

### Input: Colorimetric Television Luminous System TLS18

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

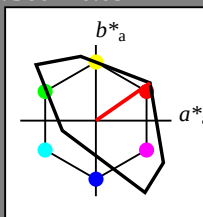
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue O

LCH\*Ma: 53 87 35

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



% Gamut

$u^*_{rel} = 118$

relative Inform. Technology (IT)

|       |     |     |     |       |
|-------|-----|-----|-----|-------|
| olv3* | 1.0 | 1.0 | 1.0 | (1.0) |
| olv3* | 0.0 | 0.0 | 0.0 | (0.0) |
| olv4* | 1.0 | 1.0 | 1.0 | (1.0) |
| olv4* | 0.0 | 0.0 | 0.0 | (0.0) |
| olv5* | 1.0 | 1.0 | 1.0 | (1.0) |
| olv5* | 0.0 | 0.0 | 0.0 | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |     |      |      |       |
|-------|-----|------|------|-------|
| olv3* | 1.0 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0 | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0 | 0.75 | 0.75 | (1.0) |
| olv4* | 0.0 | 0.25 | 0.25 | (0.0) |
| olv5* | 1.0 | 0.75 | 0.75 | (1.0) |
| olv5* | 0.0 | 0.25 | 0.25 | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
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| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

relative Inform. Technology (IT)

|       |      |      |      |       |
|-------|------|------|------|-------|
| olv3* | 0.75 | 0.75 | 0.75 | (1.0) |
| olv3* | 0.0  | 0.25 | 0.25 | (0.0) |
| olv4* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv4* | 0.0  | 0.0  | 0.0  | (0.0) |
| olv5* | 1.0  | 1.0  | 1.0  | (1.0) |
| olv5* | 0.0  | 0.0  | 0.0  | (0.0) |

standard and adapted CIELAB

|         |       |     |     |
|---------|-------|-----|-----|
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |
| LAB*LAB | 59.01 | 0.0 | 0.0 |

### 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  $n^*$

$n^* = 0.25$

$n^* = 0.50$

$n^* = 0.75$

$n^* = 1.00$

chromaticness  $c^*$

0.25

0.50

0.75

1.00

1.25

1.50

1.75

2.00

2.25

2.50

2.75

3.00

3.25

3.50

3.75

4.00

4.25

4.50

4.75

5.00

5.25

5.50

5.75

6.00

6.25

6.50

6.75

7.00

7.25

7.50

7.75

8.00

8.25

8.50

8.75

9.00

9.25

9.50

9.75

10.00

10.25

10.50

10.75

11.00

11.25

11.50

11.75

12.00

12.25

12.50

12.75

13.00

13.25

13.50

13.75

14.00

14.25

14.50

14.75

15.00

15.25

15.50

15.75

16.00

16.25

16.50

16.75

17.00

17.25

17.50

17.75

18.00

18.25

18.50

18.75

19.00

19.25

19.50

19.75

20.00

20.25

20.50

20.75

21.00

21.25

21.50

21.75

22.00

22.25

22.50

22.75

23.00

23.25

23.50

23.75

24.00

24.25

24.50

24.75

25.00

25.25

25.50

25.75

26.00

26.25

26.50

26.75

27.00

27.25

27.50

27.75

28.00

28.25

28.50

28.75

29.00

29.25

29.50

29.75

30.00

30.25

30.50

30.75

31.00

31.25

31.50

31.75

32.00

32.25

32.50

32.75

33.00

33.25

33.50

33.75

34.00

34.25

34.50

34.75

35.00

35.25

35.50

35.75

36.00

36.25

36.50

36.75

37.00

# Input: Colorimetric Television Luminous System TLS18

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

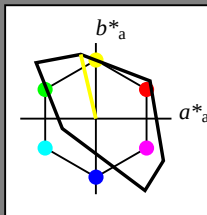
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue Y

LCH\*Ma: 93 87 103

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



$u^*_{rel} = 118$

relative Inform. Technology (IT)  
olv3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 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 0.01

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olv3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.75  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*TCHa 75.00 0.01

relative CIELAB lab\*  
lab\*lab 0.991 -0.056 0.243  
lab\*tch 0.875 0.25 0.287  
lab\*nch 0.0 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.991 -0.06 0.242  
lab\*tce 0.875 0.25 0.289  
lab\*nce 0.0 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*TCHa 75.00 0.01

relative CIELAB lab\*  
lab\*lab 0.741 -0.056 0.243  
lab\*tch 0.625 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.741 -0.06 0.242  
lab\*tce 0.625 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.5 0.5 0.5 (0.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 56.72 0.0 0.0  
LAB\*LABa 56.72 0.0 0.0  
LAB\*TCHa 50.00 0.01

relative CIELAB lab\*  
lab\*lab 0.491 -0.056 0.243  
lab\*tch 0.375 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.491 -0.06 0.242  
lab\*tce 0.375 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.75 0.75 (0.0)  
olv4\* 1.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.75  
standard and adapted CIELAB  
LAB\*LAB 37.37 0.0 0.0  
LAB\*LABa 37.37 0.0 0.0  
LAB\*TCHa 25.00 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

NE59-7, 5 step scales for constant CIELAB hue 103/360 = 0.287 (left)

BAM-test chart NE59; Colorimetric systems TLS18 & TLS18

D65: 2 coordinate data of 5 step colour scales for 10 hues

# Output: Colorimetric Television Luminous System TLS18

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

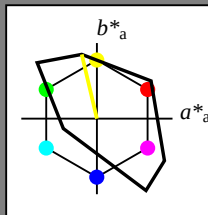
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue Y

LCH\*Ma: 93 87 103

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



$u^*_{rel} = 118$

relative Inform. Technology (IT)  
olv3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 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 0.01

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olv3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.75  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*TCHa 75.00 0.01

relative CIELAB lab\*  
lab\*lab 0.991 -0.056 0.243  
lab\*tch 0.875 0.25 0.287  
lab\*nch 0.0 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.991 -0.06 0.242  
lab\*tce 0.875 0.25 0.289  
lab\*nce 0.0 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*TCHa 75.00 0.01

relative CIELAB lab\*  
lab\*lab 0.741 -0.056 0.243  
lab\*tch 0.625 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.741 -0.06 0.242  
lab\*tce 0.625 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.5 0.5 0.5 (0.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 56.72 0.0 0.0  
LAB\*LABa 56.72 0.0 0.0  
LAB\*TCHa 50.00 0.01

relative CIELAB lab\*  
lab\*lab 0.491 -0.056 0.243  
lab\*tch 0.375 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.491 -0.06 0.242  
lab\*tce 0.375 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.75 0.75 (0.0)  
olv4\* 1.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.75  
standard and adapted CIELAB  
LAB\*LAB 37.37 0.0 0.0  
LAB\*LABa 37.37 0.0 0.0  
LAB\*TCHa 25.00 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 1.0  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*TCHa 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.241 -0.056 0.243  
lab\*tch 0.125 0.25 0.287  
lab\*nch 0.25 0.25 0.287  
relative Natural Colour (NC)  
lab\*trj 0.241 -0.06 0.242  
lab\*tce 0.125 0.25 0.289  
lab\*nce 0.25 0.25 0.158

5 step scales for constant CIELAB hue 103/360 = 0.287 (right)

input: olv\* setrgbcolor

output: no change compared to input

### Input: Colorimetric Television Luminous System TLS18

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

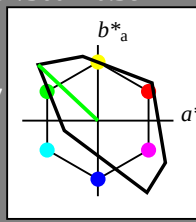
$lab^*tch$  and  $lab^*nch$

D65: hue L

LCH\*Ma: 84 108 137

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



% Gamut

| 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

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

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

| relative Inform. Technology (IT) |      |      |      |     |     |
|----------------------------------|------|------|------|-----|-----|
| olv3*                            | 0.75 | 0.75 | 0.75 | 1.0 | 1.0 |
| olv4*                            | 0.25 | 0.25 | 0.25 | 0.0 | 0.0 |
| olv5*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv6*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv7*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv8*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv9*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv10*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv11*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv12*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv13*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv14*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv15*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv16*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv17*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv18*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv19*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv20*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv21*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv22*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv23*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv24*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv25*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv26*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv27*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv28*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv29*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv30*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv31*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv32*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv33*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv34*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv35*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv36*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv37*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv38*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv39*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv40*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv41*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv42*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv43*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv44*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv45*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv46*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv47*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv48*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv49*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv50*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv51*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv52*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv53*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv54*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv55*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv56*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv57*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv58*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv59*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv60*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv61*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv62*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv63*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv64*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv65*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv66*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv67*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv68*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv69*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv70*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv71*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv72*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv73*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv74*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv75*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv76*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv77*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv78*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv79*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv80*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv81*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv82*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv83*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv84*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv85*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv86*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv87*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv88*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv89*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv90*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv91*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv92*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv93*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv94*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv95*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv96*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv97*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv98*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv99*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv100*                          | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |

| relative Inform. Technology (IT) |      |      |      |     |     |
|----------------------------------|------|------|------|-----|-----|
| olv3*                            | 0.75 | 0.75 | 0.75 | 1.0 | 1.0 |
| olv4*                            | 0.25 | 0.25 | 0.25 | 0.0 | 0.0 |
| olv5*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv6*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv7*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv8*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv9*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv10*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv11*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv12*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv13*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv14*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv15*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv16*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv17*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv18*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv19*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv20*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv21*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv22*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv23*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv24*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv25*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv26*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv27*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv28*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv29*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv30*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv31*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv32*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv33*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv34*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv35*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv36*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv37*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv38*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv39*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv40*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv41*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv42*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv43*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv44*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv45*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv46*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv47*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv48*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv49*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv50*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv51*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv52*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv53*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv54*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv55*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv56*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv57*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv58*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv59*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv60*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv61*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv62*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv63*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv64*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv65*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv66*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv67*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv68*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv69*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv70*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv71*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv72*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv73*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv74*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv75*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv76*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv77*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv78*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv79*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv80*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv81*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv82*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv83*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv84*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv85*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv86*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv87*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv88*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv89*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv90*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv91*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv92*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv93*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv94*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv95*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv96*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv97*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv98*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv99*                           | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv100*                          | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |

| relative Inform. Technology (IT) |      |      |      |     |     |
|----------------------------------|------|------|------|-----|-----|
| olv3*                            | 0.75 | 0.75 | 0.75 | 1.0 | 1.0 |
| olv4*                            | 0.25 | 0.25 | 0.25 | 0.0 | 0.0 |
| olv5*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |
| olv6*                            | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 |

### Input: Colorimetric Television Luminous System TLS18

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

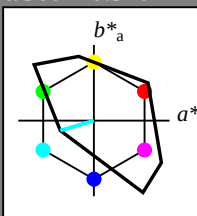
$lab^*tch$  and  $lab^*nch$

D65: hue C

LCH\*Ma: 87 46 196

olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



| 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

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

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

relative Inform. Technology (IT)  
olv3\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 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\*TCMa 99.99 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 1.0 1.0 (1.0)  
cmyn3\* 0.25 0.0 0.0 (0.0)  
olv4\* 0.75 1.0 1.0 (1.0)  
cmyn4\* 0.25 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 93.34 -11.09 -3.27  
LAB\*LABa 93.34 -11.09 -3.27  
LAB\*TCMa 87.5 11.57 196.46

relative Inform. Technology (IT)  
olv3\* 0.5 1.0 1.0 (1.0)  
cmyn3\* 0.5 0.0 0.0 (0.0)  
olv4\* 0.5 1.0 1.0 (1.0)  
cmyn4\* 0.5 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 91.27 -22.2 -6.55  
LAB\*LABa 91.27 -22.2 -6.55  
LAB\*TCMa 75.0 23.15 196.46

relative Inform. Technology (IT)  
olv3\* 0.25 1.0 1.0 (1.0)  
cmyn3\* 0.25 0.0 0.0 (0.0)  
olv4\* 0.25 1.0 1.0 (1.0)  
cmyn4\* 0.25 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 89.2 -33.3 -9.83  
LAB\*LABa 89.2 -33.3 -9.83  
LAB\*TCMa 62.5 34.73 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 0.0 1.0 1.0 (1.0)  
cmyn4\* 0.0 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 87.13 -44.4 -13.11  
LAB\*LABa 87.13 -44.4 -13.11  
LAB\*TCMa 50.0 46.31 196.46

relative Inform. Technology (IT)  
olv3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.75  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*TCMa 75.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.5 0.75 0.75 (1.0)  
cmyn3\* 0.5 0.25 0.25 (0.0)  
olv4\* 0.75 1.0 1.0 0.75  
cmyn4\* 0.5 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 73.99 -11.1 -3.27  
LAB\*LABa 73.99 -11.1 -3.27  
LAB\*TCMa 62.5 11.58 196.46

relative Inform. Technology (IT)  
olv3\* 0.25 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 0.25 1.0 1.0 0.75  
cmyn4\* 0.25 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 71.93 -22.2 -6.55  
LAB\*LABa 71.93 -22.2 -6.55  
LAB\*TCMa 50.0 23.16 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.75 0.75 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.75  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 69.86 -33.3 -9.83  
LAB\*LABa 69.86 -33.3 -9.83  
LAB\*TCMa 37.51 34.73 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.5 0.5 (1.0)  
cmyn3\* 0.0 0.5 0.5 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 56.72 0.0 0.0  
LAB\*LABa 56.72 0.0 0.0  
LAB\*TCMa 50.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olv4\* 1.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 52.76 0.0 0.0  
LAB\*LABa 52.76 0.0 0.0  
LAB\*TCMa 50.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.5 0.5 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 0.25 1.0 1.0 0.5  
cmyn4\* 0.25 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 50.0 0.0 0.0  
LAB\*LABa 50.0 0.0 0.0  
LAB\*TCMa 50.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.5 0.5 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.5  
cmyn4\* 0.0 0.0 0.0 0.5  
standard and adapted CIELAB  
LAB\*LAB 47.13 -44.4 -13.11  
LAB\*LABa 47.13 -44.4 -13.11  
LAB\*TCMa 50.0 46.31 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 44.4 -13.11  
LAB\*LABa 44.4 -13.11  
LAB\*TCMa 50.0 46.31 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 41.27 -22.2 -6.55  
LAB\*LABa 41.27 -22.2 -6.55  
LAB\*TCMa 50.0 46.31 196.46

relative Inform. Technology (IT)  
olv3\* 0.75 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.25 0.25 (0.0)  
olv4\* 1.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 37.51 34.73 196.46  
LAB\*LABa 37.51 34.73 196.46  
LAB\*TCMa 25.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.5 0.25 0.25 (1.0)  
cmyn3\* 0.5 0.25 0.25 (0.0)  
olv4\* 0.5 1.0 1.0 0.25  
cmyn4\* 0.5 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 35.47 64.92 -95.06  
LAB\*LABa 35.47 64.92 -95.06  
LAB\*TCMa 25.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.25 0.25 0.25 (0.0)  
olv4\* 0.25 1.0 1.0 0.25  
cmyn4\* 0.25 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 32.28 -22.2 -6.55  
LAB\*LABa 32.28 -22.2 -6.55  
LAB\*TCMa 25.01 23.16 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 29.01 23.16 196.46  
LAB\*LABa 29.01 23.16 196.46  
LAB\*TCMa 25.01 23.16 196.46

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 25.0 0.01  
LAB\*LABa 25.0 0.01  
LAB\*TCMa 25.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.75 0.75 (0.0)  
olv4\* 1.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.75  
standard and adapted CIELAB  
LAB\*LAB 22.28 -22.2 -6.55  
LAB\*LABa 22.28 -22.2 -6.55  
LAB\*TCMa 25.0 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.25 0.25 (0.0)  
olv4\* 0.25 1.0 1.0 0.25  
cmyn4\* 0.25 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 19.03 18.03 0.0  
LAB\*LABa 19.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 16.03 18.03 0.0  
LAB\*LABa 16.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 13.03 18.03 0.0  
LAB\*LABa 13.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.25 0.25 (1.0)  
cmyn3\* 0.0 0.25 0.25 (0.0)  
olv4\* 0.0 1.0 1.0 0.25  
cmyn4\* 0.0 0.0 0.0 0.25  
standard and adapted CIELAB  
LAB\*LAB 10.03 18.03 0.0  
LAB\*LABa 10.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 9.03 18.03 0.0  
LAB\*LABa 9.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.5 0.0 0.0 (1.0)  
cmyn3\* 0.5 0.0 0.0 (0.0)  
olv4\* 0.5 1.0 1.0 0.0  
cmyn4\* 0.5 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 7.03 18.03 0.0  
LAB\*LABa 7.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.25 0.0 0.0 (0.0)  
olv4\* 0.25 1.0 1.0 0.0  
cmyn4\* 0.25 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 5.03 18.03 0.0  
LAB\*LABa 5.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 0.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 3.03 18.03 0.0  
LAB\*LABa 3.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)  
olv4\* 0.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 1.03 18.03 0.0  
LAB\*LABa 1.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.25 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 0.75 0.0 0.0 (1.0)  
cmyn3\* 0.75 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 1.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 1.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 1.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 1.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

relative Inform. Technology (IT)  
olv3\* 1.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 0.0 0.0 (0.0)  
olv4\* 1.0 1.0 1.0 0.0  
cmyn4\* 0.0 0.0 0.0 0.0  
standard and adapted CIELAB  
LAB\*LAB 0.03 18.03 0.0  
LAB\*LABa 0.03 18.03 0.0  
LAB\*TCMa 0.01 0.01

NE59-7, 5 step scales for constant CIELAB hue 196/360 = 0.546 (left)

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

BAM-test chart NE59; Colorimetric systems TLS18 & TLS18

D65: 2 coordinate data of 5 step colour scales for 10 hues

input: `olv* setrgbcolor`

output: `no change compared to input`





output: no change compared to input

|  |   |   |
|--|---|---|
|  | L | V |
|--|---|---|





# Input: Colorimetric Television Luminous System TLS18

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

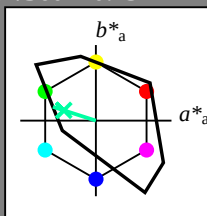
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue G

LCH\*Ma: 86 60 162

olv\*Ma: 0.0 1.0 0.64

triangle lightness  $t^*$



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\*LABb 95.41 0.0 0.0  
LAB\*LABc 95.41 0.0 0.0

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (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 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*LABb 76.07 0.0 0.0  
LAB\*LABc 76.07 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.75 0.0 0.0  
lab\*tch 0.75 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.75 0.0 0.0  
lab\*tce 0.75 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (0.0)  
cmyn3\* 0.5 0.5 0.5 (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 56.72 0.0 0.0  
LAB\*LABa 56.72 0.0 0.0  
LAB\*LABb 56.72 0.0 0.0  
LAB\*LABc 56.72 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.75 0.75 (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 37.37 0.0 0.0  
LAB\*LABa 37.37 0.0 0.0  
LAB\*LABb 37.37 0.0 0.0  
LAB\*LABc 37.37 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.25 0.0 0.0  
lab\*tch 0.25 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.25 0.0 0.0  
lab\*tce 0.25 0.0 0.0  
lab\*nce 0.0 0.0 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 (1.0)  
cmyn4\* 0.0 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*LABb 18.03 0.0 0.0  
LAB\*LABc 18.03 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 0.0  
lab\*nch 1.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 0.0  
lab\*nce 1.0 0.0 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 (1.0)  
cmyn4\* 0.0 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 0.01 0.01 0.01  
LAB\*LABa 0.01 0.01 0.01  
LAB\*LABb 0.01 0.01 0.01  
LAB\*LABc 0.01 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 0.0  
lab\*nch 1.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 0.0  
lab\*nce 1.0 0.0 0.0

## 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

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

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

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.82 (1.0)  
cmyn3\* 0.5 0.0 0.18 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 90.7 -28.42 9.11  
LAB\*LABa 90.7 -28.42 9.11  
LAB\*LABb 90.7 -28.42 9.11  
LAB\*LABc 90.7 -28.42 9.11

relative CIELAB lab\*  
lab\*lab 0.939 -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\*trj 0.939 -0.475 0.153  
lab\*tce 0.75 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.25 0.75 0.57 (1.0)  
cmyn3\* 0.75 0.25 0.43 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 71.36 -28.42 9.12  
LAB\*LABa 71.36 -28.42 9.12  
LAB\*LABb 71.36 -28.42 9.12  
LAB\*LABc 71.36 -28.42 9.12

relative CIELAB lab\*  
lab\*lab 0.689 -0.475 0.153  
lab\*tch 0.5 0.5 0.451  
lab\*nch 0.0 0.5 0.451  
relative Natural Colour (NC)  
lab\*trj 0.689 -0.475 0.153  
lab\*tce 0.5 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.75 0.48 (1.0)  
cmyn3\* 1.0 0.25 0.52 (0.0)  
olvi4\* 0.25 1.0 0.73 (0.0)  
cmyn4\* 0.75 0.0 0.27 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 69.01 -42.64 13.68  
LAB\*LABa 69.01 -42.64 13.68  
LAB\*LABb 69.01 -42.64 13.68  
LAB\*LABc 69.01 -42.64 13.68

relative CIELAB lab\*  
lab\*lab 0.659 -0.713 0.229  
lab\*tch 0.375 0.75 0.451  
lab\*nch 0.0 0.75 0.451  
relative Natural Colour (NC)  
lab\*trj 0.659 -0.713 0.229  
lab\*tce 0.375 0.75 0.451  
lab\*nce 0.0 0.75 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.3 (1.0)  
cmyn3\* 1.0 0.5 0.68 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 52.01 -28.42 9.12  
LAB\*LABa 52.01 -28.42 9.12  
LAB\*LABb 52.01 -28.42 9.12  
LAB\*LABc 52.01 -28.42 9.12

relative CIELAB lab\*  
lab\*lab 0.439 -0.475 0.153  
lab\*tch 0.25 0.5 0.451  
lab\*nch 0.0 0.5 0.451  
relative Natural Colour (NC)  
lab\*trj 0.439 -0.475 0.153  
lab\*tce 0.25 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.25 0.1 (1.0)  
cmyn3\* 1.0 0.75 0.84 (0.0)  
olvi4\* 0.25 1.0 0.73 (0.0)  
cmyn4\* 0.75 0.0 0.27 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 35.01 -14.2 4.56  
LAB\*LABa 35.01 -14.2 4.56  
LAB\*LABb 35.01 -14.2 4.56  
LAB\*LABc 35.01 -14.2 4.56

relative CIELAB lab\*  
lab\*lab 0.22 -0.237 0.076  
lab\*tch 0.125 0.25 0.451  
lab\*nch 0.0 0.25 0.451  
relative Natural Colour (NC)  
lab\*trj 0.22 -0.237 0.076  
lab\*tce 0.125 0.25 0.451  
lab\*nce 0.0 0.25 0.451

$n^* = 0.00$

$n^* = 0.25$

$n^* = 0.50$

$n^* = 1.0$

chromaticness  $c^*$

# Output: Colorimetric Television Luminous System TLS18

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

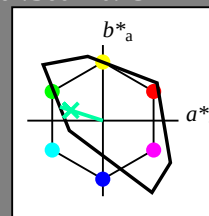
$lab \cdot tch$  and  $lab \cdot nch$

D65: hue G

LCH\*Ma: 86 60 162

olv\*Ma: 0.0 1.0 0.64

triangle lightness  $t^*$



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\*LABb 95.41 0.0 0.0  
LAB\*LABc 95.41 0.0 0.0

relative CIELAB lab\*  
lab\*lab 1.0 0.0 0.0  
lab\*tch 1.0 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 1.0 0.0 0.0  
lab\*tce 1.0 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.75 0.75 0.75 (1.0)  
cmyn3\* 0.25 0.25 0.25 (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 76.07 0.0 0.0  
LAB\*LABa 76.07 0.0 0.0  
LAB\*LABb 76.07 0.0 0.0  
LAB\*LABc 76.07 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.75 0.0 0.0  
lab\*tch 0.75 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.75 0.0 0.0  
lab\*tce 0.75 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.5 0.5 0.5 (0.0)  
cmyn3\* 0.5 0.5 0.5 (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 56.72 0.0 0.0  
LAB\*LABa 56.72 0.0 0.0  
LAB\*LABb 56.72 0.0 0.0  
LAB\*LABc 56.72 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.5 0.0 0.0  
lab\*tch 0.5 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 0.0  
lab\*nce 0.0 0.0 0.0

relative Inform. Technology (IT)  
olvi3\* 0.25 0.25 0.25 (1.0)  
cmyn3\* 0.75 0.75 0.75 (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 37.37 0.0 0.0  
LAB\*LABa 37.37 0.0 0.0  
LAB\*LABb 37.37 0.0 0.0  
LAB\*LABc 37.37 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.25 0.0 0.0  
lab\*tch 0.25 0.0 0.0  
lab\*nch 0.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.25 0.0 0.0  
lab\*tce 0.25 0.0 0.0  
lab\*nce 0.0 0.0 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 (1.0)  
cmyn4\* 0.0 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 18.03 0.0 0.0  
LAB\*LABa 18.03 0.0 0.0  
LAB\*LABb 18.03 0.0 0.0  
LAB\*LABc 18.03 0.0 0.0

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 0.0  
lab\*nch 1.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 0.0  
lab\*nce 1.0 0.0 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 (1.0)  
cmyn4\* 0.0 0.0 0.0 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 0.01 0.01 0.01  
LAB\*LABa 0.01 0.01 0.01  
LAB\*LABb 0.01 0.01 0.01  
LAB\*LABc 0.01 0.01 0.01

relative CIELAB lab\*  
lab\*lab 0.0 0.0 0.0  
lab\*tch 0.0 0.0 0.0  
lab\*nch 1.0 0.0 0.0  
relative Natural Colour (NC)  
lab\*trj 0.0 0.0 0.0  
lab\*tce 0.0 0.0 0.0  
lab\*nce 1.0 0.0 0.0

$n^* = 1.0$

chromaticness  $c^*$

## 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

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

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

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.82 (1.0)  
cmyn3\* 0.5 0.0 0.18 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 90.7 -28.42 9.11  
LAB\*LABa 90.7 -28.42 9.11  
LAB\*LABb 90.7 -28.42 9.11  
LAB\*LABc 90.7 -28.42 9.11

relative CIELAB lab\*  
lab\*lab 0.939 -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\*trj 0.939 -0.475 0.153  
lab\*tce 0.75 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.25 0.75 0.57 (1.0)  
cmyn3\* 0.75 0.25 0.43 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 71.36 -28.42 9.12  
LAB\*LABa 71.36 -28.42 9.12  
LAB\*LABb 71.36 -28.42 9.12  
LAB\*LABc 71.36 -28.42 9.12

relative CIELAB lab\*  
lab\*lab 0.689 -0.475 0.153  
lab\*tch 0.5 0.5 0.451  
lab\*nch 0.0 0.5 0.451  
relative Natural Colour (NC)  
lab\*trj 0.689 -0.475 0.153  
lab\*tce 0.5 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.75 0.48 (1.0)  
cmyn3\* 1.0 0.25 0.52 (0.0)  
olvi4\* 0.25 1.0 0.73 (0.0)  
cmyn4\* 0.75 0.0 0.27 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 69.01 -42.64 13.68  
LAB\*LABa 69.01 -42.64 13.68  
LAB\*LABb 69.01 -42.64 13.68  
LAB\*LABc 69.01 -42.64 13.68

relative CIELAB lab\*  
lab\*lab 0.659 -0.713 0.229  
lab\*tch 0.375 0.75 0.451  
lab\*nch 0.0 0.75 0.451  
relative Natural Colour (NC)  
lab\*trj 0.659 -0.713 0.229  
lab\*tce 0.375 0.75 0.451  
lab\*nce 0.0 0.75 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.3 (1.0)  
cmyn3\* 1.0 0.5 0.68 (0.0)  
olvi4\* 0.5 1.0 0.82 (1.0)  
cmyn4\* 0.5 0.0 0.18 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 52.01 -28.42 9.12  
LAB\*LABa 52.01 -28.42 9.12  
LAB\*LABb 52.01 -28.42 9.12  
LAB\*LABc 52.01 -28.42 9.12

relative CIELAB lab\*  
lab\*lab 0.439 -0.475 0.153  
lab\*tch 0.25 0.5 0.451  
lab\*nch 0.0 0.5 0.451  
relative Natural Colour (NC)  
lab\*trj 0.439 -0.475 0.153  
lab\*tce 0.25 0.5 0.451  
lab\*nce 0.0 0.5 0.451

relative Inform. Technology (IT)  
olvi3\* 0.0 0.25 0.1 (1.0)  
cmyn3\* 1.0 0.75 0.84 (0.0)  
olvi4\* 0.25 1.0 0.73 (0.0)  
cmyn4\* 0.75 0.0 0.27 (0.0)  
standard and adapted CIELAB  
LAB\*LAB 35.01 -14.2 4.56  
LAB\*LABa 35.01 -14.2 4.56  
LAB\*LABb 35.01 -14.2 4.56  
LAB\*LABc 35.01 -14.2 4.56

relative CIELAB lab\*  
lab\*lab 0.22 -0.237 0.076  
lab\*tch 0.125 0.25 0.451  
lab\*nch 0.0 0.25 0.451  
relative Natural Colour (NC)  
lab\*trj 0.22 -0.237 0.076  
lab\*tce 0.125 0.25 0.451  
lab\*nce 0.0 0.25 0.451

$n^* = 0.00$

$n^* = 0.25$

$n^* = 0.50$

$n^* = 1.0$

chromaticness  $c^*$

NE59-7, 5 step scales for constant CIELAB hue 162/360 = 0.451 (left)

5 step scales for constant CIELAB hue 162

