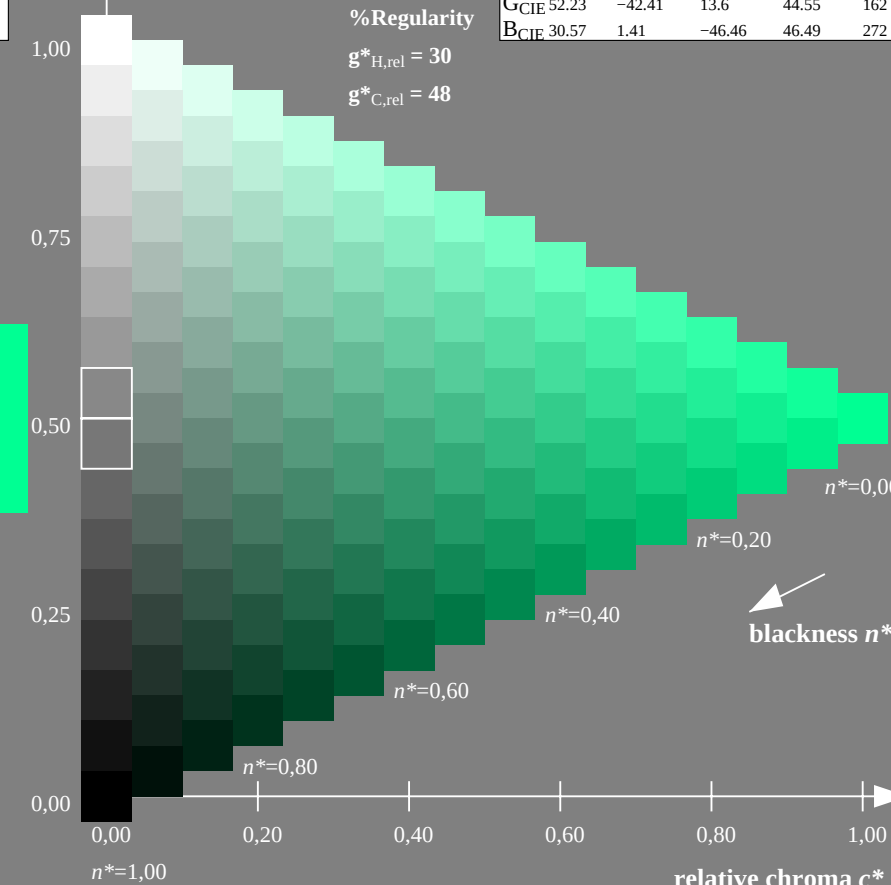
$u^*_{rel} = 43$

% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.53	45.06	20.98	49.7	25
YMa	93.3	-15.6	56.27	58.4	106
LMa	86.55	-56.3	46.52	73.04	140
CMa	88.94	-33.18	-10.23	34.73	197
VMa	57.17	30.66	-59.39	66.85	297
MMa	69.22	60.95	-39.56	72.67	327
NMa	52.02	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



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

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

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

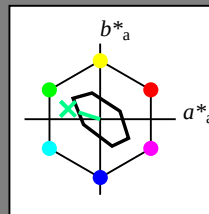
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 90 30 162

olv*Ma: 0.0 1.0 0.53

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

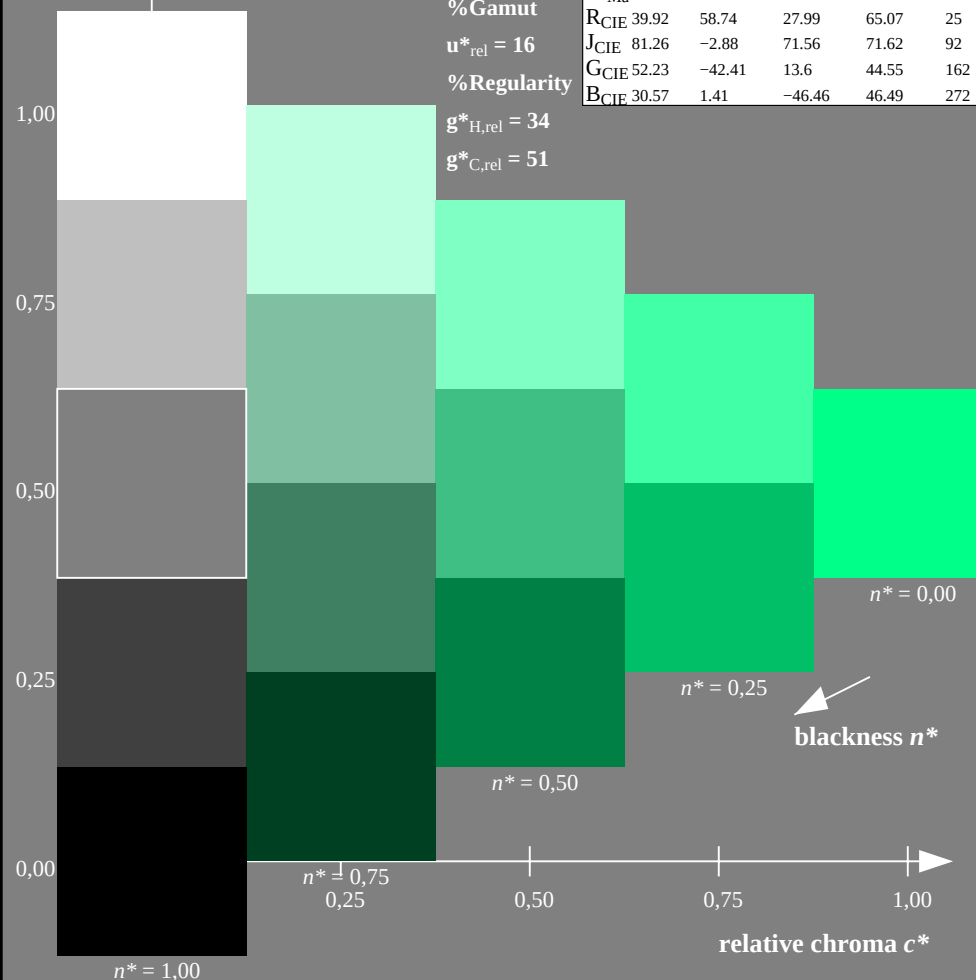
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE39 for visual displays, Hue G, Page 72/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS70a

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

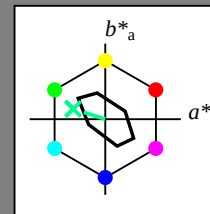
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 90 30 162

olv*Ma: 0.0 1.0 0.53

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

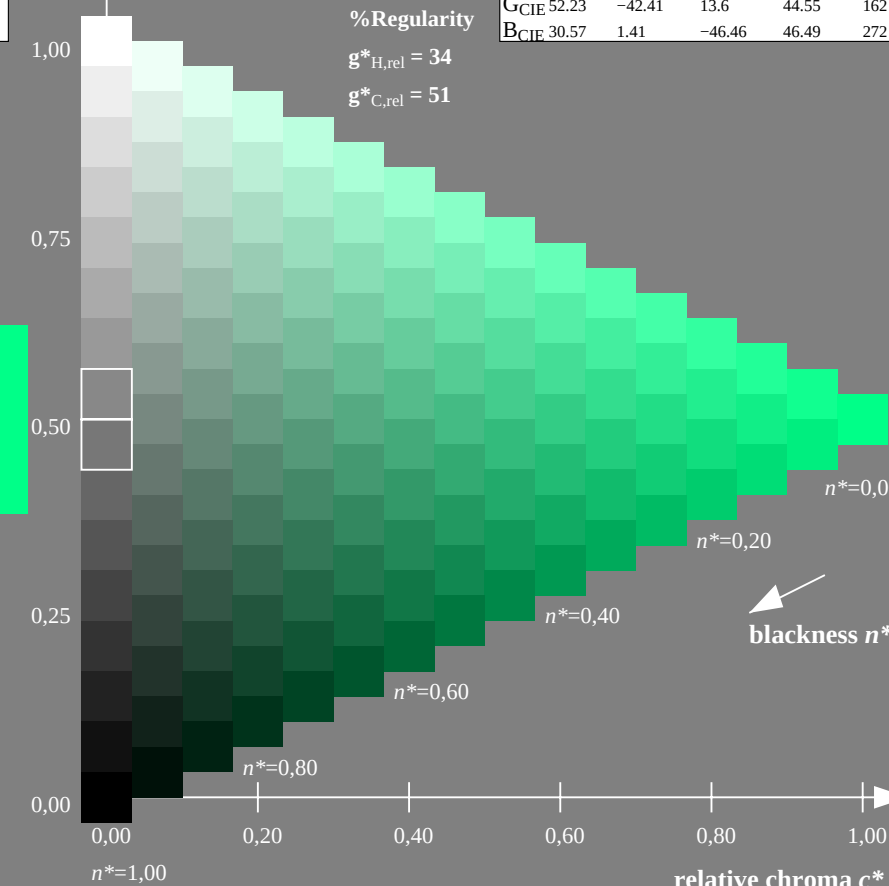
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



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

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS00a

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

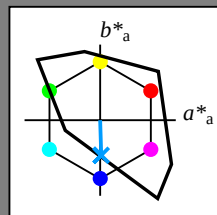
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 49 272

olv*Ma: 0.0 0.61 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

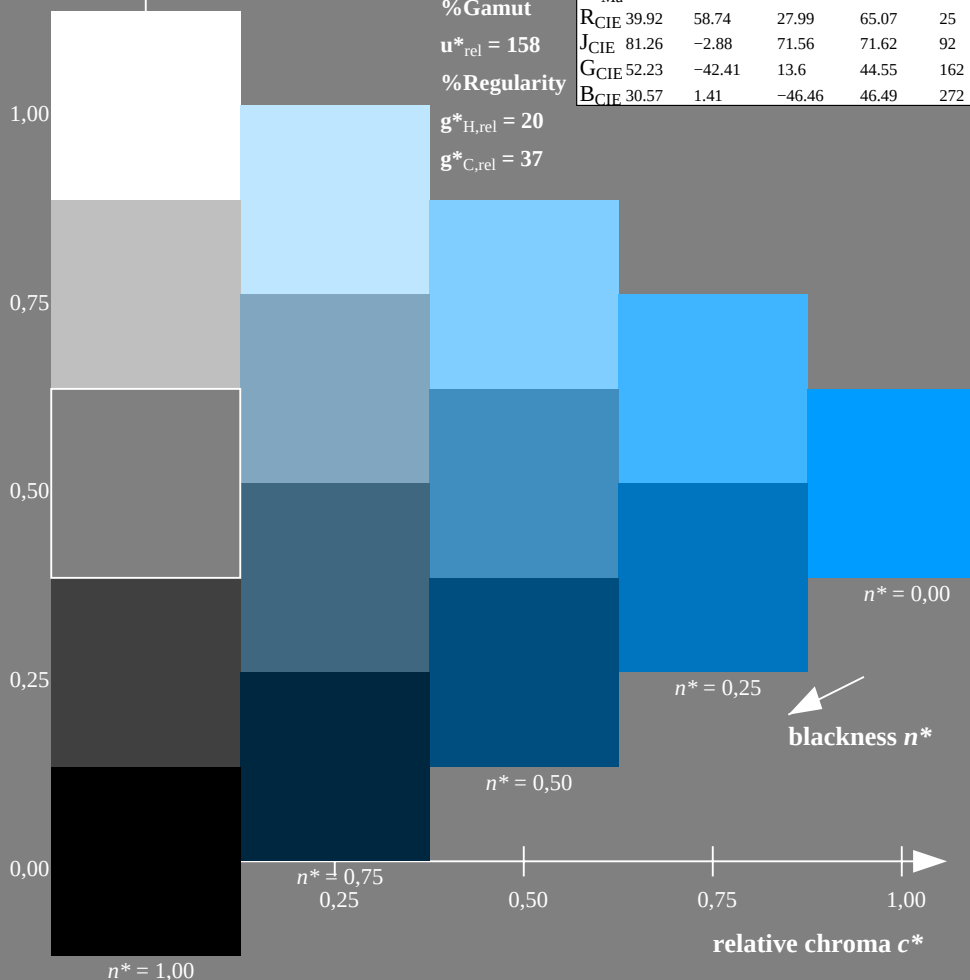
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 73/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS00a

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

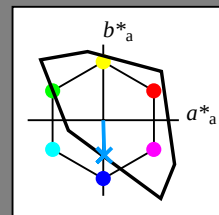
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 49 272

olv*Ma: 0.0 0.61 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

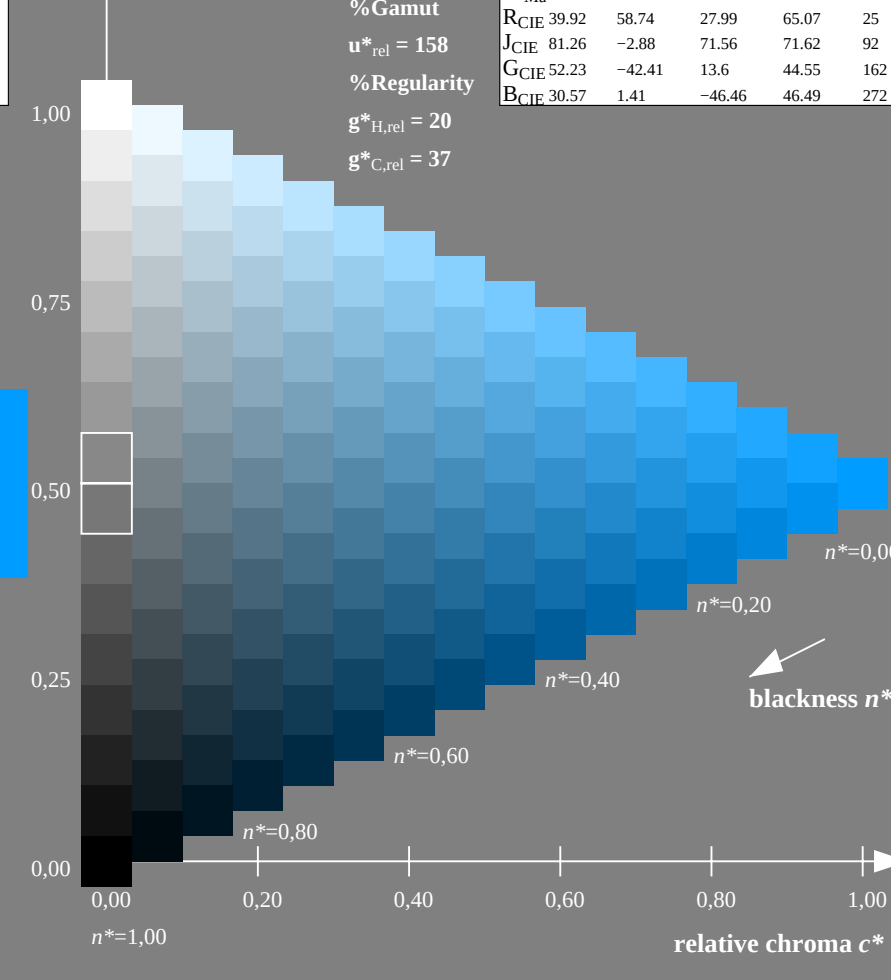
% Regularity

$g^*_{H,rel} = 20$

$g^*_{C,rel} = 37$

TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.91	64.55	100.41	40
Y _{Ma}	92.66	-20.67	90.75	93.08	103
L _{Ma}	83.62	-82.73	79.9	115.02	136
C _{Ma}	86.88	-46.14	-13.53	48.1	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.31	94.35	-58.39	110.96	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS06a

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

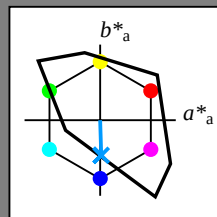
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.6 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

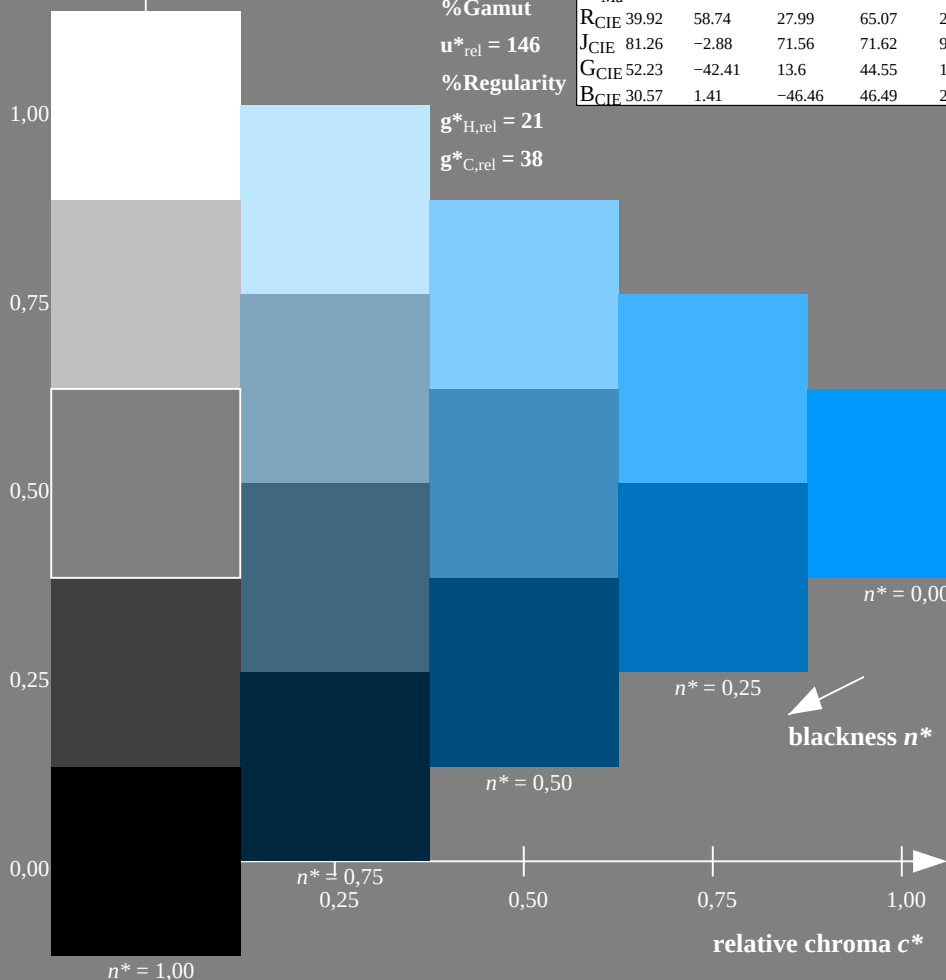
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	51.08	75.54	59.69	96.28	38
YMa	92.68	-20.5	89.24	91.57	103
LMa	83.72	-81.78	78.32	113.24	136
CMa	86.94	-45.71	-13.42	47.65	196
VMa	31.77	72.91	-101.29	124.81	306
NMa	57.74	93.06	-57.7	109.5	328
NMa	5.69	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 74/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS06a

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

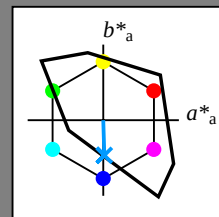
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.6 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 146$

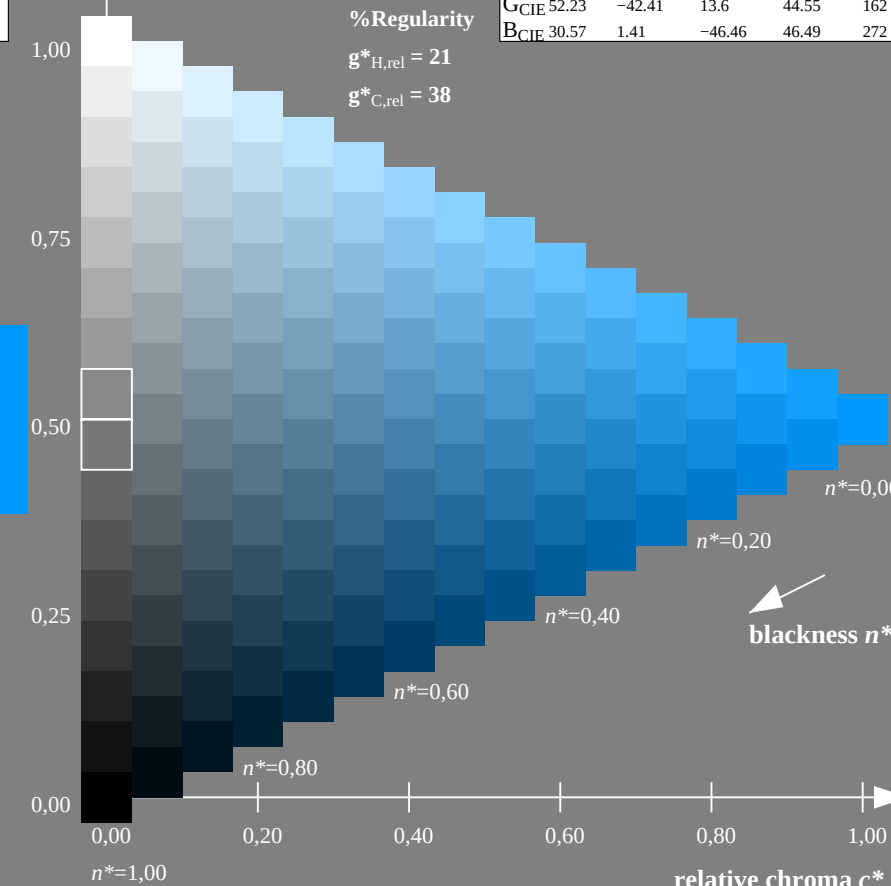
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 38$

TLS06a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	51.08	75.54	59.69	96.28	38
YMa	92.68	-20.5	89.24	91.57	103
LMa	83.72	-81.78	78.32	113.24	136
CMa	86.94	-45.71	-13.42	47.65	196
VMa	31.77	72.91	-101.29	124.81	306
NMa	57.74	93.06	-57.7	109.5	328
NMa	5.69	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 272/360 = 0.755 (right)

input: $rgb (->olv^*)$ setrgbcolor
output: no change compared to input

Input: Colorimetric Television Luminous System TLS11a

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

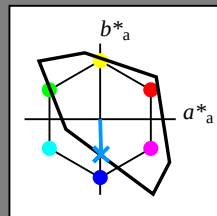
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.59 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

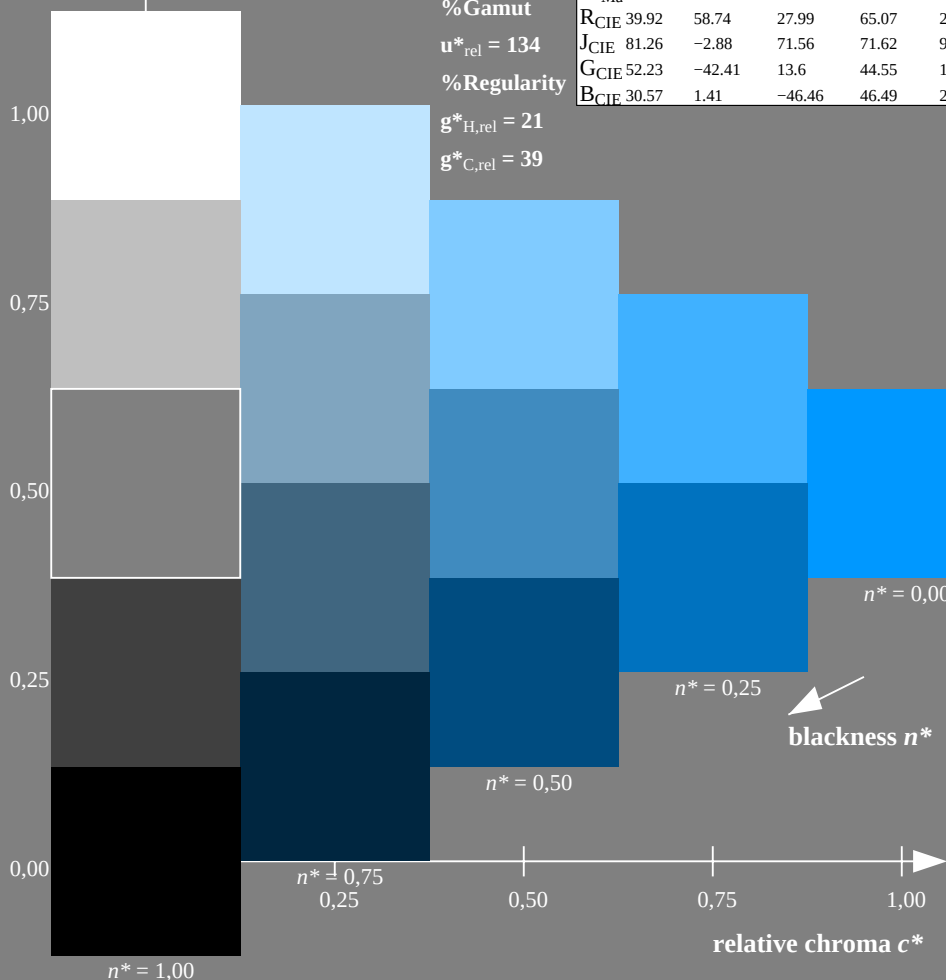
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIE LAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 75/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS11a

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

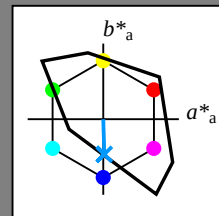
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.59 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 134$

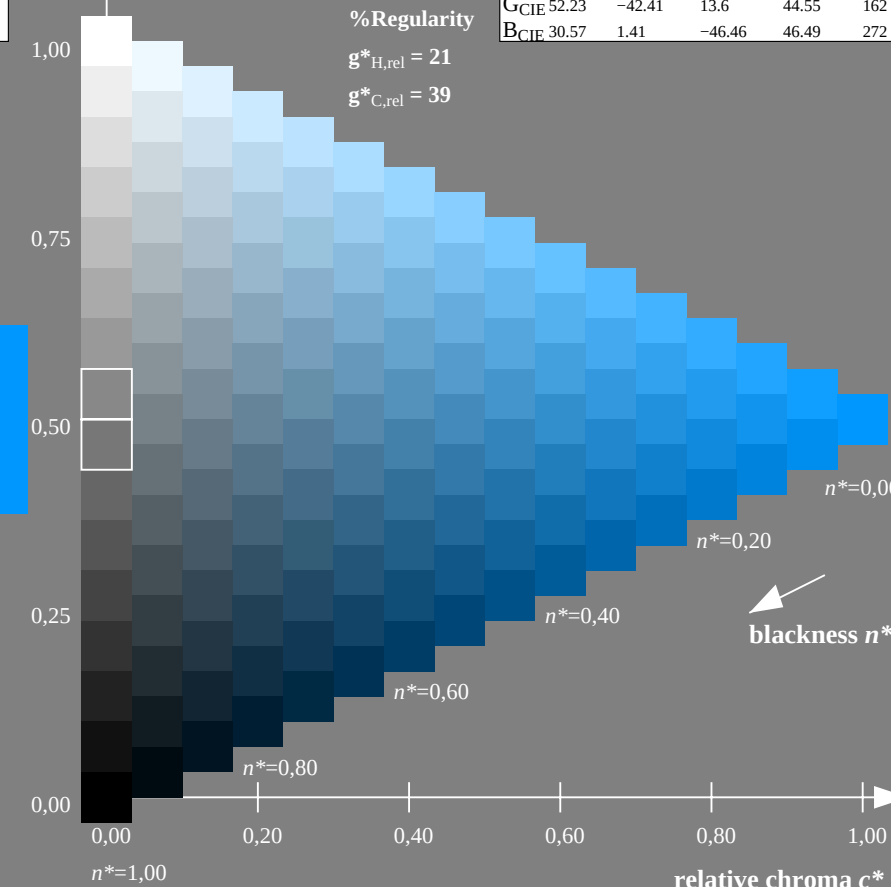
% Regularity

$g^*_{H,rel} = 21$

$g^*_{C,rel} = 39$

TLS11a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	51.65	74.2	55.83	92.86	37
Y _{Ma}	92.7	-20.34	87.77	90.1	103
L _{Ma}	83.81	-80.84	76.81	111.52	136
C _{Ma}	87.01	-45.27	-13.32	47.2	196
V _{Ma}	33.06	70.03	-99.08	121.34	305
M _{Ma}	58.17	91.8	-57.02	108.07	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIE LAB hue 272/360 = 0.755 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS18a

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

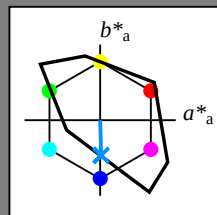
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.58 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

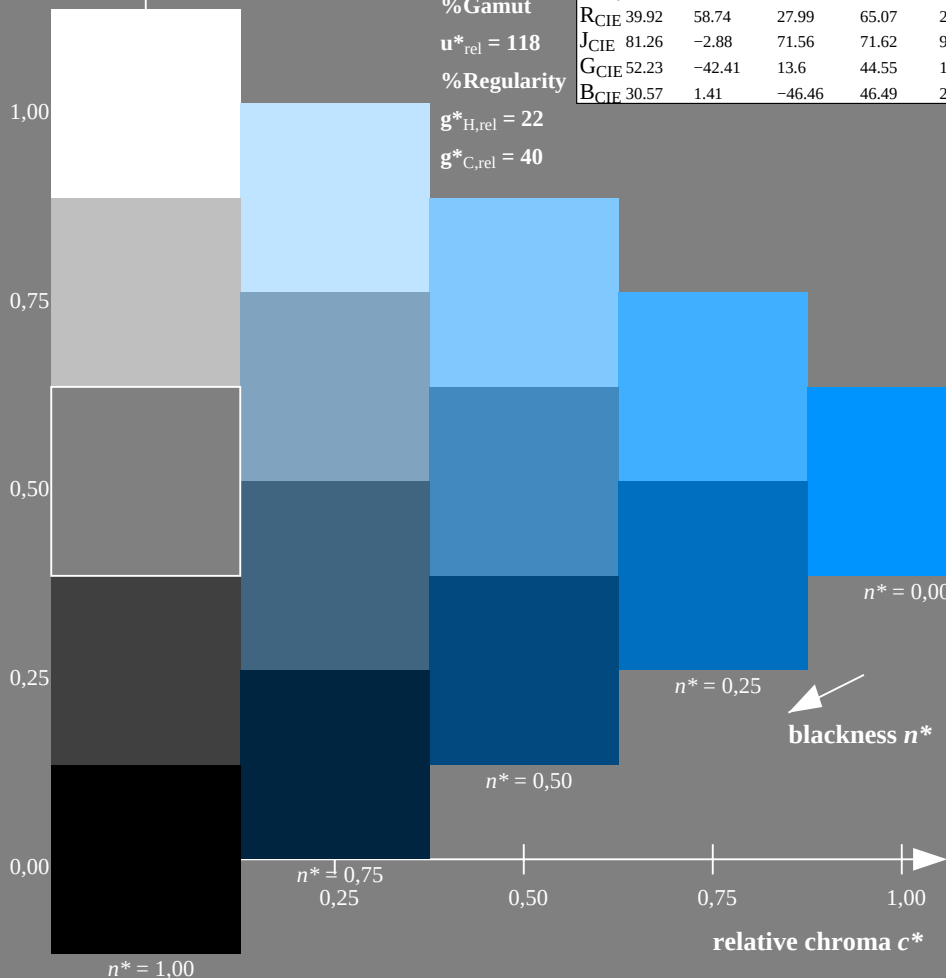
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 76/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS18a

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

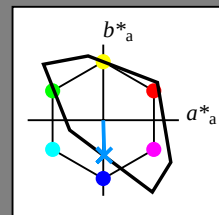
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 48 272

olv*Ma: 0.0 0.58 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 118$

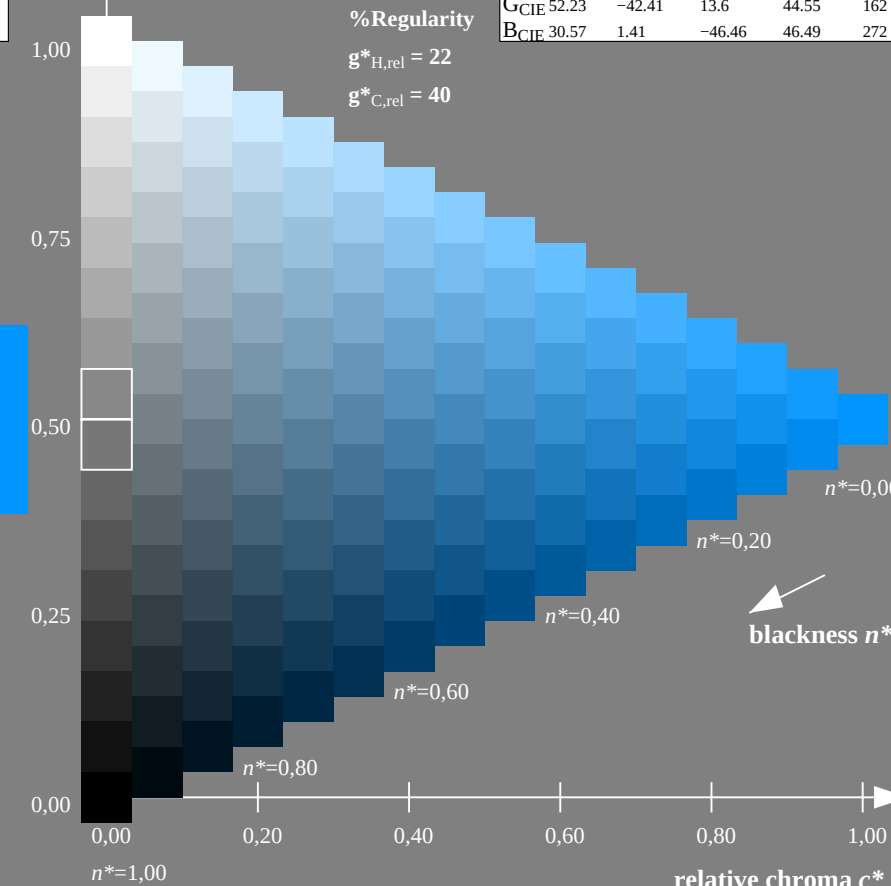
% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

TLS18a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	52.76	71.63	49.88	87.29	35
Y _{Ma}	92.74	-20.02	84.97	87.3	103
L _{Ma}	84.0	-78.98	73.94	108.2	137
C _{Ma}	87.14	-44.41	-13.11	46.32	196
V _{Ma}	35.47	64.92	-95.06	115.12	304
M _{Ma}	59.01	89.33	-55.67	105.26	328
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	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: $rgb (->olv^*)$ setrgbcolor
output: no change compared to input

Input: Colorimetric Television Luminous System TLS27a

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

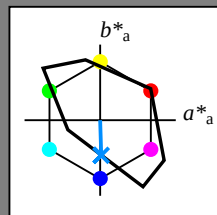
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 66 46 272

olv*Ma: 0.0 0.56 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

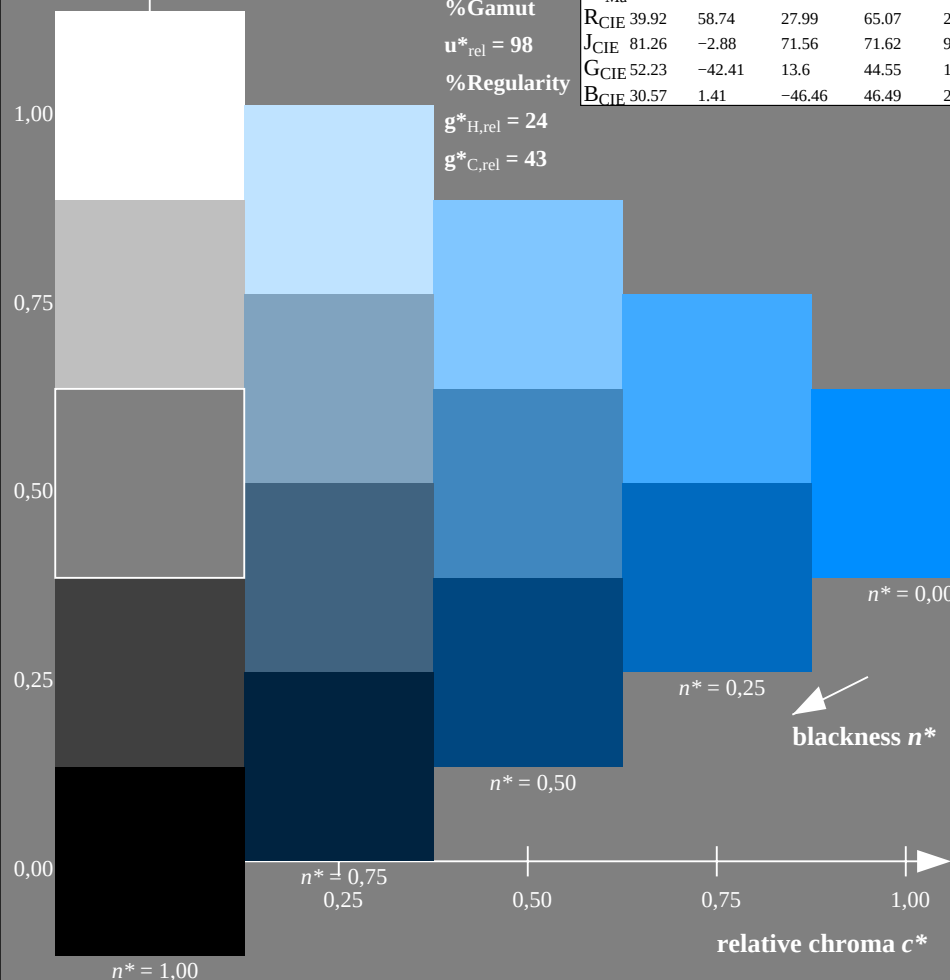
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 77/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS27a

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

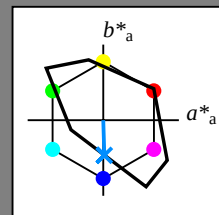
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 66 46 272

olv*Ma: 0.0 0.56 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 98$

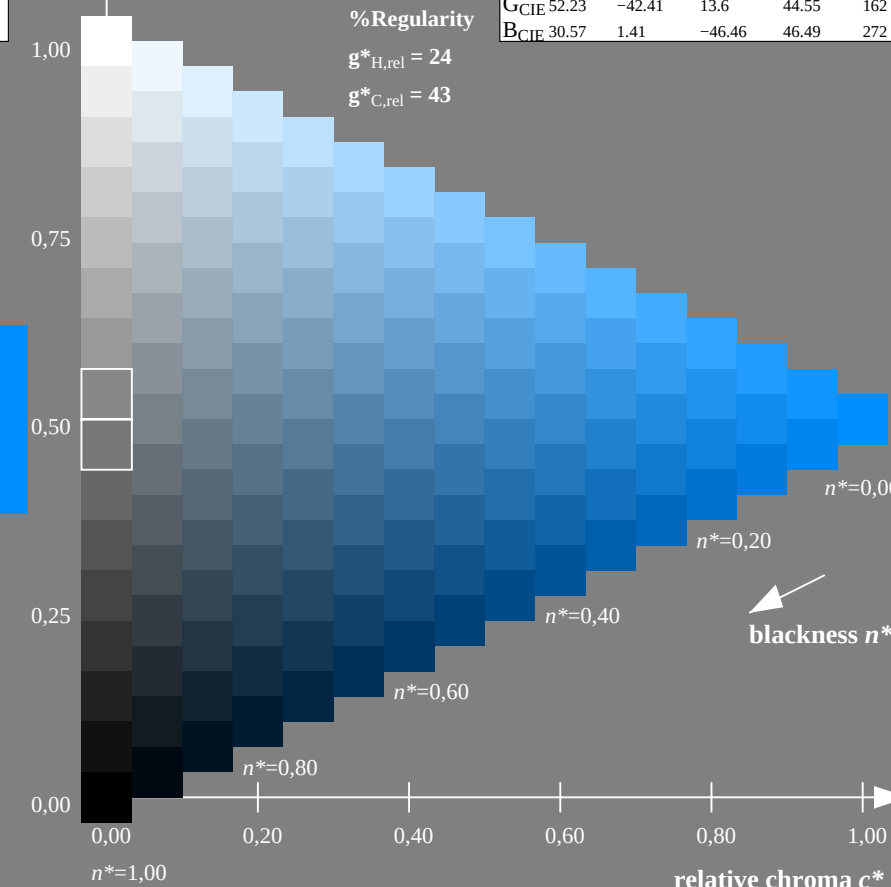
% Regularity

$g^*_{H,rel} = 24$

$g^*_{C,rel} = 43$

TLS27a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	54.88	66.84	41.69	78.78	32
Y _{Ma}	92.82	-19.38	79.81	82.13	104
L _{Ma}	84.37	-75.38	68.76	102.04	138
C _{Ma}	87.4	-42.71	-12.69	44.57	197
V _{Ma}	39.7	56.66	-88.01	104.68	303
M _{Ma}	60.64	84.61	-53.07	99.88	328
N _{Ma}	26.85	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: rgb ($\rightarrow olv^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS38a

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

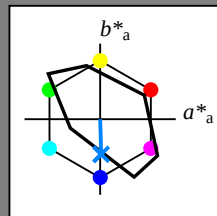
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 68 43 272

olv*Ma: 0.0 0.52 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

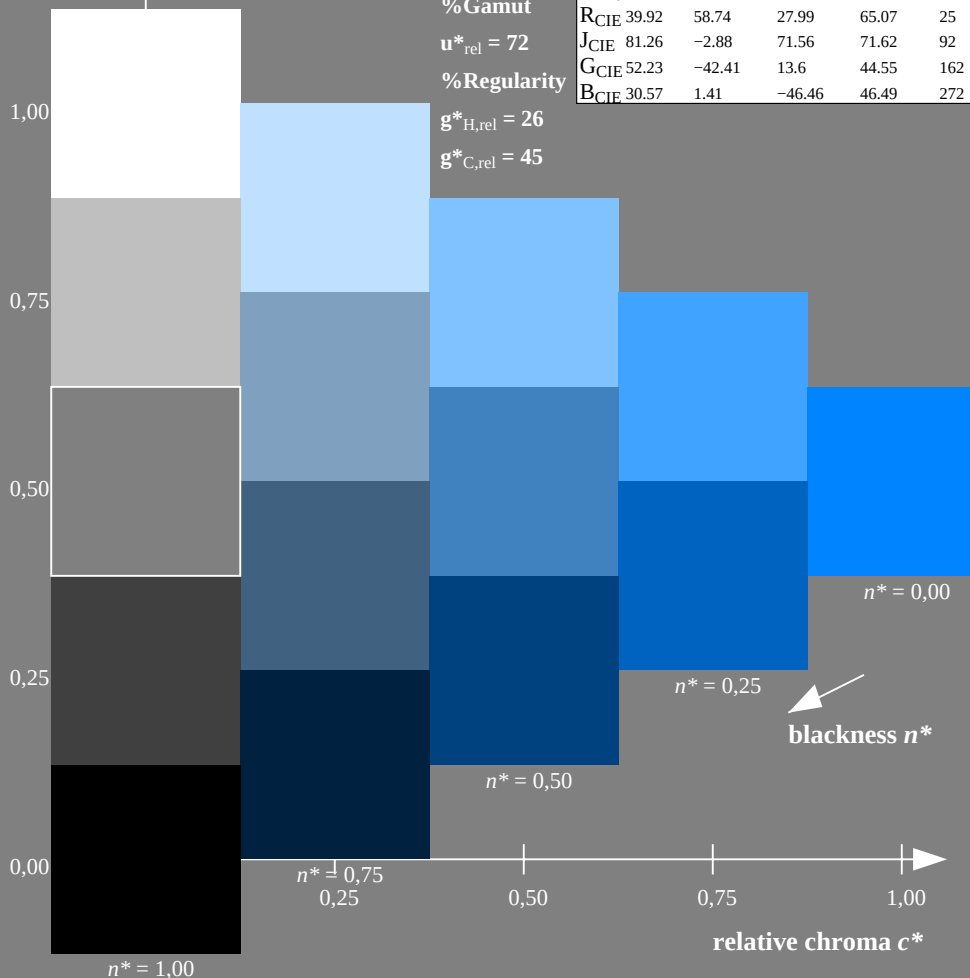
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 78/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS38a

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

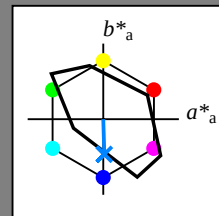
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 68 43 272

olv*Ma: 0.0 0.52 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 72$

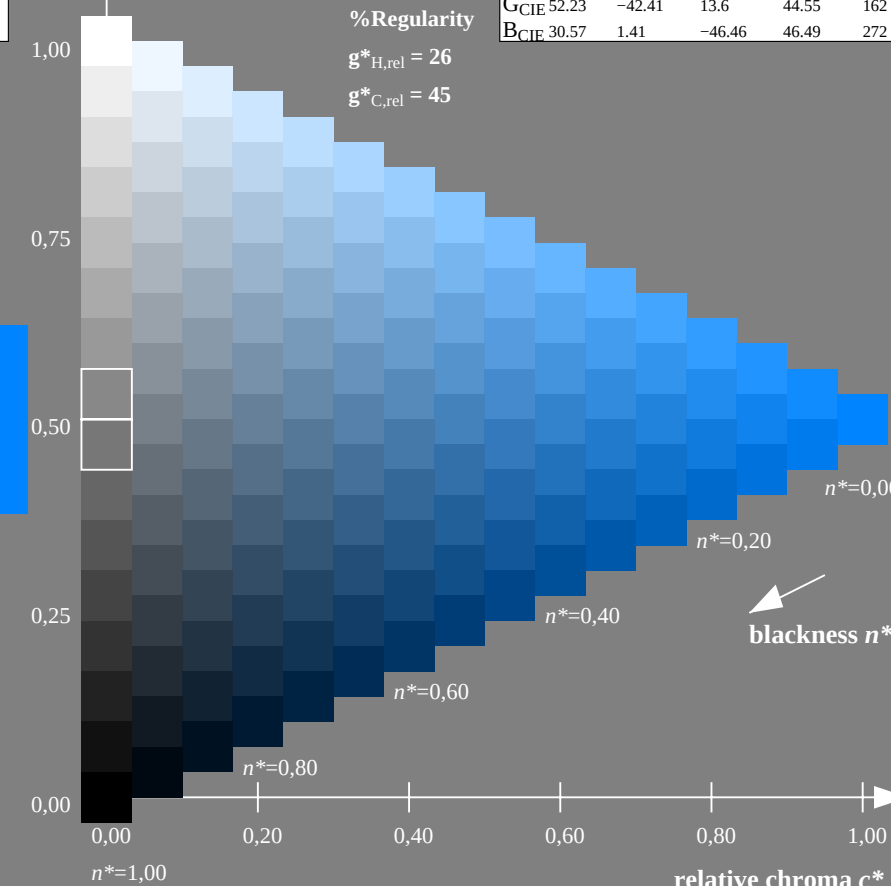
% Regularity

$g^*_{H,rel} = 26$

$g^*_{C,rel} = 45$

TLS38a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	58.77	58.45	31.73	66.51	28
Y _{Ma}	92.98	-18.1	70.81	73.09	104
L _{Ma}	85.11	-68.57	60.02	91.14	139
C _{Ma}	87.92	-39.41	-11.86	41.17	197
V _{Ma}	46.64	44.93	-76.55	88.77	300
M _{Ma}	63.71	75.92	-48.21	89.94	328
N _{Ma}	37.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: $rgb (->olv^*)$ setrgbcolor
output: no change compared to input

Input: Colorimetric Television Luminous System TLS52a

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

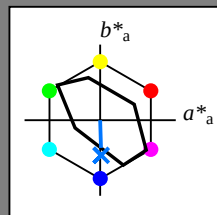
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 72 37 272

olv*Ma: 0.0 0.46 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

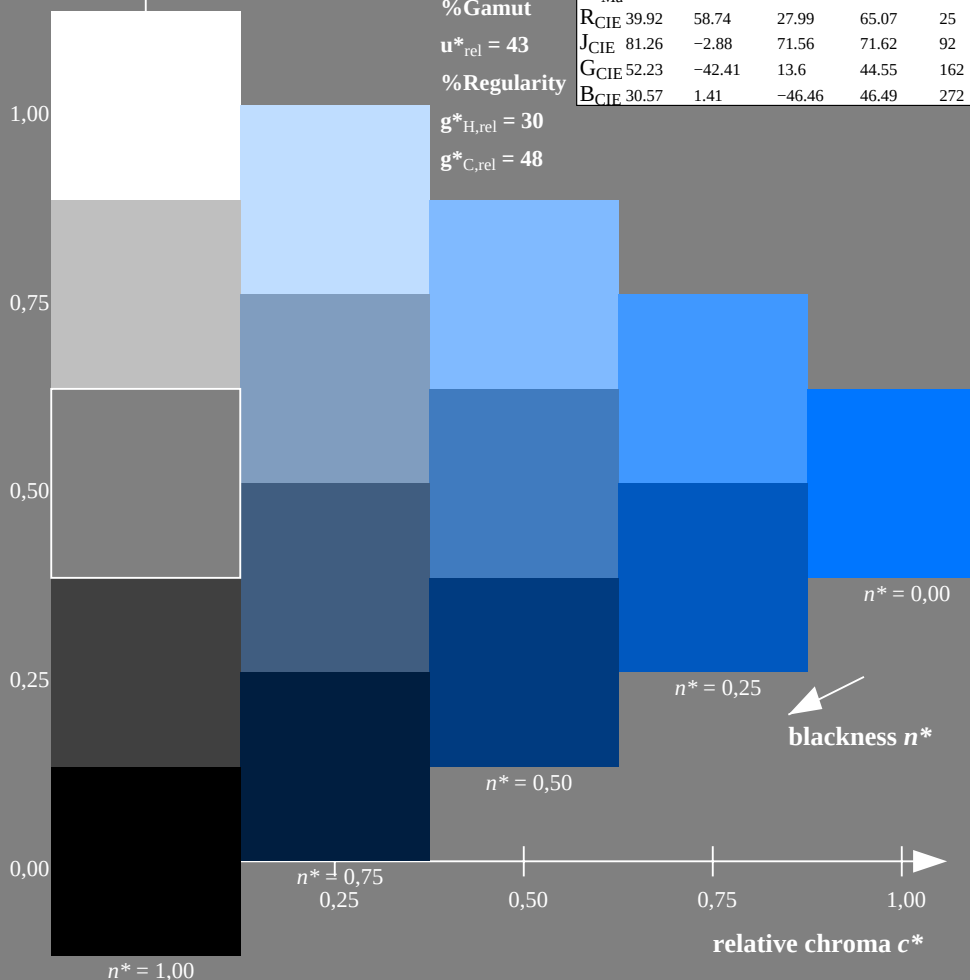
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 79/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS52a

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

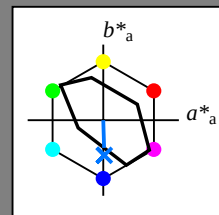
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 72 37 272

olv*Ma: 0.0 0.46 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 43$

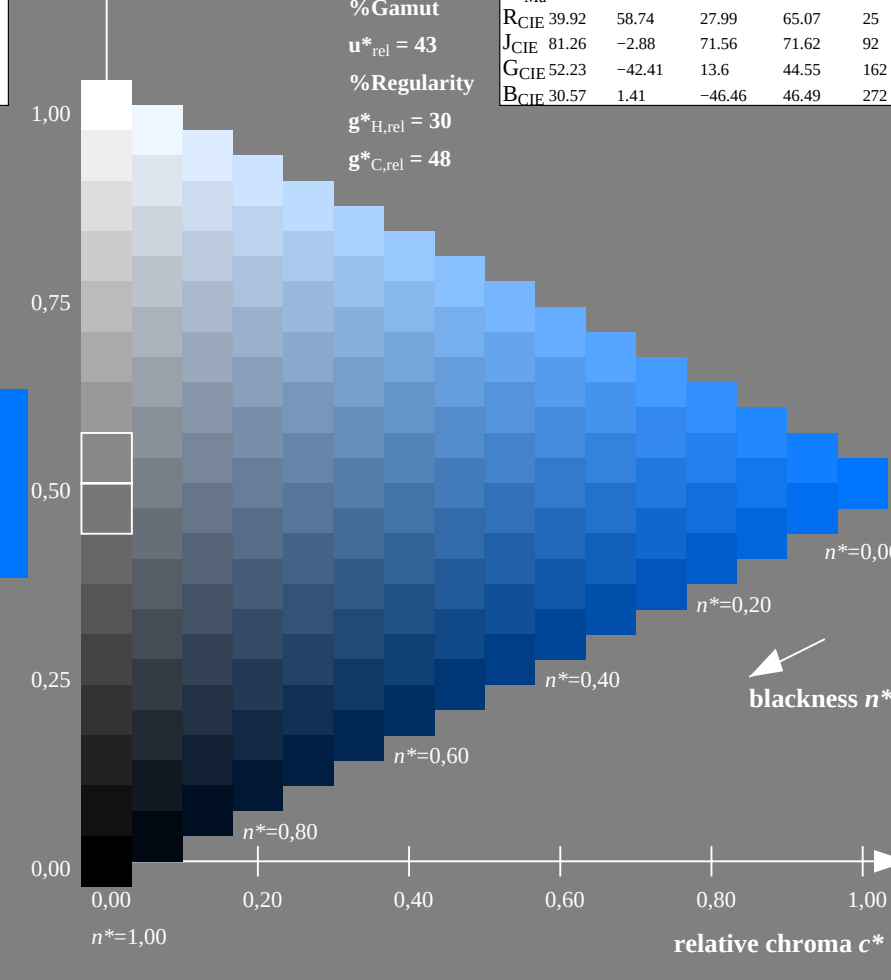
% Regularity

$g^*_{H,rel} = 30$

$g^*_{C,rel} = 48$

TLS52a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	65.53	45.06	20.98	49.7	25
Y _{Ma}	93.3	-15.6	56.27	58.4	106
L _{Ma}	86.55	-56.3	46.52	73.04	140
C _{Ma}	88.94	-33.18	-10.23	34.73	197
V _{Ma}	57.17	30.66	-59.39	66.85	297
M _{Ma}	69.22	60.95	-39.56	72.67	327
N _{Ma}	52.02	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input

Input: Colorimetric Television Luminous System TLS70a

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

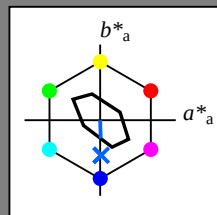
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 80 24 272

olv*Ma: 0.0 0.4 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

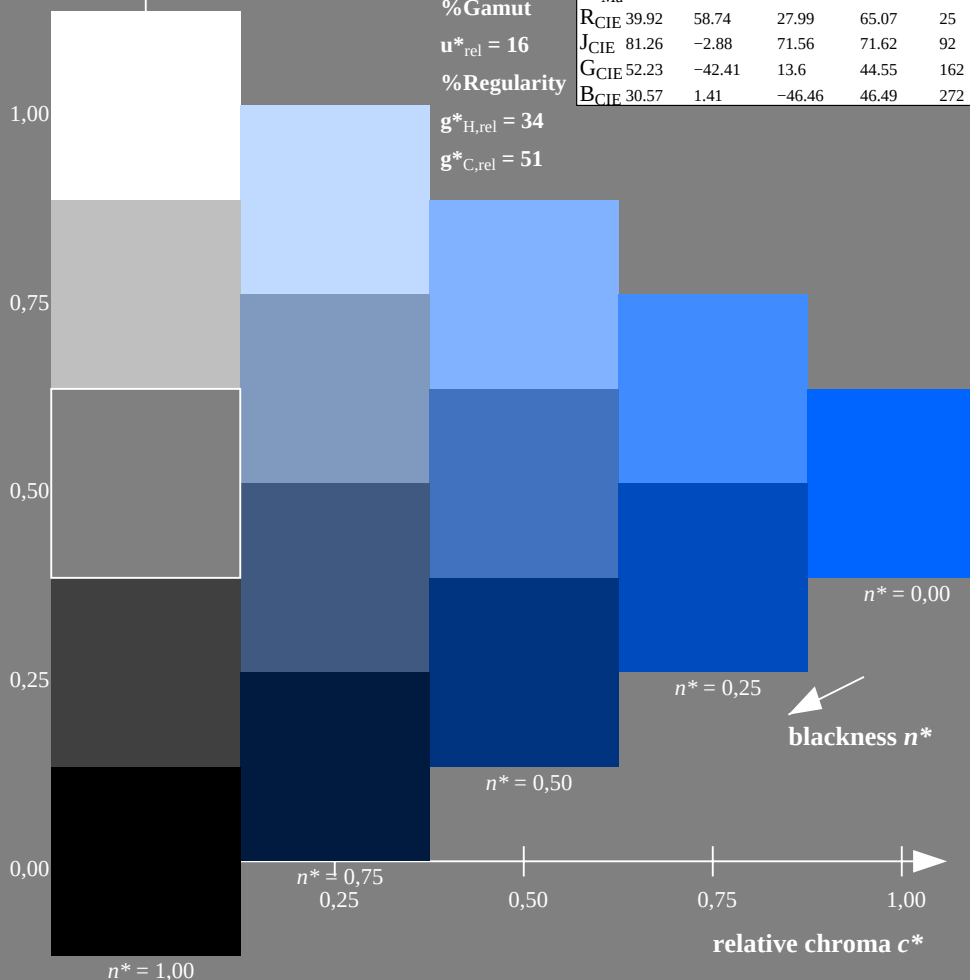
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



IE390-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE39 for visual displays, Hue B, Page 80/80
Discrimination of 5 and 16 step colour scales,a

Output: Colorimetric Television Luminous System TLS70a

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

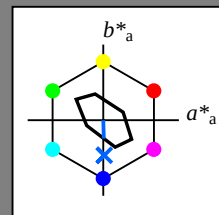
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 80 24 272

olv*Ma: 0.0 0.4 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 16$

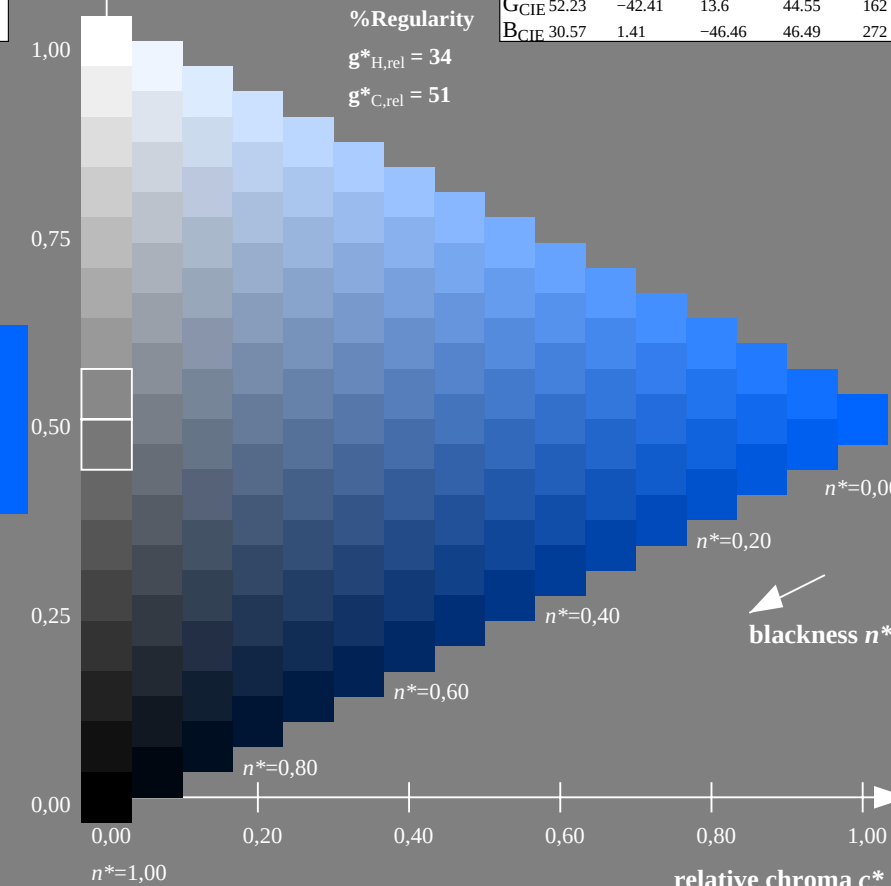
% Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

TLS70a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	76.43	26.27	10.57	28.32	22
Y _{Ma}	93.93	-10.76	34.63	36.27	107
L _{Ma}	89.32	-35.8	27.64	45.24	142
C _{Ma}	90.93	-21.95	-7.07	23.07	198
V _{Ma}	72.1	15.76	-35.63	38.97	294
M _{Ma}	78.5	37.52	-25.23	45.22	326
N _{Ma}	69.7	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

input: rgb ($\rightarrow rgb^*$) $setrgbcolor$
output: no change compared to input