



Input: Colorimetric Reflective System NCS11

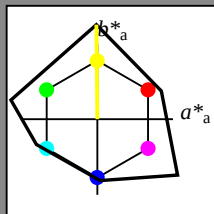
for hue  $h^* = lab^*h = 91/360 = 0.252$

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

D65: hue J

LCH\*Ma: 91 125 91

rgb\*Ma: 1.0 1.0 0.0



%Gamut

$u^*_{rel} = 149$

%Regularity

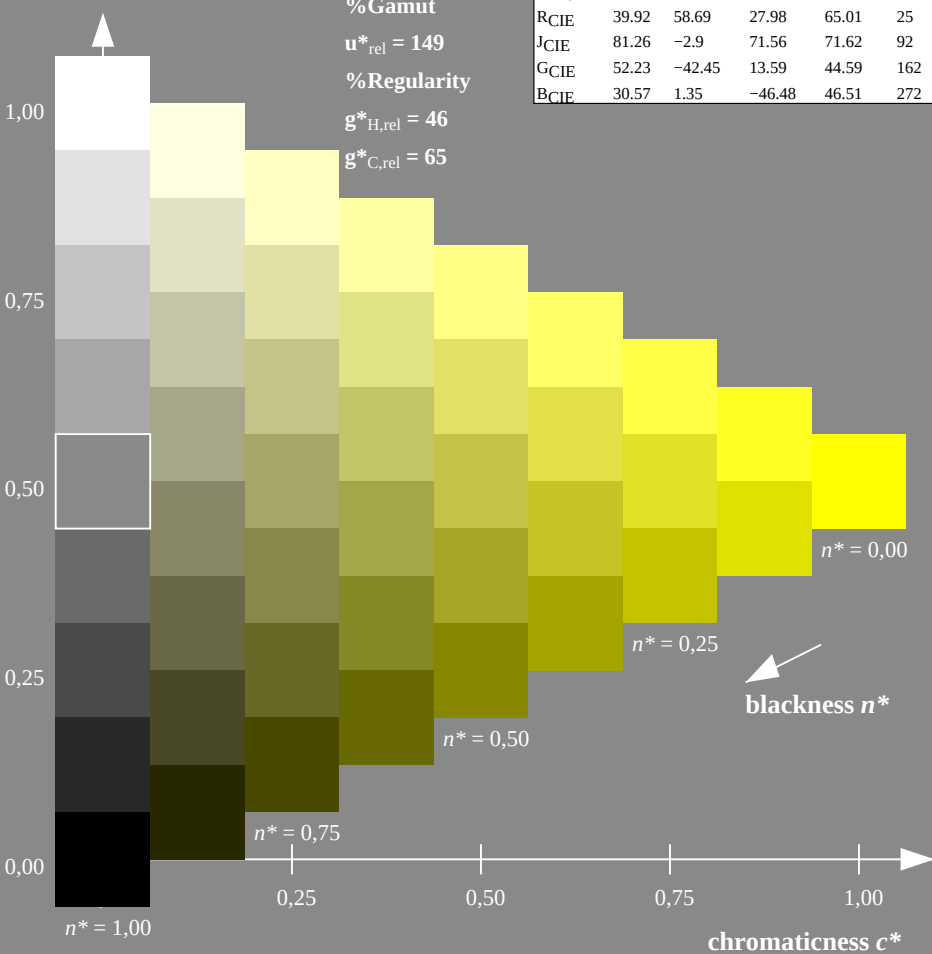
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 91/360 = 0.252 (left)

Output: Colorimetric Reflective System MRS18

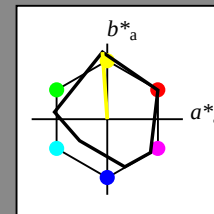
for hue  $h^* = lab^*h = 94/360 = 0.261$

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

D65: hue J

LCH\*Ma: 91 89 94

rgb\*Ma: 1.0 1.0 0.0



%Gamut

$u^*_{rel} = 91$

%Regularity

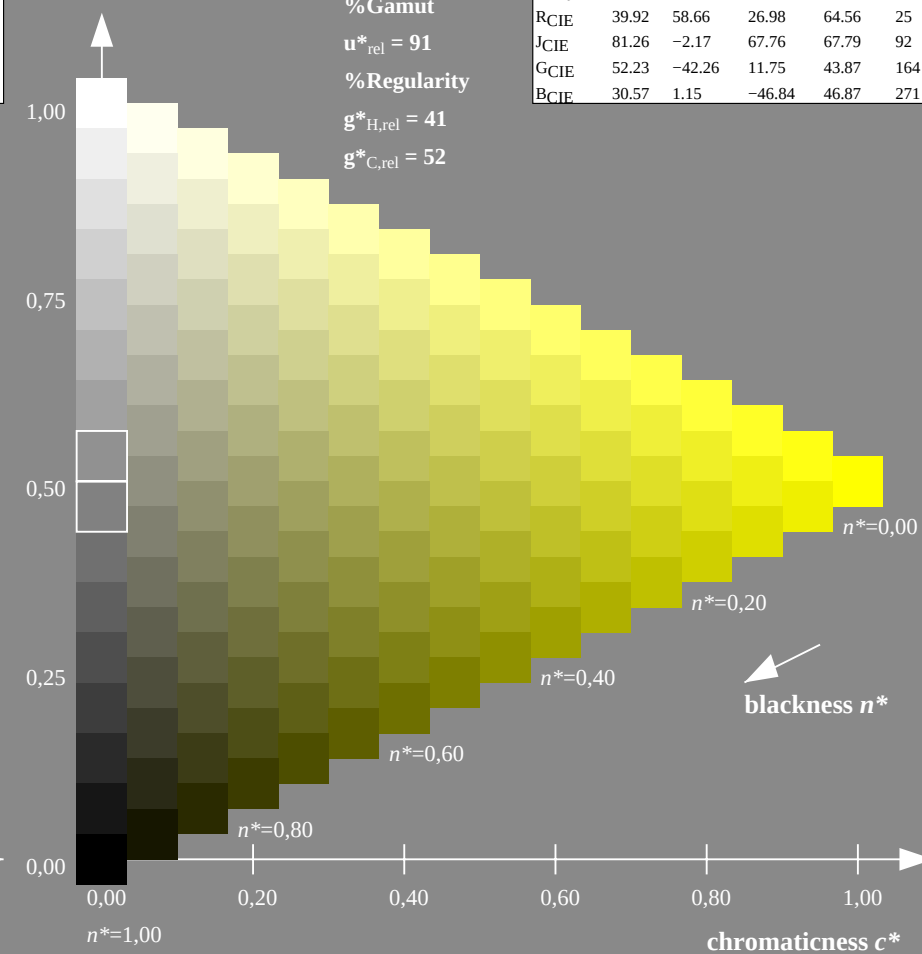
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



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

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^*setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^*setrgbcolor / w^*setgray$

Input: Colorimetric Reflective System NCS11

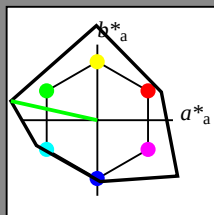
for hue  $h^* = lab^*h = 167/360 = 0.465$

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

D65: hue G

LCH\*Ma: 63 117 167

rgb\*Ma: 0.0 1.0 0.0



%Gamut

$u^*_{rel} = 149$

%Regularity

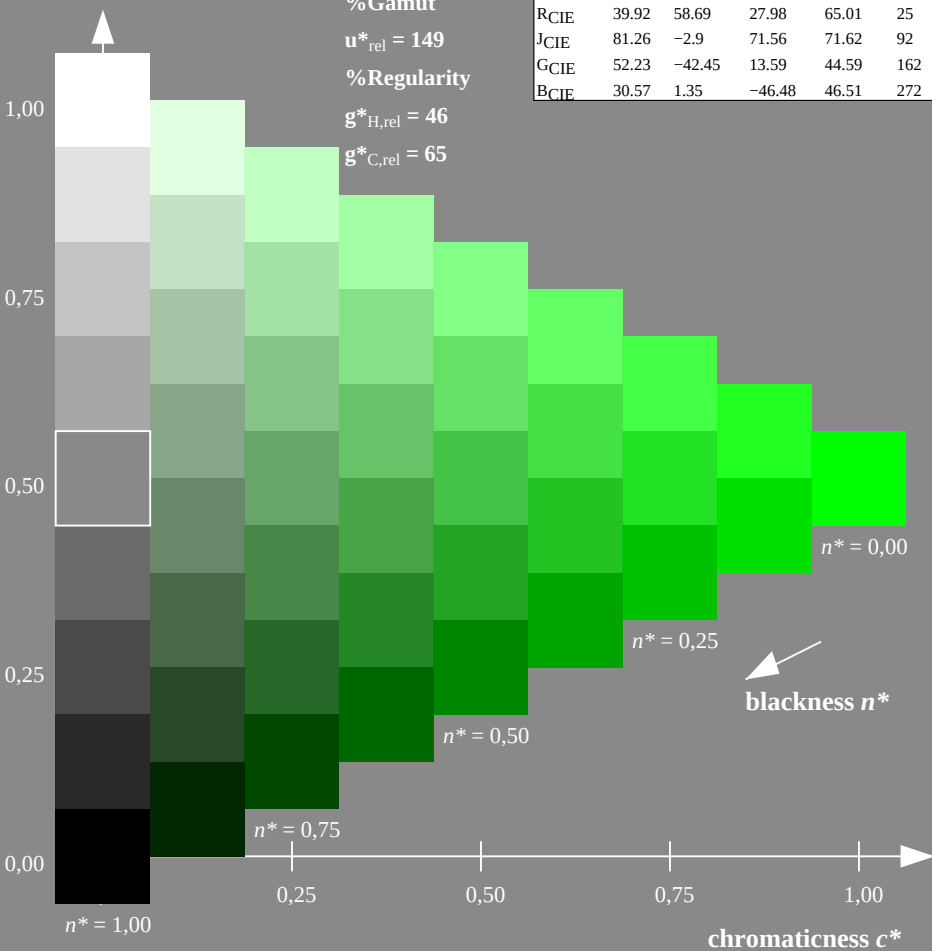
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 167/360 = 0.465 (left)

Output: Colorimetric Reflective System MRS18

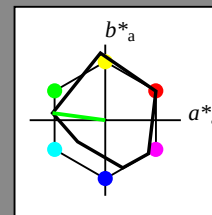
for hue  $h^* = lab^*h = 172/360 = 0.479$

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

D65: hue G

LCH\*Ma: 52 70 172

rgb\*Ma: 0.0 1.0 0.0



%Gamut

$u^*_{rel} = 91$

%Regularity

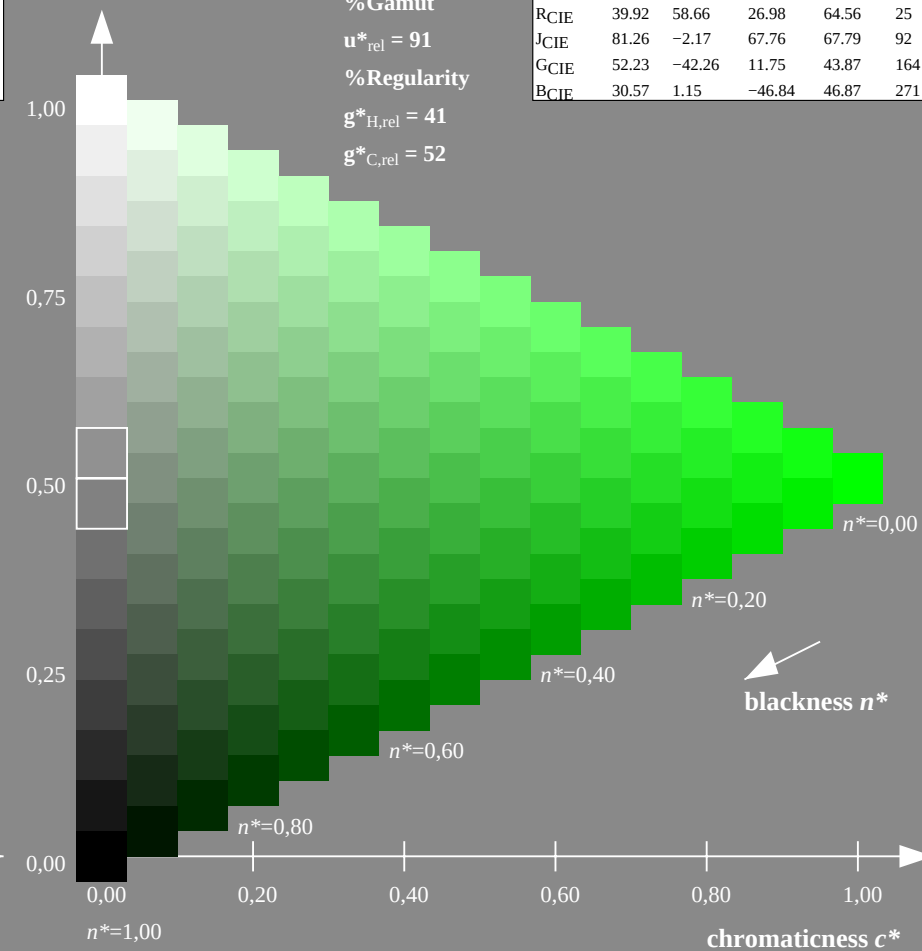
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



16 step scales for constant CIELAB hue 172/360 = 0.479 (right)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^*setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^*setrgbcolor / w^*setgray$

Input: Colorimetric Reflective System NCS11

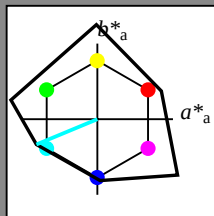
for hue  $h^* = lab \cdot h = 203/360 = 0.563$

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

D65: hue G50B

LCH\*Ma: 59 87 203

rgb\*Ma: 0.0 1.0 1.0



%Gamut

$u^*_{rel} = 149$

%Regularity

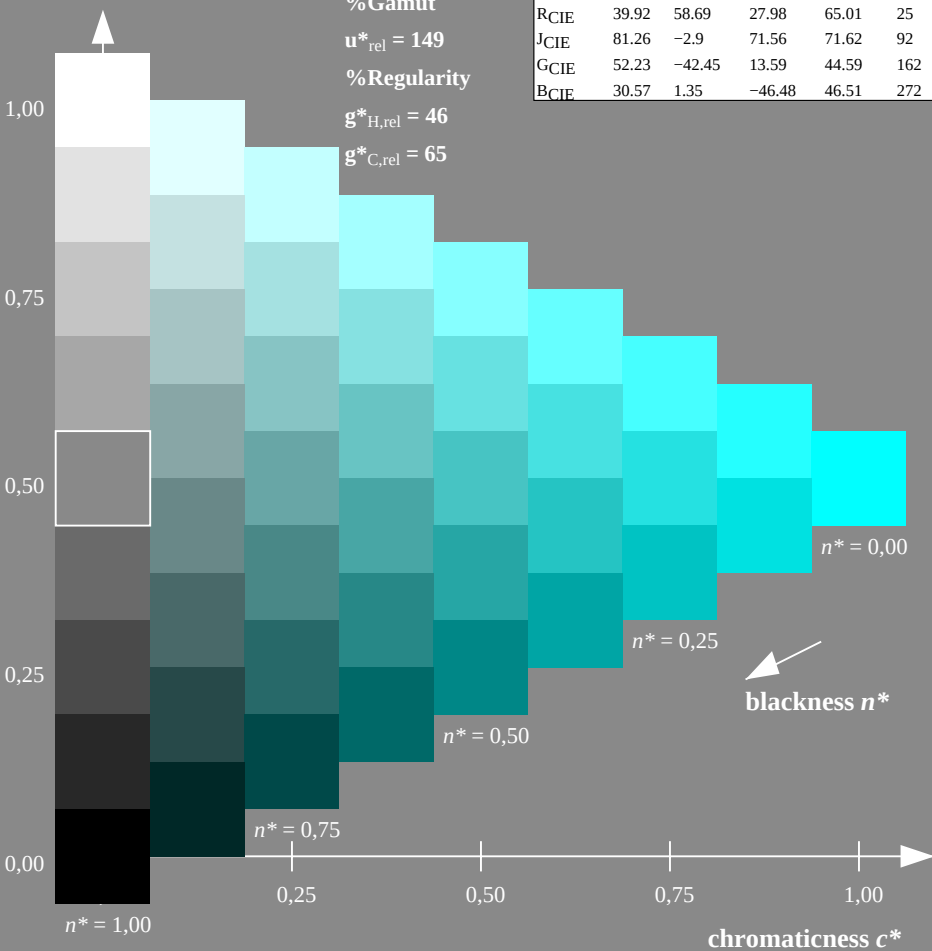
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



Output: Colorimetric Reflective System MRS18

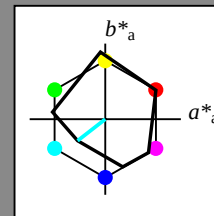
for hue  $h^* = lab \cdot h = 218/360 = 0.605$

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

D65: hue G50B

LCH\*Ma: 45 46 218

rgb\*Ma: 0.0 1.0 1.0



%Gamut

$u^*_{rel} = 91$

%Regularity

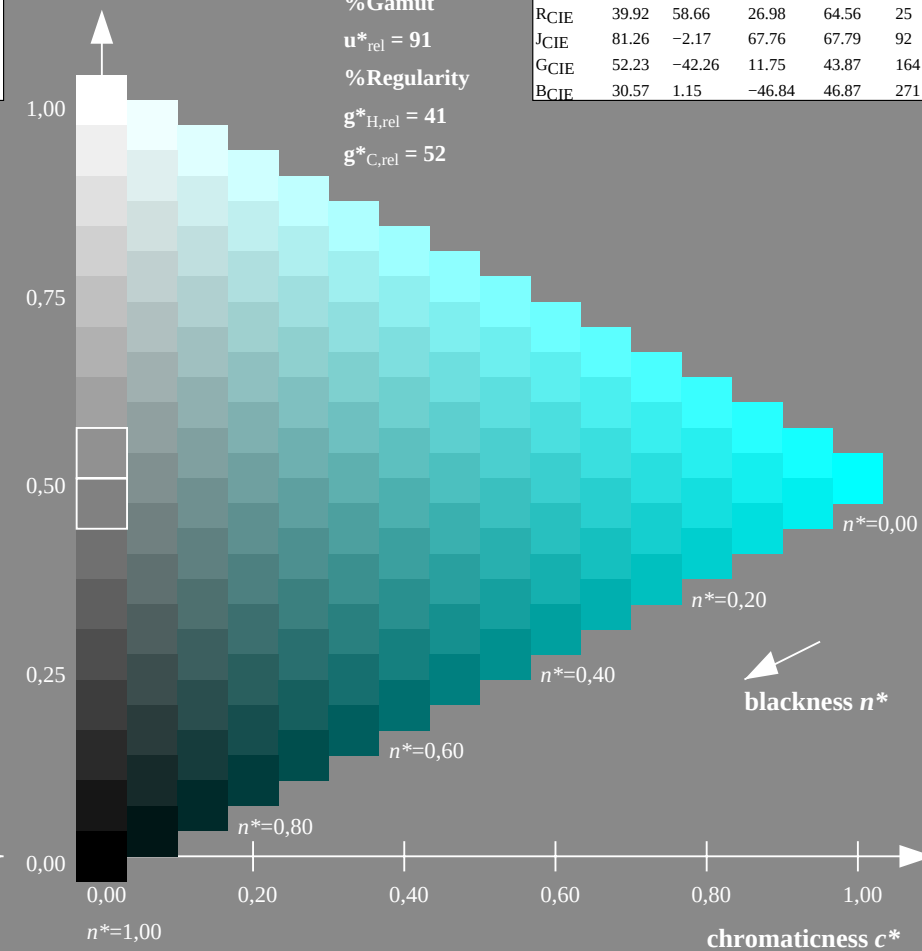
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 203/360 = 0.563 (left)

16 step scales for constant CIELAB hue 218/360 = 0.605 (right)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* setrgbcolor / w^* setgray$

Input: Colorimetric Reflective System NCS11

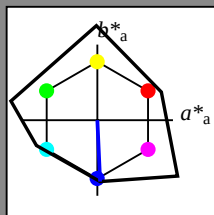
for hue  $h^* = lab \cdot h = 273/360 = 0.757$

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

D65: hue B

LCH\*Ma: 49 81 273

rgb\*Ma: 0.0 0.0 1.0



%Gamut

$u^*_{rel} = 149$

%Regularity

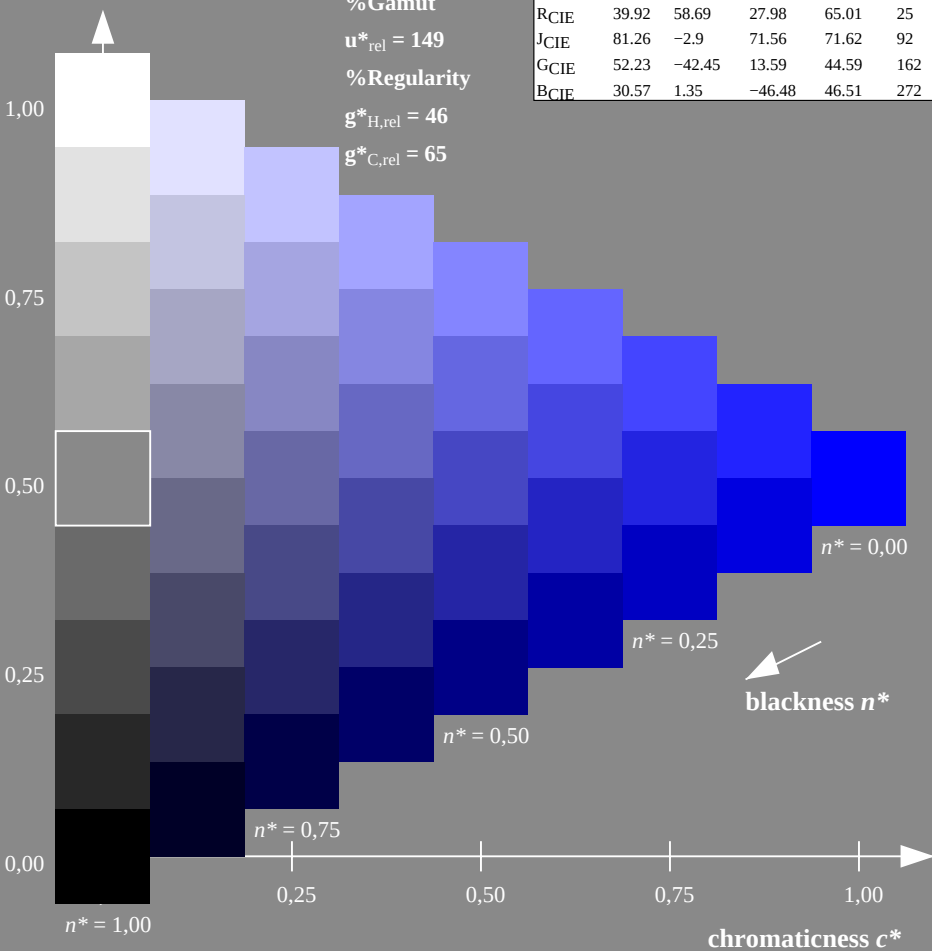
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 273/360 = 0.757 (left)

Output: Colorimetric Reflective System MRS18

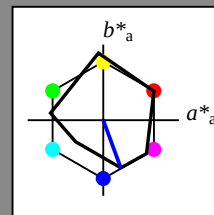
for hue  $h^* = lab \cdot h = 290/360 = 0.806$

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

D65: hue B

LCH\*Ma: 37 67 290

rgb\*Ma: 0.0 0.0 1.0



%Gamut

$u^*_{rel} = 91$

%Regularity

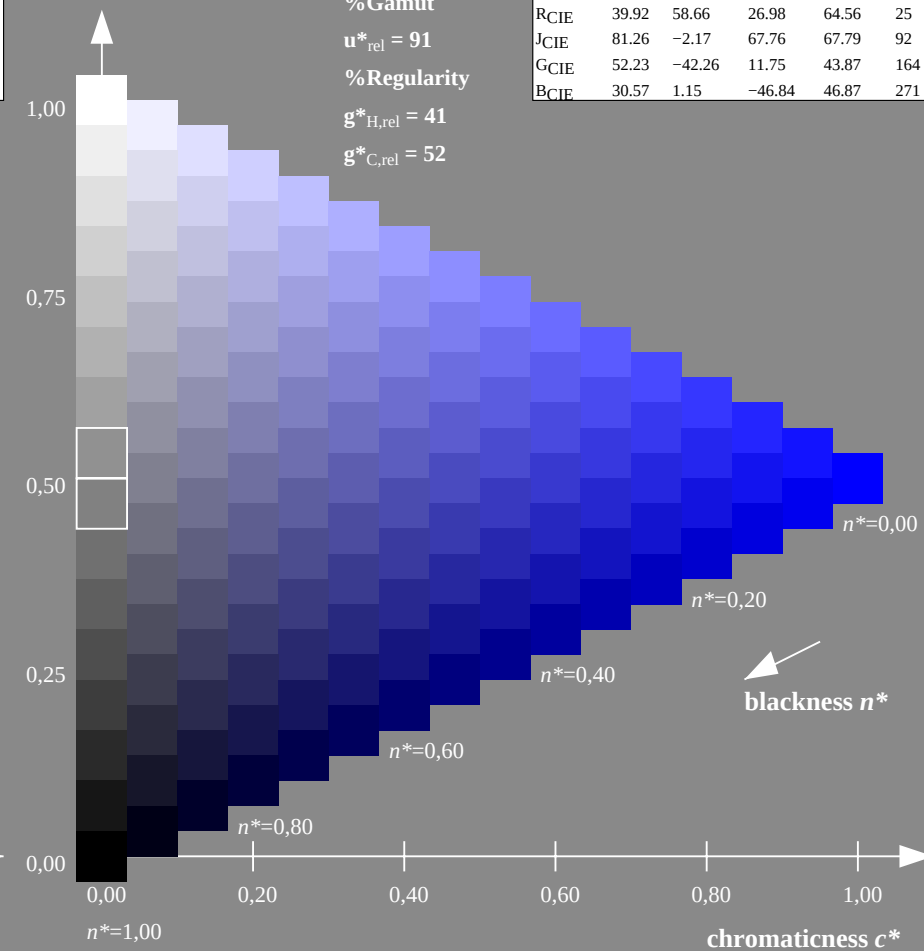
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



16 step scales for constant CIELAB hue 290/360 = 0.806 (right)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* setrgbcolor / w^* setgray$



# Input: Colorimetric Reflective System NCS11

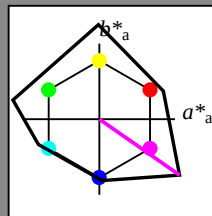
for hue  $h^* = lab \cdot h = 325/360 = 0.903$

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

D65: hue B50R

LCH\*Ma: 44 129 325

rgb\*Ma: 1.0 0.0 1.0



%Gamut

$u^*_{rel} = 149$

%Regularity

$g^*_{H,rel} = 46$

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

## NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

# Output: Colorimetric Reflective System MRS18

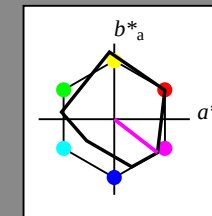
for hue  $h^* = lab \cdot h = 322/360 = 0.895$

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

D65: hue B50R

LCH\*Ma: 35 72 322

rgb\*Ma: 1.0 0.0 1.0



%Gamut

$u^*_{rel} = 91$

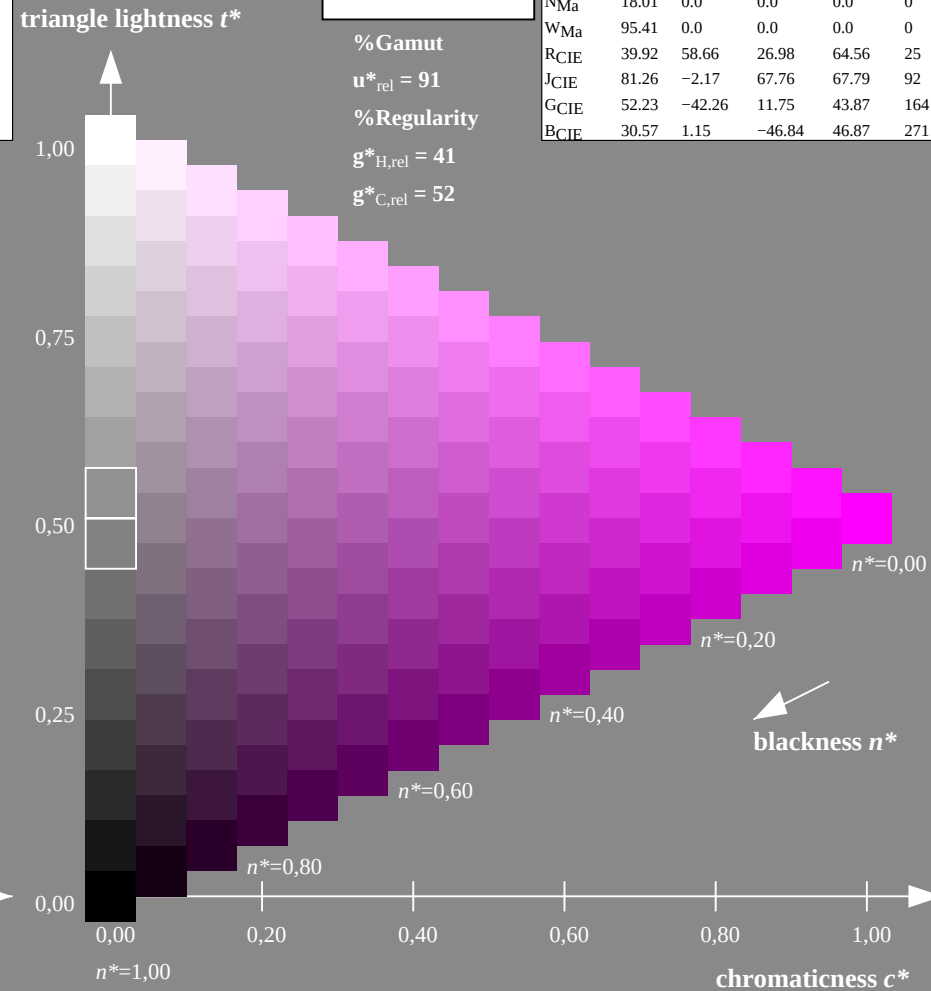
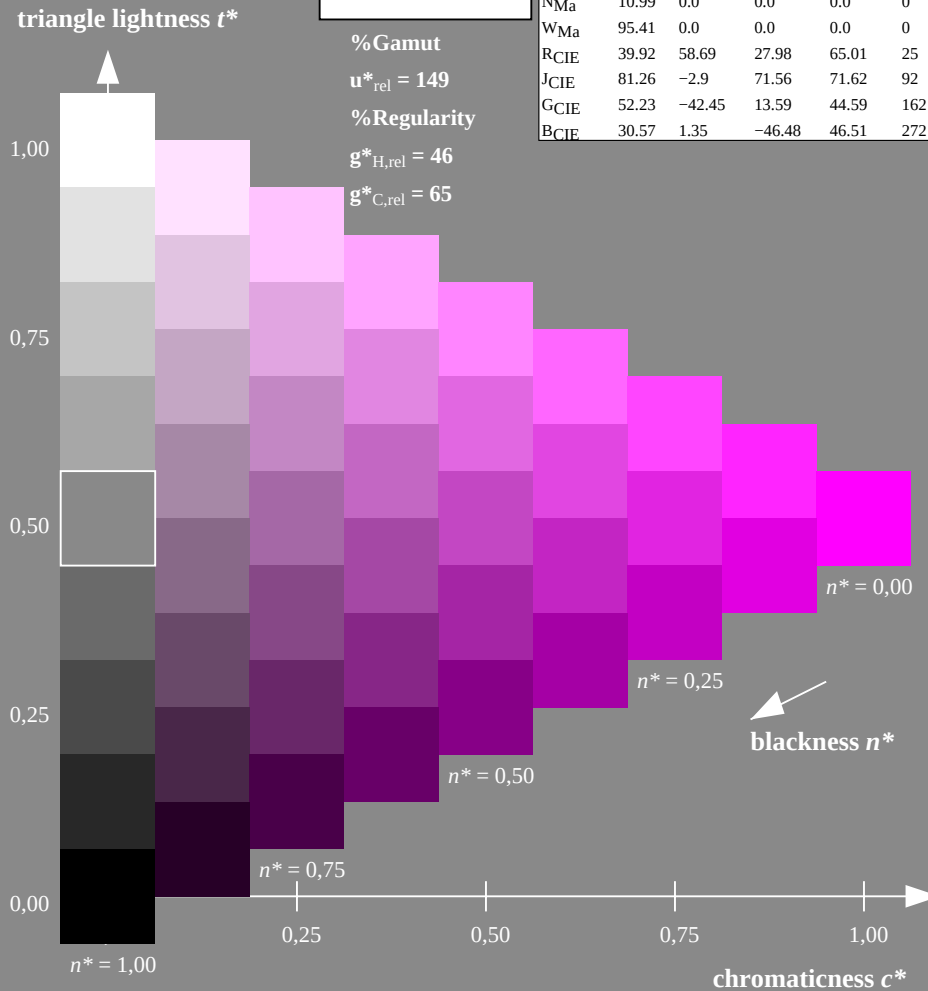
%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

## MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |



TE980-7, 9 step scales for constant CIELAB hue 325/360 = 0.903 (left)

16 step scales for constant CIELAB hue 322/360 = 0.895 (right)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* setrgbcolor / w^* setgray$



Input: Colorimetric Reflective System NCS11

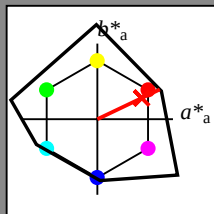
for hue  $h^* = lab^*h = 25/360 = 0.071$

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

D65: hue R

LCH\*Ma: 48 91 25

rgb\*Ma: 1.0 0.02 0.0



%Gamut

$u^*_{rel} = 149$

%Regularity

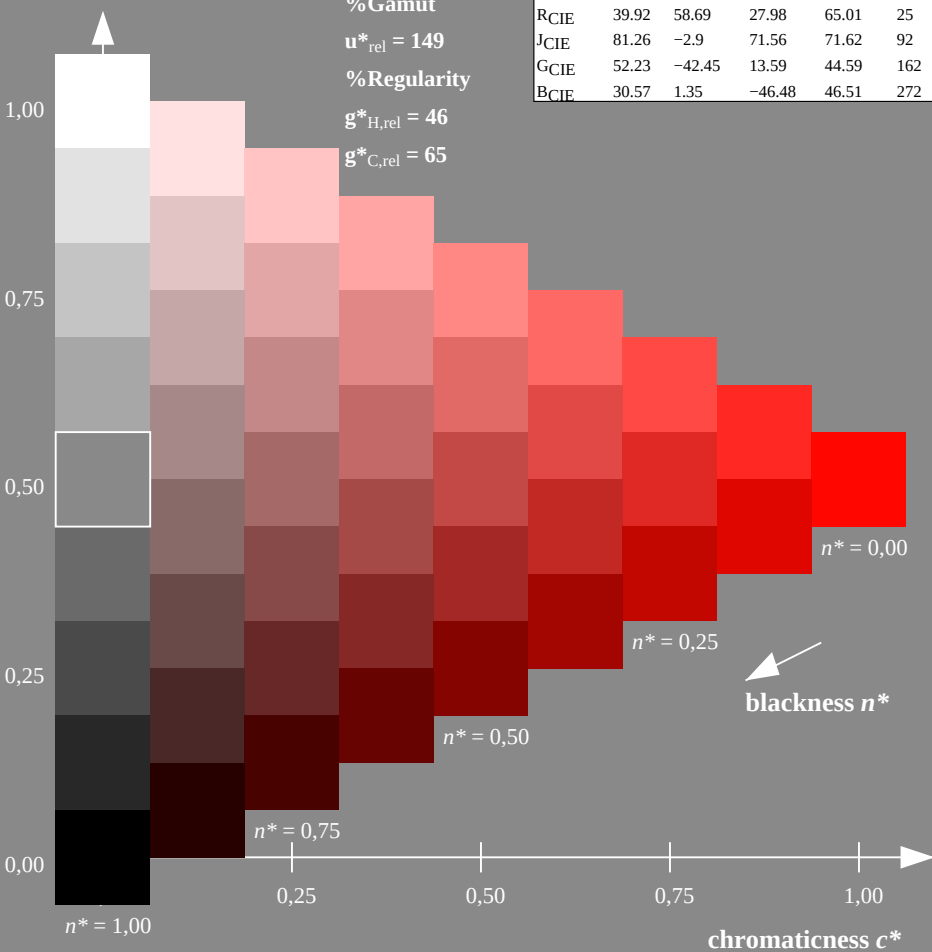
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



Output: Colorimetric Reflective System MRS18

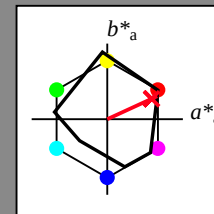
for hue  $h^* = lab^*h = 25/360 = 0.069$

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

D65: hue R

LCH\*Ma: 48 73 25

rgb\*Ma: 1.0 0.0 0.1



%Gamut

$u^*_{rel} = 91$

%Regularity

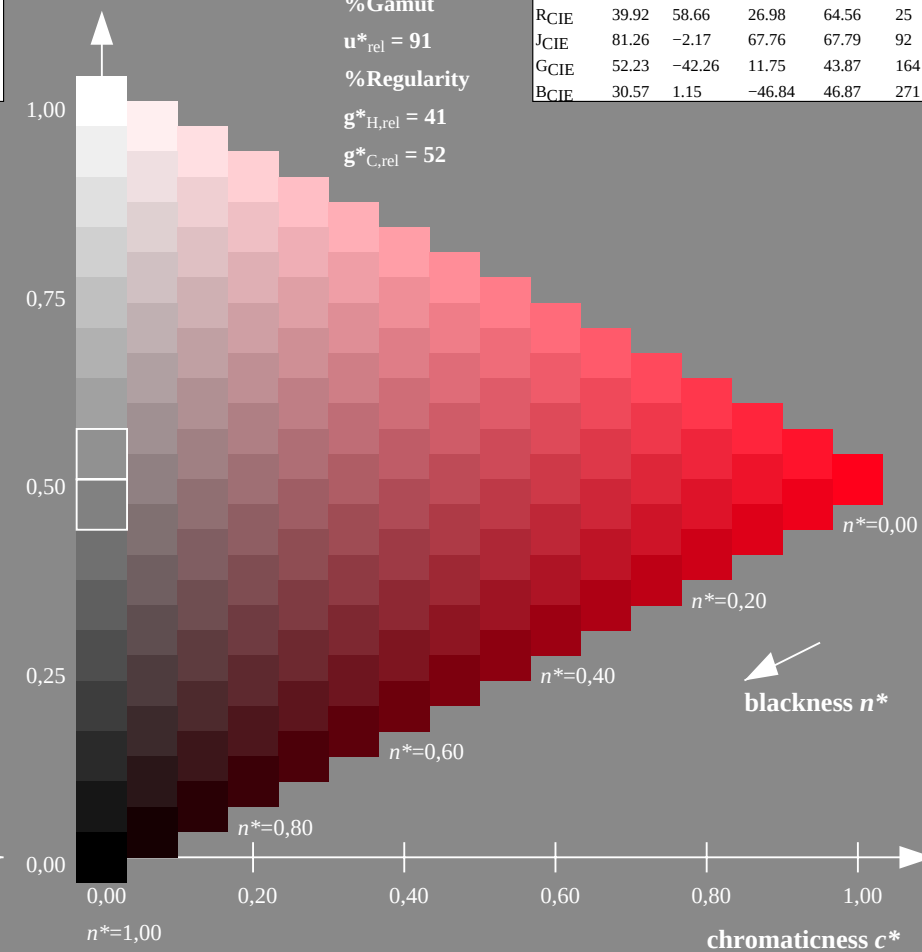
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 25/360 = 0.071 (left)

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

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* setrgbcolor / w^* setgray$



### Input: Colorimetric Reflective System NCS11

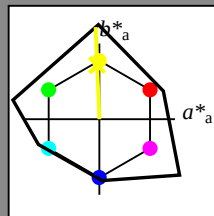
for hue  $h^* = lab^*h = 92/360 = 0.256$

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

D65: hue J

LCH\*Ma: 90 122 92

rgb\*Ma: 0.97 1.0 0.0



%Gamut

$u^*_{rel} = 149$

%Regularity

$g^*_{H,rel} = 46$

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

### NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$

1.00

0.75

0.50

0.25

0.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

TE980-7, 9 step scales for constant CIELAB hue 92/360 = 0.256 (left)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18  
D65: 9 and 16 step colour scales for 10 hues

### Output: Colorimetric Reflective System MRS18

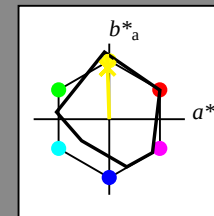
for hue  $h^* = lab^*h = 92/360 = 0.255$

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

D65: hue J

LCH\*Ma: 89 86 92

rgb\*Ma: 1.0 0.95 0.0



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

### MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$

1.00

0.75

0.50

0.25

0.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

0.25

0.50

0.75

1.00

16 step scales for constant CIELAB hue 92/360 = 0.255 (right)

input:  $olv^*setrgbcolor$   
output:  $olv^*setrgbcolor / w^*setgray$





Input: Colorimetric Reflective System NCS11

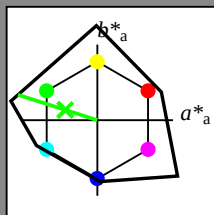
for hue  $h^* = lab \cdot h = 162/360 = 0.451$

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

D65: hue G

LCH\*Ma: 65 110 162

rgb\*Ma: 0.08 1.0 0.0



%Gamut

$u^*_{rel} = 149$

%Regularity

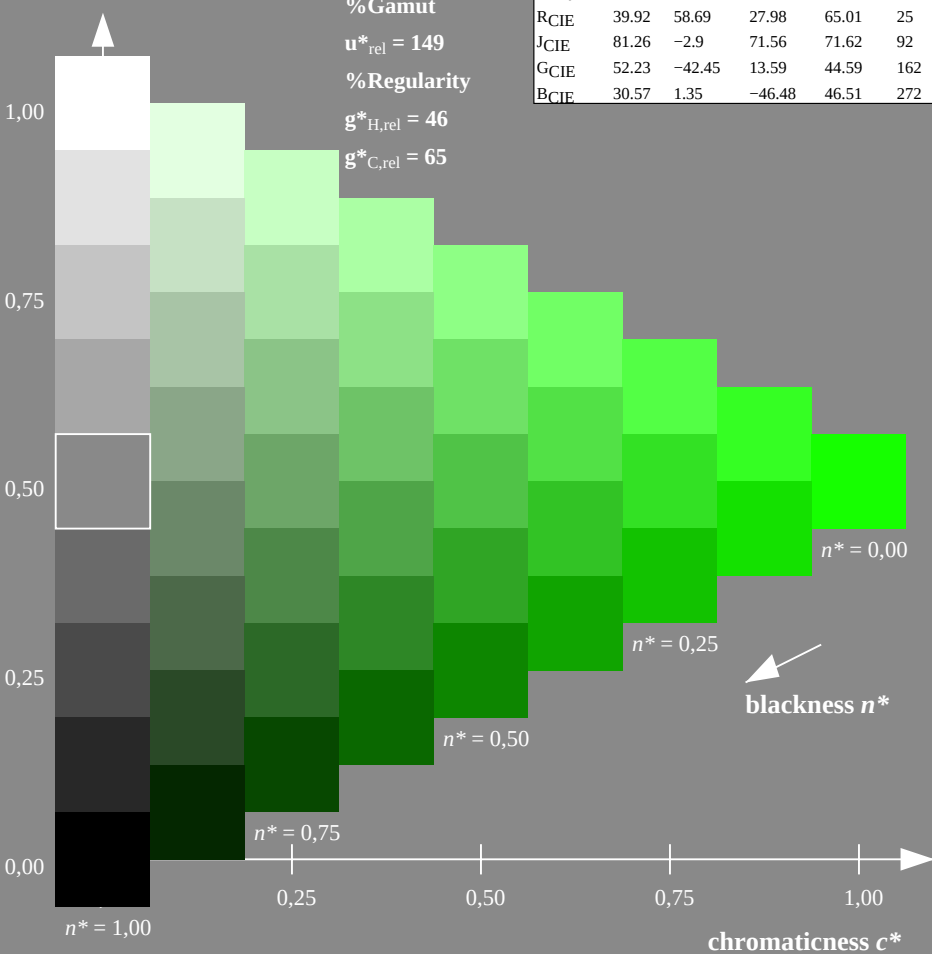
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



Output: Colorimetric Reflective System MRS18

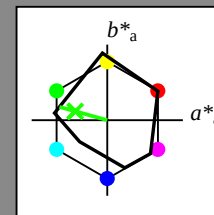
for hue  $h^* = lab \cdot h = 164/360 = 0.457$

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

D65: hue G

LCH\*Ma: 56 66 164

rgb\*Ma: 0.1 1.0 0.0



%Gamut

$u^*_{rel} = 91$

%Regularity

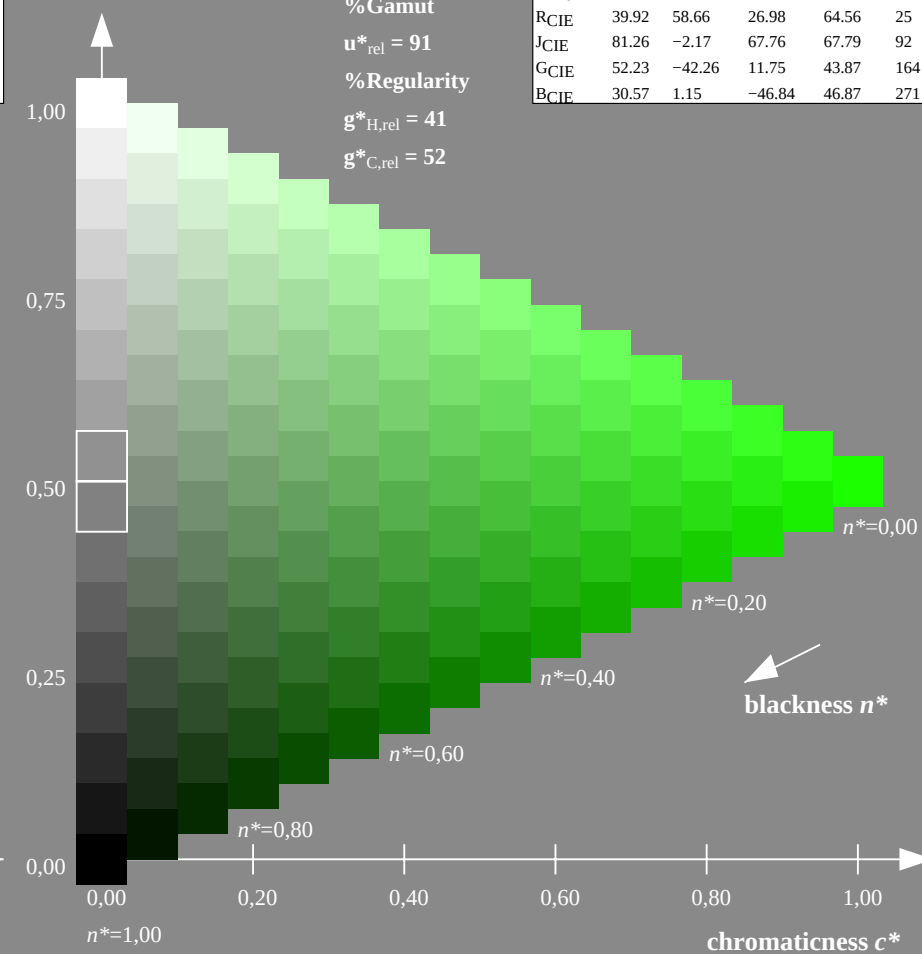
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 162/360 = 0.451 (left)

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

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* \cdot setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* \cdot setrgbcolor / w^* \cdot setgray$

Input: Colorimetric Reflective System NCS11

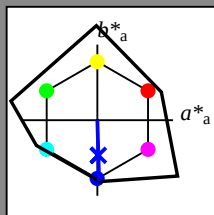
for hue  $h^* = lab \cdot h = 272/360 = 0.755$

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

D65: hue B

LCH\*Ma: 49 80 272

rgb\*Ma: 0.0 0.02 1.0



%Gamut

$u^*_{rel} = 149$

%Regularity

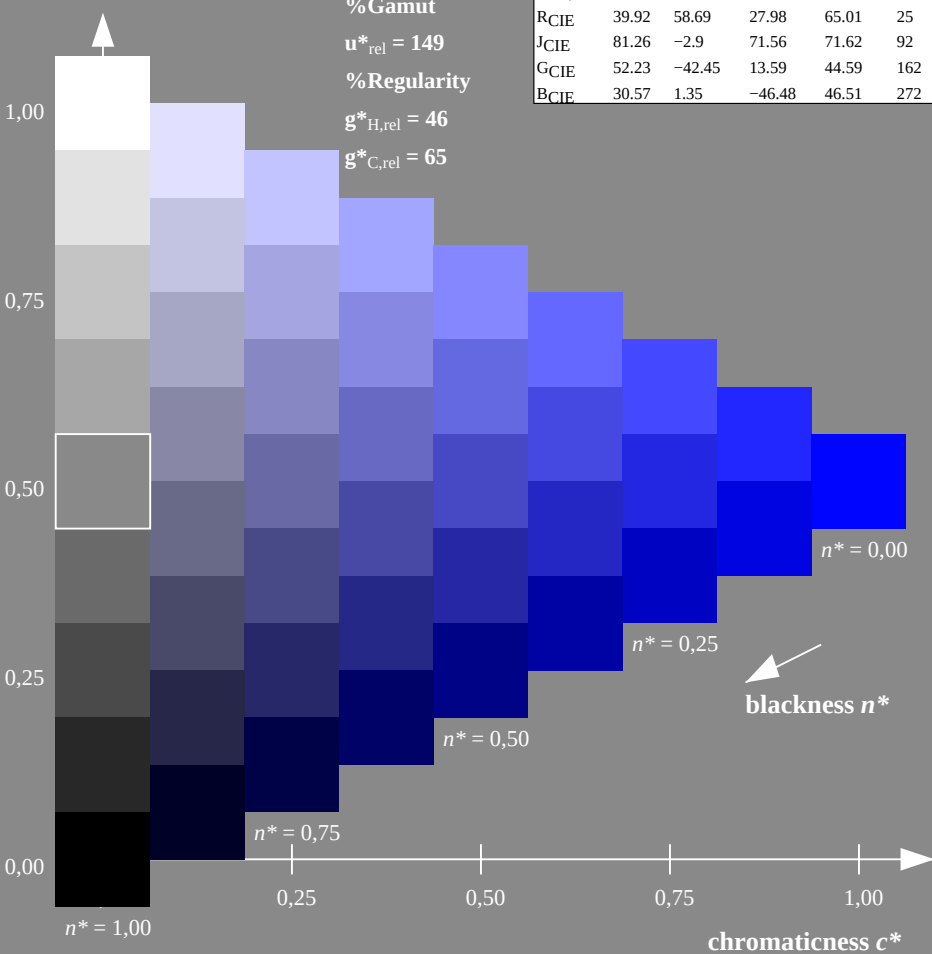
$g^*_{H,rel} = 46$

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

NCS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 47.15       | 84.64   | 37.25   | 92.48        | 24           |
| JMa    | 91.37       | -1.27   | 125.03  | 125.03       | 91           |
| GMa    | 63.07       | -114.28 | 25.35   | 117.06       | 167          |
| G50BMa | 59.47       | -80.6   | -33.45  | 87.28        | 203          |
| BMa    | 49.01       | 3.65    | -81.19  | 81.28        | 273          |
| B50RMa | 44.06       | 106.09  | -73.93  | 129.32       | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

triangle lightness  $t^*$



Output: Colorimetric Reflective System MRS18

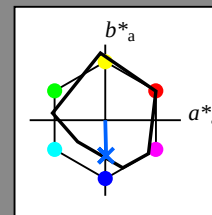
for hue  $h^* = lab \cdot h = 271/360 = 0.754$

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

D65: hue B

LCH\*Ma: 40 50 271

rgb\*Ma: 0.0 0.37 1.0



%Gamut

$u^*_{rel} = 91$

%Regularity

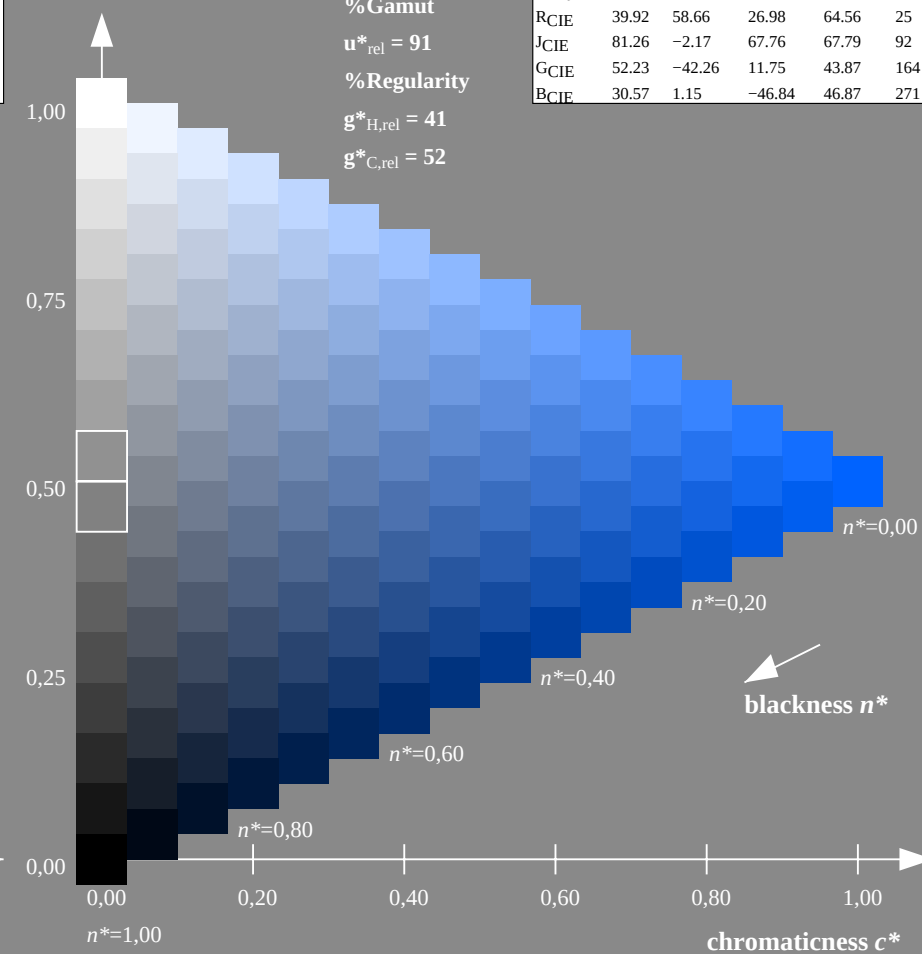
$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 49.63       | 66.96   | 38.37   | 77.18        | 30           |
| JMa    | 90.7        | -6.36   | 88.75   | 88.98        | 94           |
| GMa    | 52.11       | -69.73  | 9.44    | 70.37        | 172          |
| G50BMa | 45.03       | -36.57  | -28.47  | 46.36        | 218          |
| BMa    | 36.65       | 23.19   | -63.05  | 67.18        | 290          |
| B50RMa | 34.94       | 57.17   | -44.26  | 72.31        | 322          |
| NMa    | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE   | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE   | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE   | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

triangle lightness  $t^*$



TE980-7, 9 step scales for constant CIELAB hue 272/360 = 0.755 (left)

16 step scales for constant CIELAB hue 271/360 = 0.754 (right)

BAM-test chart TE98; Colorimetric systems NCS11a & MRS18 input:  $olv^* setrgbcolor$

D65: 9 and 16 step colour scales for 10 hues

output:  $olv^* setrgbcolor / w^* setgray$