

### Input: Colorimetric Reflective System ORS18

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

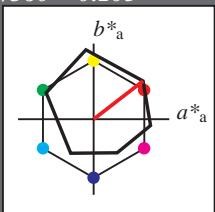
$lab^*tch$  and  $lab^*nch$

D65: hue O

LCH\*Ma: 48 83 38

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



relative Inform. Technology (IT)

$olvi3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)

$olvi4^*$  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)

$olvi3^*$  1.0 0.5 0.5 (1.0)

$cmy3^*$  0.0 0.5 0.5 (0.0)

$olvi4^*$  1.0 0.5 0.5 1.0

$cmy4^*$  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)

$lab^*lrij$  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)

$olvi3^*$  0.5 0.5 0.5 (1.0)

$cmy3^*$  0.5 1.0 1.0 (0.0)

$olvi4^*$  1.0 0.5 0.5 0.5

$cmy4^*$  0.0 0.5 0.5 0.5

standard and adapted CIELAB

$LAB^*LAB$  56.71 -0.23 2.14

$LAB^*LABa$  56.71 0.0 0.0

$LAB^*TChA$  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)

$olvi3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  1.0 1.0 1.0 (0.0)

$olvi4^*$  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 -

$n^* = 1,0$

$n^* = 0,00$

$n^* = 0,50$        $n^* = 0,50$        $n^* = 1,00$   
chromaticness  $c^*$

### Output: Colorimetric Reflective System MRS18

for hue  $h^* = lab^*h = 30/360 = 0.083$

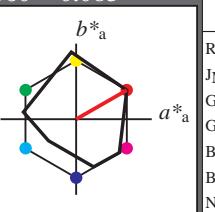
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 50 77 30

olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



relative Inform. Technology (IT)

$olvi3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)

$olvi4^*$  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)

$olvi3^*$  1.0 0.5 0.5 (1.0)

$cmy3^*$  0.0 0.5 0.5 (0.0)

$olvi4^*$  1.0 0.5 0.5 1.0

$cmy4^*$  0.0 0.5 0.5 0.0

standard and adapted CIELAB

$LAB^*LAB$  72.52 32.93 22.4

$LAB^*LABa$  72.52 33.47 19.18

$LAB^*TChA$  75.0 38.58 29.82

relative CIELAB lab\*

$lab^*lab$  0.704 0.434 0.249

$lab^*tch$  0.75 0.5 0.083

$lab^*nch$  0.0 0.5 0.083

relative Natural Colour (NC)

$lab^*lrij$  0.704 0.496 0.06

$lab^*tce$  0.75 0.5 0.019

$lab^*nCE$  0.0 0.5 r07j

relative Inform. Technology (IT)

$olvi3^*$  0.0 0.0 0.0 (1.0)

$cmy3^*$  0.5 1.0 1.0 (0.0)

$olvi4^*$  1.0 1.0 1.0 0.0

$cmy4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

$LAB^*LAB$  33.82 33.67 19.79

$LAB^*LABa$  33.82 33.47 19.18

$LAB^*TChA$  25.01 38.58 29.82

relative CIELAB lab\*

$lab^*lab$  0.204 0.434 0.249

$lab^*tch$  0.25 0.5 0.083

$lab^*nch$  0.5 0.5 0.083

relative Natural Colour (NC)

$lab^*lrij$  0.204 0.496 0.06

$lab^*tce$  0.25 0.5 0.019

$lab^*nCE$  0.5 0.5 r07j

$n^* = 0,00$

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
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

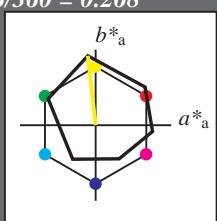
	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olvi3*	1.0	0.0	0.0	(1.0)	
cmy3*	0.0	0.0	0.0	(0.0)	
olvi4*	1.0	1.0	1.0	1.0	
cmy4*	0.0	0.0	0.0	0.0	
standard and adapted CIELAB					
$LAB^*LAB$	95.41	-0.97	4.75		
$LAB^*LABa$	95.41	0.0	0.0		
$LAB^*TChA$	99.99	0.01	-		
relative CIELAB lab*					
$lab^*lab$	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)					
$olvi3^*$	1.0	0.5	0.5	(1.0)	
$cmy3^*$	0.0	0.5	0.5	(0.0)	
$olvi4^*$	1.0	1.0	1.0	0.5	
$cmy4^*$	0.0	0.5	0.5	0.0	
standard and adapted CIELAB					
$LAB^*LAB$	72.52	32.93	22.4		
$LAB^*LABa$	72.52	33.47	19.18		
$LAB^*TChA$	75.0	38.58	29.82		
relative CIELAB lab*					
$lab^*lab$	0.704	0.434	0.249		
$lab^*tch$	0.75	0.5	0.083		
$lab^*nch$	0.0	0.5	0.083		
relative Natural Colour (NC)					
$lab^*lrij$	0.704	0.496	0.06		
$lab^*tce$	0.75	0.5	0.019		
$lab^*nCE$	0.0	0.5	r07j		

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olvi3*	1.0	0.0	0.0	(1.0)	
cmy3*	0.0	1.0	1.0	(0.0)	
olvi4*	1.0	0.0	0.0	1.0	
cmy4*	0.0	1.0	1.0	0.5	
standard and adapted CIELAB					
$LAB^*LAB$	49.63	66.84	40.03	</	

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  
 oly\*Ma: 1.0 1.0 0.0  
 triangle lightness  $t^*$



relative Inform. Technology (IT)

$olvi3^*$  1.0 1.0 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)  
 $olvi4^*$  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  
 $lab^*ice$  1.0 0.0 -

$lab^*nCE$  0.0 0.0 -

relative Inform. Technology (IT)

$olvi3^*$  0.5 0.5 0.5 (1.0)  
 $cmy3^*$  0.5 0.5 0.5 (0.0)

$olvi4^*$  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  
 $lab^*ice$  0.5 0.0 -

$lab^*nCE$  0.5 0.0 -

relative Inform. Technology (IT)

$olvi3^*$  0.0 0.0 0.0 (1.0)  
 $cmy3^*$  1.0 1.0 1.0 (0.0)

$olvi4^*$  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  
 $lab^*ice$  0.0 0.0 -

$lab^*nCE$  1.0 0.0 -

$n^* = 1,0$

ORS18; adapted (a) CIELAB data

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
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 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)

$olvi4^*$  1.0 1.0 1.0 1.0

$cmy4^*$  0.0 0.0 0.0 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)

$lab^*lrij$  0.967 -0.048 0.497  
 $lab^*ice$  0.75 0.5 0.266

$lab^*nCE$  0.0 0.5 j06g

relative Inform. Technology (IT)

$olvi3^*$  0.0 0.0 0.0 (1.0)  
 $cmy3^*$  0.5 0.5 1.0 (0.0)

$olvi4^*$  1.0 1.0 0.0 1.0

$cmy4^*$  0.0 0.0 0.5 0.5

standard and adapted CIELAB

$LAB^*LAB$  93.07 -11.15 96.17  
 $LAB^*LABa$  90.37 -10.26 91.75  
 $LAB^*TChA$  50.0 92.32 96.39

relative CIELAB  $lab^*$

$lab^*lab$  0.935 -0.11 0.994

$lab^*tch$  0.5 1.0 0.268

$lab^*nch$  0.0 1.0 0.268

relative Natural Colour (NC)

$lab^*lrij$  0.935 -0.097 0.995  
 $lab^*ice$  0.5 1.0 0.266

$lab^*nCE$  0.0 1.0 j06g

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

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

$n^* = 1,00$

Output: Colorimetric Reflective System MRS18

for hue  $h^* = lab^*h = 94/360 = 0.261$

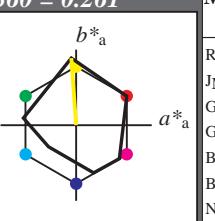
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 91 89 94

oly\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

MRS18; adapted (a) CIELAB data

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
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 1.0 (1.0)  
 $cmy3^*$  0.0 0.0 0.0 (0.0)

$olvi4^*$  1.0 1.0 1.0 1.0

$cmy4^*$  0.0 0.0 0.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  93.05 -4.11 48.97

$LAB^*LABa$  93.05 -3.17 44.37

$LAB^*TChA$  75.0 44.48 94.1

relative CIELAB  $lab^*$

$lab^*lab$  0.969 -0.035 0.499

$lab^*tch$  0.75 0.5 0.261

$lab^*nch$  0.0 0.5 0.261

relative Natural Colour (NC)

$lab^*lrij$  0.969 -0.023 0.499

$lab^*ice$  0.75 0.5 0.258

$lab^*nCE$  0.0 0.5 j03g

relative Inform. Technology (IT)

$olvi3^*$  0.5 0.5 0.0 (1.0)  
 $cmy3^*$  0.5 0.5 1.0 (0.0)

$olvi4^*$  1.0 1.0 0.5 0.5

$cmy4^*$  0.0 0.0 0.5 0.5

standard and adapted CIELAB

$LAB^*LAB$  54.35 -3.37 46.36

$LAB^*LABa$  54.35 -3.17 44.37

$LAB^*TChA$  25.01 44.48 94.1

relative CIELAB  $lab^*$

$lab^*lab$  0.47 -0.035 0.499

$lab^*tch$  0.25 0.5 0.261

$lab^*nch$  0.5 0.5 0.261

relative Natural Colour (NC)

$lab^*lrij$  0.47 -0.023 0.499

$lab^*ice$  0.25 0.5 0.258

$lab^*nCE$  0.5 0.5 j03g

$n^* = 0,00$

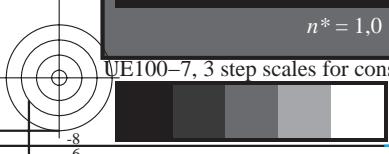
blackness  $n^*$

chromaticness  $c^*$

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

$n^* = 1,00$

input:  $cmy0^* \text{ setcmykcolor}$   
 output:  $cmy0^* / 000n^* \text{ setcmykcolor}$



UE10-7, 3 step scales for constant CIELAB hue 96/360 = 0.268 (left)

3 step scales for constant CIELAB hue 94/360 = 0.261 (right)

BAM-test chart UE10: Colorimetric systems ORS18 & MRS18

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



See for similar files: <http://www.ps.bam.de/UE10/>

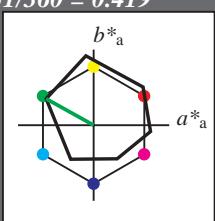
Technical information: <http://www.ps.bam.de>

Version 2.1, io=0,0, CIEXYZ

### 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)  
olv13\* 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)  
olv13\* 0.5 0.5 0.5 (1.0)  
cmyn3\* 0.5 0.5 0.5 (0.0)  
olv4\* 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)  
olv13\* 0.0 0.5 0.0 (1.0)  
cmyn3\* 1.0 0.5 1.0 (0.0)  
olv4\* 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

$n^* = 1,0$

UE100-7, 3 step scales for constant CIELAB hue 151/360 = 0.419 (left)

BAM-test chart UE10; Colorimetric systems ORS18 & MRS18

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

### 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

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

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

### Output: Colorimetric Reflective System MRS18

for hue  $h^* = lab^*h = 172/360 = 0.479$

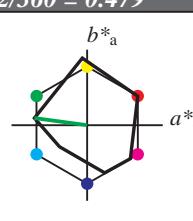
lab\*tch and lab\*nch

D65: hue G

LCH\*Ma: 52 70 172

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

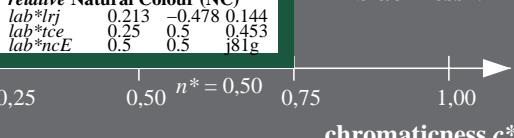
$g^*_{C,rel} = 52$

### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
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

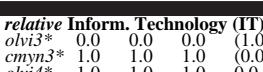
$n^* = 0,00$

blackness  $n^*$



$n^* = 1,0$

blackness  $n^*$

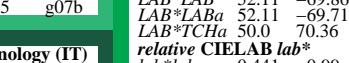


$n^* = 1,0$

blackness  $n^*$

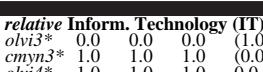
### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	52.11	-69.86	11.28		
JMa	52.11	-69.71	9.44		
GMa	50.0	70.36	172.29		
BMa	44.41	-0.99	0.134		
B50RMa	44.41	0.5	0.479		
NMa	0.0	1.0	0.479		
WMa	0.0	1.0	0.479		
RCIE	35.06	-34.67	5.41		
JCIE	35.06	-34.85	4.72		
GCIE	25.01	35.18	172.29		
BCIE	0.0	0.0	0.0		



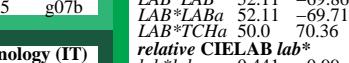
$n^* = 0,00$

blackness  $n^*$



$n^* = 1,0$

blackness  $n^*$



$n^* = 0,00$

blackness  $n^*$

### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	52.11	-69.86	11.28		
JMa	52.11	-69.71	9.44		
GMa	50.0	70.36	172.29		
BMa	44.41	-0.99	0.134		
B50RMa	44.41	0.5	0.479		
NMa	0.0	1.0	0.479		
WMa	0.0	1.0	0.479		
RCIE	35.06	-34.67	5.41		
JCIE	35.06	-34.85	4.72		
GCIE	25.01	35.18	172.29		
BCIE	0.0	0.0	0.0		



$n^* = 1,0$

blackness  $n^*$

### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	52.11	-69.86	11.28		
JMa	52.11	-69.71	9.44		
GMa	50.0	70.36	172.29		
BMa	44.41	-0.99	0.134		
B50RMa	44.41	0.5	0.479		
NMa	0.0	1.0	0.479		
WMa	0.0	1.0	0.479		
RCIE	35.06	-34.67	5.41		
JCIE	35.06	-34.85	4.72		
GCIE	25.01	35.18	172.29		
BCIE	0.0	0.0	0.0		



$n^* = 1,0$

blackness  $n^*$

### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	52.11	-69.86	11.28		
JMa	52.11	-69.71	9.44		
GMa	50.0	70.36	172.29		
BMa	44.41	-0.99	0.134		
B50RMa	44.41	0.5	0.479		
NMa	0.0	1.0	0.479		
WMa	0.0	1.0	0.479		
RCIE	35.06	-34.67	5.41		
JCIE	35.06	-34.85	4.72		
GCIE	25.01	35.18	172.29		
BCIE	0.0	0.0	0.0		



$n^* = 1,0$

blackness  $n^*$

### MRS18; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_{a,a}$	$b^*_{a,a}$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	52.11	-69.86	11.28		
JMa	52.11	-69.71	9.44		
GMa	50.0	70.36	172.29		
BMa	44.41	-0.99	0.134		
B50RMa	44.41	0.5	0.479		
NMa	0.0	1.0	0.479		
WMa	0.0	1.0	0.479		
RCIE	35.06	-34.67	5.41		
JCIE	35.06	-34.85	4.72		
GCIE	25.01	35.18	172.29		
BCIE	0.0	0.0	0.0		



$n^* = 1,0$

blackness <

**Input: Colorimetric Reflective System ORS18**

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

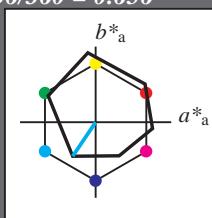
$lab^*tch$  and  $lab^*nch$

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)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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)  
 $cmy_n3^*$  0.5 0.5 0.5 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 1.0  
 $cmy_n4^*$  0.5 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  
 $LAB^*TCh_a$  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)  
 $cmy_n3^*$  1.0 1.0 1.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 0.0  
 $cmy_n4^*$  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\*

$lab^*lab$  0.0 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

relative Inform. Technology (IT)

$olv_i3^*$  0.5 1.0 1.0 (1.0)  
 $cmy_n3^*$  0.5 0.0 0.0 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 1.0  
 $cmy_n4^*$  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  
 $LAB^*TCh_a$  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)  
 $cmy_n3^*$  1.0 0.5 0.5 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 0.5  
 $cmy_n4^*$  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  
 $LAB^*TCh_a$  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)

$olv_i3^*$  0.262 -0.278 -0.413  
 $cmy_n3^*$  0.25 0.5 0.656  
 $olv_i4^*$  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)  
 $cmy_n3^*$  1.0 1.0 1.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 0.0  
 $cmy_n4^*$  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\*

$lab^*lab$  0.0 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 -

relative Inform. Technology (IT)

$olv_i3^*$  0.25 0.5 0.656  
 $cmy_n3^*$  0.5 0.5 0.605  
 $olv_i4^*$  0.5 1.0 0.605

relative Natural Colour (NC)

$lab^*lrij$  0.175 -0.353 -0.352  
 $lab^*tce$  0.25 0.5 0.625  
 $lab^*ncE$  0.5 0.5 g49b

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)  
 $cmy_n3^*$  1.0 1.0 1.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 0.0  
 $cmy_n4^*$  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\*

$lab^*lab$  0.0 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 -

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)  
 $cmy_n3^*$  1.0 0.0 0.0 (0.0)  
 $olv_i4^*$  0.5 1.0 0.0 0.0  
 $cmy_n4^*$  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\*

$lab^*lab$  0.0 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 -

$n^* = 0,00$

$n^* = 0,50$

$n^* = 1,00$

chromaticness  $c^*$

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,25$

blackness  $n^*$

$n^* = 0,00$

$n^* = 0,50$

$n^* = 0,25$

$n^* = 1,00$

$n^* = 0,75$

chromaticness  $c^*$

**Output: Colorimetric Reflective System MRS18**

for hue  $h^* = lab^*h = 218/360 = 0.605$

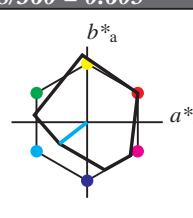
$lab^*tch$  and  $lab^*nch$

D65: hue G50B

LCH\*Ma: 45 46 218

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)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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)  
 $cmy_n3^*$  0.5 0.5 0.5 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 1.0  
 $cmy_n4^*$  0.5 0.0 0.0 0.5

standard and adapted CIELAB

$LAB^*LAB$  70.21 -18.77 -11.17  
 $LAB^*LABa$  70.21 -18.27 -14.23  
 $LAB^*TCh_a$  75.0 23.17 217.91

relative CIELAB lab\*

$lab^*lab$  0.674 -0.393 -0.306

$lab^*tch$  0.75 0.5 0.605

$lab^*nch$  0.0 0.5 0.605

relative Natural Colour (NC)

$lab^*lrij$  0.674 -0.353 -0.352

$lab^*tce$  0.75 0.5 0.625

$lab^*ncE$  0.0 0.5 g49b

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)  
 $cmy_n3^*$  1.0 0.0 0.0 (0.0)  
 $olv_i4^*$  0.5 1.0 1.0 0.5  
 $cmy_n4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

$LAB^*LAB$  70.21 -18.03 -13.78  
 $LAB^*LABa$  70.21 -18.27 -14.23  
 $LAB^*TCh_a$  25.01 23.17 217.91

relative CIELAB lab\*

$lab^*lab$  0.175 -0.393 -0.306

$lab^*tch$  0.25 0.5 0.605

$lab^*nch$  0.5 0.5 0.605

relative Natural Colour (NC)

$lab^*lrij$  0.175 -0.353 -0.352

$lab^*tce$  0.25 0.5 0.625

$lab^*ncE$  0.5 0.5 g49b

relative Inform. Technology (IT)

**Input: Colorimetric Reflective System ORS18**

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

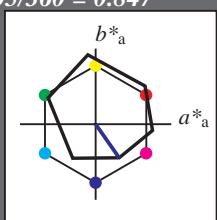
$lab^*tch$  and  $lab^*nch$

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 0.0

**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 -

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

chromaticness  $c^*$

UE100-7, 3 step scales for constant CIELAB hue 305/360 = 0.847 (left)

BAM-test chart UE10; Colorimetric systems ORS18 & MRS18  
D65: 2 coordinate data of 3 step colour scales for 10 hues

**Output: Colorimetric Reflective System MRS18**

for hue  $h^* = lab^*h = 290/360 = 0.806$

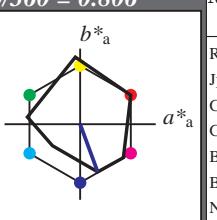
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 37 67 290

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 0.0

**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\* 0.0 0.0 1.0 0.5

cmyn4\* 0.5 0.5 0.0 0.0

**standard and adapted CIELAB**

LAB\*LAB 66.03 11.17 -28.74  
LAB\*LABa 66.03 11.59 -31.51

LAB\*TChA 75.00 33.59 290.19

**relative CIELAB lab\***

lab\*lab 0.62 0.173 -0.468

lab\*tch 0.75 0.5 0.806

lab\*nch 0.0 0.5 0.806

**relative Natural Colour (NC)**

lab\*lrj 0.62 0.129 -0.482

lab\*tce 0.75 0.5 0.791

lab\*ncE 0.0 0.5 b16r

**relative Inform. Technology (IT)**

olv3\* 0.0 0.0 0.5 (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 36.65 23.33 -62.24

LAB\*LABa 36.65 23.18 -63.03

LAB\*TChA 50.0 67.17 290.19

**relative CIELAB lab\***

lab\*lab 0.241 0.345 -0.937

lab\*tch 0.5 1.0 0.806

lab\*nch 0.0 1.0 0.806

**relative Natural Colour (NC)**

lab\*lrj 0.241 0.257 -0.965

lab\*tce 0.5 1.0 0.791

lab\*ncE 0.0 1.0 b16r

$n^* = 1,0$

$n^* = 0,50$

$n^* = 0,00$

chromaticness  $c^*$

blackness  $n^*$

$n^* = 0,00$

blackness  $n^*$

$n^* = 1,0$

3 step scales for constant CIELAB hue 290/360 = 0.806 (right)

input: cmy0\* setcmykcolor  
output: cmy0\* / 000n\* setcmykcolor

**Input: Colorimetric Reflective System ORS18**

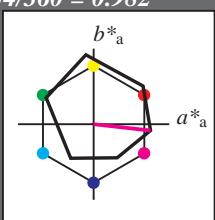
for hue  $h^* = lab^*h = 354/360 = 0.982$   
 $lab^*tch$  and  $lab^*nch$

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)  
 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)

olv13\* 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)

olv13\* 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

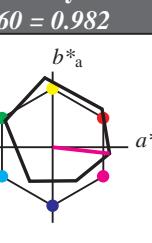
lab\*tce 0.0 0.0 -

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



%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

**Output: Colorimetric Reflective System MRS18**

for hue  $h^* = lab^*h = 322/360 = 0.895$

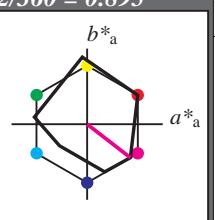
lab\*tch and lab\*nch

D65: hue B50R

LCH\*Ma: 35 72 322

olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{h,rel} = 41$

$g^*_{C,rel} = 52$

MRS18; adapted (a) CIELAB data

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
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

$n^* = 0,00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 1,0$

3 step scales for constant CIELAB hue 354/360 = 0.982 (left)

BAM-test chart UE10; Colorimetric systems ORS18 & MRS18  
 D65: 2 coordinate data of 3 step colour scales for 10 hues

3 step scales for constant CIELAB hue 322/360 = 0.895 (right)

input:  $cmy0^* \text{ setcmykcolor}$   
 output:  $cmy0^* / 000n^* \text{ setcmykcolor}$

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olv13* cmyn3* olvi4* cmyn4*	0.5 0.5 0.5 (1.0) 0.5 1.0 1.0 (0.0) 1.0 1.0 1.0 0.5 0.0 0.0 0.0 1.0	0.0 1.0 0.0 (0.0) 0.0 0.5 0.982 0.0 1.0 0.0 0.5 0.0 0.0 0.0 0.5	0.5 0.5 0.5 (1.0) 0.5 1.0 1.0 (0.0) 1.0 1.0 1.0 0.5 0.0 0.0 0.0 0.5	0.495 0.982 0.454 0.932	-0.054 -0.208 -0.208 b72r
standard and adapted CIELAB					
LAB*LAB LAB*LABa LAB*TChA	56.71 56.71 50.0	-0.23 0.0 0.01	2.14 0.0 -		
relative CIELAB lab*					
lab*lab lab*tch lab*nch	0.5 0.5 0.5	0.0 0.0 0.0	0.0 - 0.0		
relative Natural Colour (NC)					
lab*lrj lab*tce lab*ncE	0.5 0.5 0.5	0.0 0.0 0.0	0.0 - 0.0		

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olv13* cmyn3* olvi4* cmyn4*	0.5 0.5 0.5 (1.0) 0.5 1.0 1.0 (0.0) 1.0 1.0 1.0 0.5 0.0 0.0 0.0 1.0	0.0 1.0 0.0 (0.0) 0.0 0.5 0.982 0.0 1.0 0.0 0.5 0.0 0.0 0.0 0.5	0.5 0.5 0.5 (1.0) 0.5 1.0 1.0 (0.0) 1.0 1.0 1.0 0.5 0.0 0.0 0.0 0.5	0.495 0.982 0.454 0.932	-0.054 -0.208 -0.208 b72r
standard and adapted CIELAB					
LAB*LAB LAB*LABa LAB*TChA	56.71 56.71 50.0	-0.23 0.0 0.01	2.14 0.0 -		
relative CIELAB lab*					
lab*lab lab*tch lab*nch	0.5 0.5 0.5	0.0 0.0 0.0	0.0 - 0.0		
relative Natural Colour (NC)					
lab*lrj lab*tce lab*ncE	0.5 0.5 0.5	0.0 0.0 0.0	0.0 - 0.0		

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olv13* cmyn3* olvi4* cmyn4*	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 1.0	1.0 1.0 1.0 (0.0) 0.0 0.0 0.0 (0.0) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 0.0	0.495 0.982 0.454 0.932	-0.054 -0.208 -0.208 b72r
standard and adapted CIELAB					
LAB*LAB LAB*LABa LAB*TChA	18.02 18.02 0.01	0.5 0.5 0.01	-0.46 0.0 -		
relative CIELAB lab*					
lab*lab lab*tch lab*nch	0.0 0.0 1.0	0.0 0.0 0.0	0.0 - 0.0		
relative Natural Colour (NC)					
lab*lrj lab*tce lab*ncE	0.0 0.0 1.0	0.0 0.0 0.0	0.0 - 0.0		

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olv13* cmyn3* olvi4* cmyn4*	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 1.0	1.0 1.0 1.0 (0.0) 0.0 0.0 0.0 (0.0) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 0.0	0.495 0.982 0.454 0.932	-0.054 -0.208 -0.208 b44r
standard and adapted CIELAB					
LAB*LAB LAB*LABa LAB*TChA	26.48 26.48 25.01	0.25 0.25 0.01	-22.01 -22.01 36.15		
relative CIELAB lab*					
lab*lab lab*tch lab*nch	0.25 0.25 1.0	0.5 0.5 0.0	0.324 0.324 -0.611		
relative Natural Colour (NC)					
lab*lrj lab*tce lab*ncE	0.25 0.25 1.0	0.5 0.5 0.0	-0.38 -0.38 0.862		

	$L^*=L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
olv13* cmyn3* olvi4* cmyn4*	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 1.0	1.0 1.0 1.0 (0.0) 0.0 0.0 0.0 (0.0) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 (1.0) 1.0 1.0 1.0 (0.0) 1.0 1.0 1.0 0.0 0.0 0.0 0.0 0.0	0.495 0.982 0.454 0.932	-0.054 -0.208 -0.208 b44r
standard and adapted CIELAB					
LAB*LAB LAB*LABa LAB*TChA	26.48 26.48 25.01	0.25 0.25 0.01	-22.01 -22.01 36.15		
relative CIELAB lab*					
lab*lab lab*tch lab*nch	0.25 0.25 1.0	0.5 0.5 0.0	0.324 0.324 -0.611		
relative Natural Colour (NC)					
lab*lrj lab*tce lab*ncE	0.25 0.25 1.0	0.5 0.5 0.0	-0.38 -0.38 0.862		

	$L^*=L_a^*$	$a^*_a$	<

Input: Colorimetric Reflective System ORS18

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

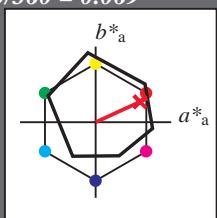
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 48 75 25

olv\*Ma: 1.0 0.0 0.32

triangle lightness  $t^*$



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

$cmy_n3^*$  0.0 0.0 0.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 1.0

$cmy_n4^*$  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)

$cmy_n3^*$  0.5 0.5 0.5 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.5

$cmy_n4^*$  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

$LAB^*TCh_a$  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)  
 $olv_i3^*$  0.5 0.0 0.161 (1.0)

$cmy_n3^*$  0.5 1.0 0.839 (0.0)

$olv_i4^*$  1.0 0.5 0.661 0.5

$cmy_n4^*$  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

$LAB^*TCh_a$  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)

$lab^*lrij$  0.194 0.5 0.0

$lab^*tce$  0.25 0.5 0.0

$lab^*ncE$  0.5 0.5 r00j

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

$cmy_n3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy_n4^*$  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\*

$lab^*lab$  0.0 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 -

$n^* = 1,0$

$n^* = 0,00$

$n^* = 0,50$

Output: Colorimetric Reflective System MRS18

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

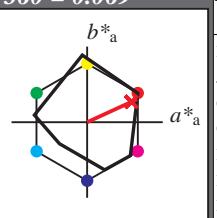
$lab^*tch$  and  $lab^*nch$

D65: hue R

LCH\*Ma: 48 73 25

olv\*Ma: 1.0 0.0 0.1

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)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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)  
 $olv_i3^*$  1.0 0.5 0.548 (1.0)

$cmy_n3^*$  0.0 0.5 0.452 (0.0)

$olv_i4^*$  1.0 0.5 0.549 1.0

$cmy_n4^*$  0.0 0.5 0.451 0.0

standard and adapted CIELAB

$LAB^*LAB$  71.8 32.47 18.34

$LAB^*LABa$  71.8 33.0 15.17

$LAB^*TCh_a$  75.0 36.32 24.7

relative CIELAB lab\*

$lab^*lab$  0.695 0.454 0.209

$lab^*tch$  0.75 0.5 0.069

$lab^*nch$  0.0 0.5 0.069

relative Natural Colour (NC)

$lab^*lrij$  0.695 0.5 0.0

$lab^*tce$  0.75 0.5 1.0

$lab^*ncE$  0.0 0.5 b99r

$n^* = 0,00$

MRS18; adapted (a) CIELAB data  
 $L^*=L^*_a \quad a^*_a \quad b^*_a \quad C^*_{ab,a} \quad h^*_{ab,a}$

RMa	49.63	66.96	38.37	77.18	30
JMa	90.7	-6.36	88.75	88.98	94
GMa	52.11	-69.73	9.44	70.37	172
G50BMa	45.03	-36.57	-28.47	46.36	218
BMa	36.65	23.19	-63.05	67.18	290
B50RMa	34.94	57.17	-44.26	72.31	322
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  
 $u^*_{rel} = 91$   
%Regularity  
 $g^*_{H,rel} = 41$   
 $g^*_{C,rel} = 52$

relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 0.5 0.548 (1.0)  
 $cmy_n3^*$  0.0 0.5 0.452 (0.0)  
 $olv_i4^*$  1.0 0.5 0.549 1.0  
 $cmy_n4^*$  0.0 0.5 0.451 0.0

standard and adapted CIELAB

$LAB^*LAB$  48.21 65.92 31.93

$LAB^*LABa$  48.21 66.0 30.36

$LAB^*TCh_a$  50.0 72.65 24.7

relative CIELAB lab\*

$lab^*lab$  0.39 0.908 0.418

$lab^*tch$  0.5 1.0 0.069

$lab^*nch$  0.0 1.0 0.069

relative Natural Colour (NC)

$lab^*lrij$  0.39 1.0 0.0

$lab^*tce$  0.5 1.0 0.0

$lab^*ncE$  0.0 1.0 r00j

$n^* = 0,00$

$n^* = 0,50$

UE100-7, 3 step scales for constant CIELAB hue 25/360 = 0.069 (left)

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

BAM-test chart UE10; Colorimetric systems ORS18 & MRS18  
D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $cmy0^* \text{ setcmykcolor}$   
output:  $cmy0^* / 000n^* \text{ setcmykcolor}$

Input: Colorimetric Reflective System ORS18

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

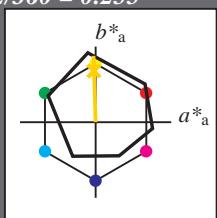
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 86 88 92

olv\*Ma: 1.0 0.9 0.0

triangle lightness  $t^*$



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

$cmy_n3^*$  0.0 0.0 0.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 1.0

$cmy_n4^*$  0.0 0.0 0.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  95.41 -0.97 4.75

$LAB^*LAb$  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)

$cmy_n3^*$  0.5 0.5 0.5 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.5

$cmy_n4^*$  0.0 0.0 0.0 0.5

standard and adapted CIELAB

$LAB^*LAB$  56.71 -0.23 2.14

$LAB^*LAb$  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)

$cmy_n3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy_n4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

$LAB^*LAB$  18.02 0.5 -0.46

$LAB^*LAb$  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

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

	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	71.87	151						
$C^*_{ab,a}$				-30.35	-45.01	54.3	236					
$h^*_{ab,a}$						25.71	31.11	-44.42	54.24	305		

%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

relative Inform. Technology (IT)

$olv_i3^*$  1.0 0.951 0.5 (1.0)

$cmy_n3^*$  0.0 0.049 0.5 (0.0)

$olv_i4^*$  1.0 0.951 0.5 1.0

$cmy_n4^*$  0.0 0.049 0.5 0.0

standard and adapted CIELAB

$LAB^*LAB$  95.41 -0.97 4.75

$LAB^*LAb$  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)

$cmy_n3^*$  0.5 0.5 0.5 (0.0)

$olv_i4^*$  1.0 0.902 0.0 1.0

$cmy_n4^*$  0.0 0.098 1.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  86.19 -3.62 91.83

$LAB^*LAb$  86.19 -2.82 87.69

$LAB^*TCh_a$  50.0 87.73 91.85

relative CIELAB lab\*

$lab^*lab$  0.94 0.0 0.5

$lab^*tch$  0.75 0.5 0.255

$lab^*nch$  0.0 0.5 0.255

relative Natural Colour (NC)

$lab^*lrij$  0.94 0.0 0.5

$lab^*tce$  0.75 0.5 0.25

$lab^*nCE$  0.0 0.5 0.25

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy_n3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy_n4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

$LAB^*LAB$  56.71 -0.23 2.14

$LAB^*LAb$  56.71 0.0 0.0

$LAB^*TCh_a$  50.0 0.01 -

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)

$lab^*lrij$  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)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy_n3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy_n4^*$  0.0 0.0 0.0 1.0

standard and adapted CIELAB

$LAB^*LAB$  18.02 0.5 -0.46

$LAB^*LAb$  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 -

$n^* = 0,00$

$n^* = 0,50$

$n^* = 1,00$

chromaticness  $c^*$

$n^* = 0,00$

$n^* = 0,50$

blackness  $n^*$

Output: Colorimetric Reflective System MRS18

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

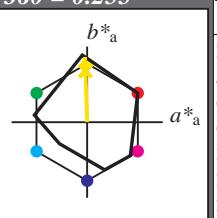
$lab^*tch$  and  $lab^*nch$

D65: hue J

LCH\*Ma: 89 86 92

olv\*Ma: 1.0 0.95 0.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 91$

%Regularity

$g^*_{H,rel} = 41$

$g^*_{C,rel} = 52$

relative Inform. Technology (IT)

$olv_i3^*$  1.0 1.0 1.0 (1.0)

$cmy_n3^*$  0.0 0.0 0.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 1.0

$cmy_n4^*$  0.0 0.0 0.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  95.41 -0.97 4.75

$LAB^*LAb$  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)

$cmy_n3^*$  0.5 0.5 0.5 (0.0)

$olv_i4^*$  1.0 0.902 0.0 1.0

$cmy_n4^*$  0.0 0.098 1.0 0.0

standard and adapted CIELAB

$LAB^*LAB$  86.19 -3.62 91.83

$LAB^*LAb$  86.19 -2.82 87.69

$LAB^*TCh_a$  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)

$lab^*lrij$  0.881 0.0 1.0

$lab^*tce$  0.5 1.0 0.25

$lab^*nCE$  0.0 1.0 0.25

relative Inform. Technology (IT)

$olv_i3^*$  0.0 0.0 0.0 (1.0)

$cmy_n3^*$  1.0 1.0 1.0 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

Input: Colorimetric Reflective System ORS18

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

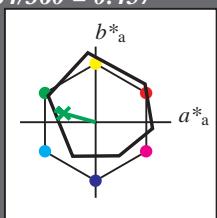
$lab^*tch$  and  $lab^*nch$

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)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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 CIELAB lab\*

$olv_i3^*$  0.5 1.0 0.623 (1.0)

$cmy_n3^*$  0.5 0.0 0.377 (0.0)

$olv_i4^*$  0.5 1.0 0.623 1.0

$cmy_n4^*$  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

$lab^*tce$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 g00b

relative Inform. Technology (IT)

$olv_i3^*$  0.5 0.5 0.5 (1.0)

$cmy_n3^*$  0.5 0.5 0.5 (0.0)

$olv_i4^*$  1.0 1.0 1.0 0.0

$cmy_n4^*$  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\*

$lab^*lab$  0.0 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 -

$n^* = 1,0$

$n^* = 0,00$

$n^* = 0,50$

$n^* = 0,25$

$n^* = 0,50$

$n^* = 0,75$

$n^* = 1,00$

Output: Colorimetric Reflective System MRS18

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

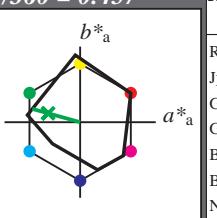
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 56 66 164

olv\*Ma: 0.1 1.0 0.0

triangle lightness  $t^*$



relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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 CIELAB lab\*

$olv_i3^*$  0.551 1.0 0.5 (1.0)

$cmy_n3^*$  0.449 0.0 0.5 (0.0)

$olv_i4^*$  0.551 1.0 0.5 1.0

$cmy_n4^*$  0.449 0.0 0.5 0.0

standard and adapted CIELAB

$LAB^*LAB$  75.74 -32.2 12.22

$LAB^*LABa$  75.74 -31.6 8.79

$LAB^*TCh_a$  75.0 32.81 164.46

relative CIELAB lab\*

$lab^*lab$  0.746 -0.481 0.134

$lab^*tch$  0.75 0.5 0.457

$lab^*nch$  0.0 0.5 0.457

relative Natural Colour (NC)

$lab^*lrij$  0.746 -0.499 0.0

$lab^*tce$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.551 1.0 0.5 (1.0)

$cmy_n3^*$  0.449 0.0 0.5 (0.0)

$olv_i4^*$  0.551 1.0 0.5 0.5

$cmy_n4^*$  0.449 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\*

$lab^*lab$  0.45 -0.962 0.268

$lab^*tch$  0.5 1.0 0.457

$lab^*nch$  0.0 1.0 0.457

relative Natural Colour (NC)

$lab^*lrij$  0.45 -0.999 0.0

$lab^*tce$  0.5 1.0 0.5

$lab^*nCE$  0.0 1.0 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.051 0.5 0.0 (1.0)

$cmy_n3^*$  0.949 0.5 1.0 (0.0)

$olv_i4^*$  0.551 1.0 0.5 0.5

$cmy_n4^*$  0.449 0.0 0.5 0.5

standard and adapted CIELAB

$LAB^*LAB$  37.04 -31.47 9.6

$LAB^*LABa$  37.04 -31.6 8.78

$LAB^*TCh_a$  25.01 32.81 164.47

relative CIELAB lab\*

$lab^*lab$  0.246 -0.481 0.134

$lab^*tch$  0.25 0.5 0.457

$lab^*nch$  0.5 0.5 0.457

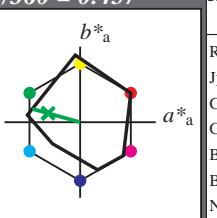
relative Natural Colour (NC)

$lab^*lrij$  0.246 -0.499 0.0

$lab^*tce$  0.25 0.5 0.5

$lab^*nCE$  0.5 0.5 g00b

$n^* = 0,00$



relative Inform. Technology (IT)  
 $olv_i3^*$  1.0 1.0 1.0 (1.0)  
 $cmy_n3^*$  0.0 0.0 0.0 (0.0)  
 $olv_i4^*$  1.0 1.0 1.0 1.0  
 $cmy_n4^*$  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 CIELAB lab\*

$olv_i3^*$  0.551 1.0 0.5 (1.0)

$cmy_n3^*$  0.449 0.0 0.5 (0.0)

$olv_i4^*$  0.551 1.0 0.5 1.0

$cmy_n4^*$  0.449 0.0 0.5 0.0

standard and adapted CIELAB

$LAB^*LAB$  75.74 -32.2 12.22

$LAB^*LABa$  75.74 -31.6 8.79

$LAB^*TCh_a$  75.0 32.81 164.46

relative CIELAB lab\*

$lab^*lab$  0.746 -0.481 0.134

$lab^*tch$  0.75 0.5 0.457

$lab^*nch$  0.0 0.5 0.457

relative Natural Colour (NC)

$lab^*lrij$  0.746 -0.499 0.0

$lab^*tce$  0.75 0.5 0.5

$lab^*nCE$  0.0 0.5 j99g

relative Inform. Technology (IT)

$olv_i3^*$  0.551 1.0 0.5 (1.0)

$cmy_n3^*$  0.449 0.0 0.5 (0.0)

$olv_i4^*$  0.551 1.0 0.5 0.5

$cmy_n4^*$  0.449 0.0 0.5 0.5

standard and adapted CIELAB

$LAB^*LAB$  56.07 -63.44 19.68

$LAB^*LABa$  56.07 -63.21 17.58

$LAB^*TCh_a$  50.0 65.62 164.46

relative CIELAB lab\*

$lab^*lab$  0.492 -0.962 0.268

$lab^*tch$  0.5 1.0 0.457

$lab^*nch$  0.0 1.0 0.457

relative Natural Colour (NC)

$lab^*lrij$  0.492 -0.999 0.0

$lab^*tce$  0.5 1.0 0.5

$lab^*nCE$  0.0 1.0 g0

**Input: Colorimetric Reflective System ORS18**

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

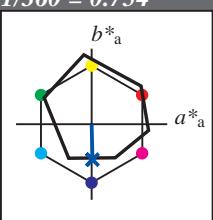
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 42 45 271

olv\*Ma: 0.0 0.49 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)  
 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)

olv13\* 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)

olv13\* 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

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

**Output: Colorimetric Reflective System MRS18**

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

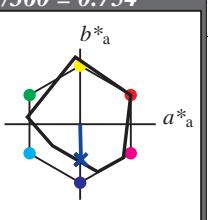
$lab^*tch$  and  $lab^*nch$

D65: hue B

LCH\*Ma: 40 50 271

olv\*Ma: 0.0 0.37 1.0

triangle lightness  $t^*$



%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

relative Inform. Technology (IT)

olv13\* 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)

olv13\* 0.5 0.5 0.5 (1.0)  
 cmyn3\* 0.5 0.5 0.5 (0.0)  
 olvi4\* 0.0 0.488 1.0 0.5  
 cmyn4\* 1.0 0.512 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 67.57 0.17 -22.28  
 LAB\*LABa 67.57 0.61 -25.16  
 LAB\*TChA 75.0 25.18 271.4

relative CIELAB lab\*

lab\*lab 0.64 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 0.64 0.0 -0.499

lab\*tce 0.75 0.5 0.75

lab\*ncE 0.0 0.5 g99b

relative Inform. Technology (IT)

olv13\* 0.0 0.488 1.0 (1.0)  
 cmyn3\* 1.0 0.512 0.0 (0.0)  
 olvi4\* 0.0 0.488 1.0 0.5  
 cmyn4\* 1.0 0.512 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 0.307 0.024 -0.998

lab\*tch 0.5 1.0 0.754

lab\*nch 0.0 1.0 0.754

relative Natural Colour (NC)

lab\*lrj 0.307 0.0 -0.999

lab\*tce 0.5 1.0 0.75

lab\*ncE 0.0 1.0 b00r

relative Inform. Technology (IT)

olv13\* 0.0 0.488 1.0 (1.0)  
 cmyn3\* 1.0 0.512 0.0 (0.0)  
 olvi4\* 0.0 0.488 1.0 0.5  
 cmyn4\* 1.0 0.512 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 28.87 0.92 -24.9  
 LAB\*LABa 28.87 0.62 -25.16  
 LAB\*TChA 25.01 25.18 271.41

relative CIELAB lab\*

lab\*lab 0.14 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 0.14 0.0 -0.499

lab\*tce 0.25 0.5 0.75

lab\*ncE 0.5 0.5 b00r

relative Inform. Technology (IT)

olv13\* 0.0 0.184 0.5 (1.0)  
 cmyn3\* 1.0 0.816 0.5 (0.0)

olvi4\* 0.5 0.684 1.0 0.5

cmyn4\* 0.5 0.316 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 39.73 1.32 -49.33  
 LAB\*LABa 39.73 1.23 -50.34  
 LAB\*TChA 50.0 0.5036 271.41

relative CIELAB lab\*

lab\*lab 0.281 0.025 -0.998

lab\*tch 0.5 1.0 0.754

lab\*nch 0.0 1.0 0.754

relative Natural Colour (NC)

lab\*lrj 0.281 0.0 -0.999

lab\*tce 0.5 1.0 0.75

lab\*ncE 0.0 1.0 b00r

relative Inform. Technology (IT)

olv13\* 0.0 0.184 0.5 (1.0)  
 cmyn3\* 1.0 0.816 0.5 (0.0)

olvi4\* 0.5 0.684 1.0 0.5

cmyn4\* 0.5 0.316 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 37.73 1.22 -49.33  
 LAB\*LABa 37.73 1.21 -50.34  
 LAB\*TChA 50.0 0.5036 271.41

relative CIELAB lab\*

lab\*lab 0.281 0.025 -0.998

lab\*tch 0.5 1.0 0.754

lab\*nch 0.0 1.0 0.754

relative Natural Colour (NC)

lab\*lrj 0.281 0.0 -0.999

lab\*tce 0.5 1.0 0.75

lab\*ncE 0.0 1.0 b00r

relative Inform. Technology (IT)

olv13\* 0.0 0.184 0.5 (1.0)  
 cmyn3\* 1.0 0.816 0.5 (0.0)

olvi4\* 0.5 0.684 1.0 0.5

cmyn4\* 0.5 0.316 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 37.73 1.22 -49.33  
 LAB\*LABa 37.73 1.21 -50.34  
 LAB\*TChA 50.0 0.5036 271.41

relative CIELAB lab\*

lab\*lab 0.281 0.025 -0.998

lab\*tch 0.5 1.0 0.754

lab\*nch 0.0 1.0 0.754

relative Natural Colour (NC)

lab\*lrj 0.281 0.0 -0.999

lab\*tce 0.5 1.0 0.75

lab\*ncE 0.0 1.0 b00r

relative Inform. Technology (IT)

olv13\* 0.0 0.184 0.5 (1.0)  
 cmyn3\* 1.0 0.816 0.5 (0.0)

olvi4\* 0.5 0.684 1.0 0.5

cmyn4\* 0.5 0.316 0.0 0.5

standard and adapted CIELAB

LAB\*LAB 37.73 1.22 -49.33  
 LAB\*LABa 37.73 1.21 -50.34  
 LAB\*TChA 50.0 0.5036 271.41

relative CIELAB lab\*

lab\*lab 0.281 0.025 -0.998

lab\*tch 0.5 1.0 0.754

lab\*nch 0.0 1.0 0.754