

Input: Colorimetric Television Luminous System TLS00a

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

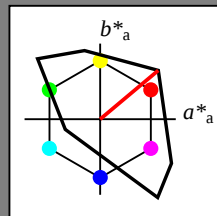
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 51 100 40

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

% 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 $h^* = lab^*h = 40/360 = 0.111$

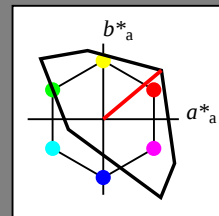
lab^*tch and lab^*nch

D65: hue O

LCH*Ma: 51 100 40

olv*Ma: 1.0 0.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

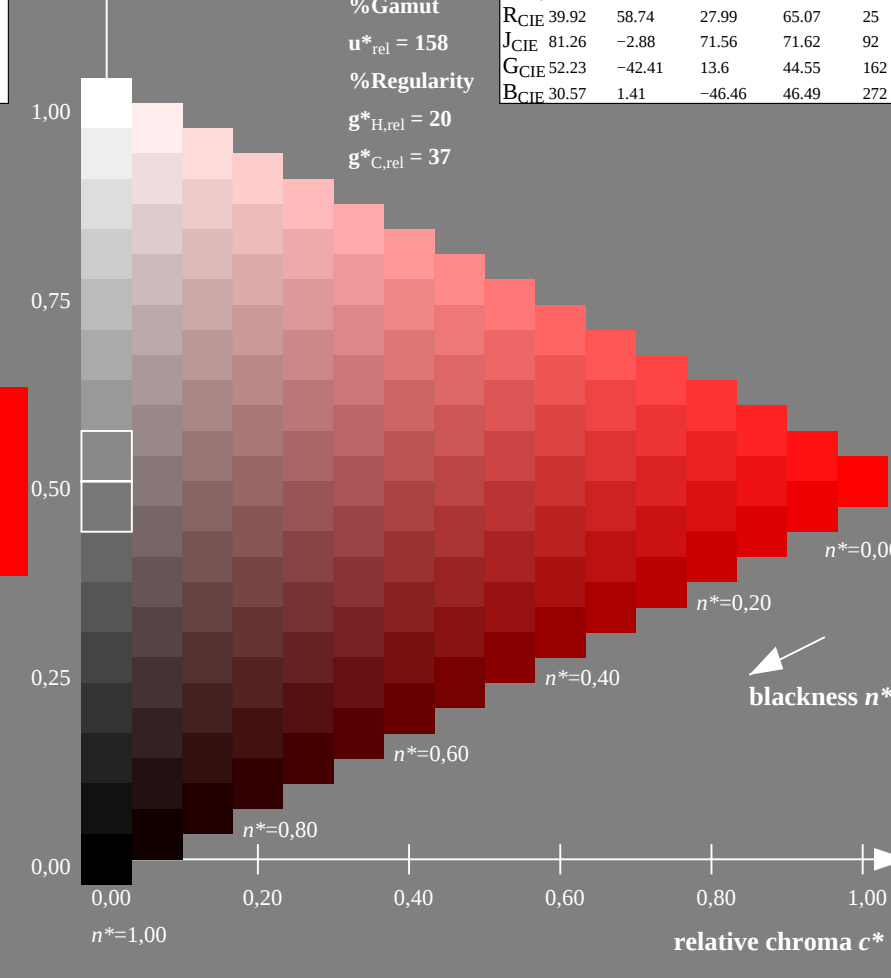
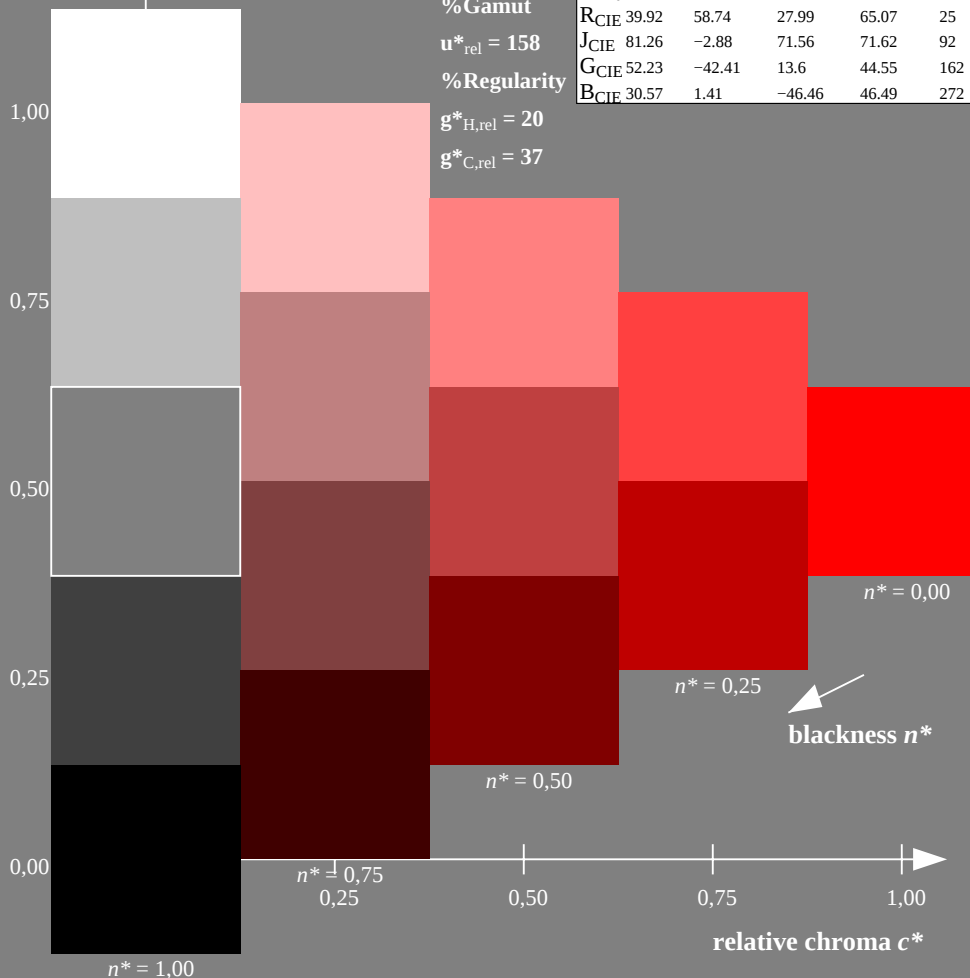
% Regularity

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

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

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



IE400-7N, 5 step scales for constant CIELAB hue 40/360 = 0.111 (left)

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

TUB-test chart IE40 for visual displays, Hue O, Page 1/11
Discrimination of 5 and 16 step colour scales, TLS00a

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

TUB registration: 20090901-IE40/IE40LONA.PS /.TXT
application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS00a

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

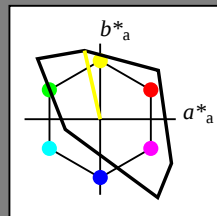
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 93 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

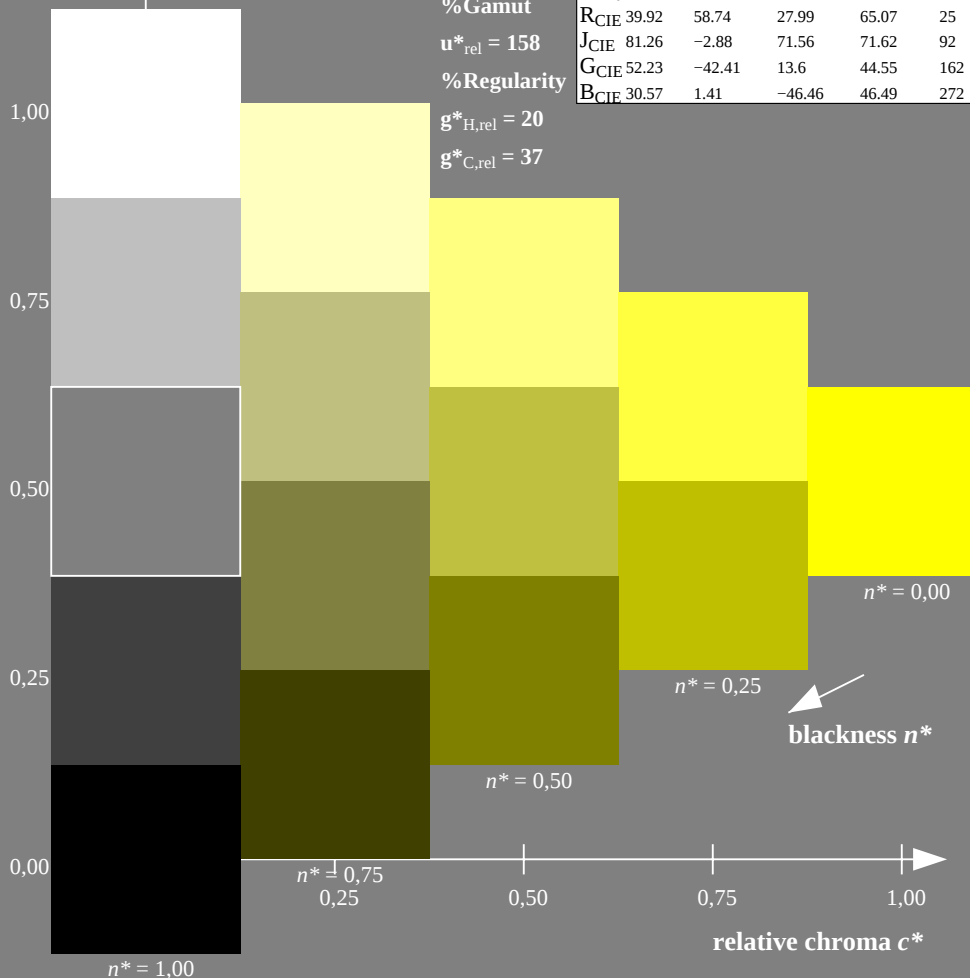
% Regularity

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

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

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

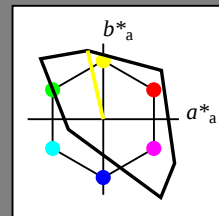
lab^*tch and lab^*nch

D65: hue Y

LCH*Ma: 93 93 103

olv*Ma: 1.0 1.0 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

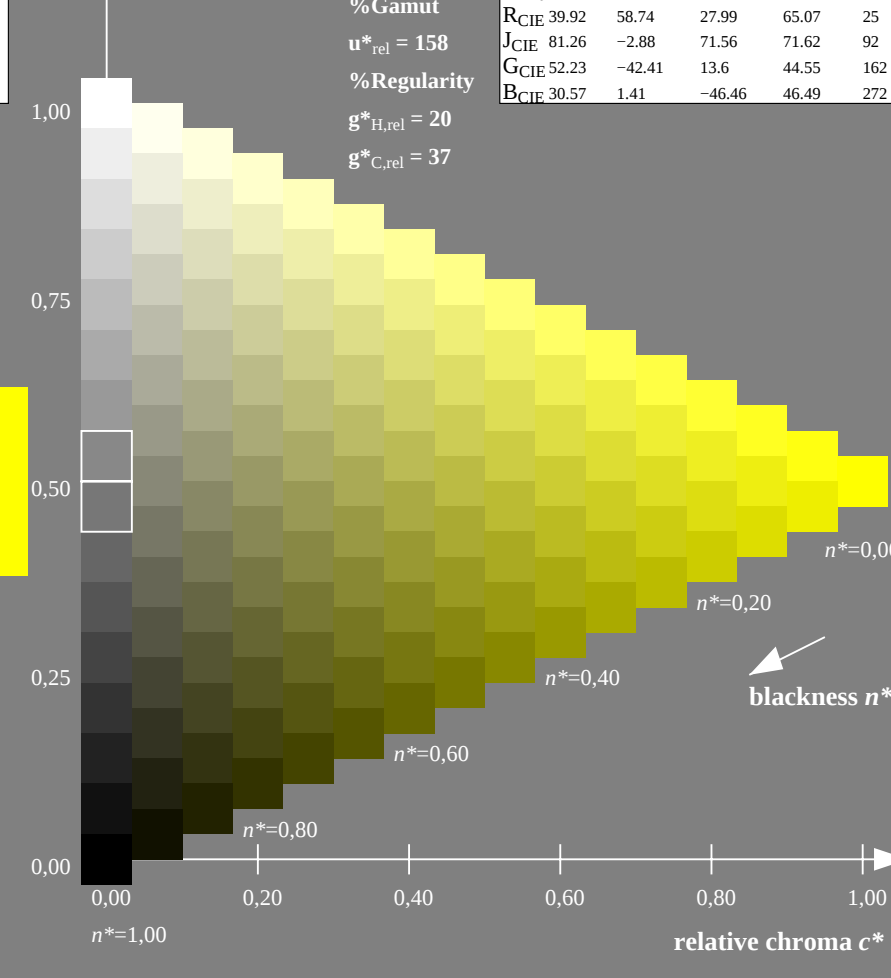
% Regularity

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

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

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



IE400-7N, 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 IE40 for visual displays, Hue Y, Page 2/11
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 TLS00a

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

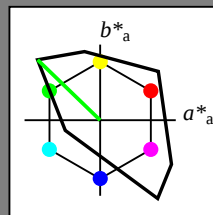
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 115 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

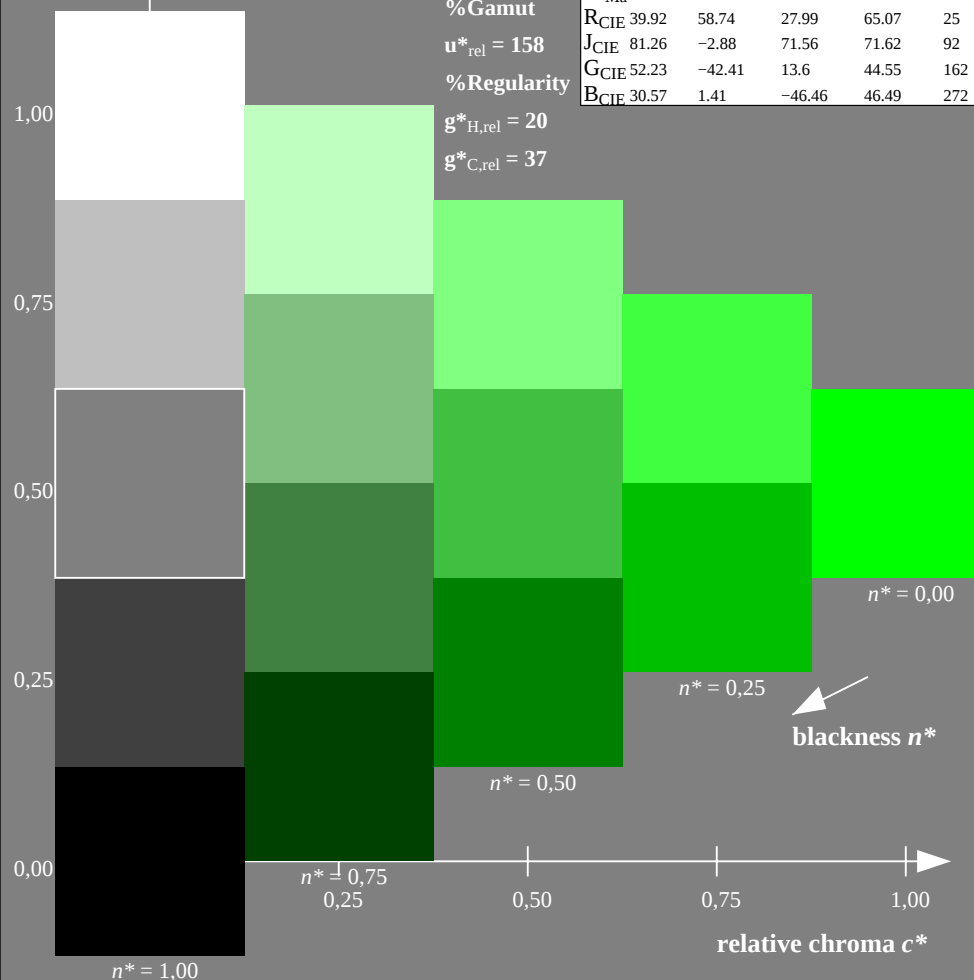
$u^*_{rel} = 158$

% Regularity

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

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

TLS00a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
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



IE400-7N, 5 step scales for constant CIE LAB hue 136/360 = 0.378 (left)

TUB-test chart IE40 for visual displays, Hue L, Page 3/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

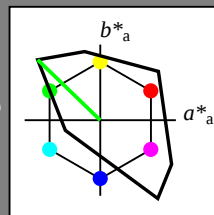
lab^*tch and lab^*nch

D65: hue L

LCH*Ma: 84 115 136

olv*Ma: 0.0 1.0 0.0

triangle lightness t^*



% Gamut

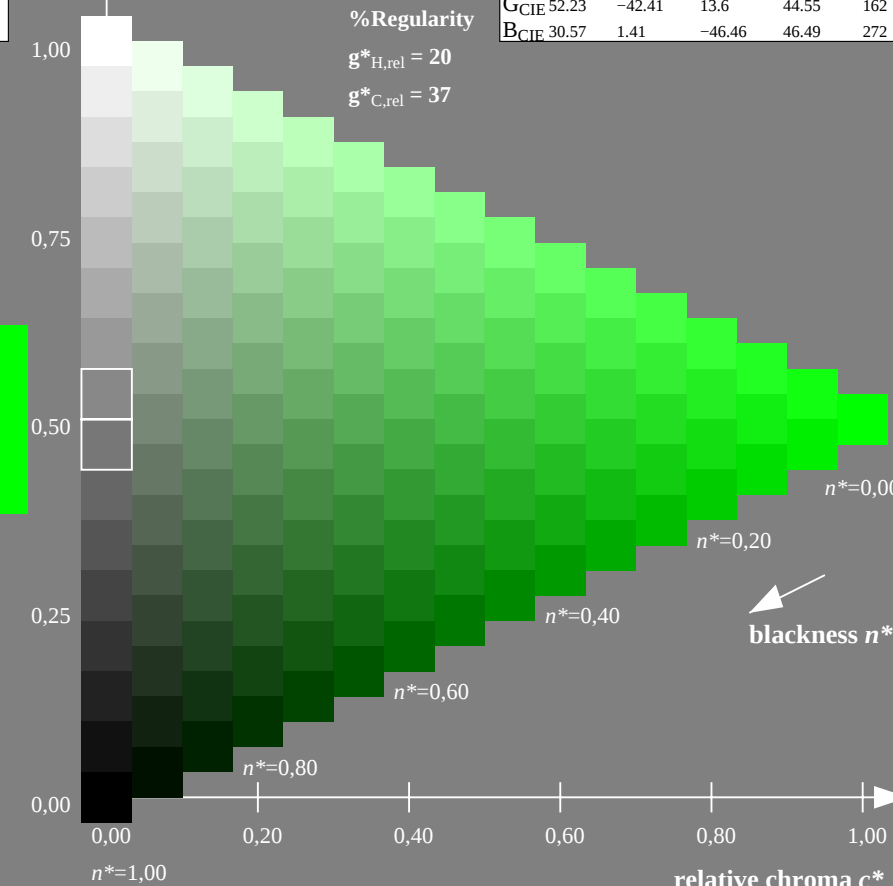
$u^*_{rel} = 158$

% Regularity

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

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

TLS00a; adapted (a) CIELAB data					
	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
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



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

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

Input: Colorimetric Television Luminous System TLS00a

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

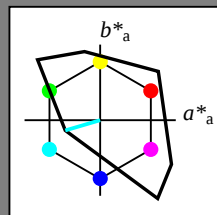
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 158$

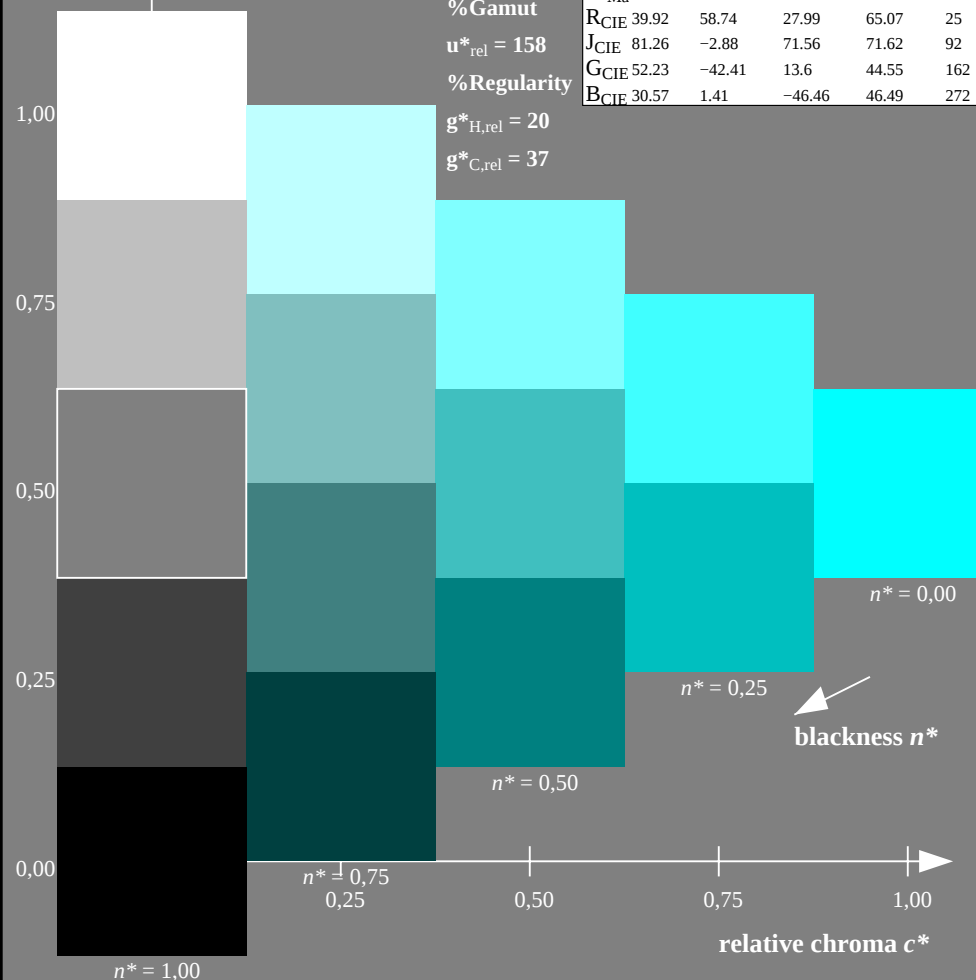
%Regularity

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

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

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



IE400-7N, 5 step scales for constant CIELAB hue 196/360 = 0.545 (left)

TUB-test chart IE40 for visual displays, Hue C, Page 4/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

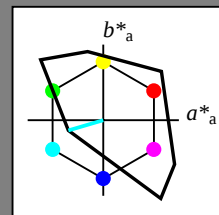
lab^*tch and lab^*nch

D65: hue C

LCH*Ma: 87 48 196

olv*Ma: 0.0 1.0 1.0

triangle lightness t^*



%Gamut

$u^*_{rel} = 158$

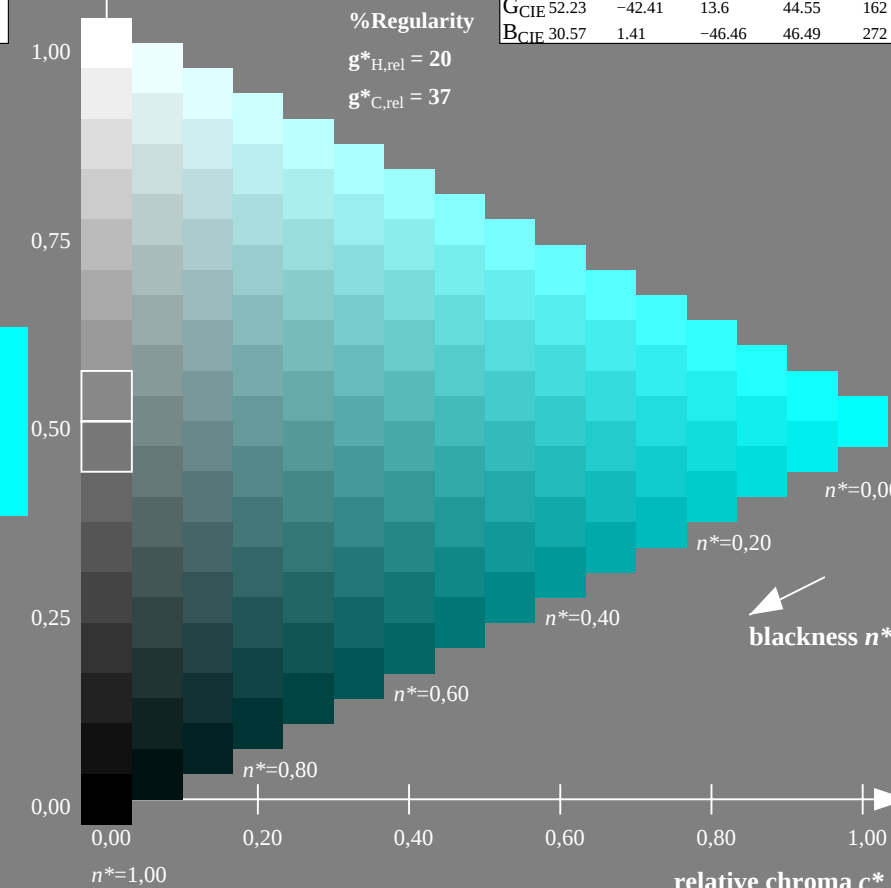
%Regularity

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

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

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



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 TLS00a

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

lab^*tch and lab^*nch

D65: hue V

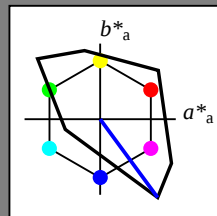
LCH*Ma: 30 129 306

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



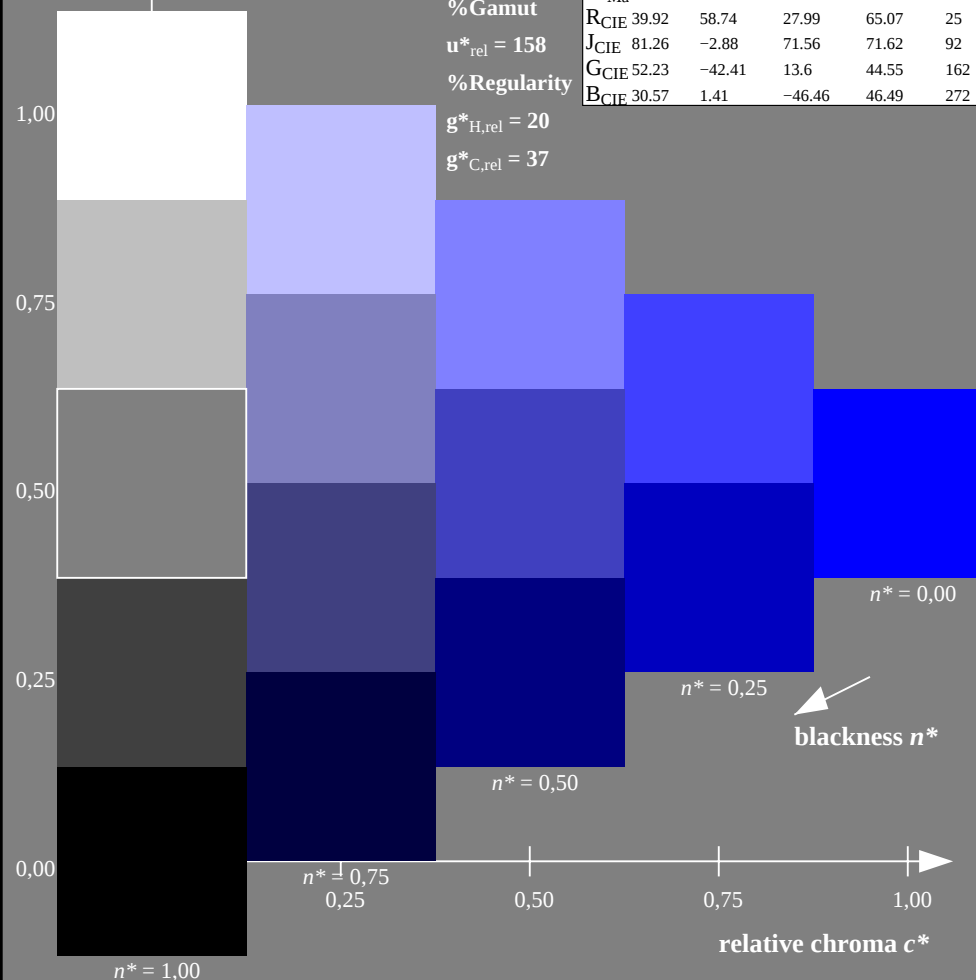
% Gamut

$u^*_{rel} = 158$

% Regularity

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

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



IE400-7N, 5 step scales for constant CIELAB hue 306/360 = 0.851 (left)

TUB-test chart IE40 for visual displays, Hue V, Page 5/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

lab^*tch and lab^*nch

D65: hue V

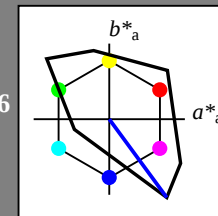
LCH*Ma: 30 129 306

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



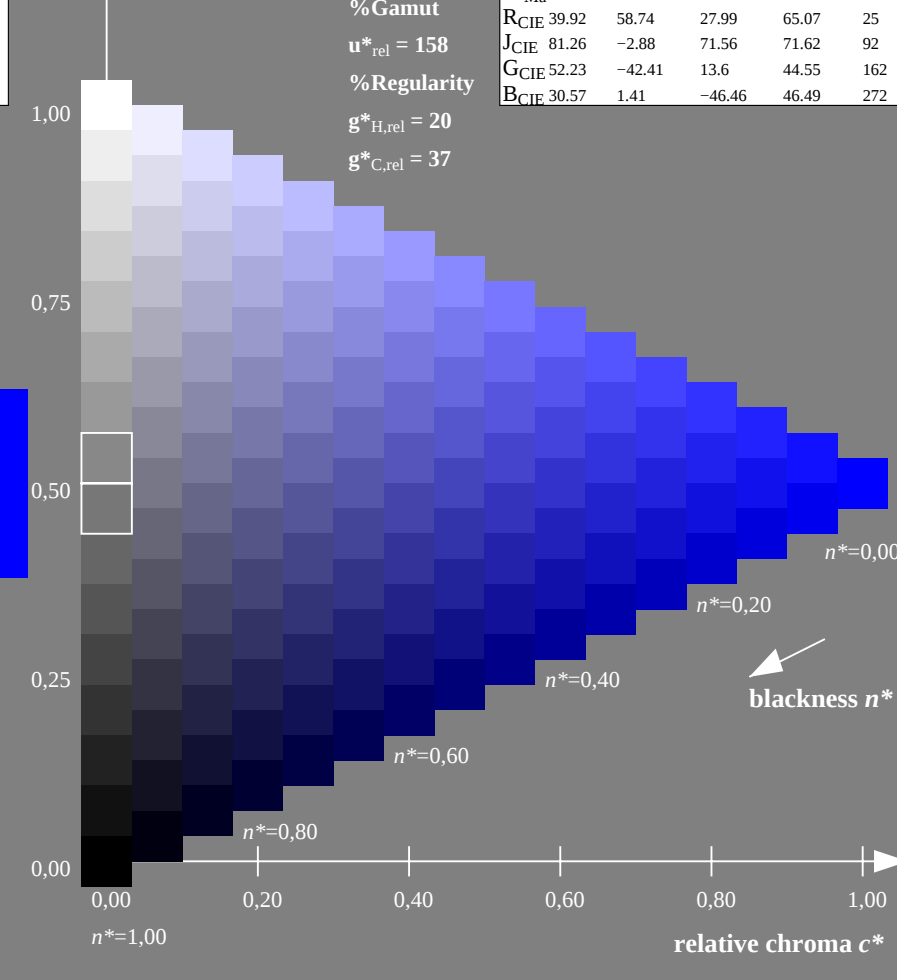
% Gamut

$u^*_{rel} = 158$

% Regularity

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

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



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

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

Input: Colorimetric Television Luminous System TLS00a

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

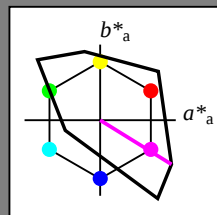
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 57 111 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

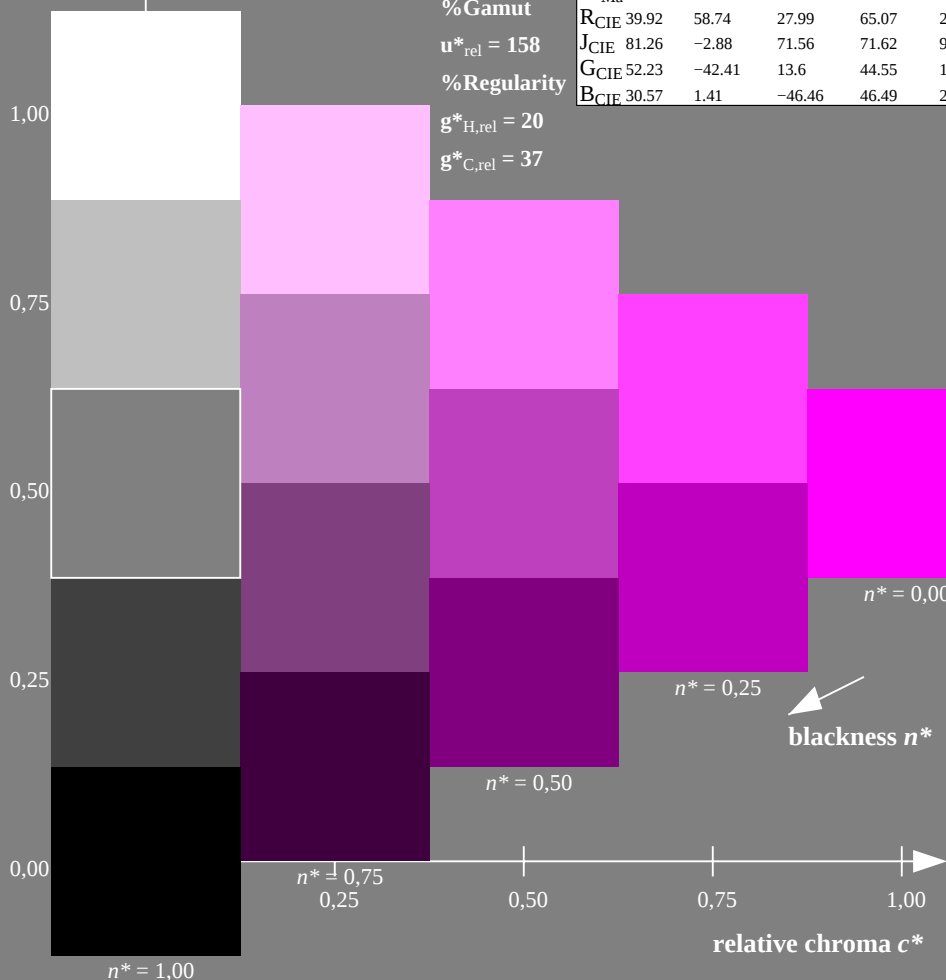
% Regularity

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

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

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
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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



IE400-7N, 5 step scales for constant CIELAB hue 328/360 = 0.912 (left)

TUB-test chart IE40 for visual displays, Hue M, Page 6/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

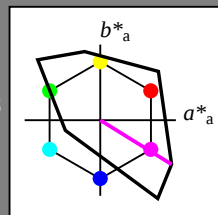
lab^*tch and lab^*nch

D65: hue M

LCH*Ma: 57 111 328

olv*Ma: 1.0 0.0 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

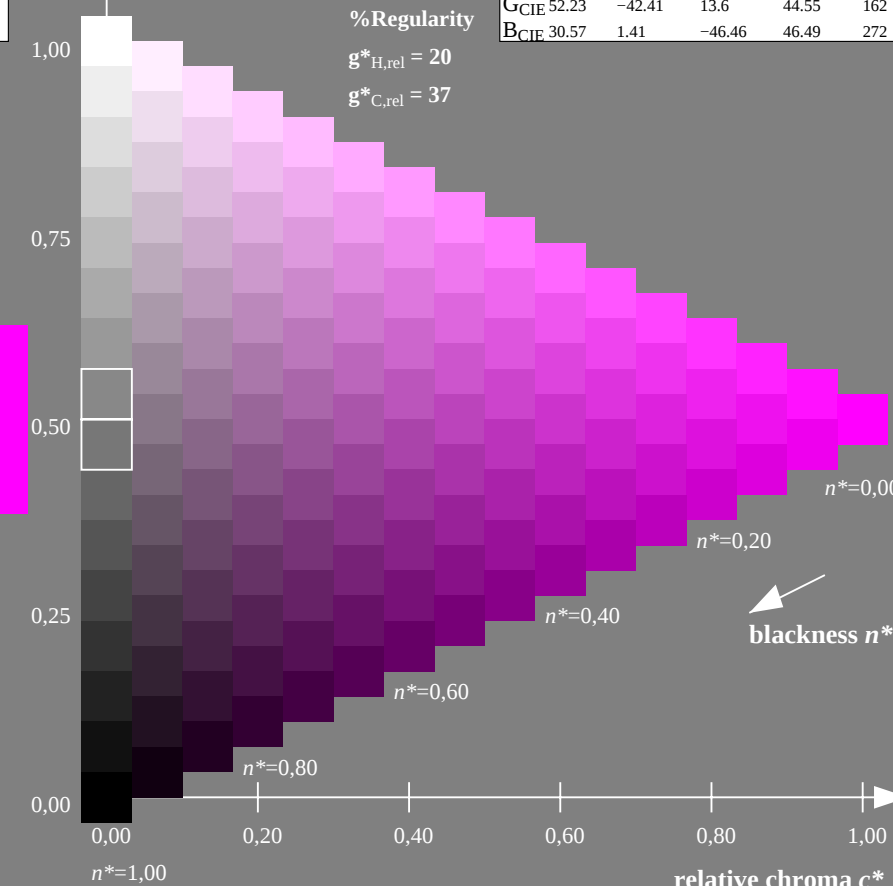
% Regularity

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

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

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 328/360 = 0.912 (right)

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

Input: Colorimetric Television Luminous System TLS00a

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

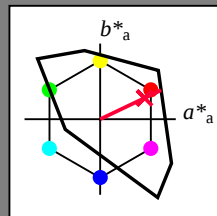
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 52 89 25

olv*Ma: 1.0 0.0 0.21

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

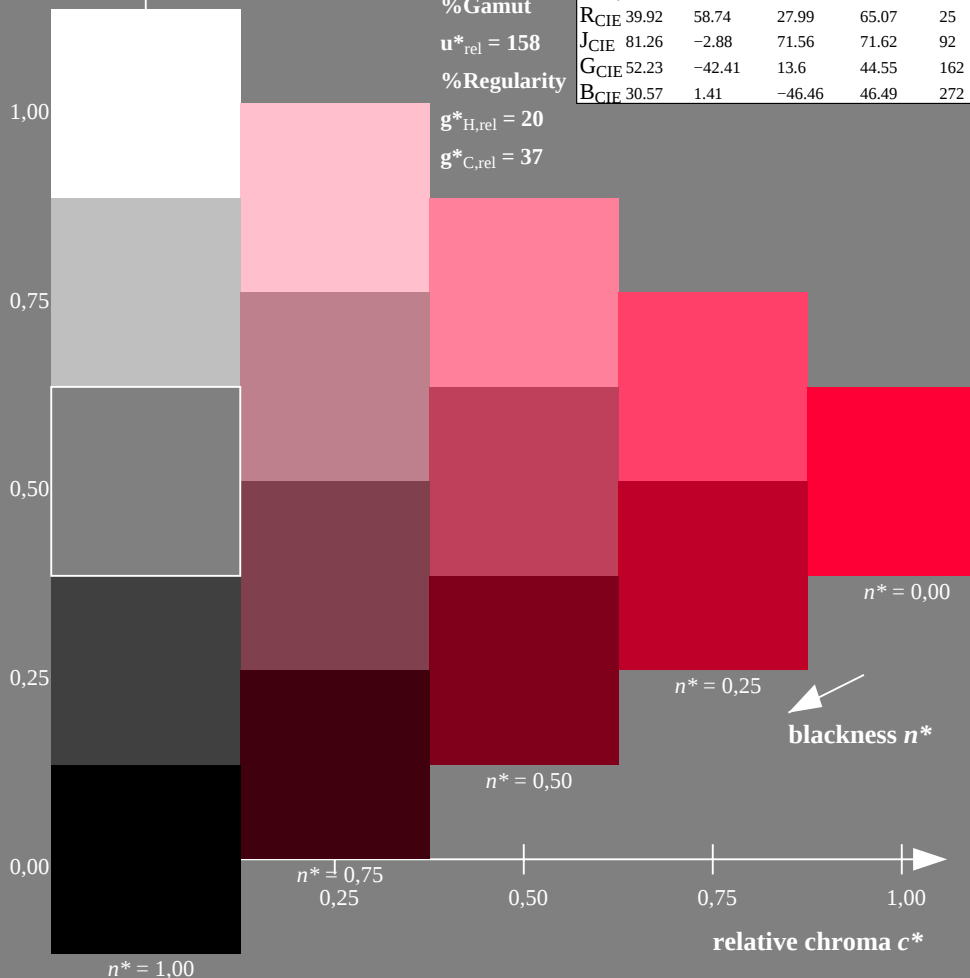
% Regularity

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

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

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



IE400-7N, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

TUB-test chart IE40 for visual displays, Hue R, Page 7/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

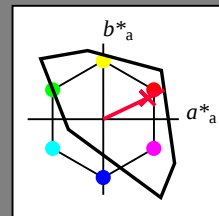
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 52 89 25

olv*Ma: 1.0 0.0 0.21

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

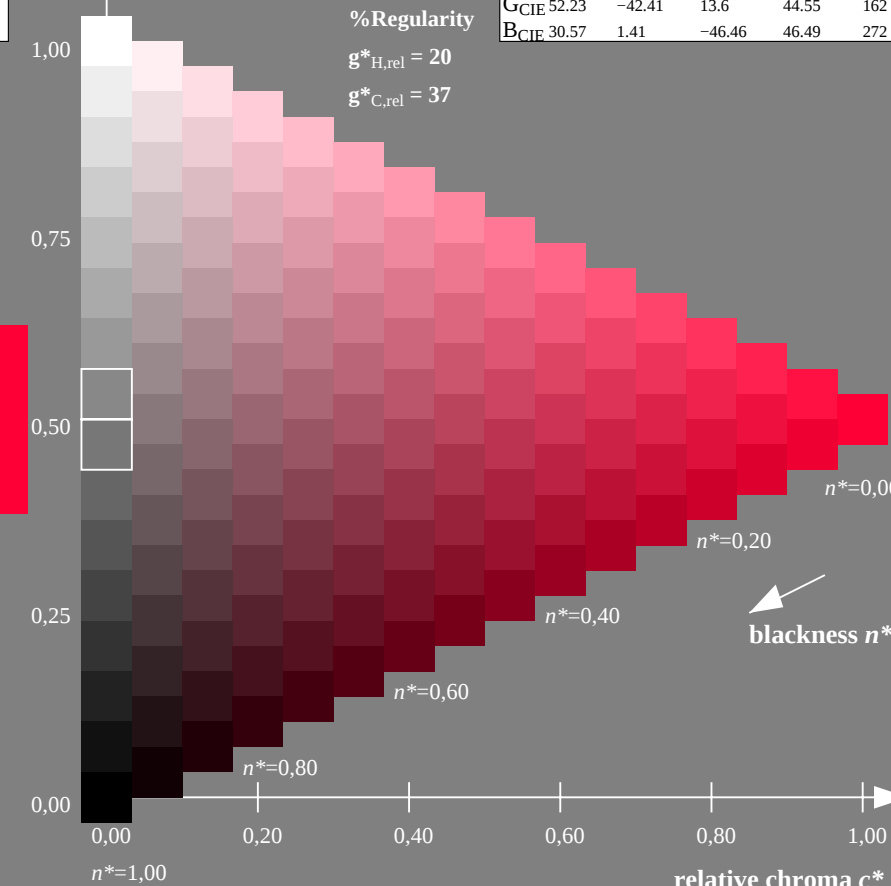
% Regularity

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

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

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



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

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

TUB registration: 20090901-IE40/IE40LONA.PS /.TXT
application for output of visual display systems

TUB material: code=rha4ta

Input: Colorimetric Television Luminous System TLS00a

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

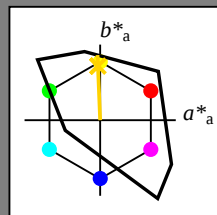
lab^*tch and lab^*nch

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	$C^*_{ab,a}$	$h^*_{ab,a}$
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 $h^* = lab^*h = 92/360 = 0.256$

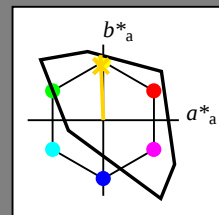
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 85 86 92

olv*Ma: 1.0 0.82 0.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

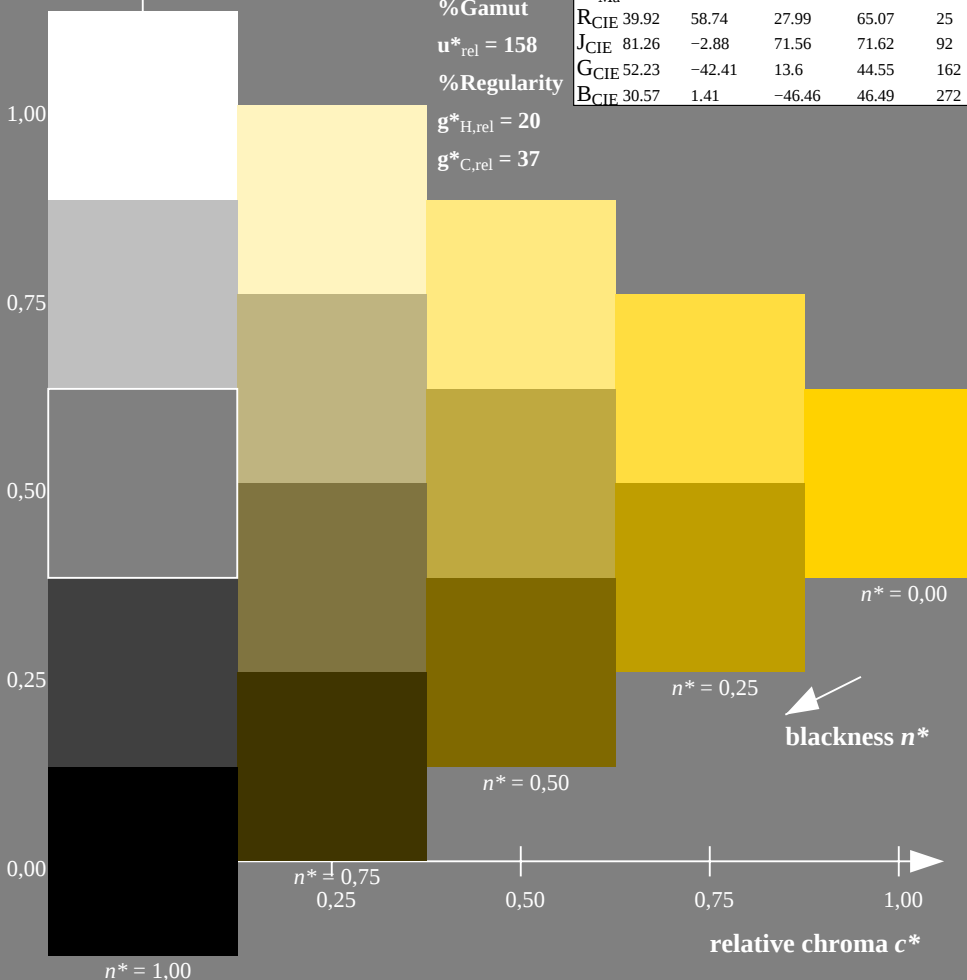
% Regularity

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

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

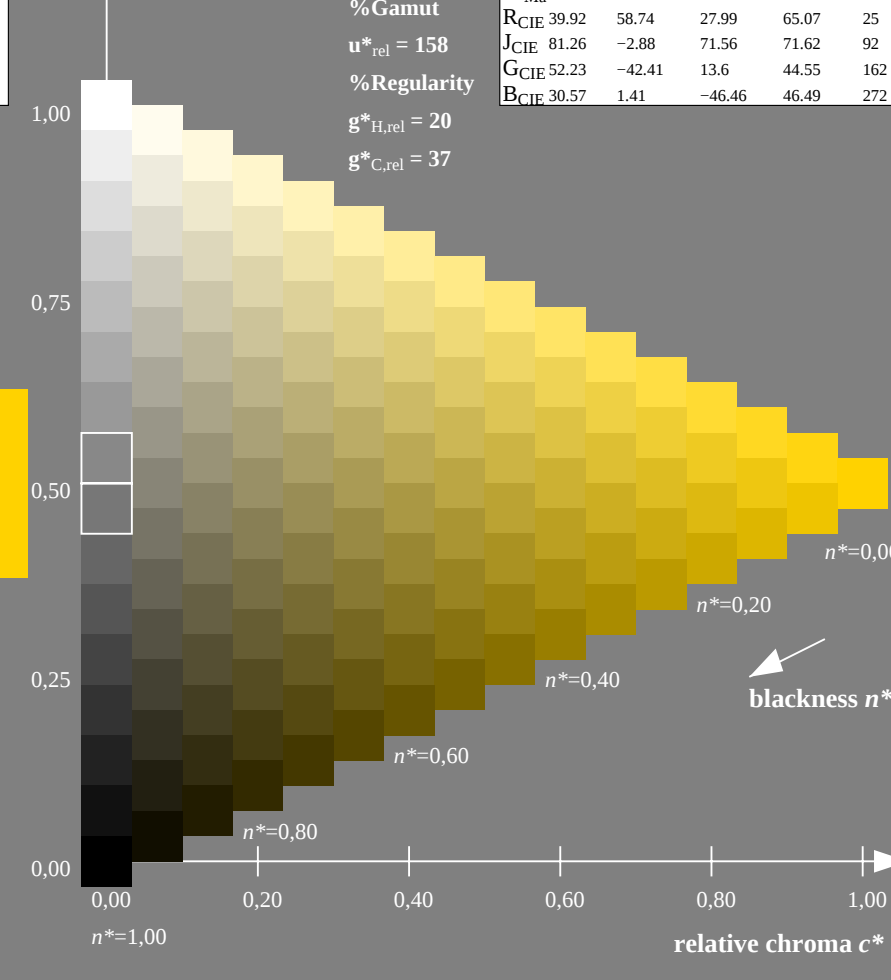
TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
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



IE400-7N, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

TUB-test chart IE40 for visual displays, Hue J, Page 8/11
Discrimination of 5 and 16 step colour scales, TLS00a



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

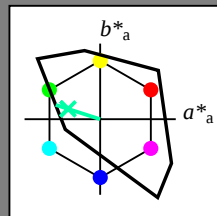
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 62 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

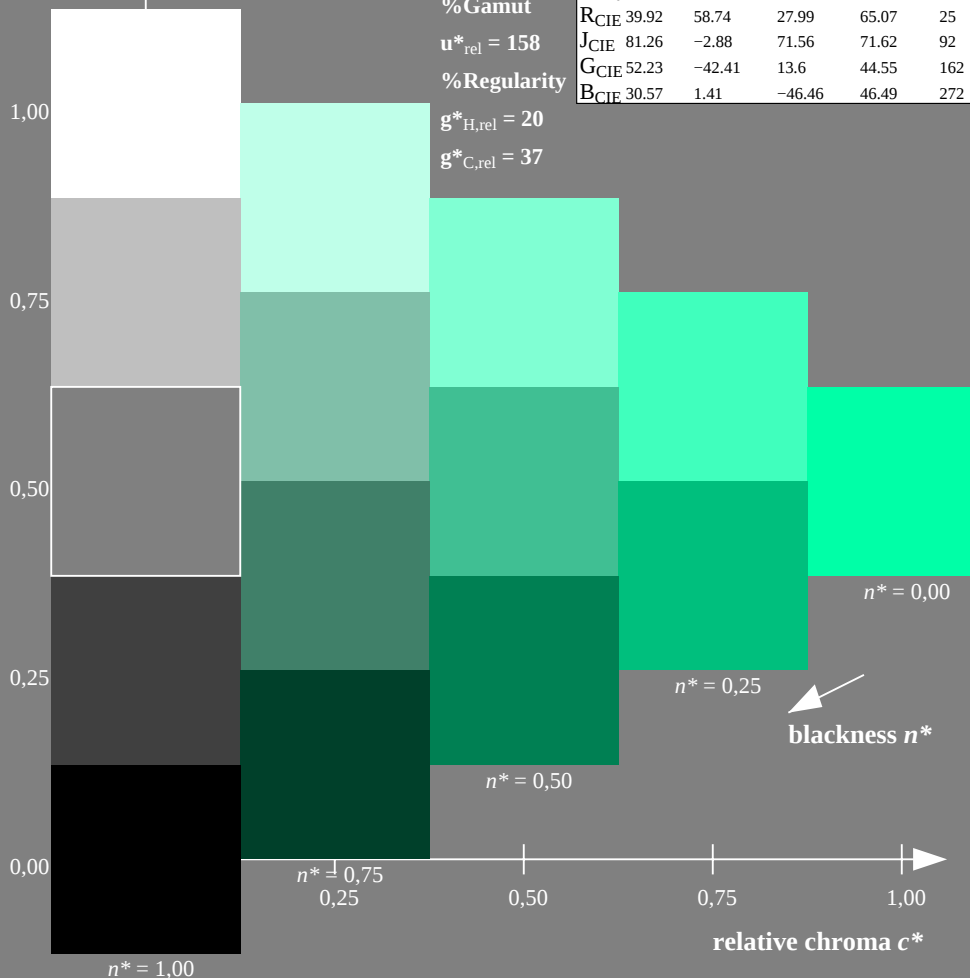
% Regularity

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

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

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



IE400-7N, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

TUB-test chart IE40 for visual displays, Hue G, Page 9/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

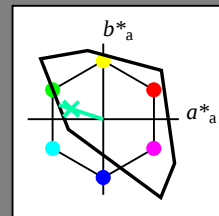
lab^*tch and lab^*nch

D65: hue G

LCH*Ma: 86 62 162

olv*Ma: 0.0 1.0 0.65

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

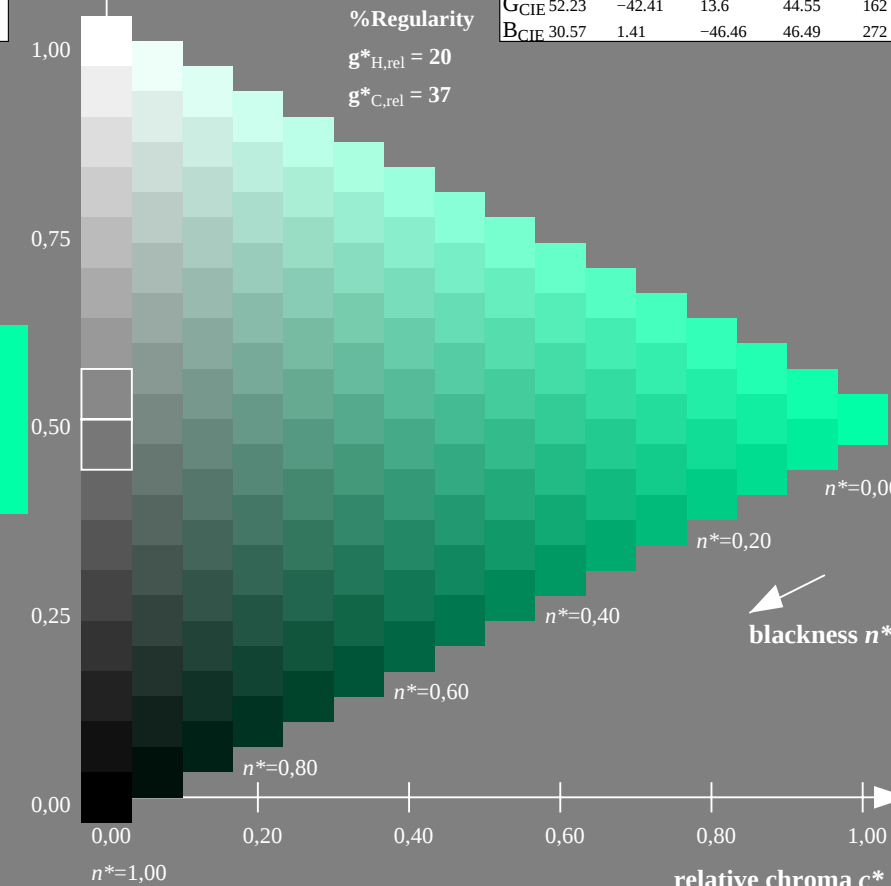
% Regularity

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

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

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

Input: Colorimetric Television Luminous System TLS00a

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

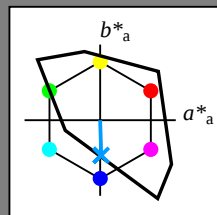
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 49 272

olv*Ma: 0.0 0.61 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

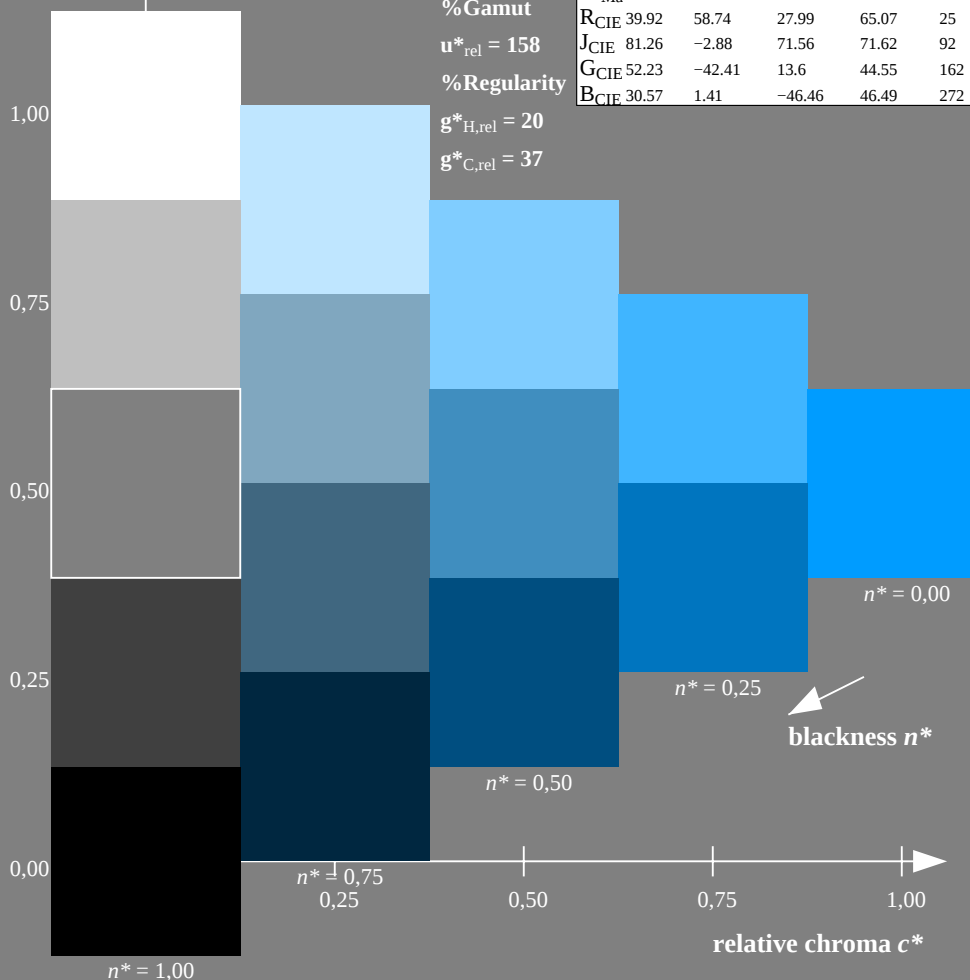
% Regularity

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

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

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



IE400-7N, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)

TUB-test chart IE40 for visual displays, Hue B, Page 10/11
Discrimination of 5 and 16 step colour scales, TLS00a

Output: Colorimetric Television Luminous System TLS00a

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

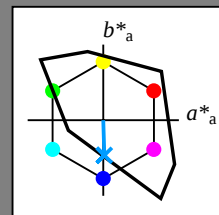
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 65 49 272

olv*Ma: 0.0 0.61 1.0

triangle lightness t^*



% Gamut

$u^*_{rel} = 158$

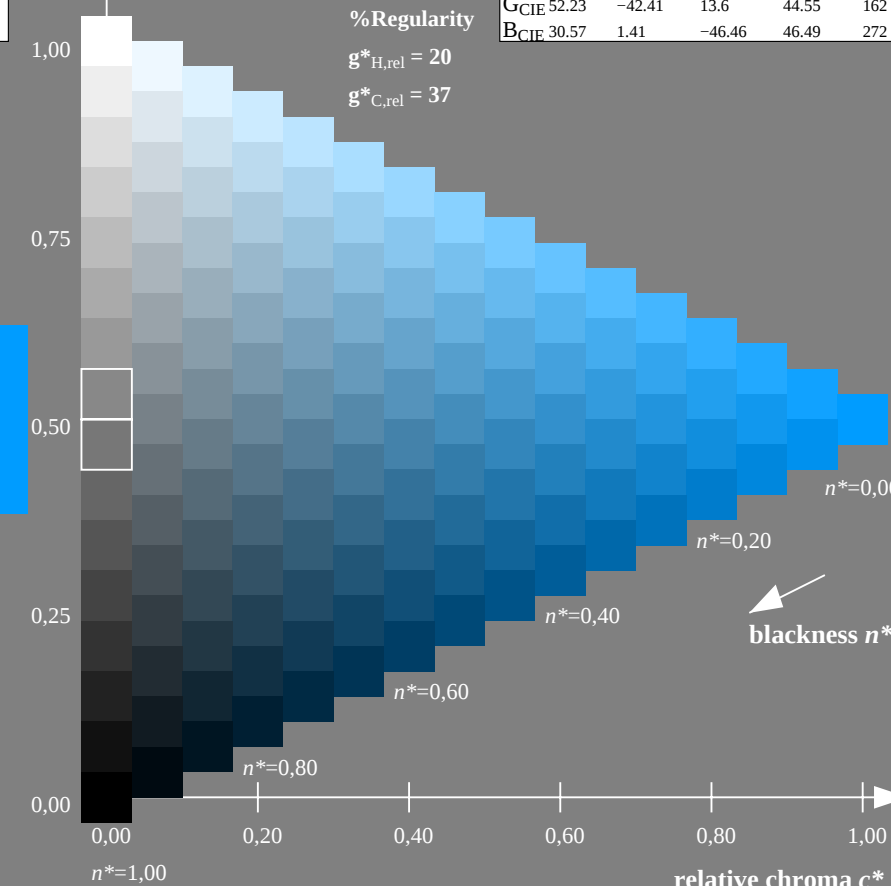
% Regularity

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

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

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

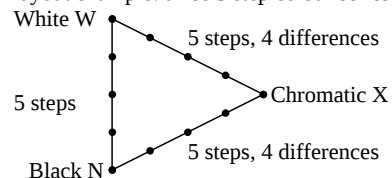


16 step scales for constant CIELAB hue 272/360 = 0.755 (right)

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

Discriminability of 5 step colour series (Yes/No decision)

Layout example: three 5 step colour series



There are three basic colours on each page:
Black N, White W and Chromatic X.
Ten pages include 10 hue planes
X = OYLCVM and RJGB.
There are at maximum 12 distinguishable steps.

All steps of the three series N-W, W-X and X-N should be distinguishable on **all** pages.

Are the three 5step series distinguishable on all pages? underline: Yes/No

only in case of No: Are the three 5 step series on Page x of 10 pages distinguishable?

Underline Yes/No and give in case of No the number of distinguishable steps?

- Page 1: Yes/No, if No ../12 step differences are distinguishable of O = Orange Red
Page 2: Yes/No, if No ../12 step differences are distinguishable of Y = Yellow
Page 3: Yes/No, if No ../12 step differences are distinguishable of L = Leaf green
Page 4: Yes/No, if No ../12 step differences are distinguishable of C = Cyan blue
Page 5: Yes/No, if No ../12 step differences are distinguishable of V = Violet blue
Page 6: Yes/No, if No ../12 step differences are distinguishable of M = Magenta Red
Page 7: Yes/No, if No ../12 step differences are distinguishable of R = Elementary Red
Page 8: Yes/No, if No ../12 step differences are distinguishable of J = Elementary Yellow
Page 9: Yes/No, if No ../12 step differences are distinguishable of G = Elementary Green
Page 10: Yes/No, if No ../12 step differences are distinguishable of B = Elementary blue

Sum: ../10 Yes-Pages and ../120 step differences are distinguishable

Part 1

IE400-3

Documentation of file format, hardware and software for this test:

PDF-File: either xxx/IE42/IE42L00NP.PDF underline Yes/No
or xxx/IE42/IE42P00NP.PDF underline Yes/No
PS-File: either xxx/IE42/IE42L00NA.PS or underline Yes/No
or xxx/IE42/IE42P00NA.PS or underline Yes/No

Used computer operating system:

either one of Windows/Mac/Unix/other and version:.....

This evaluation is for the device output: underline monitor/data projector/printer

Device model, driver and version:.....

Device output with PDF/PS-file: underline PDF/PS-file

For device output with PDF-file IE42(L/P)00NP.PDF:

- either PDF-file transfer "download, copy" to PDF device.....
or with computer system interpretation by "Display-PDF":.....
or with software. e. g. Adobe-Reader/-Acrobat and version:.....
or with software e. g. Ghostscript and version:.....

For device output with PS-file IE42(L/P)00NA.PS:

- either PS-file transfer "download, copy" to PS device.....
or with computer system interpretation by "Display-PS":.....
or with software e. g. Ghostscript and version:.....
or with software e. g. Mac-Yap and version:.....

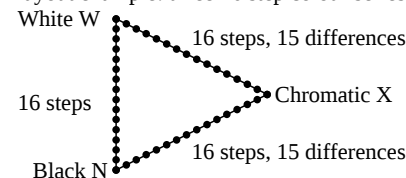
Special remarks, e. g. output of Landscape (L) file IE42L00NA.PS was cutted,
Portrait (P) file IE42P0NA.PS was used:.....

Part 3

IE400-5

Discriminability of 16 step colour series (Yes/No decision)

Layout example: three 16 step colour series



There are three basic colours on each page:
Black N, White W and Chromatic X.
Ten pages include 10 hue planes
X = OYLCVM and RJGB.
There are at maximum 45 distinguishable steps.

All steps of the three series N-W, W-X and X-N should be distinguishable on **all** pages.

Are the three 16step series distinguishable on all pages? underline: Yes/No

only in case of No: Are the three 16 step series on Page x of 10 pages distinguishable?

Underline Yes/No and give in case of No the number of distinguishable steps?

- Page 1: Yes/No, if No ../45 step differences are distinguishable of O = Orange Red
Page 2: Yes/No, if No ../45 step differences are distinguishable of Y = Yellow
Page 3: Yes/No, if No ../45 step differences are distinguishable of L = Leaf green
Page 4: Yes/No, if No ../45 step differences are distinguishable of C = Cyan blue
Page 5: Yes/No, if No ../45 step differences are distinguishable of V = Violet blue
Page 6: Yes/No, if No ../45 step differences are distinguishable of M = Magenta Red
Page 7: Yes/No, if No ../45 step differences are distinguishable of R = Elementary Red
Page 8: Yes/No, if No ../45 step differences are distinguishable of J = Elementary Yellow
Page 9: Yes/No, if No ../45 step differences are distinguishable of G = Elementary Green
Page 10: Yes/No, if No ../45 step differences are distinguishable of B = Elementary blue

Sum: ../10 Yes-Pages and ../450 step differences are distinguishable

Part 2

IE401-3

Documentation of assessor colour vision properties for visual assessment

The assessor has **normal** colour vision according to one test:

- either according to DIN 6160:1996 with Anomaloskop of Nagel underline Yes/No
or with test charts using colour points according to Ishihara underline Yes/unknown
or tested with, please specify: underline Yes/unknown

Only for display (monitor, data projector) output:

- Office workplace illumination is daylight (clouded/north sky) underline Yes/No
PDF-file output with xxx/IE43/IE43L0NP.PDF underline Yes/No
Comparison of contrast range of 16 steps F to 0 with test chart Annex B of ISO 9241-306:2008
give contrast range: (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (7:0) (5:0) (3:0) (<3:0)
Remark: In daylighted offices the contrast range is in many cases:
on paper between: >F:0 (highly glossy), F:0 (silk glossy) and E:0 (matte)
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

Only for optional colorimetric specification with PDF/PS file output

PDF-File: either xxx/IE41/IE41L0NP.PDF underline Yes/No
or xxx/IE41/IE41P0NP.PDF or underline Yes/No
PS-File: either xxx/IE41/IE41L0NA.PS or underline Yes/No
or xxx/IE41/IE41P0NA.PS or underline Yes/No

colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: underline Yes/No
If No, please give other parameters:

Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file xxx/IE47/IE47L0NP.PS and transfer
of the PS-file IE47L0NP.PS in PDF-file IE47L0NP.PDF underline Yes/No
If No, please describe other method:

Part 4

IE401-5