

### Input: Colorimetric Reflective System NRS11

for hue  $h^* = lab^*h = 24/360 = 0.067$

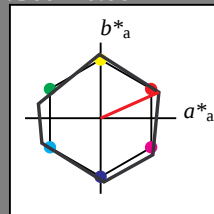
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 53 84 24

ol $v^*$ Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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

standard and adapted CIELAB  
LAB\*LAB 74.3 38.55 17.16  
LAB\*LABa 74.3 38.52 17.16  
LAB\*TCHa 75.0 42.17 24.01

relative CIELAB lab\*  
lab\*lab 0.75 0.457 0.203  
lab\*tch 0.75 0.5 0.067  
lab\*nch 0.0 0.5 0.067

relative Natural Colour (NC)  
lab\*lrj 0.75 0.5 -0.009  
lab\*tce 0.75 0.5 0.997  
lab\*nce 0.0 0.5 0.997

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

standard and adapted CIELAB  
LAB\*LAB 32.1 38.58 17.17  
LAB\*LABa 32.1 38.52 17.16  
LAB\*TCHa 25.01 42.17 24.01

relative CIELAB lab\*  
lab\*lab 0.25 0.457 0.203  
lab\*tch 0.25 0.5 0.067  
lab\*nch 0.5 0.5 0.067

relative Natural Colour (NC)  
lab\*lrj 0.25 0.5 -0.009  
lab\*tce 0.25 0.5 0.997  
lab\*nce 0.5 0.5 0.997

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 Reflective System ORS18

for hue  $h^* = lab^*h = 38/360 = 0.105$

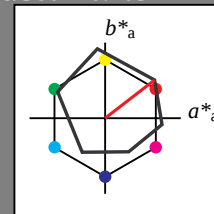
$lab^*tch$  and  $lab^*nch$

D65: hue O

LCH\*Ma: 48 83 38

ol $v^*$ Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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  $c^*$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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

standard and adapted CIELAB  
LAB\*LAB 71.67 32.15 28.41  
LAB\*LABa 71.67 32.68 25.25  
LAB\*TCHa 75.0 41.3 37.7

relative CIELAB lab\*  
lab\*lab 0.693 0.396 0.306  
lab\*tch 0.75 0.5 0.105  
lab\*nch 0.0 0.5 0.105

relative Natural Colour (NC)  
lab\*lrj 0.693 0.477 0.15  
lab\*tce 0.75 0.5 0.048  
lab\*nce 0.0 0.5 0.191

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

standard and adapted CIELAB  
LAB\*LAB 32.98 32.9 25.8  
LAB\*LABa 32.98 32.68 25.25  
LAB\*TCHa 25.01 41.3 37.7

relative CIELAB lab\*  
lab\*lab 0.193 0.396 0.306  
lab\*tch 0.25 0.5 0.105  
lab\*nch 0.5 0.5 0.105

relative Natural Colour (NC)  
lab\*lrj 0.193 0.477 0.15  
lab\*tce 0.25 0.5 0.048  
lab\*nce 0.5 0.5 0.191

$n^* = 0,00$   
blackness  $n^*$

chromaticness  $c^*$

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

3 step scales for constant CIELAB hue 38/360 = 0.105 (right)

input:  $cm\mathbf{y}0^* \text{ setcm\mathbf{y}color}$

output: no change compared to input

### Input: Colorimetric Reflective System NRS11

for hue  $h^* = lab^*h = 91/360 = 0.253$

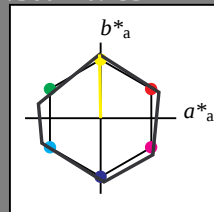
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 53 84 91

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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 74.3 -0.72 42.18  
LAB\*LABa 74.3 -0.75 42.18  
LAB\*TCHa 75.0 42.19 91.03

relative CIELAB lab\*  
lab\*lab 0.75 -0.008 0.5  
lab\*tch 0.75 0.5 0.253  
lab\*nch 0.0 0.5 0.253

relative Natural Colour (NC)  
lab\*lrj 0.75 0.015 0.5  
lab\*tce 0.75 0.5 0.245  
lab\*nce 0.0 0.5 r98j

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 32.1 -0.69 42.2  
LAB\*LABa 32.1 -0.75 42.18  
LAB\*TCHa 25.01 42.19 91.03

relative CIELAB lab\*  
lab\*lab 0.25 -0.008 0.5  
lab\*tch 0.25 0.5 0.253  
lab\*nch 0.5 0.5 0.253

relative Natural Colour (NC)  
lab\*lrj 0.25 0.015 0.5  
lab\*tce 0.25 0.5 0.245  
lab\*nce 0.5 0.5 r98j

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

$n^* = 0,50$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Reflective System ORS18

for hue  $h^* = lab^*h = 96/360 = 0.268$

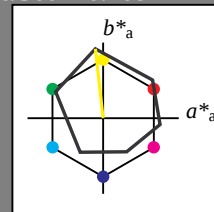
$lab^*tch$  and  $lab^*nch$

D65: hue Y

LCH\*Ma: 90 92 96

olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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 92.88 -6.06 50.46  
LAB\*LABa 92.88 -5.13 45.87  
LAB\*TCHa 75.0 46.16 96.39

relative CIELAB lab\*  
lab\*lab 0.967 -0.055 0.497  
lab\*tch 0.75 0.5 0.268  
lab\*nch 0.0 0.5 0.268

relative Natural Colour (NC)  
lab\*lrj 0.967 -0.048 0.497  
lab\*tce 0.75 0.5 0.266  
lab\*nce 0.0 0.5 j06g

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 54.19 -5.32 47.85  
LAB\*LABa 54.19 -5.13 45.87  
LAB\*TCHa 25.01 46.16 96.39

relative CIELAB lab\*  
lab\*lab 0.467 -0.055 0.497  
lab\*tch 0.25 0.5 0.268  
lab\*nch 0.5 0.5 0.268

relative Natural Colour (NC)  
lab\*lrj 0.467 -0.048 0.497  
lab\*tce 0.25 0.5 0.266  
lab\*nce 0.5 0.5 j06g

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

$n^* = 0,50$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

3 step scales for constant CIELAB hue 96/360 = 0.268 (right)

input:  $cmY0^* setcmykcolor$

output: no change compared to input

### Input: Colorimetric Reflective System NRS11

for hue  $h^* = lab^*h = 167/360 = 0.464$

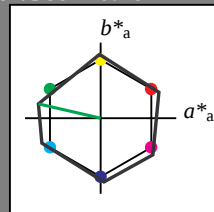
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 53 84 167

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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 74.3 -41.1 9.49  
LAB\*LABa 74.3 -41.12 9.49  
LAB\*TCHa 75.0 42.21 167.01

relative CIELAB lab\*  
lab\*lab 0.75 -0.486 0.112  
lab\*tch 0.75 0.5 0.464  
lab\*nch 0.0 0.5 0.464

relative Natural Colour (NC)  
lab\*lrj 0.75 -0.498 -0.033  
lab\*tce 0.75 0.5 0.511  
lab\*nce 0.0 0.5 g04b

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 32.1 -41.06 9.5  
LAB\*LABa 32.1 -41.12 9.49  
LAB\*TCHa 25.01 42.21 167.01

relative CIELAB lab\*  
lab\*lab 0.25 -0.486 0.112  
lab\*tch 0.25 0.5 0.464  
lab\*nch 0.5 0.5 0.464

relative Natural Colour (NC)  
lab\*lrj 0.25 -0.498 -0.033  
lab\*tce 0.25 0.5 0.511  
lab\*nce 0.5 0.5 g04b

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 Reflective System ORS18

for hue  $h^* = lab^*h = 151/360 = 0.419$

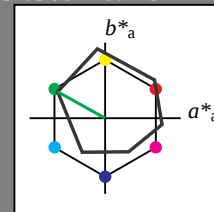
$lab^*tch$  and  $lab^*nch$

D65: hue L

LCH\*Ma: 51 72 151

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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 73.15 -31.94 20.73  
LAB\*LABa 73.15 -31.38 17.47  
LAB\*TCHa 75.0 35.93 150.91

relative CIELAB lab\*  
lab\*lab 0.712 -0.436 0.243  
lab\*tch 0.75 0.5 0.419  
lab\*nch 0.0 0.5 0.419

relative Natural Colour (NC)  
lab\*lrj 0.712 -0.478 0.144  
lab\*tce 0.75 0.5 0.453  
lab\*nce 0.0 0.5 j81g

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 34.46 -31.2 18.11  
LAB\*LABa 34.46 -31.38 17.47  
LAB\*TCHa 25.01 35.93 150.91

relative CIELAB lab\*  
lab\*lab 0.213 -0.436 0.243  
lab\*tch 0.25 0.5 0.419  
lab\*nch 0.5 0.5 0.419

relative Natural Colour (NC)  
lab\*lrj 0.213 -0.478 0.144  
lab\*tce 0.25 0.5 0.453  
lab\*nce 0.5 0.5 j81g

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 UE17; Colorimetric systems NRS11 & ORS18

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

3 step scales for constant CIELAB hue 151/360 = 0.419 (right)

input:  $cmY0^* setcmykcolor$

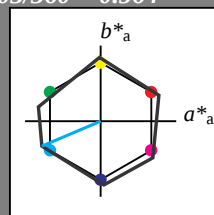
output: no change compared to input

### Input: Colorimetric Reflective System NRS11

for hue  $h^* = lab^*h = 203/360 = 0.564$   
 $lab^*tch$  and  $lab^*nch$

D65: hue G50B  
LCH\*Ma: 53 84 203  
olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

| NRS11; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| RMa                            | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa                            | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa                            | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa                         | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa                            | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa                         | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa                            | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa                            | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE                           | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE                           | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE                           | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE                           | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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 74.3 -38.82 -16.48  
LAB\*LABa 74.3 -38.85 -16.48  
LAB\*TCHa 75.0 42.21 203.0

relative CIELAB lab\*

lab\*lab 0.75 -0.459 -0.194  
lab\*tch 0.75 0.5 0.564  
lab\*nch 0.0 0.5 0.564

relative Natural Colour (NC)  
lab\*lrj 0.75 -0.416 -0.275  
lab\*tce 0.75 0.5 0.593  
lab\*nce 0.0 0.5 g37b

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 32.1 -38.79 -16.46  
LAB\*LABa 32.1 -38.85 -16.48  
LAB\*TCHa 25.01 42.21 203.0

relative CIELAB lab\*

lab\*lab 0.25 -0.459 -0.194  
lab\*tch 0.25 0.5 0.564  
lab\*nch 0.5 0.5 0.564

relative Natural Colour (NC)  
lab\*lrj 0.25 -0.416 -0.275  
lab\*tce 0.25 0.5 0.593  
lab\*nce 0.5 0.5 g37b

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 -

$n^* = 0,50$

$n^* = 0,00$

blackness  $n^*$

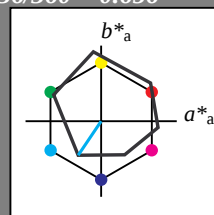
chromaticness  $c^*$

### Output: Colorimetric Reflective System ORS18

for hue  $h^* = lab^*h = 236/360 = 0.656$   
 $lab^*tch$  and  $lab^*nch$

D65: hue C  
LCH\*Ma: 59 54 236  
olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

| ORS18; adapted (a) CIELAB data |             |         |         |              |              |
|--------------------------------|-------------|---------|---------|--------------|--------------|
|                                | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
| OMa                            | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa                            | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa                            | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa                            | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa                            | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa                            | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa                            | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa                            | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE                           | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE                           | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE                           | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE                           | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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 77.01 -15.79 -18.98  
LAB\*LABa 77.01 -15.16 -22.5  
LAB\*TCHa 75.0 27.15 236.01

relative CIELAB lab\*

lab\*lab 0.762 -0.278 -0.413  
lab\*tch 0.75 0.5 0.656  
lab\*nch 0.0 0.5 0.656

relative Natural Colour (NC)  
lab\*lrj 0.762 -0.247 -0.433  
lab\*tce 0.75 0.5 0.667  
lab\*nce 0.0 0.5 g66b

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 38.32 -15.05 -21.59  
LAB\*LABa 38.32 -15.16 -22.5  
LAB\*TCHa 25.01 27.15 236.01

relative CIELAB lab\*

lab\*lab 0.262 -0.278 -0.413  
lab\*tch 0.25 0.5 0.656  
lab\*nch 0.5 0.5 0.656

relative Natural Colour (NC)  
lab\*lrj 0.262 -0.247 -0.433  
lab\*tce 0.25 0.5 0.667  
lab\*nce 0.5 0.5 g66b

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  $c^*$

UE170-7, 3 step scales for constant CIELAB hue 203/360 = 0.564 (left)

3 step scales for constant CIELAB hue 236/360 = 0.656 (right)

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

input: `cmY0* setcmYcolor`

output: *no change compared to input*

### Input: Colorimetric Reflective System NRS11

for hue  $h^* = lab^*h = 273/360 = 0.758$

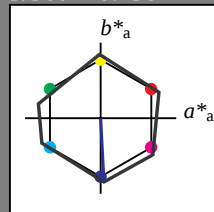
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 53 84 273

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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 74.3 2.21 -42.13  
LAB\*LABa 74.3 2.19 -42.13  
LAB\*TCHa 75.0 42.2 272.97

relative CIELAB lab\*  
lab\*lab 0.75 0.026 -0.498  
lab\*tch 0.75 0.5 0.758  
lab\*nch 0.0 0.5 0.758

relative Natural Colour (NC)  
lab\*lrj 0.75 0.009 -0.499  
lab\*tce 0.75 0.5 0.753  
lab\*nce 0.0 0.5 b01r

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 32.1 2.25 -42.11  
LAB\*LABa 32.1 2.19 -42.13  
LAB\*TCHa 25.01 42.2 272.97

relative CIELAB lab\*  
lab\*lab 0.25 0.026 -0.498  
lab\*tch 0.25 0.5 0.758  
lab\*nch 0.5 0.5 0.758

relative Natural Colour (NC)  
lab\*lrj 0.25 0.009 -0.499  
lab\*tce 0.25 0.5 0.753  
lab\*nce 0.5 0.5 b01r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 0.0 (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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 Reflective System ORS18

for hue  $h^* = lab^*h = 305/360 = 0.847$

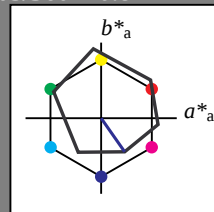
$lab^*tch$  and  $lab^*nch$

D65: hue V

LCH\*Ma: 26 54 305

olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 0.0 (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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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  $c^*$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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 60.56 15.24 -19.79  
LAB\*LABa 60.56 15.55 -22.2  
LAB\*TCHa 75.0 27.11 305.0

relative CIELAB lab\*  
lab\*lab 0.55 0.287 -0.408  
lab\*tch 0.75 0.5 0.847  
lab\*nch 0.0 0.5 0.847

relative Natural Colour (NC)  
lab\*lrj 0.55 0.225 -0.446  
lab\*tce 0.75 0.5 0.824  
lab\*nce 0.0 0.5 b29r

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 21.87 15.98 -22.4  
LAB\*LABa 21.87 15.55 -22.2  
LAB\*TCHa 25.01 27.11 305.0

relative CIELAB lab\*  
lab\*lab 0.05 0.287 -0.408  
lab\*tch 0.25 0.5 0.847  
lab\*nch 0.5 0.5 0.847

relative Natural Colour (NC)  
lab\*lrj 0.05 0.225 -0.446  
lab\*tce 0.25 0.5 0.824  
lab\*nce 0.5 0.5 b29r

relative Inform. Technology (IT)  
olvi3\* 0.0 0.0 0.0 (1.0)  
cmyn3\* 1.0 1.0 0.0 (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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 UE17; Colorimetric systems NRS11 & ORS18

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

3 step scales for constant CIELAB hue 305/360 = 0.847 (right)

input:  $cmv0^* setcmvcolor$

output: no change compared to input

### Input: Colorimetric Reflective System NRS11

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

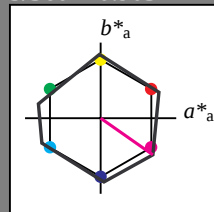
$lab^*tch$  and  $lab^*nch$

D65: hue B50R

LCH\*Ma: 53 84 325

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

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 74.3 34.57 -24.19  
LAB\*LABa 74.3 34.54 -24.2  
LAB\*TCHa 75.0 42.18 324.98

relative CIELAB lab\*  
lab\*lab 0.75 0.409 -0.286  
lab\*tch 0.75 0.5 0.903  
lab\*nch 0.0 0.5 0.903

relative Natural Colour (NC)  
lab\*lrj 0.75 0.336 -0.37  
lab\*tce 0.75 0.5 0.867  
lab\*nce 0.0 0.5 b46r

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 32.1 34.6 -24.18  
LAB\*LABa 32.1 34.54 -24.2  
LAB\*TCHa 25.01 42.18 324.98

relative CIELAB lab\*  
lab\*lab 0.25 0.409 -0.286  
lab\*tch 0.25 0.5 0.903  
lab\*nch 0.5 0.5 0.903

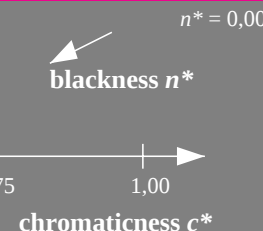
relative Natural Colour (NC)  
lab\*lrj 0.25 0.336 -0.37  
lab\*tce 0.25 0.5 0.867  
lab\*nce 0.5 0.5 b46r

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -



### Output: Colorimetric Reflective System ORS18

for hue  $h^* = lab^*h = 354/360 = 0.982$

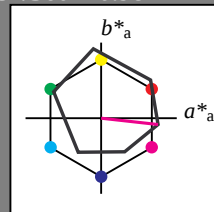
$lab^*tch$  and  $lab^*nch$

D65: hue M

LCH\*Ma: 48 76 354

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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

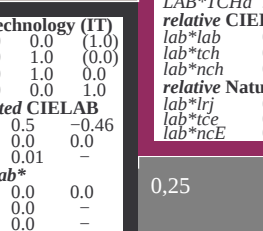
relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -



### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

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 71.77 37.1 -1.01  
LAB\*LABa 71.77 37.63 -4.17  
LAB\*TCHa 75.0 37.86 353.66

relative CIELAB lab\*  
lab\*lab 0.695 0.497 -0.054  
lab\*tch 0.75 0.5 0.982  
lab\*nch 0.0 0.5 0.982

relative Natural Colour (NC)  
lab\*lrj 0.695 0.454 -0.208  
lab\*tce 0.75 0.5 0.932  
lab\*nce 0.0 0.5 b72r

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 33.08 37.84 -3.62  
LAB\*LABa 33.08 37.63 -4.17  
LAB\*TCHa 25.01 37.86 353.66

relative CIELAB lab\*  
lab\*lab 0.195 0.497 -0.054  
lab\*tch 0.25 0.5 0.982  
lab\*nch 0.5 0.5 0.982

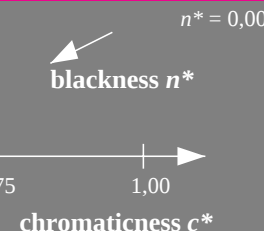
relative Natural Colour (NC)  
lab\*lrj 0.195 0.454 -0.208  
lab\*tce 0.25 0.5 0.932  
lab\*nce 0.5 0.5 b72r

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -



### Input: Colorimetric Reflective System NRS11

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

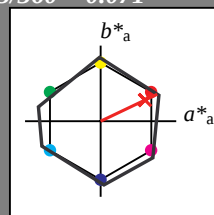
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 53 83 25

olv\*Ma: 1.0 0.03 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.514 0.5 (1.0)  
cmyn3\* 0.0 0.486 0.5 (0.0)  
olvi4\* 1.0 0.514 0.5 1.0  
cmyn4\* 0.0 0.486 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 74.3 37.46 17.85  
LAB\*LABa 74.3 37.44 17.85  
LAB\*TCHa 75.0 41.47 25.49

relative CIELAB lab\*  
lab\*lab 0.75 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 0.75 0.5 0.0  
lab\*tce 0.75 0.5 0.0  
lab\*nce 0.0 0.5 r00j

relative Inform. Technology (IT)  
olvi3\* 0.5 0.014 0.0 (1.0)  
cmyn3\* 0.5 0.986 1.0 (0.0)  
olvi4\* 1.0 0.514 0.5 0.5  
cmyn4\* 0.0 0.486 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 32.1 37.51 17.86  
LAB\*LABa 32.1 37.45 17.84  
LAB\*TCHa 25.01 41.48 25.48

relative CIELAB lab\*  
lab\*lab 0.25 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 0.25 0.5 0.0  
lab\*tce 0.25 0.5 0.0  
lab\*nce 0.5 0.5 b99r

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 -

$n^* = 0,50$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

### Output: Colorimetric Reflective System ORS18

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

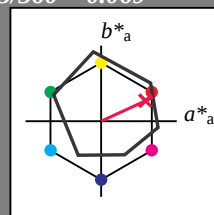
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 48 75 25

olv\*Ma: 1.0 0.0 0.32

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.5 0.661 (1.0)  
cmyn3\* 0.0 0.5 0.339 (0.0)  
olvi4\* 1.0 0.5 0.661 1.0  
cmyn4\* 0.0 0.5 0.339 0.0

standard and adapted CIELAB  
LAB\*LAB 71.7 33.75 18.92  
LAB\*LABa 71.7 34.27 15.76  
LAB\*TCHa 75.0 37.72 24.69

relative CIELAB lab\*  
lab\*lab 0.694 0.454 0.209  
lab\*tch 0.75 0.5 0.069  
lab\*nch 0.0 0.5 0.069

relative Natural Colour (NC)  
lab\*lrj 0.694 0.5 0.0  
lab\*tce 0.75 0.5 1.0  
lab\*nce 0.0 0.5 b99r

relative Inform. Technology (IT)  
olvi3\* 0.5 0.0 0.161 (1.0)  
cmyn3\* 0.5 1.0 0.839 (0.0)  
olvi4\* 1.0 0.5 0.661 0.5  
cmyn4\* 0.0 0.5 0.339 0.5

standard and adapted CIELAB  
LAB\*LAB 33.01 34.49 16.31  
LAB\*LABa 33.01 34.27 15.77  
LAB\*TCHa 25.01 37.73 24.7

relative CIELAB lab\*  
lab\*lab 0.194 0.454 0.209  
lab\*tch 0.25 0.5 0.069  
lab\*nch 0.5 0.5 0.069

relative Natural Colour (NC)  
lab\*lrj 0.194 0.5 0.0  
lab\*tce 0.25 0.5 0.0  
lab\*nce 0.5 0.5 r00j

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 -

$n^* = 0,50$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

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

input:  $cmY0^* setcmykcolor$

output: no change compared to input

### Input: Colorimetric Reflective System NRS11

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

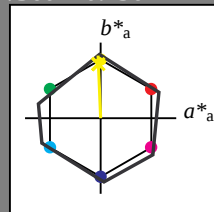
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 53 83 92

olv\*Ma: 0.98 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

relative Inform. Technology (IT)  
olvi3\* 0.989 1.0 0.5 (1.0)  
cmyn3\* 0.011 0.0 0.5 (0.0)  
olvi4\* 0.989 1.0 0.5 1.0  
cmyn4\* 0.011 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 74.3 -1.64 41.44  
LAB\*LABa 74.3 -1.67 41.44  
LAB\*TCHa 75.0 41.47 92.32

relative CIELAB lab\*  
lab\*lab 0.75 -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 0.75 0.0 0.5  
lab\*tce 0.75 0.5 0.25  
lab\*nce 0.0 0.5 r99j

relative Inform. Technology (IT)  
olvi3\* 0.489 0.5 0.0 (1.0)  
cmyn3\* 0.511 0.5 1.0 (0.0)  
olvi4\* 0.989 1.0 0.5 0.5  
cmyn4\* 0.011 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 32.1 -1.62 41.45  
LAB\*LABa 32.1 -1.68 41.43  
LAB\*TCHa 25.01 41.46 92.33

relative CIELAB lab\*  
lab\*lab 0.25 -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 0.25 0.0 0.5  
lab\*tce 0.25 0.5 0.25  
lab\*nce 0.5 0.5 j00g

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 Reflective System ORS18

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

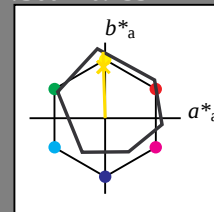
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 86 88 92

olv\*Ma: 1.0 0.9 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

relative Inform. Technology (IT)  
olvi3\* 1.0 0.951 0.5 (1.0)  
cmyn3\* 0.0 0.049 0.5 (0.0)  
olvi4\* 1.0 0.951 0.5 1.0  
cmyn4\* 0.0 0.049 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 90.8 -2.3 48.29  
LAB\*LABa 90.8 -1.41 43.85  
LAB\*TCHa 75.0 43.87 91.85

relative CIELAB lab\*  
lab\*lab 0.94 -0.015 0.5  
lab\*tch 0.75 0.5 0.255  
lab\*nch 0.0 0.5 0.255

relative Natural Colour (NC)  
lab\*lrj 0.94 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 0.451 0.0 (1.0)  
cmyn3\* 0.5 0.549 1.0 (0.0)  
olvi4\* 1.0 0.951 0.5 0.5  
cmyn4\* 0.0 0.049 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 52.1 -1.55 45.68  
LAB\*LABa 52.1 -1.4 43.84  
LAB\*TCHa 25.01 43.87 91.84

relative CIELAB lab\*  
lab\*lab 0.44 -0.015 0.5  
lab\*tch 0.25 0.5 0.255  
lab\*nch 0.5 0.5 0.255

relative Natural Colour (NC)  
lab\*lrj 0.44 0.0 0.5  
lab\*tce 0.25 0.5 0.25  
lab\*nce 0.5 0.5 r99j

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

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

input:  $cmY0^* setcmykcolor$

output: no change compared to input

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

UE170-7, 3 step scales for constant CIELAB hue 92/360 = 0.256 (left)

### Input: Colorimetric Reflective System NRS11

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

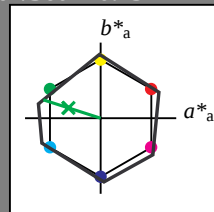
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 53 80 162

olv\*Ma: 0.08 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -

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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

relative Inform. Technology (IT)  
olvi3\* 0.54 1.0 0.5 (1.0)  
cmyn3\* 0.46 0.0 0.5 (0.0)  
olvi4\* 0.54 1.0 0.5 1.0  
cmyn4\* 0.46 0.0 0.5 0.0

standard and adapted CIELAB  
LAB\*LAB 74.3 -37.84 12.13  
LAB\*LABa 74.3 -37.87 12.12  
LAB\*TCHa 75.0 39.77 162.25

relative CIELAB lab\*

lab\*lab 0.75 -0.475 0.152

lab\*tch 0.75 0.5 0.451

lab\*nch 0.0 0.5 0.451

relative Natural Colour (NC)

lab\*lrj 0.75 -0.499 0.0

lab\*tce 0.75 0.5 0.5

lab\*nce 0.0 0.5 0.99g

standard and adapted CIELAB  
LAB\*LAB 53.2 -75.71 24.25  
LAB\*LABa 53.2 -75.75 24.24  
LAB\*TCHa 50.0 79.54 162.26

relative CIELAB lab\*

lab\*lab 0.5 -0.951 0.305

lab\*tch 0.5 1.0 0.451

lab\*nch 0.0 1.0 0.451

relative Natural Colour (NC)

lab\*lrj 0.5 -0.999 0.0

lab\*tce 0.5 1.0 0.5

lab\*nce 0.0 1.0 0.00b

relative Inform. Technology (IT)  
olvi3\* 0.04 0.5 0.0 (1.0)  
cmyn3\* 0.96 0.5 1.0 (0.0)  
olvi4\* 0.54 1.0 0.5 0.5  
cmyn4\* 0.46 0.0 0.5 0.5

standard and adapted CIELAB  
LAB\*LAB 32.1 -37.81 12.13  
LAB\*LABa 32.1 -37.87 12.12  
LAB\*TCHa 25.01 39.77 162.27

relative CIELAB lab\*

lab\*lab 0.25 -0.475 0.152

lab\*tch 0.25 0.5 0.451

lab\*nch 0.5 0.5 0.451

relative Natural Colour (NC)

lab\*lrj 0.25 -0.499 0.0

lab\*tce 0.25 0.5 0.5

lab\*nce 0.5 0.5 0.00b

relative Inform. Technology (IT)  
olvi3\* 0.081 1.0 0.0 (1.0)  
cmyn3\* 0.919 0.0 1.0 (0.0)  
olvi4\* 0.081 1.0 0.0 1.0  
cmyn4\* 0.919 0.0 1.0 0.0

standard and adapted CIELAB  
LAB\*LAB 53.2 -75.71 24.25  
LAB\*LABa 53.2 -75.75 24.24  
LAB\*TCHa 50.0 79.54 162.26

relative CIELAB lab\*

lab\*lab 0.5 -0.951 0.305

lab\*tch 0.5 1.0 0.451

lab\*nch 0.0 1.0 0.451

relative Natural Colour (NC)

lab\*lrj 0.5 -0.999 0.0

lab\*tce 0.5 1.0 0.5

lab\*nce 0.0 1.0 0.00b

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

### Output: Colorimetric Reflective System ORS18

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

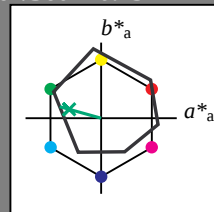
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 53 57 164

olv\*Ma: 0.0 1.0 0.25

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -

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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 35.41 -27.22 8.34  
LAB\*LABa 35.41 -27.39 7.63  
LAB\*TCHa 25.01 28.44 164.45

relative CIELAB lab\*

lab\*lab 0.225 -0.481 0.134

lab\*tch 0.25 0.5 0.457

lab\*nch 0.5 0.5 0.457

relative Natural Colour (NC)

lab\*lrj 0.225 -0.499 0.0

lab\*tce 0.25 0.5 0.5

lab\*nce 0.5 0.5 0.99g

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

relative Inform. Technology (IT)  
olvi3\* 0.5 1.0 0.623 (1.0)  
cmyn3\* 0.5 0.0 0.377 (0.0)  
olvi4\* 0.5 1.0 0.623 1.0  
cmyn4\* 0.5 0.0 0.377 0.0

standard and adapted CIELAB  
LAB\*LAB 74.1 -27.96 10.94  
LAB\*LABa 74.1 -27.39 7.62  
LAB\*TCHa 75.0 28.44 164.46

relative CIELAB lab\*

lab\*lab 0.725 -0.481 0.134

lab\*tch 0.75 0.5 0.457

lab\*nch 0.0 0.5 0.457

relative Natural Colour (NC)

lab\*lrj 0.725 -0.499 0.0

lab\*tce 0.75 0.5 0.5

lab\*nce 0.0 0.5 0.00b

standard and adapted CIELAB  
LAB\*LAB 52.8 -54.95 17.13  
LAB\*LABa 52.8 -54.79 15.24  
LAB\*TCHa 50.0 56.88 164.45

relative CIELAB lab\*

lab\*lab 0.45 -0.962 0.268

lab\*tch 0.5 1.0 0.457

lab\*nch 0.0 1.0 0.457

relative Natural Colour (NC)

lab\*lrj 0.45 -0.999 0.0

lab\*tce 0.5 1.0 0.5

lab\*nce 0.0 1.0 0.99g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.123 (1.0)  
cmyn3\* 1.0 0.5 0.877 (0.0)  
olvi4\* 0.5 1.0 0.623 0.5  
cmyn4\* 0.5 0.0 0.377 0.5

standard and adapted CIELAB  
LAB\*LAB 35.41 -27.22 8.34  
LAB\*LABa 35.41 -27.39 7.63  
LAB\*TCHa 25.01 28.44 164.45

relative CIELAB lab\*

lab\*lab 0.225 -0.481 0.134

lab\*tch 0.25 0.5 0.457

lab\*nch 0.5 0.5 0.457

relative Natural Colour (NC)

lab\*lrj 0.225 -0.499 0.0

lab\*tce 0.25 0.5 0.5

lab\*nce 0.5 0.5 0.99g

relative Inform. Technology (IT)  
olvi3\* 0.0 1.0 0.246 (1.0)  
cmyn3\* 1.0 0.0 0.754 (0.0)  
olvi4\* 0.0 1.0 0.246 1.0  
cmyn4\* 1.0 0.0 0.754 0.0

standard and adapted CIELAB  
LAB\*LAB 52.8 -54.95 17.13  
LAB\*LABa 52.8 -54.79 15.24  
LAB\*TCHa 50.0 56.88 164.45

relative CIELAB lab\*

lab\*lab 0.45 -0.962 0.268

lab\*tch 0.5 1.0 0.457

lab\*nch 0.0 1.0 0.457

relative Natural Colour (NC)

lab\*lrj 0.45 -0.999 0.0

lab\*tce 0.5 1.0 0.5

lab\*nce 0.0 1.0 0.99g

relative Inform. Technology (IT)  
olvi3\* 0.0 0.5 0.123 (1.0)  
cmyn3\* 1.0 0.5 0.877 (0.0)  
olvi4\* 0.5 1.0 0.623 0.5  
cmyn4\* 0.5 0.0 0.377 0.5

standard and adapted CIELAB  
LAB\*LAB 35.41 -27.22 8.34  
LAB\*LABa 35.41 -27.39 7.63  
LAB\*TCHa 25.01 28.44 164.45

relative CIELAB lab\*

lab\*lab 0.225 -0.481 0.134

lab\*tch 0.25 0.5 0.457

lab\*nch 0.5 0.5 0.457

relative Natural Colour (NC)

lab\*lrj 0.225 -0.499 0.0

### Input: Colorimetric Reflective System NRS11

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

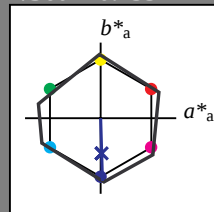
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 53 83 272

ol $v^*$ Ma: 0.0 0.02 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

$g^*_{H,rel} = 47$

$g^*_{C,rel} = 100$

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 -0.01  
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 -  
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 53.21 0.04 0.0  
LAB\*LABa 53.21 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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 11.01 0.07 0.01  
LAB\*LABa 11.01 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 -

$n^* = 1,0$

### NRS11; adapted (a) CIELAB data

|        | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|--------|-------------|---------|---------|--------------|--------------|
| RMa    | 53.2        | 77.06   | 34.32   | 84.36        | 24           |
| JMa    | 53.2        | -1.51   | 84.38   | 84.39        | 91           |
| GMa    | 53.2        | -82.27  | 18.98   | 84.44        | 167          |
| G50BMa | 53.2        | -77.72  | -32.98  | 84.44        | 203          |
| BMa    | 53.2        | 4.37    | -84.28  | 84.41        | 273          |
| B50RMa | 53.2        | 69.09   | -48.41  | 84.37        | 325          |
| NMa    | 10.99       | 0.0     | 0.0     | 0.0          | 0            |
| WMa    | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE   | 39.92       | 58.69   | 27.98   | 65.01        | 25           |
| JCIE   | 81.26       | -2.9    | 71.56   | 71.62        | 92           |
| GCIE   | 52.23       | -42.45  | 13.59   | 44.59        | 162          |
| BCIE   | 30.57       | 1.35    | -46.48  | 46.51        | 272          |

relative Inform. Technology (IT)  
olvi3\* 0.5 0.512 1.0 (1.0)  
cmyn3\* 0.5 0.488 0.0 (0.0)  
olvi4\* 0.5 0.512 1.0 1.0  
cmyn4\* 0.5 0.488 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 74.3 1.23 -41.51  
LAB\*LABa 74.3 1.2 -41.52  
LAB\*TCHa 75.0 41.54 271.66

relative CIELAB lab\*  
lab\*lab 0.75 0.014 -0.499  
lab\*tch 0.75 0.5 0.755  
lab\*nch 0.0 0.5 0.755

relative Natural Colour (NC)  
lab\*lrj 0.75 0.0 -0.499  
lab\*tce 0.75 0.5 0.75  
lab\*nce 0.0 0.5 g99b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.012 0.5 (1.0)  
cmyn3\* 1.0 0.988 0.5 (0.0)  
olvi4\* 0.5 0.512 1.0 0.5  
cmyn4\* 0.5 0.488 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 32.1 1.27 -41.5  
LAB\*LABa 32.1 1.21 -41.52  
LAB\*TCHa 25.01 41.55 271.67

relative CIELAB lab\*  
lab\*lab 0.25 0.015 -0.499  
lab\*tch 0.25 0.5 0.755  
lab\*nch 0.5 0.5 0.755

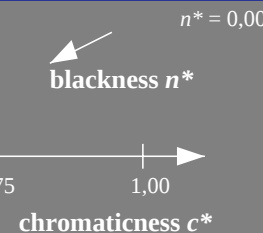
relative Natural Colour (NC)  
lab\*lrj 0.25 0.0 -0.499  
lab\*tce 0.25 0.5 0.75  
lab\*nce 0.5 0.5 b00r

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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 Reflective System ORS18

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

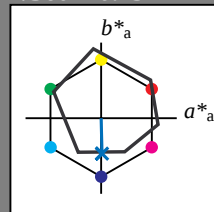
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 42 45 271

ol $v^*$ Ma: 0.0 0.49 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

$g^*_{H,rel} = 57$

$g^*_{C,rel} = 59$

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 -0.97 4.75  
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 -  
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 56.71 -0.23 2.14  
LAB\*LABa 56.71 0.0 0.0  
LAB\*TCHa 50.0 0.01 -

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

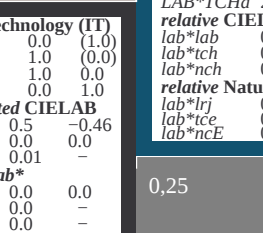
relative Natural Colour (NC)  
lab\*lrj 0.5 0.0 0.0  
lab\*tce 0.5 0.0 -  
lab\*nce 0.5 0.0 -

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 18.02 0.5 -0.46  
LAB\*LABa 18.02 0.0 0.0  
LAB\*TCHa 0.01 0.01 -

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  $c^*$

### ORS18; adapted (a) CIELAB data

|      | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|------|-------------|---------|---------|--------------|--------------|
| OMa  | 47.94       | 65.37   | 50.52   | 82.62        | 38           |
| YMa  | 90.37       | -10.27  | 91.77   | 92.34        | 96           |
| LMa  | 50.9        | -62.79  | 34.95   | 71.87        | 151          |
| CMa  | 58.62       | -30.35  | -45.01  | 54.3         | 236          |
| VMa  | 25.71       | 31.11   | -44.42  | 54.24        | 305          |
| MMa  | 48.13       | 75.27   | -8.35   | 75.73        | 354          |
| NMa  | 18.01       | 0.0     | 0.0     | 0.0          | 0            |
| WMa  | 95.41       | 0.0     | 0.0     | 0.0          | 0            |
| RCIE | 39.92       | 58.66   | 26.98   | 64.56        | 25           |
| JCIE | 81.26       | -2.17   | 67.76   | 67.79        | 92           |
| GCIE | 52.23       | -42.26  | 11.75   | 43.87        | 164          |
| BCIE | 30.57       | 1.15    | -46.84  | 46.87        | 271          |

relative Inform. Technology (IT)  
olvi3\* 0.5 0.744 1.0 (1.0)  
cmyn3\* 0.5 0.256 0.0 (0.0)  
olvi4\* 0.5 0.744 1.0 1.0  
cmyn4\* 0.5 0.256 0.0 0.0

standard and adapted CIELAB  
LAB\*LAB 68.59 0.08 -19.4  
LAB\*LABa 68.59 0.54 -22.35  
LAB\*TCHa 75.0 22.36 271.4

relative CIELAB lab\*  
lab\*lab 0.654 0.012 -0.499  
lab\*tch 0.75 0.5 0.754  
lab\*nch 0.0 0.5 0.754

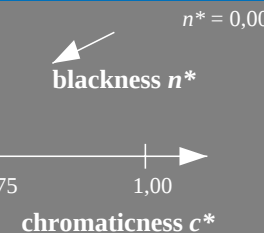
relative Natural Colour (NC)  
lab\*lrj 0.654 0.0 -0.499  
lab\*tce 0.75 0.5 0.75  
lab\*nce 0.0 0.5 g99b

relative Inform. Technology (IT)  
olvi3\* 0.0 0.244 0.5 (1.0)  
cmyn3\* 1.0 0.756 0.5 (0.0)  
olvi4\* 0.5 0.744 1.0 0.5  
cmyn4\* 0.5 0.256 0.0 0.5

standard and adapted CIELAB  
LAB\*LAB 29.9 0.83 -22.01  
LAB\*LABa 29.9 0.55 -22.35  
LAB\*TCHa 25.01 22.36 271.41

relative CIELAB lab\*  
lab\*lab 0.154 0.012 -0.499  
lab\*tch 0.25 0.5 0.754  
lab\*nch 0.5 0.5 0.754

relative Natural Colour (NC)  
lab\*lrj 0.154 0.0 -0.499  
lab\*tce 0.25 0.5 0.75  
lab\*nce 0.5 0.5 b00r



$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart UE17; Colorimetric systems NRS11 & ORS18

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

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

input:  $cmv0^* setcmvcolor$

output: no change compared to input