



### Input: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 107/360 = 0.298$

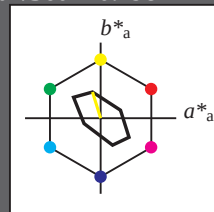
$lab^*tch$  and  $lab^*nch$

D65: hue Y

LCH\*Ma: 94 36 107

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



| TLS70; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>                | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>                | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>                | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>                | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>                | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>                | 69.7        | 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          |

%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 0.5 (1.0)  
cmyn3\* 0.0 0.0 0.5 (0.0)  
olvi4\* 1.0 1.0 0.5 1.0  
cmyn4\* 0.0 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 94.67 -5.37 17.31  
LAB\*LABa 94.67 -5.37 17.31  
LAB\*TCHa 75.0 18.13 107.28

relative CIELAB lab\*  
lab\*lab 0.971 -0.147 0.477  
lab\*tch 0.75 0.5 0.298  
lab\*nch 0.0 0.5 0.298

relative Natural Colour (NC)  
lab\*lrj 0.971 -0.164 0.472  
lab\*tce 0.75 0.5 0.304  
lab\*nce 0.0 0.5 j21g

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.0 (1.0)  
cmyn3\* 0.5 0.5 1.0 (0.0)  
olvi4\* 1.0 1.0 0.5 0.5  
cmyn4\* 0.0 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 81.82 -5.37 17.31  
LAB\*LABa 81.82 -5.37 17.31  
LAB\*TCHa 25.01 18.13 107.28

relative CIELAB lab\*  
lab\*lab 0.471 -0.147 0.477  
lab\*tch 0.25 0.5 0.298  
lab\*nch 0.5 0.5 0.298

relative Natural Colour (NC)  
lab\*lrj 0.471 -0.164 0.472  
lab\*tce 0.25 0.5 0.304  
lab\*nce 0.5 0.5 j21g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 0.0 (1.0)  
cmyn3\* 0.0 0.0 1.0 (0.0)  
olvi4\* 1.0 1.0 0.0 1.0  
cmyn4\* 0.0 0.0 1.0 0.0

standard and adapted CIELAB  
LAB\*LAB 93.93 -10.76 34.62  
LAB\*LABa 93.93 -10.76 34.62  
LAB\*TCHa 50.0 36.26 107.28

relative CIELAB lab\*  
lab\*lab 0.942 -0.296 0.955  
lab\*tch 0.5 1.0 0.298  
lab\*nch 0.0 1.0 0.298

relative Natural Colour (NC)  
lab\*lrj 0.942 -0.329 0.944  
lab\*tce 0.5 1.0 0.304  
lab\*nce 0.0 1.0 j21g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 1.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 1.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 107/360 = 0.298$

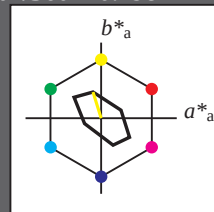
$lab^*tch$  and  $lab^*nch$

D65: hue Y

LCH\*Ma: 94 36 107

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
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LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

chromaticness  $c^*$

| TLS70; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>                | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>                | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>                | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>                | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>                | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>                | 69.7        | 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          |

%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 0.5 (1.0)  
cmyn3\* 0.0 0.0 0.5 (0.0)  
olvi4\* 1.0 1.0 0.5 1.0  
cmyn4\* 0.0 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 94.67 -5.37 17.31  
LAB\*LABa 94.67 -5.37 17.31  
LAB\*TCHa 75.0 18.13 107.28

relative CIELAB lab\*  
lab\*lab 0.971 -0.147 0.477  
lab\*tch 0.75 0.5 0.298  
lab\*nch 0.0 0.5 0.298

relative Natural Colour (NC)  
lab\*lrj 0.971 -0.164 0.472  
lab\*tce 0.75 0.5 0.304  
lab\*nce 0.0 0.5 j21g

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.0 (1.0)  
cmyn3\* 0.5 0.5 1.0 (0.0)  
olvi4\* 1.0 1.0 0.5 0.5  
cmyn4\* 0.0 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 81.82 -5.37 17.31  
LAB\*LABa 81.82 -5.37 17.31  
LAB\*TCHa 25.01 18.13 107.28

relative CIELAB lab\*  
lab\*lab 0.471 -0.147 0.477  
lab\*tch 0.25 0.5 0.298  
lab\*nch 0.5 0.5 0.298

relative Natural Colour (NC)  
lab\*lrj 0.471 -0.164 0.472  
lab\*tce 0.25 0.5 0.304  
lab\*nce 0.5 0.5 j21g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

chromaticness  $c^*$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmv0^* \text{ setcmvcolor}$   
output:  $cmv0^* / 000n^* \text{ setcmvcolor}$

### Input: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 142/360 = 0.395$

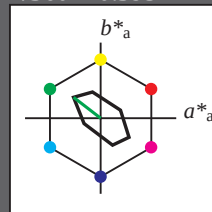
$lab^*tch$  and  $lab^*nch$

D65: hue L

LCH\*Ma: 89 45 142

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1.0$

### TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.5 (1.0)  
cmyn3\* 0.5 0.0 0.5 (0.0)  
olvi4\* 0.5 1.0 0.5 1.0  
cmyn4\* 0.5 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 92.36 -17.89 13.82  
LAB\*LABa 92.36 -17.89 13.82  
LAB\*TCHa 75.0 22.61 142.34

relative CIELAB lab\*  
lab\*lab 0.881 -0.395 0.305  
lab\*tch 0.75 0.5 0.395  
lab\*nch 0.0 0.5 0.395

relative Natural Colour (NC)  
lab\*lrj 0.881 -0.45 0.216  
lab\*tce 0.75 0.5 0.429  
lab\*nce 0.0 0.5 0.429

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.0 (1.0)  
cmyn3\* 1.0 0.5 1.0 (0.0)  
olvi4\* 0.5 1.0 0.5 0.5  
cmyn4\* 0.5 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 79.51 -17.89 13.82  
LAB\*LABa 79.51 -17.89 13.82  
LAB\*TCHa 25.01 22.61 142.34

relative CIELAB lab\*  
lab\*lab 0.382 -0.395 0.305  
lab\*tch 0.25 0.5 0.395  
lab\*nch 0.5 0.5 0.395

relative Natural Colour (NC)  
lab\*lrj 0.382 -0.45 0.216  
lab\*tce 0.25 0.5 0.429  
lab\*nce 0.5 0.5 0.429

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0.50$

$n^* = 1.0$

### Output: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 142/360 = 0.395$

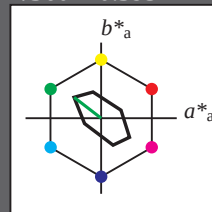
$lab^*tch$  and  $lab^*nch$

D65: hue L

LCH\*Ma: 89 45 142

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1.0$

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.5 (1.0)  
cmyn3\* 0.5 0.0 0.5 (0.0)  
olvi4\* 0.5 1.0 0.5 1.0  
cmyn4\* 0.5 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 92.36 -17.89 13.82  
LAB\*LABa 92.36 -17.89 13.82  
LAB\*TCHa 75.0 22.61 142.34

relative CIELAB lab\*  
lab\*lab 0.881 -0.395 0.305  
lab\*tch 0.75 0.5 0.395  
lab\*nch 0.0 0.5 0.395

relative Natural Colour (NC)  
lab\*lrj 0.881 -0.45 0.216  
lab\*tce 0.75 0.5 0.429  
lab\*nce 0.0 0.5 0.429

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.0 (1.0)  
cmyn3\* 1.0 0.5 1.0 (0.0)  
olvi4\* 0.5 1.0 0.5 0.5  
cmyn4\* 0.5 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 79.51 -17.89 13.82  
LAB\*LABa 79.51 -17.89 13.82  
LAB\*TCHa 25.01 22.61 142.34

relative CIELAB lab\*  
lab\*lab 0.382 -0.395 0.305  
lab\*tch 0.25 0.5 0.395  
lab\*nch 0.5 0.5 0.395

relative Natural Colour (NC)  
lab\*lrj 0.382 -0.45 0.216  
lab\*tce 0.25 0.5 0.429  
lab\*nce 0.5 0.5 0.429

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0.50$

$n^* = 1.0$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70

D65: 2 coordinate data of 3 step colour scales for 10 hues

3 step scales for constant CIELAB hue 142/360 = 0.395 (right)

input:  $cmv0^* \text{ setcmvcolor}$

output:  $cmv0^* / 000n^* \text{ setcmvcolor}$



### Input: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 198/360 = 0.55$

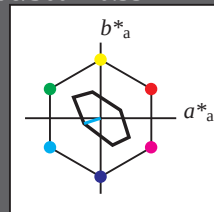
$lab^*tch$  and  $lab^*nch$

D65: hue C

LCH\*Ma: 91 23 198

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

| TLS70; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>                | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>                | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>                | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>                | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>                | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>                | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 1.0 (1.0)  
cmyn3\* 0.5 0.0 0.0 (0.0)  
olvi4\* 0.5 1.0 1.0 1.0  
cmyn4\* 0.5 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 93.17 -10.97 -3.53  
LAB\*LABa 93.17 -10.97 -3.53  
LAB\*TCHa 75.0 11.53 197.87

relative CIELAB lab\*  
lab\*lab 0.913 -0.475 -0.152  
lab\*tch 0.75 0.5 0.55  
lab\*nch 0.0 0.5 0.55

relative Natural Colour (NC)  
lab\*lrj 0.913 -0.435 -0.244  
lab\*tce 0.75 0.5 0.581  
lab\*nce 0.0 0.5 g32b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.5 (1.0)  
cmyn3\* 1.0 0.5 0.5 (0.0)  
olvi4\* 0.5 1.0 1.0 0.5  
cmyn4\* 0.5 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 80.32 -10.97 -3.53  
LAB\*LABa 80.32 -10.97 -3.53  
LAB\*TCHa 25.01 11.53 197.87

relative CIELAB lab\*  
lab\*lab 0.413 -0.475 -0.152  
lab\*tch 0.25 0.5 0.55  
lab\*nch 0.5 0.5 0.55

relative Natural Colour (NC)  
lab\*lrj 0.413 -0.435 -0.244  
lab\*tce 0.25 0.5 0.581  
lab\*nce 0.5 0.5 g32b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,50$

$n^* = 1,0$

### Output: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 198/360 = 0.55$

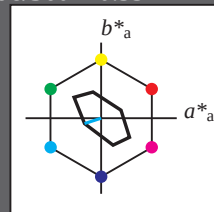
$lab^*tch$  and  $lab^*nch$

D65: hue C

LCH\*Ma: 91 23 198

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 1.0 (1.0)  
cmyn3\* 0.5 0.0 0.0 (0.0)  
olvi4\* 0.5 1.0 1.0 1.0  
cmyn4\* 0.5 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 93.17 -10.97 -3.53  
LAB\*LABa 93.17 -10.97 -3.53  
LAB\*TCHa 75.0 11.53 197.87

relative CIELAB lab\*  
lab\*lab 0.913 -0.475 -0.152  
lab\*tch 0.75 0.5 0.55  
lab\*nch 0.0 0.5 0.55

relative Natural Colour (NC)  
lab\*lrj 0.913 -0.435 -0.244  
lab\*tce 0.75 0.5 0.581  
lab\*nce 0.0 0.5 g32b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.5 (1.0)  
cmyn3\* 1.0 0.5 0.5 (0.0)  
olvi4\* 0.5 1.0 1.0 0.5  
cmyn4\* 0.5 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 80.32 -10.97 -3.53  
LAB\*LABa 80.32 -10.97 -3.53  
LAB\*TCHa 25.01 11.53 197.87

relative CIELAB lab\*  
lab\*lab 0.413 -0.475 -0.152  
lab\*tch 0.25 0.5 0.55  
lab\*nch 0.5 0.5 0.55

relative Natural Colour (NC)  
lab\*lrj 0.413 -0.435 -0.244  
lab\*tce 0.25 0.5 0.581  
lab\*nce 0.5 0.5 g32b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 0,50$

$n^* = 1,0$

### Input: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 294/360 = 0.816$

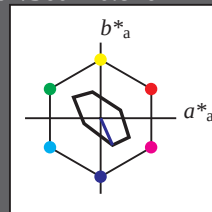
$lab^*tch$  and  $lab^*nch$

D65: hue V

LCH\*Ma: 72 39 294

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

### TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 1.0 (1.0)  
cmyn3\* 0.5 0.5 0.0 (0.0)  
olvi4\* 0.5 0.5 1.0 1.0  
cmyn4\* 0.5 0.5 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 83.75 7.88 -17.81  
LAB\*LABa 83.75 7.88 -17.81  
LAB\*TCHa 75.0 19.48 293.86

relative CIELAB lab\*  
lab\*lab 0.547 0.202 -0.456  
lab\*tch 0.75 0.5 0.816  
lab\*nch 0.0 0.5 0.816

relative Natural Colour (NC)  
lab\*lrj 0.547 0.15 -0.476  
lab\*tce 0.75 0.5 0.799  
lab\*nce 0.0 0.5 b19r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.5 (1.0)  
cmyn3\* 1.0 1.0 0.5 (0.0)  
olvi4\* 0.5 0.5 1.0 0.5  
cmyn4\* 0.5 0.5 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 70.9 7.88 -17.81  
LAB\*LABa 70.9 7.88 -17.81  
LAB\*TCHa 25.01 19.48 293.86

relative CIELAB lab\*  
lab\*lab 0.047 0.202 -0.456  
lab\*tch 0.25 0.5 0.816  
lab\*nch 0.5 0.5 0.816

relative Natural Colour (NC)  
lab\*lrj 0.047 0.15 -0.476  
lab\*tce 0.25 0.5 0.799  
lab\*nce 0.5 0.5 b19r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 294/360 = 0.816$

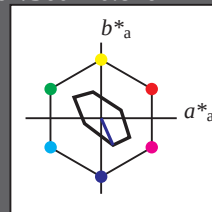
$lab^*tch$  and  $lab^*nch$

D65: hue V

LCH\*Ma: 72 39 294

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmY0^* \text{ setcmYkcolor}$   
output:  $cmY0^* / 000n^* \text{ setcmYkcolor}$

### Input: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 326/360 = 0.906$

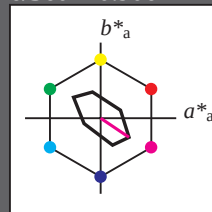
$lab^*tch$  and  $lab^*nch$

D65: hue M

LCH\*Ma: 79 45 326

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

| TLS70; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>                | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>                | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>                | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>                | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>                | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>                | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.5 1.0 (1.0)  
cmyn3\* 0.0 0.5 0.0 (0.0)  
olvi4\* 1.0 0.5 1.0 1.0  
cmyn4\* 0.0 0.5 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 86.95 18.76 -12.61  
LAB\*LABa 86.95 18.76 -12.61  
LAB\*TCHa 75.0 22.61 326.07

relative CIELAB lab\*  
lab\*lab 0.671 0.415 -0.278  
lab\*tch 0.75 0.5 0.906  
lab\*nch 0.0 0.5 0.906

relative Natural Colour (NC)  
lab\*lrj 0.671 0.341 -0.365  
lab\*tce 0.75 0.5 0.869  
lab\*nce 0.0 0.5 b47r

relative Inform. Technology (IT)  
olvi3\* 0.5 0.0 0.5 (1.0)  
cmyn3\* 0.5 1.0 0.5 (0.0)  
olvi4\* 1.0 0.5 1.0 0.5  
cmyn4\* 0.0 0.5 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 74.1 18.76 -12.61  
LAB\*LABa 74.1 18.76 -12.61  
LAB\*TCHa 25.01 22.61 326.07

relative CIELAB lab\*  
lab\*lab 0.171 0.415 -0.278  
lab\*tch 0.25 0.5 0.906  
lab\*nch 0.5 0.5 0.906

relative Natural Colour (NC)  
lab\*lrj 0.171 0.341 -0.365  
lab\*tce 0.25 0.5 0.869  
lab\*nce 0.5 0.5 b47r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

for hue  $h^* = lab^*h = 326/360 = 0.906$

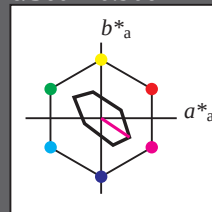
$lab^*tch$  and  $lab^*nch$

D65: hue M

LCH\*Ma: 79 45 326

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

| TLS70; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| O <sub>Ma</sub>                | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>                | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>                | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>                | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>                | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>                | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>                | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.5 1.0 (1.0)  
cmyn3\* 0.0 0.5 0.0 (0.0)  
olvi4\* 1.0 0.5 1.0 1.0  
cmyn4\* 0.0 0.5 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 86.95 18.76 -12.61  
LAB\*LABa 86.95 18.76 -12.61  
LAB\*TCHa 75.0 22.61 326.07

relative CIELAB lab\*  
lab\*lab 0.671 0.415 -0.278  
lab\*tch 0.75 0.5 0.906  
lab\*nch 0.0 0.5 0.906

relative Natural Colour (NC)  
lab\*lrj 0.671 0.341 -0.365  
lab\*tce 0.75 0.5 0.869  
lab\*nce 0.0 0.5 b47r

relative Inform. Technology (IT)  
olvi3\* 0.5 0.0 0.5 (1.0)  
cmyn3\* 0.5 1.0 0.5 (0.0)  
olvi4\* 1.0 0.5 1.0 0.5  
cmyn4\* 0.0 0.5 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 74.1 18.76 -12.61  
LAB\*LABa 74.1 18.76 -12.61  
LAB\*TCHa 25.01 22.61 326.07

relative CIELAB lab\*  
lab\*lab 0.171 0.415 -0.278  
lab\*tch 0.25 0.5 0.906  
lab\*nch 0.5 0.5 0.906

relative Natural Colour (NC)  
lab\*lrj 0.171 0.341 -0.365  
lab\*tce 0.25 0.5 0.869  
lab\*nce 0.5 0.5 b47r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmv0^* \text{ setcmvcolor}$   
output:  $cmv0^* / 000n^* \text{ setcmvcolor}$



### Input: Colorimetric Television Luminous System TLS70

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

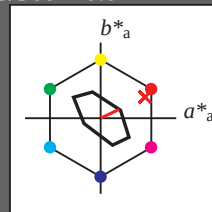
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 77 27 25

olv\*Ma: 1.0 0.05 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

### TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.523 0.5 (1.0)  
cmyn3\* 0.0 0.477 0.5 (0.0)  
olvi4\* 1.0 0.523 0.5 1.0  
cmyn4\* 0.0 0.477 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 86.33 12.27 5.85  
LAB\*LABa 86.33 12.27 5.85  
LAB\*TCHa 75.0 13.59 25.48

relative CIELAB lab\*  
lab\*lab 0.647 0.451 0.215  
lab\*tch 0.75 0.5 0.071  
lab\*nch 0.0 0.5 0.071

relative Natural Colour (NC)  
lab\*lrj 0.647 0.5 0.0  
lab\*tce 0.75 0.5 0.0  
lab\*nce 0.0 0.5 0.071

relative Inform. Technology (IT)  
olvi3\* 0.5 0.023 0.0 (1.0)  
cmyn3\* 0.5 0.977 1.0 (0.0)  
olvi4\* 1.0 0.523 0.5 0.5  
cmyn4\* 0.0 0.477 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 73.47 12.27 5.84  
LAB\*LABa 73.47 12.27 5.84  
LAB\*TCHa 25.01 13.59 25.46

relative CIELAB lab\*  
lab\*lab 0.147 0.451 0.215  
lab\*tch 0.25 0.5 0.071  
lab\*nch 0.5 0.5 0.071

relative Natural Colour (NC)  
lab\*lrj 0.147 0.5 0.0  
lab\*tce 0.25 0.5 1.0  
lab\*nce 0.5 0.5 0.071

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

$n^* = 0,00$

relative Inform. Technology (IT)  
olvi3\* 1.0 0.047 0.0 (1.0)  
cmyn3\* 0.0 0.953 1.0 (0.0)  
olvi4\* 1.0 0.047 0.0 1.0  
cmyn4\* 0.0 0.953 1.0 0.0

standard and adapted CIELAB  
LAB\*LAB 77.25 24.54 11.69  
LAB\*LABa 77.25 24.54 11.69  
LAB\*TCHa 50.0 27.18 25.47

relative CIELAB lab\*  
lab\*lab 0.294 0.903 0.43  
lab\*tch 0.5 1.0 0.071  
lab\*nch 0.0 1.0 0.071

relative Natural Colour (NC)  
lab\*lrj 0.294 1.0 0.0  
lab\*tce 0.5 1.0 1.0  
lab\*nce 0.0 1.0 0.071

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

$n^* = 1,0$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

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

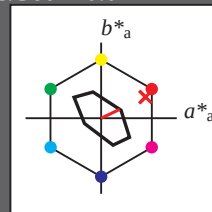
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 77 27 25

olv\*Ma: 1.0 0.05 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

chromaticness  $c^*$

### TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.523 0.5 (1.0)  
cmyn3\* 0.0 0.477 0.5 (0.0)  
olvi4\* 1.0 0.523 0.5 1.0  
cmyn4\* 0.0 0.477 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 86.33 12.27 5.85  
LAB\*LABa 86.33 12.27 5.85  
LAB\*TCHa 75.0 13.59 25.48

relative CIELAB lab\*  
lab\*lab 0.647 0.451 0.215  
lab\*tch 0.75 0.5 0.071  
lab\*nch 0.0 0.5 0.071

relative Natural Colour (NC)  
lab\*lrj 0.647 0.5 0.0  
lab\*tce 0.75 0.5 0.0  
lab\*nce 0.0 0.5 0.071

relative Inform. Technology (IT)  
olvi3\* 0.5 0.023 0.0 (1.0)  
cmyn3\* 0.5 0.977 1.0 (0.0)  
olvi4\* 1.0 0.523 0.5 0.5  
cmyn4\* 0.0 0.477 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 73.47 12.27 5.84  
LAB\*LABa 73.47 12.27 5.84  
LAB\*TCHa 25.01 13.59 25.46

relative CIELAB lab\*  
lab\*lab 0.147 0.451 0.215  
lab\*tch 0.25 0.5 0.071  
lab\*nch 0.5 0.5 0.071

relative Natural Colour (NC)  
lab\*lrj 0.147 0.5 0.0  
lab\*tce 0.25 0.5 1.0  
lab\*nce 0.5 0.5 0.071

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

$n^* = 0,00$

chromaticness  $c^*$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmv0^* \text{ setcmkcolor}$   
output:  $cmv0^* / 000n^* \text{ setcmkcolor}$

### Input: Colorimetric Television Luminous System TLS70

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

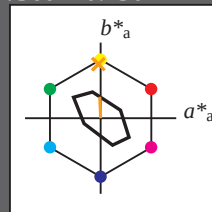
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 89 28 92

olv\*Ma: 1.0 0.74 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1.0$

TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.87 0.5 (1.0)  
cmyn3\* 0.0 0.13 0.5 (0.0)  
olvi4\* 1.0 0.87 0.5 1.0  
cmyn4\* 0.0 0.13 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 92.4 -0.57 14.19  
LAB\*LABa 92.4 -0.57 14.19  
LAB\*TCHa 75.0 14.2 92.32

relative CIELAB lab\*  
lab\*lab 0.883 -0.019 0.499  
lab\*tch 0.75 0.5 0.256  
lab\*nch 0.0 0.5 0.256

relative Natural Colour (NC)  
lab\*lrj 0.883 0.0 0.5  
lab\*tce 0.75 0.5 0.25  
lab\*nce 0.0 0.5 j00g

relative Inform. Technology (IT)  
olvi3\* 0.5 0.37 0.0 (1.0)  
cmyn3\* 0.5 0.63 1.0 (0.0)  
olvi4\* 1.0 0.87 0.5 0.5  
cmyn4\* 0.0 0.13 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 79.54 -0.56 14.19  
LAB\*LABa 79.54 -0.56 14.19  
LAB\*TCHa 25.01 14.2 92.31

relative CIELAB lab\*  
lab\*lab 0.383 -0.019 0.499  
lab\*tch 0.25 0.5 0.256  
lab\*nch 0.5 0.5 0.256

relative Natural Colour (NC)  
lab\*lrj 0.383 0.0 0.5  
lab\*tce 0.25 0.5 0.25  
lab\*nce 0.5 0.5 r99j

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

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

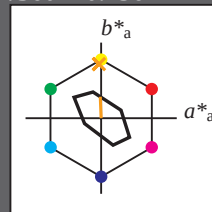
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 89 28 92

olv\*Ma: 1.0 0.74 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1.0$

TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.87 0.5 (1.0)  
cmyn3\* 0.0 0.13 0.5 (0.0)  
olvi4\* 1.0 0.87 0.5 1.0  
cmyn4\* 0.0 0.13 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 92.4 -0.57 14.19  
LAB\*LABa 92.4 -0.57 14.19  
LAB\*TCHa 75.0 14.2 92.32

relative CIELAB lab\*  
lab\*lab 0.883 -0.019 0.499  
lab\*tch 0.75 0.5 0.256  
lab\*nch 0.0 0.5 0.256

relative Natural Colour (NC)  
lab\*lrj 0.883 0.0 0.5  
lab\*tce 0.75 0.5 0.25  
lab\*nce 0.0 0.5 j00g

relative Inform. Technology (IT)  
olvi3\* 0.5 0.37 0.0 (1.0)  
cmyn3\* 0.5 0.63 1.0 (0.0)  
olvi4\* 1.0 0.87 0.5 0.5  
cmyn4\* 0.0 0.13 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 79.54 -0.56 14.19  
LAB\*LABa 79.54 -0.56 14.19  
LAB\*TCHa 25.01 14.2 92.31

relative CIELAB lab\*  
lab\*lab 0.383 -0.019 0.499  
lab\*tch 0.25 0.5 0.256  
lab\*nch 0.5 0.5 0.256

relative Natural Colour (NC)  
lab\*lrj 0.383 0.0 0.5  
lab\*tce 0.25 0.5 0.25  
lab\*nce 0.5 0.5 r99j

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmv0^* \text{ setcmvcolor}$   
output:  $cmv0^* / 000n^* \text{ setcmvcolor}$



### Input: Colorimetric Television Luminous System TLS70

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

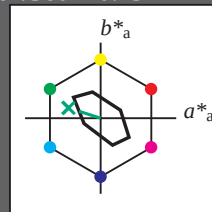
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 90 30 162

olv\*Ma: 0.0 1.0 0.53

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

### TLS70; adapted (a) CIELAB data

|                  | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------------------|-------------|---------|---------|--------------|--------------|
| O <sub>Ma</sub>  | 76.43       | 26.27   | 10.57   | 28.32        | 22           |
| Y <sub>Ma</sub>  | 93.93       | -10.76  | 34.63   | 36.27        | 107          |
| L <sub>Ma</sub>  | 89.32       | -35.8   | 27.64   | 45.24        | 142          |
| C <sub>Ma</sub>  | 90.93       | -21.95  | -7.07   | 23.07        | 198          |
| V <sub>Ma</sub>  | 72.1        | 15.76   | -35.63  | 38.97        | 294          |
| M <sub>Ma</sub>  | 78.5        | 37.52   | -25.23  | 45.22        | 326          |
| N <sub>Ma</sub>  | 69.7        | 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          |

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.767 (1.0)  
cmyn3\* 0.5 0.0 0.233 (0.0)  
olvi4\* 0.5 1.0 0.767 1.0  
cmyn4\* 0.5 0.0 0.233 0.0

standard and adapted CIELAB  
LAB\*LAB 92.79 -14.2 4.55  
LAB\*LABa 92.79 -14.2 4.55  
LAB\*TCHa 75.0 14.92 162.23

relative CIELAB lab\*  
lab\*lab 0.898 -0.475 0.153  
lab\*tch 0.75 0.5 0.451  
lab\*nch 0.0 0.5 0.451

relative Natural Colour (NC)  
lab\*lrj 0.898 -0.499 0.0  
lab\*tce 0.75 0.5 0.5  
lab\*nce 0.0 0.5 g00b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.267 (1.0)  
cmyn3\* 1.0 0.5 0.733 (0.0)  
olvi4\* 0.5 1.0 0.767 0.5  
cmyn4\* 0.5 0.0 0.233 0.5

standard and adapted CIELAB  
LAB\*LAB 79.94 -14.2 4.56  
LAB\*LABa 79.94 -14.2 4.56  
LAB\*TCHa 25.01 14.92 162.22

relative CIELAB lab\*  
lab\*lab 0.398 -0.475 0.153  
lab\*tch 0.25 0.5 0.451  
lab\*nch 0.5 0.5 0.451

relative Natural Colour (NC)  
lab\*lrj 0.398 -0.499 0.0  
lab\*tce 0.25 0.5 0.5  
lab\*nce 0.5 0.5 199g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Television Luminous System TLS70

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

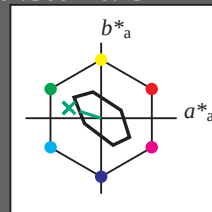
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 90 30 162

olv\*Ma: 0.0 1.0 0.53

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 16$

%Regularity

$g^*_{H,rel} = 34$

$g^*_{C,rel} = 51$

relative Inform. Technology (IT)  
olvi3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olvi4\* 1.0 1.0 1.0 1.0  
cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 95.41 0.0 0.0  
LAB\*LABa 95.41 0.0 0.0  
LAB\*TCHa 99.99 0.0 -

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 -  
lab\*nch 0.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 -  
lab\*nce 0.0 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olvi4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 82.56 0.0 0.0  
LAB\*LABa 82.56 0.0 0.0  
LAB\*TCHa 50.0 0.0 -

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 -  
lab\*nch 0.5 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olvi4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0

standard and adapted CIELAB  
LAB\*LAB 69.7 0.0 0.0  
LAB\*LABa 69.7 0.0 0.0  
LAB\*TCHa 0.01 0.0 -

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 -  
lab\*nch 1.0 0.0 -

relative Natural Colour (NC)  
lab\*lrj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 -  
lab\*nce 1.0 0.0 -

$n^* = 1,0$

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

input:  $cmv0^* \text{ setcmvcolor}$   
output:  $cmv0^* / 000n^* \text{ setcmvcolor}$

BAM-test chart OE19; Colorimetric systems TLS70 & TLS70  
D65: 2 coordinate data of 3 step colour scales for 10 hues

