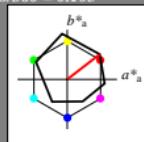




### Input: Colorimetric Offset Reflective System ORS18

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

A: hue O  
 LCH\*Ma: 48 83 38  
 olv\*Ma: 1.0 0.0 0.0  
 triangle lightness  $t^*$



### ORS18; adapted (a) CIELAB data

$L^* - L_a^*$	$a^*_a$	$b^*_a$	$C^*_{ab}$	$h^*_{ab,a}$
OMa 47.94	65.39	50.52	82.63	38
YMa 90.39	-10.26	91.75	92.32	96
L-Ma 50.9	-62.83	34.96	71.91	151
C-Ma 58.62	-30.34	-45.01	54.3	236
V-Ma 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
W-Ma 95.41	0.0	0.0	0.0	0
R-CIE 39.82	56.66	26.98	64.57	25
J-CIE 81.26	-2.16	67.76	67.79	92
G-CIE 52.23	-42.45	11.76	43.87	164
B-CIE 30.57	1.15	-46.84	46.86	271

relative Inform. Technology (IT)  
 $olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad$

standard and adapted CIELAB

$LAB^*LAB = 95.41 \quad 0.0 \quad 0.0 \quad 0.98 \quad 4.75$   
 $LAB^*LAb = 54.41 \quad 0.0 \quad 0.0 \quad 0.0 \quad 0.0$   
 $LAB^*TCh = 99.99 \quad 0.01 \quad 0.0 \quad 0.0 \quad 0.0$   
 relative CIELAB lab<sup>\*</sup>  
 $lab^*lab = 1.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tch = 0.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*nch = 0.0 \quad 0.0 \quad 0.0 \quad$

relative Natural Colour (NC)  
 $lab^*lri = 1.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tce = 1.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*mcE = 0.0 \quad 0.0 \quad 0.0 \quad$

relative Inform. Technology (IT)  
 $olv^{*3} = 0.5 \quad 0.5 \quad 0.5 \quad (1.0)$   
 $cmy^{*3} = 0.5 \quad 0.5 \quad 0.5 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.5$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.5 \quad 0.5$

standard and adapted CIELAB

$LAB^*LAB = 56.71 \quad -0.24 \quad 2.14$   
 $LAB^*LAb = 56.71 \quad 0.0 \quad 0.0$   
 $LAB^*TCh = 50.0 \quad 0.01 \quad 0.0$   
 relative CIELAB lab<sup>\*</sup>  
 $lab^*lab = 1.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tch = 0.5 \quad 0.0 \quad 0.0 \quad$   
 $lab^*nch = 0.5 \quad 0.0 \quad 0.0 \quad$

relative Natural Colour (NC)  
 $lab^*lri = 0.5 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tce = 0.5 \quad 0.0 \quad 0.0 \quad$   
 $lab^*mcE = 0.5 \quad 0.0 \quad 0.0 \quad$

relative Inform. Technology (IT)  
 $olv^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (1.0)$   
 $cmy^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 18.02 \quad 0.5 \quad -0.47$   
 $LAB^*LAb = 18.02 \quad 0.0 \quad 0.0$   
 $LAB^*TCh = 0.0 \quad 0.01 \quad 0.0$   
 relative CIELAB lab<sup>\*</sup>  
 $lab^*lab = 0.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tch = 0.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*nch = 1.0 \quad 0.0 \quad 0.0 \quad$

relative Natural Colour (NC)  
 $lab^*lri = 0.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*tce = 0.0 \quad 0.0 \quad 0.0 \quad$   
 $lab^*mcE = 1.0 \quad 0.0 \quad 0.0 \quad$

### relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 0.5 \quad 0.5 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.5 \quad 0.5 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 0.5 \quad 0.5 \quad 1.0$   
 $cmy^{*4} = 0.0 \quad 0.5 \quad 0.5 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 71.67 \quad 32.15 \quad 28.41$   
 $LAB^*LAb = 71.67 \quad 32.69 \quad 25.25$   
 $LAB^*TCh = 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.693 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.75 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.693 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.75 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 0.5 \quad 0.5 \quad 0.5 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 1.0 \quad 1.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 0.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 1.0 \quad 1.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 47.94 \quad 68.33 \quad 52.06$   
 $LAB^*LAb = 47.94 \quad 65.37 \quad 50.51$   
 $LAB^*TCh = 50.0 \quad 82.61 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.387 \quad 0.791 \quad 0.611$   
 $lab^*tch = 0.5 \quad 0.0 \quad 0.105$   
 $lab^*nch = 0.0 \quad 1.0 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.387 \quad 0.954 \quad 0.299$   
 $lab^*tce = 0.5 \quad 0.0 \quad 0.006$   
 $lab^*mcE = 0.0 \quad 1.0 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 0.5 \quad 0.0 \quad 0.0 \quad (1.0)$   
 $cmy^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
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 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)

$olv^{*3} = 1.0 \quad 1.0 \quad 1.0 \quad (1.0)$   
 $cmy^{*3} = 0.0 \quad 0.0 \quad 0.0 \quad (0.0)$   
 $olv^{*4} = 1.0 \quad 1.0 \quad 1.0 \quad 0.0$   
 $cmy^{*4} = 0.0 \quad 0.0 \quad 0.0 \quad 0.0$

standard and adapted CIELAB

$LAB^*LAB = 32.98 \quad 32.9 \quad 25.8$   
 $LAB^*LAb = 32.98 \quad 32.9 \quad 25.25$   
 $LAB^*TCh = 25.01 \quad 41.31 \quad 37.69$

relative CIELAB lab<sup>\*</sup>

$lab^*lab = 0.193 \quad 0.396 \quad 0.306$   
 $lab^*tch = 0.25 \quad 0.5 \quad 0.105$   
 $lab^*nch = 0.0 \quad 0.5 \quad 0.105$

relative Natural Colour (NC)

$lab^*lri = 0.193 \quad 0.477 \quad 0.15$   
 $lab^*tce = 0.25 \quad 0.5 \quad 0.048$   
 $lab^*mcE = 0.0 \quad 0.5 \quad 0.191$

relative Inform. Technology (IT)