

Input: Colorimetric Offset Reflective System ORS18

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

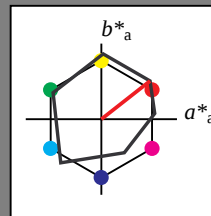
$lab \cdot tch$  and  $lab \cdot nch$

A: hue O

LCH\*Ma: 48 82 38

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| Y <sub>Ma</sub>  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| L <sub>Ma</sub>  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| C <sub>Ma</sub>  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| V <sub>Ma</sub>  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| M <sub>Ma</sub>  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| N <sub>Ma</sub>  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| J <sub>CIE</sub> | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| G <sub>CIE</sub> | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| B <sub>CIE</sub> | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

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

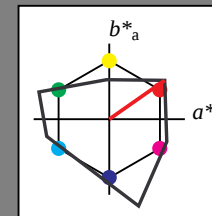
$lab \cdot tch$  and  $lab \cdot nch$

A: hue O

LCH\*Ma: 66 90 35

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

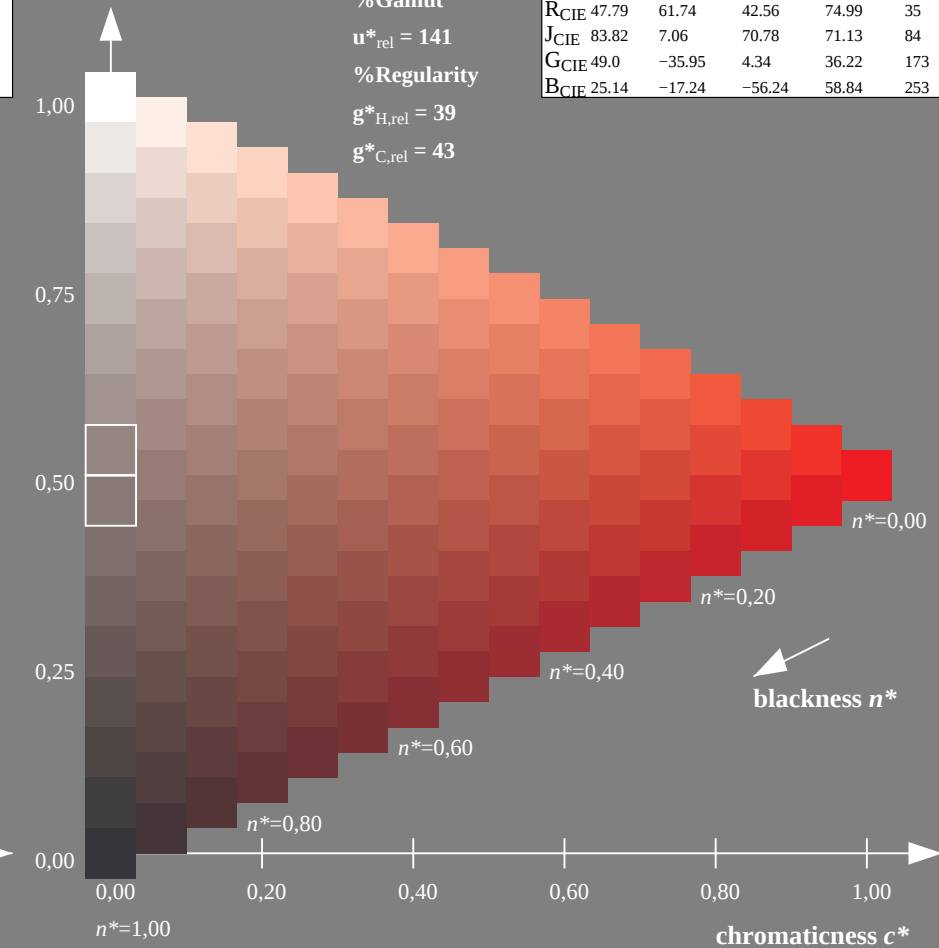
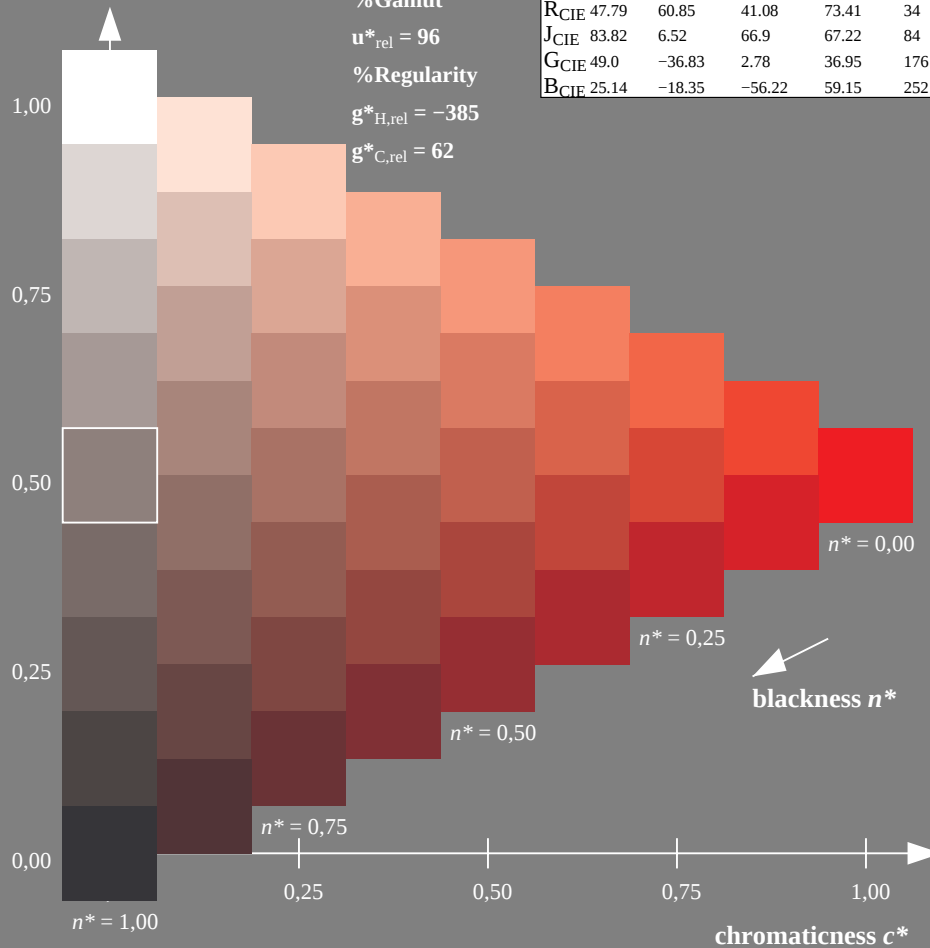
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| Y <sub>Ma</sub>  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| L <sub>Ma</sub>  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| C <sub>Ma</sub>  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| V <sub>Ma</sub>  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| M <sub>Ma</sub>  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| 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> | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| J <sub>CIE</sub> | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| G <sub>CIE</sub> | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| B <sub>CIE</sub> | 25.14       | -17.24  | -56.24  | 58.84        | 253          |



SE900-7, 9 step scales for constant CIELAB hue 38/360 = 0.106 (left)

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

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input:  $cmY0^*$  setcmykcolor

output: no change compared to input

### Input: Colorimetric Offset Reflective System ORS18

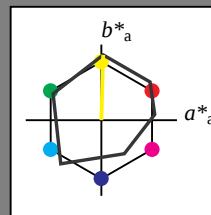
for hue  $h^* = lab \cdot h = 88/360 = 0.246$

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

A: hue Y

LCH\*Ma: 93 86 88

olv\*Ma: 1.0 1.0 0.0



### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| MMa  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

triangle lightness  $t^*$

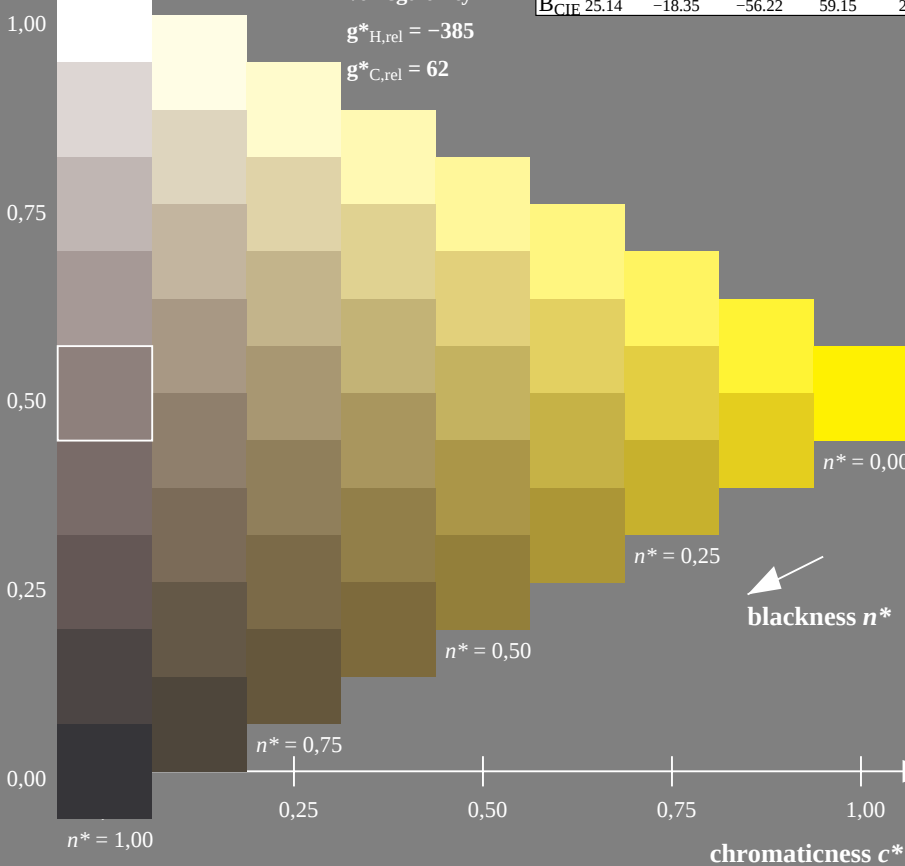
%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$



SE900-7, 9 step scales for constant CIELAB hue 88/360 = 0.246 (left)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

### Output: Colorimetric Television Luminous System TLS00

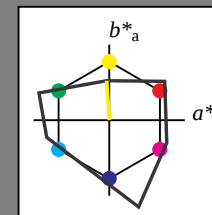
for hue  $h^* = lab \cdot h = 94/360 = 0.261$

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

A: hue Y

LCH\*Ma: 95 52 94

olv\*Ma: 1.0 1.0 0.0



### TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| MMa  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

triangle lightness  $t^*$

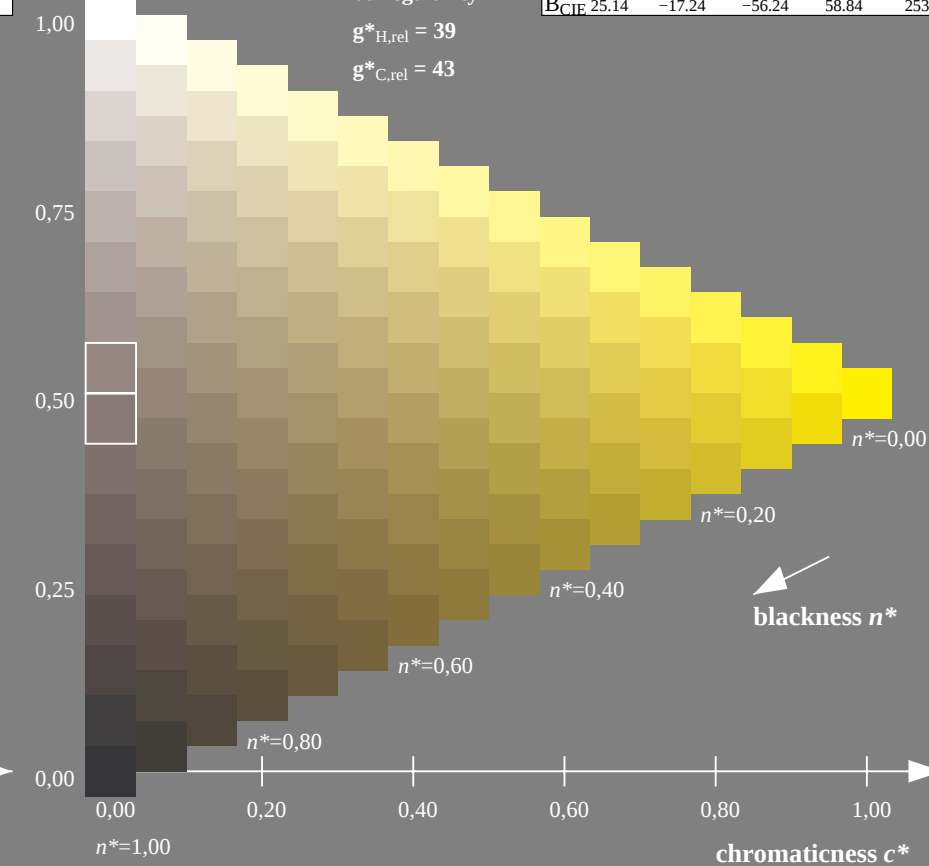
%Gamut

$u^*_{rel} = 141$

%Regularity

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

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



16 step scales for constant CIELAB hue 94/360 = 0.261 (right)

input:  $cmY0^*$  setcmykcolor

output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

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

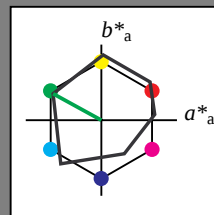
$lab^*tch$  and  $lab^*nch$

A: hue L

LCH\*Ma: 51 73 151

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| WMa  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 159/360 = 0.441$

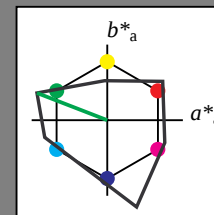
$lab^*tch$  and  $lab^*nch$

A: hue L

LCH\*Ma: 77 100 159

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

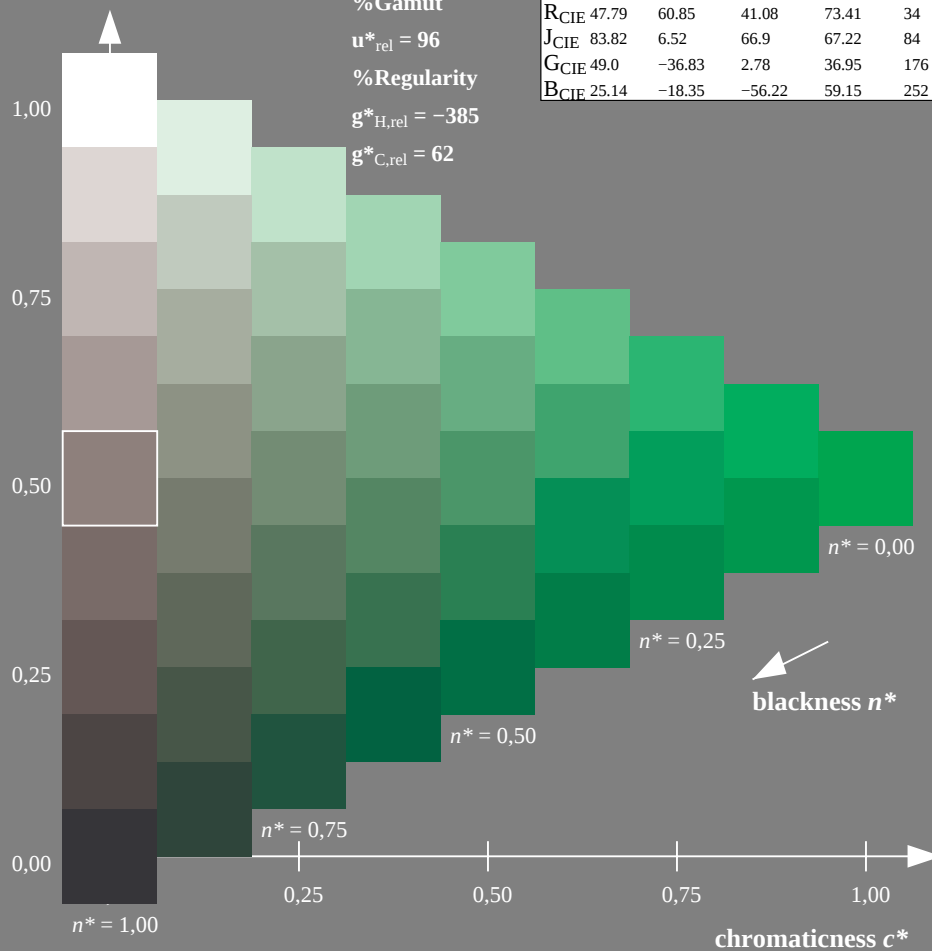
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| WMa  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

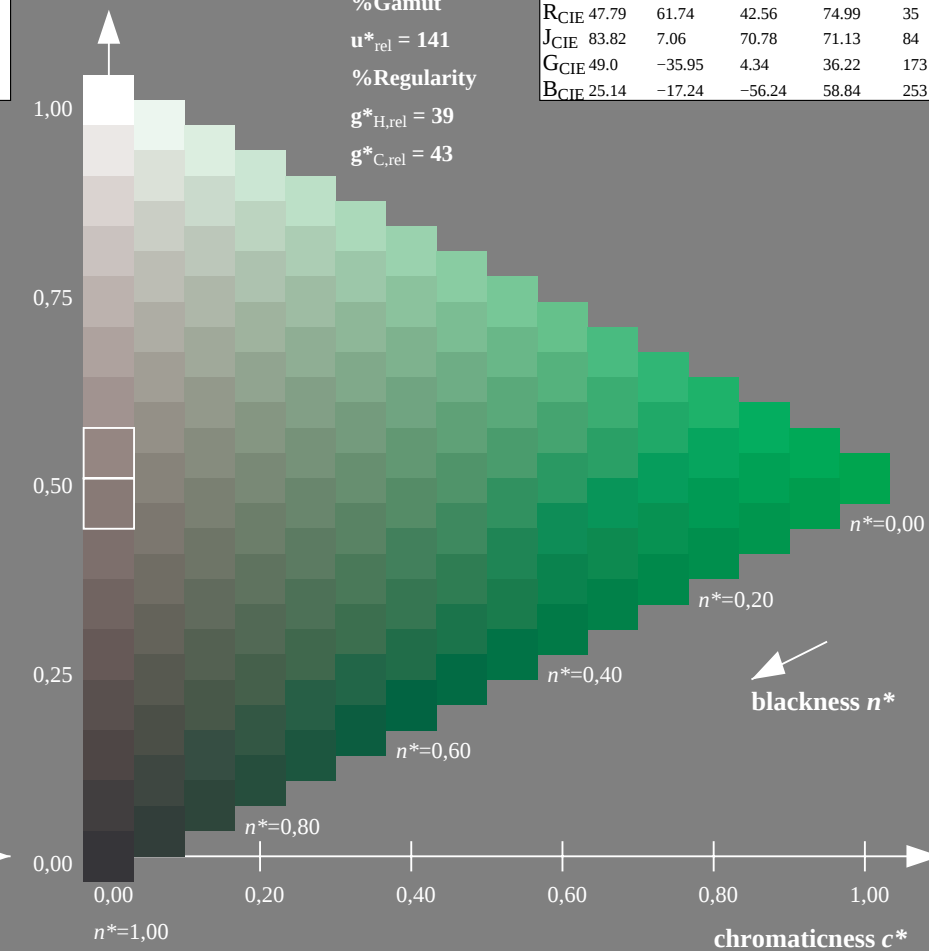


SE900-7, 9 step scales for constant CIELAB hue 151/360 = 0.42 (left)



BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues



16 step scales for constant CIELAB hue 159/360 = 0.441 (right)

input:  $cmY0^*$  setcmykcolor  
output: no change compared to input



Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 227/360 = 0.631$

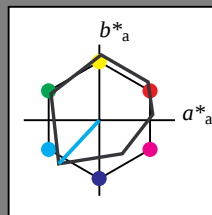
$lab \cdot tch$  and  $lab \cdot nch$

A: hue C

LCH\*Ma: 51 79 227

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

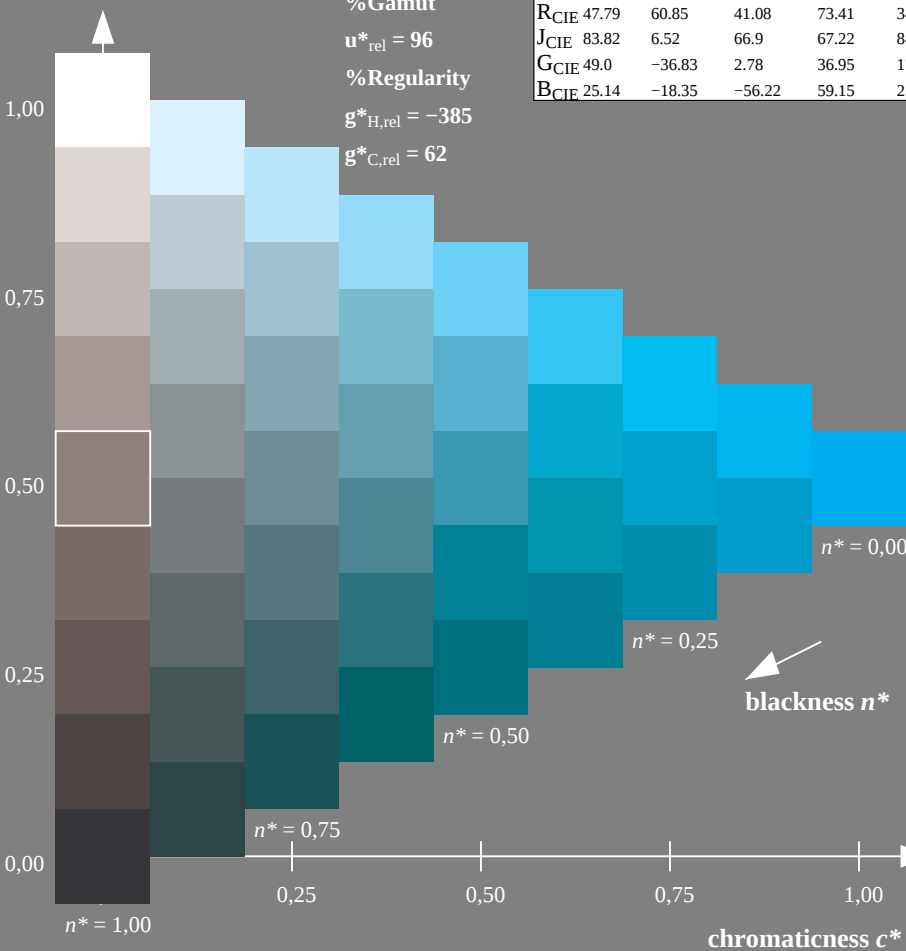
%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| MMa  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14       | -18.35  | -56.22  | 59.15        | 252          |



SE900-7, 9 step scales for constant CIELAB hue 227/360 = 0.631 (left)



BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 195/360 = 0.543$

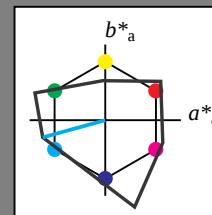
$lab \cdot tch$  and  $lab \cdot nch$

A: hue C

LCH\*Ma: 78 86 195

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

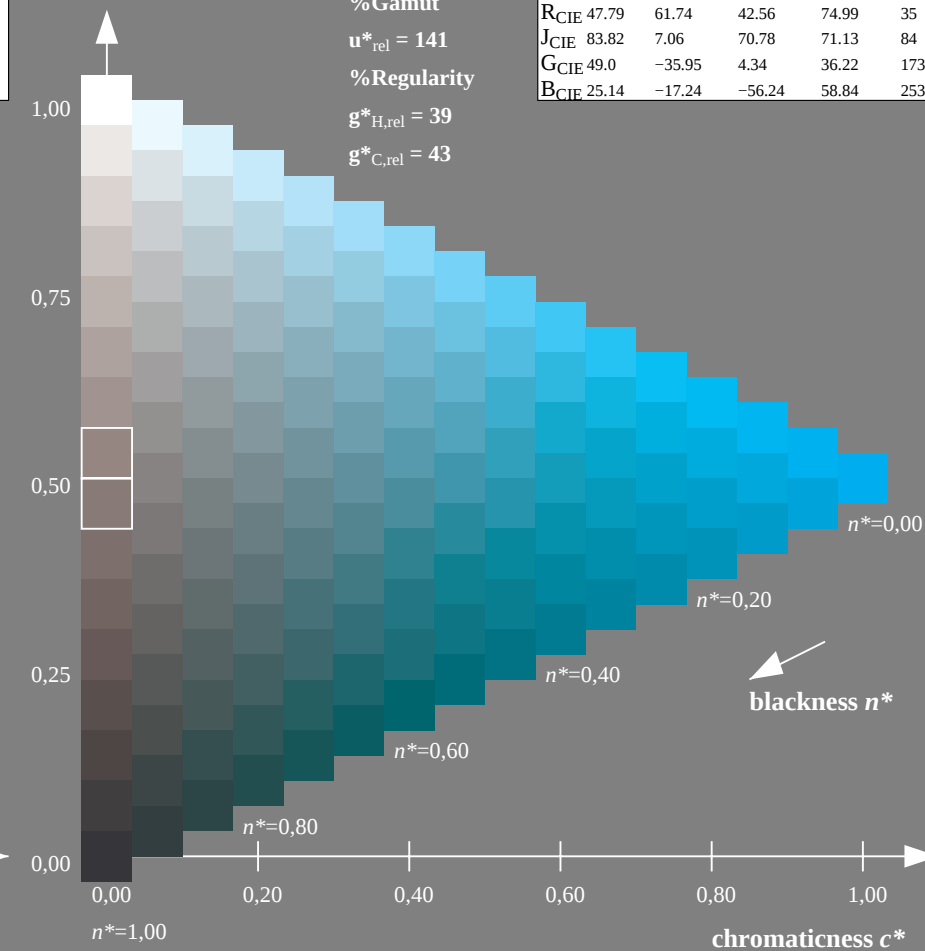
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| MMa  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14       | -17.24  | -56.24  | 58.84        | 253          |



16 step scales for constant CIELAB hue 195/360 = 0.543 (right)

input:  $cmY0^*$  setcmykcolor

output: no change compared to input



Input: Colorimetric Offset Reflective System ORS18

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

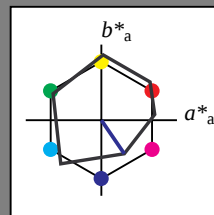
$lab \cdot tch$  and  $lab \cdot nch$

A: hue V

LCH\*Ma: 26 54 304

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| Y <sub>Ma</sub>  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| L <sub>Ma</sub>  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| C <sub>Ma</sub>  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| V <sub>Ma</sub>  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| M <sub>Ma</sub>  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| N <sub>Ma</sub>  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| J <sub>CIE</sub> | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| G <sub>CIE</sub> | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| B <sub>CIE</sub> | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 289/360 = 0.802$

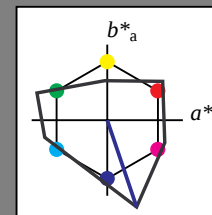
$lab \cdot tch$  and  $lab \cdot nch$

A: hue V

LCH\*Ma: 13 121 289

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

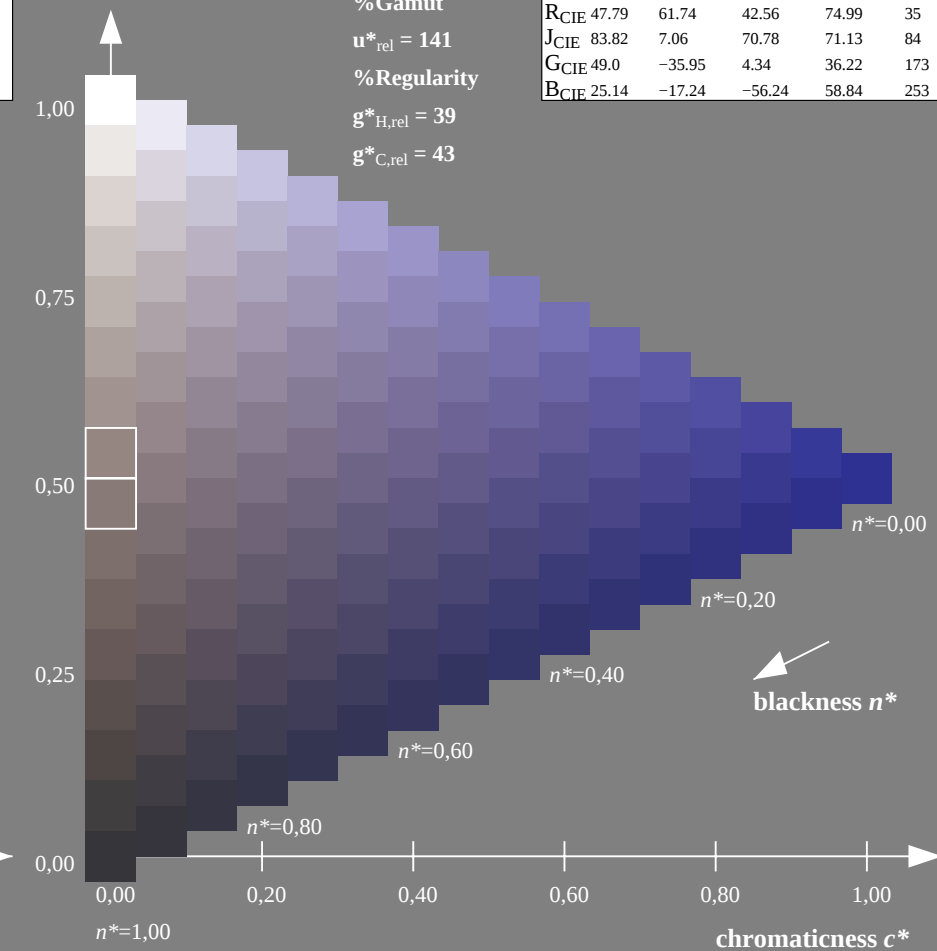
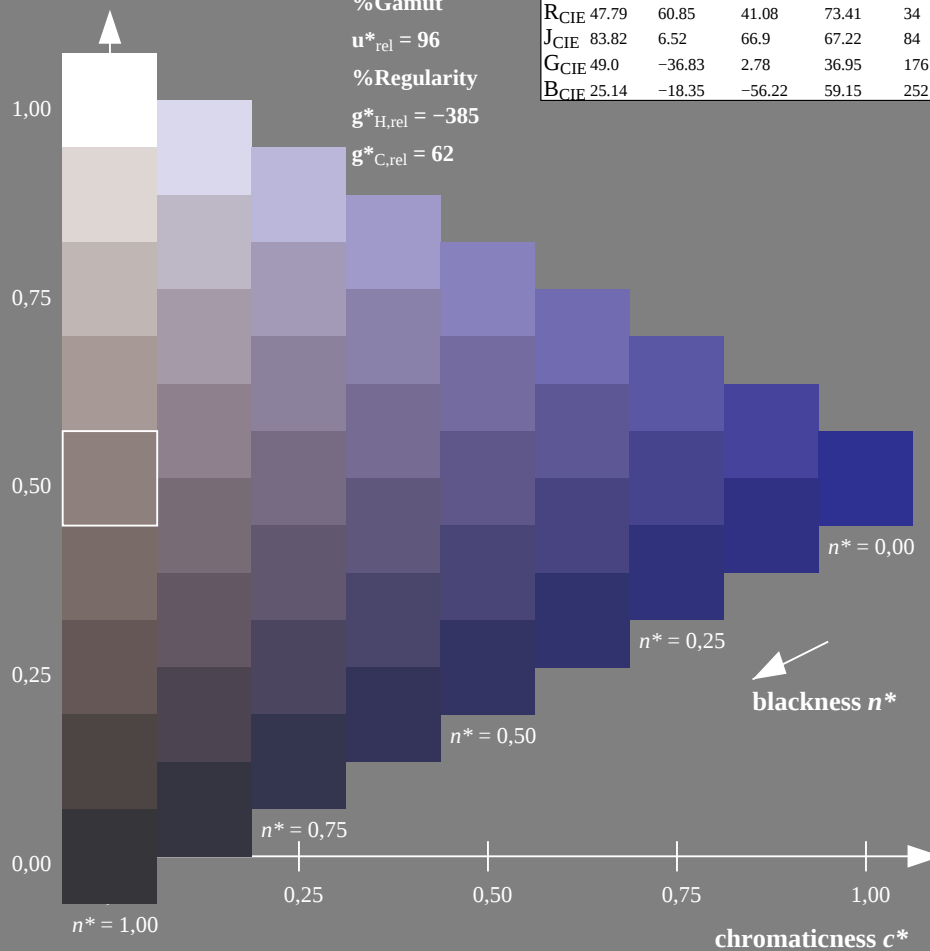
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| Y <sub>Ma</sub>  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| L <sub>Ma</sub>  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| C <sub>Ma</sub>  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| V <sub>Ma</sub>  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| M <sub>Ma</sub>  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| 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> | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| J <sub>CIE</sub> | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| G <sub>CIE</sub> | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| B <sub>CIE</sub> | 25.14       | -17.24  | -56.24  | 58.84        | 253          |



SE900-7, 9 step scales for constant CIELAB hue 304/360 = 0.845 (left)

16 step scales for constant CIELAB hue 289/360 = 0.802 (right)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input: *cmY0\* setcmykcolor*

output: *no change compared to input*

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 6/360 = 0.017$

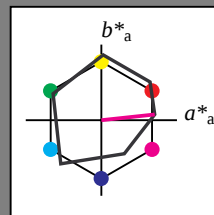
$lab \cdot tch$  and  $lab \cdot nch$

A: hue M

LCH\*Ma: 56 71 6

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|      | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|---------------|---------|---------|--------------|--------------|
| OMa  | 47.94         | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62         | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9          | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25         | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72         | 30.34   | -44.37  | 53.76        | 304          |
| MMa  | 56.25         | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11         | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6          | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79         | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82         | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0          | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14         | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 339/360 = 0.941$

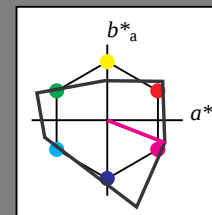
$lab \cdot tch$  and  $lab \cdot nch$

A: hue M

LCH\*Ma: 67 82 339

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

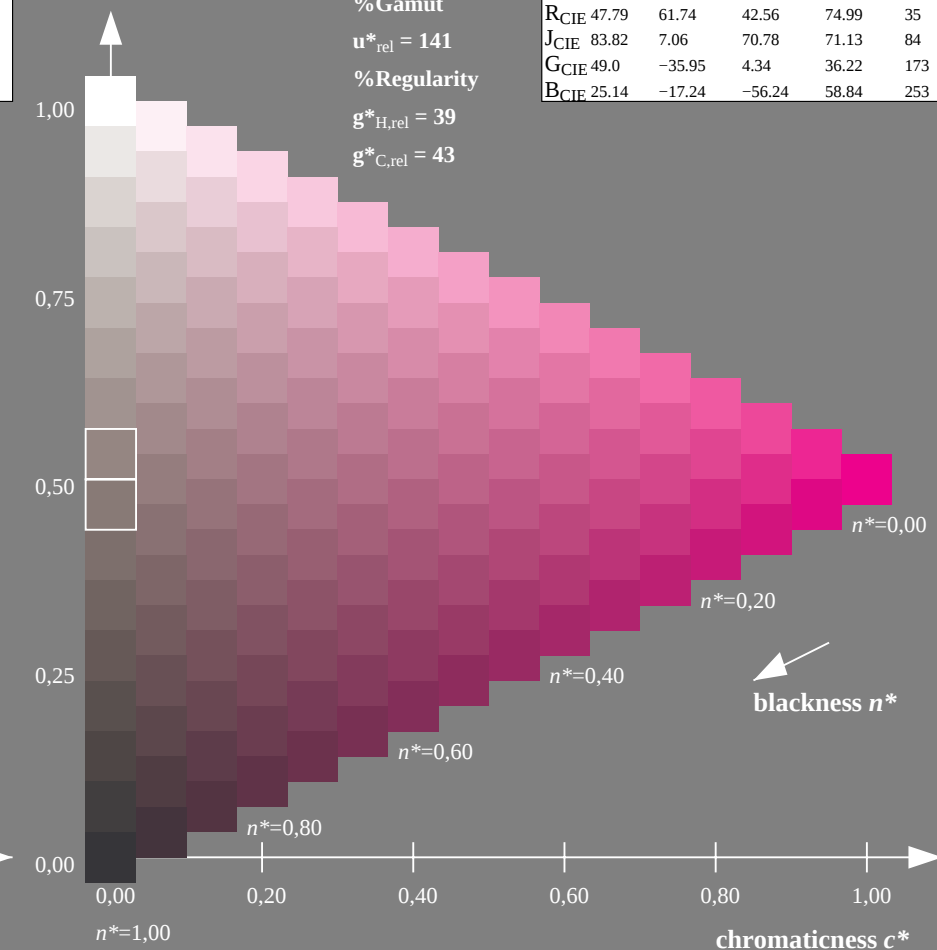
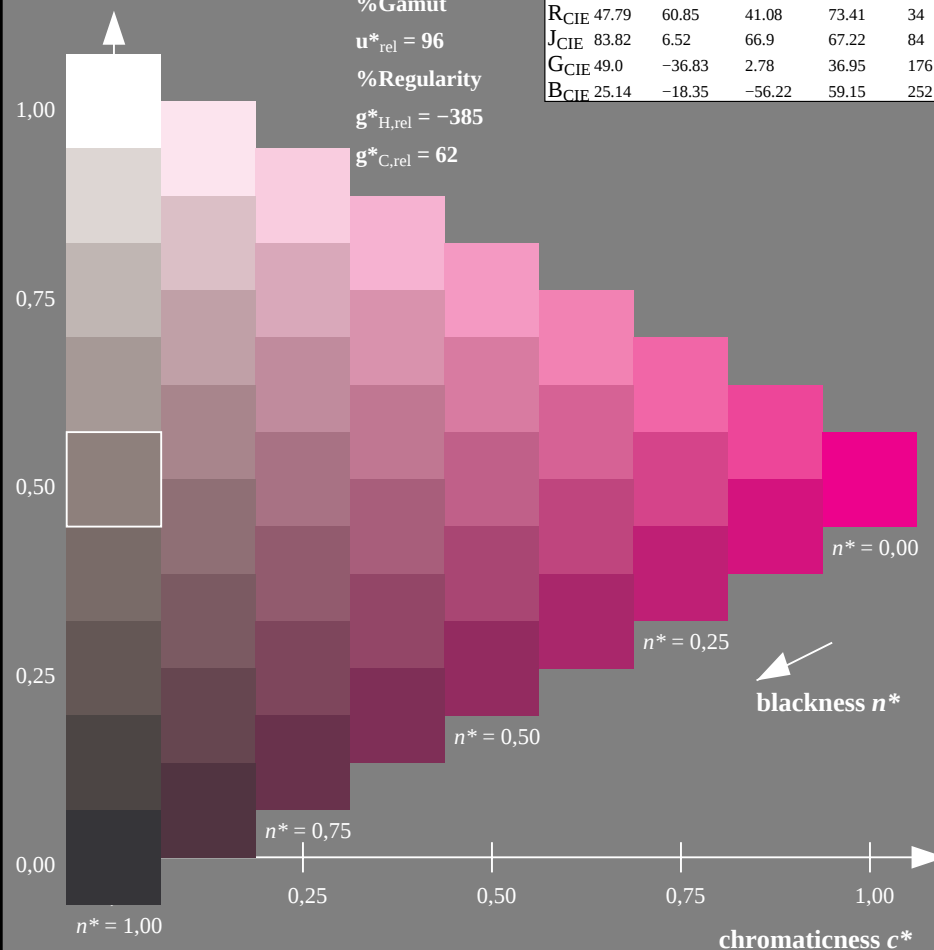
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|      | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|---------------|---------|---------|--------------|--------------|
| OMa  | 65.56         | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78         | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48         | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36         | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55         | 38.81   | -114.81 | 121.2        | 289          |
| MMa  | 66.71         | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01          | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79         | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82         | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0          | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14         | -17.24  | -56.24  | 58.84        | 253          |



SE900-7, 9 step scales for constant CIELAB hue 6/360 = 0.017 (left)

16 step scales for constant CIELAB hue 339/360 = 0.941 (right)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input:  $cmY0^*$  setcmykcolor

output: no change compared to input

### Input: Colorimetric Offset Reflective System ORS18

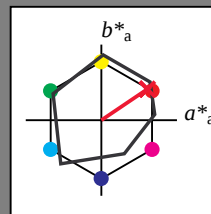
for hue  $h^* = lab \cdot h = 34/360 = 0.095$

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

A: hue R

LCH\*Ma: 49 79 34

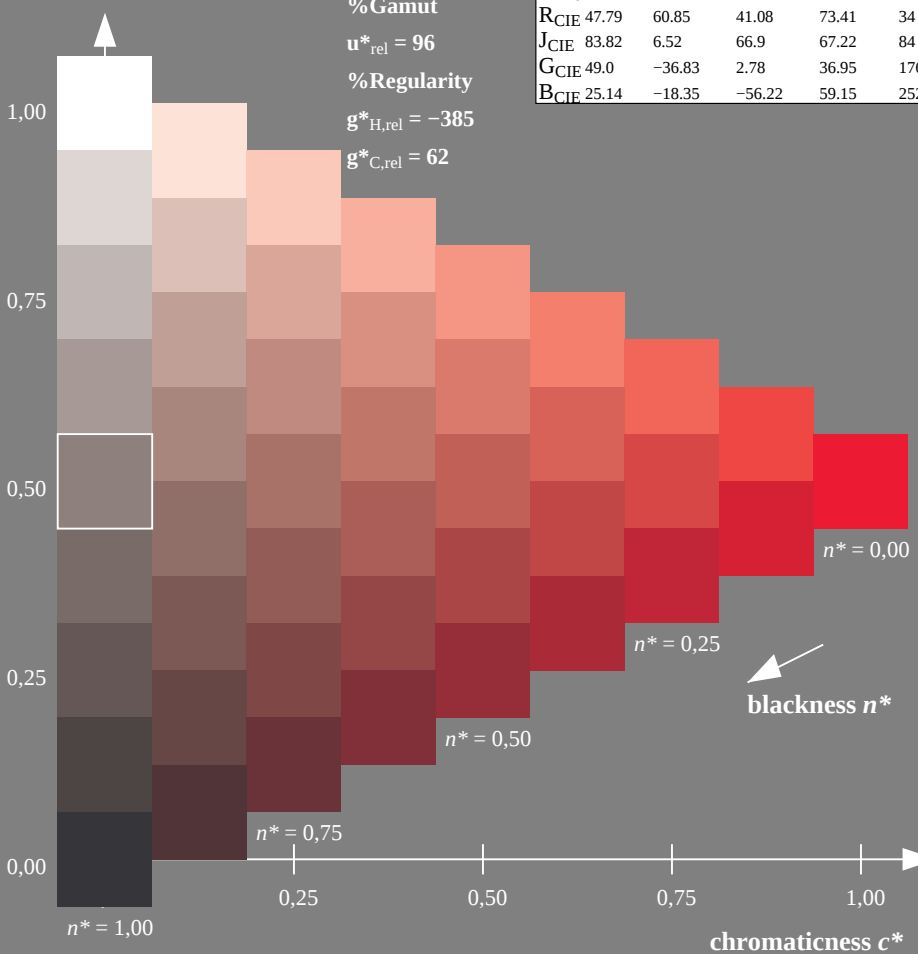
olv\*Ma: 1.0 0.0 0.15



### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| MMa  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

triangle lightness  $t^*$



### Output: Colorimetric Television Luminous System TLS00

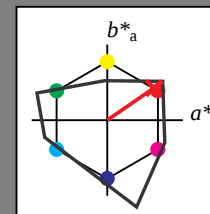
for hue  $h^* = lab \cdot h = 35/360 = 0.096$

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

A: hue R

LCH\*Ma: 66 89 35

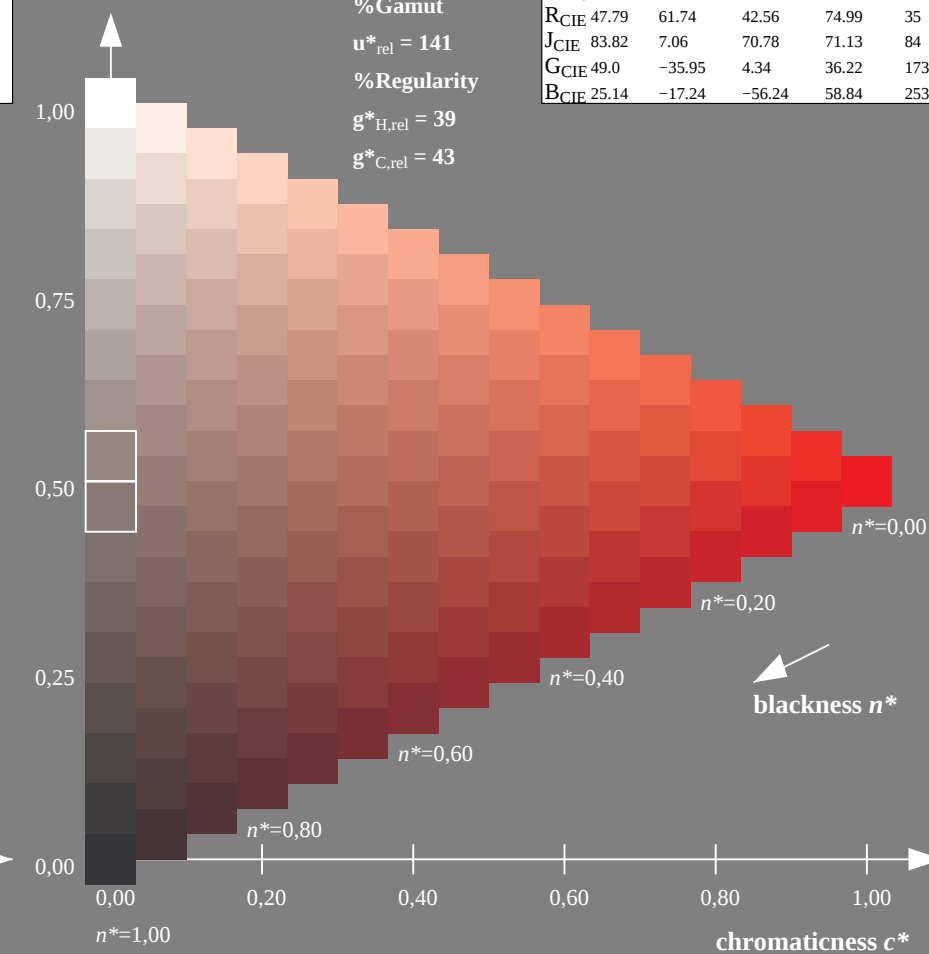
olv\*Ma: 1.0 0.0 0.01



### TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| MMa  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

triangle lightness  $t^*$



SE900-7, 9 step scales for constant CIELAB hue 34/360 = 0.095 (left)

16 step scales for constant CIELAB hue 35/360 = 0.096 (right)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input:  $cmY0^*$  setcmykcolor

output: no change compared to input

### Input: Colorimetric Offset Reflective System ORS18

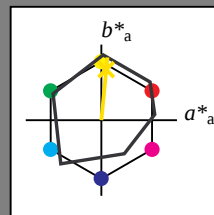
for hue  $h^* = lab \cdot h = 84/360 = 0.235$

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

A: hue J

LCH\*Ma: 89 83 84

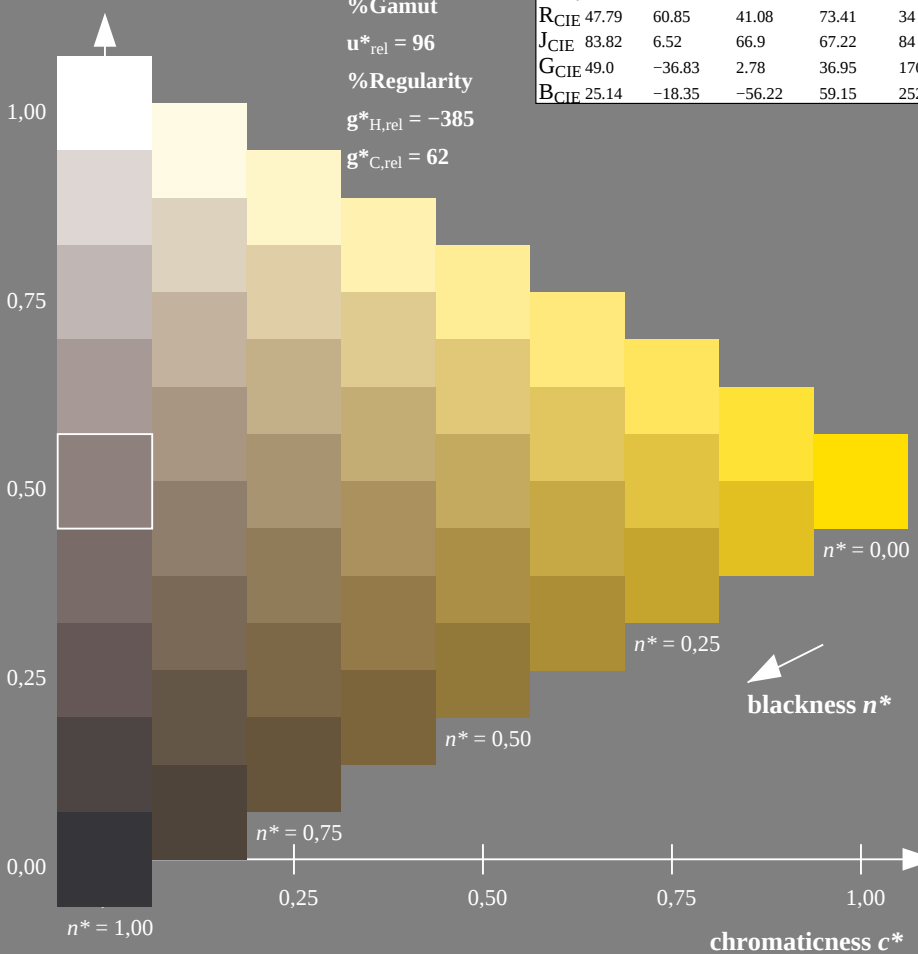
olv\*Ma: 1.0 0.91 0.0



#### ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| Y <sub>Ma</sub>  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| L <sub>Ma</sub>  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| C <sub>Ma</sub>  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| V <sub>Ma</sub>  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| M <sub>Ma</sub>  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| N <sub>Ma</sub>  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| J <sub>CIE</sub> | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| G <sub>CIE</sub> | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| B <sub>CIE</sub> | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

### Output: Colorimetric Television Luminous System TLS00

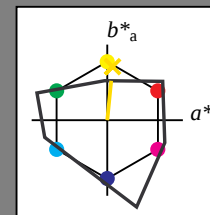
for hue  $h^* = lab \cdot h = 84/360 = 0.234$

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

A: hue J

LCH\*Ma: 91 52 84

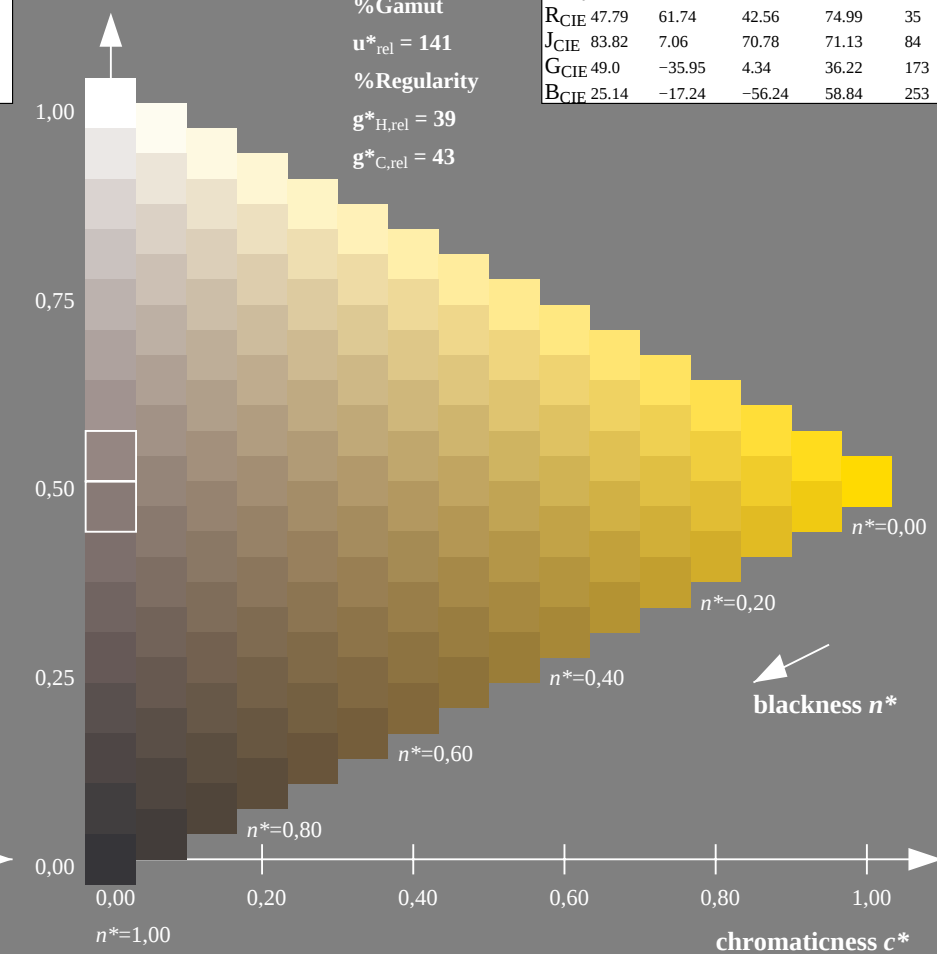
olv\*Ma: 1.0 0.89 0.0



#### TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| Y <sub>Ma</sub>  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| L <sub>Ma</sub>  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| C <sub>Ma</sub>  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| V <sub>Ma</sub>  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| M <sub>Ma</sub>  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| 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> | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| J <sub>CIE</sub> | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| G <sub>CIE</sub> | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| B <sub>CIE</sub> | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

%Regularity

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

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

SE900-7, 9 step scales for constant CIELAB hue 84/360 = 0.235 (left)

16 step scales for constant CIELAB hue 84/360 = 0.234 (right)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input:  $cmY0^* setcmykcolor$

output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab^*h = 176/360 = 0.488$

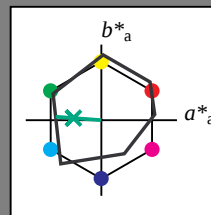
$lab^*tch$  and  $lab^*nch$

A: hue G

LCH\*Ma: 51 61 176

olv\*Ma: 0.0 1.0 0.33

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| YMa  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| LMa  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| CMa  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| VMa  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| MMa  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| NMa  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| JCIE | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| GCIE | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| BCIE | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 173/360 = 0.481$

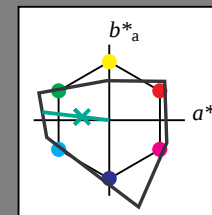
$lab^*tch$  and  $lab^*nch$

A: hue G

LCH\*Ma: 78 89 173

olv\*Ma: 0.0 1.0 0.43

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

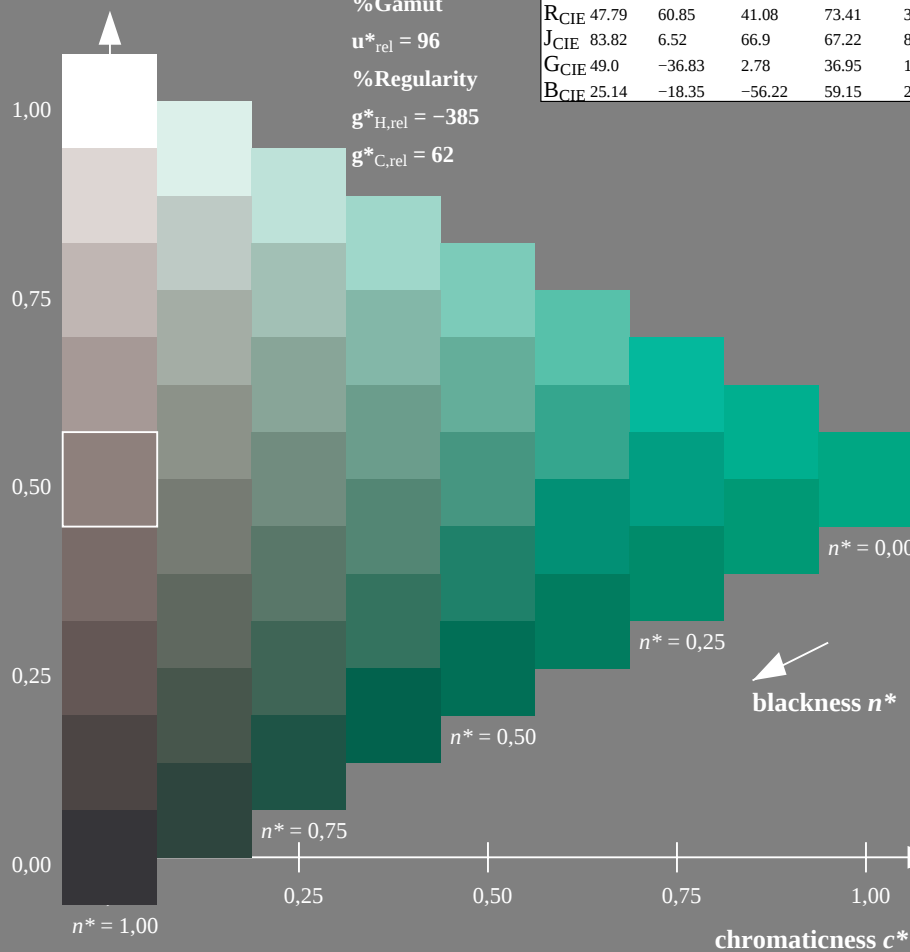
%Regularity

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

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

TLS00; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| YMa  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| LMa  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| CMa  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| VMa  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| MMa  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| NMa  | 0.01        | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| JCIE | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| GCIE | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| BCIE | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

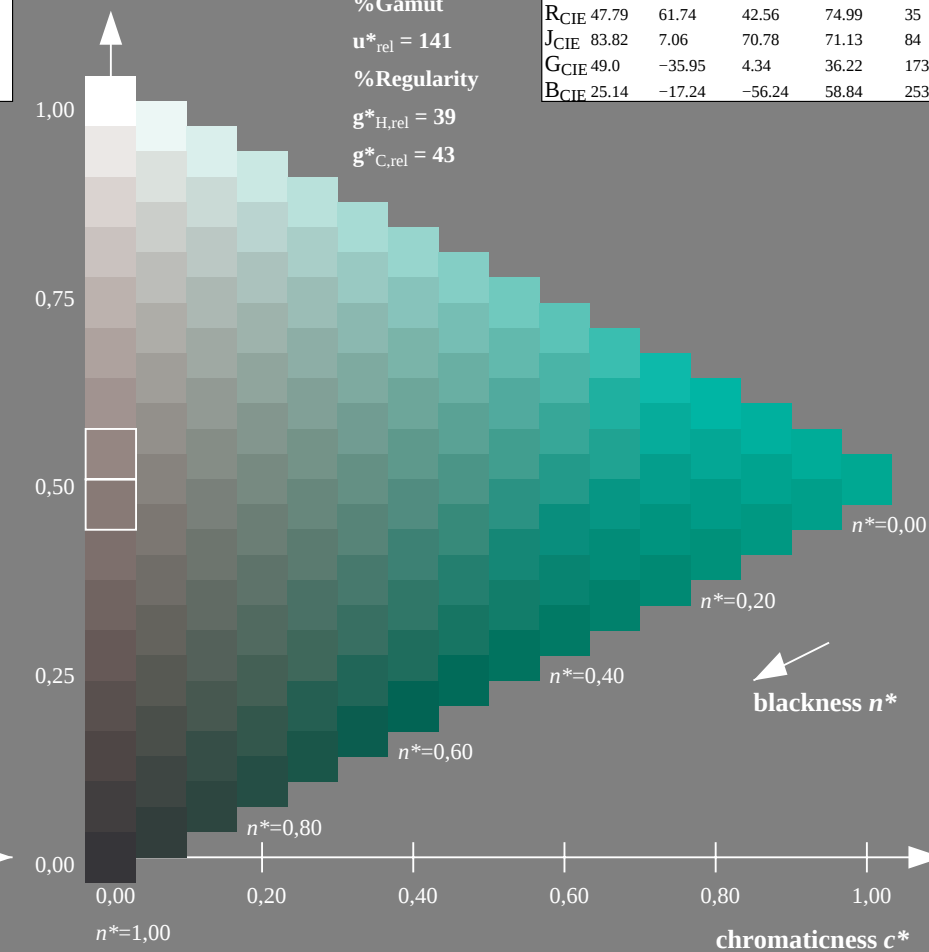


SE900-7, 9 step scales for constant CIELAB hue 176/360 = 0.488 (left)



BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues



16 step scales for constant CIELAB hue 173/360 = 0.481 (right)

input:  $cmY0^*$  setcmykcolor

output: no change compared to input



Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab \cdot h = 252/360 = 0.7$

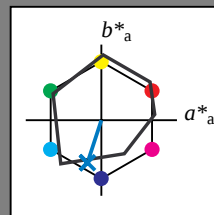
$lab \cdot tch$  and  $lab \cdot nch$

A: hue B

LCH\*Ma: 40 55 252

olv\*Ma: 0.0 0.56 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

ORS18; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 47.94       | 64.42   | 50.58   | 81.9         | 38           |
| Y <sub>Ma</sub>  | 92.62       | 2.41    | 86.36   | 86.39        | 88           |
| L <sub>Ma</sub>  | 50.9        | -63.82  | 35.02   | 72.81        | 151          |
| C <sub>Ma</sub>  | 51.25       | -53.68  | -57.69  | 78.82        | 227          |
| V <sub>Ma</sub>  | 25.72       | 30.34   | -44.37  | 53.76        | 304          |
| M <sub>Ma</sub>  | 56.25       | 70.59   | 7.57    | 70.99        | 6            |
| N <sub>Ma</sub>  | 18.11       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.6        | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 47.79       | 60.85   | 41.08   | 73.41        | 34           |
| J <sub>CIE</sub> | 83.82       | 6.52    | 66.9    | 67.22        | 84           |
| G <sub>CIE</sub> | 49.0        | -36.83  | 2.78    | 36.95        | 176          |
| B <sub>CIE</sub> | 25.14       | -18.35  | -56.22  | 59.15        | 252          |

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab \cdot h = 253/360 = 0.703$

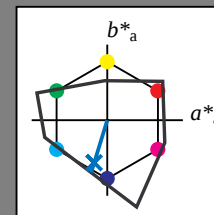
$lab \cdot tch$  and  $lab \cdot nch$

A: hue B

LCH\*Ma: 45 72 253

olv\*Ma: 0.0 0.49 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 141$

%Regularity

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

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

TLS00; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 65.56       | 73.34   | 51.39   | 89.55        | 35           |
| Y <sub>Ma</sub>  | 94.78       | -3.49   | 52.24   | 52.36        | 94           |
| L <sub>Ma</sub>  | 77.48       | -92.97  | 36.0    | 99.71        | 159          |
| C <sub>Ma</sub>  | 78.36       | -82.69  | -22.74  | 85.77        | 195          |
| V <sub>Ma</sub>  | 12.55       | 38.81   | -114.81 | 121.2        | 289          |
| M <sub>Ma</sub>  | 66.71       | 76.08   | -29.8   | 81.71        | 339          |
| 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> | 47.79       | 61.74   | 42.56   | 74.99        | 35           |
| J <sub>CIE</sub> | 83.82       | 7.06    | 70.78   | 71.13        | 84           |
| G <sub>CIE</sub> | 49.0        | -35.95  | 4.34    | 36.22        | 173          |
| B <sub>CIE</sub> | 25.14       | -17.24  | -56.24  | 58.84        | 253          |

%Gamut

$u^*_{rel} = 141$

%Regularity

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

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

SE900-7, 9 step scales for constant CIELAB hue 252/360 = 0.7 (left)

16 step scales for constant CIELAB hue 253/360 = 0.703 (right)

BAM-test chart SE90; Colorimetric systems ORS18 & TLS00

A: 9 and 16 step colour scales for 10 hues

input:  $cmY0^*$  setcmykcolor

output: no change compared to input