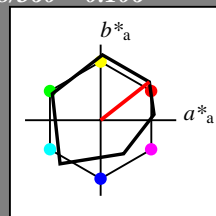


**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 38/360 = 0.106$   
 $lab^*tch$  and  $lab^*nch$

A: hue O  
 LCH\*Ma: 48 82 38  
 olv\*Ma: 1.0 0.0 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

**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	95.6	0.43	4.65
LAB*LABa	95.6	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*	1.0	0.5	0.5	(1.0)
cmyn3*	0.0	0.5	0.5	(0.0)
olvi4*	1.0	0.5	0.5	1.0
cmyn4*	0.0	0.5	0.5	0.0

**standard and adapted CIELAB**

LAB*LAB	71.77	32.86	28.36
LAB*LABa	71.77	32.2	25.28
LAB*TCHa	75.0	40.94	38.14

**relative CIELAB lab\***

lab*lab	0.692	0.393	0.309
lab*tch	0.75	0.5	0.106
lab*nch	0.0	0.5	0.106

**relative Natural Colour (NC)**

lab*lrj	0.692	0.496	0.064
lab*tce	0.75	0.5	0.02
lab*nce	0.0	0.5	r08j

**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	56.86	0.8	2.08
LAB*LABa	56.86	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*	0.5	0.0	0.0	(1.0)
cmyn3*	0.5	1.0	1.0	(0.0)
olvi4*	1.0	0.5	0.5	0.5
cmyn4*	0.0	0.5	0.5	0.5

**standard and adapted CIELAB**

LAB*LAB	33.03	33.24	25.79
LAB*LABa	33.03	32.2	25.28
LAB*TCHa	25.01	40.94	38.14

**relative CIELAB lab\***

lab*lab	0.193	0.393	0.309
lab*tch	0.25	0.5	0.106
lab*nch	0.5	0.5	0.106

**relative Natural Colour (NC)**

lab*lrj	0.193	0.496	0.064
lab*tce	0.25	0.5	0.02
lab*nce	0.5	0.5	r08j

**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	18.12	1.18	-0.49
LAB*LABa	18.12	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*	0.5	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	0.03	0.0	0.0
LAB*LABa	0.03	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	-

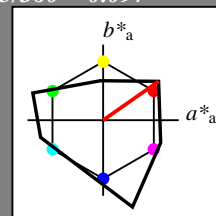
**relative Natural Colour (NC)**

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

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 35/360 = 0.097$   
 $lab^*tch$  and  $lab^*nch$

A: hue O  
 LCH\*Ma: 66 90 35  
 olv\*Ma: 1.0 0.0 0.0  
 triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

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

**standard and adapted CIELAB**

LAB*LAB	80.48	36.66	25.69
LAB*LABa	80.48	36.66	25.69
LAB*TCHa	75.0	44.77	35.02

**relative CIELAB lab\***

lab*lab	0.843	0.409	0.287
lab*tch	0.75	0.5	0.097
lab*nch	0.0	0.5	0.097

**relative Natural Colour (NC)**

lab*lrj	0.843	0.5	0.007
lab*tce	0.75	0.5	0.002
lab*nce	0.0	0.5	r00j

**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	47.72	0.0	0.0
LAB*LABa	47.72	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*	0.5	0.0	0.0	(1.0)
cmyn3*	0.5	1.0	1.0	(0.0)
olvi4*	1.0	0.5	0.5	0.5
cmyn4*	0.0	0.5	0.5	0.5

**standard and adapted CIELAB**

LAB*LAB	32.79	36.66	25.69
LAB*LABa	32.79	36.66	25.69
LAB*TCHa	25.01	44.77	35.02

**relative CIELAB lab\***

lab*lab	0.344	0.409	0.287
lab*tch	0.25	0.5	0.097
lab*nch	0.5	0.5	0.097

**relative Natural Colour (NC)**

lab*lrj	0.344	0.5	0.007
lab*tce	0.25	0.5	0.002
lab*nce	0.5	0.5	r00j

**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	0.03	0.0	0.0
LAB*LABa	0.03	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**

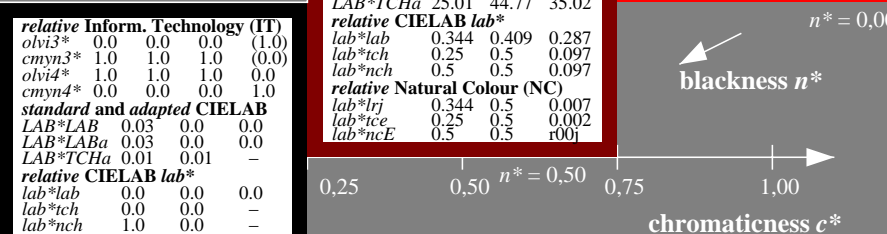
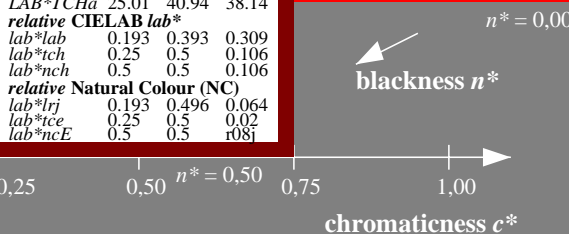
LAB*LAB	0.03	0.0	0.0
LAB*LABa	0.03	0.0	0.0
LAB*TCHa	0.01	0.01	-

**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	-



RE100-7, 3 step scales for constant CIELAB hue 38/360 = 0.106 (left)

3 step scales for constant CIELAB hue 35/360 = 0.097 (right)

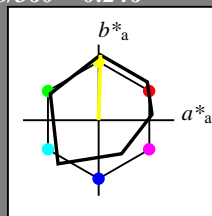
BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^* setrgbcolor$   
 output: no change compared to input

**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 88/360 = 0.246$   
 $lab^*tch$  and  $lab^*nch$

A: hue Y  
 LCH\*Ma: 93 86 88  
 olv\*Ma: 1.0 1.0 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut  
 $u^*_{rel} = 96$   
 %Regularity  
 $g^*_{H,rel} = -385$   
 $g^*_{C,rel} = 62$

**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 95.6 0.43 4.65  
 LAB\*LABa 95.6 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\* 1.0 1.0 0.5 (1.0)  
 cmyn3\* 0.0 0.0 0.5 (0.0)  
 olvi4\* 1.0 1.0 0.5 1.0  
 cmyn4\* 0.0 0.0 0.5 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 94.1 1.65 47.73  
 LAB\*LABa 94.1 1.21 43.17  
 LAB\*TCHa 75.0 43.19 88.4

**relative CIELAB lab\***  
 lab\*lab 0.981 0.014 0.5  
 lab\*tch 0.75 0.5 0.246  
 lab\*nch 0.0 0.5 0.246

**relative Natural Colour (NC)**  
 lab\*lrj 0.981 -0.033 0.499  
 lab\*tce 0.75 0.5 0.261  
 lab\*nce 0.0 0.5 j04g

**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 56.86 0.8 2.08  
 LAB\*LABa 56.86 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\* 0.5 0.5 0.0 (1.0)  
 cmyn3\* 0.5 0.5 1.0 (0.0)  
 olvi4\* 1.0 1.0 0.5 0.5  
 cmyn4\* 0.0 0.0 0.5 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 55.37 2.02 45.16  
 LAB\*LABa 55.37 1.21 43.17  
 LAB\*TCHa 25.01 43.19 88.4

**relative CIELAB lab\***  
 lab\*lab 0.481 0.014 0.5  
 lab\*tch 0.25 0.5 0.246  
 lab\*nch 0.5 0.5 0.246

**relative Natural Colour (NC)**  
 lab\*lrj 0.481 -0.033 0.499  
 lab\*tce 0.25 0.5 0.261  
 lab\*nce 0.5 0.5 j04g

**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 18.12 1.18 -0.49  
 LAB\*LABa 18.12 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 -

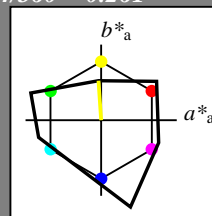
**relative Natural Colour (NC)**  
 lab\*lrj 0.0 0.0 0.0  
 lab\*tce 0.0 0.0 -  
 lab\*nce 1.0 0.0 -

$n^* = 1.0$

**Output: Colorimetric Television Luminous System TLS00**

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

A: hue Y  
 LCH\*Ma: 95 52 94  
 olv\*Ma: 1.0 1.0 0.0  
 triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	74.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut  
 $u^*_{rel} = 141$   
 %Regularity  
 $g^*_{H,rel} = 39$   
 $g^*_{C,rel} = 43$

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

**standard and adapted CIELAB**  
 LAB\*LAB 95.09 -1.74 26.11  
 LAB\*LABa 95.09 -1.74 26.11  
 LAB\*TCHa 75.0 26.17 93.83

**relative CIELAB lab\***  
 lab\*lab 0.997 -0.032 0.499  
 lab\*tch 0.75 0.5 0.261  
 lab\*nch 0.0 0.5 0.261

**relative Natural Colour (NC)**  
 lab\*lrj 0.997 -0.083 0.493  
 lab\*tce 0.75 0.5 0.277  
 lab\*nce 0.0 0.5 j10g

**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 47.72 0.0 0.0  
 LAB\*LABa 47.72 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\* 0.5 0.5 0.0 (1.0)  
 cmyn3\* 0.5 0.5 1.0 (0.0)  
 olvi4\* 1.0 1.0 0.5 0.5  
 cmyn4\* 0.0 0.0 0.5 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 47.4 -1.74 26.11  
 LAB\*LABa 47.4 -1.74 26.11  
 LAB\*TCHa 25.01 26.17 93.83

**relative CIELAB lab\***  
 lab\*lab 0.497 -0.032 0.499  
 lab\*tch 0.25 0.5 0.261  
 lab\*nch 0.5 0.5 0.261

**relative Natural Colour (NC)**  
 lab\*lrj 0.497 -0.083 0.493  
 lab\*tce 0.25 0.5 0.277  
 lab\*nce 0.5 0.5 j10g

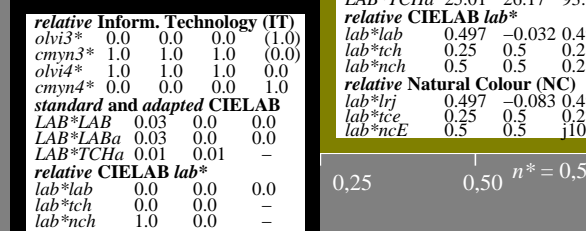
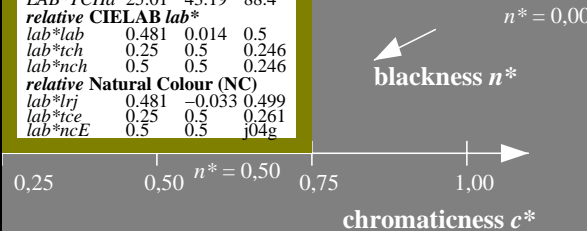
**relative Inform. Technology (IT)**  
 olvi3\* 1.0 1.0 0.0 (1.0)  
 cmyn3\* 0.0 0.0 1.0 (0.0)  
 olvi4\* 1.0 1.0 0.0 1.0  
 cmyn4\* 0.0 0.0 1.0 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 94.77 -3.49 52.23  
 LAB\*LABa 94.77 -3.49 52.23  
 LAB\*TCHa 50.0 52.35 93.83

**relative CIELAB lab\***  
 lab\*lab 0.993 -0.066 0.998  
 lab\*tch 0.5 1.0 0.261  
 lab\*nch 0.0 1.0 0.261

**relative Natural Colour (NC)**  
 lab\*lrj 0.993 -0.167 0.986  
 lab\*tce 0.5 1.0 0.277  
 lab\*nce 0.0 1.0 j10g

$n^* = 0.00$



RE10-7, 3 step scales for constant CIELAB hue 88/360 = 0.246 (left)

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

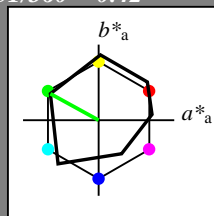
BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input: olv\* setrgbcolor  
 output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab^*h = 151/360 = 0.42$   
 $lab^*tch$  and  $lab^*nch$

A: hue L  
 LCH\*Ma: 51 73 151  
 olv\*Ma: 0.0 1.0 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

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	95.6	0.43	4.65
LAB*LABa	95.6	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	1.0	0.5	(1.0)
cmyn3*	0.5	0.0	0.5	(0.0)
olvi4*	0.5	1.0	0.5	1.0
cmyn4*	0.5	0.0	0.5	0.0

standard and adapted CIELAB

LAB*LAB	73.25	-31.25	20.68
LAB*LABa	73.25	-31.9	17.51
LAB*TCHa	75.0	36.4	151.25

relative CIELAB lab\*

lab*lab	0.712	-0.437	0.24
lab*tch	0.75	0.5	0.42
lab*nch	0.0	0.5	0.42

relative Natural Colour (NC)

lab*lrj	0.712	-0.455	0.204
lab*tce	0.75	0.5	0.433
lab*nce	0.0	0.5	0.433

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	56.86	0.8	2.08
LAB*LABa	56.86	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	0.5	0.0	(1.0)
cmyn3*	1.0	0.5	1.0	(0.0)
olvi4*	0.5	1.0	0.5	0.5
cmyn4*	0.5	0.0	0.5	0.5

standard and adapted CIELAB

LAB*LAB	34.51	-30.88	18.11
LAB*LABa	34.51	-31.9	17.51
LAB*TCHa	25.01	36.4	151.25

relative CIELAB lab\*

lab*lab	0.212	-0.437	0.24
lab*tch	0.25	0.5	0.42
lab*nch	0.5	0.5	0.42

relative Natural Colour (NC)

lab*lrj	0.212	-0.455	0.204
lab*tce	0.25	0.5	0.433
lab*nce	0.5	0.5	0.433

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	18.12	1.18	-0.49
LAB*LABa	18.12	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	0.03	0.0	0.0
LAB*LABa	0.03	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	-

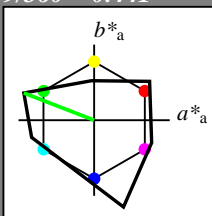
relative Natural Colour (NC)

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

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 159/360 = 0.441$   
 $lab^*tch$  and  $lab^*nch$

A: hue L  
 LCH\*Ma: 77 100 159  
 olv\*Ma: 0.0 1.0 0.0  
 triangle lightness  $t^*$



TLS00; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

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	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	86.44	-46.47	18.0
LAB*LABa	86.44	-46.47	18.0
LAB*TCHa	75.0	49.84	158.83

relative CIELAB lab\*

lab*lab	0.906	-0.465	0.18
lab*tch	0.75	0.5	0.441
lab*nch	0.0	0.5	0.441

relative Natural Colour (NC)

lab*lrj	0.906	-0.483	0.125
lab*tce	0.75	0.5	0.46
lab*nce	0.0	0.5	0.46

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	47.72	0.0	0.0
LAB*LABa	47.72	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	0.5	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	38.75	-46.47	18.0
LAB*LABa	38.75	-46.47	18.0
LAB*TCHa	25.01	49.84	158.83

relative CIELAB lab\*

lab*lab	0.406	-0.465	0.18
lab*tch	0.25	0.5	0.441
lab*nch	0.5	0.5	0.441

relative Natural Colour (NC)

lab*lrj	0.406	-0.483	0.125
lab*tce	0.25	0.5	0.46
lab*nce	0.5	0.5	0.46

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	0.03	0.0	0.0
LAB*LABa	0.03	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	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

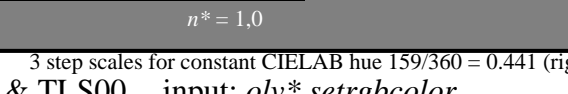
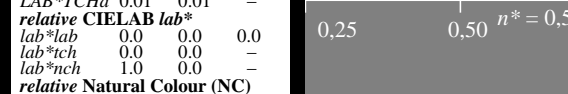
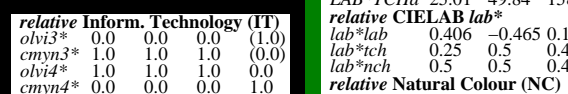
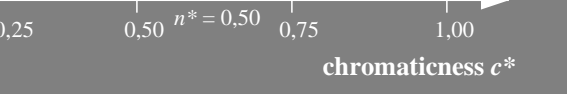
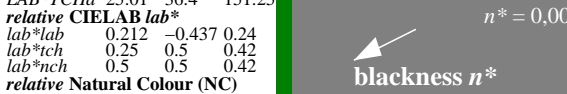
LAB*LAB	77.47	-92.95	35.99
LAB*LABa	77.47	-92.95	35.99
LAB*TCHa	50.0	99.69	158.83

relative CIELAB lab\*

lab*lab	0.812	-0.931	0.361
lab*tch	0.5	1.0	0.441
lab*nch	0.0	1.0	0.441

relative Natural Colour (NC)

lab*lrj	0.812	-0.967	0.25
lab*tce	0.5	1.0	0.46
lab*nce	0.0	1.0	0.46



RE10-7, 3 step scales for constant CIELAB hue 151/360 = 0.42 (left)

3 step scales for constant CIELAB hue 159/360 = 0.441 (right)

BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

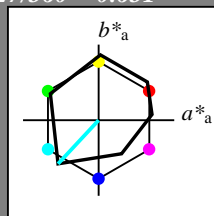
input: olv\* setrgbcolor  
 output: no change compared to input



**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 227/360 = 0.631$   
 $lab^*tch$  and  $lab^*nch$

A: hue C  
 LCH\*Ma: 51 79 227  
 olv\*Ma: 0.0 1.0 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut  
 $u^*_{rel} = 96$   
 %Regularity  
 $g^*_{H,rel} = -385$   
 $g^*_{C,rel} = 62$

**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	95.6	0.43	4.65
LAB*LABa	95.6	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	56.86	0.8	2.08
LAB*LABa	56.86	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	18.12	1.18	-0.49
LAB*LABa	18.12	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	1.0	(1.0)
cmyn3*	0.5	0.0	0.0	(0.0)
olvi4*	0.5	1.0	1.0	1.0
cmyn4*	0.5	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	73.42	-26.18	-25.65
LAB*LABa	73.42	-26.83	-28.84
LAB*TCHa	75.0	39.4	227.06

**relative CIELAB lab\***

lab*lab	0.714	-0.34	-0.365
lab*tch	0.75	0.5	0.631
lab*nch	0.0	0.5	0.631

**relative Natural Colour (NC)**

lab*lrj	0.714	-0.244	-0.435
lab*tce	0.75	0.5	0.668
lab*nce	0.0	0.5	g67b

**relative Inform. Technology (IT)**

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

**standard and adapted CIELAB**

LAB*LAB	34.68	-25.81	-28.22
LAB*LABa	34.68	-26.83	-28.84
LAB*TCHa	25.01	39.4	227.06

**relative CIELAB lab\***

lab*lab	0.214	-0.34	-0.365
lab*tch	0.25	0.5	0.631
lab*nch	0.5	0.5	0.631

**relative Natural Colour (NC)**

lab*lrj	0.214	-0.244	-0.435
lab*tce	0.25	0.5	0.668
lab*nce	0.5	0.5	g67b

$n^* = 0.50$

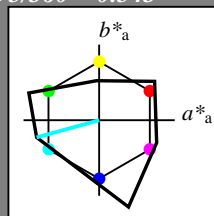
$n^* = 0.00$   
 blackness  $n^*$

chromaticness  $c^*$

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 195/360 = 0.543$   
 $lab^*tch$  and  $lab^*nch$

A: hue C  
 LCH\*Ma: 78 86 195  
 olv\*Ma: 0.0 1.0 1.0  
 triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut  
 $u^*_{rel} = 141$   
 %Regularity  
 $g^*_{H,rel} = 39$   
 $g^*_{C,rel} = 43$

**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	47.72	0.0	0.0
LAB*LABa	47.72	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*	0.5	1.0	1.0	(1.0)
cmyn3*	0.5	0.0	0.0	(0.0)
olvi4*	0.5	1.0	1.0	1.0
cmyn4*	0.5	0.0	0.0	0.0

**standard and adapted CIELAB**

LAB*LAB	86.88	-41.33	-11.36
LAB*LABa	86.88	-41.33	-11.36
LAB*TCHa	75.0	42.88	195.38

**relative CIELAB lab\***

lab*lab	0.911	-0.481	-0.132
lab*tch	0.75	0.5	0.543
lab*nch	0.0	0.5	0.543

**relative Natural Colour (NC)**

lab*lrj	0.911	-0.452	-0.211
lab*tce	0.75	0.5	0.57
lab*nce	0.0	0.5	g27b

**relative Inform. Technology (IT)**

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

**standard and adapted CIELAB**

LAB*LAB	39.19	-41.33	-11.36
LAB*LABa	39.19	-41.33	-11.36
LAB*TCHa	25.01	42.88	195.38

**relative CIELAB lab\***

lab*lab	0.411	-0.481	-0.132
lab*tch	0.25	0.5	0.543
lab*nch	0.5	0.5	0.543

**relative Natural Colour (NC)**

lab*lrj	0.411	-0.452	-0.211
lab*tce	0.25	0.5	0.57
lab*nce	0.5	0.5	g27b

$n^* = 0.50$

$n^* = 0.00$   
 blackness  $n^*$

chromaticness  $c^*$

$n^* = 1.0$

RE100-7, 3 step scales for constant CIELAB hue 227/360 = 0.631 (left)

3 step scales for constant CIELAB hue 195/360 = 0.543 (right)

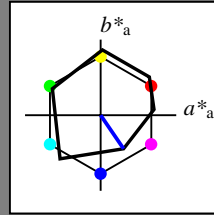
BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input: olv\* setrgbcolor  
 output: no change compared to input

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab^*h = 304/360 = 0.845$   
 $lab^*tch$  and  $lab^*nch$

A: hue V  
 LCH\*Ma: 26 54 304  
 olv\*Ma: 0.0 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

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	95.6	0.43	4.65
LAB*LABa	95.6	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	1.0	(1.0)
cmyn3*	0.5	0.5	0.0	(0.0)
olvi4*	0.5	0.5	1.0	1.0
cmyn4*	0.5	0.5	0.0	0.0

standard and adapted CIELAB

LAB*LAB	60.66	15.94	-19.84
LAB*LABa	60.66	15.17	-22.17
LAB*TCHa	75.0	26.87	304.36

relative CIELAB lab\*

lab*lab	0.549	0.282	-0.412
lab*tch	0.75	0.5	0.845
lab*nch	0.0	0.5	0.845

relative Natural Colour (NC)

lab*lrj	0.549	0.274	-0.417
lab*tce	0.75	0.5	0.842
lab*nce	0.0	0.5	b36r

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	56.86	0.8	2.08
LAB*LABa	56.86	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	0.5	(1.0)
cmyn3*	1.0	1.0	0.5	(0.0)
olvi4*	0.5	0.5	1.0	0.5
cmyn4*	0.5	0.5	0.0	0.5

standard and adapted CIELAB

LAB*LAB	21.92	16.31	-22.41
LAB*LABa	21.92	15.17	-22.17
LAB*TCHa	25.01	26.87	304.36

relative CIELAB lab\*

lab*lab	0.049	0.282	-0.412
lab*tch	0.25	0.5	0.845
lab*nch	0.5	0.5	0.845

relative Natural Colour (NC)

lab*lrj	0.049	0.274	-0.417
lab*tce	0.25	0.5	0.842
lab*nce	0.5	0.5	b36r

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	18.12	1.18	-0.49
LAB*LABa	18.12	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)

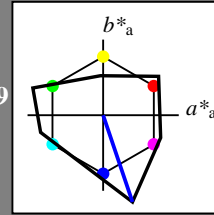
lab*lrj	0.0	0.0	0.0
lab*tce	0.0	0.0	-
lab*nce	1.0	0.0	-

$n^* = 1.0$

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 289/360 = 0.802$   
 $lab^*tch$  and  $lab^*nch$

A: hue V  
 LCH\*Ma: 13 121 289  
 olv\*Ma: 0.0 0.0 1.0  
 triangle lightness  $t^*$



TLS00; adapted (a) CIELAB data

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

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

standard and adapted CIELAB

LAB*LAB	53.98	19.4	-57.39
LAB*LABa	53.98	19.4	-57.39
LAB*TCHa	75.0	60.59	288.68

relative CIELAB lab\*

lab*lab	0.566	0.16	-0.473
lab*tch	0.75	0.5	0.802
lab*nch	0.0	0.5	0.802

relative Natural Colour (NC)

lab*lrj	0.566	0.193	-0.46
lab*tce	0.75	0.5	0.813
lab*nce	0.0	0.5	b25r

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	47.72	0.0	0.0
LAB*LABa	47.72	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	0.5	(1.0)
cmyn3*	1.0	1.0	0.5	(0.0)
olvi4*	0.5	0.5	1.0	0.5
cmyn4*	0.5	0.5	0.0	0.5

standard and adapted CIELAB

LAB*LAB	6.29	19.4	-57.39
LAB*LABa	6.29	19.4	-57.39
LAB*TCHa	25.01	60.59	288.68

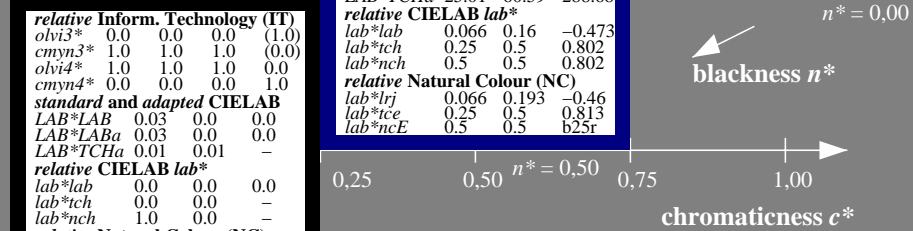
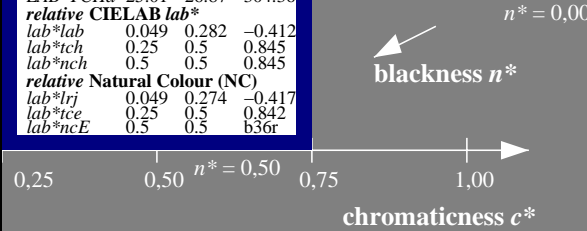
relative CIELAB lab\*

lab*lab	0.066	0.16	-0.473
lab*tch	0.25	0.5	0.802
lab*nch	0.5	0.5	0.802

relative Natural Colour (NC)

lab*lrj	0.066	0.193	-0.46
lab*tce	0.25	0.5	0.813
lab*nce	0.5	0.5	b25r

$n^* = 0.00$



RE10-7, 3 step scales for constant CIELAB hue 304/360 = 0.845 (left)

3 step scales for constant CIELAB hue 289/360 = 0.802 (right)

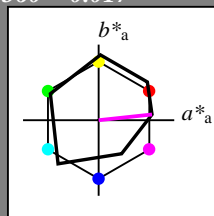
BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input: olv\* setrgbcolor  
 output: no change compared to input

**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 6/360 = 0.017$   
 $lab^*tch$  and  $lab^*nch$

A: hue M  
 LCH\*Ma: 56 71 6  
 olv\*Ma: 1.0 0.0 1.0  
 triangle lightness  $t^*$



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

	$L^*$	$a^*$	$b^*$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut  
 $u^*_{rel} = 96$   
 %Regularity  
 $g^*_{H,rel} = -385$   
 $g^*_{C,rel} = 62$

**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**  
 $LAB^*LAB 95.6 0.43 4.65$   
 $LAB^*LABa 95.6 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 56.86 0.8 2.08$   
 $LAB^*LABa 56.86 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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**  
 $LAB^*LAB 18.12 1.18 -0.49$   
 $LAB^*LABa 18.12 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 75.92 35.91 7.13$   
 $LAB^*LABa 75.92 35.29 3.78$   
 $LAB^*TCHa 75.0 35.49 6.12$

**relative CIELAB lab\***  
 $lab^*lab 0.746 0.497 0.053$   
 $lab^*tch 0.75 0.5 0.017$   
 $lab^*nch 0.0 0.5 0.017$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.746 0.476 -0.151$   
 $lab^*tce 0.75 0.5 0.951$   
 $lab^*nce 0.0 0.5 b80r$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 37.18 36.28 4.56$   
 $LAB^*LABa 37.18 35.29 3.78$   
 $LAB^*TCHa 25.01 35.49 6.12$

**relative CIELAB lab\***  
 $lab^*lab 0.246 0.497 0.053$   
 $lab^*tch 0.25 0.5 0.017$   
 $lab^*nch 0.5 0.5 0.017$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.246 0.476 -0.151$   
 $lab^*tce 0.25 0.5 0.951$   
 $lab^*nce 0.5 0.5 b80r$

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

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

**standard and adapted CIELAB**  
 $LAB^*LAB 56.25 71.39 9.61$   
 $LAB^*LABa 56.25 70.58 7.56$   
 $LAB^*TCHa 50.0 70.98 6.12$

**relative CIELAB lab\***  
 $lab^*lab 0.492 0.994 0.107$   
 $lab^*tch 0.5 1.0 0.017$   
 $lab^*nch 0.0 1.0 0.017$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.492 0.953 -0.303$   
 $lab^*tce 0.5 1.0 0.951$   
 $lab^*nce 0.0 1.0 b80r$

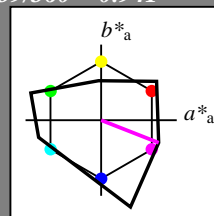
$n^* = 0.00$   
 blackness  $n^*$

$n^* = 1.0$   
 chromaticness  $c^*$

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 339/360 = 0.941$   
 $lab^*tch$  and  $lab^*nch$

A: hue M  
 LCH\*Ma: 67 82 339  
 olv\*Ma: 1.0 0.0 1.0  
 triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*$	$a^*$	$b^*$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut  
 $u^*_{rel} = 141$   
 %Regularity  
 $g^*_{H,rel} = 39$   
 $g^*_{C,rel} = 43$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 47.72 0.0 0.0$   
 $LAB^*LABa 47.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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**  
 $LAB^*LAB 0.03 0.0 0.0$   
 $LAB^*LABa 0.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 81.05 38.03 -14.89$   
 $LAB^*LABa 81.05 38.03 -14.89$   
 $LAB^*TCHa 75.0 40.85 338.6$

**relative CIELAB lab\***  
 $lab^*lab 0.85 0.465 -0.181$   
 $lab^*tch 0.75 0.5 0.941$   
 $lab^*nch 0.0 0.5 0.941$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.85 0.407 -0.29$   
 $lab^*tce 0.75 0.5 0.901$   
 $lab^*nce 0.0 0.5 b60r$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 33.36 38.03 -14.89$   
 $LAB^*LABa 33.36 38.03 -14.89$   
 $LAB^*TCHa 25.01 40.85 338.6$

**relative CIELAB lab\***  
 $lab^*lab 0.35 0.465 -0.181$   
 $lab^*tch 0.25 0.5 0.941$   
 $lab^*nch 0.5 0.5 0.941$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.35 0.407 -0.29$   
 $lab^*tce 0.25 0.5 0.901$   
 $lab^*nce 0.5 0.5 b60r$

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

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

**standard and adapted CIELAB**  
 $LAB^*LAB 66.71 76.06 -29.79$   
 $LAB^*LABa 66.71 76.06 -29.79$   
 $LAB^*TCHa 50.0 81.7 338.6$

**relative CIELAB lab\***  
 $lab^*lab 0.699 0.931 -0.364$   
 $lab^*tch 0.5 1.0 0.941$   
 $lab^*nch 0.0 1.0 0.941$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.699 0.813 -0.581$   
 $lab^*tce 0.5 1.0 0.901$   
 $lab^*nce 0.0 1.0 b60r$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 33.36 38.03 -14.89$   
 $LAB^*LABa 33.36 38.03 -14.89$   
 $LAB^*TCHa 25.01 40.85 338.6$

**relative CIELAB lab\***  
 $lab^*lab 0.35 0.465 -0.181$   
 $lab^*tch 0.25 0.5 0.941$   
 $lab^*nch 0.5 0.5 0.941$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.35 0.407 -0.29$   
 $lab^*tce 0.25 0.5 0.901$   
 $lab^*nce 0.5 0.5 b60r$

$n^* = 0.00$   
 blackness  $n^*$

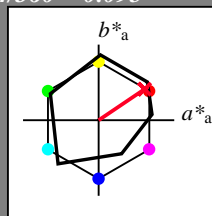
$n^* = 1.0$   
 chromaticness  $c^*$



**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 34/360 = 0.095$   
 $lab^*tch$  and  $lab^*nch$

A: hue R  
 LCH\*Ma: 49 79 34  
 olv\*Ma: 1.0 0.0 0.15  
 triangle lightness  $t^*$



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

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut  
 $u^*_{rel} = 96$   
 %Regularity  
 $g^*_{H,rel} = -385$   
 $g^*_{C,rel} = 62$

**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 95.6 0.43 4.65  
 LAB\*LABa 95.6 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 56.86 0.8 2.08  
 LAB\*LABa 56.86 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 18.12 1.18 -0.49  
 LAB\*LABa 18.12 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\* 1.0 0.5 0.575 (1.0)  
 cmyn3\* 0.0 0.5 0.425 (0.0)  
 olvi4\* 1.0 0.5 0.575 1.0  
 cmyn4\* 0.0 0.5 0.425 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 72.39 33.32 25.17  
 LAB\*LABa 72.39 32.67 22.05  
 LAB\*TCHa 75.0 39.41 34.02

**relative CIELAB lab\***  
 lab\*lab 0.7 0.414 0.28  
 lab\*tch 0.75 0.5 0.095  
 lab\*nch 0.0 0.5 0.095

**relative Natural Colour (NC)**  
 lab\*lrj 0.7 0.5 0.0  
 lab\*tce 0.75 0.5 1.0  
 lab\*nce 0.0 0.5 b99r

**relative Inform. Technology (IT)**  
 olvi3\* 0.5 0.0 0.075 (1.0)  
 cmyn3\* 0.5 1.0 0.925 (0.0)  
 olvi4\* 1.0 0.5 0.575 0.5  
 cmyn4\* 0.0 0.5 0.425 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 33.65 33.7 22.6  
 LAB\*LABa 33.65 32.67 22.06  
 LAB\*TCHa 25.01 39.42 34.03

**relative CIELAB lab\***  
 lab\*lab 0.201 0.414 0.28  
 lab\*tch 0.25 0.5 0.095  
 lab\*nch 0.5 0.5 0.095

**relative Natural Colour (NC)**  
 lab\*lrj 0.201 0.5 0.0  
 lab\*tce 0.25 0.5 0.0  
 lab\*nce 0.5 0.5 r00j

$n^* = 0.50$

$n^* = 0.50$

**relative Inform. Technology (IT)**  
 olvi3\* 1.0 0.0 0.15 (1.0)  
 cmyn3\* 0.0 1.0 0.85 (0.0)  
 olvi4\* 1.0 0.0 0.15 1.0  
 cmyn4\* 0.0 1.0 0.85 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 49.19 66.21 45.68  
 LAB\*LABa 49.19 65.33 44.11  
 LAB\*TCHa 50.0 78.83 34.02

**relative CIELAB lab\***  
 lab\*lab 0.401 0.829 0.559  
 lab\*tch 0.5 1.0 0.095  
 lab\*nch 0.0 1.0 0.095

**relative Natural Colour (NC)**  
 lab\*lrj 0.401 1.0 0.0  
 lab\*tce 0.5 1.0 0.0  
 lab\*nce 0.0 1.0 r00j

$n^* = 0.00$

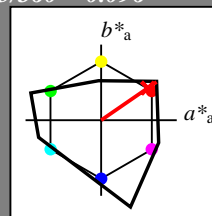
blackness  $n^*$

chromaticness  $c^*$

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 35/360 = 0.096$   
 $lab^*tch$  and  $lab^*nch$

A: hue R  
 LCH\*Ma: 66 89 35  
 olv\*Ma: 1.0 0.0 0.01  
 triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut  
 $u^*_{rel} = 141$   
 %Regularity  
 $g^*_{H,rel} = 39$   
 $g^*_{C,rel} = 43$

**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 1.0 0.0 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 47.72 0.0 0.0  
 LAB\*LABa 47.72 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\* 1.0 0.5 0.505 (1.0)  
 cmyn3\* 0.0 0.5 0.495 (0.0)  
 olvi4\* 1.0 0.5 0.505 1.0  
 cmyn4\* 0.0 0.5 0.495 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 80.48 36.68 25.28  
 LAB\*LABa 80.48 36.68 25.28  
 LAB\*TCHa 75.0 44.55 34.58

**relative CIELAB lab\***  
 lab\*lab 0.844 0.412 0.284  
 lab\*tch 0.75 0.5 0.096  
 lab\*nch 0.0 0.5 0.096

**relative Natural Colour (NC)**  
 lab\*lrj 0.844 0.5 0.0  
 lab\*tce 0.75 0.5 1.0  
 lab\*nce 0.0 0.5 b99r

**relative Inform. Technology (IT)**  
 olvi3\* 0.5 0.0 0.005 (1.0)  
 cmyn3\* 0.5 1.0 0.995 (0.0)  
 olvi4\* 1.0 0.5 0.505 0.5  
 cmyn4\* 0.0 0.5 0.495 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 32.79 36.68 25.29  
 LAB\*LABa 32.79 36.68 25.29  
 LAB\*TCHa 25.01 44.55 34.59

**relative CIELAB lab\***  
 lab\*lab 0.344 0.412 0.284  
 lab\*tch 0.25 0.5 0.096  
 lab\*nch 0.5 0.5 0.096

**relative Natural Colour (NC)**  
 lab\*lrj 0.344 0.5 0.0  
 lab\*tce 0.25 0.5 0.0  
 lab\*nce 0.5 0.5 r00j

$n^* = 0.00$

blackness  $n^*$

chromaticness  $c^*$

**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 1.0 0.0 1.0

**standard and adapted CIELAB**  
 LAB\*LAB 0.03 0.0 0.0  
 LAB\*LABa 0.03 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 -

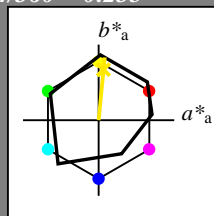
$n^* = 1.0$

**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 84/360 = 0.235$   
 $lab^*tch$  and  $lab^*nch$

A: hue J  
 LCH\*Ma: 89 83 84  
 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

**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**  
 $LAB^*LAB 95.6 0.43 4.65$   
 $LAB^*LABa 95.6 0.0 0.0$   
 $LAB^*TCHa 99.99 0.01 -$

**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)**  
 $olvi3^* 1.0 0.954 0.5 (1.0)$   
 $cmyn3^* 0.0 0.046 0.5 (0.0)$   
 $olvi4^* 1.0 0.954 0.5 1.0$   
 $cmyn4^* 0.0 0.046 0.5 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 92.06 4.5 45.96$   
 $LAB^*LABa 92.06 4.04 41.54$   
 $LAB^*TCHa 75.0 41.73 84.45$

**relative CIELAB lab\***  
 $lab^*lab 0.954 0.048 0.498$   
 $lab^*tch 0.75 0.5 0.235$   
 $lab^*nch 0.0 0.5 0.235$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.954 0.0 0.5$   
 $lab^*tce 0.75 0.5 0.25$   
 $lab^*nce 0.0 0.5 j00g$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 56.86 0.8 2.08$   
 $LAB^*LABa 56.86 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olvi3^* 0.5 0.454 0.0 (1.0)$   
 $cmyn3^* 0.5 0.546 1.0 (0.0)$   
 $olvi4^* 1.0 0.954 0.5 0.5$   
 $cmyn4^* 0.0 0.046 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 53.32 4.88 43.38$   
 $LAB^*LABa 53.32 4.05 41.53$   
 $LAB^*TCHa 25.01 41.73 84.44$

**relative CIELAB lab\***  
 $lab^*lab 0.454 0.048 0.498$   
 $lab^*tch 0.25 0.5 0.235$   
 $lab^*nch 0.5 0.5 0.235$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.454 0.0 0.5$   
 $lab^*tce 0.25 0.5 0.25$   
 $lab^*nce 0.5 0.5 r99j$

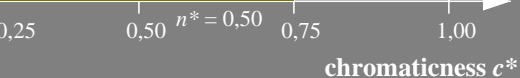
**relative Inform. Technology (IT)**  
 $olvi3^* 0.0 0.0 0.0 (1.0)$   
 $cmyn3^* 1.0 1.0 1.0 (0.0)$   
 $olvi4^* 1.0 1.0 1.0 0.0$   
 $cmyn4^* 0.0 0.0 0.0 1.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 18.12 1.18 -0.49$   
 $LAB^*LABa 18.12 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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

$n^* = 1.0$



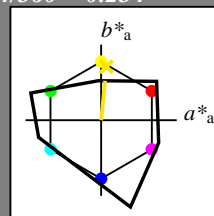
blackness  $n^*$   
 chromaticness  $c^*$

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 84/360 = 0.234$   
 $lab^*tch$  and  $lab^*nch$

A: hue J  
 LCH\*Ma: 91 52 84  
 olv\*Ma: 1.0 0.89 0.0

triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*=L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

**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)**  
 $olvi3^* 1.0 0.943 0.5 (1.0)$   
 $cmyn3^* 0.0 0.057 0.5 (0.0)$   
 $olvi4^* 1.0 0.943 0.5 1.0$   
 $cmyn4^* 0.0 0.057 0.5 0.0$

**standard and adapted CIELAB**  
 $LAB^*LAB 93.43 2.59 26.07$   
 $LAB^*LABa 93.43 2.59 26.07$   
 $LAB^*TCHa 75.0 26.2 84.32$

**relative CIELAB lab\***  
 $lab^*lab 0.979 0.049 0.497$   
 $lab^*tch 0.75 0.5 0.234$   
 $lab^*nch 0.0 0.5 0.234$

**relative Natural Colour (NC)**  
 $lab^*lrj 0.979 0.0 0.5$   
 $lab^*tce 0.75 0.5 0.25$   
 $lab^*nce 0.0 0.5 j00g$

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

**standard and adapted CIELAB**  
 $LAB^*LAB 47.72 0.0 0.0$   
 $LAB^*LABa 47.72 0.0 0.0$   
 $LAB^*TCHa 50.0 0.01 -$

**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)**  
 $olvi3^* 0.5 0.443 0.0 (1.0)$   
 $cmyn3^* 0.5 0.557 1.0 (0.0)$   
 $olvi4^* 1.0 0.943 0.5 0.5$   
 $cmyn4^* 0.0 0.057 0.5 0.5$

**standard and adapted CIELAB**  
 $LAB^*LAB 45.74 2.6 26.07$   
 $LAB^*LABa 45.74 2.6 26.07$   
 $LAB^*TCHa 25.01 26.2 84.3$

**relative CIELAB lab\***  
 $lab^*lab 0.479 0.05 0.497$   
 $lab^*tch 0.25 0.5 0.234$   
 $lab^*nch 0.5 0.5 0.234$

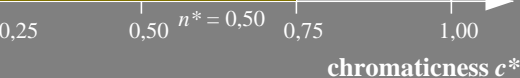
**relative Natural Colour (NC)**  
 $lab^*lrj 0.479 0.0 0.5$   
 $lab^*tce 0.25 0.5 0.25$   
 $lab^*nce 0.5 0.5 r99j$

**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**  
 $LAB^*LAB 0.03 0.0 0.0$   
 $LAB^*LABa 0.03 0.0 0.0$   
 $LAB^*TCHa 0.01 0.01 -$

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



blackness  $n^*$   
 chromaticness  $c^*$

$n^* = 1.0$

RE100-7, 3 step scales for constant CIELAB hue 84/360 = 0.235 (left)

3 step scales for constant CIELAB hue 84/360 = 0.234 (right)

BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^* setrgbcolor$   
 output: no change compared to input

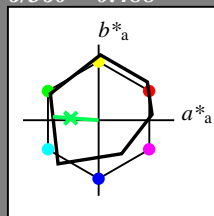


**Input: Colorimetric Offset Reflective System ORS18**

for hue  $h^* = lab^*h = 176/360 = 0.488$   
 $lab^*tch$  and  $lab^*nch$

A: hue G  
 LCH\*Ma: 51 61 176  
 olv\*Ma: 0.0 1.0 0.33

triangle lightness  $t^*$



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

	$L^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	47.94	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

**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 95.6 0.43 4.65  
 LAB\*LABa 95.6 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 1.0 0.664 (1.0)  
 cmyn3\* 0.5 0.0 0.336 (0.0)  
 olvi4\* 0.5 1.0 0.664 1.0  
 cmyn4\* 0.5 0.0 0.336 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 73.3 -29.59 5.45  
 LAB\*LABa 73.3 -30.23 2.28  
 LAB\*TCHa 75.0 30.33 175.69

**relative CIELAB lab\***  
 lab\*lab 0.712 -0.497 0.038  
 lab\*tch 0.75 0.5 0.488  
 lab\*nch 0.0 0.5 0.488

**relative Natural Colour (NC)**  
 lab\*lrj 0.712 -0.499 0.0  
 lab\*tce 0.75 0.5 0.5  
 lab\*nce 0.0 0.5 g00b

**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 56.86 0.8 2.08  
 LAB\*LABa 56.86 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 0.5 0.164 (1.0)  
 cmyn3\* 1.0 0.5 0.836 (0.0)  
 olvi4\* 0.5 1.0 0.664 0.5  
 cmyn4\* 0.5 0.0 0.336 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 34.57 -29.21 2.89  
 LAB\*LABa 34.57 -30.23 2.29  
 LAB\*TCHa 25.01 30.33 175.68

**relative CIELAB lab\***  
 lab\*lab 0.212 -0.497 0.038  
 lab\*tch 0.25 0.5 0.488  
 lab\*nch 0.5 0.5 0.488

**relative Natural Colour (NC)**  
 lab\*lrj 0.212 -0.499 0.0  
 lab\*tce 0.25 0.5 0.5  
 lab\*nce 0.5 0.5 199g

**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 18.12 1.18 -0.49  
 LAB\*LABa 18.12 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 -

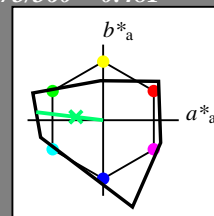
$n^* = 1.0$

**Output: Colorimetric Television Luminous System TLS00**

for hue  $h^* = lab^*h = 173/360 = 0.481$   
 $lab^*tch$  and  $lab^*nch$

A: hue G  
 LCH\*Ma: 78 89 173  
 olv\*Ma: 0.0 1.0 0.43

triangle lightness  $t^*$



**TLS00; adapted (a) CIELAB data**

	$L^*$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

**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 1.0 0.715 (1.0)  
 cmyn3\* 0.5 0.0 0.285 (0.0)  
 olvi4\* 0.5 1.0 0.716 1.0  
 cmyn4\* 0.5 0.0 0.284 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 86.63 -44.26 5.34  
 LAB\*LABa 86.63 -44.26 5.34  
 LAB\*TCHa 75.0 44.59 173.12

**relative CIELAB lab\***  
 lab\*lab 0.908 -0.495 0.06  
 lab\*tch 0.75 0.5 0.481  
 lab\*nch 0.0 0.5 0.481

**relative Natural Colour (NC)**  
 lab\*lrj 0.908 -0.499 0.0  
 lab\*tce 0.75 0.5 0.5  
 lab\*nce 0.0 0.5 g00b

**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 47.72 0.0 0.0  
 LAB\*LABa 47.72 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 0.5 0.215 (1.0)  
 cmyn3\* 1.0 0.5 0.785 (0.0)  
 olvi4\* 0.5 1.0 0.715 0.5  
 cmyn4\* 0.5 0.0 0.285 0.5

**standard and adapted CIELAB**  
 LAB\*LAB 38.94 -44.26 5.35  
 LAB\*LABa 38.94 -44.26 5.35  
 LAB\*TCHa 25.01 44.59 173.11

**relative CIELAB lab\***  
 lab\*lab 0.408 -0.495 0.06  
 lab\*tch 0.25 0.5 0.481  
 lab\*nch 0.5 0.5 0.481

**relative Natural Colour (NC)**  
 lab\*lrj 0.408 -0.499 0.0  
 lab\*tce 0.25 0.5 0.5  
 lab\*nce 0.5 0.5 199g

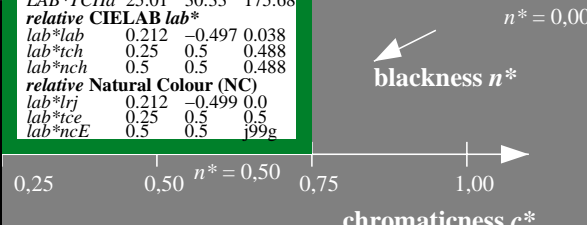
**relative Inform. Technology (IT)**  
 olvi3\* 0.0 1.0 0.431 (1.0)  
 cmyn3\* 1.0 0.0 0.569 (0.0)  
 olvi4\* 0.0 1.0 0.431 1.0  
 cmyn4\* 1.0 0.0 0.569 0.0

**standard and adapted CIELAB**  
 LAB\*LAB 77.85 -88.52 10.69  
 LAB\*LABa 77.85 -88.52 10.69  
 LAB\*TCHa 50.0 89.18 173.12

**relative CIELAB lab\***  
 lab\*lab 0.816 -0.992 0.12  
 lab\*tch 0.5 1.0 0.481  
 lab\*nch 0.0 1.0 0.481

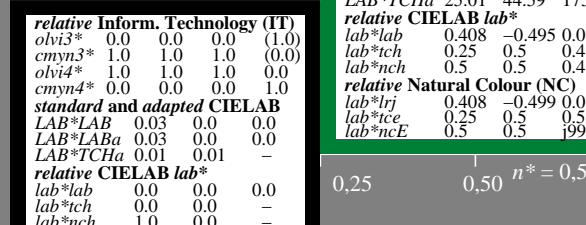
**relative Natural Colour (NC)**  
 lab\*lrj 0.816 -0.999 0.0  
 lab\*tce 0.5 1.0 0.5  
 lab\*nce 0.0 1.0 199g

$n^* = 0.00$



blackness  $n^*$

chromaticness  $c^*$



blackness  $n^*$

chromaticness  $c^*$

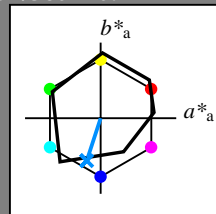
$n^* = 1.0$

Input: Colorimetric Offset Reflective System ORS18

for hue  $h^* = lab^*h = 252/360 = 0.7$   
 $lab^*tch$  and  $lab^*nch$

A: hue B  
 LCH\*Ma: 40 55 252  
 olv\*Ma: 0.0 0.56 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	64.42	50.58	81.9	38
YMa	92.62	2.41	86.36	86.39	88
LMa	50.9	-63.82	35.02	72.81	151
CMa	51.25	-53.68	-57.69	78.82	227
VMa	25.72	30.34	-44.37	53.76	304
MMa	56.25	70.59	7.57	70.99	6
NMa	18.11	0.0	0.0	0.0	0
WMa	95.6	0.0	0.0	0.0	0
RCIE	47.79	60.85	41.08	73.41	34
JCIE	83.82	6.52	66.9	67.22	84
GCIE	49.0	-36.83	2.78	36.95	176
BCIE	25.14	-18.35	-56.22	59.15	252

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 95.6 0.43 4.65  
 LAB\*LABa 95.6 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 -

%Gamut

$u^*_{rel} = 96$

%Regularity

$g^*_{H,rel} = -385$

$g^*_{C,rel} = 62$

relative Inform. Technology (IT)

olv3\* 0.5 0.781 1.0 (1.0)  
 cmyn3\* 0.5 0.219 0.0 (0.0)  
 olv4\* 0.5 0.781 1.0 1.0  
 cmyn4\* 0.5 0.219 0.0 0.0

standard and adapted CIELAB  
 LAB\*LAB 67.84 -7.76 -23.11  
 LAB\*LABa 67.84 -8.46 -25.92  
 LAB\*TCHa 75.0 27.28 251.91

relative CIELAB lab\*  
 lab\*lab 0.642 -0.154 -0.474  
 lab\*tch 0.75 0.5 0.7  
 lab\*nch 0.0 0.5 0.7

relative Natural Colour (NC)  
 lab\*lrj 0.642 0.0 -0.499  
 lab\*tce 0.75 0.5 0.75  
 lab\*nce 0.0 0.5 g99b

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 56.86 0.8 2.08  
 LAB\*LABa 56.86 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 18.12 1.18 -0.49  
 LAB\*LABa 18.12 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 0.281 0.5 (1.0)  
 cmyn3\* 1.0 0.719 0.5 (0.0)  
 olv4\* 0.5 0.781 1.0 0.5  
 cmyn4\* 0.5 0.219 0.0 0.5

standard and adapted CIELAB  
 LAB\*LAB 29.1 -7.38 -25.68  
 LAB\*LABa 29.1 -8.45 -25.92  
 LAB\*TCHa 25.01 27.28 251.91

relative CIELAB lab\*  
 lab\*lab 0.142 -0.154 -0.474  
 lab\*tch 0.25 0.5 0.7  
 lab\*nch 0.5 0.5 0.7

relative Natural Colour (NC)  
 lab\*lrj 0.142 0.0 -0.499  
 lab\*tce 0.25 0.5 0.75  
 lab\*nce 0.5 0.5 b00r

blackness  $n^* = 0.50$

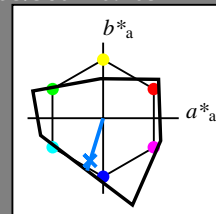
blackness  $n^*$   
 chromaticness  $c^*$

Output: Colorimetric Television Luminous System TLS00

for hue  $h^* = lab^*h = 253/360 = 0.703$   
 $lab^*tch$  and  $lab^*nch$

A: hue B  
 LCH\*Ma: 45 72 253  
 olv\*Ma: 0.0 0.49 1.0

triangle lightness  $t^*$



TLS00; adapted (a) CIELAB data

	$L^*-L^*_a$	$a^*_a$	$b^*_a$	$C^*_{ab,a}$	$h^*_{ab,a}$
OMa	65.56	73.34	51.39	89.55	35
YMa	94.78	-3.49	52.24	52.36	94
LMa	77.48	-92.97	36.0	99.71	159
CMa	78.36	-82.69	-22.74	85.77	195
VMa	12.55	38.81	-114.81	121.2	289
MMa	66.71	76.08	-29.8	81.71	339
NMa	0.01	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	47.79	61.74	42.56	74.99	35
JCIE	83.82	7.06	70.78	71.13	84
GCIE	49.0	-35.95	4.34	36.22	173
BCIE	25.14	-17.24	-56.24	58.84	253

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 -

%Gamut

$u^*_{rel} = 141$

%Regularity

$g^*_{H,rel} = 39$

$g^*_{C,rel} = 43$

relative Inform. Technology (IT)

olv3\* 0.5 0.747 1.0 (1.0)  
 cmyn3\* 0.5 0.253 0.0 (0.0)  
 olv4\* 0.5 0.747 1.0 1.0  
 cmyn4\* 0.5 0.253 0.0 0.0

standard and adapted CIELAB  
 LAB\*LAB 70.24 -10.62 -34.63  
 LAB\*LABa 70.24 -10.62 -34.63  
 LAB\*TCHa 75.0 36.24 252.94

relative CIELAB lab\*  
 lab\*lab 0.736 -0.146 -0.477  
 lab\*tch 0.75 0.5 0.703  
 lab\*nch 0.0 0.5 0.703

relative Natural Colour (NC)  
 lab\*lrj 0.736 0.0 -0.499  
 lab\*tce 0.75 0.5 0.75  
 lab\*nce 0.0 0.5 g99b

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 47.72 0.0 0.0  
 LAB\*LABa 47.72 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 0.247 0.5 (1.0)  
 cmyn3\* 1.0 0.753 0.5 (0.0)  
 olv4\* 0.5 0.747 1.0 0.5  
 cmyn4\* 0.5 0.253 0.0 0.5

standard and adapted CIELAB  
 LAB\*LAB 22.55 -10.61 -34.64  
 LAB\*LABa 22.55 -10.61 -34.64  
 LAB\*TCHa 25.01 36.24 252.96

relative CIELAB lab\*  
 lab\*lab 0.236 -0.145 -0.477  
 lab\*tch 0.25 0.5 0.703  
 lab\*nch 0.5 0.5 0.703

relative Natural Colour (NC)  
 lab\*lrj 0.236 0.0 -0.499  
 lab\*tce 0.25 0.5 0.75  
 lab\*nce 0.5 0.5 b00r

blackness  $n^* = 0.50$

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 0.03 0.0 0.0  
 LAB\*LABa 0.03 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 -

blackness  $n^* = 1.0$

RE10-7, 3 step scales for constant CIELAB hue 252/360 = 0.7 (left)

3 step scales for constant CIELAB hue 253/360 = 0.703 (right)

BAM-test chart RE10; Colorimetric systems ORS18 & TLS00  
 A: 2 coordinate data of 3 step colour scales for 10 hues

input:  $olv^* setrgbcolor$   
 output: no change compared to input