

**Input: Colorimetric Reflective System ORS18**

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

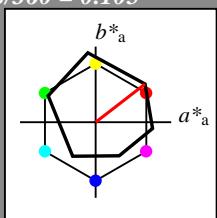
$lab^*tch$  and  $lab^*nch$

D65: hue O

LCH\*Ma: 48 83 38

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



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 -0.97 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)

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 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)

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 18.02 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**

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
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

%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

relative Inform. Technology (IT)

olv3\* 1.0 0.5 0.5 (1.0)  
 cmyn3\* 0.0 0.5 0.5 (0.0)

olv4\* 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 r19j

relative Inform. Technology (IT)

olv3\* 0.5 0.0 0.0 (1.0)  
 cmyn3\* 0.5 1.0 1.0 (0.0)

olv4\* 1.0 0.5 0.5 0.5  
 cmyn4\* 0.0 0.5 0.5 0.5

standard and adapted CIELAB

LAB\*LAB 47.95 65.29 52.06  
 LAB\*LABa 47.95 65.36 50.51  
 LAB\*TChA 50.0 82.6 37.7

relative CIELAB lab\*

lab\*lab 0.387 0.791 0.611

lab\*tch 0.5 1.0 0.105

lab\*nch 0.0 1.0 0.105

relative Natural Colour (NC)

lab\*lrj 0.387 0.954 0.299

lab\*tce 0.5 1.0 0.048

lab\*ncE 0.0 1.0 r19j

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 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 r19j

$n^* = 0,00$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

**Output: Colorimetric Reflective System NRS11**

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

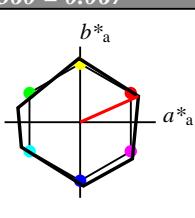
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 53 84 24

olv\*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)

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 -0.97 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)

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 0.5 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 b98r

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 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 b98r

$n^* = 1,0$

blackness  $n^*$

chromaticness  $c^*$

TE120-7, 3 step scales for constant CIELAB hue 38/360 = 0.105 (left)

BAM-test chart TE12; Colorimetric systems ORS18 & NRS11

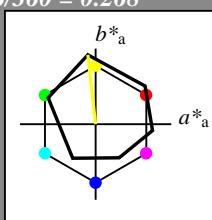
D65: 2 coordinate data of 3 step colour scales for 10 hues

3 step scales for constant CIELAB hue 24/360 = 0.067 (right)

input:  $olv^* setrgbcolor$

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

**Input: 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  $t^*$** 

**relative Inform. Technology (IT)**  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy4^*$  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  
 $LAB^*TCh_a$  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)**
 $lab^*lrij$  1.0 0.0 0.0

 $lab^*tce$  1.0 0.0 -

 $lab^*ncE$  0.0 0.0 -

**relative Inform. Technology (IT)**  
 $olv_i3^*$  0.5 0.5 0.5 (1.0)  
 $cmy3^*$  0.5 0.5 0.5 (0.0)

**standard and adapted CIELAB**  
 $LAB^*LAB$  56.71 -0.23 2.14  
 $LAB^*LABa$  56.71 0.0 0.0  
 $LAB^*TCh_a$  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)**
 $lab^*lrij$  0.5 0.0 0.0

 $lab^*tce$  0.5 0.0 -

 $lab^*ncE$  0.5 0.0 -

**relative Inform. Technology (IT)**  
 $olv_i3^*$  0.0 0.0 0.0 (1.0)  
 $cmy3^*$  1.0 1.0 1.0 (0.0)

**standard and adapted CIELAB**  
 $LAB^*LAB$  18.02 0.5 -0.46  
 $LAB^*LABa$  18.02 0.0 0.0  
 $LAB^*TCh_a$  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)**
 $lab^*lrij$  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

**%Gamut**
 $u^*_{rel} = 93$ 
**%Regularity**
 $g^*_{H,rel} = 57$ 
 $g^*_{C,rel} = 59$ 
**relative Inform. Technology (IT)**
 $olv_i3^*$  1.0 1.0 1.0 (1.0)

 $cmy3^*$  0.0 0.0 0.0 (0.0)

 $olv_i4^*$  1.0 1.0 1.0 1.0

 $cmy4^*$  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

 $LAB^*TCh_a$  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)**
 $lab^*lrij$  1.0 0.0 0.0

 $lab^*tce$  1.0 0.0 -

 $lab^*ncE$  0.0 0.0 -

**relative Inform. Technology (IT)**
 $olv_i3^*$  0.5 0.5 0.5 (1.0)

 $cmy3^*$  0.5 0.5 0.5 (0.0)

 $olv_i4^*$  1.0 1.0 1.0 0.5

 $cmy4^*$  0.0 0.0 0.0 0.5

**standard and adapted CIELAB**
 $LAB^*LAB$  92.88 -6.06 50.46

 $LAB^*LABa$  92.88 -5.13 45.87

 $LAB^*TCh_a$  75.0 46.16 96.39

**relative CIELAB lab\***
 $lab^*lab$  0.967 -0.048 0.497

 $lab^*tch$  0.75 0.5 0.268

 $lab^*nch$  0.0 0.5 0.268

**relative Natural Colour (NC)**
 $lab^*lrij$  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)**
 $olv_i3^*$  0.5 0.5 0.5 (1.0)

 $cmy3^*$  0.5 0.5 1.0 (0.0)

 $olv_i4^*$  1.0 1.0 0.5 0.5

 $cmy4^*$  0.0 0.0 0.5 0.5

**standard and adapted CIELAB**
 $LAB^*LAB$  56.71 -0.23 2.14

 $LAB^*LABa$  56.71 0.0 0.0

 $LAB^*TCh_a$  50.0 0.01 -

**relative CIELAB lab\***
 $lab^*lab$  0.935 -0.097 0.995

 $lab^*tch$  0.935 -0.097 0.995

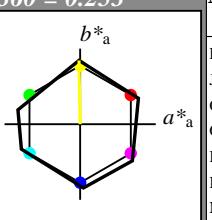
 $lab^*nch$  0.0 0.0 0.266

**relative Natural Colour (NC)**
 $lab^*lrij$  0.935 -0.097 0.995

 $lab^*tce$  0.935 -0.097 0.995

 $lab^*ncE$  0.0 0.0 j06g

 $n^* = 0.00$ 
 $n^* = 0.50$ 
 $n^* = 1.00$ 
**chromaticness  $c^*$** 
**Output: 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)**
 $olv_i3^*$  1.0 1.0 1.0 (1.0)

 $cmy3^*$  0.0 0.0 0.0 (0.0)

 $olv_i4^*$  1.0 1.0 1.0 1.0

 $cmy4^*$  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

 $LAB^*TCh_a$  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)**
 $lab^*lrij$  1.0 0.0 0.0

 $lab^*tce$  1.0 0.0 -

 $lab^*ncE$  0.0 0.0 -

**relative Inform. Technology (IT)**
 $olv_i3^*$  0.5 0.5 0.5 (1.0)

 $cmy3^*$  0.5 0.5 1.0 (0.0)

 $olv_i4^*$  1.0 1.0 0.5 0.5

 $cmy4^*$  0.0 0.0 0.5 0.5

**standard and adapted CIELAB**
 $LAB^*LAB$  74.3 -0.72 42.18

 $LAB^*LABa$  74.3 -0.75 42.18

 $LAB^*TCh_a$  75.0 42.19 91.03

**relative CIELAB lab\***
 $lab^*lab$  0.75 -0.008 0.5

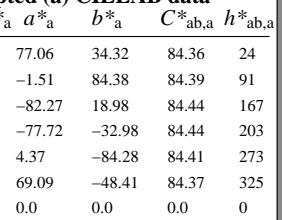
 $lab^*tch$  0.75 0.5 0.253

 $lab^*nch$  0.0 0.5 0.253

**relative Natural Colour (NC)**
 $lab^*lrij$  0.75 0.015 0.5

 $lab^*tce$  0.75 0.5 0.245

 $lab^*ncE$  0.0 0.5 r98j

 $n^* = 0.00$ 

**%Gamut**
 $u^*_{rel} = 119$ 
**%Regularity**
 $g^*_{H,rel} = 47$ 
 $g^*_{C,rel} = 100$ 
**relative Inform. Technology (IT)**
 $olv_i3^*$  1.0 1.0 1.0 (1.0)

 $cmy3^*$  0.0 0.0 0.0 (0.0)

 $olv_i4^*$  1.0 1.0 0.0 1.0

 $cmy4^*$  0.0 0.0 1.0 0.0

**standard and adapted CIELAB**
 $LAB^*LAB$  74.3 -0.72 42.18

 $LAB^*LABa$  74.3 -0.75 42.18

 $LAB^*TCh_a$  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)**
 $lab^*lrij$  0.75 0.015 0.5

 $lab^*tce$  0.75 0.5 0.245

 $lab^*ncE$  0.0 0.5 r98j

 $n^* = 0.00$ 
**BAM-test chart TE12; Colorimetric systems ORS18 & NRS11**
**D65: 2 coordinate data of 3 step colour scales for 10 hues**
**input:  $olv^* setrgbcolor$** 
**output:  $olv^* setrgbcolor / w^* setgray$** 
 $n^* = 1,0$ 
 $n^* = 1,0$ 
 $n^* = 1,0$ 
 $n^* = 0,50$ 
 $n^* = 0,50$ 
 $n^* = 0,50$ 
**chromaticness  $c^*$** 
 $n^* = 0,25$ 
 $n^* = 0,25$ 
 $n^* = 0,25$ 
**blackness  $n^*$** 
 $n^* = 0,0$ 
 $n^* = 0,0$



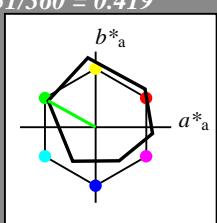
## Input: Colorimetric Reflective System ORS18

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  $t^*$ relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0) $cmyn3^*$  0.0 0.0 0.0 (0.0) $olv_i4^*$  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 $LAB^*TCh_a$  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)

 $lab^*lrij$  1.0 0.0 0.0 $lab^*tce$  1.0 0.0 - $lab^*ncE$  0.0 0.0 -relative Inform. Technology (IT)  
 $olv_i3^*$  0.5 1.0 0.5 (1.0) $cmyn3^*$  0.5 0.0 0.5 (0.0) $olv_i4^*$  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 $LAB^*TCh_a$  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)

 $lab^*lrij$  0.712 -0.478 0.144 $lab^*tce$  0.75 0.5 0.453 $lab^*ncE$  0.0 0.5 j81grelative Inform. Technology (IT)  
 $olv_i3^*$  0.0 0.5 0.0 (1.0) $cmyn3^*$  1.0 0.5 1.0 (0.0) $olv_i4^*$  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 $LAB^*TCh_a$  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)

 $lab^*lrij$  0.213 -0.478 0.144 $lab^*tce$  0.25 0.5 0.453 $lab^*ncE$  0.5 0.5 j81g $n^* = 1,0$  $n^* = 0,50$  $n^* = 0,00$  $blackness n^*$  $chromaticness c^*$ 

TE120-7, 3 step scales for constant CIELAB hue 151/360 = 0.419 (left)

BAM-test chart TE12; Colorimetric systems ORS18 & NRS11  
D65: 2 coordinate data of 3 step colour scales for 10 hues

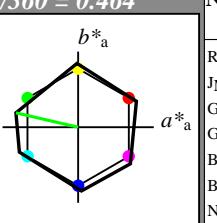
## Output: Colorimetric Reflective System NRS11

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

 $u^*_{rel} = 93$ 

%Regularity

 $g^*_{H,rel} = 57$  $g^*_{C,rel} = 59$ relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0) $cmyn3^*$  0.0 0.0 0.0 (0.0) $olv_i4^*$  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 -0.01 $LAB^*LABa$  95.41 0.0 0.0 $LAB^*TCh_a$  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)

 $lab^*lrij$  1.0 0.0 0.0 $lab^*tce$  1.0 0.0 - $lab^*ncE$  0.0 0.0 -relative Inform. Technology (IT)  
 $olv_i3^*$  0.5 1.0 0.5 (1.0) $cmyn3^*$  0.5 0.0 0.5 (0.0) $olv_i4^*$  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 $LAB^*TCh_a$  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)

 $lab^*lrij$  0.75 -0.498 -0.033 $lab^*tce$  0.75 0.5 0.511 $lab^*ncE$  0.0 0.5 g04brelative Inform. Technology (IT)  
 $olv_i3^*$  0.0 0.5 0.0 (1.0) $cmyn3^*$  1.0 0.5 1.0 (0.0) $olv_i4^*$  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 $LAB^*TCh_a$  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)

 $lab^*lrij$  0.25 -0.498 -0.033 $lab^*tce$  0.25 0.5 0.511 $lab^*ncE$  0.5 0.5 g04b $n^* = 1,0$  $n^* = 0,50$  $n^* = 0,00$ blackness  $n^*$ chromaticness  $c^*$ 

3 step scales for constant CIELAB hue 167/360 = 0.464 (right)

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

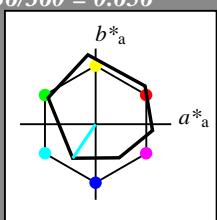
## Input: Colorimetric Reflective System ORS18

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  $t^*$ 

relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy4^*$  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)  
 $lab^*lrij$  1.0 0.0 0.0  
 $lab^*tce$  1.0 0.0 -  
 $lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)  
 $olv_i3^*$  0.5 0.5 0.5 (1.0)  
 $cmy3^*$  0.5 0.5 0.5 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 0.5  
 $cmy4^*$  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)  
 $lab^*lrij$  0.5 0.0 0.0  
 $lab^*tce$  0.5 0.0 -  
 $lab^*nCE$  0.5 0.0 -

relative Inform. Technology (IT)  
 $olv_i3^*$  0.0 0.0 0.0 (1.0)  
 $cmy3^*$  1.0 1.0 1.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 0.0  
 $cmy4^*$  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)  
 $lab^*lrij$  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

	$L^*$	$a^*$	$b^*$	$C^*_{ab,a}$	$h^*_{ab,a}$
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

%Gamut

 $u^*_{rel} = 93$ 

%Regularity

 $g^*_{H,rel} = 57$  $g^*_{C,rel} = 59$ 

relative Inform. Technology (IT)

 $olv_i3^*$  1.0 1.0 1.0 (1.0) $cmy3^*$  0.0 0.0 0.0 (0.0) $olv_i4^*$  1.0 1.0 1.0 1.0 $cmy4^*$  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)

 $lab^*lrij$  1.0 0.0 0.0 $lab^*tce$  1.0 0.0 - $lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)

 $olv_i3^*$  0.5 0.5 0.5 (1.0) $cmy3^*$  0.5 0.5 0.5 (0.0) $olv_i4^*$  1.0 1.0 1.0 0.5 $cmy4^*$  0.0 0.0 0.0 0.5

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)

 $lab^*lrij$  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)

 $olv_i3^*$  0.0 0.5 0.5 (1.0) $cmy3^*$  1.0 0.5 0.5 (0.0) $olv_i4^*$  0.5 1.0 1.0 0.5 $cmy4^*$  0.5 0.0 0.0 0.5

standard and adapted CIELAB

 $LAB^*LAB$  58.62 -30.62 -42.73 $LAB^*LABa$  58.62 -30.34 -45.01 $LAB^*TChA$  50.0 54.29 236.01

relative CIELAB lab\*

 $lab^*lab$  0.525 -0.558 -0.828 $lab^*tch$  0.5 1.0 0.656 $lab^*nch$  0.0 1.0 0.656

relative Natural Colour (NC)

 $lab^*lrij$  0.525 -0.496 -0.867 $lab^*tce$  0.5 1.0 0.667 $lab^*nCE$  0.0 1.0 g66b

relative Inform. Technology (IT)

 $olv_i3^*$  0.0 0.0 0.0 (1.0) $cmy3^*$  1.0 1.0 1.0 (0.0) $olv_i4^*$  1.0 1.0 1.0 0.0 $cmy4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

 $LAB^*LAB$  58.62 -30.62 -42.73 $LAB^*LABa$  58.62 -30.34 -45.01 $LAB^*TChA$  50.0 54.29 236.01

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)

 $lab^*lrij$  0.262 -0.247 -0.433 $lab^*tce$  0.25 0.5 0.667 $lab^*nCE$  0.5 0.5 g66b

relative Inform. Technology (IT)

 $olv_i3^*$  0.0 0.0 0.0 (1.0) $cmy3^*$  1.0 1.0 1.0 (0.0) $olv_i4^*$  1.0 1.0 1.0 0.0 $cmy4^*$  0.0 0.0 0.0 1.0

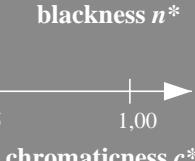
standard and adapted CIELAB

 $LAB^*LAB$  11.01 0.07 0.01 $LAB^*LABa$  11.01 0.0 0.0 $LAB^*TChA$  0.01 0.01 -

relative CIELAB lab\*

 $lab^*lab$  0.25 -0.459 -0.194 $lab^*tch$  0.25 0.5 0.564 $lab^*nch$  0.5 0.5 0.564

relative Natural Colour (NC)

 $lab^*lrij$  0.25 -0.416 -0.275 $lab^*tce$  0.25 0.5 0.593 $lab^*nCE$  0.5 0.5 g37b $n^* = 0,00$ 

TE120-7, 3 step scales for constant CIELAB hue 236/360 = 0.656 (left)

BAM-test chart TE12; Colorimetric systems ORS18 &amp; NRS11

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

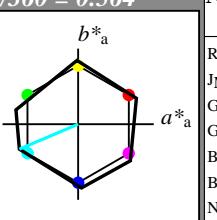
## Output: Colorimetric Reflective System NRS11

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)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy4^*$  0.0 0.0 0.0 0.0

standard and adapted CIELAB

 $LAB^*LAB$  53.2 77.06 34.32 84.36 24 $LAB^*LABa$  53.2 -1.51 84.38 84.39 91 $LAB^*TChA$  53.2 -82.27 18.98 84.44 167 $LAB^*TChA$  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

## NRS11; adapted (a) CIELAB data

	$L^*$	$a^*$	$b^*$	$C^*_{ab,a}$	$h^*_{ab,a}$
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)  
 $olv_i3^*$  0.5 1.0 1.0 (1.0)  
 $cmy3^*$  0.5 0.0 0.0 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 1.0  
 $cmy4^*$  0.5 0.0 0.0 0.0

standard and adapted CIELAB

 $LAB^*LAB$  74.31 -38.82 -16.48 $LAB^*LABa$  74.31 -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)

 $lab^*lrij$  0.75 -0.416 -0.275 $lab^*tce$  0.75 0.5 0.593 $lab^*nCE$  0.5 0.5 g37b

$n^* = 0,00$   
 blackness <

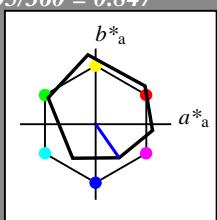
## Input: Colorimetric Reflective System ORS18

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  $t^*$ 

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 0.0standard 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)

 $lab^*lrij$  1.0 0.0 0.0  
 $lab^*tce$  1.0 0.0 -  
 $lab^*ncE$  0.0 0.0 -

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 0.5standard 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)

 $lab^*lrij$  0.5 0.0 0.0  
 $lab^*tce$  0.5 0.0 -  
 $lab^*ncE$  0.5 0.0 -

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 1.0standard 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)

 $lab^*lrij$  0.0 0.0 0.0  
 $lab^*tce$  0.0 0.0 -  
 $lab^*ncE$  1.0 0.0 - $n^* = 1,0$ 

TE120-7, 3 step scales for constant CIELAB hue 305/360 = 0.847 (left)

BAM-test chart TE12; Colorimetric systems ORS18 &amp; NRS11

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

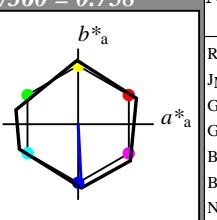
## Output: Colorimetric Reflective System NRS11

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  $t^*$ 

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 0.0standard 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)

 $lab^*lrij$  1.0 0.0 0.0  
 $lab^*tce$  1.0 0.0 -  
 $lab^*ncE$  0.0 0.0 -

relative Inform. Technology (IT)

olv3\* 0.5 0.5 1.0 (1.0)  
cmyn3\* 0.5 0.5 0.0 (0.0)olv4\* 0.5 0.5 1.0 1.0  
cmyn4\* 0.5 0.5 0.0 0.0standard 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)

 $lab^*lrij$  0.75 0.009 -0.499  
 $lab^*tce$  0.75 0.5 0.753  
 $lab^*ncE$  0.0 0.5 0.601r

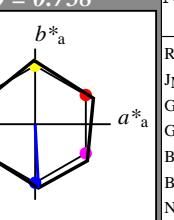
relative Inform. Technology (IT)

olv3\* 0.0 0.0 0.5 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)olv4\* 0.5 0.5 1.0 0.5  
cmyn4\* 0.5 0.5 0.0 0.5standard 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\*

 $lab^*lab$  0.1 0.573 -0.818  
 $lab^*tch$  0.5 1.0 0.847  
 $lab^*nch$  0.0 1.0 0.847

relative Natural Colour (NC)

 $lab^*lrij$  0.1 0.449 -0.892  
 $lab^*tce$  0.5 1.0 0.824  
 $lab^*ncE$  0.0 1.0 0.829r $n^* = 0,00$ blackness  $n^*$  $chromaticness c^*$ 

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 0.0standard and adapted CIELAB  
 $LAB^*LAB$  53.2 0.0 -0.01  
 $LAB^*LABa$  53.2 0.0 0.0  
 $LAB^*TChA$  50.0 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)

 $lab^*lrij$  1.0 0.0 0.0  
 $lab^*tce$  1.0 0.0 -  
 $lab^*ncE$  0.0 0.0 -

relative Inform. Technology (IT)

olv3\* 0.5 0.5 1.0 (1.0)  
cmyn3\* 0.5 0.5 0.0 (0.0)olv4\* 0.5 0.5 1.0 1.0  
cmyn4\* 0.5 0.5 0.0 0.0standard 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\*

 $lab^*lab$  0.75 0.052 -0.997  
 $lab^*tch$  0.75 1.0 0.758  
 $lab^*nch$  0.0 1.0 0.758

relative Natural Colour (NC)

 $lab^*lrij$  0.5 0.018 -0.999  
 $lab^*tce$  0.5 1.0 0.753  
 $lab^*ncE$  0.0 1.0 0.601r

relative Inform. Technology (IT)

olv3\* 0.0 0.0 0.5 (1.0)  
cmyn3\* 1.0 1.0 1.0 (0.0)olv4\* 0.5 0.5 1.0 0.5  
cmyn4\* 0.5 0.5 0.0 0.5standard 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)

 $lab^*lrij$  0.25 0.009 -0.499  
 $lab^*tce$  0.25 0.5 0.753  
 $lab^*ncE$  0.5 0.5 0.601r $n^* = 0,00$ blackness  $n^*$  $chromaticness c^*$ 

$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C_{ab,a}^*$	$h_{ab,a}^*$
RMa	53.2	77.06	34.32	84.36
JMa	53.2	-1.51	84.38	84.39
GMa	53.2	-82.27	18.98	84.44
G50BMa	53.2	-77.72	-32.98	84.44
BMa	53.2	4.37	-84.28	84.41
B50RMa	53.2	69.09	-48.41	84.37
NMa	10.99	0.0	0.0	0
WMa	95.41	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01
JCIE	81.26	-2.9	71.56	71.62
GCIE	52.23	-42.45	13.59	44.59
BCIE	30.57	1.35	-46.48	46.51

$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C_{ab,a}^*$	$h_{ab,a}^*$
olv3*	0.0	0.0	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				
$LAB^*LAB$	53.2	0.0	-0.01	
$LAB^*LABa$	53.2	0.0	0.0	
$LAB^*TChA$	50.0	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)				
$lab^*lrij$	1.0	0.0	0.0	
$lab^*tce$	1.0	0.0	-	
$lab^*ncE$	0.0	0.0	-	
relative Inform. Technology (IT)				
olv3*	0.5	0.5	1.0	(1.0)
cmyn3*	0.5	0.5	0.0	(0.0)
olv4*	0.5	0.5	1.0	1.0
cmyn4*	0.5	0.5	0.0	0.0
standard and adapted CIELAB				
$LAB^*LAB$	53.2	4.42	-84.26	
$LAB^*LABa$	53.2	4.37	-84.27	
$LAB^*TChA$	50.0	0.0	84.39	272.97
relative CIELAB lab*				
$lab^*lab$	0.5	0.052	-0.997	
$lab^*tch$	0.5	1.0	0.758	
$lab^*nch$	0.0	1.0	0.758	
relative Natural Colour (NC)				
$lab^*lrij$	0.5	0.018	-0.999	
$lab^*tce$	0.5	1.0	0.753	
$lab^*ncE$	0.0	1.0	0.601r	

3 step scales for constant CIELAB hue 273/360 = 0.758 (right)

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

**Input: Colorimetric Reflective System ORS18**

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

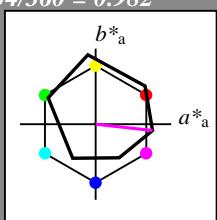
$lab^*tch$  and  $lab^*nch$

D65: hue M

LCH\*Ma: 48 76 354

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



relative Inform. Technology (IT)

olv13\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)

olv14\* 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)

olv13\* 0.5 0.5 0.5 (1.0)

cmyn3\* 0.5 0.5 0.5 (0.0)

olv14\* 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)

olv13\* 0.5 0.0 0.0 (1.0)

cmyn3\* 1.0 1.0 1.0 (0.0)

olv14\* 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)

olv13\* 1.0 0.5 1.0 (1.0)  
cmyn3\* 0.0 0.5 0.0 (0.0)

olv14\* 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)

olv13\* 1.0 0.0 1.0 (1.0)  
cmyn3\* 0.0 1.0 0.0 (0.0)

olv14\* 1.0 0.0 1.0 0.5

cmyn4\* 0.0 1.0 0.0 0.0

standard and adapted CIELAB

LAB\*LAB 48.14 75.18 -6.78

LAB\*LABa 48.14 75.25 -8.35

LAB\*TChA 50.0 75.71 353.66

relative CIELAB lab\*

lab\*lab 0.389 0.994 -0.109

lab\*tch 0.5 1.0 0.982

lab\*nch 0.0 1.0 0.982

relative Natural Colour (NC)

lab\*lrj 0.389 0.909 -0.416

lab\*tce 0.5 1.0 0.932

lab\*ncE 0.0 1.0 b72r

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

0,25 0,50  $n^* = 0,50$  0,75 1,00

$n^* = 1,00$

**Output: Colorimetric Reflective System NRS11**

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

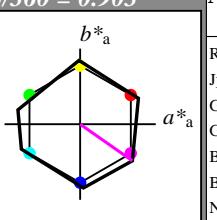
$lab^*tch$  and  $lab^*nch$

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)

olv13\* 1.0 1.0 1.0 (1.0)  
cmyn3\* 0.0 0.0 0.0 (0.0)

olv14\* 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 -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)

olv13\* 0.5 0.5 1.0 (1.0)

cmyn3\* 0.0 0.5 0.0 (0.0)

olv14\* 1.0 0.0 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)

olv13\* 0.5 0.0 0.5 (1.0)

cmyn3\* 0.5 1.0 0.5 (0.0)

olv14\* 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

$n^* = 0,00$

%Gamut

$u^*_{rel} = 119$

%Regularity

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

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

relative Inform. Technology (IT)

olv13\* 1.0 1.0 1.0 (1.0)

cmyn3\* 0.0 0.0 0.0 (0.0)

olv14\* 1.0 0.0 1.0 1.0

cmyn4\* 0.0 0.0 0.0 0.0

standard and adapted CIELAB

LAB\*LAB 95.41 -0.97 -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)

olv13\* 0.5 0.5 1.0 (1.0)

cmyn3\* 0.0 0.5 0.0 (0.0)

olv14\* 1.0 0.5 1.0 0.5

cmyn4\* 0.0 0.5 0.0 0.5

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

$n^* = 0,00$

TE120-7, 3 step scales for constant CIELAB hue 354/360 = 0.982 (left)

BAM



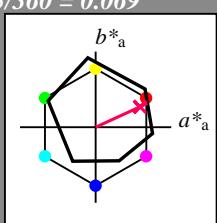
**Input: Colorimetric Reflective System ORS18**  
 for hue  $h^* = lab^*h = 25/360 = 0.069$   
 $lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 48 75 25

olv\*Ma: 1.0 0.0 0.32

triangle lightness  $t^*$



relative Inform. Technology (IT)  
 $olv^3*$  1.0 1.0 1.0 (1.0)  
 $cmy^3*$  0.0 0.0 0.0 (0.0)  
 $olv^4*$  1.0 1.0 1.0 1.0  
 $cmy^4*$  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)  
 $lab^*lrij$  1.0 0.0 0.0  
 $lab^*tce$  1.0 0.0 -  
 $lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)  
 $olv^3*$  0.5 0.5 0.5 (1.0)  
 $cmy^3*$  0.5 0.5 0.5 (0.0)  
 $olv^4*$  1.0 1.0 1.0 0.5  
 $cmy^4*$  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)  
 $lab^*lrij$  0.5 0.0 0.0  
 $lab^*tce$  0.5 0.0 -  
 $lab^*nCE$  0.5 0.0 -

relative Inform. Technology (IT)  
 $olv^3*$  0.0 0.0 0.0 (1.0)  
 $cmy^3*$  1.0 1.0 1.0 (0.0)  
 $olv^4*$  1.0 1.0 1.0 0.0  
 $cmy^4*$  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)  
 $lab^*lrij$  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**  
 $L^*=L^*_a \quad a^*_a \quad b^*_a \quad C^*_{ab,a} \quad h^*_{ab,a}$

	O Ma	Y Ma	L Ma	C Ma	V Ma	M Ma	N Ma	W Ma	R CIE	J CIE	G CIE	B CIE
$L^*$	47.94	65.37	50.52	82.62	38							
$a^*$		-10.27	91.77	92.34	96							
$b^*$			-62.79	34.95	151							
$C^*_{ab,a}$				-45.01	54.3	236						
$h^*_{ab,a}$					54.24	305						
$L^*=L^*_a$												
$a^*_a$												
$b^*_a$												

%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

relative Inform. Technology (IT)

$olv^3*$  1.0 0.5 0.661 (1.0)

$cmy^3*$  0.0 0.5 0.339 (0.0)

$olv^4*$  1.0 0.5 0.661 1.0

$cmy^4*$  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)

$lab^*lrij$  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)

$olv^3*$  0.0 1.0 0.322 (1.0)

$cmy^3*$  0.0 1.0 0.678 (0.0)

$olv^4*$  1.0 0.0 0.323 1.0

$cmy^4*$  0.0 1.0 0.677 0.0

standard and adapted CIELAB

$LAB^*LAB$  48.01 68.48 33.09

$LAB^*LABa$  48.01 68.55 31.53

$LAB^*TChA$  50.0 75.45 24.7

relative CIELAB lab\*

$lab^*lab$  0.388 0.908 0.418

$lab^*tch$  0.5 1.0 0.069

$lab^*nch$  0.0 1.0 0.069

relative Natural Colour (NC)

$lab^*lrij$  0.388 1.0 0.0

$lab^*tce$  0.5 1.0 0.0

$lab^*nCE$  0.0 1.0 r00j

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

**Output: Colorimetric Reflective System NRS11**

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

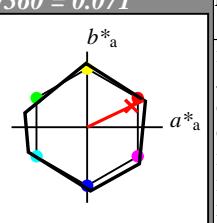
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 53 83 25

olv\*Ma: 1.0 0.0 0.32

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 119$

%Regularity

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

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

relative Inform. Technology (IT)

$olv^3*$  1.0 1.0 1.0 (1.0)

$cmy^3*$  0.0 0.0 0.0 (0.0)

$olv^4*$  1.0 1.0 1.0 1.0

$cmy^4*$  0.0 0.0 0.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  95.41 -0.97 -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)

$lab^*lrij$  1.0 0.0 0.0

$lab^*tce$  1.0 0.0 -

$lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)

$olv^3*$  0.5 0.5 0.5 (1.0)

$cmy^3*$  0.5 0.5 0.5 (0.0)

$olv^4*$  1.0 1.0 1.0 0.5

$cmy^4*$  0.0 0.0 0.0 0.5

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)

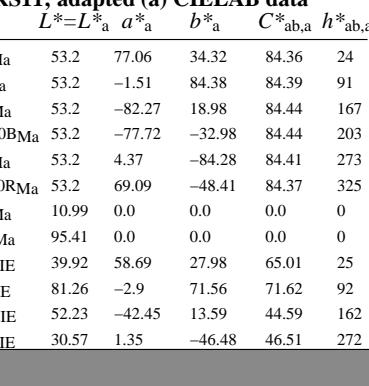
$lab^*lrij$  0.75 0.5 0.0

$lab^*tce$  0.75 0.5 0.0

$lab^*nCE$  0.0 0.5 r00j

$n^* = 0,00$

$n^* = 1,0$



%Gamut

$u^*_{rel} = 119$

%Regularity

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

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

relative Inform. Technology (IT)

$olv^3*$  1.0 0.514 0.5 (1.0)

$cmy^3*$  0.0 0.486 0.5 (0.0)

$olv^4*$  1.0 0.514 0.5 1.0

$cmy^4*$  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)

$lab^*lrij$  0.75 0.5 0.0

$lab^*tce$  0.75 0.5 0.0

$lab^*nCE$  0.0 0.5 b99r

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

blackness  $n^*$

chromaticness  $c^*$

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

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

input:  $olv^* setrgbcolor$

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

TE120-7, 3 step scales for constant CIELAB hue 25/360 = 0.069 (left)

BAM-test chart TE12; Colorimetric systems ORS18 & NRS11

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

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

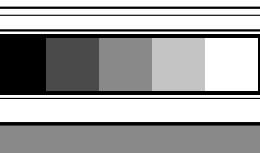
$n^* = 0,00$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

&lt;p

6  
8See for similar files: <http://www.ps.bam.de/TE12/>Technical information: <http://www.ps.bam.de>

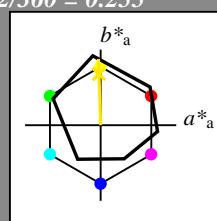
Version 2.1, io=1/1, CIEXYZ

**Input: 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  $t^*$ 

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 0.0standard 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)

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 0.5standard 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)

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 1.0standard 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)

olv3\* 1.0 0.951 0.5 (1.0)

cmyn3\* 0.0 0.049 0.5 (0.0)

olv4\* 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)

olv3\* 1.0 0.901 0.0 (1.0)

cmyn3\* 0.0 0.099 1.0 (0.0)

olv4\* 1.0 0.902 0.0 1.0

cmyn4\* 0.0 0.098 1.0 0.0

standard and adapted CIELAB

 $LAB^*LAB$  86.19 -3.62 91.83 $LAB^*LABa$  86.19 -2.82 87.69 $LAB^*TChA$  50.0 87.73 91.85

relative CIELAB lab\*

lab\*lab 0.881 -0.031 0.999

lab\*tch 0.5 1.0 0.255

lab\*nch 0.0 1.0 0.255

relative Natural Colour (NC)

lab\*lrj 0.881 0.0 1.0

lab\*tce 0.5 1.0 0.25

lab\*ncE 0.0 1.0 j00g

relative Inform. Technology (IT)

olv3\* 0.5 0.451 0.0 (1.0)

cmyn3\* 0.5 0.549 1.0 (0.0)

olv4\* 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

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

 $LAB^*LAB$  11.01 0.07 0.01 $LAB^*LABa$  11.01 0.01 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 -

relative Inform. Technology (IT)

olv3\* 1.0 0.977 0.0 (1.0)

cmyn3\* 0.023 0.0 1.0 (0.0)

olv4\* 0.977 1.0 0.0 1.0

cmyn4\* 0.023 0.0 1.0 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)

olv3\* 0.489 0.5 0.0 (1.0)

cmyn3\* 0.511 0.5 1.0 0.0

olv4\* 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)

olv3\* 0.489 0.5 0.0 (1.0)

cmyn3\* 0.511 0.5 1.0 0.0

olv4\* 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 1.0 0.0 -

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

 $LAB^*LAB$  11.01 0.07 0.01 $LAB^*LABa$  11.01 0.01 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 -

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

 $LAB^*LAB$  11.01 0.07 0.01 $LAB^*LABa$  11.01 0.01 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 -

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

 $LAB^*LAB$  11.01 0.07 0.01 $LAB^*LABa$  11.01 0.01 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)

**Input: Colorimetric Reflective System ORS18**

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

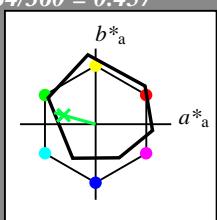
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 53 57 164

olv\*Ma: 0.0 1.0 0.25

triangle lightness  $t^*$



relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy4^*$  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  
 $LAB^*TCh_a$  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)

$lab^*lrij$  1.0 0.0 0.0

$lab^*ice$  1.0 0.0 -

$lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)

$olv_i3^*$  0.5 1.0 0.623 (1.0)

$cmy3^*$  0.5 0.0 0.377 (0.0)

$olv_i4^*$  0.5 1.0 0.623 1.0

$cmy4^*$  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

$LAB^*TCh_a$  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)

$lab^*lrij$  0.725 -0.499 0.0

$lab^*ice$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 g00b

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.5 0.123 (1.0)

$cmy3^*$  1.0 0.5 0.877 (0.0)

$olv_i4^*$  0.5 1.0 0.623 0.5

$cmy4^*$  0.5 0.0 0.377 0.5

standard and adapted CIELAB

$LAB^*LAB$  18.02 0.5 -0.46

$LAB^*LABa$  18.02 0.0 0.0

$LAB^*TCh_a$  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)

$lab^*lrij$  0.0 0.0 0.0

$lab^*ice$  0.0 0.0 -

$lab^*nCE$  1.0 0.0 -

$n^* = 1.0$

**ORS18; adapted (a) CIELAB data**

$L^*=L^*_a$   $a^*_a$   $b^*_a$   $C^*_{ab,a}$   $h^*_{ab,a}$

	O Ma	Y Ma	L Ma	C Ma	V Ma	M Ma	N Ma	W Ma	R CIE	J CIE	G CIE	B CIE
$L^*$	47.94	65.37	50.52	82.62	38							
$a^*$		-10.27	91.77	92.34	96							
$b^*$			-62.79	34.95	151							
$C^*_{ab,a}$				-45.01	54.3	236						
$h^*_{ab,a}$					54.24	305						

relative Inform. Technology (IT)

$olv_i3^*$  1.0 1.0 1.0 (1.0)

$cmy3^*$  0.0 0.0 0.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 1.0

$cmy4^*$  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

$LAB^*TCh_a$  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)

$lab^*lrij$  1.0 0.0 0.0

$lab^*ice$  1.0 0.0 -

$lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)

$olv_i3^*$  0.5 1.0 0.623 (1.0)

$cmy3^*$  0.5 0.0 0.377 (0.0)

$olv_i4^*$  0.0 1.0 0.623 1.0

$cmy4^*$  0.0 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

$LAB^*TCh_a$  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)

$lab^*lrij$  0.725 -0.499 0.0

$lab^*ice$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 g00b

relative Inform. Technology (IT)

$olv_i3^*$  0.5 0.5 0.123 (1.0)

$cmy3^*$  1.0 0.5 0.877 (0.0)

$olv_i4^*$  0.5 1.0 0.623 0.5

$cmy4^*$  0.5 0.0 0.377 0.5

standard and adapted CIELAB

$LAB^*LAB$  56.71 -0.23 2.14

$LAB^*LABa$  56.71 0.0 0.0

$LAB^*TCh_a$  50.0 0.01 -

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)

$lab^*lrij$  0.725 -0.499 0.0

$lab^*ice$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 g00b

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  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

$LAB^*TCh_a$  0.01 0.01 -

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)

$lab^*lrij$  0.225 -0.499 0.0

$lab^*ice$  0.25 0.5 0.5

$lab^*nCE$  0.5 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  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

$LAB^*TCh_a$  0.01 0.01 -

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)

$lab^*lrij$  0.225 -0.499 0.0

$lab^*ice$  0.25 0.5 0.5

$lab^*nCE$  0.5 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  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

$LAB^*TCh_a$  0.01 0.01 -

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)

$lab^*lrij$  0.225 -0.499 0.0

$lab^*ice$  0.25 0.5 0.5

$lab^*nCE$  0.5 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  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

$LAB^*TCh_a$  0.01 0.01 -

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)

$lab^*lrij$  0.225 -0.499 0.0

$lab^*ice$  0.25 0.5 0.5

$lab^*nCE$  0.5 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  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

$LAB^*TCh_a$  0.01 0.01 -

relative CIELAB lab\*

$lab^*lab$  0.225 -0.481 0.134

$lab^*tch$  0.25 0.5 0.457

