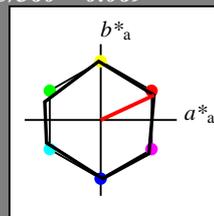


**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue R  
 LCH\*Ma: 57 77 25  
 olv\*Ma: 1.0 0.0 0.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**relative Inform. Technology (IT)**  
 $olv^*3^* 1.0 1.0 1.0 (1.0)$   
 $cmyn^*3^* 0.0 0.0 0.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 1.0$   
 $cmyn^*4^* 0.0 0.0 0.0 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 95.41 0.0 0.0$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

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

**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)**  
 $olv^*3^* 0.5 0.5 0.5 (1.0)$   
 $cmyn^*3^* 0.0 0.5 0.5 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.5$   
 $cmyn^*4^* 0.0 0.0 0.0 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 56.72 0.0 0.0$   
 $LAB^*LABa 56.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv^*3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 1.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.0$   
 $cmyn^*4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

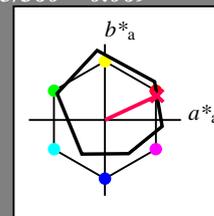
$n^* = 1.0$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue O  
 LCH\*Ma: 48 76 25  
 olv\*Ma: 1.0 0.0 0.32

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**relative Inform. Technology (IT)**  
 $olv^*3^* 1.0 1.0 1.0 (1.0)$   
 $cmyn^*3^* 0.0 0.0 0.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 1.0$   
 $cmyn^*4^* 0.0 0.0 0.0 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 95.41 -0.98 4.75$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

**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)**  
 $olv^*3^* 0.5 0.5 0.5 (1.0)$   
 $cmyn^*3^* 0.0 0.5 0.5 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.5$   
 $cmyn^*4^* 0.0 0.0 0.0 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 56.71 -0.24 2.14$   
 $LAB^*LABa 56.71 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv^*3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 1.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.0$   
 $cmyn^*4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.02 0.5 -0.47$   
 $LAB^*LABa 18.02 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

**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)**  
 $lab^*lrj 0.0 0.0 0.0$   
 $lab^*tce 0.0 0.0 -$   
 $lab^*nce 1.0 0.0 -$

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 $olv^*3^* 1.0 0.5 0.5 (1.0)$   
 $cmyn^*3^* 0.0 0.5 0.5 (0.0)$   
 $olv^*4^* 1.0 0.5 0.5 1.0$   
 $cmyn^*4^* 0.0 0.5 0.5 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 76.05 35.07 16.35$   
 $LAB^*LABa 76.05 35.07 16.35$   
 $LAB^*TCHa 75.0 38.69 25.0$

**relative CIELAB lab\***  
 $lab^*lab 0.75 0.453 0.211$   
 $lab^*tch 0.75 0.5 0.069$   
 $lab^*nch 0.0 0.5 0.069$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.75 0.5 -0.002$   
 $lab^*tce 0.75 0.5 0.999$   
 $lab^*nce 0.0 0.5 b99r$

**relative Inform. Technology (IT)**  
 $olv^*3^* 0.5 0.0 0.0 (1.0)$   
 $cmyn^*3^* 0.5 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 0.5 0.5 0.5$   
 $cmyn^*4^* 0.0 0.5 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 37.36 35.07 16.35$   
 $LAB^*LABa 37.36 35.07 16.35$   
 $LAB^*TCHa 25.01 38.69 25.0$

**relative CIELAB lab\***  
 $lab^*lab 0.25 0.453 0.211$   
 $lab^*tch 0.25 0.5 0.069$   
 $lab^*nch 0.5 0.5 0.069$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.25 0.5 -0.002$   
 $lab^*tce 0.25 0.5 0.999$   
 $lab^*nce 0.5 0.5 b99r$

**relative Inform. Technology (IT)**  
 $olv^*3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 1.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.0$   
 $cmyn^*4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 0.50$

**relative Inform. Technology (IT)**  
 $olv^*3^* 1.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 0.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 0.0 0.0 1.0$   
 $cmyn^*4^* 0.0 1.0 1.0 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 56.7 70.13 32.7$   
 $LAB^*LABa 56.7 70.13 32.7$   
 $LAB^*TCHa 50.0 77.38 25.0$

**relative CIELAB lab\***  
 $lab^*lab 0.5 0.906 0.423$   
 $lab^*tch 0.5 1.0 0.069$   
 $lab^*nch 0.0 1.0 0.069$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.5 1.0 -0.006$   
 $lab^*tce 0.5 1.0 0.999$   
 $lab^*nce 0.0 1.0 b99r$

**relative Inform. Technology (IT)**  
 $olv^*3^* 0.5 0.5 0.5 (1.0)$   
 $cmyn^*3^* 0.5 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 0.5 0.5 0.5$   
 $cmyn^*4^* 0.0 0.5 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 56.71 -0.24 2.14$   
 $LAB^*LABa 56.71 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv^*3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 1.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.0$   
 $cmyn^*4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.02 0.5 -0.47$   
 $LAB^*LABa 18.02 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 0.00$

**relative Inform. Technology (IT)**  
 $olv^*3^* 1.0 0.5 0.658 (1.0)$   
 $cmyn^*3^* 0.0 0.5 0.342 (0.0)$   
 $olv^*4^* 1.0 0.5 0.658 1.0$   
 $cmyn^*4^* 0.0 0.5 0.342 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 71.7 33.71 19.13$   
 $LAB^*LABa 71.7 34.25 15.97$   
 $LAB^*TCHa 75.0 37.79 25.0$

**relative CIELAB lab\***  
 $lab^*lab 0.694 0.453 0.211$   
 $lab^*tch 0.75 0.5 0.069$   
 $lab^*nch 0.0 0.5 0.069$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.694 0.5 0.003$   
 $lab^*tce 0.75 0.5 0.001$   
 $lab^*nce 0.0 0.5 r00j$

**relative Inform. Technology (IT)**  
 $olv^*3^* 0.5 0.0 0.158 (1.0)$   
 $cmyn^*3^* 0.5 1.0 0.842 (0.0)$   
 $olv^*4^* 1.0 0.5 0.658 0.5$   
 $cmyn^*4^* 0.0 0.5 0.342 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 33.01 34.46 16.52$   
 $LAB^*LABa 33.01 34.25 15.97$   
 $LAB^*TCHa 25.01 37.79 25.01$

**relative CIELAB lab\***  
 $lab^*lab 0.194 0.453 0.211$   
 $lab^*tch 0.25 0.5 0.069$   
 $lab^*nch 0.5 0.5 0.069$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.194 0.5 0.004$   
 $lab^*tce 0.25 0.5 0.001$   
 $lab^*nce 0.5 0.5 r00j$

**relative Inform. Technology (IT)**  
 $olv^*3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn^*3^* 1.0 1.0 1.0 (0.0)$   
 $olv^*4^* 1.0 1.0 1.0 0.0$   
 $cmyn^*4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

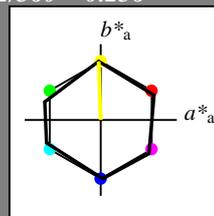
$n^* = 0.00$

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue J  
 LCH\*Ma: 57 77 92  
 olv\*Ma: 1.0 1.0 0.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB 95.41 0.0 0.0$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

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

**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)**  
 $olv3^* 1.0 1.0 0.5 (1.0)$   
 $cmyn3^* 0.0 0.0 0.5 (0.0)$   
 $olv4^* 1.0 1.0 0.5 1.0$   
 $cmyn4^* 0.0 0.0 0.5 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 76.05 -1.34 38.67$   
 $LAB^*LABa 76.05 -1.34 38.67$   
 $LAB^*TCHa 75.0 38.69 92.0$

**relative CIELAB lab\***  
 $lab^*lab 0.75 -0.016 0.5$   
 $lab^*tch 0.75 0.5 0.256$   
 $lab^*nch 0.0 0.5 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.75 0.004 0.5$   
 $lab^*tce 0.75 0.5 0.249$   
 $lab^*nce 0.0 0.5 r99j$

**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**  
 $LAB^*LAB 56.72 0.0 0.0$   
 $LAB^*LABa 56.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv3^* 0.5 0.5 0.0 (1.0)$   
 $cmyn3^* 0.5 0.5 1.0 (0.0)$   
 $olv4^* 1.0 1.0 0.5 0.5$   
 $cmyn4^* 0.0 0.0 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 37.36 -1.34 38.67$   
 $LAB^*LABa 37.36 -1.34 38.67$   
 $LAB^*TCHa 25.01 38.69 92.0$

**relative CIELAB lab\***  
 $lab^*lab 0.25 -0.016 0.5$   
 $lab^*tch 0.25 0.5 0.256$   
 $lab^*nch 0.5 0.5 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.25 0.004 0.5$   
 $lab^*tce 0.25 0.5 0.249$   
 $lab^*nce 0.5 0.5 r99j$

**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**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 1.0$



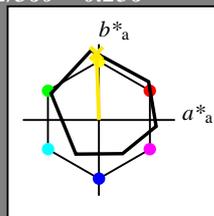
chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue Y  
 LCH\*Ma: 86 88 92  
 olv\*Ma: 1.0 0.9 0.0

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**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**  
 $LAB^*LAB 95.41 -0.98 4.75$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

**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)**  
 $olv3^* 1.0 0.952 0.5 (1.0)$   
 $cmyn3^* 0.0 0.048 0.5 (0.0)$   
 $olv4^* 1.0 1.0 0.953 0.5 1.0$   
 $cmyn4^* 0.0 0.047 0.5 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 90.87 -2.43 48.36$   
 $LAB^*LABa 90.87 -1.53 43.91$   
 $LAB^*TCHa 75.0 43.94 92.01$

**relative CIELAB lab\***  
 $lab^*lab 0.941 -0.017 0.5$   
 $lab^*tch 0.75 0.5 0.256$   
 $lab^*nch 0.0 0.5 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.941 -0.001 0.5$   
 $lab^*tce 0.75 0.5 0.251$   
 $lab^*nce 0.0 0.5 j00g$

**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**  
 $LAB^*LAB 56.71 -0.24 2.14$   
 $LAB^*LABa 56.71 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv3^* 0.5 0.452 0.0 (1.0)$   
 $cmyn3^* 0.5 0.548 1.0 (0.0)$   
 $olv4^* 1.0 0.952 0.5 0.5$   
 $cmyn4^* 0.0 0.048 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 52.17 -1.68 45.74$   
 $LAB^*LABa 52.17 -1.52 43.9$   
 $LAB^*TCHa 25.01 43.93 92.0$

**relative CIELAB lab\***  
 $lab^*lab 0.441 -0.016 0.5$   
 $lab^*tch 0.25 0.5 0.256$   
 $lab^*nch 0.5 0.5 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.441 -0.001 0.5$   
 $lab^*tce 0.25 0.5 0.251$   
 $lab^*nce 0.5 0.5 j00g$

**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**  
 $LAB^*LAB 18.02 0.5 -0.47$   
 $LAB^*LABa 18.02 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

**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)**  
 $lab^*lrj 0.0 0.0 0.0$   
 $lab^*tce 0.0 0.0 -$   
 $lab^*nce 1.0 0.0 -$

**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**  
 $LAB^*LAB 18.02 0.5 -0.47$   
 $LAB^*LABa 18.02 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 0.00$



chromaticness  $c^*$

$n^* = 1.0$

VE410-7, 3 step scales for constant CIELAB hue 92/360 = 0.256 (left)

3 step scales for constant CIELAB hue 92/360 = 0.256 (right)

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18  
 D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^*$  setrgbcolor  
 output:  $olv^*$  (TRI9) setrgbcolor

BAM registration: 20060101-VE41/10L/L41E01FP.PS/.PDF  
 application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ  
 Version 2.1, io=1,1, CIEXYZ  
 Page count: 1

**Input: Colorimetric Natural Reflective System CNS18**

for hue  $h^* = lab^*h = 162/360 = 0.45$

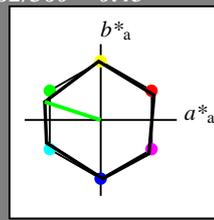
$lab^*tch$  and  $lab^*nch$

D65: hue G

LCH\*Ma: 57 77 162

olv\*Ma: 0.0 1.0 0.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut

$u^*_{rel} = 100$

%Regularity

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

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

**relative Inform. Technology (IT)**

olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	95.41	0.0	0.0
LAB*LABa	95.41	0.0	0.0
LAB*TCHa	99.99	0.01	-

**relative CIELAB lab\***

lab*lab	1.0	0.0	0.0
lab*tch	1.0	0.0	-
lab*nch	0.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	1.0	0.0	0.0
lab*tce	1.0	0.0	-
lab*nce	0.0	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5

**standard and adapted CIELAB**

LAB*LAB	56.72	0.0	0.0
LAB*LABa	56.72	0.0	0.0
LAB*TCHa	50.0	0.01	-

**relative CIELAB lab\***

lab*lab	0.5	0.0	0.0
lab*tch	0.5	0.0	-
lab*nch	0.5	0.0	-

**relative Natural Colour (NC)**

lab*lrj	0.5	0.0	0.0
lab*tce	0.5	0.0	-
lab*nce	0.5	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0

**standard and adapted CIELAB**

LAB*LAB	18.03	0.0	0.0
LAB*LABa	18.03	0.0	0.0
LAB*TCHa	0.01	0.01	-

**relative CIELAB lab\***

lab*lab	0.0	0.0	0.0
lab*tch	0.0	0.0	-
lab*nch	1.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	0.0	0.0	0.0
lab*tce	0.0	0.0	-
lab*nce	1.0	0.0	-

$n^* = 1.0$

**relative Inform. Technology (IT)**

olvi3*	0.5	1.0	0.5	(1.0)
cmyn3*	0.5	0.0	0.5	(0.0)
olvi4*	0.5	1.0	0.5	1.0
cmyn4*	0.5	0.0	0.5	0.0

**standard and adapted CIELAB**

LAB*LAB	76.05	-36.79	11.96
LAB*LABa	76.05	-36.79	11.96
LAB*TCHa	75.0	38.69	162.0

**relative CIELAB lab\***

lab*lab	0.75	-0.474	0.154
lab*tch	0.75	0.5	0.45
lab*nch	0.0	0.5	0.45

**relative Natural Colour (NC)**

lab*lrj	0.75	-0.499	0.003
lab*tce	0.75	0.5	0.499
lab*nce	0.0	0.5	0.999

**relative Inform. Technology (IT)**

olvi3*	0.0	0.5	0.0	(1.0)
cmyn3*	1.0	0.5	1.0	(0.0)
olvi4*	0.5	1.0	0.5	0.5
cmyn4*	0.5	0.0	0.5	0.5

**standard and adapted CIELAB**

LAB*LAB	37.36	-36.79	11.96
LAB*LABa	37.36	-36.79	11.96
LAB*TCHa	25.01	38.69	162.0

**relative CIELAB lab\***

lab*lab	0.25	-0.474	0.154
lab*tch	0.25	0.5	0.45
lab*nch	0.5	0.5	0.45

**relative Natural Colour (NC)**

lab*lrj	0.25	-0.499	0.003
lab*tce	0.25	0.5	0.499
lab*nce	0.5	0.5	0.999

$n^* = 0.50$

chromaticness  $c^*$

**relative Inform. Technology (IT)**

olvi3*	0.0	1.0	0.0	(1.0)
cmyn3*	1.0	0.0	1.0	(0.0)
olvi4*	0.0	1.0	0.0	1.0
cmyn4*	1.0	0.0	1.0	0.0

**standard and adapted CIELAB**

LAB*LAB	56.7	-73.59	23.91
LAB*LABa	56.7	-73.59	23.91
LAB*TCHa	50.0	77.38	162.0

**relative CIELAB lab\***

lab*lab	0.5	-0.95	0.309
lab*tch	0.5	1.0	0.45
lab*nch	0.0	1.0	0.45

**relative Natural Colour (NC)**

lab*lrj	0.5	-0.999	0.005
lab*tce	0.5	1.0	0.499
lab*nce	0.0	1.0	0.999

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 162/360 = 0.45$

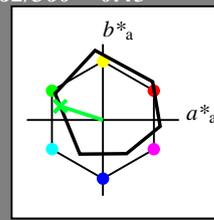
$lab^*tch$  and  $lab^*nch$

D65: hue L

LCH\*Ma: 53 59 162

olv\*Ma: 0.0 1.0 0.21

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

**relative Inform. Technology (IT)**

olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	95.41	-0.98	4.75
LAB*LABa	95.41	0.0	0.0
LAB*TCHa	99.99	0.01	-

**relative CIELAB lab\***

lab*lab	1.0	0.0	0.0
lab*tch	1.0	0.0	-
lab*nch	0.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	1.0	0.0	0.0
lab*tce	1.0	0.0	-
lab*nce	0.0	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5

**standard and adapted CIELAB**

LAB*LAB	56.71	-0.24	2.14
LAB*LABa	56.71	0.0	0.0
LAB*TCHa	50.0	0.01	-

**relative CIELAB lab\***

lab*lab	0.5	0.0	0.0
lab*tch	0.5	0.0	-
lab*nch	0.5	0.0	-

**relative Natural Colour (NC)**

lab*lrj	0.5	0.0	0.0
lab*tce	0.5	0.0	-
lab*nce	0.5	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0

**standard and adapted CIELAB**

LAB*LAB	18.02	0.5	-0.47
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	-

$n^* = 1.0$

**relative Inform. Technology (IT)**

olvi3*	0.0	0.5	0.105	(1.0)
cmyn3*	1.0	0.5	0.895	(0.0)
olvi4*	0.5	1.0	0.605	0.5
cmyn4*	0.5	0.0	0.395	0.5

**standard and adapted CIELAB**

LAB*LAB	35.27	-27.84	9.8
LAB*LABa	35.27	-28.0	9.11
LAB*TCHa	25.01	29.46	161.99

**relative CIELAB lab\***

lab*lab	0.223	-0.474	0.155
lab*tch	0.25	0.5	0.45
lab*nch	0.5	0.5	0.45

**relative Natural Colour (NC)**

lab*lrj	0.223	-0.498	0.027
lab*tce	0.25	0.5	0.492
lab*nce	0.5	0.5	0.969

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18

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

input: olv\* setrgbcolor

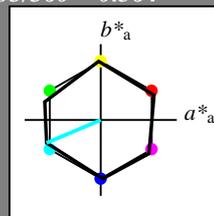
output: olv\*' (TRI9) setrgbcolor

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue G50B  
 LCH\*Ma: 57 77 203  
 olv\*Ma: 0.0 1.0 1.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB 95.41 0.0 0.0$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

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

**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**  
 $LAB^*LAB 56.72 0.0 0.0$   
 $LAB^*LABa 56.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 $olv3^* 0.5 1.0 1.0 (1.0)$   
 $cmyn3^* 0.5 0.0 0.0 (0.0)$   
 $olv4^* 0.5 1.0 1.0 1.0$   
 $cmyn4^* 0.5 0.0 0.0 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 76.05 -35.61 -15.11$   
 $LAB^*LABa 76.05 -35.61 -15.11$   
 $LAB^*TCHa 75.0 38.69 203.0$

**relative CIELAB lab\***  
 $lab^*lab 0.75 -0.459 -0.194$   
 $lab^*tch 0.75 0.5 0.564$   
 $lab^*nch 0.0 0.5 0.564$

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

**relative Inform. Technology (IT)**  
 $olv3^* 0.0 0.5 0.5 (1.0)$   
 $cmyn3^* 1.0 0.5 0.5 (0.0)$   
 $olv4^* 0.5 1.0 1.0 0.5$   
 $cmyn4^* 0.5 0.0 0.0 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 37.36 -35.61 -15.11$   
 $LAB^*LABa 37.36 -35.61 -15.11$   
 $LAB^*TCHa 25.01 38.69 203.0$

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

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

$n^* = 0.00$

blackness  $n^*$

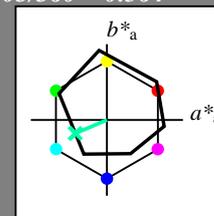
chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue C  
 LCH\*Ma: 56 45 203  
 olv\*Ma: 0.0 1.0 0.66

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**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**  
 $LAB^*LAB 95.41 -0.98 4.75$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

**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**  
 $LAB^*LAB 56.71 -0.24 2.14$   
 $LAB^*LABa 56.71 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv3^* 0.5 1.0 0.829 (1.0)$   
 $cmyn3^* 0.5 0.0 0.171 (0.0)$   
 $olv4^* 0.5 1.0 0.829 1.0$   
 $cmyn4^* 0.5 0.0 0.171 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 75.69 -21.34 -5.37$   
 $LAB^*LABa 75.69 -20.73 -8.8$   
 $LAB^*TCHa 75.0 22.53 203.01$

**relative CIELAB lab\***  
 $lab^*lab 0.745 -0.459 -0.194$   
 $lab^*tch 0.75 0.5 0.564$   
 $lab^*nch 0.0 0.5 0.564$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.745 -0.421 -0.267$   
 $lab^*tce 0.75 0.5 0.59$   
 $lab^*nce 0.0 0.5 g36b$

**relative Inform. Technology (IT)**  
 $olv3^* 0.0 0.5 0.329 (1.0)$   
 $cmyn3^* 1.0 0.5 0.671 (0.0)$   
 $olv4^* 0.5 1.0 0.829 0.5$   
 $cmyn4^* 0.5 0.0 0.171 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 37.0 -20.59 -7.98$   
 $LAB^*LABa 37.0 -20.73 -8.79$   
 $LAB^*TCHa 25.01 22.53 207.99$

**relative CIELAB lab\***  
 $lab^*lab 0.245 -0.459 -0.194$   
 $lab^*tch 0.25 0.5 0.564$   
 $lab^*nch 0.5 0.5 0.564$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.245 -0.421 -0.267$   
 $lab^*tce 0.25 0.5 0.59$   
 $lab^*nce 0.5 0.5 g36b$

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

$n^* = 1.0$

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18 input: olv\* setrgbcolor

D65: 2 coordinate data of 3 step colour scales for 10 hues output: olv\*' (TRI9) setrgbcolor

VE410-7, 3 step scales for constant CIELAB hue 203/360 = 0.564 (left)

3 step scales for constant CIELAB hue 203/360 = 0.564 (right)



See for similar files: http://www.ps.bam.de/VE41/  
 Technical information: http://www.ps.bam.de  
 Version 2.1, io=1,1, CIEXYZ

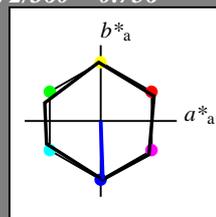
BAM registration: 20060101-VE41/10L/L41E03FP.PS/.PDF BAM material: code=rh4ta  
 application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ  
 VE41/ Form 4/10, Serie: 1/1, Page: 4 Page count: 1

**Input: Colorimetric Natural Reflective System CNS18**

for hue  $h^* = lab^*h = 272/360 = 0.756$   
 $lab^*tch$  and  $lab^*nch$

D65: hue B  
 LCH\*Ma: 57 77 272  
 olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB = 95.41, 0.0, 0.0$   
 $LAB^*LABa = 95.41, 0.0, 0.0$   
 $LAB^*TCHa = 99.99, 0.01, -$

**relative CIELAB lab\***  
 $lab^*lab = 1.0, 0.0, 0.0$   
 $lab^*tch = 1.0, 0.0, -$   
 $lab^*nch = 0.0, 0.0, -$

**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**  
 $LAB^*LAB = 56.72, 0.0, 0.0$   
 $LAB^*LABa = 56.72, 0.0, 0.0$   
 $LAB^*TCHa = 50.0, 0.01, -$

**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**  
 $LAB^*LAB = 18.03, 0.0, 0.0$   
 $LAB^*LABa = 18.03, 0.0, 0.0$   
 $LAB^*TCHa = 0.01, 0.01, -$

**relative CIELAB lab\***  
 $lab^*lab = 0.0, 0.0, 0.0$   
 $lab^*tch = 0.0, 0.0, -$   
 $lab^*nch = 1.0, 0.0, -$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.0, 0.0, 0.0$   
 $lab^*tce = 0.0, 0.0, -$   
 $lab^*nce = 1.0, 0.0, -$

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.5, 0.5, 1.0, (1.0)$   
 $cmyn3^* = 0.5, 0.5, 0.0, (0.0)$   
 $olv4^* = 0.5, 0.5, 1.0, 1.0$   
 $cmyn4^* = 0.5, 0.5, 0.0, 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 76.05, 1.35, -38.66$   
 $LAB^*LABa = 76.05, 1.35, -38.66$   
 $LAB^*TCHa = 75.0, 38.69, 272.0$

**relative CIELAB lab\***  
 $lab^*lab = 0.75, 0.017, -0.499$   
 $lab^*tch = 0.75, 0.5, 0.756$   
 $lab^*nch = 0.0, 0.5, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.75, 0.002, -0.499$   
 $lab^*tce = 0.75, 0.5, 0.751$   
 $lab^*nce = 0.0, 0.5, b00r$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.0, 0.0, 0.5, (1.0)$   
 $cmyn3^* = 1.0, 1.0, 0.5, (0.0)$   
 $olv4^* = 0.5, 0.5, 1.0, 0.5$   
 $cmyn4^* = 0.5, 0.5, 0.0, 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 37.36, 1.35, -38.66$   
 $LAB^*LABa = 37.36, 1.35, -38.66$   
 $LAB^*TCHa = 25.01, 38.69, 272.0$

**relative CIELAB lab\***  
 $lab^*lab = 0.25, 0.017, -0.499$   
 $lab^*tch = 0.25, 0.5, 0.756$   
 $lab^*nch = 0.5, 0.5, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.25, 0.002, -0.499$   
 $lab^*tce = 0.25, 0.5, 0.751$   
 $lab^*nce = 0.5, 0.5, b00r$

$n^* = 0.50$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.0, 0.0, 1.0, (1.0)$   
 $cmyn3^* = 1.0, 1.0, 0.0, (0.0)$   
 $olv4^* = 0.0, 0.0, 1.0, 1.0$   
 $cmyn4^* = 1.0, 1.0, 0.0, 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 56.7, 2.7, -77.33$   
 $LAB^*LABa = 56.7, 2.7, -77.33$   
 $LAB^*TCHa = 50.0, 77.38, 272.0$

**relative CIELAB lab\***  
 $lab^*lab = 0.5, 0.035, -0.998$   
 $lab^*tch = 0.5, 1.0, 0.756$   
 $lab^*nch = 0.0, 1.0, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.5, 0.004, -0.999$   
 $lab^*tce = 0.5, 1.0, 0.751$   
 $lab^*nce = 0.0, 1.0, b00r$

$n^* = 0.00$

blackness  $n^*$

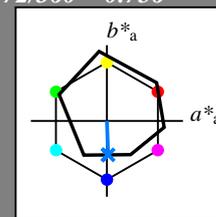
chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 272/360 = 0.756$   
 $lab^*tch$  and  $lab^*nch$

D65: hue V  
 LCH\*Ma: 42 45 272  
 olv\*Ma: 0.0 0.48 1.0

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**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**  
 $LAB^*LAB = 95.41, -0.98, 4.75$   
 $LAB^*LABa = 95.41, 0.0, 0.0$   
 $LAB^*TCHa = 99.99, 0.01, -$

**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)**  
 $olv3^* = 0.5, 0.74, 1.0, (1.0)$   
 $cmyn3^* = 0.5, 0.26, 0.0, (0.0)$   
 $olv4^* = 0.5, 0.74, 1.0, 1.0$   
 $cmyn4^* = 0.5, 0.26, 0.0, 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 68.47, 0.31, -19.4$   
 $LAB^*LABa = 68.47, 0.78, -22.34$   
 $LAB^*TCHa = 75.0, 22.36, 271.99$

**relative CIELAB lab\***  
 $lab^*lab = 0.652, 0.017, -0.499$   
 $lab^*tch = 0.75, 0.5, 0.756$   
 $lab^*nch = 0.0, 0.5, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.652, 0.004, -0.499$   
 $lab^*tce = 0.75, 0.5, 0.751$   
 $lab^*nce = 0.0, 0.5, b00r$

**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**  
 $LAB^*LAB = 56.71, -0.24, 2.14$   
 $LAB^*LABa = 56.71, 0.0, 0.0$   
 $LAB^*TCHa = 50.0, 0.01, -$

**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)**  
 $olv3^* = 0.0, 0.481, 1.0, (1.0)$   
 $cmyn3^* = 1.0, 0.519, 0.0, (0.0)$   
 $olv4^* = 0.0, 0.481, 1.0, 1.0$   
 $cmyn4^* = 1.0, 0.519, 0.0, 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 41.54, 1.61, -43.57$   
 $LAB^*LABa = 41.54, 1.56, -44.69$   
 $LAB^*TCHa = 50.0, 44.72, 272.0$

**relative CIELAB lab\***  
 $lab^*lab = 0.304, 0.035, -0.998$   
 $lab^*tch = 0.5, 1.0, 0.756$   
 $lab^*nch = 0.0, 1.0, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.304, 0.008, -0.999$   
 $lab^*tce = 0.5, 1.0, 0.751$   
 $lab^*nce = 0.0, 1.0, b00r$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.0, 0.24, 0.5, (1.0)$   
 $cmyn3^* = 1.0, 0.76, 0.5, (0.0)$   
 $olv4^* = 0.5, 0.74, 1.0, 0.5$   
 $cmyn4^* = 0.5, 0.26, 0.0, 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 29.78, 1.06, -22.01$   
 $LAB^*LABa = 29.78, 0.78, -22.34$   
 $LAB^*TCHa = 25.01, 22.36, 272.01$

**relative CIELAB lab\***  
 $lab^*lab = 0.152, 0.018, -0.499$   
 $lab^*tch = 0.25, 0.5, 0.756$   
 $lab^*nch = 0.5, 0.5, 0.756$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.152, 0.004, -0.499$   
 $lab^*tce = 0.25, 0.5, 0.751$   
 $lab^*nce = 0.5, 0.5, b00r$

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

VE410-7, 3 step scales for constant CIELAB hue 272/360 = 0.756 (left)

3 step scales for constant CIELAB hue 272/360 = 0.756 (right)

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18  
 D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^*$  setrgbcolor  
 output:  $olv^*$  (TRI9) setrgbcolor

See for similar files: <http://www.ps.bam.de/VE41/>  
 Technical information: <http://www.ps.bam.de>  
 Version 2.1, io=1,1, CIEXYZ

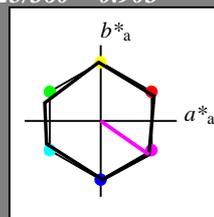
BAM registration: 20060101-VE41/10L/L41E04FP.PS/.PDF BAM material: code=rh4ta  
 application for evaluation and measurement of printer or monitor systems, Yr=2.5, XYZ  
 VE41/ Form 5/10, Serie: 1/1, Page: 5 Page count: 1

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue B50R  
 LCH\*Ma: 57 77 325  
 olv\*Ma: 1.0 0.0 1.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB 95.41 0.0 0.0$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

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

**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**  
 $LAB^*LAB 56.72 0.0 0.0$   
 $LAB^*LABa 56.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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**  
 $LAB^*LAB 18.03 0.0 0.0$   
 $LAB^*LABa 18.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

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

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 $olv3^* 1.0 0.5 1.0 (1.0)$   
 $cmyn3^* 0.0 0.5 0.0 (0.0)$   
 $olv4^* 1.0 0.5 1.0 1.0$   
 $cmyn4^* 0.0 0.5 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 76.05 31.69 -22.18$   
 $LAB^*LABa 76.05 31.69 -22.18$   
 $LAB^*TCHa 75.0 38.69 325.0$

**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)**  
 $lab^*lrj 0.75 0.335 -0.37$   
 $lab^*tce 0.75 0.5 0.867$   
 $lab^*nce 0.0 0.5 b46r$

**relative Inform. Technology (IT)**  
 $olv3^* 0.5 0.0 0.5 (1.0)$   
 $cmyn3^* 0.5 1.0 0.5 (0.0)$   
 $olv4^* 1.0 0.5 1.0 0.5$   
 $cmyn4^* 0.0 0.5 0.0 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 37.36 31.69 -22.18$   
 $LAB^*LABa 37.36 31.69 -22.18$   
 $LAB^*TCHa 25.01 38.69 325.0$

**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)**  
 $lab^*lrj 0.25 0.335 -0.37$   
 $lab^*tce 0.25 0.5 0.867$   
 $lab^*nce 0.5 0.5 b46r$

$n^* = 0.50$

**relative Inform. Technology (IT)**  
 $olv3^* 1.0 0.0 1.0 (1.0)$   
 $cmyn3^* 0.0 1.0 0.0 (0.0)$   
 $olv4^* 1.0 0.0 1.0 1.0$   
 $cmyn4^* 0.0 1.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 56.7 63.39 -44.38$   
 $LAB^*LABa 56.7 63.39 -44.38$   
 $LAB^*TCHa 50.0 77.38 325.0$

**relative CIELAB lab\***  
 $lab^*lab 0.5 0.819 -0.572$   
 $lab^*tch 0.5 1.0 0.903$   
 $lab^*nch 0.0 1.0 0.903$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.5 0.671 -0.74$   
 $lab^*tce 0.5 1.0 0.867$   
 $lab^*nce 0.0 1.0 b46r$

$n^* = 0.00$

blackness  $n^*$

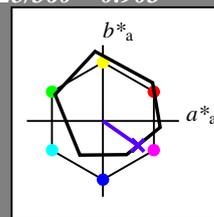
chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue M  
 LCH\*Ma: 33 56 325  
 olv\*Ma: 0.34 0.0 1.0

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**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**  
 $LAB^*LAB 95.41 -0.98 4.75$   
 $LAB^*LABa 95.41 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

**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**  
 $LAB^*LAB 56.71 -0.24 2.14$   
 $LAB^*LABa 56.71 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olv3^* 0.669 0.5 1.0 (1.0)$   
 $cmyn3^* 0.331 0.5 0.0 (0.0)$   
 $olv4^* 0.669 0.5 1.0 1.0$   
 $cmyn4^* 0.331 0.5 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 64.35 22.62 -13.44$   
 $LAB^*LABa 64.35 23.01 -16.1$   
 $LAB^*TCHa 75.0 28.09 325.0$

**relative CIELAB lab\***  
 $lab^*lab 0.599 0.41 -0.286$   
 $lab^*tch 0.75 0.5 0.903$   
 $lab^*nch 0.0 0.5 0.903$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.599 0.338 -0.367$   
 $lab^*tce 0.75 0.5 0.868$   
 $lab^*nce 0.0 0.5 b47r$

**relative Inform. Technology (IT)**  
 $olv3^* 0.169 0.0 0.5 (1.0)$   
 $cmyn3^* 0.831 1.0 0.5 (0.0)$   
 $olv4^* 0.669 0.5 1.0 0.5$   
 $cmyn4^* 0.331 0.5 0.0 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 25.66 23.36 -16.06$   
 $LAB^*LABa 25.66 23.01 -16.1$   
 $LAB^*TCHa 25.01 28.09 324.99$

**relative CIELAB lab\***  
 $lab^*lab 0.099 0.409 -0.286$   
 $lab^*tch 0.25 0.5 0.903$   
 $lab^*nch 0.5 0.5 0.903$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.099 0.338 -0.367$   
 $lab^*tce 0.25 0.5 0.868$   
 $lab^*nce 0.5 0.5 b47r$

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

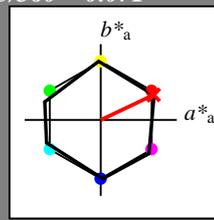
$n^* = 1.0$

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue R  
 LCH\*Ma: 57 77 25  
 olv\*Ma: 1.0 0.01 0.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB = 95.41 \ 0.0 \ 0.0$   
 $LAB^*LABa = 95.41 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 99.99 \ 0.01 \ -$

**relative CIELAB lab\***  
 $lab^*lab = 1.0 \ 0.0 \ 0.0$   
 $lab^*tch = 1.0 \ 0.0 \ -$   
 $lab^*nch = 0.0 \ 0.0 \ -$

**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)**  
 $olv3^* = 1.0 \ 0.505 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.495 \ 0.5 \ (0.0)$   
 $olv4^* = 1.0 \ 0.505 \ 0.5 \ 1.0$   
 $cmyn4^* = 0.0 \ 0.495 \ 0.5 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 76.05 \ 34.74 \ 16.55$   
 $LAB^*LABa = 76.05 \ 34.74 \ 16.55$   
 $LAB^*TCHa = 75.0 \ 38.48 \ 25.48$

**relative CIELAB lab\***  
 $lab^*lab = 0.75 \ 0.451 \ 0.215$   
 $lab^*tch = 0.75 \ 0.5 \ 0.071$   
 $lab^*nch = 0.0 \ 0.5 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.75 \ 0.5 \ 0.0$   
 $lab^*tce = 0.75 \ 0.5 \ 0.0$   
 $lab^*nce = 0.0 \ 0.5 \ r00j$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.5 \ 0.5 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.5 \ 0.5 \ 0.5 \ (0.0)$   
 $olv4^* = 1.0 \ 1.0 \ 1.0 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 56.72 \ 0.0 \ 0.0$   
 $LAB^*LABa = 56.72 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 50.0 \ 0.01 \ -$

**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)**  
 $olv3^* = 0.5 \ 0.005 \ 0.0 \ (1.0)$   
 $cmyn3^* = 0.5 \ 0.995 \ 1.0 \ (0.0)$   
 $olv4^* = 1.0 \ 0.505 \ 0.5 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.495 \ 0.5 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 37.36 \ 34.75 \ 16.55$   
 $LAB^*LABa = 37.36 \ 34.75 \ 16.55$   
 $LAB^*TCHa = 25.01 \ 38.49 \ 25.47$

**relative CIELAB lab\***  
 $lab^*lab = 0.25 \ 0.451 \ 0.215$   
 $lab^*tch = 0.25 \ 0.5 \ 0.071$   
 $lab^*nch = 0.5 \ 0.5 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.25 \ 0.5 \ 0.0$   
 $lab^*tce = 0.25 \ 0.5 \ 1.0$   
 $lab^*nce = 0.5 \ 0.5 \ b99r$

**relative Inform. Technology (IT)**  
 $olv3^* = 0.0 \ 0.0 \ 0.0 \ (1.0)$   
 $cmyn3^* = 1.0 \ 1.0 \ 1.0 \ (0.0)$   
 $olv4^* = 1.0 \ 1.0 \ 1.0 \ 0.0$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 18.03 \ 0.0 \ 0.0$   
 $LAB^*LABa = 18.03 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 0.01 \ 0.01 \ -$

**relative CIELAB lab\***  
 $lab^*lab = 0.0 \ 0.0 \ 0.0$   
 $lab^*tch = 0.0 \ 0.0 \ -$   
 $lab^*nch = 1.0 \ 0.0 \ -$

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

$n^* = 1.0$

$n^* = 0.50$   
 chromaticness  $c^*$

**relative Inform. Technology (IT)**  
 $olv3^* = 1.0 \ 0.009 \ 0.0 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.991 \ 1.0 \ (0.0)$   
 $olv4^* = 1.0 \ 0.009 \ 0.0 \ 1.0$   
 $cmyn4^* = 0.0 \ 0.991 \ 1.0 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 56.7 \ 69.48 \ 33.1$   
 $LAB^*LABa = 56.7 \ 69.48 \ 33.1$   
 $LAB^*TCHa = 50.0 \ 76.97 \ 25.47$

**relative CIELAB lab\***  
 $lab^*lab = 0.5 \ 0.903 \ 0.43$   
 $lab^*tch = 0.5 \ 1.0 \ 0.071$   
 $lab^*nch = 0.0 \ 1.0 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.5 \ 1.0 \ 0.0$   
 $lab^*tce = 0.5 \ 1.0 \ 1.0$   
 $lab^*nce = 0.0 \ 1.0 \ b99r$

$n^* = 0.00$

blackness  $n^*$

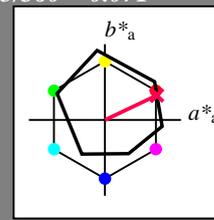
chromaticness  $c^*$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue R  
 LCH\*Ma: 48 76 25  
 olv\*Ma: 1.0 0.0 0.3

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**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**  
 $LAB^*LAB = 95.41 \ -0.98 \ 4.75$   
 $LAB^*LABa = 95.41 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 99.99 \ 0.01 \ -$

**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)**  
 $olv3^* = 1.0 \ 0.5 \ 0.652 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.5 \ 0.348 \ (0.0)$   
 $olv4^* = 1.0 \ 0.5 \ 0.652 \ 1.0$   
 $cmyn4^* = 0.0 \ 0.5 \ 0.348 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 71.7 \ 33.66 \ 19.45$   
 $LAB^*LABa = 71.7 \ 34.19 \ 16.29$   
 $LAB^*TCHa = 75.0 \ 37.88 \ 25.48$

**relative CIELAB lab\***  
 $lab^*lab = 0.694 \ 0.451 \ 0.215$   
 $lab^*tch = 0.75 \ 0.5 \ 0.071$   
 $lab^*nch = 0.0 \ 0.5 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.694 \ 0.5 \ 0.009$   
 $lab^*tce = 0.75 \ 0.5 \ 0.003$   
 $lab^*nce = 0.0 \ 0.5 \ r01j$

**relative Inform. Technology (IT)**  
 $olv3^* = 1.0 \ 0.0 \ 0.304 \ (1.0)$   
 $cmyn3^* = 0.0 \ 1.0 \ 0.696 \ (0.0)$   
 $olv4^* = 1.0 \ 0.0 \ 0.305 \ 1.0$   
 $cmyn4^* = 0.0 \ 1.0 \ 0.695 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 48.0 \ 68.31 \ 34.14$   
 $LAB^*LABa = 48.0 \ 68.38 \ 32.59$   
 $LAB^*TCHa = 50.0 \ 75.75 \ 25.48$

**relative CIELAB lab\***  
 $lab^*lab = 0.387 \ 0.903 \ 0.43$   
 $lab^*tch = 0.5 \ 1.0 \ 0.071$   
 $lab^*nch = 0.0 \ 1.0 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.387 \ 1.0 \ 0.018$   
 $lab^*tce = 0.5 \ 1.0 \ 0.003$   
 $lab^*nce = 0.0 \ 1.0 \ r01j$

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

**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**  
 $LAB^*LAB = 56.71 \ -0.24 \ 2.14$   
 $LAB^*LABa = 56.71 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 50.0 \ 0.01 \ -$

**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)**  
 $olv3^* = 0.5 \ 0.0 \ 0.152 \ (1.0)$   
 $cmyn3^* = 0.5 \ 1.0 \ 0.848 \ (0.0)$   
 $olv4^* = 1.0 \ 0.5 \ 0.652 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.5 \ 0.348 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 33.01 \ 34.4 \ 16.84$   
 $LAB^*LABa = 33.01 \ 34.19 \ 16.3$   
 $LAB^*TCHa = 25.01 \ 37.88 \ 25.48$

**relative CIELAB lab\***  
 $lab^*lab = 0.194 \ 0.451 \ 0.215$   
 $lab^*tch = 0.25 \ 0.5 \ 0.071$   
 $lab^*nch = 0.5 \ 0.5 \ 0.071$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.194 \ 0.5 \ 0.009$   
 $lab^*tce = 0.25 \ 0.5 \ 0.003$   
 $lab^*nce = 0.5 \ 0.5 \ r01j$

$n^* = 0.50$

blackness  $n^*$

chromaticness  $c^*$

**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**  
 $LAB^*LAB = 18.02 \ 0.5 \ -0.47$   
 $LAB^*LABa = 18.02 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 0.01 \ 0.01 \ -$

**relative CIELAB lab\***  
 $lab^*lab = 0.0 \ 0.0 \ 0.0$   
 $lab^*tch = 0.0 \ 0.0 \ -$   
 $lab^*nch = 1.0 \ 0.0 \ -$

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

$n^* = 1.0$

blackness  $n^*$

chromaticness  $c^*$

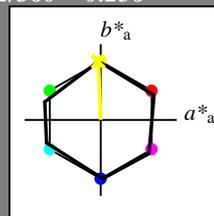
**Input: Colorimetric Natural Reflective System CNS18**

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

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

D65: hue J  
 LCH\*Ma: 57 77 92  
 olv\*Ma: 0.99 1.0 0.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**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**  
 $LAB^*LAB = 95.41 \ 0.0 \ 0.0$   
 $LAB^*LABa = 95.41 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 99.99 \ 0.01 \ -$

**relative CIELAB lab\***  
 $lab^*lab = 1.0 \ 0.0 \ 0.0$   
 $lab^*tch = 1.0 \ 0.0 \ -$   
 $lab^*nch = 0.0 \ 0.0 \ -$

**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)**  
 $olv_i3^* = 0.5 \ 0.5 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.5 \ 0.5 \ (0.0)$   
 $olv_i4^* = 1.0 \ 1.0 \ 1.0 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 56.72 \ 0.0 \ 0.0$   
 $LAB^*LABa = 56.72 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 50.0 \ 0.01 \ -$

**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)**  
 $olv_i3^* = 0.0 \ 0.0 \ 0.0 \ (1.0)$   
 $cmyn3^* = 1.0 \ 1.0 \ 1.0 \ (0.0)$   
 $olv_i4^* = 1.0 \ 1.0 \ 1.0 \ 0.0$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 18.03 \ 0.0 \ 0.0$   
 $LAB^*LABa = 18.03 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 0.01 \ 0.01 \ -$

**relative CIELAB lab\***  
 $lab^*lab = 0.0 \ 0.0 \ 0.0$   
 $lab^*tch = 0.0 \ 0.0 \ -$   
 $lab^*nch = 1.0 \ 0.0 \ -$

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

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 $olv_i3^* = 0.997 \ 1.0 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.003 \ 0.0 \ 0.5 \ (0.0)$   
 $olv_i4^* = 0.997 \ 1.0 \ 0.5 \ 1.0$   
 $cmyn4^* = 0.003 \ 0.0 \ 0.5 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 76.05 \ -1.54 \ 38.52$   
 $LAB^*LABa = 76.05 \ -1.54 \ 38.52$   
 $LAB^*TCHa = 75.0 \ 38.55 \ 92.3$

**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)**  
 $olv_i3^* = 0.497 \ 0.5 \ 0.0 \ (1.0)$   
 $cmyn3^* = 0.503 \ 0.5 \ 1.0 \ (0.0)$   
 $olv_i4^* = 0.997 \ 1.0 \ 0.5 \ 0.5$   
 $cmyn4^* = 0.003 \ 0.0 \ 0.5 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 37.36 \ -1.55 \ 38.51$   
 $LAB^*LABa = 37.36 \ -1.55 \ 38.51$   
 $LAB^*TCHa = 25.01 \ 38.55 \ 92.31$

**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)**  
 $lab^*lrj = 0.25 \ 0.0 \ 0.5$   
 $lab^*tce = 0.25 \ 0.5 \ 0.25$   
 $lab^*nce = 0.5 \ 0.5 \ r99j$

$n^* = 0.00$

blackness  $n^*$

$n^* = 0.50$

chromaticness  $c^*$

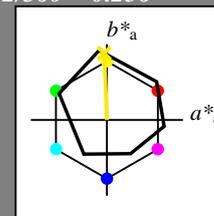
**Output: Colorimetric Offset Reflective System ORS18**

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

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

D65: hue J  
 LCH\*Ma: 87 88 92  
 olv\*Ma: 1.0 0.91 0.0

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**relative Inform. Technology (IT)**  
 $olv_i3^* = 1.0 \ 1.0 \ 1.0 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.0 \ 0.0 \ (0.0)$   
 $olv_i4^* = 1.0 \ 1.0 \ 1.0 \ 1.0$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 95.41 \ -0.98 \ 4.75$   
 $LAB^*LABa = 95.41 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 99.99 \ 0.01 \ -$

**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)**  
 $olv_i3^* = 0.5 \ 0.5 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.5 \ 0.5 \ 0.5 \ (0.0)$   
 $olv_i4^* = 1.0 \ 1.0 \ 1.0 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.0 \ 0.0 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 56.71 \ -0.24 \ 2.14$   
 $LAB^*LABa = 56.71 \ 0.0 \ 0.0$   
 $LAB^*TCHa = 50.0 \ 0.01 \ -$

**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)**  
 $olv_i3^* = 1.0 \ 0.956 \ 0.5 \ (1.0)$   
 $cmyn3^* = 0.0 \ 0.044 \ 0.5 \ (0.0)$   
 $olv_i4^* = 1.0 \ 0.956 \ 0.5 \ 1.0$   
 $cmyn4^* = 0.0 \ 0.044 \ 0.5 \ 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB = 91.01 \ -2.68 \ 48.5$   
 $LAB^*LABa = 91.01 \ -1.78 \ 44.04$   
 $LAB^*TCHa = 75.0 \ 44.08 \ 92.32$

**relative CIELAB lab\***  
 $lab^*lab = 0.943 \ -0.019 \ 0.499$   
 $lab^*tch = 0.75 \ 0.5 \ 0.256$   
 $lab^*nch = 0.0 \ 0.5 \ 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.943 \ -0.004 \ 0.5$   
 $lab^*tce = 0.75 \ 0.5 \ 0.252$   
 $lab^*nce = 0.0 \ 0.5 \ j00g$

**relative Inform. Technology (IT)**  
 $olv_i3^* = 0.5 \ 0.456 \ 0.0 \ (1.0)$   
 $cmyn3^* = 0.5 \ 0.544 \ 1.0 \ (0.0)$   
 $olv_i4^* = 1.0 \ 0.956 \ 0.5 \ 0.5$   
 $cmyn4^* = 0.0 \ 0.044 \ 0.5 \ 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB = 52.31 \ -1.93 \ 45.89$   
 $LAB^*LABa = 52.31 \ -1.77 \ 44.04$   
 $LAB^*TCHa = 25.01 \ 44.07 \ 92.31$

**relative CIELAB lab\***  
 $lab^*lab = 0.443 \ -0.019 \ 0.499$   
 $lab^*tch = 0.25 \ 0.5 \ 0.256$   
 $lab^*nch = 0.5 \ 0.5 \ 0.256$

**relative Natural Colour (NC)**  
 $lab^*lrj = 0.443 \ -0.004 \ 0.5$   
 $lab^*tce = 0.25 \ 0.5 \ 0.252$   
 $lab^*nce = 0.5 \ 0.5 \ j00g$

$n^* = 0.00$

blackness  $n^*$

$n^* = 0.50$

chromaticness  $c^*$

$n^* = 1.0$

VE410-7, 3 step scales for constant CIELAB hue 92/360 = 0.256 (left)

3 step scales for constant CIELAB hue 92/360 = 0.256 (right)

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18

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

input:  $olv^*$  setrgbcolor

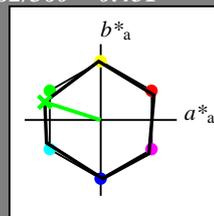
output:  $olv^*$  (TRI9) setrgbcolor

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue G  
 LCH\*Ma: 57 77 162  
 olv\*Ma: 0.0 1.0 0.01

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut

$u^*_{rel} = 100$

%Regularity

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 95.41 0.0 0.0  
 LAB\*LABa 95.41 0.0 0.0  
 LAB\*TCHa 99.99 0.01 -

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 56.72 0.0 0.0  
 LAB\*LABa 56.72 0.0 0.0  
 LAB\*TCHa 50.0 0.01 -

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 18.03 0.0 0.0  
 LAB\*LABa 18.03 0.0 0.0  
 LAB\*TCHa 0.01 0.01 -

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

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

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 olvi3\* 0.5 1.0 0.503 (1.0)  
 cmyn3\* 0.5 0.0 0.497 (0.0)  
 olvi4\* 0.5 1.0 0.503 1.0  
 cmyn4\* 0.5 0.0 0.497 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 76.05 -36.78 11.8  
 LAB\*LABa 76.05 -36.78 11.8  
 LAB\*TCHa 75.0 38.64 162.22

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

**relative Natural Colour (NC)**  
 lab\*lrj 0.75 -0.499 0.0  
 lab\*tce 0.75 0.5 0.5  
 lab\*nce 0.0 0.5 0.96g

**relative Inform. Technology (IT)**  
 olvi3\* 0.0 0.5 0.003 (1.0)  
 cmyn3\* 1.0 0.5 0.997 (0.0)  
 olvi4\* 0.5 1.0 0.503 0.5  
 cmyn4\* 0.5 0.0 0.497 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 37.36 -36.78 11.8  
 LAB\*LABa 37.36 -36.78 11.8  
 LAB\*TCHa 25.01 38.64 162.22

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

**relative Natural Colour (NC)**  
 lab\*lrj 0.25 -0.499 0.0  
 lab\*tce 0.25 0.5 0.5  
 lab\*nce 0.5 0.5 0.99g

$n^* = 0.50$

$n^* = 0.25$

**relative Inform. Technology (IT)**  
 olvi3\* 0.0 1.0 0.006 (1.0)  
 cmyn3\* 1.0 0.0 0.994 (0.0)  
 olvi4\* 0.0 1.0 0.006 1.0  
 cmyn4\* 1.0 0.0 0.994 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 56.7 -73.57 23.6  
 LAB\*LABa 56.7 -73.57 23.6  
 LAB\*TCHa 50.0 77.27 162.22

**relative CIELAB lab\***  
 lab\*lab 0.5 -0.951 0.305  
 lab\*tch 0.5 1.0 0.451  
 lab\*nch 0.0 1.0 0.451

**relative Natural Colour (NC)**  
 lab\*lrj 0.5 -0.999 0.0  
 lab\*tce 0.5 1.0 0.5  
 lab\*nce 0.0 1.0 0.99g

$n^* = 0.00$

$n^* = 0.25$

$n^* = 0.50$

$n^* = 1.00$

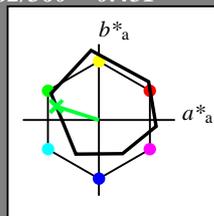
$n^* = 1.0$

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue G  
 LCH\*Ma: 53 59 162  
 olv\*Ma: 0.0 1.0 0.21

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut

$u^*_{rel} = 93$

%Regularity

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 95.41 -0.98 4.75  
 LAB\*LABa 95.41 0.0 0.0  
 LAB\*TCHa 99.99 0.01 -

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 56.71 -0.24 2.14  
 LAB\*LABa 56.71 0.0 0.0  
 LAB\*TCHa 50.0 0.01 -

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

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

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

**standard and adapted CIELAB**  
 LAB\*LAB 18.02 0.5 -0.47  
 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 -

$n^* = 1.0$

**relative Inform. Technology (IT)**  
 olvi3\* 0.5 1.0 0.606 (1.0)  
 cmyn3\* 0.5 0.0 0.394 (0.0)  
 olvi4\* 0.5 1.0 0.607 1.0  
 cmyn4\* 0.5 0.0 0.393 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 73.97 -28.52 12.27  
 LAB\*LABa 73.97 -27.94 8.96  
 LAB\*TCHa 75.0 29.35 162.23

**relative CIELAB lab\***  
 lab\*lab 0.723 -0.475 0.153  
 lab\*tch 0.75 0.5 0.451  
 lab\*nch 0.0 0.5 0.451

**relative Natural Colour (NC)**  
 lab\*lrj 0.723 -0.498 0.024  
 lab\*tce 0.75 0.5 0.492  
 lab\*nce 0.0 0.5 0.96g

**relative Inform. Technology (IT)**  
 olvi3\* 0.0 0.5 0.106 (1.0)  
 cmyn3\* 1.0 0.5 0.894 (0.0)  
 olvi4\* 0.5 1.0 0.606 0.5  
 cmyn4\* 0.5 0.0 0.394 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 35.28 -27.78 9.67  
 LAB\*LABa 35.28 -27.95 8.97  
 LAB\*TCHa 25.01 29.36 162.21

**relative CIELAB lab\***  
 lab\*lab 0.223 -0.475 0.153  
 lab\*tch 0.25 0.5 0.451  
 lab\*nch 0.5 0.5 0.451

**relative Natural Colour (NC)**  
 lab\*lrj 0.223 -0.498 0.024  
 lab\*tce 0.25 0.5 0.492  
 lab\*nce 0.5 0.5 0.96g

$n^* = 0.50$

$n^* = 0.25$

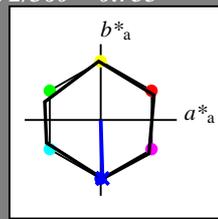
$n^* = 0.00$

**Input: Colorimetric Natural Reflective System CNS18**

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

D65: hue B  
 LCH\*Ma: 57 77 272  
 olv\*Ma: 0.0 0.0 1.0

triangle lightness  $t^*$



**CNS18; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	56.7	70.15	32.71	77.4	25
JMa	56.7	-2.69	77.35	77.4	92
GMa	56.7	-73.6	23.92	77.4	162
G50BMa	56.7	-71.24	-30.23	77.4	203
BMa	56.7	2.7	-77.34	77.4	272
B50RMa	56.7	63.4	-44.38	77.4	325
NMa	18.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.74	27.99	65.07	25
JCIE	81.26	-2.88	71.56	71.62	92
GCIE	52.23	-42.41	13.6	44.55	162
BCIE	30.57	1.41	-46.46	46.49	272

%Gamut  
 $u^*_{rel} = 100$   
 %Regularity  
 $g^*_{H,rel} = 59$   
 $g^*_{C,rel} = 100$

**relative Inform. Technology (IT)**

olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	95.41	0.0	0.0
LAB*LABa	95.41	0.0	0.0
LAB*TCHa	99.99	0.01	-

**relative CIELAB lab\***

lab*lab	1.0	0.0	0.0
lab*tch	1.0	0.0	-
lab*nch	0.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	1.0	0.0	0.0
lab*tce	1.0	0.0	-
lab*nce	0.0	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.5	0.502	1.0	(1.0)
cmyn3*	0.5	0.498	0.0	(0.0)
olvi4*	0.5	0.503	1.0	1.0
cmyn4*	0.5	0.497	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	76.05	1.17	-38.54
LAB*LABa	76.05	1.17	-38.54
LAB*TCHa	75.0	38.57	271.74

**relative CIELAB lab\***

lab*lab	0.75	0.015	-0.499
lab*tch	0.75	0.5	0.755
lab*nch	0.0	0.5	0.755

**relative Natural Colour (NC)**

lab*lrj	0.75	0.0	-0.499
lab*tce	0.75	0.5	0.75
lab*nce	0.0	0.5	g99b

**relative Inform. Technology (IT)**

olvi3*	0.0	0.005	1.0	(1.0)
cmyn3*	1.0	0.995	0.0	(0.0)
olvi4*	0.0	0.005	1.0	1.0
cmyn4*	1.0	0.995	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	56.7	2.35	-77.1
LAB*LABa	56.7	2.35	-77.1
LAB*TCHa	50.0	77.15	271.74

**relative CIELAB lab\***

lab*lab	0.5	0.03	-0.998
lab*tch	0.5	1.0	0.755
lab*nch	0.0	1.0	0.755

**relative Natural Colour (NC)**

lab*lrj	0.5	0.0	-0.999
lab*tce	0.5	1.0	0.75
lab*nce	0.0	1.0	b00r

**relative Inform. Technology (IT)**

olvi3*	0.0	0.002	0.5	(1.0)
cmyn3*	1.0	0.998	0.5	(0.0)
olvi4*	0.5	0.502	1.0	0.5
cmyn4*	0.5	0.498	0.0	0.5

**standard and adapted CIELAB**

LAB*LAB	37.36	1.18	-38.55
LAB*LABa	37.36	1.18	-38.55
LAB*TCHa	25.01	38.58	271.75

**relative CIELAB lab\***

lab*lab	0.25	0.015	-0.499
lab*tch	0.25	0.5	0.755
lab*nch	0.5	0.5	0.755

**relative Natural Colour (NC)**

lab*lrj	0.25	0.0	-0.499
lab*tce	0.25	0.5	0.75
lab*nce	0.5	0.5	b00r

**relative Inform. Technology (IT)**

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0

**standard and adapted CIELAB**

LAB*LAB	18.03	0.0	0.0
LAB*LABa	18.03	0.0	0.0
LAB*TCHa	0.01	0.01	-

**relative CIELAB lab\***

lab*lab	0.0	0.0	0.0
lab*tch	0.0	0.0	-
lab*nch	1.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	0.0	0.0	0.0
lab*tce	0.0	0.0	-
lab*nce	1.0	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0

**standard and adapted CIELAB**

LAB*LAB	18.02	0.5	-0.47
LAB*LABa	18.02	0.0	0.0
LAB*TCHa	0.01	0.01	-

**relative CIELAB lab\***

lab*lab	0.0	0.0	0.0
lab*tch	0.0	0.0	-
lab*nch	1.0	0.0	-

**relative Natural Colour (NC)**

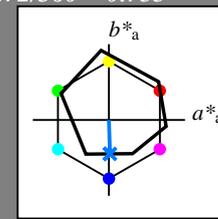
lab*lrj	0.0	0.0	0.0
lab*tce	0.0	0.0	-
lab*nce	1.0	0.0	-

**Output: Colorimetric Offset Reflective System ORS18**

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

D65: hue B  
 LCH\*Ma: 42 45 272  
 olv\*Ma: 0.0 0.48 1.0

triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	65.39	50.52	82.63	38
YMa	90.37	-10.26	91.75	92.32	96
LMa	50.9	-62.83	34.96	71.91	151
CMa	58.62	-30.34	-45.01	54.3	236
VMa	25.72	31.1	-44.4	54.22	305
MMa	48.13	75.28	-8.36	75.74	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	64.57	25
JCIE	81.26	-2.16	67.76	67.79	92
GCIE	52.23	-42.25	11.76	43.87	164
BCIE	30.57	1.15	-46.84	46.86	271

%Gamut  
 $u^*_{rel} = 93$   
 %Regularity  
 $g^*_{H,rel} = 57$   
 $g^*_{C,rel} = 59$

**relative Inform. Technology (IT)**

olvi3*	1.0	1.0	1.0	(1.0)
cmyn3*	0.0	0.0	0.0	(0.0)
olvi4*	1.0	1.0	1.0	1.0
cmyn4*	0.0	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	95.41	-0.98	4.75
LAB*LABa	95.41	0.0	0.0
LAB*TCHa	99.99	0.01	-

**relative CIELAB lab\***

lab*lab	1.0	0.0	0.0
lab*tch	1.0	0.0	-
lab*nch	0.0	0.0	-

**relative Natural Colour (NC)**

lab*lrj	1.0	0.0	0.0
lab*tce	1.0	0.0	-
lab*nce	0.0	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.5	0.742	1.0	(1.0)
cmyn3*	0.5	0.258	0.0	(0.0)
olvi4*	0.5	0.742	1.0	1.0
cmyn4*	0.5	0.258	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	68.53	0.2	-19.4
LAB*LABa	68.53	0.68	-22.34
LAB*TCHa	75.0	22.36	271.73

**relative CIELAB lab\***

lab*lab	0.653	0.015	-0.499
lab*tch	0.75	0.5	0.755
lab*nch	0.0	0.5	0.755

**relative Natural Colour (NC)**

lab*lrj	0.653	0.002	-0.499
lab*tce	0.75	0.5	0.751
lab*nce	0.0	0.5	b00r

**relative Inform. Technology (IT)**

olvi3*	0.0	0.484	1.0	(1.0)
cmyn3*	1.0	0.516	0.0	(0.0)
olvi4*	0.0	0.484	1.0	1.0
cmyn4*	1.0	0.516	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	41.65	1.4	-43.56
LAB*LABa	41.65	1.36	-44.69
LAB*TCHa	50.0	44.72	271.74

**relative CIELAB lab\***

lab*lab	0.305	0.03	-0.998
lab*tch	0.5	1.0	0.755
lab*nch	0.0	1.0	0.755

**relative Natural Colour (NC)**

lab*lrj	0.305	0.005	-0.999
lab*tce	0.5	1.0	0.751
lab*nce	0.0	1.0	b00r

**relative Inform. Technology (IT)**

olvi3*	0.5	0.5	0.5	(1.0)
cmyn3*	0.5	0.5	0.5	(0.0)
olvi4*	1.0	1.0	1.0	0.5
cmyn4*	0.0	0.0	0.0	0.5

**standard and adapted CIELAB**

LAB*LAB	56.71	-0.24	2.14
LAB*LABa	56.71	0.0	0.0
LAB*TCHa	50.0	0.01	-

**relative CIELAB lab\***

lab*lab	0.5	0.0	0.0
lab*tch	0.5	0.0	-
lab*nch	0.5	0.0	-

**relative Natural Colour (NC)**

lab*lrj	0.5	0.0	0.0
lab*tce	0.5	0.0	-
lab*nce	0.5	0.0	-

**relative Inform. Technology (IT)**

olvi3*	0.0	0.242	0.5	(1.0)
cmyn3*	1.0	0.758	0.5	(0.0)
olvi4*	0.5	0.742	1.0	0.5
cmyn4*	0.5	0.258	0.0	0.5

**standard and adapted CIELAB**

LAB*LAB	29.83	0.95	-22.01
LAB*LABa	29.83	0.68	-22.34
LAB*TCHa	25.01	22.36	271.75

**relative CIELAB lab\***

lab*lab	0.153	0.015	-0.499
lab*tch	0.25	0.5	0.755
lab*nch	0.5	0.5	0.755

**relative Natural Colour (NC)**

lab*lrj	0.153	0.002	-0.499
lab*tce	0.25	0.5	0.751
lab*nce	0.5	0.5	b00r

**relative Inform. Technology (IT)**

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	1.0	1.0	(0.0)
olvi4*	1.0	1.0	1.0	0.0
cmyn4*	0.0	0.0	0.0	1.0

**standard and adapted CIELAB**

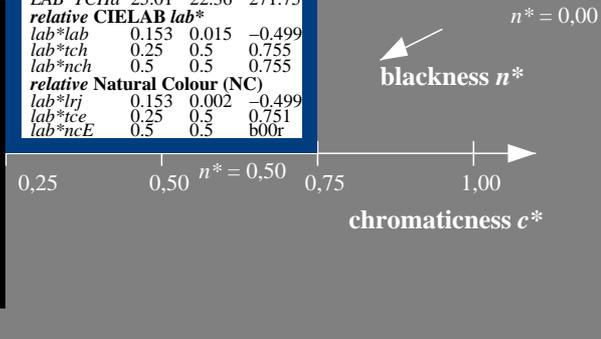
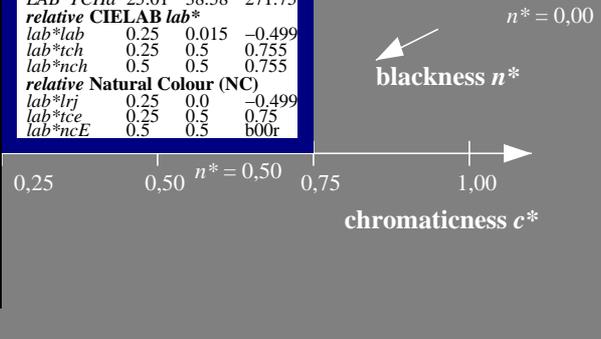
LAB*LAB	18.02	0.5	-0.47
LAB*LABa	18.02	0.0	0.0
LAB*TCHa	0.01	0.01	-

**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	-



VE410-7, 3 step scales for constant CIELAB hue 272/360 = 0.755 (left)

3 step scales for constant CIELAB hue 272/360 = 0.755 (right)

BAM-test chart VE41; Colorimetric systems CNS18 & ORS18  
 D65: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^*$  setrgbcolor  
 output:  $olv^*$  (TRI9) setrgbcolor