

Input: Colorimetric Reflective System ORS18

for hue  $h^* = lab \cdot h = 38/360 = 0.105$

LAB\*LCH, LAB\*NCH

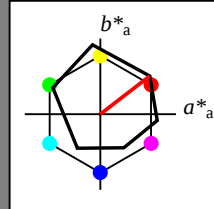
D65: hue O

LCH\*Ma: 48 83 38

olv\*Ma: 1.0 0.0 0.0

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



CIELAB lightness  $L^*$

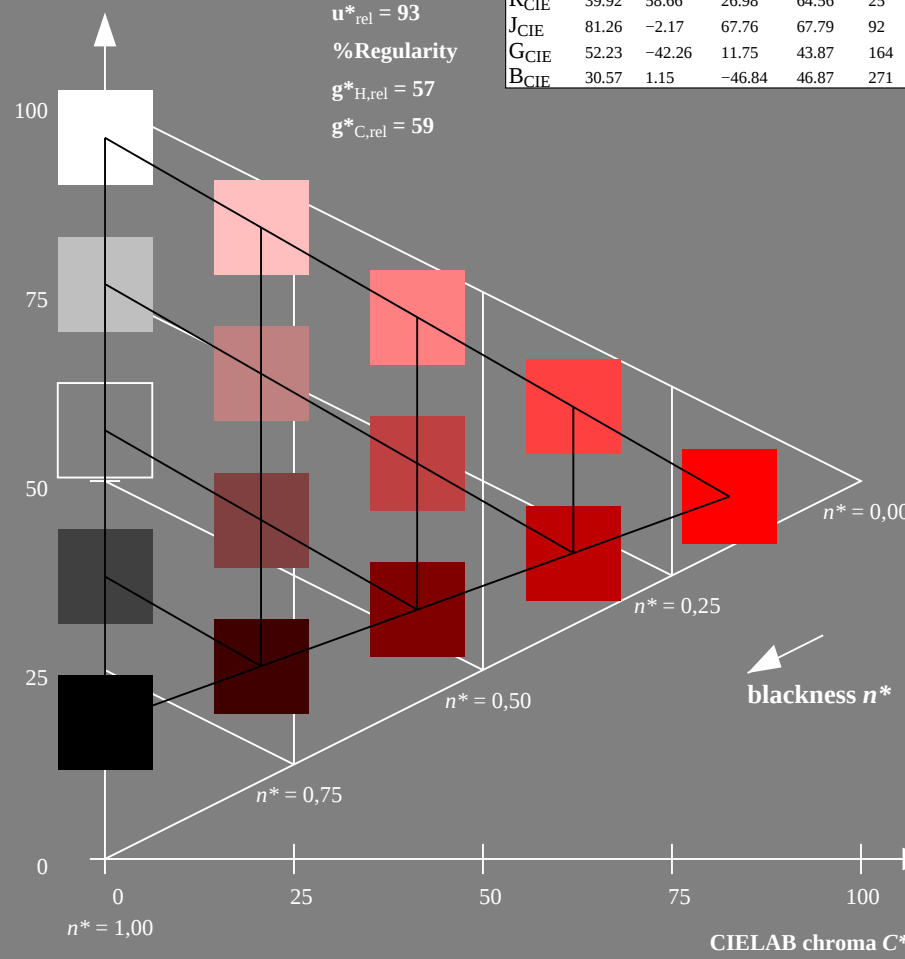
% Gamut

$u^*_{rel} = 93$

% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$



TE320-7, 5 step scales for constant CIELAB hue 38/360 = 0.105 (left)

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

Output: Colorimetric Reflective System NRS11

for hue  $h^* = lab \cdot h = 24/360 = 0.067$

LAB\*LCH, LAB\*NCH

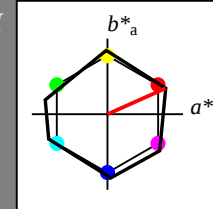
D65: hue R

LCH\*Ma: 53 84 24

olv\*Ma: 1.0 0.0 0.0

NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



CIELAB lightness  $L^*$

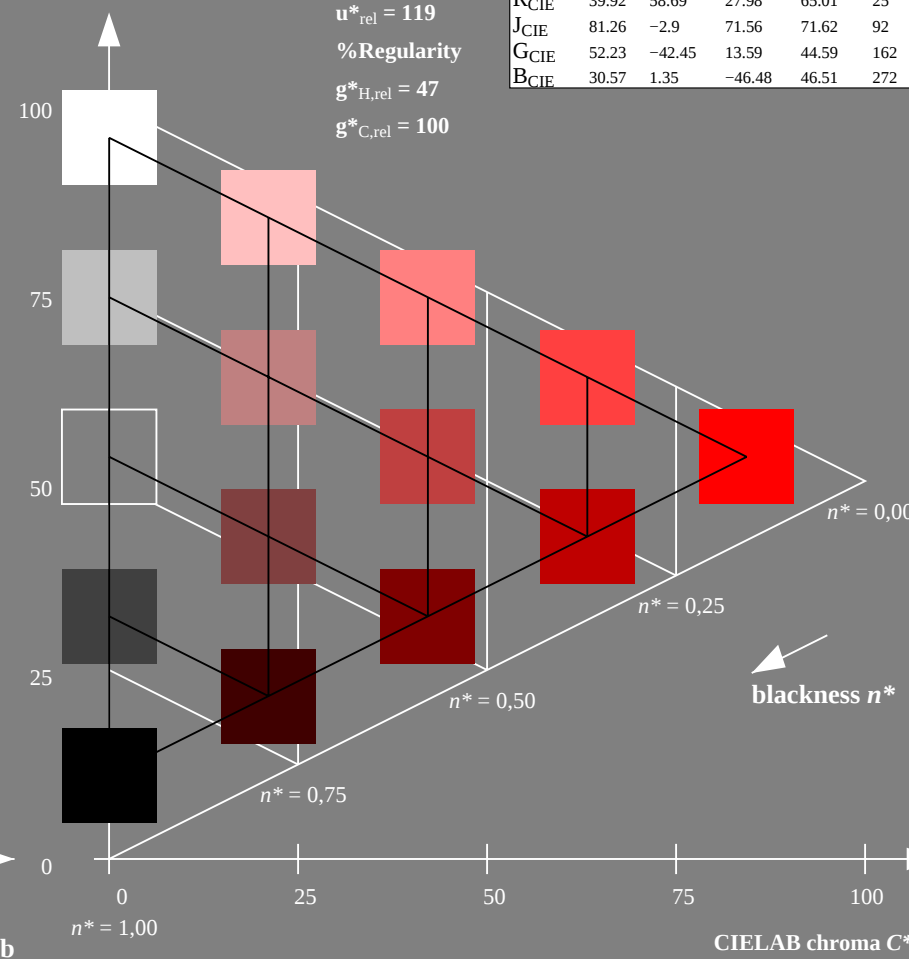
% Gamut

$u^*_{rel} = 119$

% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$



5 step scales for constant CIELAB hue 24/360 = 0.067 (right)

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Reflective System ORS18

for hue  $h^* = lab \cdot h = 96/360 = 0.268$

LAB\*LCH, LAB\*NCH

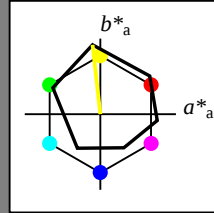
D65: hue Y

LCH\*Ma: 90 92 96

olv\*Ma: 1.0 1.0 0.0

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



CIELAB lightness  $L^*$

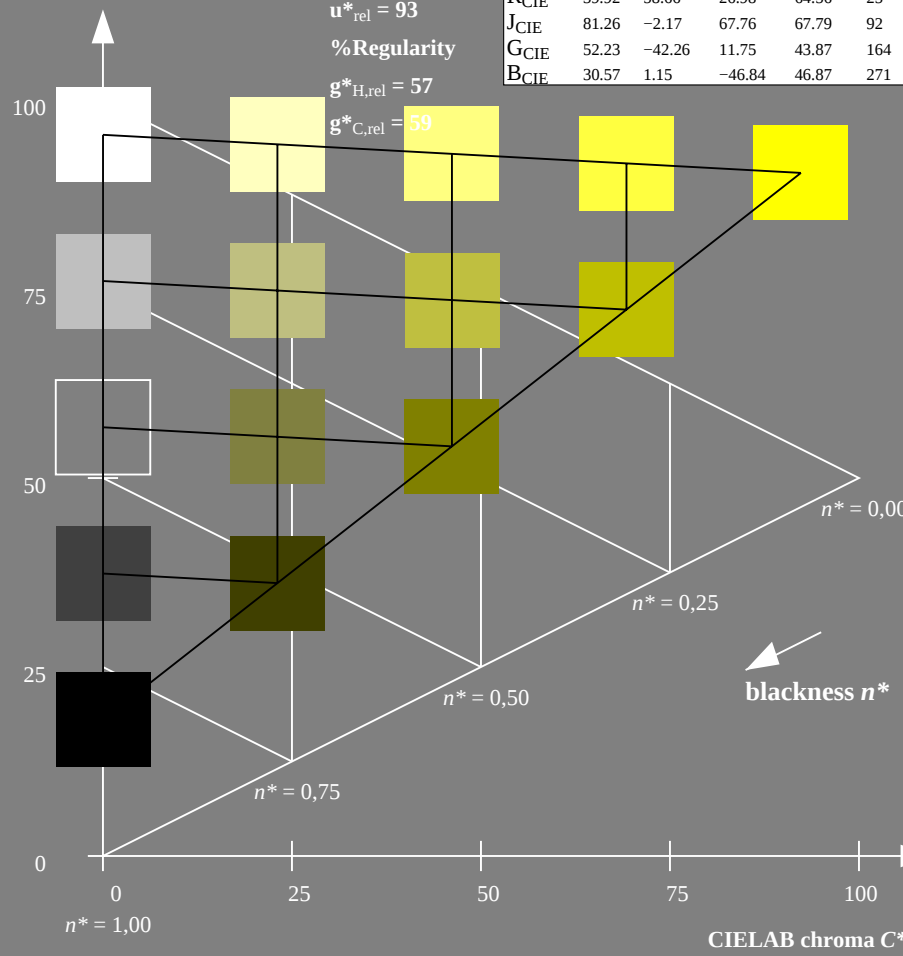
% Gamut

$u^*_{rel} = 93$

% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$



TE320-7, 5 step scales for constant CIELAB hue 96/360 = 0.268 (left)

Output: Colorimetric Reflective System NRS11

for hue  $h^* = lab \cdot h = 91/360 = 0.253$

LAB\*LCH, LAB\*NCH

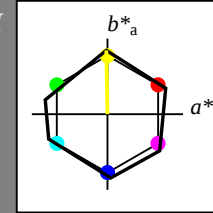
D65: hue J

LCH\*Ma: 53 84 91

olv\*Ma: 1.0 1.0 0.0

NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



CIELAB lightness  $L^*$

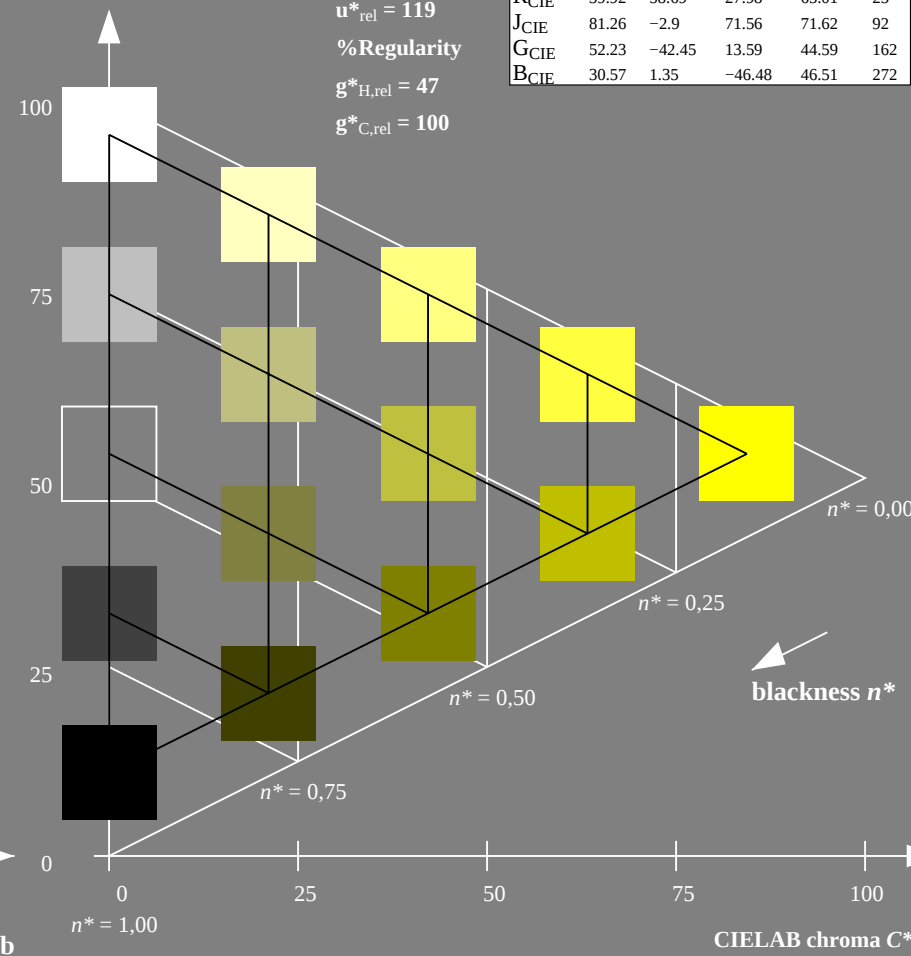
% Gamut

$u^*_{rel} = 119$

% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$



5 step scales for constant CIELAB hue 91/360 = 0.253 (right)

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Reflective System ORS18

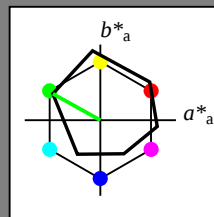
for hue  $h^* = lab \cdot h = 151/360 = 0.419$

LAB\*LCH, LAB\*NCH

D65: hue L

LCH\*Ma: 51 72 151

olv\*Ma: 0.0 1.0 0.0



ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

CIELAB lightness  $L^*$

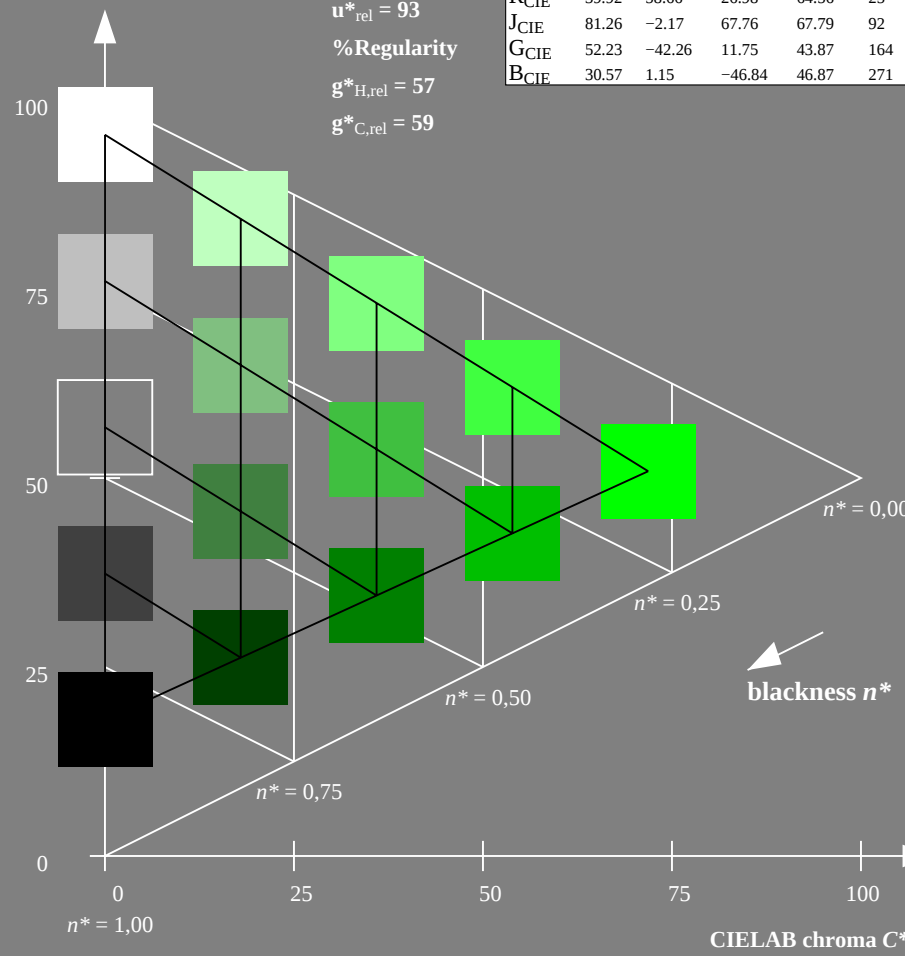
% Gamut

$u^*_{rel} = 93$

% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$



TE320-7, 5 step scales for constant CIELAB hue 151/360 = 0.419 (left)

Output: Colorimetric Reflective System NRS11

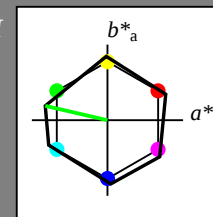
for hue  $h^* = lab \cdot h = 167/360 = 0.464$

LAB\*LCH, LAB\*NCH

D65: hue G

LCH\*Ma: 53 84 167

olv\*Ma: 0.0 1.0 0.0



NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

CIELAB lightness  $L^*$

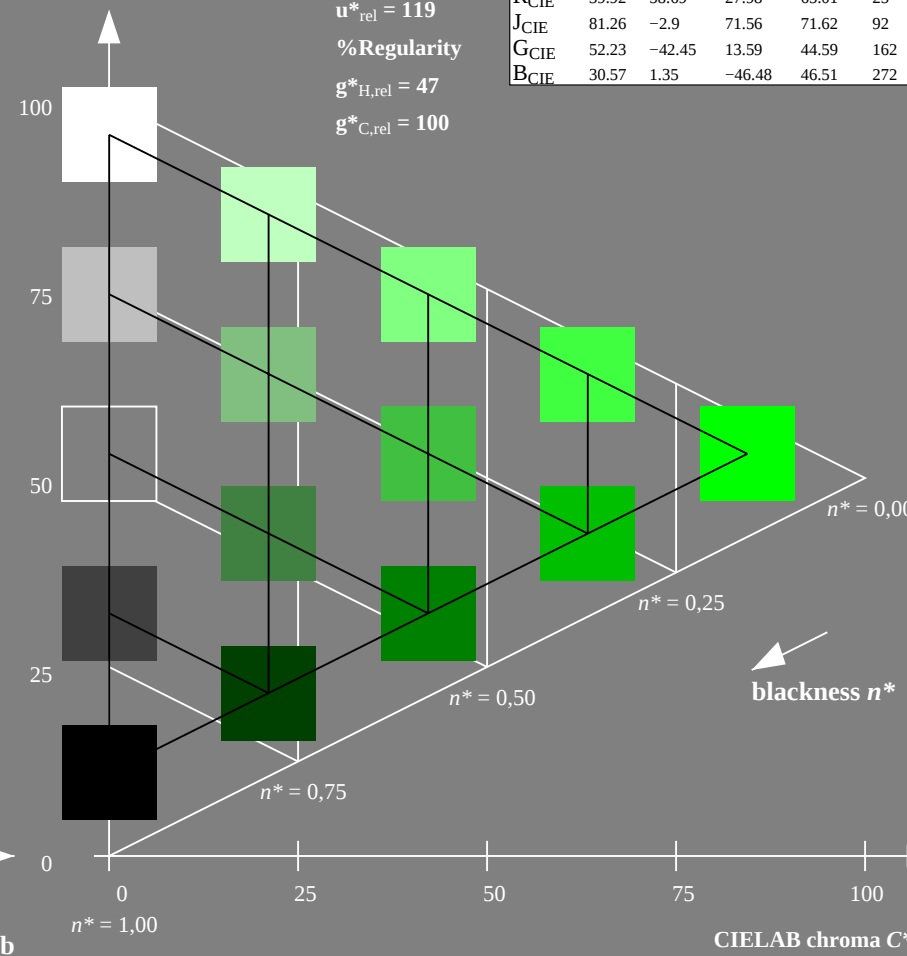
% Gamut

$u^*_{rel} = 119$

% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$



5 step scales for constant CIELAB hue 167/360 = 0.464 (right)

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Reflective System ORS18

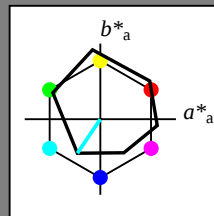
for hue  $h^* = lab \cdot h = 236/360 = 0.656$

LAB\*LCH, LAB\*NCH

D65: hue C

LCH\*Ma: 59 54 236

olv\*Ma: 0.0 1.0 1.0



ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

CIELAB lightness  $L^*$

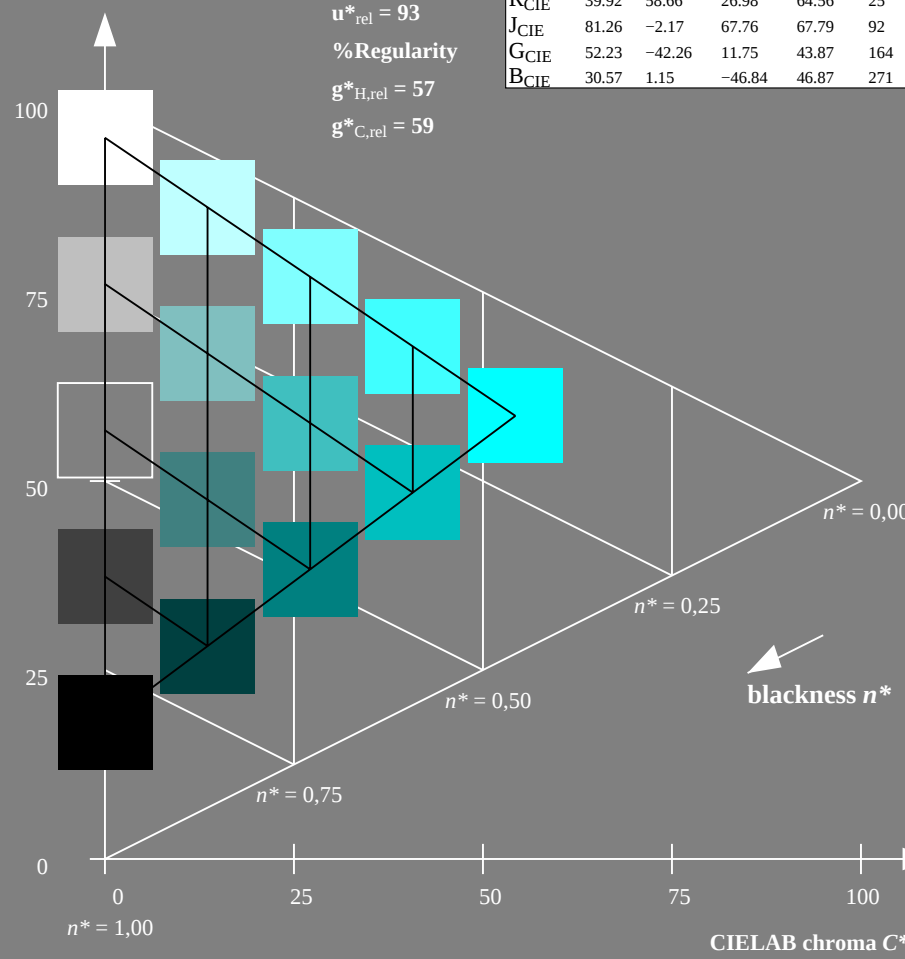
%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$



TE320-7, 5 step scales for constant CIELAB hue 236/360 = 0.656 (left)

Output: Colorimetric Reflective System NRS11

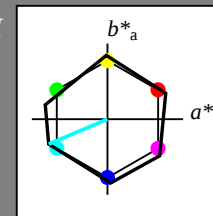
for hue  $h^* = lab \cdot h = 203/360 = 0.564$

LAB\*LCH, LAB\*NCH

D65: hue G50B

LCH\*Ma: 53 84 203

olv\*Ma: 0.0 1.0 1.0



NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

CIELAB lightness  $L^*$

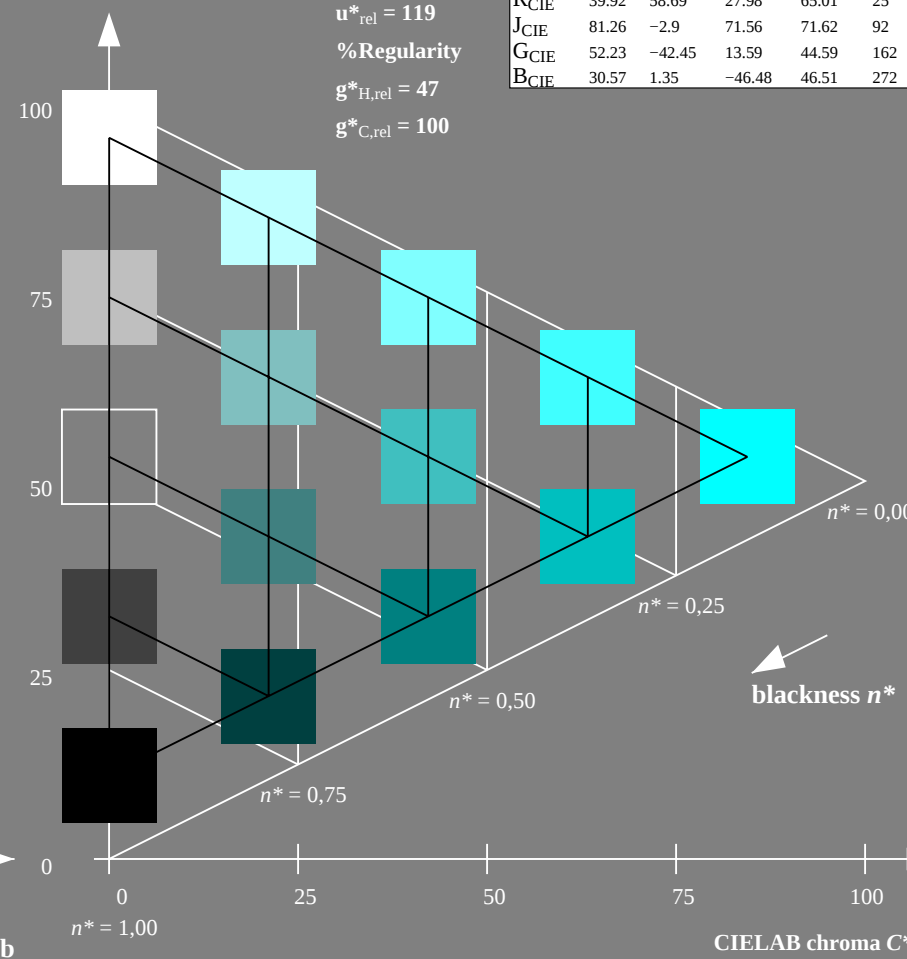
%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$



5 step scales for constant CIELAB hue 203/360 = 0.564 (right)

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

input: olv\* setrgbcolor

output: no change compared to input



Input: Colorimetric Reflective System ORS18

for hue  $h^* = lab \cdot h = 354/360 = 0.982$

LAB\*LCH, LAB\*NCH

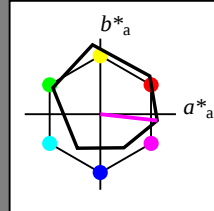
D65: hue M

LCH\*Ma: 48 76 354

olv\*Ma: 1.0 0.0 1.0

ORS18; adapted (a) CIELAB data

|                  | $L^*=L_a^*$ | $a_a^*$ | $b_a^*$ | $C_{ab,a}^*$ | $h_{ab,a}^*$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



CIELAB lightness  $L^*$

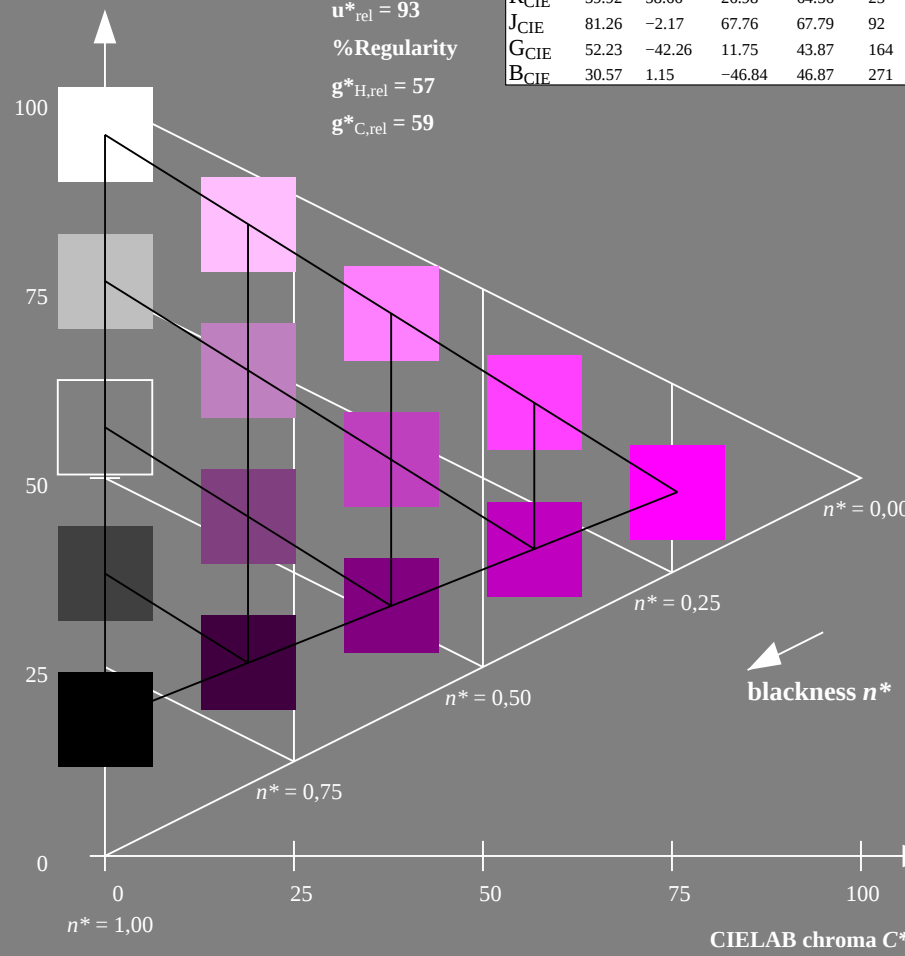
% Gamut

$u_{rel}^* = 93$

% Regularity

$g_{H,rel}^* = 57$

$g_{C,rel}^* = 59$



TE320-7, 5 step scales for constant CIELAB hue 354/360 = 0.982 (left)

Output: Colorimetric Reflective System NRS11

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

LAB\*LCH, LAB\*NCH

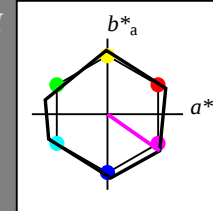
D65: hue B50R

LCH\*Ma: 53 84 325

olv\*Ma: 1.0 0.0 1.0

NRS11; adapted (a) CIELAB data

|                    | $L^*=L_a^*$ | $a_a^*$ | $b_a^*$ | $C_{ab,a}^*$ | $h_{ab,a}^*$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



CIELAB lightness  $L^*$

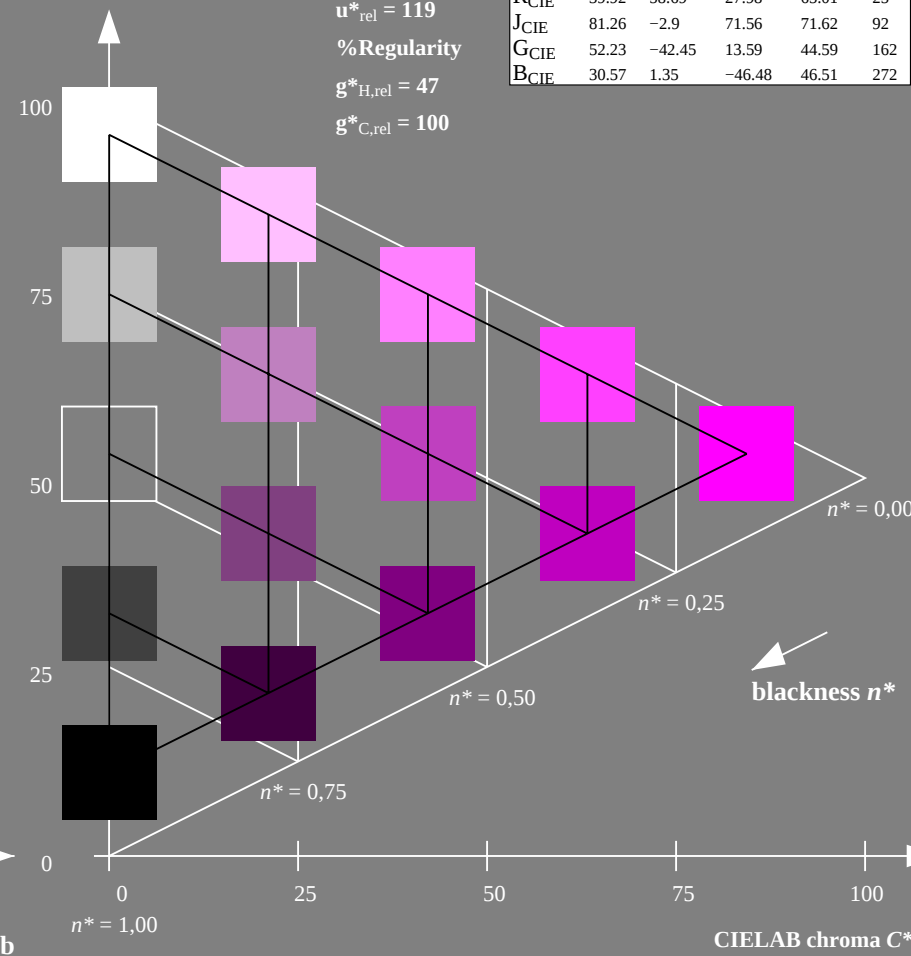
% Gamut

$u_{rel}^* = 119$

% Regularity

$g_{H,rel}^* = 47$

$g_{C,rel}^* = 100$



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

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

input: olv\* setrgbcolor

output: no change compared to input

output: *no change compared to input*

Input: Colorimetric Reflective System ORS18

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

LAB\*LCH, LAB\*NCH

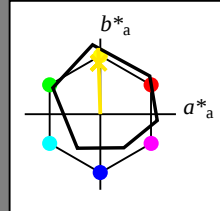
D65: hue J

LCH\*Ma: 86 88 92

olv\*Ma: 1.0 0.9 0.0

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



CIELAB lightness  $L^*$

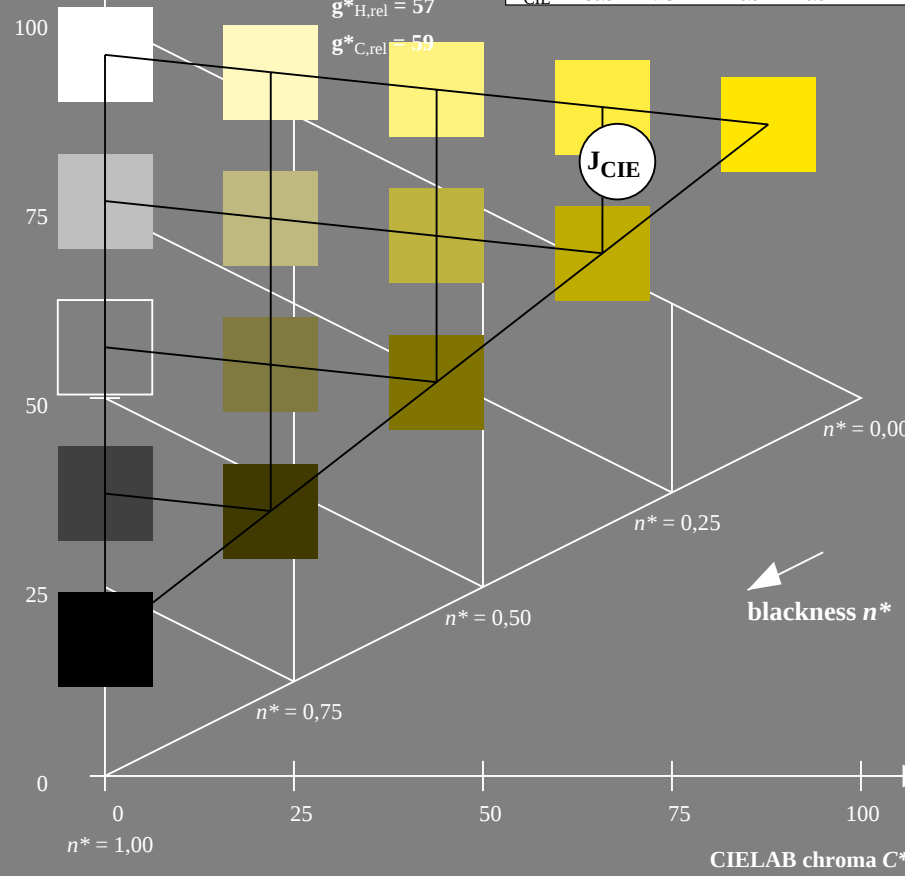
% Gamut

$u^*_{rel} = 93$

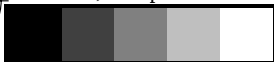
% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$



TE320-7, 5 step scales for constant CIELAB hue 92/360 = 0.255 (left)



BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

Output: Colorimetric Reflective System NRS11

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

LAB\*LCH, LAB\*NCH

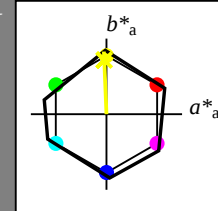
D65: hue J

LCH\*Ma: 53 83 92

olv\*Ma: 0.98 1.0 0.0

NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



CIELAB lightness  $L^*$

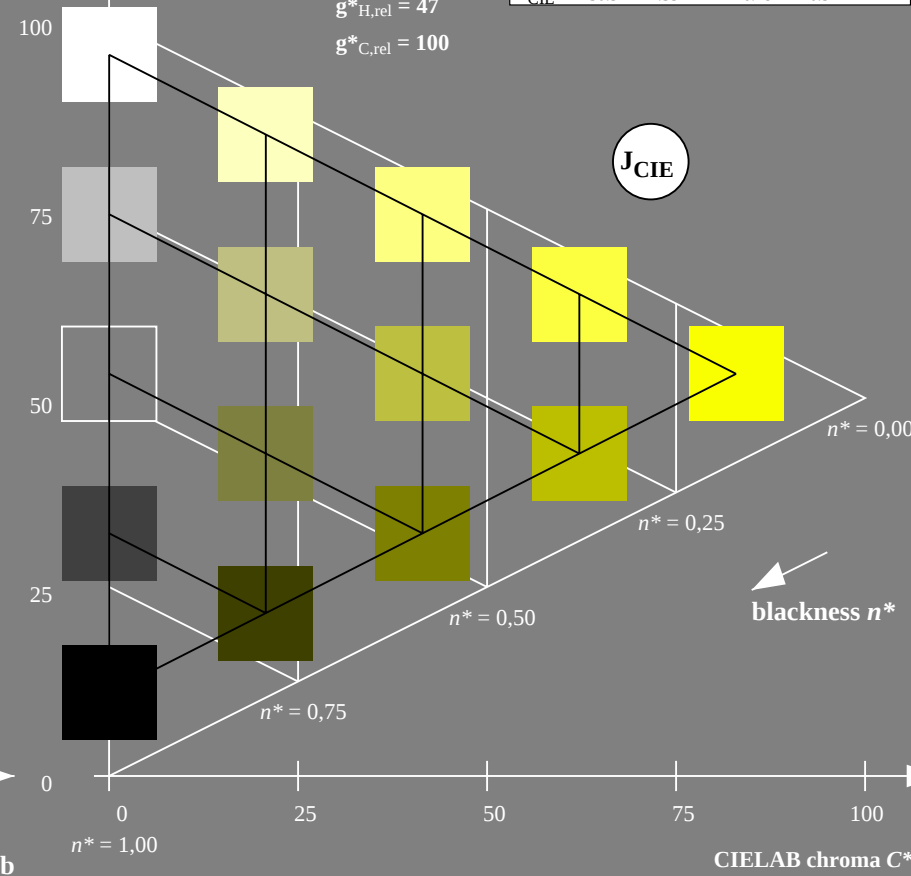
% Gamut

$u^*_{rel} = 119$

% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$



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

input: olv\* setrgbcolor

output: no change compared to input



Input: Colorimetric Reflective System ORS18

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

LAB\*LCH, LAB\*NCH

D65: hue G

LCH\*Ma: 53 57 164

olv\*Ma: 0.0 1.0 0.25

CIELAB lightness  $L^*$

% Gamut

$u^*_{rel} = 93$

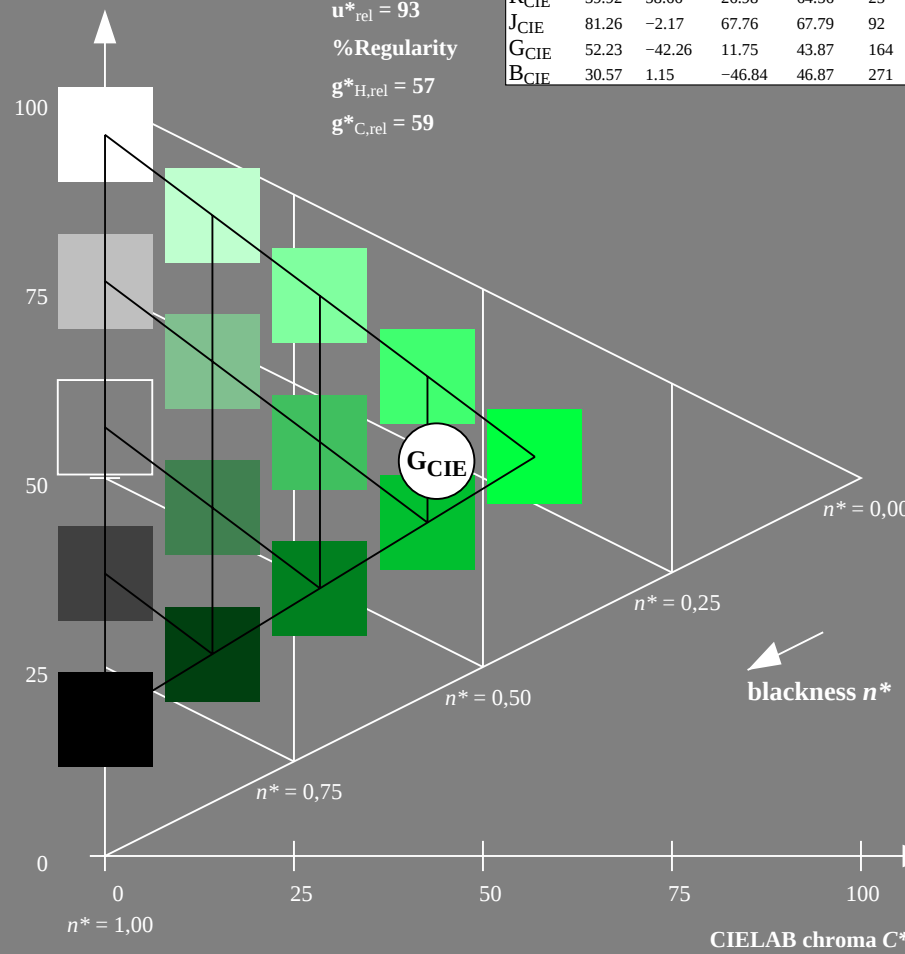
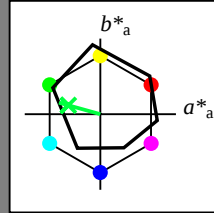
% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



TE320-7, 5 step scales for constant CIELAB hue 164/360 = 0.457 (left)

Output: Colorimetric Reflective System NRS11

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

LAB\*LCH, LAB\*NCH

D65: hue G

LCH\*Ma: 53 80 162

olv\*Ma: 0.08 1.0 0.0

CIELAB lightness  $L^*$

% Gamut

$u^*_{rel} = 119$

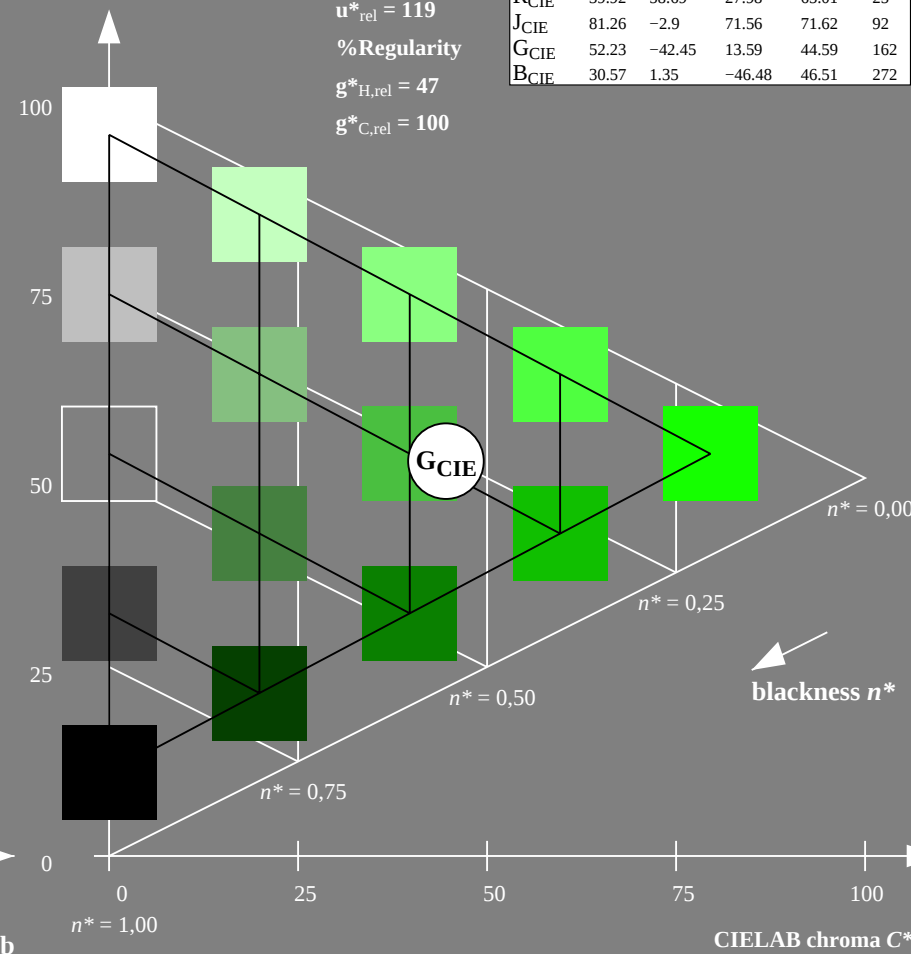
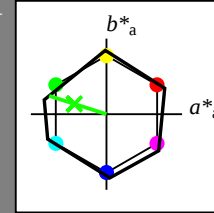
% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



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

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11

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

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Reflective System ORS18

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

LAB\*LCH, LAB\*NCH

D65: hue B

LCH\*Ma: 42 45 271

olv\*Ma: 0.0 0.49 1.0

CIELAB lightness  $L^*$

% Gamut

$u^*_{rel} = 93$

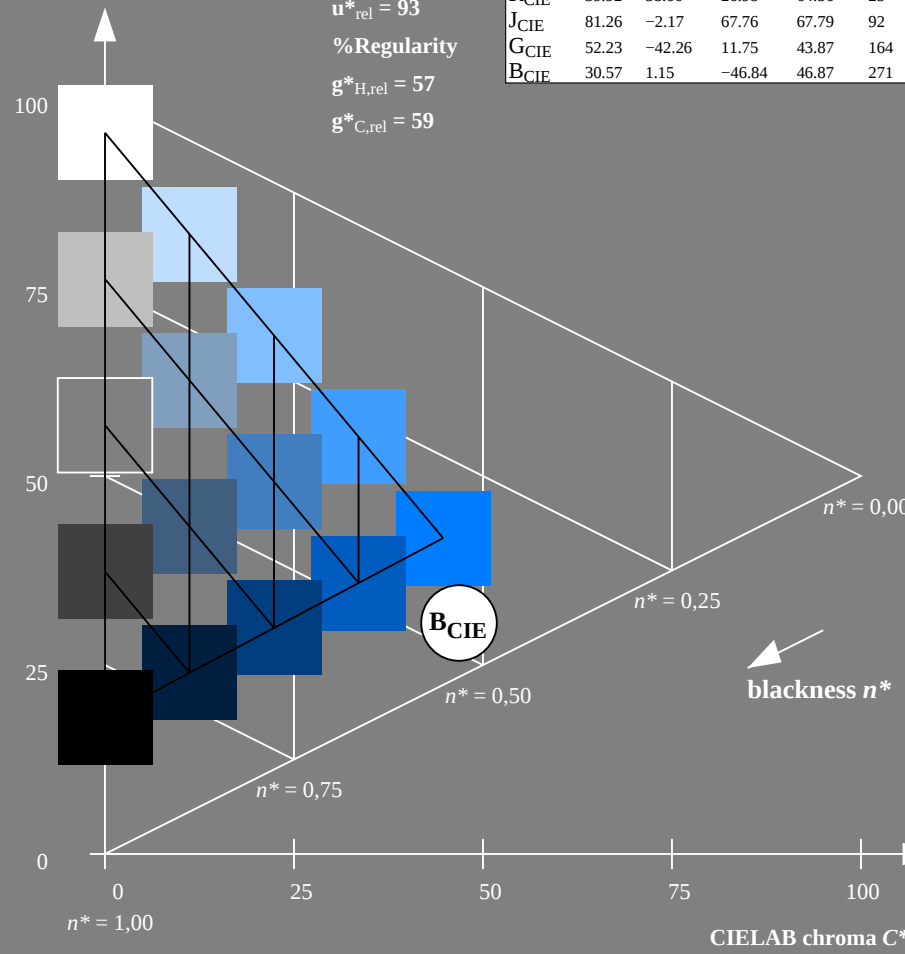
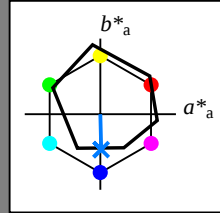
% Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| Y <sub>Ma</sub>  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| L <sub>Ma</sub>  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| C <sub>Ma</sub>  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| V <sub>Ma</sub>  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| M <sub>Ma</sub>  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| N <sub>Ma</sub>  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| J <sub>CIE</sub> | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| G <sub>CIE</sub> | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| B <sub>CIE</sub> | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



TE320-7, 5 step scales for constant CIELAB hue 271/360 = 0.754 (left)

Output: Colorimetric Reflective System NRS11

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

LAB\*LCH, LAB\*NCH

D65: hue B

LCH\*Ma: 53 83 272

olv\*Ma: 0.0 0.02 1.0

CIELAB lightness  $L^*$

% Gamut

$u^*_{rel} = 119$

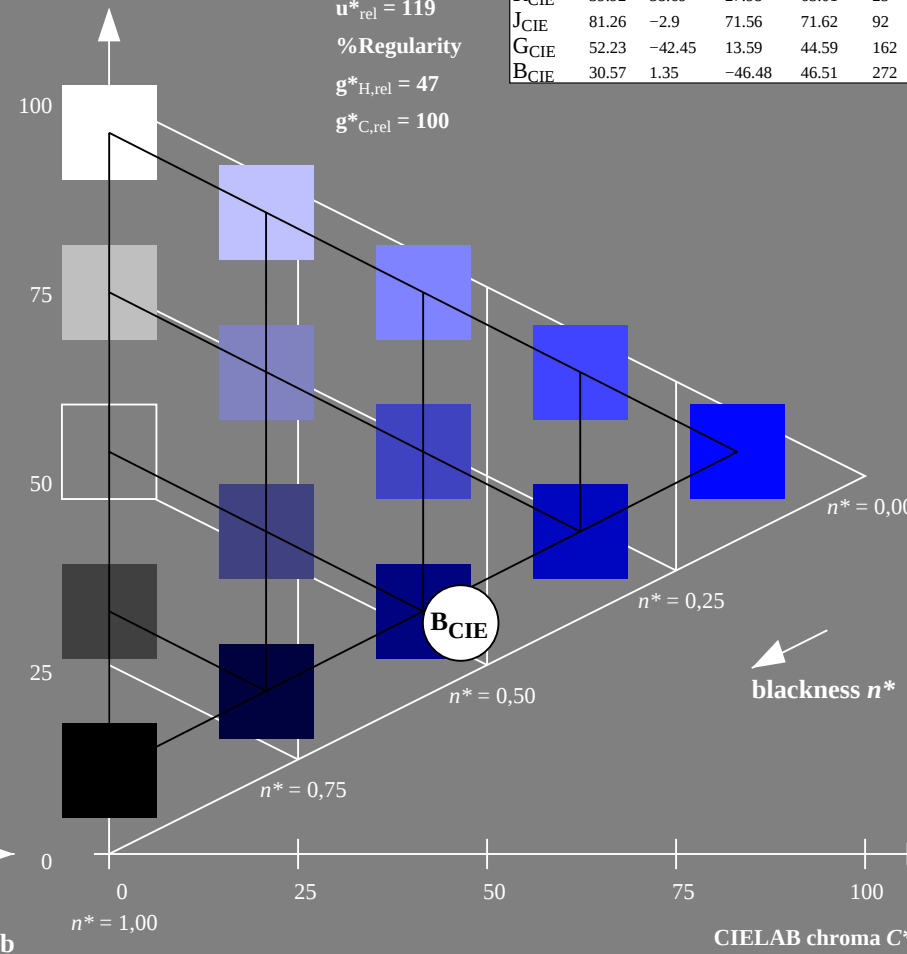
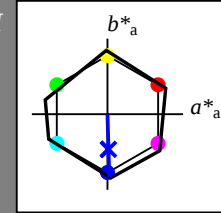
% Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

NRS11; adapted (a) CIELAB data

|                    | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------------------|-------------|---------|---------|--------------|--------------|
| R <sub>Ma</sub>    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| J <sub>Ma</sub>    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| G <sub>Ma</sub>    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50B <sub>Ma</sub> | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| B <sub>Ma</sub>    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50R <sub>Ma</sub> | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| N <sub>Ma</sub>    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| J <sub>CIE</sub>   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| B <sub>CIE</sub>   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |



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

BAM-test chart TE32; Colorimetric systems ORS18 & NRS11  
D65: Coordinate systems of 5 step colour scales for 10 hues

input: olv\* setrgbcolor  
output: no change compared to input