

Input: Colorimetric Television Luminous System TLS18

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

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

D65: hue O  
LCH\*Ma: 53 87 35  
olv\*Ma: 1.0 0.0 0.0

triangle lightness

1,00

%Gamut

$u^*_{rel} = 118$

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

0,75

0,50

0,25

0,00

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

NE490-7, 5 step scales for constant CIELAB hue 35/360 = 0.097 (left)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

0,75

0,50

0,25

0,00

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

NE490-7, 5 step scales for constant CIELAB hue 35/360 = 0.097 (left)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

Output: Colorimetric Television Luminous System TLS18

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

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

D65: hue O  
LCH\*Ma: 53 87 35  
olv\*Ma: 1.0 0.0 0.0

triangle lightness

1,00

%Gamut

$u^*_{rel} = 118$

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

0,75

0,50

0,25

0,00

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

NE490-7, 5 step scales for constant CIELAB hue 35/360 = 0.097 (right)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

0,75

0,50

0,25

0,00

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

NE490-7, 5 step scales for constant CIELAB hue 35/360 = 0.097 (right)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

input:  $olv^* \text{ setrgbcolor}$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 103/360 = 0.287$

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

D65: hue Y  
LCH\*Ma: 93 87 103  
olv\*Ma: 1.0 1.0 0.0

triangle lightness

1,00

%Gamut

$u^*_{rel} = 118$

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

0,75

0,25

0,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

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$n^* = 1,0$

chromaticness  $c^*$

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0,50

0,75

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1,00

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chromaticness  $c^*$

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0,50

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1,00

blackness  $n^*$

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chromaticness  $c^*$

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0,50

0,75

1,00

blackness  $n^*$

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$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

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$n^* = 0,25$

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$n^* = 1,0$

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0,50

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1,00

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chromaticness  $c^*$

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0,50

0,75

1,00

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1,00

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blackness  $n^*$

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0,50

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blackness  $n^*$

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chromaticness  $c^*$

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0,50

0,75

1,00

blackness  $n^*$

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chromaticness  $c^*$

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1,00

blackness  $n^*$

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blackness  $n^*$

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chromaticness  $c^*$

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1,00

blackness  $n^*$

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chromaticness  $c^*$

0,25

0,50

0,75

1,00

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

0,25

0,50

0,75

Input: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 137/360 = 0.38$

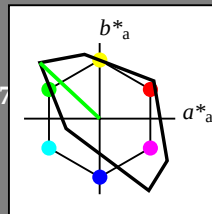
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue L

LCH\*Ma: 84 108 137

olv\*Ma: 0.0 1.0 0.0

triangle lightness



TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

0,25

0,00

0,25

0,50

1,00

chromaticness  $c^*$

blackness  $n^*$

NE490-7, 5 step scales for constant CIELAB hue 137/360 = 0.38 (left)



BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

Output: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 137/360 = 0.38$

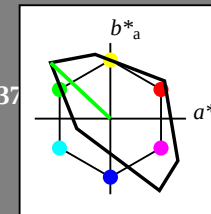
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue L

LCH\*Ma: 84 108 137

olv\*Ma: 0.0 1.0 0.0

triangle lightness



TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

0,25

0,00

0,25

0,50

chromaticness  $c^*$

blackness  $n^*$

5 step scales for constant CIELAB hue 137/360 = 0.38 (right)

input:  $olv^* \text{ setrgbcolor}$

output: no change compared to input

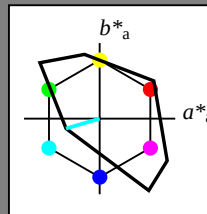
### Input: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 196/360 = 0.546$

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

D65: hue C  
LCH\*Ma: 87 46 196  
olv\*Ma: 0.0 1.0 1.0

triangle lightness



$u^*_{rel} = 118$

| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47       | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01       | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26       | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23       | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

blackness  $n^*$

chromaticness  $c^*$

NE490-7, 5 step scales for constant CIELAB hue 196/360 = 0.546 (left)



BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

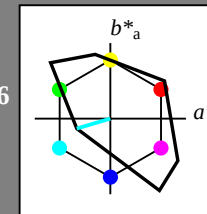
### Output: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 196/360 = 0.546$

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

D65: hue C  
LCH\*Ma: 87 46 196  
olv\*Ma: 0.0 1.0 1.0

triangle lightness



$u^*_{rel} = 118$

| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
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| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
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| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

blackness  $n^*$

chromaticness  $c^*$

5 step scales for constant CIELAB hue 196/360 = 0.546 (right)

input:  $olv^* \cdot setrgbcolor$

output: no change compared to input



### Input: Colorimetric Television Luminous System TLS18

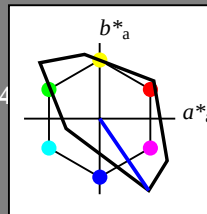
for hue  $h^* = lab \cdot h = 304/360 = 0.845$

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

D65: hue V  
LCH\*Ma: 35 115 304  
olv\*Ma: 0.0 0.0 1.0

triangle lightness

1,00



% Gamut  
 $u^*_{rel} = 118$

#### TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
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| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

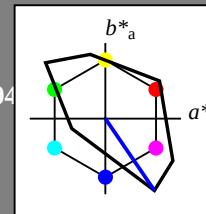
### Output: Colorimetric Television Luminous System TLS18

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

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

D65: hue V  
LCH\*Ma: 35 115 304  
olv\*Ma: 0.0 0.0 1.0

triangle lightness



% Gamut  
 $u^*_{rel} = 118$

#### TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

% Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

NE490-7, 5 step scales for constant CIELAB hue 304/360 = 0.845 (left)



BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

5 step scales for constant CIELAB hue 304/360 = 0.845 (right)

input:  $olv^* \cdot setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 328/360 = 0.911$

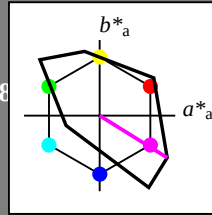
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue M

LCH\*Ma: 59 105 328

olv\*Ma: 1.0 0.0 1.0

triangle lightness



| TLS18; adapted (a) CIELAB data |               |         |         |              |              |
|--------------------------------|---------------|---------|---------|--------------|--------------|
|                                | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

NE490-7, 5 step scales for constant CIELAB hue 328/360 = 0.911 (left)



BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

Output: Colorimetric Television Luminous System TLS18

for hue  $h^* = lab \cdot h = 328/360 = 0.911$

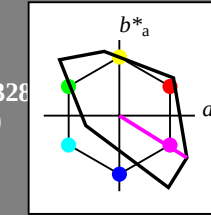
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue M

LCH\*Ma: 59 105 328

olv\*Ma: 1.0 0.0 1.0

triangle lightness



| TLS18; adapted (a) CIELAB data |               |         |         |              |              |
|--------------------------------|---------------|---------|---------|--------------|--------------|
|                                | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 1,0$

chromaticness  $c^*$

5 step scales for constant CIELAB hue 328/360 = 0.911 (right)

input:  $olv^* \cdot setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS18

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

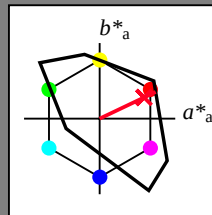
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue R

LCH\*Ma: 54 82 25

olv\*Ma: 1.0 0.0 0.14

triangle lightness



| TLS18; adapted (a) CIELAB data |               |         |         |              |              |
|--------------------------------|---------------|---------|---------|--------------|--------------|
|                                | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

$n^* = 0,00$

0,25

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

Output: Colorimetric Television Luminous System TLS18

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

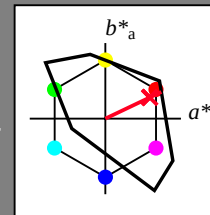
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue R

LCH\*Ma: 54 82 25

olv\*Ma: 1.0 0.0 0.14

triangle lightness



| TLS18; adapted (a) CIELAB data |               |         |         |              |              |
|--------------------------------|---------------|---------|---------|--------------|--------------|
|                                | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

$n^* = 0,00$

0,25

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

NE490-7, 5 step scales for constant CIELAB hue 25/360 = 0.071 (left)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

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

input:  $olv^* \cdot setrgbcolor$

output: no change compared to input

### Input: Colorimetric Television Luminous System TLS18

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

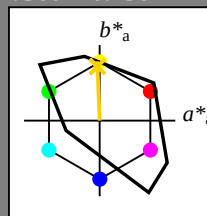
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 85 79 92

olv\*Ma: 1.0 0.82 0.0

triangle lightness



| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47       | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01       | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26       | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23       | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

blackness  $n^*$

$n^* = 0,00$

0,25

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS18

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

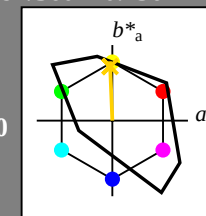
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 85 79 92

olv\*Ma: 1.0 0.82 0.0

triangle lightness



| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47       | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01       | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26       | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23       | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

NE490-7, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

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

input:  $olv^* setrgbcolor$

output: no change compared to input



Input: Colorimetric Television Luminous System TLS18

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

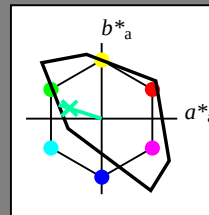
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue G

LCH\*Ma: 86 60 162

olv\*Ma: 0.0 1.0 0.64

triangle lightness



| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47       | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01       | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26       | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23       | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

$n^* = 0,00$

0,25

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

Output: Colorimetric Television Luminous System TLS18

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

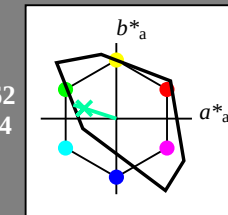
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue G

LCH\*Ma: 86 60 162

olv\*Ma: 0.0 1.0 0.64

triangle lightness



| TLS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 52.76       | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>                | 92.74       | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>                | 84.0        | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>                | 87.14       | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>                | 35.47       | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>                | 59.01       | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>                | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>                | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub>               | 39.92       | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub>               | 81.26       | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub>               | 52.23       | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub>               | 30.57       | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

$n^* = 0,00$

0,25

$n^* = 0,25$

$n^* = 0,50$

chromaticness  $c^*$

NE490-7, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

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

BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

input:  $olv^* \cdot setrgbcolor$

output: no change compared to input

Input: Colorimetric Television Luminous System TLS18

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

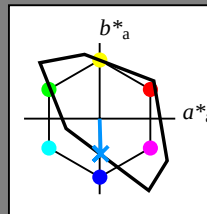
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue B

LCH\*Ma: 65 48 272

olv\*Ma: 0.0 0.58 1.0

triangle lightness



TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

0,25

0,00

0,00

0,00

0,00

0,00

Output: Colorimetric Television Luminous System TLS18

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

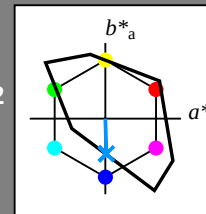
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue B

LCH\*Ma: 65 48 272

olv\*Ma: 0.0 0.58 1.0

triangle lightness



TLS18; adapted (a) CIELAB data

|                  | $L^* = L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|---------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 52.76         | 71.63   | 49.88   | 87.29        | 35           |
| Y <sub>Ma</sub>  | 92.74         | -20.02  | 84.97   | 87.3         | 103          |
| L <sub>Ma</sub>  | 84.0          | -78.98  | 73.94   | 108.2        | 137          |
| C <sub>Ma</sub>  | 87.14         | -44.41  | -13.11  | 46.32        | 196          |
| V <sub>Ma</sub>  | 35.47         | 64.92   | -95.06  | 115.12       | 304          |
| M <sub>Ma</sub>  | 59.01         | 89.33   | -55.67  | 105.26       | 328          |
| N <sub>Ma</sub>  | 18.01         | 0.0     | 0.0     | 0.0          | 0            |
| W <sub>Ma</sub>  | 95.41         | 0.0     | 0.0     | 0.0          | 0            |
| R <sub>CIE</sub> | 39.92         | 58.74   | 27.99   | 65.07        | 25           |
| J <sub>CIE</sub> | 81.26         | -2.88   | 71.56   | 71.62        | 92           |
| G <sub>CIE</sub> | 52.23         | -42.41  | 13.6    | 44.55        | 162          |
| B <sub>CIE</sub> | 30.57         | 1.41    | -46.46  | 46.49        | 272          |

%Regularity

$g^*_{H,rel} = 22$

$g^*_{C,rel} = 40$

1,00

0,75

0,25

0,00

0,00

0,00

0,00

0,00

0,00

0,00

NE490-7, 5 step scales for constant CIELAB hue 272/360 = 0.755 (left)



BAM-test chart NE49; Colorimetric systems TLS18 & TLS18

D65: 5 step colour scales and coordinate data for 10 hues

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

input:  $olv \cdot setrgbcolor$

output: no change compared to input