

Input: Colorimetric Offset Reflective System ORS18

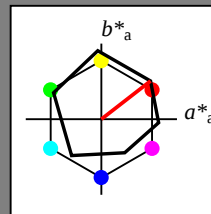
for hue  $h^* = lab \cdot h = 38/360 = 0.105$

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

D50: hue O

LCH\*Ma: 48 82 38

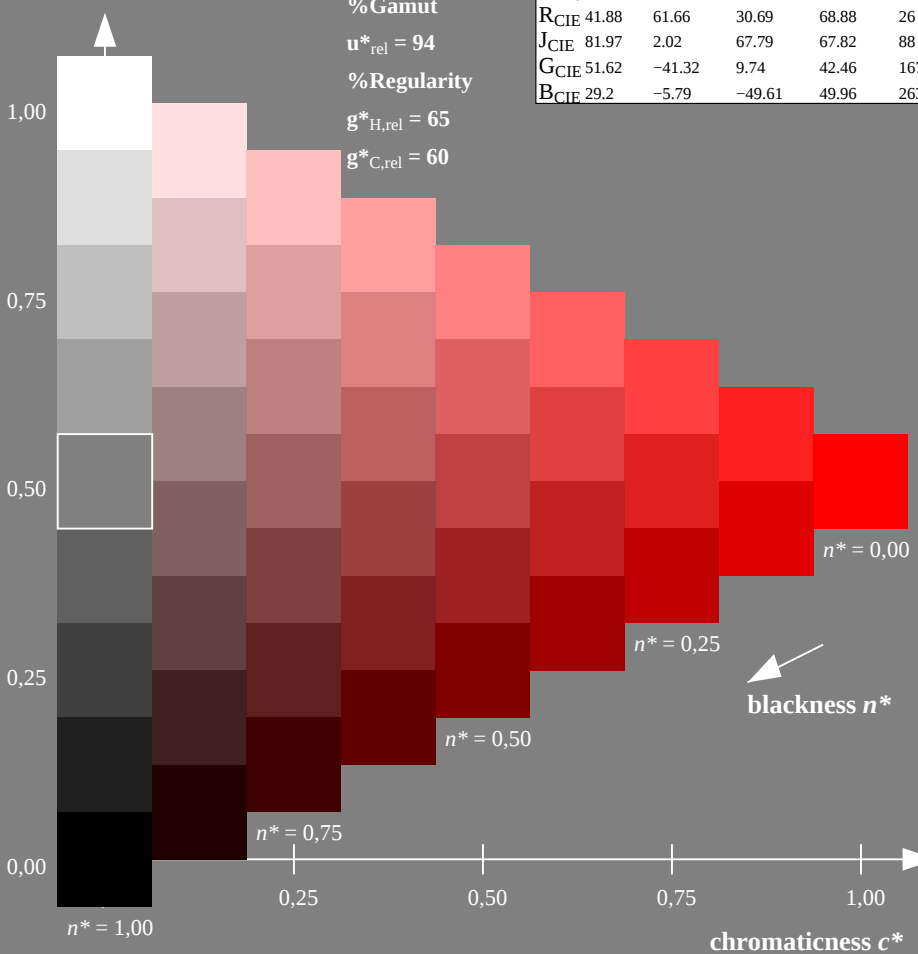
olv\*Ma: 1.0 0.0 0.0



ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2        | -5.79   | -49.61  | 49.96        | 263          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$

blackness  $n^*$

PE900-7, 9 step scales for constant CIELAB hue 38/360 = 0.105 (left)

BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

Output: Colorimetric Television Luminous System TLS00

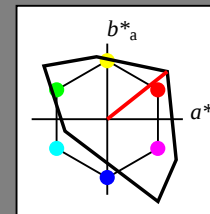
for hue  $h^* = lab \cdot h = 38/360 = 0.107$

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

D50: hue O

LCH\*Ma: 54 101 38

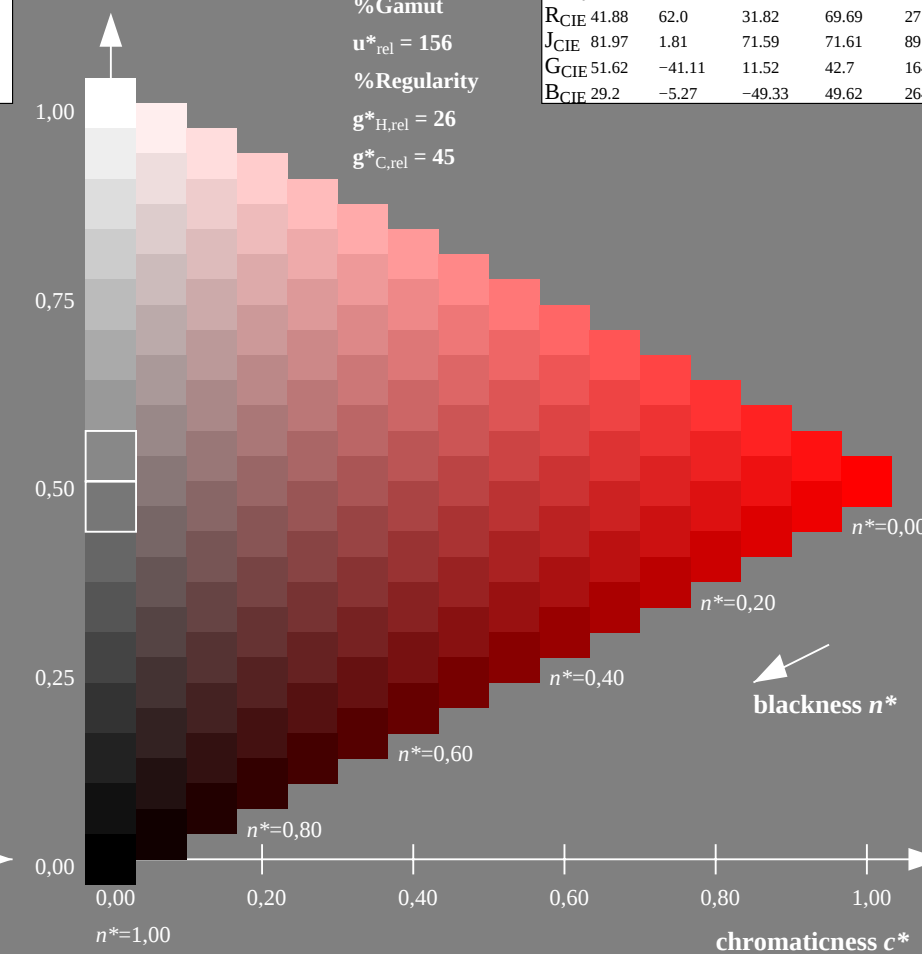
olv\*Ma: 1.0 0.0 0.0



TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2        | -5.27   | -49.33  | 49.62        | 264          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

%Regularity

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

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

blackness  $n^*$

16 step scales for constant CIELAB hue 38/360 = 0.107 (right)

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 93/360 = 0.258$

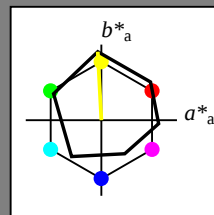
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue Y

LCH\*Ma: 91 91 93

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

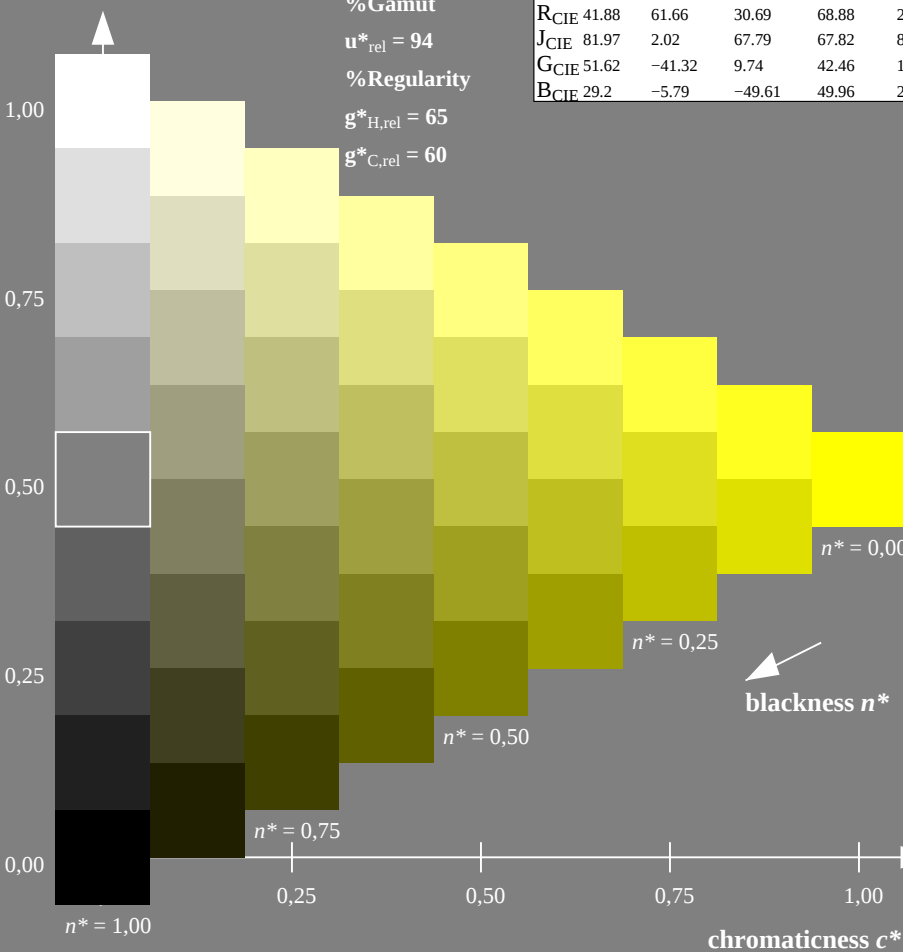
%Regularity

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

$g^*_{C,rel} = 60$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2        | -5.79   | -49.61  | 49.96        | 263          |



Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 100/360 = 0.277$

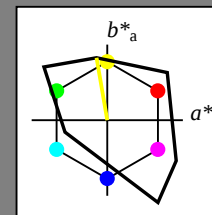
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue Y

LCH\*Ma: 93 84 100

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

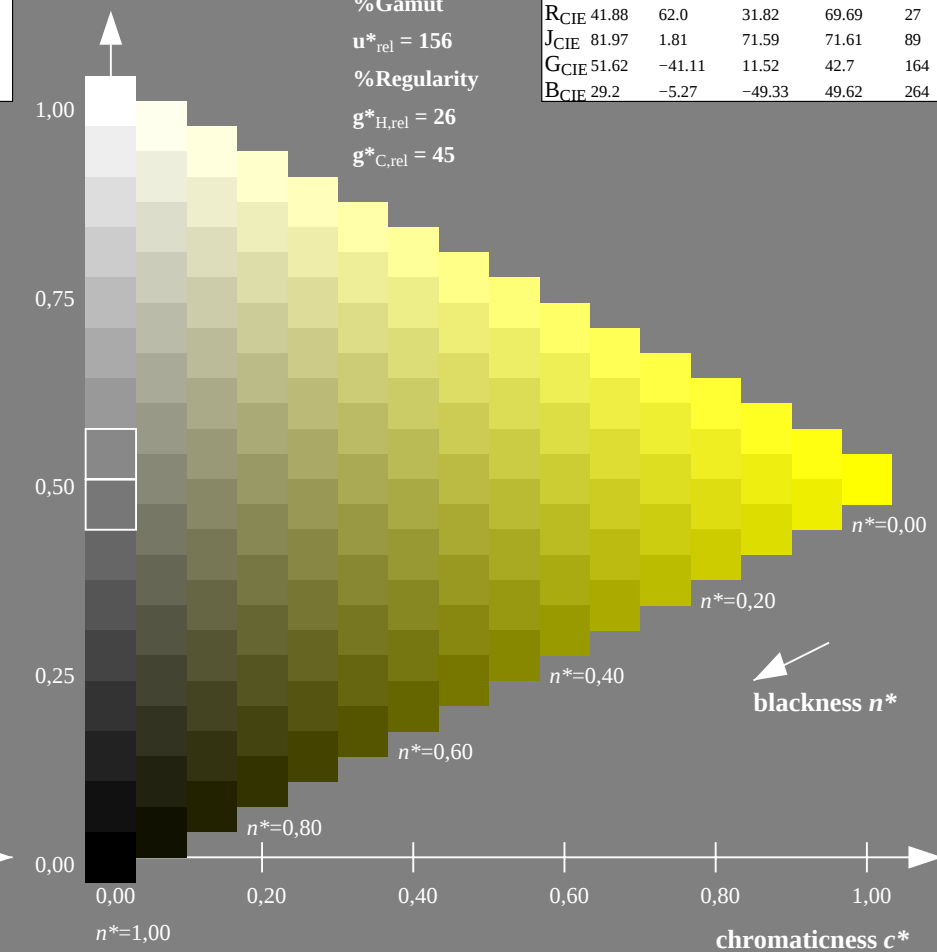
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2        | -5.27   | -49.33  | 49.62        | 264          |



PE900-7, 9 step scales for constant CIELAB hue 93/360 = 0.258 (left)

16 step scales for constant CIELAB hue 100/360 = 0.277 (right)

BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 151/360 = 0.42$

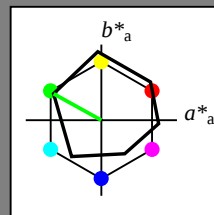
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue L

LCH\*Ma: 51 72 151

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$

ORS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94         | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0          | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9          | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99         | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72         | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99         | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88         | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97         | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62         | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2          | -5.79   | -49.61  | 49.96        | 263          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 140/360 = 0.389$

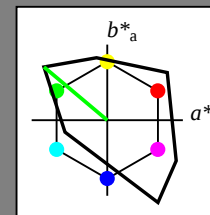
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue L

LCH\*Ma: 83 109 140

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

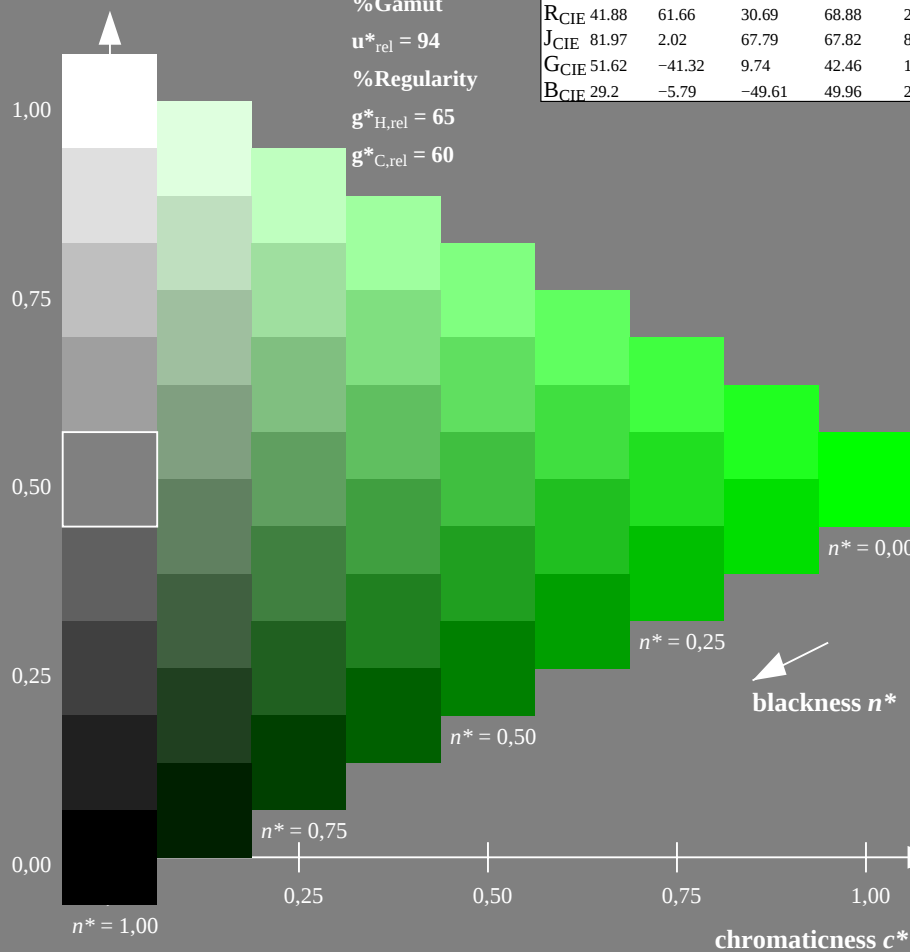
%Regularity

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

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

TLS00; adapted (a) CIELAB data

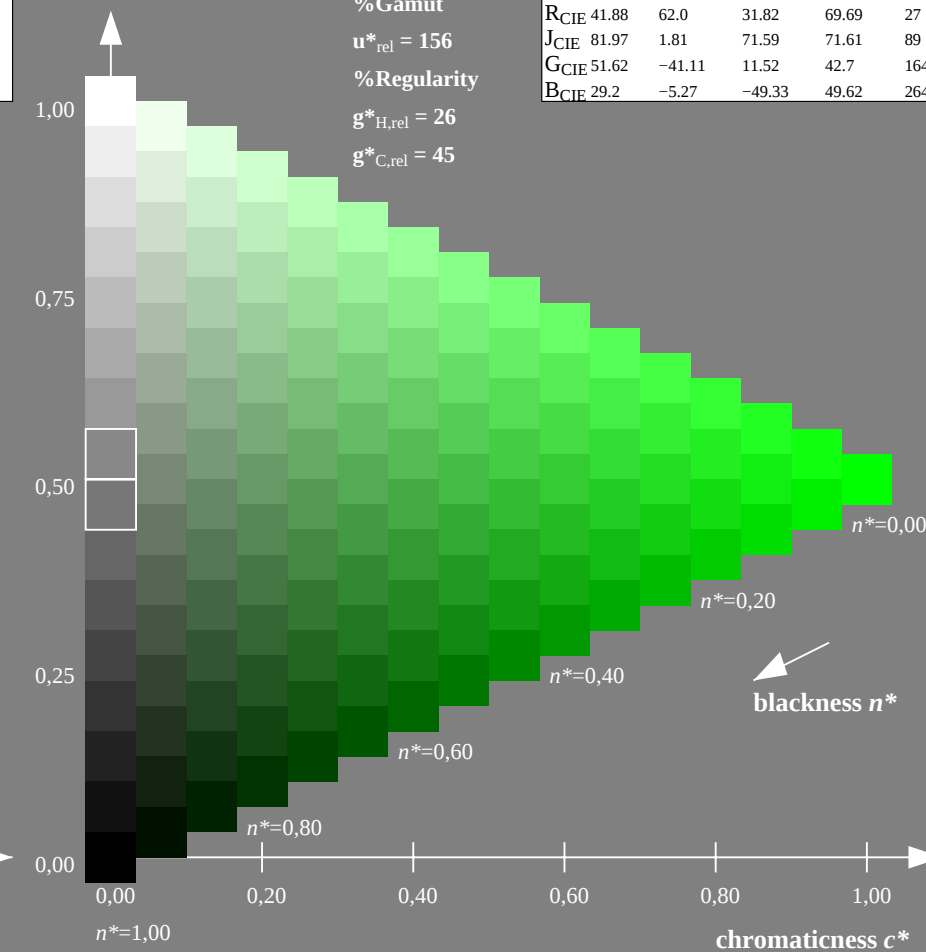
|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19         | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44         | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82         | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22         | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61         | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76         | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01          | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88         | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97         | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62         | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2          | -5.27   | -49.33  | 49.62        | 264          |



PE900-7, 9 step scales for constant CIELAB hue 151/360 = 0.42 (left)



BAM-test chart PE90; Colorimetric systems ORS18 & TLS00  
D50: 9 and 16 step colour scales for 10 hues



16 step scales for constant CIELAB hue 140/360 = 0.389 (right)

input: olv\* setrgbcolor

output: no change compared to input



Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 231/360 = 0.641$

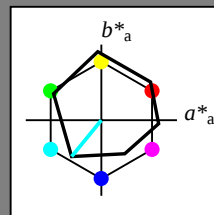
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue C

LCH\*Ma: 57 62 231

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$

ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| YMa  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| LMa  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| CMa  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| VMa  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| MMa  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| NMa  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| JCIE | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| GCIE | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| BCIE | 29.2        | -5.79   | -49.61  | 49.96        | 263          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 196/360 = 0.544$

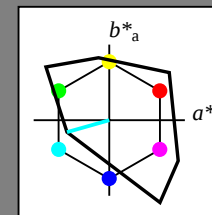
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue C

LCH\*Ma: 85 58 196

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

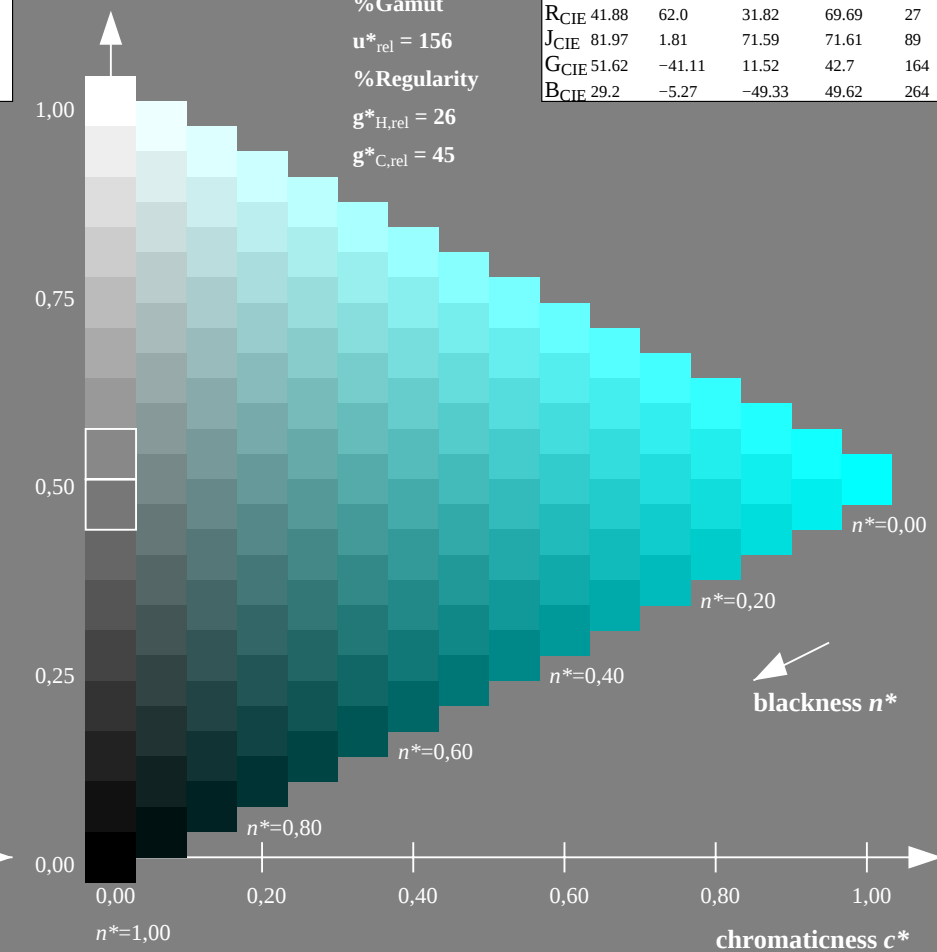
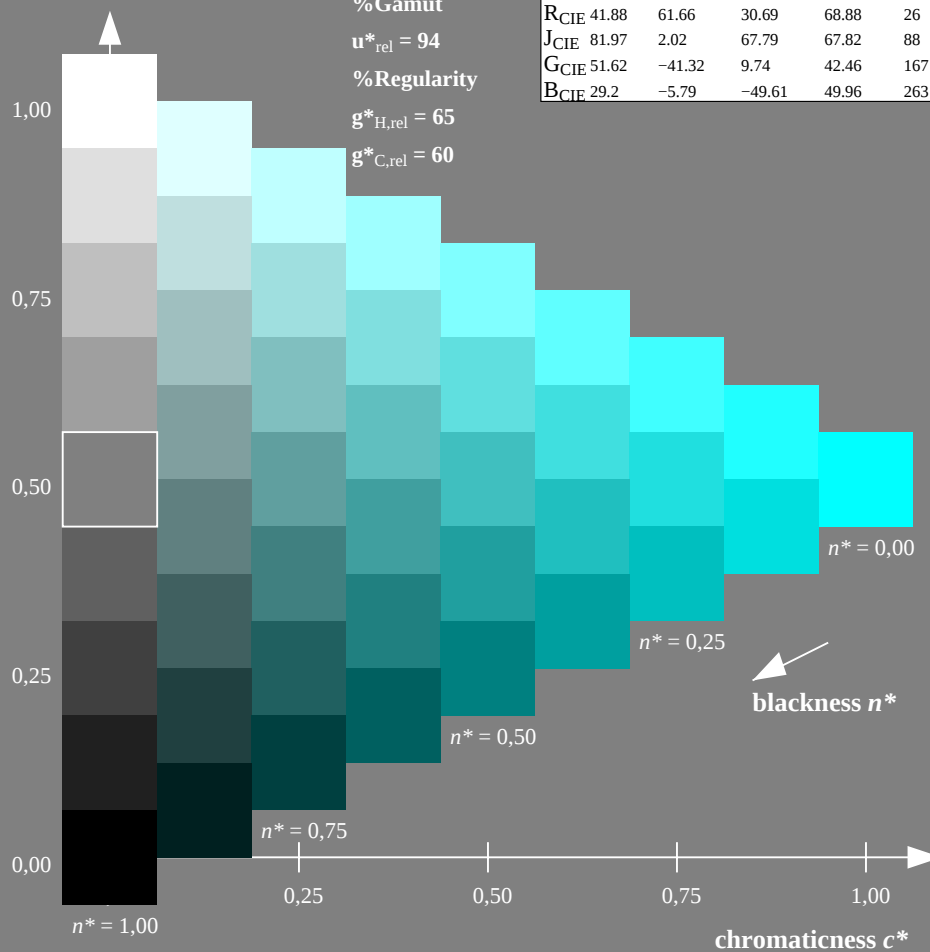
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| YMa  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| LMa  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| CMa  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| VMa  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| MMa  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| JCIE | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| GCIE | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| BCIE | 29.2        | -5.27   | -49.33  | 49.62        | 264          |



PE900-7, 9 step scales for constant CIELAB hue 231/360 = 0.641 (left)

16 step scales for constant CIELAB hue 196/360 = 0.544 (right)

BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

input: olv\* setrgbcolor

output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 305/360 = 0.847$

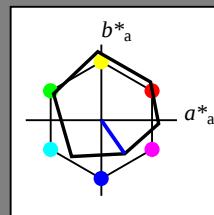
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue V

LCH\*Ma: 26 54 305

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2        | -5.79   | -49.61  | 49.96        | 263          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 302/360 = 0.838$

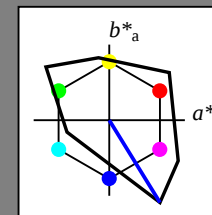
$lab \cdot tch$  and  $lab \cdot nch$

D50: hue V

LCH\*Ma: 26 128 302

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2        | -5.27   | -49.33  | 49.62        | 264          |

%Gamut

$u^*_{rel} = 156$

%Regularity

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

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

PE900-7, 9 step scales for constant CIELAB hue 305/360 = 0.847 (left)

16 step scales for constant CIELAB hue 302/360 = 0.838 (right)

BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

input: olv\* setrgbcolor

output: no change compared to input

-See for similar files: <http://www.ps.bam.de/PE90/>  
 Technical information: <http://www.ps.bam.de> Version 2.1, io=1,1

BAM registration: 20060101-PE90/100/Q90E05NP.PS.PDF BAM material: code=rha4ta  
application for evaluation and measurement of printer or monitor systems  
/PE90 Form: 6/10, Serie: 1/1, Page: 6 Page count: 6

Input: Colorimetric Offset Reflective System ORS18

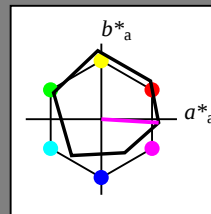
**for hue  $h^* = lab^*h = 356/360 = 0.99$**

**lab\*tch and lab\*nch**

D50: hue M

**LCH\*Ma: 50 76 356**

**olv\*Ma: 1.0 0.0 1.0**



| ORS18; adapted (a) CIELAB data |            |            |            |              |            |
|--------------------------------|------------|------------|------------|--------------|------------|
|                                | $L^*_{*a}$ | $a^*_{*a}$ | $b^*_{*a}$ | $C^*_{ab,a}$ | $h^*_{ab}$ |
| O <sub>Ma</sub>                | 47.94      | 65.05      | 50.54      | 82.38        | 38         |
| Y <sub>Ma</sub>                | 91.0       | -4.72      | 90.58      | 90.7         | 93         |
| L <sub>Ma</sub>                | 50.9       | -63.18     | 34.98      | 72.22        | 151        |
| C <sub>Ma</sub>                | 56.99      | -39.34     | -48.1      | 62.16        | 231        |
| V <sub>Ma</sub>                | 25.72      | 30.89      | -44.4      | 54.09        | 305        |
| M <sub>Ma</sub>                | 49.99      | 75.76      | -4.64      | 75.9         | 356        |
| N <sub>Ma</sub>                | 18.09      | 0.0        | 0.0        | 0.0          | 0          |
| W <sub>Ma</sub>                | 95.46      | 0.0        | 0.0        | 0.0          | 0          |
| R <sub>CIE</sub>               | 41.88      | 61.66      | 30.69      | 68.88        | 26         |
| J <sub>CIE</sub>               | 81.97      | 2.02       | 67.79      | 67.82        | 88         |
| G <sub>CIE</sub>               | 51.62      | -41.32     | 9.74       | 42.46        | 167        |
| B <sub>CIE</sub>               | 29.2       | -5.79      | -49.61     | 49.96        | 263        |

triangle lightness  $t^*$

## %Gamut

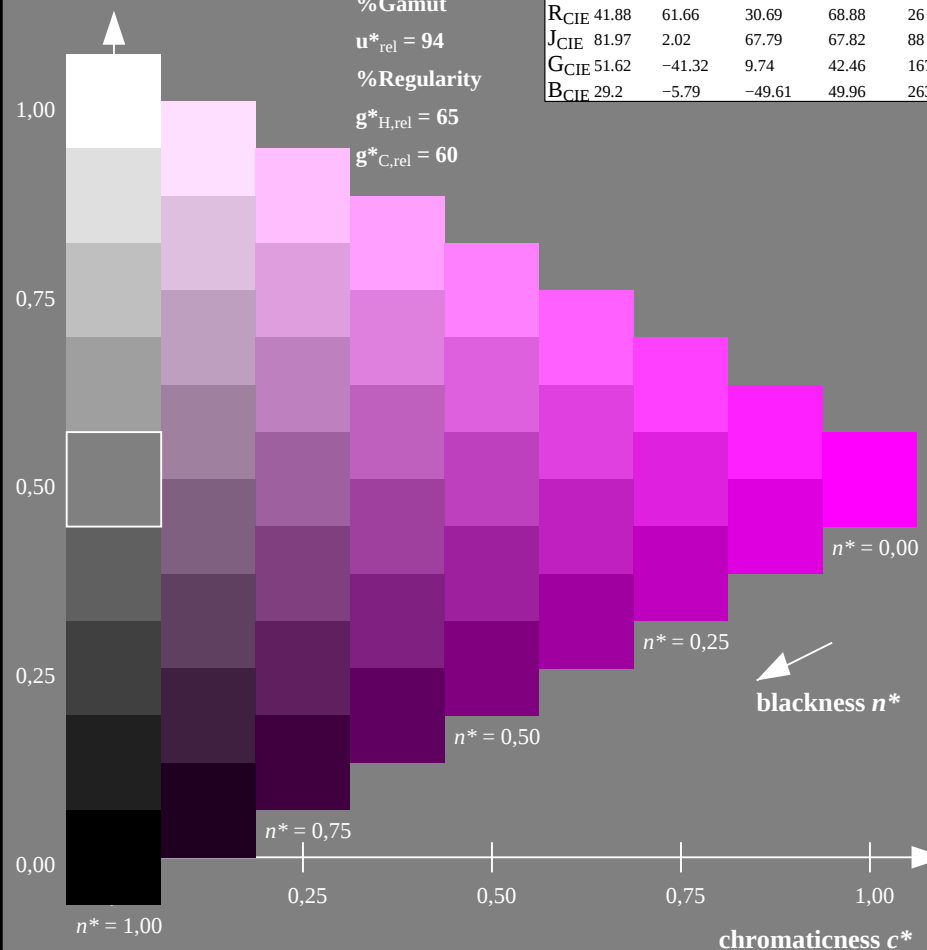
$$\mathbf{u}_{\text{rel}}^* = 94$$

### %Regularity

$$g^*_{H_{rel}} = 65$$

■  $g^*_{C_{rel}} = 60$

\_\_\_\_\_



PE900-7, 9 step scales for constant CIELAB hue 356/360 = 0.99 (left)

**BAM-test chart PE90: Colorimetric systems ORS18 & TLS00**

D50: 9 and 16 step colour scales for 10 hues

**Output: Colorimetric Television Luminous System TLS00**

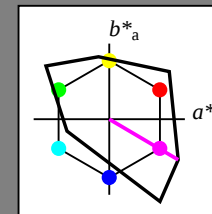
for hue  $h^* = lab^*h = 330/360 = 0.915$

**lab\*tch and lab\*nch**

D50: hue M

LCH\*Ma: 59 106 330

**olv\*Ma: 1.0 0.0 1.0**



| TLS00; adapted (a) CIELAB data |            |            |            |              |            |
|--------------------------------|------------|------------|------------|--------------|------------|
|                                | $L^*_{*a}$ | $a^*_{*a}$ | $b^*_{*a}$ | $C^*_{ab,a}$ | $h^*_{ab}$ |
| O <sub>Ma</sub>                | 54.19      | 79.36      | 63.0       | 101.33       | 38         |
| Y <sub>Ma</sub>                | 93.44      | -14.18     | 82.59      | 83.8         | 100        |
| L <sub>Ma</sub>                | 82.82      | -83.73     | 70.41      | 109.41       | 140        |
| C <sub>Ma</sub>                | 85.22      | -55.9      | -15.78     | 58.1         | 196        |
| V <sub>Ma</sub>                | 25.61      | 67.05      | -108.87    | 127.87       | 302        |
| M <sub>Ma</sub>                | 58.76      | 91.18      | -53.69     | 105.82       | 330        |
| N <sub>Ma</sub>                | 0.01       | 0.0        | 0.0        | 0.0          | 0          |
| W <sub>Ma</sub>                | 95.41      | 0.0        | 0.0        | 0.0          | 0          |
| R <sub>CIE</sub>               | 41.88      | 62.0       | 31.82      | 69.69        | 27         |
| J <sub>CIE</sub>               | 81.97      | 1.81       | 71.59      | 71.61        | 89         |
| G <sub>CIE</sub>               | 51.62      | -41.11     | 11.52      | 42.7         | 164        |
| B <sub>CIE</sub>               | 29.2       | -5.27      | -49.33     | 49.62        | 264        |

triangle lightness  $t^*$ 

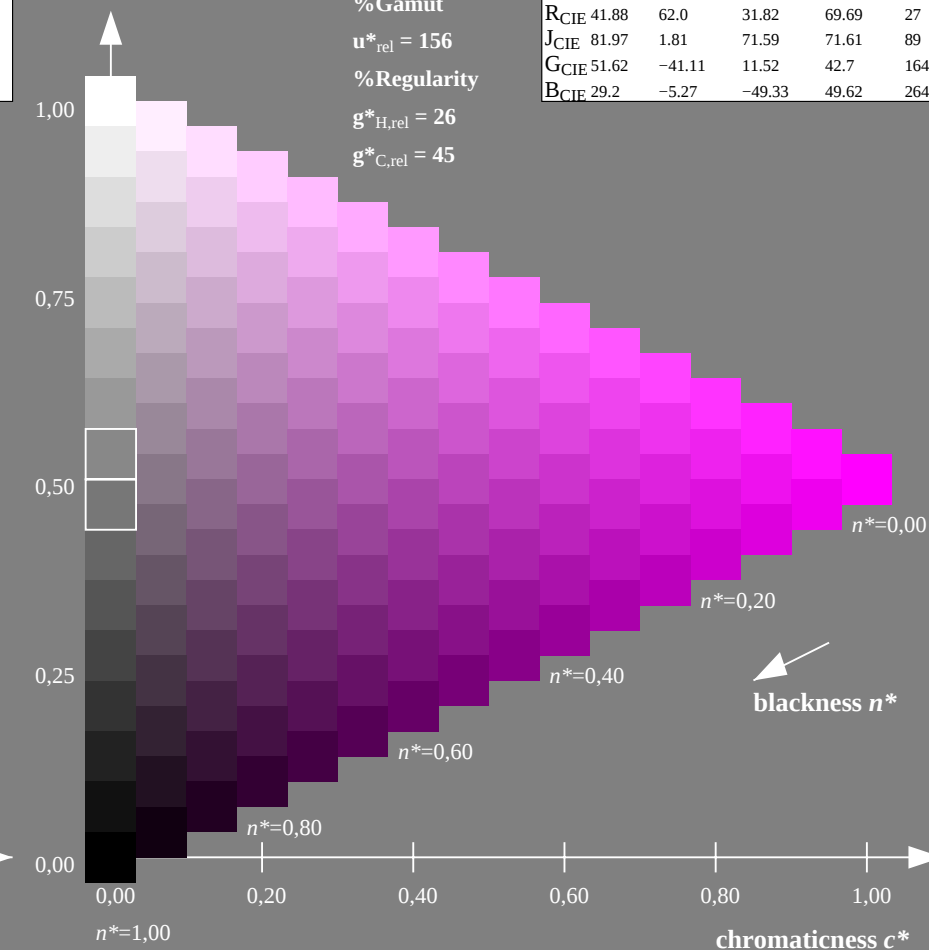
**% Gamut**

$$\mathbf{u}_{rel}^* = 156$$

### %Regularity

$$g^*_{H_{rel}} = 26$$
$$g^*_{C_{rel}} = 45$$

100



16 step scales for constant CIELAB hue 330/360 = 0.915 (right)

```
input: olv* setrgbcolor
```

output: *no change compared to input*

**Input: Colorimetric Offset Reflective System ORS18**

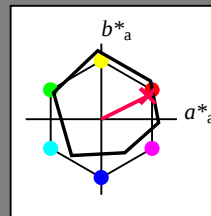
**for hue  $h^* = lab^*h = 26/360 = 0.074$**

*lab\*tch* and *lab\*nch*

D50: hue R

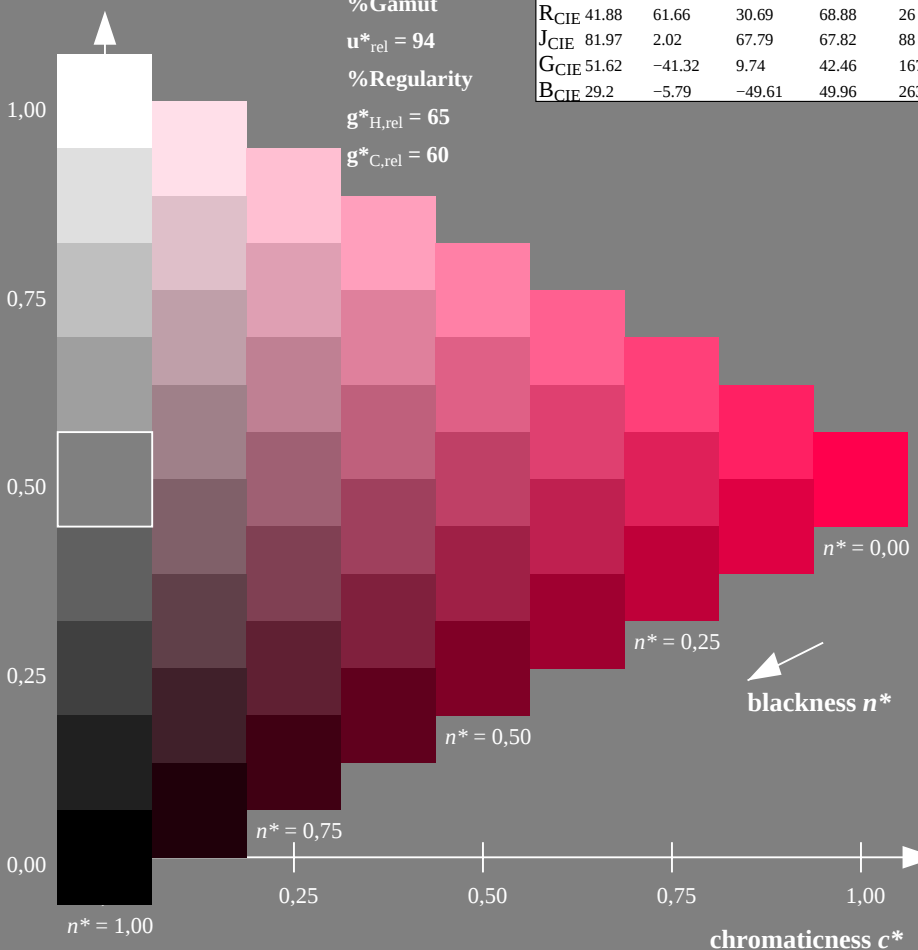
LCH\*Ma: 49 76 26

**olv\*Ma: 1.0 0.0 0.3**



| ORS18; adapted (a) CIELAB data |            |            |            |              |            |
|--------------------------------|------------|------------|------------|--------------|------------|
|                                | $L^*_{*a}$ | $a^*_{*a}$ | $b^*_{*a}$ | $C^*_{ab,a}$ | $h^*_{ab}$ |
| O <sub>Ma</sub>                | 47.94      | 65.05      | 50.54      | 82.38        | 38         |
| Y <sub>Ma</sub>                | 91.0       | -4.72      | 90.58      | 90.7         | 93         |
| L <sub>Ma</sub>                | 50.9       | -63.18     | 34.98      | 72.22        | 151        |
| C <sub>Ma</sub>                | 56.99      | -39.34     | -48.1      | 62.16        | 231        |
| V <sub>Ma</sub>                | 25.72      | 30.89      | -44.4      | 54.09        | 305        |
| M <sub>Ma</sub>                | 49.99      | 75.76      | -4.64      | 75.9         | 356        |
| N <sub>Ma</sub>                | 18.09      | 0.0        | 0.0        | 0.0          | 0          |
| W <sub>Ma</sub>                | 95.46      | 0.0        | 0.0        | 0.0          | 0          |
| R <sub>CIE</sub>               | 41.88      | 61.66      | 30.69      | 68.88        | 26         |
| J <sub>CIE</sub>               | 81.97      | 2.02       | 67.79      | 67.82        | 88         |
| G <sub>CIE</sub>               | 51.62      | -41.32     | 9.74       | 42.46        | 167        |
| B <sub>CIE</sub>               | 29.2       | -5.79      | -49.61     | 49.96        | 263        |

triangle lightness  $t^*$



PE900-7, 9 step scales for constant CIELAB hue 26/360 = 0.074 (left)

BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

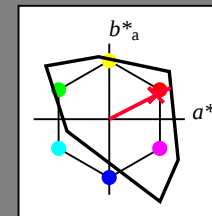
**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 27/360 = 0.075$

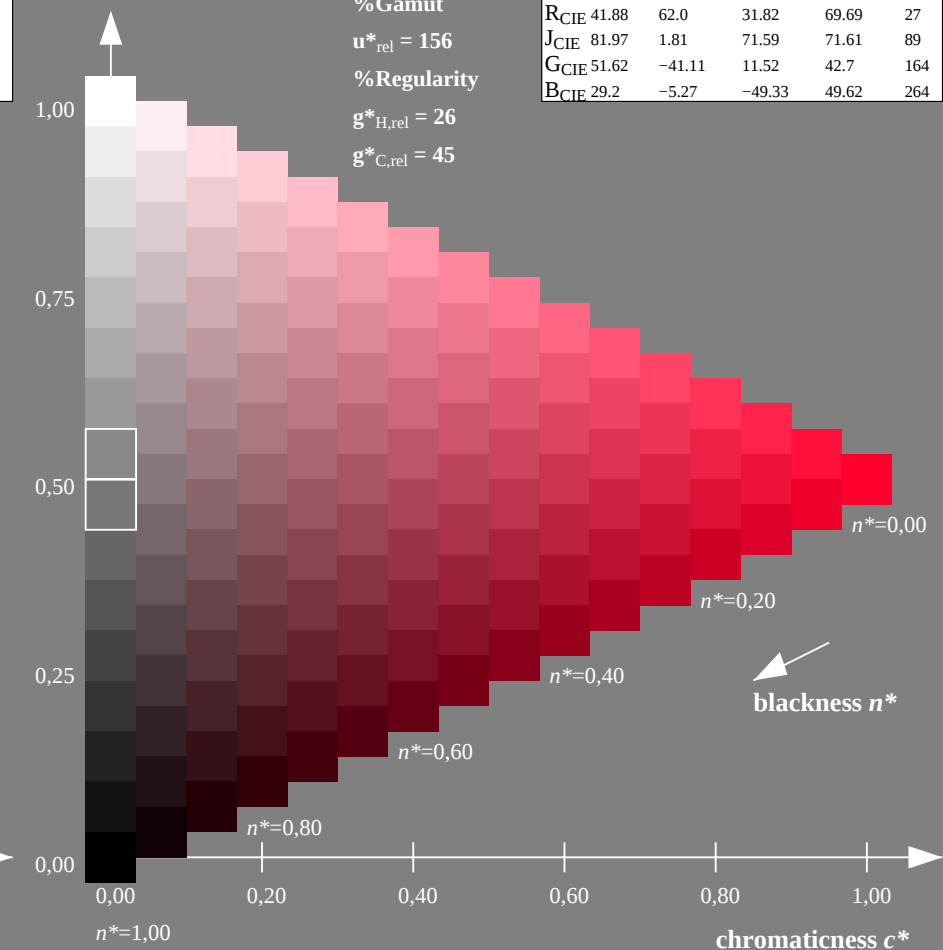
***lab\*tch* and**

LCH\*Ma: 55 92 27

olv\*Ma: 1.0 0.0 0.18



| TLS00; adapted (a) CIELAB data |         |         |         |              |              |
|--------------------------------|---------|---------|---------|--------------|--------------|
|                                | $L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| $O_{Ma}$                       | 54.19   | 79.36   | 63.0    | 101.33       | 38           |
| $Y_{Ma}$                       | 93.44   | -14.18  | 82.59   | 83.8         | 100          |
| $L_{Ma}$                       | 82.82   | -83.73  | 70.41   | 109.41       | 140          |
| $C_{Ma}$                       | 85.22   | -55.9   | -15.78  | 58.1         | 196          |
| $V_{Ma}$                       | 25.61   | 67.05   | -108.87 | 127.87       | 302          |
| $M_{Ma}$                       | 58.76   | 91.18   | -53.69  | 105.82       | 330          |
| $N_{Ma}$                       | 0.01    | 0.0     | 0.0     | 0.0          | 0            |
| $W_{Ma}$                       | 95.41   | 0.0     | 0.0     | 0.0          | 0            |
| $R_{CIE}$                      | 41.88   | 62.0    | 31.82   | 69.69        | 27           |
| $J_{CIE}$                      | 81.97   | 1.81    | 71.59   | 71.61        | 89           |
| $G_{CIE}$                      | 51.62   | -41.11  | 11.52   | 42.7         | 164          |
| $B_{CIE}$                      | 29.2    | -5.27   | -49.33  | 49.62        | 264          |

triangle lightness  $t^*$ 

16 step scales for constant CIELAB hue 27/360 = 0.075 (right)

```
input: olv* setrgbcolor
```

output: *no change compared to input*

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab^*h = 88/360 = 0.245$

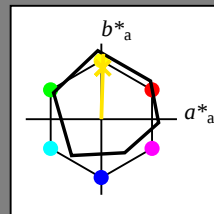
$lab^*tch$  and  $lab^*nch$

D50: hue J

LCH\*Ma: 86 86 88

olv\*Ma: 1.0 0.9 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

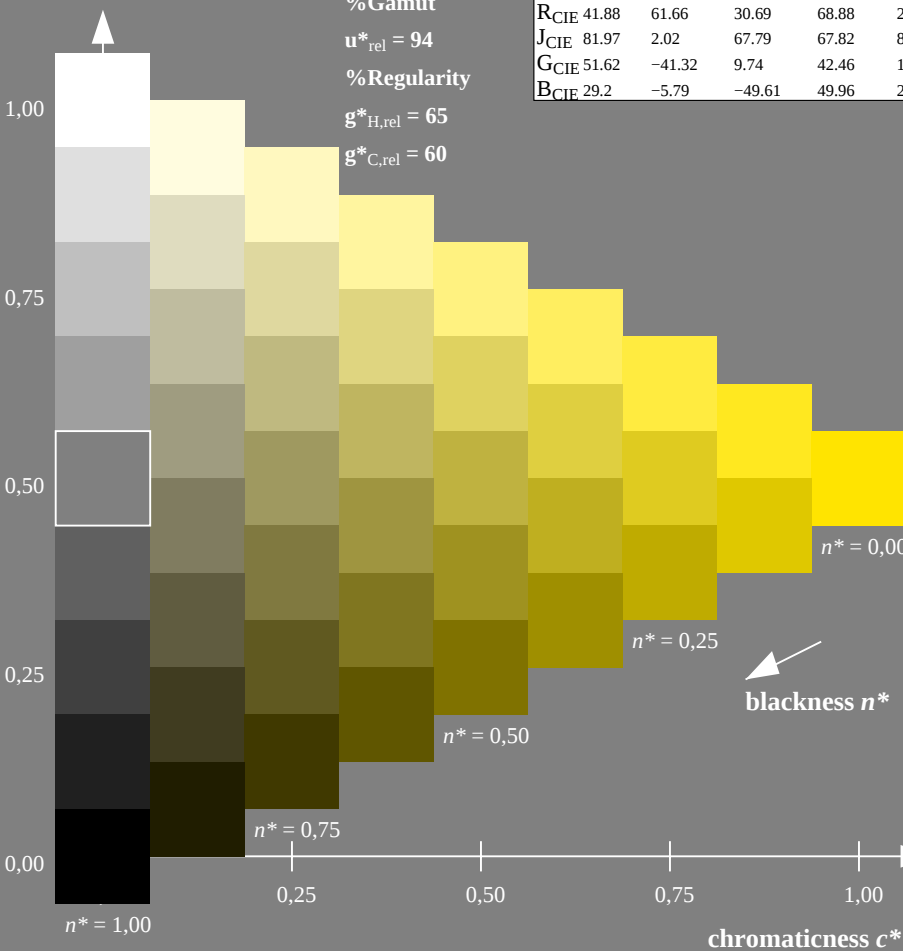
%Regularity

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

$g^*_{C,rel} = 60$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2        | -5.79   | -49.61  | 49.96        | 263          |



PE900-7, 9 step scales for constant CIELAB hue 88/360 = 0.245 (left)



BAM-test chart PE90; Colorimetric systems ORS18 & TLS00

D50: 9 and 16 step colour scales for 10 hues

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 89/360 = 0.246$

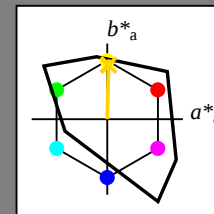
$lab^*tch$  and  $lab^*nch$

D50: hue J

LCH\*Ma: 87 79 89

olv\*Ma: 1.0 0.83 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

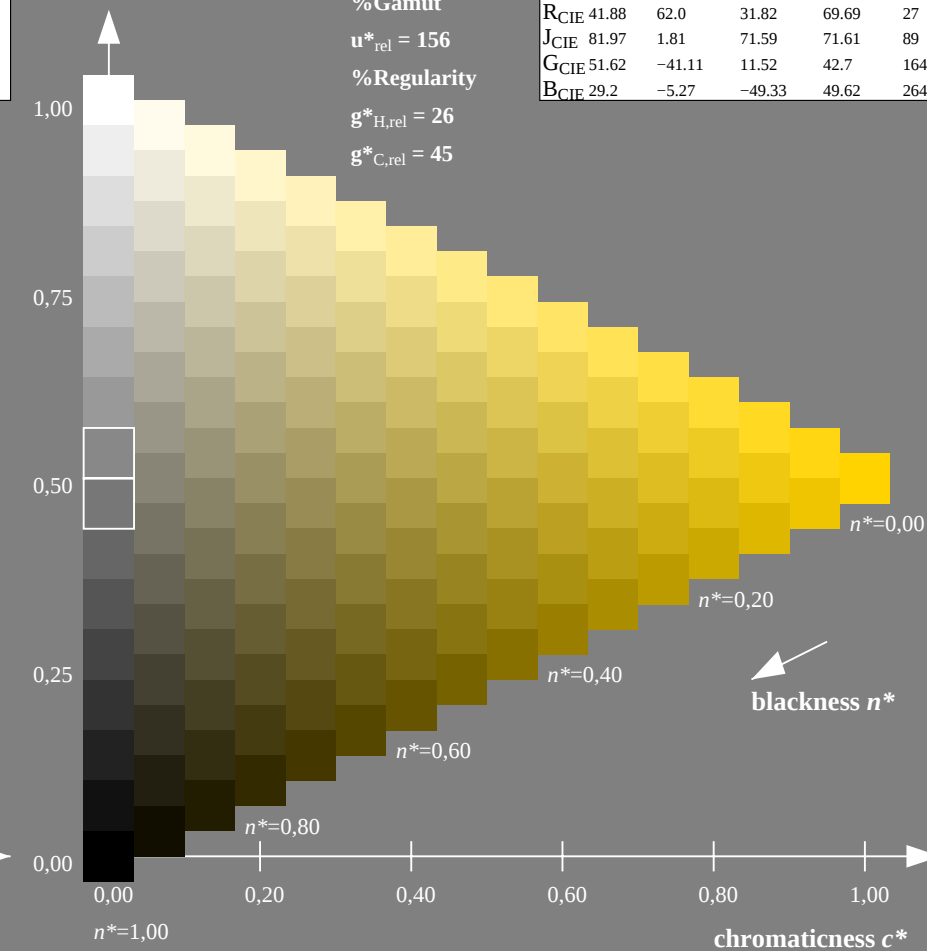
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2        | -5.27   | -49.33  | 49.62        | 264          |



16 step scales for constant CIELAB hue 89/360 = 0.246 (right)

input: olv\* setrgbcolor

output: no change compared to input



Input: Colorimetric Offset Reflective System ORS18

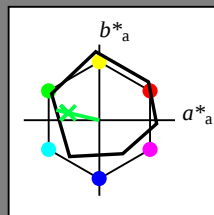
for hue  $h^* = lab^*h = 167/360 = 0.463$

$lab^*tch$  and  $lab^*nch$

D50: hue G

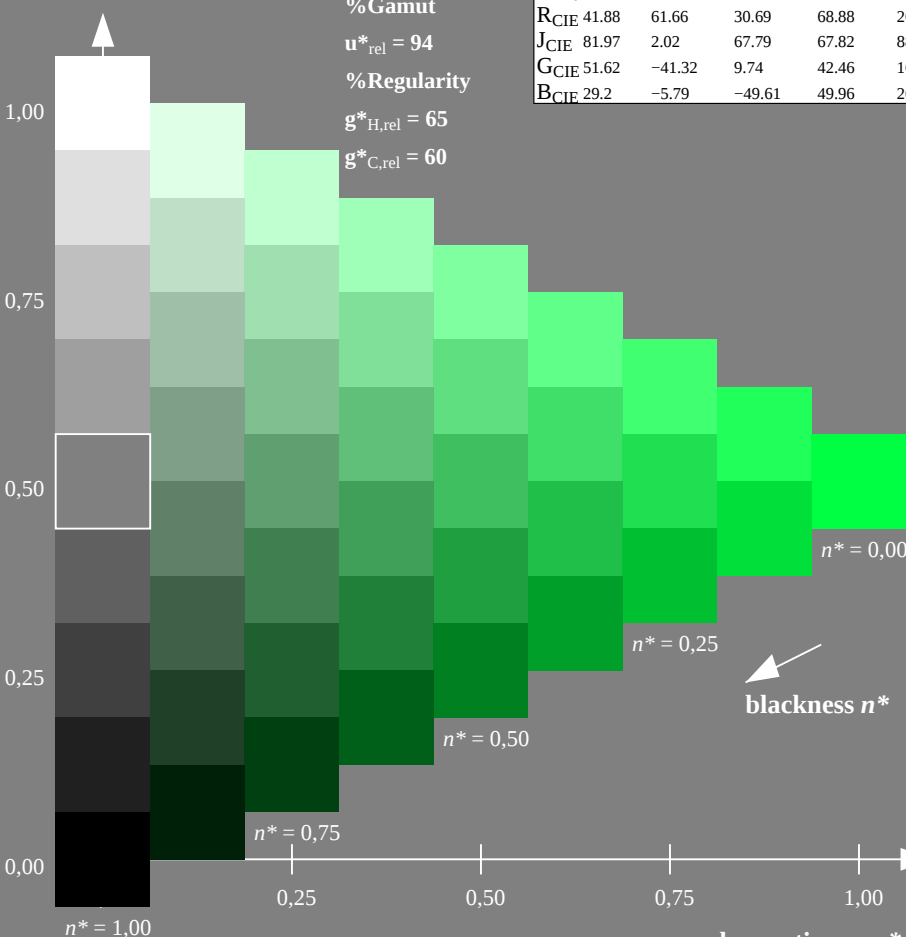
LCH\*Ma: 52 59 167

olv\*Ma: 0.0 1.0 0.26



| ORS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 47.94       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>                | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>                | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>                | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>                | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>                | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>                | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub>               | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub>               | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub>               | 29.2        | -5.79   | -49.61  | 49.96        | 263          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$

blackness  $n^*$

PE900-7, 9 step scales for constant CIELAB hue 167/360 = 0.463 (left)



BAM-test chart PE90; Colorimetric systems ORS18 & TLS00  
D50: 9 and 16 step colour scales for 10 hues

Output: Colorimetric Television Luminous System TLS00

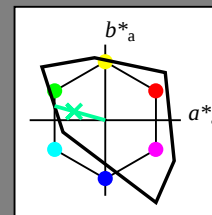
for hue  $h^* = lab^*h = 164/360 = 0.457$

$lab^*tch$  and  $lab^*nch$

D50: hue G

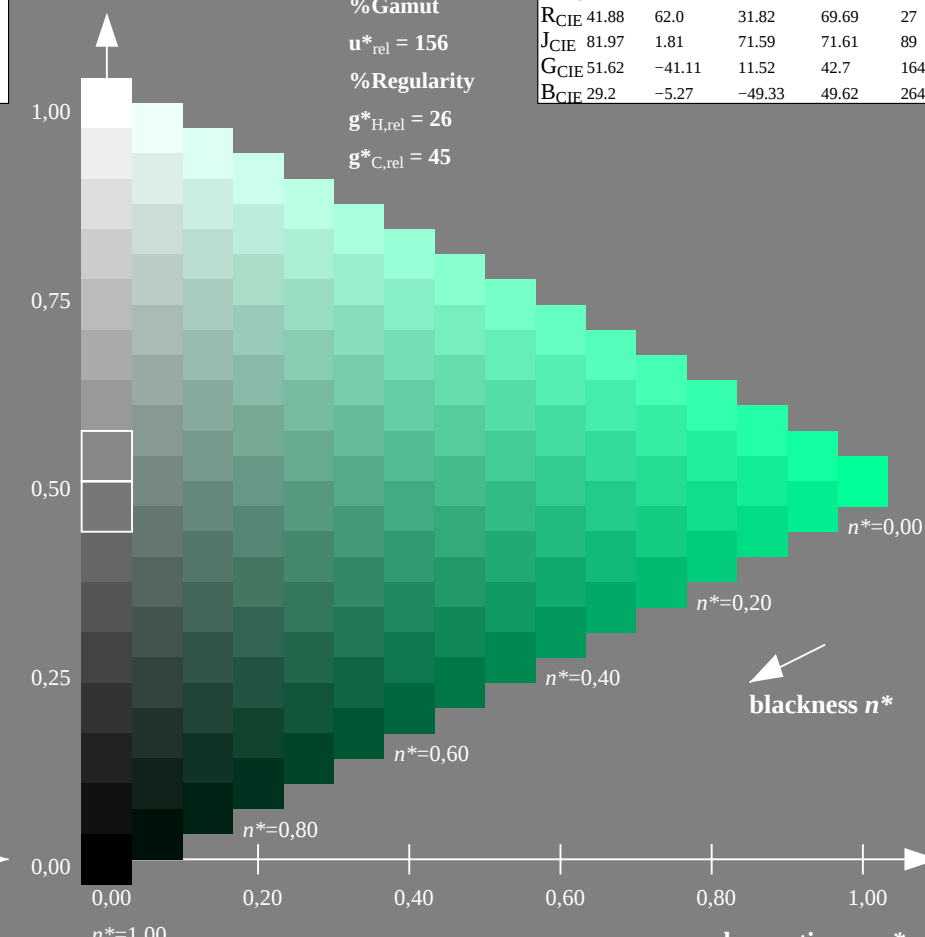
LCH\*Ma: 84 70 164

olv\*Ma: 0.0 1.0 0.6



| TLS00; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>                | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>                | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>                | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>                | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>                | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>                | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub>               | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub>               | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub>               | 29.2        | -5.27   | -49.33  | 49.62        | 264          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 156$

%Regularity

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

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

blackness  $n^*$

16 step scales for constant CIELAB hue 164/360 = 0.457 (right)

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



Input: Colorimetric Offset Reflective System ORS18

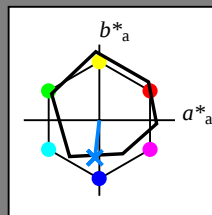
for hue  $h^* = lab \cdot h = 263/360 = 0.731$

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

D50: hue B

LCH\*Ma: 42 47 263

olv\*Ma: 0.0 0.52 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       | 65.05   | 50.54   | 82.38        | 38           |
| Y <sub>Ma</sub>  | 91.0        | -4.72   | 90.58   | 90.7         | 93           |
| L <sub>Ma</sub>  | 50.9        | -63.18  | 34.98   | 72.22        | 151          |
| C <sub>Ma</sub>  | 56.99       | -39.34  | -48.1   | 62.16        | 231          |
| V <sub>Ma</sub>  | 25.72       | 30.89   | -44.4   | 54.09        | 305          |
| M <sub>Ma</sub>  | 49.99       | 75.76   | -4.64   | 75.9         | 356          |
| N <sub>Ma</sub>  | 18.09       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.46       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 61.66   | 30.69   | 68.88        | 26           |
| J <sub>CIE</sub> | 81.97       | 2.02    | 67.79   | 67.82        | 88           |
| G <sub>CIE</sub> | 51.62       | -41.32  | 9.74    | 42.46        | 167          |
| B <sub>CIE</sub> | 29.2        | -5.79   | -49.61  | 49.96        | 263          |

triangle lightness  $t^*$

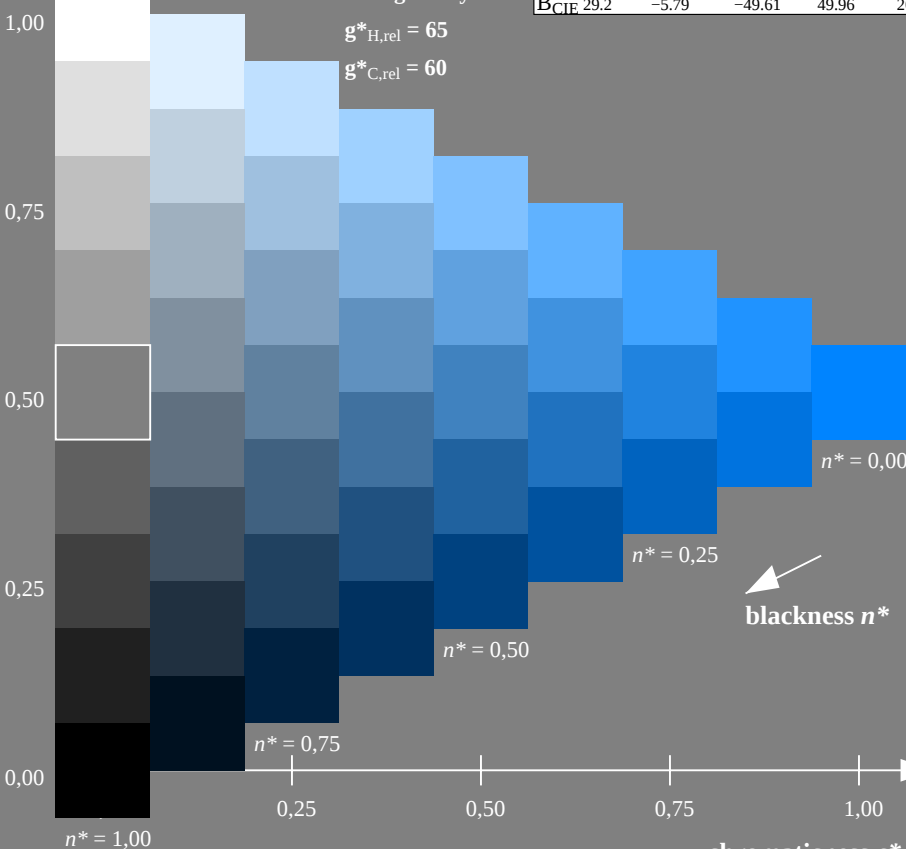
%Gamut

$u^*_{rel} = 94$

%Regularity

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

$g^*_{C,rel} = 60$



PE900-7, 9 step scales for constant CIELAB hue 263/360 = 0.731 (left)



BAM-test chart PE90; Colorimetric systems ORS18 & TLS00  
D50: 9 and 16 step colour scales for 10 hues

Output: Colorimetric Television Luminous System TLS00

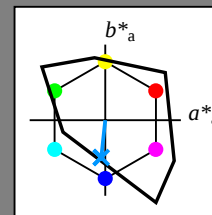
for hue  $h^* = lab \cdot h = 264/360 = 0.733$

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

D50: hue B

LCH\*Ma: 61 54 264

olv\*Ma: 0.0 0.59 1.0



TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 54.19       | 79.36   | 63.0    | 101.33       | 38           |
| Y <sub>Ma</sub>  | 93.44       | -14.18  | 82.59   | 83.8         | 100          |
| L <sub>Ma</sub>  | 82.82       | -83.73  | 70.41   | 109.41       | 140          |
| C <sub>Ma</sub>  | 85.22       | -55.9   | -15.78  | 58.1         | 196          |
| V <sub>Ma</sub>  | 25.61       | 67.05   | -108.87 | 127.87       | 302          |
| M <sub>Ma</sub>  | 58.76       | 91.18   | -53.69  | 105.82       | 330          |
| N <sub>Ma</sub>  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 41.88       | 62.0    | 31.82   | 69.69        | 27           |
| J <sub>CIE</sub> | 81.97       | 1.81    | 71.59   | 71.61        | 89           |
| G <sub>CIE</sub> | 51.62       | -41.11  | 11.52   | 42.7         | 164          |
| B <sub>CIE</sub> | 29.2        | -5.27   | -49.33  | 49.62        | 264          |

triangle lightness  $t^*$

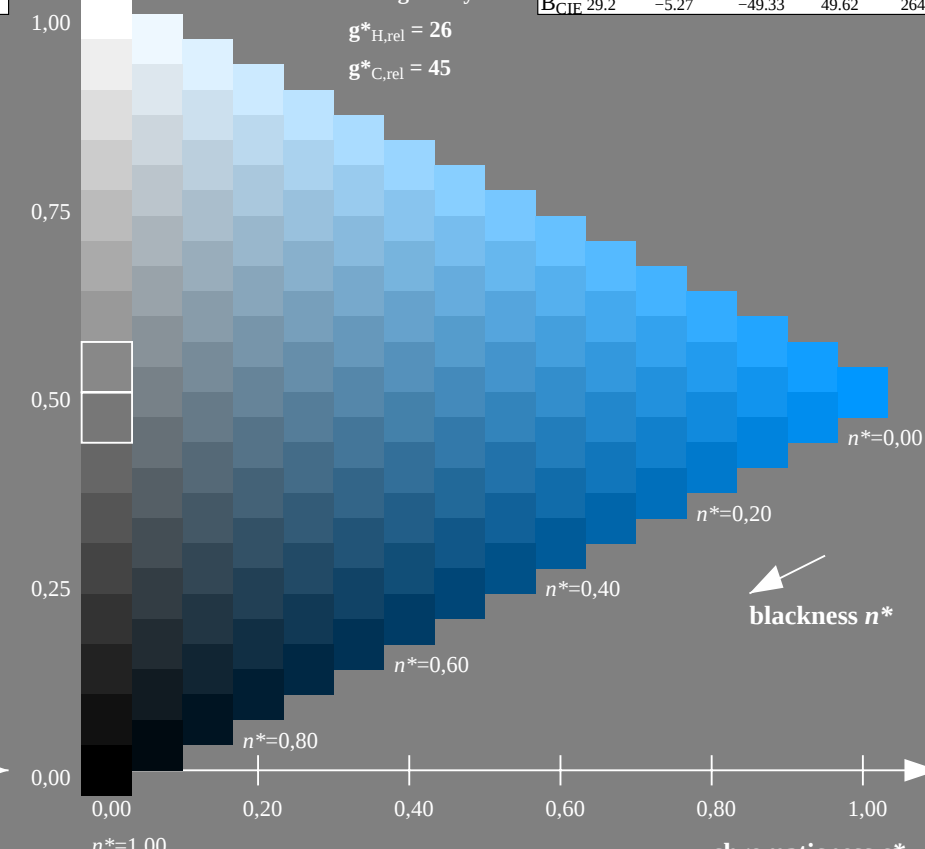
%Gamut

$u^*_{rel} = 156$

%Regularity

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

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



16 step scales for constant CIELAB hue 264/360 = 0.733 (right)

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

