

Input: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 24/360 = 0.066$

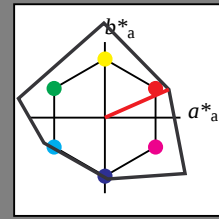
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 47 92 24

rgb*Ma: 1.0 0.0 0.0

triangle lightness t^*



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)
LAB*LAB	95.41	0.0	-0.01	
LAB*Lab	95.41	0.0	0.0	
LAB*TCa	99.99	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	1.0	0.75	0.75	(1.0)
cmyn3*	0.0	0.25	0.25	(0.0)
olvi4*	1.0	0.75	0.75	(1.0)
cmyn4*	0.0	0.25	0.25	(0.0)
LAB*LAB	83.34	21.17	9.31	
LAB*Lab	83.34	21.15	9.31	
LAB*TCa	97.5	23.11	23.75	

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

relative Inform. Technology (IT)

olvi3*	0.75	0.75	0.75	(1.0)
cmyn3*	0.25	0.25	0.25	(0.0)
olvi4*	1.0	1.0	1.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	74.31	0.02	0.0	
LAB*Lab	74.31	0.02	0.0	
LAB*TCa	75.0	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.75	0.5	0.5	(1.0)
cmyn3*	0.25	0.5	0.5	(0.0)
olvi4*	1.0	0.75	0.75	(1.0)
cmyn4*	0.0	0.25	0.25	(0.0)
LAB*LAB	62.24	21.2	9.32	
LAB*Lab	62.24	21.16	9.31	
LAB*TCa	62.5	23.12	23.75	

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)
LAB*LAB	71.27	42.34	18.63	
LAB*Lab	71.27	42.31	18.62	
LAB*TCa	75.0	46.23	23.75	

relative Inform. Technology (IT)

olvi3*	0.75	0.0	0.0	(1.0)
cmyn3*	0.25	0.75	0.75	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	59.21	63.51	27.94	
LAB*Lab	59.21	63.48	27.93	
LAB*TCa	62.5	69.35	23.75	

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	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	53.21	0.04	0.0	
LAB*Lab	53.21	0.04	0.0	
LAB*TCa	55.0	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.5	0.25	0.25	(1.0)
cmyn3*	0.5	0.75	0.75	(0.0)
olvi4*	1.0	0.75	0.75	(1.0)
cmyn4*	0.0	0.25	0.25	(0.0)
LAB*LAB	41.14	21.21	9.33	
LAB*Lab	41.14	21.16	9.31	
LAB*TCa	41.4	23.12	23.75	

relative Inform. Technology (IT)

olvi3*	0.75	0.0	0.0	(1.0)
cmyn3*	0.25	0.75	0.75	(0.0)
olvi4*	1.0	0.5	0.5	(1.0)
cmyn4*	0.0	0.5	0.5	(0.0)
LAB*LAB	50.17	42.37	18.64	
LAB*Lab	50.17	42.32	18.63	
LAB*TCa	50.0	46.24	23.75	

relative Inform. Technology (IT)

olvi3*	0.5	0.0	0.0	(1.0)
cmyn3*	0.5	0.0	0.0	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	38.11	63.53	27.95	
LAB*Lab	38.11	63.48	27.93	
LAB*TCa	37.51	69.35	23.75	

relative Inform. Technology (IT)

olvi3*	0.25	0.25	0.25	(1.0)
cmyn3*	0.75	0.75	0.75	(0.0)
olvi4*	1.0	1.0	1.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	32.11	0.07	0.01	
LAB*Lab	32.11	0.07	0.01	
LAB*TCa	32.11	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.25	0.0	0.0	(1.0)
cmyn3*	0.75	0.0	0.0	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	29.07	42.38	18.64	
LAB*Lab	29.07	42.31	18.62	
LAB*TCa	29.01	46.23	23.75	

relative Inform. Technology (IT)

olvi3*	0.5	0.0	0.0	(1.0)
cmyn3*	0.5	0.0	0.0	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	31.17	42.37	18.64	
LAB*Lab	31.17	42.32	18.63	
LAB*TCa	31.17	46.24	23.75	

relative Inform. Technology (IT)

olvi3*	0.25	0.0	0.0	(1.0)
cmyn3*	0.75	0.0	0.0	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	29.07	42.38	18.64	
LAB*Lab	29.07	42.31	18.62	
LAB*TCa	29.01	46.23	23.75	

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	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.25	0.0	0.0	(1.0)
cmyn3*	0.75	0.0	0.0	(0.0)
olvi4*	1.0	0.25	0.25	(1.0)
cmyn4*	0.0	0.75	0.75	(0.0)
LAB*LAB	20.04	21.22	9.33	
LAB*Lab	20.04	21.15	9.31	
LAB*TCa	20.04	23.11	23.75	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

relative Inform. Technology (IT)

olvi3*	0.0	0.0	0.0	(1.0)
cmyn3*	1.0	0.0	0.0	(0.0)
olvi4*	1.0	0.0	0.0	(1.0)
cmyn4*	0.0	0.0	0.0	(0.0)
LAB*LAB	11.01	0.07	0.01	
LAB*Lab	11.01	0.07	0.01	
LAB*TCa	11.01	0.01	0.0	

UE590-7, 5 step scales for constant CIELAB hue 24/360 = 0.066 (left)

5 step scales for constant CIELAB hue 24/360 = 0.066 (right)

BAM-test chart UE59; Colorimetric systems NCS11a & NCS11ainput: $cmv0^* setcmykcolor$

D65: 2 coordinate data of 5 step colour scales for 10 hues

output: no change compared to input

Input: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 203/360 = 0.563$

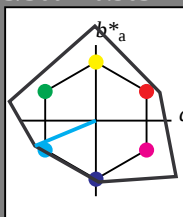
lab^*tch and lab^*nch

D65: hue G50B

LCH*Ma: 59 87 203

rgb*Ma: 0.0 1.0 1.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 1.0 1.0 (1.0)
cmyn3* 0.25 0.0 0.0 (0.0)
olvi4* 0.75 1.0 1.0 (1.0)
cmyn4* 0.25 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 86.42 -20.12 -8.35
LAB*LABa 86.42 -20.12 -8.35
LAB*TCHa 87.5 21.81 20.254

relative CIELAB lab*
lab*lab 0.893 -0.23 -0.095
lab*tch 0.875 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.893 -0.208 -0.136
lab*tce 0.875 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 0.75
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LABa 74.31 0.02 0.0
LAB*TCHa 75.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.75 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.75 0.75 0.0
lab*tce 0.75 0.25 0.592
lab*nce 0.0 0.25 0.936

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 0.5
cmyn4* 0.5 0.0 0.0 0.5
standard and adapted CIELAB
LAB*LAB 68.45 -60.41 -25.08
LAB*LABa 68.45 -60.41 -25.08
LAB*TCHa 62.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.5 1.0 1.0 (1.0)
lab*tch 0.5 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.5 1.0 0.0
lab*tce 0.5 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.75 0.75 (1.0)
cmyn3* 0.75 0.25 0.25 (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 53.21 0.04 0.0
LAB*LABa 53.21 0.04 0.0
LAB*TCHa 50.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.75 0.75 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.25 0.75 0.0
lab*tce 0.25 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.0 1.0 1.0 (1.0)
cmyn3* 1.0 0.0 0.0 (0.0)
olvi4* 0.0 1.0 1.0 0.5
cmyn4* 1.0 0.0 0.0 0.5
standard and adapted CIELAB
LAB*LAB 35.23 -40.29 -16.71
LAB*LABa 35.23 -40.29 -16.71
LAB*TCHa 50.0 43.64 20.254

relative CIELAB lab*
lab*lab 0.0 1.0 1.0 (1.0)
lab*tch 0.0 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.0 1.0 0.0
lab*tce 0.0 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.0
lab*tce 0.25 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.0 0.5 0.5 (1.0)
cmyn3* 0.5 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 47.35 -60.39 -25.07
LAB*LABa 47.35 -60.39 -25.07
LAB*TCHa 37.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.0 0.5 0.5 (1.0)
lab*tch 0.0 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.0 0.5 0.0
lab*tce 0.0 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.0
lab*tce 0.25 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.0 0.5 0.5 (1.0)
cmyn3* 0.5 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 47.35 -60.39 -25.07
LAB*LABa 47.35 -60.39 -25.07
LAB*TCHa 37.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.0 0.5 0.5 (1.0)
lab*tch 0.0 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.0 0.5 0.0
lab*tce 0.0 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.0
lab*tce 0.25 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.0 0.5 0.5 (1.0)
cmyn3* 0.5 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 47.35 -60.39 -25.07
LAB*LABa 47.35 -60.39 -25.07
LAB*TCHa 37.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.0 0.5 0.5 (1.0)
lab*tch 0.0 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.0 0.5 0.0
lab*tce 0.0 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.75 0.75 0.75 (0.0)
olvi4* 1.0 1.0 1.0 0.25
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.0
lab*tce 0.25 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.0 0.5 0.5 (1.0)
cmyn3* 0.5 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 47.35 -60.39 -25.07
LAB*LABa 47.35 -60.39 -25.07
LAB*TCHa 37.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.0 0.5 0.5 (1.0)
lab*tch 0.0 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.0 0.5 0.0
lab*tce 0.0 0.25 0.592
lab*nce 0.0 0.25 0.936

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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 11.01 0.07 0.01
LAB*LABa 11.01 0.07 0.01
LAB*TCHa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (1.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 0.0

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 203/360 = 0.563$

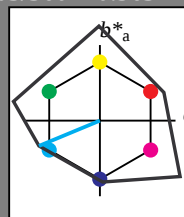
lab^*tch and lab^*nch

D65: hue G50B

LCH*Ma: 59 87 203

rgb*Ma: 0.0 1.0 1.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 1.0 1.0 (1.0)
cmyn3* 0.25 0.0 0.0 (0.0)
olvi4* 0.75 1.0 1.0 (1.0)
cmyn4* 0.25 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 86.42 -20.12 -8.35
LAB*LABa 86.42 -20.12 -8.35
LAB*TCHa 87.5 21.81 20.254

relative CIELAB lab*
lab*lab 0.893 -0.23 -0.095
lab*tch 0.875 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.893 -0.208 -0.136
lab*tce 0.875 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 0.75
cmyn4* 0.0 0.0 0.0 0.25
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LABa 74.31 0.02 0.0
LAB*TCHa 75.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.75 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.75 0.75 0.0
lab*tce 0.75 0.25 0.592
lab*nce 0.0 0.25 0.936

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 0.5
cmyn4* 0.5 0.0 0.0 0.5
standard and adapted CIELAB
LAB*LAB 68.45 -60.41 -25.08
LAB*LABa 68.45 -60.41 -25.08
LAB*TCHa 62.5 65.45 20.254

relative CIELAB lab*
lab*lab 0.5 1.0 1.0 (1.0)
lab*tch 0.5 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.5 1.0 0.0
lab*tce 0.5 0.25 0.592
lab*nce 0.0 0.25 0.936

relative Inform. Technology (IT)
olvi3* 0.25 0.75 0.75 (1.0)
cmyn3* 0.75 0.25 0.25 (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 53.21 0.04 0.0
LAB*LABa 53.21 0.04 0.0
LAB*TCHa 50.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.75 0.75 (1.0)
lab*tch 0.25 0.25 0.563
lab*nch 0.0 0.25 0.563
relative Natural Colour (NC)
lab*trj 0.2

Input: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 273/360 = 0.757$

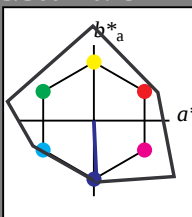
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 49 81 273

rgb*Ma: 0.0 0.0 1.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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 -0.01
LAB*Lab 95.41 0.0 0.0
LAB*TCa 99.99 0.01 0.0

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (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 74.31 0.02 0.0
LAB*Lab 74.31 0.02 0.0
LAB*TCa 75.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.863 0.011 -0.249
lab*tch 0.875 0.25 0.757
lab*nch 0.0 0.25 0.757
relative Natural Colour (NC)
lab*trj 0.863 0.003 -0.249
lab*tce 0.875 0.25 0.752
lab*nce 0.0 0.25 0.752

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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*Lab 53.21 0.04 0.0
LAB*TCa 50.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.0 0.0
lab*tch 0.75 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.75 0.0 0.0
lab*tce 0.75 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.5 0.5 0.5 (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 32.11 0.08 0.0
LAB*Lab 32.11 0.08 0.0
LAB*TCa 30.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.625 0.0 0.0
lab*tch 0.625 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.613 0.003 -0.249
lab*tce 0.625 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (1.0)
cmyn3* 0.75 0.75 0.75 (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 11.01 0.07 0.01
LAB*Lab 11.01 0.07 0.01
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.113 0.011 -0.249
lab*tch 0.125 0.25 0.757
lab*nch 0.0 0.25 0.757
relative Natural Colour (NC)
lab*trj 0.113 0.003 -0.249
lab*tce 0.125 0.25 0.752
lab*nce 0.0 0.25 0.752

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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 0.0

UE59-7, 5 step scales for constant CIELAB hue 273/360 = 0.757 (left)

BAM-test chart UE59; Colorimetric systems NCS11a & NCS11ainput: $cm y 0^* set c m y k c o l o r$

D65: 2 coordinate data of 5 step colour scales for 10 hues

Output: Colorimetric Reflective System NCS11

for hue $h^* = lab^*h = 273/360 = 0.757$

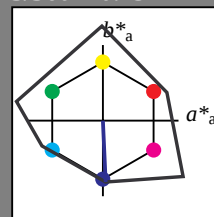
lab^*tch and lab^*nch

D65: hue B

LCH*Ma: 49 81 273

rgb*Ma: 0.0 0.0 1.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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 -0.01
LAB*Lab 95.41 0.0 0.0
LAB*TCa 99.99 0.01 0.0

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (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 74.31 0.02 0.0
LAB*Lab 74.31 0.02 0.0
LAB*TCa 75.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.863 0.011 -0.249
lab*tch 0.875 0.25 0.757
lab*nch 0.0 0.25 0.757
relative Natural Colour (NC)
lab*trj 0.863 0.003 -0.249
lab*tce 0.875 0.25 0.752
lab*nce 0.0 0.25 0.752

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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*Lab 53.21 0.04 0.0
LAB*TCa 50.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.0 0.0
lab*tch 0.75 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.75 0.0 0.0
lab*tce 0.75 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (1.0)
cmyn3* 0.5 0.5 0.5 (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 32.11 0.08 0.0
LAB*Lab 32.11 0.08 0.0
LAB*TCa 30.0 0.01 0.0

relative CIELAB lab*
lab*lab 0.625 0.0 0.0
lab*tch 0.625 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.613 0.003 -0.249
lab*tce 0.625 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (1.0)
cmyn3* 0.75 0.75 0.75 (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 11.01 0.07 0.01
LAB*Lab 11.01 0.07 0.01
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.113 0.011 -0.249
lab*tch 0.125 0.25 0.757
lab*nch 0.0 0.25 0.757
relative Natural Colour (NC)
lab*trj 0.113 0.003 -0.249
lab*tce 0.125 0.25 0.752
lab*nce 0.0 0.25 0.752

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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 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 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.0 0.0
LAB*Lab 0.01 0.0 0.0
LAB*TCa 0.0 0.0 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.0 0.0 0.0
lab*tce 0.0 0.0 0.0
lab*nce 0.0 0.0 0.0

5 step scales for constant CIELAB hue 273/360 = 0.757 (right)

output: no change compared to input

Input: Colorimetric Reflective System NCS11

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

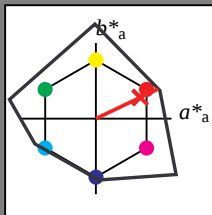
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 48 91 25

rgb*Ma: 1.0 0.02 0.0

triangle lightness t^*



relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 95.41 0.0 -0.01
LAB*LAB 95.41 0.0 0.0
LAB*TCa 99.99 0.01 0.0

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*lab 1.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
lab*tc 0.0 0.0 0.0
lab*nc 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LAB 74.31 0.02 0.0
LAB*TCa 75.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.875 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.875 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.875 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*LAB 53.21 0.04 0.0
LAB*TCa 50.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.625 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.625 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.625 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (0.0)
olvi3* 0.5 0.5 0.5 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.01 0.0
LAB*LAB 32.11 0.01 0.0
LAB*TCa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.375 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.375 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.375 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LAB 11.01 0.07 0.01
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.125 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.125 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.125 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50BMa	59.47	-80.6	-33.45	87.28	203
BMa	49.01	3.65	-81.19	81.28	273
B50RMa	44.06	106.09	-73.93	129.32	325
NMa	10.99	0.0	0.0	0.0	0
WMa	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 71.81 41.31 19.68
LAB*LAB 71.81 41.31 19.68
LAB*TCa 75.00 45.73 25.49

relative CIELAB lab*
lab*lab 0.72 0.51 0.215
lab*tch 0.75 0.5 0.071
lab*nch 0.0 0.5 0.071
relative Natural Colour (NC)
lab*lab 0.72 0.5 0.071
lab*tch 0.75 0.5 0.071
lab*nch 0.0 0.5 0.071
lab*tc 0.75 0.5 0.071
lab*nc 0.0 0.5 0.071

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 60.01 61.96 29.53
LAB*LAB 60.01 61.96 29.53
LAB*TCa 62.5 68.6 25.49

relative CIELAB lab*
lab*lab 0.581 0.677 0.323
lab*tch 0.625 0.75 0.071
lab*nch 0.0 0.75 0.071
relative Natural Colour (NC)
lab*lab 0.581 0.75 0.071
lab*tch 0.625 0.75 0.071
lab*nch 0.0 0.75 0.071
lab*tc 0.625 0.75 0.071
lab*nc 0.0 0.75 0.071

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (0.0)
olvi3* 0.5 0.5 0.5 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 48.21 82.61 39.36
LAB*LAB 48.21 82.61 39.36
LAB*TCa 50.0 91.46 25.48

relative CIELAB lab*
lab*lab 0.441 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*lab 0.441 1.0 0.071
lab*tch 0.5 1.0 0.071
lab*nch 0.0 1.0 0.071
lab*tc 0.441 1.0 0.071
lab*nc 0.0 1.0 0.071

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 38.91 61.99 29.53
LAB*LAB 38.91 61.99 29.53
LAB*TCa 37.51 68.6 25.48

relative CIELAB lab*
lab*lab 0.331 0.677 0.323
lab*tch 0.375 0.75 0.071
lab*nch 0.0 0.75 0.071
relative Natural Colour (NC)
lab*lab 0.331 0.75 0.071
lab*tch 0.375 0.75 0.071
lab*nch 0.0 0.75 0.071
lab*tc 0.331 0.75 0.071
lab*nc 0.0 0.75 0.071

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 29.6 41.29 19.67
LAB*LAB 29.6 41.29 19.67
LAB*TCa 25.01 45.73 25.47

relative CIELAB lab*
lab*lab 0.22 0.451 0.215
lab*tch 0.25 0.5 0.071
lab*nch 0.0 0.5 0.071
relative Natural Colour (NC)
lab*lab 0.22 0.5 0.071
lab*tch 0.25 0.5 0.071
lab*nch 0.0 0.5 0.071
lab*tc 0.22 0.5 0.071
lab*nc 0.0 0.5 0.071

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 20.3 20.64 9.83
LAB*LAB 20.3 20.64 9.83
LAB*TCa 12.5 22.86 25.46

relative CIELAB lab*
lab*lab 0.11 0.226 0.107
lab*tch 0.125 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.11 0.226 0.107
lab*tch 0.125 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.11 0.226 0.107
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 11.01 0.07 0.01
LAB*LAB 11.01 0.07 0.01
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

relative Inform. Technology (IT)
olvi3* 0.0 0.0 0.0 (0.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 0.01 0.01 0.0
LAB*LAB 0.01 0.01 0.0
LAB*TCa 0.01 0.01 0.0

relative CIELAB lab*
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
relative Natural Colour (NC)
lab*lab 0.0 0.0 0.0 (0.0)
lab*tch 0.0 0.0 0.0 (0.0)
lab*nch 0.0 0.0 0.0 (0.0)
lab*tc 0.0 0.0 0.0 (0.0)
lab*nc 0.0 0.0 0.0 (0.0)

Output: Colorimetric Reflective System NCS11

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

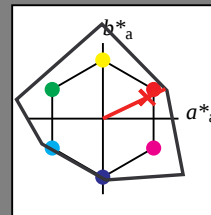
lab^*tch and lab^*nch

D65: hue R

LCH*Ma: 48 91 25

rgb*Ma: 1.0 0.02 0.0

triangle lightness t^*



relative Inform. Technology (IT)
olvi3* 1.0 1.0 1.0 (1.0)
olvi3* 0.0 0.0 0.0 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 95.41 0.0 -0.01
LAB*LAB 95.41 0.0 0.0
LAB*TCa 99.99 0.01 0.0

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*lab 1.0 0.0 0.0
lab*tch 0.0 0.0 0.0
lab*nch 0.0 0.0 0.0
lab*tc 1.0 0.0 0.0
lab*nc 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 74.31 0.02 0.0
LAB*LAB 74.31 0.02 0.0
LAB*TCa 75.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.875 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.875 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.875 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (0.0)
olvi3* 0.5 0.5 0.5 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 53.21 0.04 0.0
LAB*LAB 53.21 0.04 0.0
LAB*TCa 50.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.625 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.625 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.625 0.25 0.071
lab*nc 0.0 0.25 0.071

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
olvi3* 0.25 0.25 0.25 (0.0)
olvi4* 1.0 1.0 1.0 (1.0)
olvi4* 0.0 0.0 0.0 (0.0)
olvi5* 1.0 1.0 1.0 (1.0)
olvi5* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.01 0.0
LAB*LAB 32.11 0.01 0.0
LAB*TCa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.375 0.25 0.071
lab*nch 0.0 0.25 0.071
relative Natural Colour (NC)
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.375 0.25 0.071
lab*nch 0.0 0.25 0.071
lab*tc 0.375 0.25 0.071
lab*nc 0.0 0.25 0.071

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

Input: Colorimetric Reflective System NCS11

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

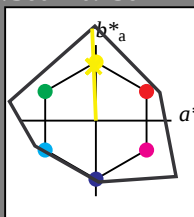
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 90 122 92

rgb*Ma: 0.97 1.0 0.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (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 74.31 0.02 0.0
LAB*LABa 74.31 0.02 0.0
LAB*TCHa 75.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.75 0.75 0.75 (1.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.75 0.75 0.75 (1.0)
lab*tce 0.75 0.75 0.75 (1.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (0.0)
cmyn3* 0.5 0.5 0.5 (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 53.21 0.04 0.0
LAB*LABa 53.21 0.04 0.0
LAB*TCHa 50.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.5 0.5 0.5 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.5 0.5 0.5 (0.0)
lab*tce 0.5 0.5 0.5 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

UE59-7, 5 step scales for constant CIELAB hue 92/360 = 0.256 (left)

BAM-test chart UE59; Colorimetric systems NCS11a & NCS11ainput: 0.00* setcmykcolor

D65: 2 coordinate data of 5 step colour scales for 10 hues

Output: Colorimetric Reflective System NCS11

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

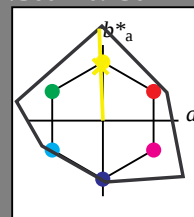
lab^*tch and lab^*nch

D65: hue J

LCH*Ma: 90 122 92

rgb*Ma: 0.97 1.0 0.0

triangle lightness t^*



NCS11; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
RMa	47.15	84.64	37.25	92.48	24
JMa	91.37	-1.27	125.03	125.03	91
GMa	63.07	-114.28	25.35	117.06	167
G50B _{Ma}	59.47	-80.6	-33.45	87.28	203
B _{Ma}	49.01	3.65	-81.19	81.28	273
B50R _{Ma}	44.06	106.09	-73.93	129.32	325
N _{Ma}	10.99	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
RCIE	39.92	58.69	27.98	65.01	25
JCIE	81.26	-2.9	71.56	71.62	92
GCIE	52.23	-42.45	13.59	44.59	162
BCIE	30.57	1.35	-46.48	46.51	272

%Regularity

$g^*_{H,rel} = 46$

$g^*_{C,rel} = 65$

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

relative CIELAB lab*
lab*lab 1.0 0.0 0.0
lab*tch 1.0 0.0 0.0
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 1.0 0.0 0.0
lab*tce 1.0 0.0 0.0
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.75 0.75 0.75 (1.0)
cmyn3* 0.25 0.25 0.25 (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 74.31 0.02 0.0
LAB*LABa 74.31 0.02 0.0
LAB*TCHa 75.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.75 0.75 0.75 (1.0)
lab*tch 0.75 0.75 0.75 (1.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.75 0.75 0.75 (1.0)
lab*tce 0.75 0.75 0.75 (1.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.5 0.5 0.5 (0.0)
cmyn3* 0.5 0.5 0.5 (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 53.21 0.04 0.0
LAB*LABa 53.21 0.04 0.0
LAB*TCHa 50.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.5 0.5 0.5 (0.0)
lab*tch 0.5 0.5 0.5 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.5 0.5 0.5 (0.0)
lab*tce 0.5 0.5 0.5 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

relative Inform. Technology (IT)
olvi3* 0.25 0.25 0.25 (0.0)
cmyn3* 0.75 0.75 0.75 (1.0)
olvi4* 1.0 1.0 1.0 (1.0)
cmyn4* 0.0 0.0 0.0 (0.0)
standard and adapted CIELAB
LAB*LAB 32.11 0.07 0.01
LAB*LABa 32.11 0.07 0.01
LAB*TCHa 25.00 0.01 0.0

relative CIELAB lab*
lab*lab 0.25 0.25 0.25 (0.0)
lab*tch 0.25 0.25 0.25 (0.0)
lab*nch 0.0 0.0 0.0
relative Natural Colour (NC)
lab*trj 0.25 0.25 0.25 (0.0)
lab*tce 0.25 0.25 0.25 (0.0)
lab*nce 0.0 0.0 0.0

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

output: no change compared to input

chromaticness c^*

 C^*

output: *no change compared to input*