

Colorimetric "Standard data": Television Luminous System TLS11 for CIE lightness $L^*_N=11$ of black for illuminant D65

System TLS11

LCD monitor

D65 reflection:

$Y_N = 1.23$

$L^*_N = 10.76$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*	a^*	b^*	C^*_{ab}	h_{ab}	$X=XYZ_1$	$Y=XYZ_2$	$Z=XYZ_3$	x	y	$Y/88.59$
O (R)	1.0	0.0	0.0	54.21	78.64	58.52	98.03	37	42.14	22.17	3.33	0.623	0.3278	0.2503
Y	1.0	1.0	0.0	94.11	-15.83	89.38	90.77	100	73.43	85.54	13.8	0.425	0.4951	0.9655
L (G)	0.0	1.0	0.0	84.21	-81.1	76.13	111.24	137	32.83	64.47	12.29	0.2996	0.5883	0.7278
C	0.0	1.0	1.0	87.18	-51.1	-9.41	51.97	190	46.37	70.38	89.45	0.2249	0.3413	0.7944
V (B)	0.0	0.0	1.0	33.09	59.26	-94.9	111.9	302	15.11	7.58	78.79	0.1489	0.0747	0.0856
M	1.0	0.0	1.0	59.56	89.09	-50.27	102.3	331	54.26	27.64	80.12	0.3349	0.1706	0.312
N	0.0	0.0	0.0	10.76	5.51	-3.96	6.79	324	1.34	1.23	1.71	0.3134	0.2867	0.0139
W	1.0	1.0	1.0	95.41	-0.21	4.78	4.79	93	84.08	88.59	89.43	0.3208	0.338	1.0
N0	0.0	0.0	0.0	10.76	5.51	-3.96	6.79	324	1.34	1.23	1.71	0.3134	0.2867	0.0139
W1	1.0	1.0	1.0	95.41	-0.21	4.78	4.79	93	84.08	88.59	89.43	0.3208	0.338	1.0

Colorimetric "Adapted data (a)": Television Luminous System TLS11a for CIE lightness $L^*_N=11$ of black for illuminant D65

System TLS11a

LCD monitor

D65 reflection:

$Y_N = 1.23$

$L^*_N = 10.76$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	54.21	76.07	58.0	95.66	37	41.29	22.17	3.41	0.6174	0.3315	0.2503
Y	1.0	1.0	0.0	94.11	-15.7	84.73	86.17	101	73.49	85.54	15.81	0.4203	0.4892	0.9655
L (G)	0.0	1.0	0.0	84.21	-81.64	72.51	109.2	138	32.68	64.47	13.72	0.2948	0.5815	0.7278
C	0.0	1.0	1.0	87.18	-51.44	-13.34	53.15	195	46.25	70.38	95.2	0.2184	0.3322	0.7944
V (B)	0.0	0.0	1.0	33.09	55.26	-93.24	108.4	301	14.45	7.58	76.63	0.1465	0.0768	0.0856
M	1.0	0.0	1.0	59.56	86.88	-51.35	100.93	329	53.4	27.64	81.56	0.3284	0.17	0.312
N	0.0	0.0	0.0	10.76	0.0	0.0	0.01	0	1.17	1.23	1.34	0.3127	0.329	0.0139
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0
N0	0.0	0.0	0.0	10.76	0.0	0.0	0.01	0	1.17	1.23	1.34	0.3127	0.329	0.0139
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

LCD monitor

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 1.23)$
 $= 1.014$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_{a0}	a^*_{a0}	b^*_{a0}	$C^*_{ab,a0}$	$h_{ab,a0}$	$X_{a0}=XYZ_{1a0}$	$Y_{a0}=XYZ_{2a0}$	$Z_{a0}=XYZ_{3a0}$	x_{a0}	y_{a0}	$Y_{a0}/88.59$
O (R)	1.0	0.0	0.0	53.21	78.53	65.65	102.36	40	$40.69=k(41.29-1.17)$	$21.24=k(22.17-1.23)$	$2.1=k(3.41-1.34)$	0.6355	0.3317	0.2397
Y	1.0	1.0	0.0	94.1	-15.93	87.27	88.72	100	$73.34=k(73.49-1.17)$	$85.49=k(85.54-1.23)$	$14.68=k(15.81-1.34)$	0.4227	0.4927	0.9651
L (G)	0.0	1.0	0.0	84.03	-83.48	75.12	112.31	138	$31.96=k(32.68-1.17)$	$64.13=k(64.47-1.23)$	$12.56=k(13.72-1.34)$	0.2941	0.5903	0.7239
C	0.0	1.0	1.0	87.06	-52.42	-13.54	54.15	194	$45.72=k(46.25-1.17)$	$70.12=k(70.38-1.23)$	$95.18=k(95.2-1.34)$	0.2167	0.3323	0.7915
V (B)	0.0	0.0	1.0	30.5	60.26	-97.5	114.62	302	$13.47=k(14.45-1.17)$	$6.44=k(7.58-1.23)$	$76.35=k(76.63-1.34)$	0.14	0.0669	0.0727
M	1.0	0.0	1.0	58.77	89.16	-52.55	103.5	329	$52.97=k(53.4-1.17)$	$26.78=k(27.64-1.23)$	$81.35=k(81.56-1.34)$	0.3288	0.1663	0.3023
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	$0.0=k(1.17-1.17)$	$0.0=k(1.23-1.23)$	$0.0=k(1.34-1.34)$	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-1.17)$	$88.59=k(88.59-1.23)$	$96.46=k(96.46-1.34)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	$0.0=k(1.17-1.17)$	$0.0=k(1.23-1.23)$	$0.0=k(1.34-1.34)$	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-1.17)$	$88.59=k(88.59-1.23)$	$96.46=k(96.46-1.34)$	0.3127	0.329	1.0

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _{a0}	a* _{a0}	b* _{a0}	C* _{ab,a0}	h _{ab,a0}	X _{a0} =XYZ _{1a0}	Y _{a0} =XYZ _{2a0}	Z _{a0} =XYZ _{3a0}	x _{a0}	y _{a0}	Y _{a0} /88.59
LCD monitor														
O (R)	1.0	0.0	0.0	53.21	78.53	65.65	102.36	40	40.69=k(41.29-1.17)	21.24=k(22.17-1.23)	2.1=k(3.41-1.34)	0.6355	0.3317	0.2397
Y	1.0	1.0	0.0	94.1	-15.93	87.27	88.72	100	73.34=k(73.49-1.17)	85.49=k(85.54-1.23)	14.68=k(15.81-1.34)	0.4227	0.4927	0.9651
L (G)	0.0	1.0	0.0	84.03	-83.48	75.12	112.31	138	31.96=k(32.68-1.17)	64.13=k(64.47-1.23)	12.56=k(13.72-1.34)	0.2941	0.5903	0.7239
C	0.0	1.0	1.0	87.06	-52.42	-13.54	54.15	194	45.72=k(46.25-1.17)	70.12=k(70.38-1.23)	95.18=k(95.2-1.34)	0.2167	0.3323	0.7915
V (B)	0.0	0.0	1.0	30.5	60.26	-97.5	114.62	302	13.47=k(14.45-1.17)	6.44=k(7.58-1.23)	76.35=k(76.63-1.34)	0.14	0.0669	0.0727
M	1.0	0.0	1.0	58.77	89.16	-52.55	103.5	329	52.97=k(53.4-1.17)	26.78=k(27.64-1.23)	81.35=k(81.56-1.34)	0.3288	0.1663	0.3023
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	0.0=k(1.17-1.17)	0.0=k(1.23-1.23)	0.0=k(1.34-1.34)	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-1.17)	88.59=k(88.59-1.23)	96.46=k(96.46-1.34)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	0.0=k(1.17-1.17)	0.0=k(1.23-1.23)	0.0=k(1.34-1.34)	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-1.17)	88.59=k(88.59-1.23)	96.46=k(96.46-1.34)	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=00, 06, 11, 18$ of black for illuminant D65

System TLS00a

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD monitor														
O (R)	1.0	0.0	0.0	53.21	78.53	65.65	102.36	40	40.69=n(40.69+0.0)	21.24=n(21.24+0.0)	2.1=n(2.1+0.0)	0.6355	0.3317	0.2397
Y	1.0	1.0	0.0	94.1	-15.93	87.27	88.72	100	73.34=n(73.34+0.0)	85.49=n(85.49+0.0)	14.68=n(14.68+0.0)	0.4227	0.4927	0.9651
L (G)	0.0	1.0	0.0	84.03	-83.48	75.12	112.31	138	31.96=n(31.96+0.0)	64.13=n(64.13+0.0)	12.56=n(12.56+0.0)	0.2941	0.5903	0.7239
C	0.0	1.0	1.0	87.06	-52.42	-13.54	54.15	194	45.72=n(45.72+0.0)	70.12=n(70.12+0.0)	95.18=n(95.18+0.0)	0.2167	0.3323	0.7915
V (B)	0.0	0.0	1.0	30.5	60.26	-97.5	114.62	302	13.47=n(13.47+0.0)	6.44=n(6.44+0.0)	76.35=n(76.35+0.0)	0.14	0.0669	0.0727
M	1.0	0.0	1.0	58.77	89.16	-52.55	103.5	329	52.97=n(52.97+0.0)	26.78=n(26.78+0.0)	81.35=n(81.35+0.0)	0.3288	0.1663	0.3023
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	358	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	358	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0

System TLS06a

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD monitor														
O (R)	1.0	0.0	0.0	53.72	77.26	61.39	98.68	38	41.0=n(40.69+0.6)	21.71=n(21.24+0.63)	2.77=n(2.1+0.69)	0.6261	0.3316	0.2451
Y	1.0	1.0	0.0	94.11	-15.81	85.96	87.4	100	73.41=n(73.34+0.6)	85.52=n(85.49+0.63)	15.25=n(14.68+0.69)	0.4215	0.4909	0.9653
L (G)	0.0	1.0	0.0	84.12	-82.54	73.77	110.71	138	32.33=n(31.96+0.6)	64.31=n(64.13+0.63)	13.15=n(12.56+0.69)	0.2945	0.5858	0.7259
C	0.0	1.0	1.0	87.12	-51.92	-13.44	53.64	195	45.99=n(45.72+0.6)	70.25=n(70.12+0.63)	95.19=n(95.18+0.69)	0.2175	0.3323	0.793
V (B)	0.0	0.0	1.0	31.86	57.6	-95.27	111.34	301	13.97=n(13.47+0.6)	7.02=n(6.44+0.63)	76.49=n(76.35+0.69)	0.1433	0.072	0.0793
M	1.0	0.0	1.0	59.18	87.99	-51.93	102.18	329	53.19=n(52.97+0.6)	27.22=n(26.78+0.63)	81.46=n(81.35+0.69)	0.3286	0.1682	0.3073
N	0.0	0.0	0.0	5.65	0.0	0.0	0.0	358	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	5.65	0.0	0.0	0.0	358	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0

System TLS11a

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD monitor														
O (R)	1.0	0.0	0.0	54.22	76.05	57.92	95.59	37	41.3=n(40.69+1.2)	22.18=n(21.24+1.26)	3.43=n(2.1+1.37)	0.6172	0.3315	0.2504
Y	1.0	1.0	0.0	94.11	-15.69	84.7	86.14	101	73.49=n(73.34+1.2)	85.54=n(85.49+1.26)	15.82=n(14.68+1.37)	0.4203	0.4892	0.9655
L (G)	0.0	1.0	0.0	84.21	-81.61	72.48	109.16	138	32.69=n(31.96+1.2)	64.48=n(64.13+1.26)	13.73=n(12.56+1.37)	0.2948	0.5814	0.7278
C	0.0	1.0	1.0	87.18	-51.43	-13.34	53.14	195	46.26=n(45.72+1.2)	70.38=n(70.12+1.26)	95.2=n(95.18+1.37)	0.2184	0.3322	0.7944
V (B)	0.0	0.0	1.0	33.12	55.21	-93.2	108.33	301	14.46=n(13.47+1.2)	7.59=n(6.44+1.26)	76.63=n(76.35+1.37)	0.1466	0.077	0.0857
M	1.0	0.0	1.0	59.57	86.86	-51.33	100.9	329	53.4=n(52.97+1.2)	27.65=n(26.78+1.26)	81.56=n(81.35+1.37)	0.3284	0.17	0.3121
N	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0

System TLS18a

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD monitor														
O (R)	1.0	0.0	0.0	55.18	73.73	52.49	90.51	35	41.89=n(40.69+2.4)	23.1=n(21.24+2.52)	4.71=n(2.1+2.74)	0.601	0.3314	0.2608
Y	1.0	1.0	0.0	94.13	-15.46	82.32	83.76	101	73.64=n(73.34+2.4)	85.58=n(85.49+2.52)	16.94=n(14.68+2.74)	0.418	0.4858	0.966
L (G)	0.0	1.0	0.0	84.39	-79.83	70.06	106.23	139	33.4=n(31.96+2.4)	64.81=n(64.13+2.52)	14.88=n(12.56+2.74)	0.2954	0.5731	0.7316
C	0.0	1.0	1.0	87.31	-50.48	-13.14	52.17	195	46.79=n(45.72+2.4)	70.63=n(70.12+2.52)	95.22=n(95.18+2.74)	0.22	0.3322	0.7973
V (B)	0.0	0.0	1.0	35.43	51.08	-89.43	103.0	300	15.43=n(13.47+2.4)	8.71=n(6.44+2.52)	76.9=n(76.35+2.74)	0.1527	0.0862	0.0984
M	1.0	0.0	1.0	60.33	84.67	-50.18	98.43	329	53.83=n(52.97+2.4)	28.49=n(26.78+2.52)	81.77=n(81.35+2.74)	0.328	0.1736	0.3216
N	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.67=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.67=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS11a for CIE standard illuminant D65; LCD monitor; Page: 2/9

TUB-test chart IE33; Hue circle and colorimetric data

input: olv* setrgbcolor

Display measurement: LCD, CRT and LCD projector, page 2/9

output: no change compared to input

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

LCD monitor

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 1.23)$
 $= 1.014$

Color	r=olv*1	g=olv*2	b=olv*3	L*a0	a*a0	b*a0	C*ab,a0	hab,a0	Xa0=XYZ1a0	Ya0=XYZ2a0	Za0=XYZ3a0	xa0	ya0	Ya0/88.59
O (R)	1.0	0.0	0.0	53.21	78.53	65.65	102.36	40	40.69=k(41.29-1.17)	21.24=k(22.17-1.23)	2.1=k(3.41-1.34)	0.6355	0.3317	0.2397
Y	1.0	1.0	0.0	94.1	-15.93	87.27	88.72	100	73.34=k(73.49-1.17)	85.49=k(85.54-1.23)	14.68=k(15.81-1.34)	0.4227	0.4927	0.9651
L (G)	0.0	1.0	0.0	84.03	-83.48	75.12	112.31	138	31.96=k(32.68-1.17)	64.13=k(64.47-1.23)	12.56=k(13.72-1.34)	0.2941	0.5903	0.7239
C	0.0	1.0	1.0	87.06	-52.42	-13.54	54.15	194	45.72=k(46.25-1.17)	70.12=k(70.38-1.23)	95.18=k(95.2-1.34)	0.2167	0.3323	0.7915
V (B)	0.0	0.0	1.0	30.5	60.26	-97.5	114.62	302	13.47=k(14.45-1.17)	6.44=k(7.58-1.23)	76.35=k(76.63-1.34)	0.14	0.0669	0.0727
M	1.0	0.0	1.0	58.77	89.16	-52.55	103.5	329	52.97=k(53.4-1.17)	26.78=k(27.64-1.23)	81.35=k(81.56-1.34)	0.3288	0.1663	0.3023
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	0.0=k(1.17-1.17)	0.0=k(1.23-1.23)	0.0=k(1.34-1.34)	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-1.17)	88.59=k(88.59-1.23)	96.46=k(96.46-1.34)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	358	0.0=k(1.17-1.17)	0.0=k(1.23-1.23)	0.0=k(1.34-1.34)	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-1.17)	88.59=k(88.59-1.23)	96.46=k(96.46-1.34)	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=27, 33, 52, 70$ of black for illuminant D65

System TLS27a

LCD monitor

D65 reflection:

$Y_N = 5.04$

$L^*_N = 26.85$

$n = 88.59 / (88.59 + 5.04)$
 $= 0.946$

Color	r=olv*1	g=olv*2	b=olv*3	L*a	a*a	b*a	C*ab,a	hab,a	Xa=XYZ1a	Ya=XYZ2a	Za=XYZ3a	xa	ya	Ya/88.59
O (R)	1.0	0.0	0.0	56.94	69.53	44.95	82.8	33	43.03=n(40.69+4.79)	24.86=n(21.24+5.04)	7.18=n(2.1+5.49)	0.5732	0.3312	0.2807
Y	1.0	1.0	0.0	94.17	-15.02	78.03	79.46	101	73.92=n(73.34+4.79)	85.66=n(85.49+5.04)	19.08=n(14.68+5.49)	0.4138	0.4795	0.9669
L (G)	0.0	1.0	0.0	84.71	-76.5	65.8	100.91	139	34.77=n(31.96+4.79)	65.45=n(64.13+5.04)	17.07=n(12.56+5.49)	0.2964	0.558	0.7388
C	0.0	1.0	1.0	87.54	-48.68	-12.75	50.33	195	47.79=n(45.72+4.79)	71.11=n(70.12+5.04)	95.25=n(95.18+5.49)	0.2232	0.3321	0.8027
V (B)	0.0	0.0	1.0	39.35	44.67	-83.08	94.33	298	17.28=n(13.47+4.79)	10.86=n(6.44+5.04)	77.43=n(76.35+5.49)	0.1637	0.1029	0.1226
M	1.0	0.0	1.0	61.75	80.64	-48.02	93.87	329	54.65=n(52.97+4.79)	30.11=n(26.78+5.04)	82.16=n(81.35+5.49)	0.3274	0.1804	0.3399
N	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	4.53=n(0.0+4.79)	4.77=n(0.0+5.04)	5.19=n(0.0+5.49)	0.3127	0.329	0.0538
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+4.79)	88.59=n(88.59+5.04)	96.46=n(96.46+5.49)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	4.53=n(0.0+4.79)	4.77=n(0.0+5.04)	5.19=n(0.0+5.49)	0.3127	0.329	0.0538
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+4.79)	88.59=n(88.59+5.04)	96.46=n(96.46+5.49)	0.3127	0.329	1.0

System TLS38a

LCD monitor

D65 reflection:

$Y_N = 10.08$

$L^*_N = 37.99$

$n = 88.59 / (88.59 + 10.08)$
 $= 0.898$

Color	r=olv*1	g=olv*2	b=olv*3	L*a	a*a	b*a	C*ab,a	hab,a	Xa=XYZ1a	Ya=XYZ2a	Za=XYZ3a	xa	ya	Ya/88.59
O (R)	1.0	0.0	0.0	60.0	62.53	35.83	72.06	30	45.14=n(40.69+9.58)	28.12=n(21.24+10.08)	11.74=n(2.1+10.98)	0.531	0.3308	0.3174
Y	1.0	1.0	0.0	94.23	-14.21	70.89	72.3	101	74.45=n(73.34+9.58)	85.81=n(85.49+10.08)	23.03=n(14.68+10.98)	0.4062	0.4682	0.9686
L (G)	0.0	1.0	0.0	85.32	-70.65	58.9	91.98	140	37.29=n(31.96+9.58)	66.63=n(64.13+10.08)	21.13=n(12.56+10.98)	0.2982	0.5328	0.7521
C	0.0	1.0	1.0	87.97	-45.45	-12.05	47.03	195	49.65=n(45.72+9.58)	72.01=n(70.12+10.08)	95.31=n(95.18+10.98)	0.2288	0.3319	0.8128
V (B)	0.0	0.0	1.0	45.41	36.13	-73.38	81.8	296	20.7=n(13.47+9.58)	14.83=n(6.44+10.08)	78.4=n(76.35+10.98)	0.1817	0.1302	0.1675
M	1.0	0.0	1.0	64.24	73.7	-44.27	85.98	329	56.16=n(52.97+9.58)	33.1=n(26.78+10.08)	82.89=n(81.35+10.98)	0.3262	0.1923	0.3736
N	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	8.6=n(0.0+9.58)	9.05=n(0.0+10.08)	9.85=n(0.0+10.98)	0.3127	0.329	0.1022
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+9.58)	88.59=n(88.59+10.08)	96.46=n(96.46+10.98)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	8.6=n(0.0+9.58)	9.05=n(0.0+10.08)	9.85=n(0.0+10.98)	0.3127	0.329	0.1022
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+9.58)	88.59=n(88.59+10.08)	96.46=n(96.46+10.98)	0.3127	0.329	1.0

System TLS52a

LCD monitor

D65 reflection:

$Y_N = 20.16$

$L^*_N = 52.02$

$n = 88.59 / (88.59 + 20.16)$
 $= 0.815$

Color	r=olv*1	g=olv*2	b=olv*3	L*a	a*a	b*a	C*ab,a	hab,a	Xa=XYZ1a	Ya=XYZ2a	Za=XYZ3a	xa	ya	Ya/88.59
O (R)	1.0	0.0	0.0	64.74	52.23	26.29	58.48	27	48.76=n(40.69+19.16)	33.72=n(21.24+20.16)	19.6=n(2.1+21.95)	0.4776	0.3304	0.3807
Y	1.0	1.0	0.0	94.34	-12.83	60.34	61.69	102	75.35=n(73.34+19.16)	86.07=n(85.49+20.16)	29.84=n(14.68+21.95)	0.394	0.45	0.9715
L (G)	0.0	1.0	0.0	86.34	-61.34	49.09	78.58	141	41.64=n(31.96+19.16)	68.67=n(64.13+20.16)	28.11=n(12.56+21.95)	0.3008	0.4961	0.7751
C	0.0	1.0	1.0	88.71	-40.14	-10.86	41.59	195	52.85=n(45.72+19.16)	73.54=n(70.12+20.16)	95.42=n(95.18+21.95)	0.2383	0.3316	0.8302
V (B)	0.0	0.0	1.0	53.68	26.66	-60.39	66.02	294	26.58=n(13.47+19.16)	21.67=n(6.44+20.16)	80.08=n(76.35+21.95)	0.2071	0.1689	0.2446
M	1.0	0.0	1.0	68.2	63.02	-38.36	73.78	329	58.76=n(52.97+19.16)	38.24=n(26.78+20.16)	84.15=n(81.35+21.95)	0.3244	0.2111	0.4317
N	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	15.61=n(0.0+19.16)	16.42=n(0.0+20.16)	17.88=n(0.0+21.95)	0.3127	0.329	0.1854
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	353	84.2=n(84.2+19.16)	88.59=n(88.59+20.16)	96.46=n(96.46+21.95)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	15.61=n(0.0+19.16)	16.42=n(0.0+20.16)	17.88=n(0.0+21.95)	0.3127	0.329	0.1854
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	353	84.2=n(84.2+19.16)	88.59=n(88.59+20.16)	96.46=n(96.46+21.95)	0.3127	0.329	1.0

System TLS70a

LCD monitor

D65 reflection:

$Y_N = 40.32$

$L^*_N = 69.7$

$n = 88.59 / (88.59 + 40.32)$
 $= 0.687$

Color	r=olv*1	g=olv*2	b=olv*3	L*a	a*a	b*a	C*ab,a	hab,a	Xa=XYZ1a	Ya=XYZ2a	Za=XYZ3a	xa	ya	Ya/88.59
O (R)	1.0	0.0	0.0	71.08	39.54	17.7	43.32	24	54.3=n(40.69+38.32)	42.31=n(21.24+40.32)	31.62=n(2.1+43.9)	0.4235	0.3299	0.4775
Y	1.0	1.0	0.0	94.51	-10.74	46.99	48.2	103	76.73=n(73.34+38.32)	86.46=n(85.49+40.32)	40.26=n(14.68+43.9)	0.3772	0.425	0.976
L (G)	0.0	1.0	0.0	87.86	-48.68	37.28	61.32	143	48.3=n(31.96+38.32)	71.78=n(64.13+40.32)	38.8=n(12.56+43.9)	0.304	0.4518	0.8103
C	0.0	1.0	1.0	89.81	-32.56	-9.06	33.81	196	57.76=n(45.72+38.32)	75.9=n(70.12+40.32)	95.58=n(95.18+43.9)	0.2519	0.3311	0.8567
V (B)	0.0	0.0	1.0	63.46	17.92	-45.43	48.85	292	35.59=n(13.47+38.32)	32.14=n(6.44+40.32)	82.64=n(76.35+43.9)	0.2367	0.2137	0.3628
M	1.0	0.0	1.0	73.62	49.05	-30.4	57.71	328	62.73=n(52.97+38.32)	46.12=n(26.78+40.32)	86.07=n(81.35+43.9)	0.3218	0.2366	0.5205
N	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	26.33=n(0.0+38.32)	27.71=n(0.0+40.32)	30.17=n(0.0+43.9)	0.3127	0.329	0.3128
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	10	84.2=n(84.2+38.32)	88.59=n(88.59+40.32)	96.46=n(96.46+43.9)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	26.33=n(0.0+38.32)	27.71=n(0.0+40.32)	30.17=n(0.0+43.9)	0.3127	0.329	0.3128
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+38.32)	88.59=n(88.59+40.32)	96.46=n(96.46+43.9)	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS11a for CIE standard illuminant D65; LCD monitor; Page: 3/9

TUB-test chart IE33; Hue circle and colorimetric data

Display measurement: LCD, CRT and LCD projector, page 3/9

input: olv* setrgbcolor

output: no change compared to input

Colorimetric "Standard data": Television Luminous System TLS00 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*	a^*	b^*	C^*_{ab}	h_{ab}	$X=XYZ_1$	$Y=XYZ_2$	$Z=XYZ_3$	x	y	$Y/88.59$
CRT monitor														
O (R)	1.0	0.0	0.0	56.02	77.48	66.45	102.07	41	44.38	23.93	2.62	0.6257	0.3374	0.2701
Y	1.0	1.0	0.0	91.93	-12.99	87.13	88.09	98	70.31	80.55	13.19	0.4286	0.491	0.9092
D65 reflection:														
L (G)	0.0	1.0	0.0	80.17	-88.48	73.79	115.22	140	26.35	56.98	10.61	0.2805	0.6066	0.6432
C	0.0	1.0	1.0	84.22	-50.12	-20.03	53.99	202	42.33	64.49	97.58	0.2071	0.3155	0.728
$Y_N = 0.05$														
V (B)	0.0	0.0	1.0	33.4	63.27	-100.11	118.43	302	16.02	7.72	86.57	0.1452	0.07	0.0872
M	1.0	0.0	1.0	63.05	89.51	-50.96	103.0	330	60.56	31.65	89.38	0.3335	0.1743	0.3573
N	0.0	0.0	0.0	0.46	-0.16	-0.09	0.2	210	0.04	0.05	0.06	0.2802	0.323	0.0006
W	1.0	1.0	1.0	95.41	4.95	-2.4	5.51	334	86.83	88.59	100.14	0.3151	0.3215	1.0
N0	0.0	0.0	0.0	0.46	-0.16	-0.09	0.2	210	0.04	0.05	0.06	0.2802	0.323	0.0006
W1	1.0	1.0	1.0	95.41	4.95	-2.4	5.51	334	86.83	88.59	100.14	0.3151	0.3215	1.0

Colorimetric "Adapted data (a)": Television Luminous System TLS00a for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
CRT monitor														
O (R)	1.0	0.0	0.0	56.02	74.66	67.9	100.92	42	43.41	23.93	2.42	0.6223	0.343	0.2701
Y	1.0	1.0	0.0	91.93	-17.76	89.45	91.2	101	68.11	80.55	12.28	0.4232	0.5005	0.9092
D65 reflection:														
L (G)	0.0	1.0	0.0	80.17	-92.61	75.83	119.7	141	25.36	56.98	9.92	0.2749	0.6176	0.6432
C	0.0	1.0	1.0	84.22	-54.47	-17.89	57.34	198	40.9	64.49	94.37	0.2048	0.3228	0.728
V (B)	0.0	0.0	1.0	33.4	61.66	-99.21	116.82	302	15.74	7.72	85.31	0.1447	0.071	0.0872
M	1.0	0.0	1.0	63.05	86.31	-49.33	99.42	330	59.22	31.65	87.07	0.3328	0.1779	0.3573
N	0.0	0.0	0.0	0.46	0.0	0.0	0.01	0	0.05	0.05	0.06	0.3127	0.329	0.0006
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.46	0.0	0.0	0.01	0	0.05	0.05	0.06	0.3127	0.329	0.0006
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_{a0}	a^*_{a0}	b^*_{a0}	$C^*_{ab,a0}$	$h_{ab,a0}$	$X_{a0}=XYZ_{1a0}$	$Y_{a0}=XYZ_{2a0}$	$Z_{a0}=XYZ_{3a0}$	x_{a0}	y_{a0}	$Y_{a0}/88.59$
CRT monitor														
O (R)	1.0	0.0	0.0	55.98	74.75	68.26	101.23	42	$43.39=k(43.41-0.05)$	$23.89=k(23.93-0.05)$	$2.37=k(2.42-0.06)$	0.623	0.343	0.2697
Y	1.0	1.0	0.0	91.93	-17.77	89.58	91.32	101	$68.1=k(68.11-0.05)$	$80.54=k(80.55-0.05)$	$12.23=k(12.28-0.06)$	0.4233	0.5006	0.9091
D65 reflection:														
L (G)	0.0	1.0	0.0	80.16	-92.71	75.96	119.86	141	$25.33=k(25.36-0.05)$	$56.96=k(56.98-0.05)$	$9.87=k(9.92-0.06)$	0.2748	0.6181	0.643
C	0.0	1.0	1.0	84.21	-54.52	-17.9	57.39	198	$40.88=k(40.9-0.05)$	$64.48=k(64.49-0.05)$	$94.37=k(94.37-0.06)$	0.2047	0.3228	0.7278
V (B)	0.0	0.0	1.0	33.3	61.86	-99.37	117.06	302	$15.7=k(15.74-0.05)$	$7.68=k(7.72-0.05)$	$85.31=k(85.31-0.06)$	0.1445	0.0706	0.0866
M	1.0	0.0	1.0	63.03	86.39	-49.38	99.51	330	$59.2=k(59.22-0.05)$	$31.62=k(31.65-0.05)$	$87.07=k(87.07-0.06)$	0.3328	0.1777	0.3569
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.05-0.05)$	$0.0=k(0.05-0.05)$	$0.0=k(0.06-0.06)$	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	$84.2=k(84.2-0.05)$	$88.59=k(88.59-0.05)$	$96.46=k(96.46-0.06)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.05-0.05)$	$0.0=k(0.05-0.05)$	$0.0=k(0.06-0.06)$	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	$84.2=k(84.2-0.05)$	$88.59=k(88.59-0.05)$	$96.46=k(96.46-0.06)$	0.3127	0.329	1.0

$k = 88.59 / (88.59 - 0.05)$
 $= 1.001$

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

CRT monitor

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 0.05)$
 $= 1.001$

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _{a0}	a* _{a0}	b* _{a0}	C* _{ab,a0}	h _{ab,a0}	X _{a0} =XYZ _{1a0}	Y _{a0} =XYZ _{2a0}	Z _{a0} =XYZ _{3a0}	x _{a0}	y _{a0}	Y _{a0} /88.59
O (R)	1.0	0.0	0.0	55.98	74.75	68.26	101.23	42	43.39=k(43.41-0.05)	23.89=k(23.93-0.05)	2.37=k(2.42-0.06)	0.623	0.343	0.2697
Y	1.0	1.0	0.0	91.93	-17.77	89.58	91.32	101	68.1=k(68.11-0.05)	80.54=k(80.55-0.05)	12.23=k(12.28-0.06)	0.4233	0.5006	0.9091
L (G)	0.0	1.0	0.0	80.16	-92.71	75.96	119.86	141	25.33=k(25.36-0.05)	56.96=k(56.98-0.05)	9.87=k(9.92-0.06)	0.2748	0.6181	0.643
C	0.0	1.0	1.0	84.21	-54.52	-17.9	57.39	198	40.88=k(40.9-0.05)	64.48=k(64.49-0.05)	94.37=k(94.37-0.06)	0.2047	0.3228	0.7278
V (B)	0.0	0.0	1.0	33.3	61.86	-99.37	117.06	302	15.7=k(15.74-0.05)	7.68=k(7.72-0.05)	85.31=k(85.31-0.06)	0.1445	0.0706	0.0866
M	1.0	0.0	1.0	63.03	86.39	-49.38	99.51	330	59.2=k(59.22-0.05)	31.62=k(31.65-0.05)	87.07=k(87.07-0.06)	0.3328	0.1777	0.3569
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	0.0=k(0.05-0.05)	0.0=k(0.05-0.05)	0.0=k(0.06-0.06)	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	84.2=k(84.2-0.05)	88.59=k(88.59-0.05)	96.46=k(96.46-0.06)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	0.0=k(0.05-0.05)	0.0=k(0.05-0.05)	0.0=k(0.06-0.06)	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	84.2=k(84.2-0.05)	88.59=k(88.59-0.05)	96.46=k(96.46-0.06)	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=00, 06, 11, 18$ of black for illuminant D65

System TLS00a

CRT monitor

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$n = 88.59 / (88.59 + 0.0)$
 $= 1.0$

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
O (R)	1.0	0.0	0.0	55.98	74.75	68.26	101.23	42	43.39=n(43.39+0.0)	23.89=n(23.89+0.0)	2.37=n(2.37+0.0)	0.623	0.343	0.2697
Y	1.0	1.0	0.0	91.93	-17.77	89.58	91.32	101	68.1=n(68.1+0.0)	80.54=n(80.54+0.0)	12.23=n(12.23+0.0)	0.4233	0.5006	0.9091
L (G)	0.0	1.0	0.0	80.16	-92.71	75.96	119.86	141	25.33=n(25.33+0.0)	56.96=n(56.96+0.0)	9.87=n(9.87+0.0)	0.2748	0.6181	0.643
C	0.0	1.0	1.0	84.21	-54.52	-17.9	57.39	198	40.88=n(40.88+0.0)	64.48=n(64.48+0.0)	94.37=n(94.37+0.0)	0.2047	0.3228	0.7278
V (B)	0.0	0.0	1.0	33.3	61.86	-99.37	117.06	302	15.7=n(15.7+0.0)	7.68=n(7.68+0.0)	85.31=n(85.31+0.0)	0.1445	0.0706	0.0866
M	1.0	0.0	1.0	63.03	86.39	-49.38	99.51	330	59.2=n(59.2+0.0)	31.62=n(31.62+0.0)	87.07=n(87.07+0.0)	0.3328	0.1777	0.3569
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0

System TLS06a

CRT monitor

D65 reflection:

$Y_N = 0.63$

$L^*_N = 5.69$

$n = 88.59 / (88.59 + 0.63)$
 $= 0.993$

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
O (R)	1.0	0.0	0.0	56.44	73.63	64.25	97.72	41	43.68=n(43.39+0.6)	24.35=n(23.89+0.63)	3.03=n(2.37+0.69)	0.6147	0.3426	0.2749
Y	1.0	1.0	0.0	91.95	-17.63	88.08	89.83	101	68.22=n(68.1+0.6)	80.6=n(80.54+0.63)	12.83=n(12.23+0.69)	0.422	0.4986	0.9098
L (G)	0.0	1.0	0.0	80.28	-91.5	74.36	117.91	141	25.74=n(25.33+0.6)	57.19=n(56.96+0.63)	10.48=n(9.87+0.69)	0.2756	0.6122	0.6455
C	0.0	1.0	1.0	84.3	-53.96	-17.76	56.82	198	41.18=n(40.88+0.6)	64.65=n(64.48+0.63)	94.39=n(94.37+0.69)	0.2057	0.3229	0.7297
V (B)	0.0	0.0	1.0	34.49	59.5	-97.37	114.12	301	16.18=n(15.7+0.6)	8.25=n(7.68+0.63)	85.39=n(85.31+0.69)	0.1474	0.0751	0.0931
M	1.0	0.0	1.0	63.36	85.38	-48.85	98.37	330	59.38=n(59.2+0.6)	32.02=n(31.62+0.63)	87.13=n(87.07+0.69)	0.3326	0.1794	0.3615
N	0.0	0.0	0.0	5.65	0.0	0.0	0.0	0	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	5.65	0.0	0.0	0.0	0	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0

System TLS11a

CRT monitor

D65 reflection:

$Y_N = 1.26$

$L^*_N = 11.0$

$n = 88.59 / (88.59 + 1.26)$
 $= 0.986$

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
O (R)	1.0	0.0	0.0	56.88	72.55	60.93	94.75	40	43.96=n(43.39+1.2)	24.8=n(23.89+1.26)	3.69=n(2.37+1.37)	0.6068	0.3423	0.2799
Y	1.0	1.0	0.0	91.98	-17.49	86.65	88.4	101	68.33=n(68.1+1.2)	80.65=n(80.54+1.26)	13.41=n(12.23+1.37)	0.4208	0.4967	0.9104
L (G)	0.0	1.0	0.0	80.41	-90.32	72.85	116.05	141	26.15=n(25.33+1.2)	57.41=n(56.96+1.26)	11.08=n(9.87+1.37)	0.2763	0.6066	0.648
C	0.0	1.0	1.0	84.39	-53.41	-17.62	56.25	198	41.49=n(40.88+1.2)	64.82=n(64.48+1.26)	94.4=n(94.37+1.37)	0.2067	0.3229	0.7316
V (B)	0.0	0.0	1.0	35.62	57.35	-95.49	111.4	301	16.66=n(15.7+1.2)	8.81=n(7.68+1.26)	85.46=n(85.31+1.37)	0.1502	0.0794	0.0994
M	1.0	0.0	1.0	63.69	84.39	-48.33	97.25	330	59.55=n(59.2+1.2)	32.42=n(31.62+1.26)	87.2=n(87.07+1.37)	0.3324	0.1809	0.3659
N	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0

System TLS18a

CRT monitor

D65 reflection:

$Y_N = 2.52$

$L^*_N = 18.01$

$n = 88.59 / (88.59 + 2.52)$
 $= 0.972$

Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
O (R)	1.0	0.0	0.0	57.73	70.5	55.64	89.81	38	44.52=n(43.39+2.4)	25.68=n(23.89+2.52)	4.97=n(2.37+2.74)	0.5922	0.3416	0.2899
Y	1.0	1.0	0.0	92.03	-17.22	83.97	85.72	102	68.55=n(68.1+2.4)	80.76=n(80.54+2.52)	14.56=n(12.23+2.74)	0.4183	0.4928	0.9117
L (G)	0.0	1.0	0.0	80.65	-88.07	70.06	112.54	142	26.96=n(25.33+2.4)	57.84=n(56.96+2.52)	12.26=n(9.87+2.74)	0.2777	0.5959	0.6529
C	0.0	1.0	1.0	84.56	-52.35	-17.34	55.16	198	42.08=n(40.88+2.4)	65.14=n(64.48+2.52)	94.43=n(94.37+2.74)	0.2087	0.3231	0.7353
V (B)	0.0	0.0	1.0	37.69	53.56	-92.03	106.49	300	17.6=n(15.7+2.4)	9.91=n(7.68+2.52)	85.62=n(85.31+2.74)	0.1555	0.0876	0.1119
M	1.0	0.0	1.0	64.32	82.48	-47.33	95.1	330	59.89=n(59.2+2.4)	33.19=n(31.62+2.52)	87.33=n(87.07+2.74)	0.332	0.184	0.3747
N	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.67=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	10	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0
N0	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.45=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	10	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS00a for CIE standard illuminant D65; CRT monitor; Page: 5/9

TUB-test chart IE33; Hue circle and colorimetric data

Display measurement: LCD, CRT and LCD projector, page 5/9

input: olv* setrgbcolor

output: no change compared to input

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

CRT monitor

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 0.05)$
 $= 1.001$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_{a0}	a^*_{a0}	b^*_{a0}	$C^*_{ab,a0}$	$h_{ab,a0}$	$X_{a0}=XYZ_{1a0}$	$Y_{a0}=XYZ_{2a0}$	$Z_{a0}=XYZ_{3a0}$	x_{a0}	y_{a0}	$Y_{a0}/88.59$
O (R)	1.0	0.0	0.0	55.98	74.75	68.26	101.23	42	$43.39=k(43.41-0.05)$	$23.89=k(23.93-0.05)$	$2.37=k(2.42-0.06)$	0.623	0.343	0.2697
Y	1.0	1.0	0.0	91.93	-17.77	89.58	91.32	101	$68.1=k(68.11-0.05)$	$80.54=k(80.55-0.05)$	$12.23=k(12.28-0.06)$	0.4233	0.5006	0.9091
L (G)	0.0	1.0	0.0	80.16	-92.71	75.96	119.86	141	$25.33=k(25.36-0.05)$	$56.96=k(56.98-0.05)$	$9.87=k(9.92-0.06)$	0.2748	0.6181	0.643
C	0.0	1.0	1.0	84.21	-54.52	-17.9	57.39	198	$40.88=k(40.9-0.05)$	$64.48=k(64.49-0.05)$	$94.37=k(94.37-0.06)$	0.2047	0.3228	0.7278
V (B)	0.0	0.0	1.0	33.3	61.86	-99.37	117.06	302	$15.7=k(15.74-0.05)$	$7.68=k(7.72-0.05)$	$85.31=k(85.31-0.06)$	0.1445	0.0706	0.0866
M	1.0	0.0	1.0	63.03	86.39	-49.38	99.51	330	$59.2=k(59.22-0.05)$	$31.62=k(31.65-0.05)$	$87.07=k(87.07-0.06)$	0.3328	0.1777	0.3569
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.05-0.05)$	$0.0=k(0.05-0.05)$	$0.0=k(0.06-0.06)$	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	$84.2=k(84.2-0.05)$	$88.59=k(88.59-0.05)$	$96.46=k(96.46-0.06)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.05-0.05)$	$0.0=k(0.05-0.05)$	$0.0=k(0.06-0.06)$	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	7	$84.2=k(84.2-0.05)$	$88.59=k(88.59-0.05)$	$96.46=k(96.46-0.06)$	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=27, 33, 52, 70$ of black for illuminant D65

System TLS27a

CRT monitor

D65 reflection:

$Y_N = 5.04$

$L^*_N = 26.85$

$n = 88.59 / (88.59 + 5.04)$
 $= 0.946$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	59.32	66.74	48.11	82.28	36	$45.59=n(43.39+4.79)$	$27.37=n(23.89+5.04)$	$7.43=n(2.37+5.49)$	0.567	0.3405	0.309
Y	1.0	1.0	0.0	92.12	-16.71	79.22	80.96	102	$68.97=n(68.11+4.79)$	$80.97=n(80.54+5.04)$	$16.77=n(12.23+5.49)$	0.4137	0.4857	0.914
L (G)	0.0	1.0	0.0	81.11	-83.9	65.23	106.28	142	$28.5=n(25.33+4.79)$	$58.67=n(56.96+5.04)$	$14.53=n(9.87+5.49)$	0.2802	0.5769	0.6622
C	0.0	1.0	1.0	84.88	-50.35	-16.82	53.1	198	$43.21=n(40.88+4.79)$	$65.77=n(64.48+5.04)$	$94.48=n(94.37+5.49)$	0.2124	0.3233	0.7425
V (B)	0.0	0.0	1.0	41.27	47.5	-86.07	98.31	299	$19.39=n(15.7+4.79)$	$12.03=n(7.68+5.04)$	$85.91=n(85.31+5.49)$	0.1652	0.1025	0.1358
M	1.0	0.0	1.0	65.5	78.93	-45.46	91.09	330	$60.55=n(59.2+4.79)$	$34.69=n(31.62+5.04)$	$87.57=n(87.07+5.49)$	0.3312	0.1897	0.3915
N	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	$4.53=n(0.0+4.79)$	$4.77=n(0.0+5.04)$	$5.19=n(0.0+5.49)$	0.3127	0.329	0.0538
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+4.79)$	$88.59=n(88.59+5.04)$	$96.46=n(96.46+5.49)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	$4.53=n(0.0+4.79)$	$4.77=n(0.0+5.04)$	$5.19=n(0.0+5.49)$	0.3127	0.329	0.0538
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+4.79)$	$88.59=n(88.59+5.04)$	$96.46=n(96.46+5.49)$	0.3127	0.329	1.0

System TLS38a

CRT monitor

D65 reflection:

$Y_N = 10.08$

$L^*_N = 37.99$

$n = 88.59 / (88.59 + 10.08)$
 $= 0.898$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	62.08	60.39	38.79	71.77	33	$47.56=n(43.39+9.58)$	$30.5=n(23.89+10.08)$	$11.98=n(2.37+10.98)$	0.5282	0.3387	0.3443
Y	1.0	1.0	0.0	92.29	-15.77	71.46	73.18	102	$69.75=n(68.11+9.58)$	$81.36=n(80.54+10.08)$	$20.84=n(12.23+10.98)$	0.4056	0.4732	0.9184
L (G)	0.0	1.0	0.0	81.94	-76.72	57.67	95.99	143	$31.34=n(25.33+9.58)$	$60.19=n(56.96+10.08)$	$18.71=n(9.87+10.98)$	0.2843	0.546	0.6795
C	0.0	1.0	1.0	85.47	-46.79	-15.87	49.42	199	$45.3=n(40.88+9.58)$	$66.94=n(64.48+10.08)$	$94.58=n(94.37+10.98)$	0.219	0.3237	0.7556
V (B)	0.0	0.0	1.0	46.9	39.1	-76.74	86.14	297	$22.7=n(15.7+9.58)$	$15.94=n(7.68+10.08)$	$86.45=n(85.31+10.98)$	0.1815	0.1274	0.1799
M	1.0	0.0	1.0	67.6	72.71	-42.16	84.05	330	$61.76=n(59.2+9.58)$	$37.44=n(31.62+10.08)$	$88.03=n(87.07+10.98)$	0.3299	0.2	0.4226
N	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	$8.6=n(0.0+9.58)$	$9.05=n(0.0+10.08)$	$9.85=n(0.0+10.98)$	0.3127	0.329	0.1022
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+9.58)$	$88.59=n(88.59+10.08)$	$96.46=n(96.46+10.98)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	$8.6=n(0.0+9.58)$	$9.05=n(0.0+10.08)$	$9.85=n(0.0+10.98)$	0.3127	0.329	0.1022
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+9.58)$	$88.59=n(88.59+10.08)$	$96.46=n(96.46+10.98)$	0.3127	0.329	1.0

System TLS52a

CRT monitor

D65 reflection:

$Y_N = 20.16$

$L^*_N = 52.02$

$n = 88.59 / (88.59 + 20.16)$
 $= 0.815$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	66.43	50.88	28.79	58.46	30	$50.96=n(43.39+19.16)$	$35.89=n(23.89+20.16)$	$19.81=n(2.37+21.95)$	0.4778	0.3365	0.4051
Y	1.0	1.0	0.0	92.59	-14.18	60.27	61.92	103	$71.09=n(68.11+19.16)$	$82.03=n(80.54+20.16)$	$27.85=n(12.23+21.95)$	0.3928	0.4533	0.926
L (G)	0.0	1.0	0.0	83.35	-65.65	47.34	80.95	144	$36.24=n(25.33+19.16)$	$62.83=n(56.96+20.16)$	$25.92=n(9.87+21.95)$	0.29	0.5027	0.7092
C	0.0	1.0	1.0	86.48	-41.02	-14.25	43.44	199	$48.91=n(40.88+19.16)$	$68.95=n(64.48+20.16)$	$94.76=n(94.37+21.95)$	0.23	0.3243	0.7783
V (B)	0.0	0.0	1.0	54.74	29.37	-63.89	70.32	295	$28.4=n(15.7+19.16)$	$22.68=n(7.68+20.16)$	$87.37=n(85.31+21.95)$	0.2051	0.1638	0.256
M	1.0	0.0	1.0	70.99	62.9	-36.87	72.92	330	$63.84=n(59.2+19.16)$	$42.18=n(31.62+20.16)$	$88.81=n(87.07+21.95)$	0.3277	0.2165	0.4761
N	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	$15.61=n(0.0+19.16)$	$16.42=n(0.0+20.16)$	$17.88=n(0.0+21.95)$	0.3127	0.329	0.1854
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+19.16)$	$88.59=n(88.59+20.16)$	$96.46=n(96.46+21.95)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	$15.61=n(0.0+19.16)$	$16.42=n(0.0+20.16)$	$17.88=n(0.0+21.95)$	0.3127	0.329	0.1854
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+19.16)$	$88.59=n(88.59+20.16)$	$96.46=n(96.46+21.95)$	0.3127	0.329	1.0

System TLS70a

CRT monitor

D65 reflection:

$Y_N = 40.32$

$L^*_N = 69.7$

$n = 88.59 / (88.59 + 40.32)$
 $= 0.687$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	72.31	38.9	19.57	43.54	27	$56.15=n(43.39+38.32)$	$44.13=n(23.89+40.32)$	$31.8=n(2.37+43.9)$	0.4251	0.3341	0.4981
Y	1.0	1.0	0.0	93.04	-11.8	46.48	47.96	104	$73.14=n(68.11+38.32)$	$83.06=n(80.54+40.32)$	$38.58=n(12.23+43.9)$	0.3755	0.4264	0.9376
L (G)	0.0	1.0	0.0	85.43	-51.16	35.38	62.21	145	$43.74=n(25.33+38.32)$	$66.86=n(56.96+40.32)$	$36.95=n(9.87+43.9)$	0.2965	0.4531	0.7547
C	0.0	1.0	1.0	87.98	-32.95	-11.85	35.03	200	$54.43=n(40.88+38.32)$	$72.02=n(64.48+40.32)$	$95.02=n(94.37+43.9)$	0.2458	0.3252	0.8129
V (B)	0.0	0.0	1.0	64.15	20.04	-48.66	52.63	292	$37.12=n(15.7+38.32)$	$32.98=n(7.68+40.32)$	$88.79=n(85.31+43.9)$	0.2336	0.2076	0.3723
M	1.0	0.0	1.0	75.72	49.69	-29.55	57.81	329	$67.02=n(59.2+38.32)$	$49.44=n(31.62+40.32)$	$90.0=n(87.07+43.9)$	0.3246	0.2395	0.5581
N	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	$26.33=n(0.0+38.32)$	$27.71=n(0.0+40.32)$	$30.17=n(0.0+43.9)$	0.3127	0.329	0.3128
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+38.32)$	$88.59=n(88.59+40.32)$	$96.46=n(96.46+43.9)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	$26.33=n(0.0+38.32)$	$27.71=n(0.0+40.32)$	$30.17=n(0.0+43.9)$	0.3127	0.329	0.3128
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	7	$84.2=n(84.2+38.32)$	$88.59=n(88.59+40.32)$	$96.46=n(96.46+43.9)$	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS00a for CIE standard illuminant D65; CRT monitor; Page: 6/9

TUB-test chart IE33; Hue circle and colorimetric data

Display measurement: LCD, CRT and LCD projector, page 6/9

input: $olv^* \text{ setrgbcolor}$

output: no change compared to input

Colorimetric "Standard data": Television Luminous System TLS03 for CIE lightness $L^*_N=03$ of black for illuminant D65

System TLS03

LCD projector

D65 reflection:

$Y_N = 0.28$

$L^*_N = 2.5$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*	a^*	b^*	C^*_{ab}	h_{ab}	$X=XYZ_1$	$Y=XYZ_2$	$Z=XYZ_3$	x	y	$Y/88.59$
O (R)	1.0	0.0	0.0	37.1	58.78	56.51	81.54	44	18.1	9.59	0.52	0.6415	0.34	0.1083
Y	1.0	1.0	0.0	83.13	-16.8	84.65	86.31	101	52.58	62.4	8.73	0.425	0.5044	0.7044
L (G)	0.0	1.0	0.0	72.83	-51.36	71.66	88.17	126	27.7	44.91	7.37	0.3464	0.5615	0.5069
C	0.0	1.0	1.0	77.63	-27.89	-10.73	29.9	201	40.31	52.59	69.46	0.2483	0.3239	0.5936
V (B)	0.0	0.0	1.0	30.28	50.46	-86.21	99.9	300	11.87	6.35	62.28	0.1475	0.0789	0.0717
M	1.0	0.0	1.0	48.39	71.08	-60.47	93.32	320	32.22	17.11	68.65	0.2731	0.145	0.1931
N	0.0	0.0	0.0	2.5	-0.41	0.23	0.48	151	0.25	0.28	0.29	0.3103	0.3398	0.0031
W	1.0	1.0	1.0	95.41	-0.54	-0.04	0.55	185	83.91	88.59	96.53	0.3119	0.3293	1.0
N0	0.0	0.0	0.0	2.5	-0.41	0.23	0.48	151	0.25	0.28	0.29	0.3103	0.3398	0.0031
W1	1.0	1.0	1.0	95.41	-0.54	-0.04	0.55	185	83.91	88.59	96.53	0.3119	0.3293	1.0

Colorimetric "Adapted data (a)": Television Luminous System TLS03a for CIE lightness $L^*_N=03$ of black for illuminant D65

System TLS03a

LCD projector

D65 reflection:

$Y_N = 0.28$

$L^*_N = 2.5$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	37.1	59.25	56.38	81.79	44	18.19	9.59	0.53	0.6424	0.3388	0.1083
Y	1.0	1.0	0.0	83.13	-16.27	84.66	86.21	101	52.78	62.4	8.73	0.426	0.5036	0.7044
L (G)	0.0	1.0	0.0	72.83	-50.84	71.64	87.85	125	27.83	44.91	7.37	0.3474	0.5605	0.5069
C	0.0	1.0	1.0	77.63	-27.37	-10.73	29.41	201	40.48	52.59	69.47	0.2491	0.3235	0.5936
V (B)	0.0	0.0	1.0	30.28	50.92	-86.36	100.27	301	11.94	6.35	62.45	0.1479	0.0787	0.0717
M	1.0	0.0	1.0	48.39	71.56	-60.56	93.75	320	32.35	17.11	68.77	0.2737	0.1447	0.1931
N	0.0	0.0	0.0	2.5	0.0	0.0	0.01	0	0.26	0.28	0.3	0.3127	0.329	0.0031
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0
N0	0.0	0.0	0.0	2.5	0.0	0.0	0.01	0	0.26	0.28	0.3	0.3127	0.329	0.0031
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2	88.59	96.46	0.3127	0.329	1.0

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

LCD projector

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 0.28)$
 $= 1.003$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_{a0}	a^*_{a0}	b^*_{a0}	$C^*_{ab,a0}$	$h_{ab,a0}$	$X_{a0}=XYZ_{1a0}$	$Y_{a0}=XYZ_{2a0}$	$Z_{a0}=XYZ_{3a0}$	x_{a0}	y_{a0}	$Y_{a0}/88.59$
O (R)	1.0	0.0	0.0	36.64	60.14	59.89	84.88	45	$17.98=k(18.19-0.26)$	$9.35=k(9.59-0.28)$	$0.23=k(0.53-0.3)$	0.6525	0.3391	0.1055
Y	1.0	1.0	0.0	83.08	-16.34	85.5	87.05	101	$52.69=k(52.78-0.26)$	$62.32=k(62.4-0.28)$	$8.46=k(8.73-0.3)$	0.4267	0.5048	0.7035
L (G)	0.0	1.0	0.0	72.74	-51.16	72.53	88.76	125	$27.66=k(27.83-0.26)$	$44.77=k(44.91-0.28)$	$7.09=k(7.37-0.3)$	0.3478	0.563	0.5054
C	0.0	1.0	1.0	77.56	-27.51	-10.78	29.55	201	$40.34=k(40.48-0.26)$	$52.47=k(52.59-0.28)$	$69.38=k(69.47-0.3)$	0.2487	0.3235	0.5923
V (B)	0.0	0.0	1.0	29.65	52.07	-87.36	101.71	301	$11.71=k(11.94-0.26)$	$6.09=k(6.35-0.28)$	$62.34=k(62.45-0.3)$	0.1461	0.076	0.0688
M	1.0	0.0	1.0	48.11	72.19	-60.98	94.51	320	$32.19=k(32.35-0.26)$	$16.88=k(17.11-0.28)$	$68.68=k(68.77-0.3)$	0.2734	0.1434	0.1906
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.26-0.26)$	$0.0=k(0.28-0.28)$	$0.0=k(0.3-0.3)$	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-0.26)$	$88.59=k(88.59-0.28)$	$96.46=k(96.46-0.3)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.26-0.26)$	$0.0=k(0.28-0.28)$	$0.0=k(0.3-0.3)$	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-0.26)$	$88.59=k(88.59-0.28)$	$96.46=k(96.46-0.3)$	0.3127	0.329	1.0

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0	Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _{a0}	a* _{a0}	b* _{a0}	C* _{ab,a0}	h _{ab,a0}	X _{a0} =XYZ _{1a0}	Y _{a0} =XYZ _{2a0}	Z _{a0} =XYZ _{3a0}	x _{a0}	y _{a0}	Y _{a0} /88.59
LCD projector	O (R)	1.0	0.0	0.0	36.64	60.14	59.89	84.88	45	17.98=k(18.19-0.26)	9.35=k(9.59-0.28)	0.23=k(0.53-0.3)	0.6525	0.3391	0.1055
	Y	1.0	1.0	0.0	83.08	-16.34	85.5	87.05	101	52.69=k(52.78-0.26)	62.32=k(62.4-0.28)	8.46=k(8.73-0.3)	0.4267	0.5048	0.7035
D65 reflection:	L (G)	0.0	1.0	0.0	72.74	-51.16	72.53	88.76	125	27.66=k(27.83-0.26)	44.77=k(44.91-0.28)	7.09=k(7.37-0.3)	0.3478	0.563	0.5054
	C	0.0	1.0	1.0	77.56	-27.51	-10.78	29.55	201	40.34=k(40.48-0.26)	52.47=k(52.59-0.28)	69.38=k(69.47-0.3)	0.2487	0.3235	0.5923
Y _N = 0.0	V (B)	0.0	0.0	1.0	29.65	52.07	-87.36	101.71	301	11.71=k(11.94-0.26)	6.09=k(6.35-0.28)	62.34=k(62.45-0.3)	0.1461	0.076	0.0688
L* _N = 0.0	M	1.0	0.0	1.0	48.11	72.19	-60.98	94.51	320	32.19=k(32.35-0.26)	16.88=k(17.11-0.28)	68.68=k(68.77-0.3)	0.2734	0.1434	0.1906
	N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	0.0=k(0.26-0.26)	0.0=k(0.3-0.3)	0.0=k(0.3-0.3)	0.0	0.0	0.0
k = 88.59 / (88.59 - 0.28)	W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-0.26)	88.59=k(88.59-0.28)	96.46=k(96.46-0.3)	0.3127	0.329	1.0
= 1.003	N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	0.0=k(0.26-0.26)	0.0=k(0.3-0.3)	0.0=k(0.3-0.3)	0.0	0.0	0.0
	W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	84.2=k(84.2-0.26)	88.59=k(88.59-0.28)	96.46=k(96.46-0.3)	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=00, 06, 11, 18$ of black for illuminant D65

System TLS00a	Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD projector	O (R)	1.0	0.0	0.0	36.64	60.14	59.89	84.88	45	17.98=n(17.98+0.0)	9.35=n(9.35+0.0)	0.23=n(0.23+0.0)	0.6525	0.3391	0.1055
	Y	1.0	1.0	0.0	83.08	-16.34	85.5	87.05	101	52.69=n(52.69+0.0)	62.32=n(62.32+0.0)	8.46=n(8.46+0.0)	0.4267	0.5048	0.7035
D65 reflection:	L (G)	0.0	1.0	0.0	72.74	-51.16	72.53	88.76	125	27.66=n(27.66+0.0)	44.77=n(44.77+0.0)	7.09=n(7.09+0.0)	0.3478	0.563	0.5054
	C	0.0	1.0	1.0	77.56	-27.51	-10.78	29.55	201	40.34=n(40.34+0.0)	52.47=n(52.47+0.0)	69.38=n(69.38+0.0)	0.2487	0.3235	0.5923
Y _N = 0.0	V (B)	0.0	0.0	1.0	29.65	52.07	-87.36	101.71	301	11.71=n(11.71+0.0)	6.09=n(6.09+0.0)	62.34=n(62.34+0.0)	0.1461	0.076	0.0688
L* _N = 0.0	M	1.0	0.0	1.0	48.11	72.19	-60.98	94.51	320	32.19=n(32.19+0.0)	16.88=n(16.88+0.0)	68.68=n(68.68+0.0)	0.2734	0.1434	0.1906
	N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
n = 88.59 / (88.59 + 0.0)	W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0
= 1.0	N0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0=n(0.0+0.0)	0.0	0.0	0.0
	W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.0)	88.59=n(88.59+0.0)	96.46=n(96.46+0.0)	0.3127	0.329	1.0

System TLS06a	Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD projector	O (R)	1.0	0.0	0.0	37.67	58.17	51.95	77.99	42	18.45=n(17.98+0.6)	9.91=n(9.35+0.63)	0.91=n(0.23+0.69)	0.6305	0.3385	0.1118
	Y	1.0	1.0	0.0	83.18	-16.18	83.63	85.19	101	52.91=n(52.69+0.6)	62.51=n(62.32+0.63)	9.08=n(8.46+0.69)	0.425	0.5021	0.7056
D65 reflection:	L (G)	0.0	1.0	0.0	72.94	-50.45	70.56	86.75	126	28.06=n(27.66+0.6)	45.08=n(44.77+0.63)	7.72=n(7.09+0.69)	0.347	0.5575	0.5088
	C	0.0	1.0	1.0	77.72	-27.2	-10.68	29.23	201	40.65=n(40.34+0.6)	52.73=n(52.47+0.63)	69.57=n(69.38+0.69)	0.2495	0.3236	0.5952
Y _N = 0.63	V (B)	0.0	0.0	1.0	31.06	49.56	-85.15	98.53	300	12.23=n(11.71+0.6)	6.68=n(6.09+0.63)	62.58=n(62.34+0.69)	0.15	0.0819	0.0754
L* _N = 5.69	M	1.0	0.0	1.0	48.75	70.78	-60.05	92.82	320	32.56=n(32.19+0.6)	17.39=n(16.88+0.63)	68.88=n(68.68+0.69)	0.274	0.1463	0.1963
	N	0.0	0.0	0.0	5.65	0.0	0.0	0.0	0	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
n = 88.59 / (88.59 + 0.63)	W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0
= 0.993	N0	0.0	0.0	0.0	5.65	0.0	0.0	0.0	0	0.59=n(0.0+0.6)	0.63=n(0.0+0.63)	0.68=n(0.0+0.69)	0.3127	0.329	0.0071
	W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+0.6)	88.59=n(88.59+0.63)	96.46=n(96.46+0.69)	0.3127	0.329	1.0

System TLS11a	Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD projector	O (R)	1.0	0.0	0.0	38.65	56.34	45.45	72.39	39	18.91=n(17.98+1.2)	10.46=n(9.35+1.26)	1.58=n(0.23+1.37)	0.6111	0.3379	0.118
	Y	1.0	1.0	0.0	83.28	-16.03	81.88	83.43	101	53.13=n(52.69+1.2)	62.69=n(62.32+1.26)	9.69=n(8.46+1.37)	0.4233	0.4995	0.7076
D65 reflection:	L (G)	0.0	1.0	0.0	73.14	-49.76	68.74	84.87	126	28.45=n(27.66+1.2)	45.38=n(44.77+1.26)	8.35=n(7.09+1.37)	0.3462	0.5523	0.5123
	C	0.0	1.0	1.0	77.86	-26.9	-10.57	28.92	201	40.96=n(40.34+1.2)	52.98=n(52.47+1.26)	69.76=n(69.38+1.37)	0.2502	0.3236	0.598
Y _N = 1.26	V (B)	0.0	0.0	1.0	32.37	47.33	-83.09	95.64	300	12.73=n(11.71+1.2)	7.25=n(6.09+1.26)	62.82=n(62.34+1.37)	0.1537	0.0876	0.0818
L* _N = 11.0	M	1.0	0.0	1.0	49.36	69.42	-59.15	91.21	320	32.92=n(32.19+1.2)	17.89=n(16.88+1.26)	69.07=n(68.68+1.37)	0.2746	0.1492	0.2019
	N	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
n = 88.59 / (88.59 + 1.26)	W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0
= 0.986	N0	0.0	0.0	0.0	10.87	0.0	0.0	0.0	358	1.18=n(0.0+1.2)	1.24=n(0.0+1.26)	1.35=n(0.0+1.37)	0.3127	0.329	0.014
	W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+1.2)	88.59=n(88.59+1.26)	96.46=n(96.46+1.37)	0.3127	0.329	1.0

System TLS18a	Color	r=olv* ₁	g=olv* ₂	b=olv* ₃	L* _a	a* _a	b* _a	C* _{ab,a}	h _{ab,a}	X _a =XYZ _{1a}	Y _a =XYZ _{2a}	Z _a =XYZ _{3a}	x _a	y _a	Y _a /88.59
LCD projector	O (R)	1.0	0.0	0.0	40.47	53.07	37.7	65.09	35	19.82=n(17.98+2.4)	11.54=n(9.35+2.52)	2.89=n(0.23+2.74)	0.5786	0.3369	0.1302
	Y	1.0	1.0	0.0	83.47	-15.74	78.66	80.22	101	53.56=n(52.69+2.4)	63.05=n(62.32+2.52)	10.89=n(8.46+2.74)	0.4201	0.4945	0.7117
D65 reflection:	L (G)	0.0	1.0	0.0	73.53	-48.45	65.46	81.45	127	29.22=n(27.66+2.4)	45.98=n(44.77+2.52)	9.56=n(7.09+2.74)	0.3447	0.5425	0.519
	C	0.0	1.0	1.0	78.15	-26.32	-10.38	28.31	202	41.56=n(40.34+2.4)	53.47=n(52.47+2.52)	70.13=n(69.38+2.74)	0.2516	0.3238	0.6036
Y _N = 2.52	V (B)	0.0	0.0	1.0	34.75	43.52	-79.4	90.55	299	13.72=n(11.71+2.4)	8.38=n(6.09+2.52)	63.29=n(62.34+2.74)	0.1607	0.0981	0.0945
L* _N = 18.01	M	1.0	0.0	1.0	50.53	66.89	-57.44	88.17	319	33.63=n(32.19+2.4)	18.87=n(16.88+2.52)	69.45=n(68.68+2.74)	0.2758	0.1547	0.213
	N	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.67=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
n = 88.59 / (88.59 + 2.52)	W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0
= 0.972	N0	0.0	0.0	0.0	17.69	0.0	0.0	0.0	0	2.33=n(0.0+2.4)	2.45=n(0.0+2.52)	2.67=n(0.0+2.74)	0.3127	0.329	0.0277
	W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	84.2=n(84.2+2.4)	88.59=n(88.59+2.52)	96.46=n(96.46+2.74)	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS03a for CIE standard illuminant D65; LCD projector; Page: 8/9

TUB-test chart IE33; Hue circle and colorimetric data

input: olv* setrgbcolor

Display measurement: LCD, CRT and LCD projector, page 8/9

output: no change compared to input

Colorimetric "Adapted data (a0)": Television Luminous System TLS00a0 for CIE lightness $L^*_N=00$ of black for illuminant D65

System TLS00a0

LCD projector

D65 reflection:

$Y_N = 0.0$

$L^*_N = 0.0$

$k = 88.59 / (88.59 - 0.28)$
 $= 1.003$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_{a0}	a^*_{a0}	b^*_{a0}	$C^*_{ab,a0}$	$h_{ab,a0}$	$X_{a0}=XYZ_{1a0}$	$Y_{a0}=XYZ_{2a0}$	$Z_{a0}=XYZ_{3a0}$	x_{a0}	y_{a0}	$Y_{a0}/88.59$
O (R)	1.0	0.0	0.0	36.64	60.14	59.89	84.88	45	$17.98=k(18.19-0.26)$	$9.35=k(9.59-0.28)$	$0.23=k(0.53-0.3)$	0.6525	0.3391	0.1055
Y	1.0	1.0	0.0	83.08	-16.34	85.5	87.05	101	$52.69=k(52.78-0.26)$	$62.32=k(62.4-0.28)$	$8.46=k(8.73-0.3)$	0.4267	0.5048	0.7035
L (G)	0.0	1.0	0.0	72.74	-51.16	72.53	88.76	125	$27.66=k(27.83-0.26)$	$44.77=k(44.91-0.28)$	$7.09=k(7.37-0.3)$	0.3478	0.563	0.5054
C	0.0	1.0	1.0	77.56	-27.51	-10.78	29.55	201	$40.34=k(40.48-0.26)$	$52.47=k(52.59-0.28)$	$69.38=k(69.47-0.3)$	0.2487	0.3235	0.5923
V (B)	0.0	0.0	1.0	29.65	52.07	-87.36	101.71	301	$11.71=k(11.94-0.26)$	$6.09=k(6.35-0.28)$	$62.34=k(62.45-0.3)$	0.1461	0.076	0.0688
M	1.0	0.0	1.0	48.11	72.19	-60.98	94.51	320	$32.19=k(32.35-0.26)$	$16.88=k(17.11-0.28)$	$68.68=k(68.77-0.3)$	0.2734	0.1434	0.1906
N	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.26-0.26)$	$0.0=k(0.3-0.3)$	$0.0=k(0.3-0.3)$	0.0	0.0	0.0
W	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-0.26)$	$88.59=k(88.59-0.28)$	$96.46=k(96.46-0.3)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	$0.0=k(0.26-0.26)$	$0.0=k(0.28-0.28)$	$0.0=k(0.3-0.3)$	0.0	0.0	0.0
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.01	0	$84.2=k(84.2-0.26)$	$88.59=k(88.59-0.28)$	$96.46=k(96.46-0.3)$	0.3127	0.329	1.0

Calculated colorimetric data: Television Luminous Systems TLSxxa for CIE lightness $L^*_N=27, 33, 52, 70$ of black for illuminant D65

System TLS27a

LCD projector

D65 reflection:

$Y_N = 5.04$

$L^*_N = 26.85$

$n = 88.59 / (88.59 + 5.04)$
 $= 0.946$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	43.67	47.68	29.36	55.99	32	$21.55=n(17.98+4.79)$	$13.61=n(9.35+5.04)$	$5.41=n(0.23+5.49)$	0.5311	0.3355	0.1537
Y	1.0	1.0	0.0	83.83	-15.18	73.15	74.71	102	$54.38=n(52.69+4.79)$	$63.74=n(62.32+5.04)$	$13.19=n(8.46+5.49)$	0.4141	0.4854	0.7194
L (G)	0.0	1.0	0.0	74.27	-46.02	60.01	75.63	127	$30.7=n(27.66+4.79)$	$47.13=n(44.77+5.04)$	$11.9=n(7.09+5.49)$	0.3421	0.5252	0.532
C	0.0	1.0	1.0	78.71	-25.24	-10.01	27.16	202	$42.71=n(40.34+4.79)$	$54.42=n(52.47+5.04)$	$70.84=n(69.38+5.49)$	0.2543	0.324	0.6143
V (B)	0.0	0.0	1.0	38.79	37.71	-73.22	82.37	297	$15.63=n(11.71+4.79)$	$10.53=n(6.09+5.04)$	$64.18=n(62.34+5.49)$	0.1729	0.1166	0.1189
M	1.0	0.0	1.0	52.67	62.38	-54.36	82.75	319	$34.99=n(32.19+4.79)$	$20.74=n(16.88+5.04)$	$70.18=n(68.68+5.49)$	0.2779	0.1647	0.2341
N	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	$4.53=n(0.0+4.79)$	$4.77=n(0.0+5.04)$	$5.19=n(0.0+5.49)$	0.3127	0.329	0.0538
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+4.79)$	$88.59=n(88.59+5.04)$	$96.46=n(96.46+5.49)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	26.07	0.0	0.0	0.0	0	$4.53=n(0.0+4.79)$	$4.77=n(0.0+5.04)$	$5.19=n(0.0+5.49)$	0.3127	0.329	0.0538
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+4.79)$	$88.59=n(88.59+5.04)$	$96.46=n(96.46+5.49)$	0.3127	0.329	1.0

System TLS38a

LCD projector

D65 reflection:

$Y_N = 10.08$

$L^*_N = 37.99$

$n = 88.59 / (88.59 + 10.08)$
 $= 0.898$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	48.81	39.92	21.33	45.26	28	$24.75=n(17.98+9.58)$	$17.44=n(9.35+10.08)$	$10.06=n(0.23+10.98)$	0.4736	0.3338	0.1969
Y	1.0	1.0	0.0	84.49	-14.18	64.62	66.16	102	$55.9=n(52.69+9.58)$	$65.0=n(62.32+10.08)$	$17.45=n(8.46+10.98)$	0.4041	0.4698	0.7338
L (G)	0.0	1.0	0.0	75.6	-41.88	51.91	66.7	129	$33.43=n(27.66+9.58)$	$49.25=n(44.77+10.08)$	$16.22=n(7.09+10.98)$	0.338	0.4979	0.5559
C	0.0	1.0	1.0	79.71	-23.32	-9.34	25.13	202	$44.82=n(40.34+9.58)$	$56.16=n(52.47+10.08)$	$72.15=n(69.38+10.98)$	0.2589	0.3244	0.634
V (B)	0.0	0.0	1.0	44.97	30.16	-63.98	70.74	295	$19.12=n(11.71+9.58)$	$14.52=n(6.09+10.08)$	$65.83=n(62.34+10.98)$	0.1922	0.146	0.1639
M	1.0	0.0	1.0	56.3	55.12	-49.2	73.89	318	$37.5=n(32.19+9.58)$	$24.21=n(16.88+10.08)$	$71.52=n(68.68+10.98)$	0.2815	0.1817	0.2733
N	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	$8.6=n(0.0+9.58)$	$9.05=n(0.0+10.08)$	$9.85=n(0.0+10.98)$	0.3127	0.329	0.1022
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+9.58)$	$88.59=n(88.59+10.08)$	$96.46=n(96.46+10.98)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	36.08	0.0	0.0	0.0	0	$8.6=n(0.0+9.58)$	$9.05=n(0.0+10.08)$	$9.85=n(0.0+10.98)$	0.3127	0.329	0.1022
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	0	$84.2=n(84.2+9.58)$	$88.59=n(88.59+10.08)$	$96.46=n(96.46+10.98)$	0.3127	0.329	1.0

System TLS52a

LCD projector

D65 reflection:

$Y_N = 20.16$

$L^*_N = 52.02$

$n = 88.59 / (88.59 + 20.16)$
 $= 0.815$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	56.12	30.53	14.45	33.78	25	$30.26=n(17.98+19.16)$	$24.04=n(9.35+20.16)$	$18.07=n(0.23+21.95)$	0.4181	0.3322	0.2713
Y	1.0	1.0	0.0	85.6	-12.53	53.08	54.54	103	$58.53=n(52.69+19.16)$	$67.19=n(62.32+20.16)$	$24.77=n(8.46+21.95)$	0.3889	0.4465	0.7584
L (G)	0.0	1.0	0.0	77.81	-35.56	41.51	54.66	131	$38.14=n(27.66+19.16)$	$52.89=n(44.77+20.16)$	$23.66=n(7.09+21.95)$	0.3325	0.4612	0.5971
C	0.0	1.0	1.0	81.38	-20.26	-8.24	21.89	202	$48.47=n(40.34+19.16)$	$59.17=n(52.47+20.16)$	$74.4=n(69.38+21.95)$	0.2663	0.325	0.6679
V (B)	0.0	0.0	1.0	53.37	22.0	-51.9	56.38	293	$25.15=n(11.71+19.16)$	$21.39=n(6.09+20.16)$	$68.67=n(62.34+21.95)$	0.2183	0.1856	0.2414
M	1.0	0.0	1.0	61.81	44.97	-41.55	61.23	317	$41.83=n(32.19+19.16)$	$30.18=n(16.88+20.16)$	$73.83=n(68.68+21.95)$	0.2868	0.2069	0.3406
N	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	$15.61=n(0.0+19.16)$	$16.42=n(0.0+20.16)$	$17.88=n(0.0+21.95)$	0.3127	0.329	0.1854
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	353	$84.2=n(84.2+19.16)$	$88.59=n(88.59+20.16)$	$96.46=n(96.46+21.95)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	47.52	0.0	0.0	0.0	0	$15.61=n(0.0+19.16)$	$16.42=n(0.0+20.16)$	$17.88=n(0.0+21.95)$	0.3127	0.329	0.1854
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	353	$84.2=n(84.2+19.16)$	$88.59=n(88.59+20.16)$	$96.46=n(96.46+21.95)$	0.3127	0.329	1.0

System TLS70a

LCD projector

D65 reflection:

$Y_N = 40.32$

$L^*_N = 69.7$

$n = 88.59 / (88.59 + 40.32)$
 $= 0.687$

Color	$r=olv*_1$	$g=olv*_2$	$b=olv*_3$	L^*_a	a^*_a	b^*_a	$C^*_{ab,a}$	$h_{ab,a}$	$X_a=XYZ_{1a}$	$Y_a=XYZ_{2a}$	$Z_a=XYZ_{3a}$	x_a	y_a	$Y_a/88.59$
O (R)	1.0	0.0	0.0	65.07	21.15	9.16	23.05	23	$38.69=n(17.98+38.32)$	$34.13=n(9.35+40.32)$	$30.33=n(0.23+43.9)$	0.3751	0.3309	0.3853
Y	1.0	1.0	0.0	87.26	-10.17	39.76	41.04	104	$62.54=n(52.69+38.32)$	$70.54=n(62.32+40.32)$	$35.98=n(8.46+43.9)$	0.3699	0.4172	0.7962
L (G)	0.0	1.0	0.0	81.0	-27.42	30.18	40.78	132	$45.34=n(27.66+38.32)$	$58.48=n(44.77+40.32)$	$35.04=n(7.09+43.9)$	0.3265	0.4211	0.6601
C	0.0	1.0	1.0	83.85	-16.08	-6.68	17.43	203	$54.06=n(40.34+38.32)$	$63.77=n(52.47+40.32)$	$77.85=n(69.38+43.9)$	0.2763	0.3259	0.7198
V (B)	0.0	0.0	1.0	63.26	14.65	-38.4	41.11	291	$34.38=n(11.71+38.32)$	$31.9=n(6.09+40.32)$	$73.01=n(62.34+43.9)$	0.2468	0.229	0.36
M	1.0	0.0	1.0	68.98	33.17	-31.95	46.06	316	$48.46=n(32.19+38.32)$	$39.31=n(16.88+40.32)$	$77.37=n(68.68+43.9)$	0.2934	0.2381	0.4437
N	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	$26.33=n(0.0+38.32)$	$27.71=n(0.0+40.32)$	$30.17=n(0.0+43.9)$	0.3127	0.329	0.3128
W	1.0	1.0	1.0	95.41	0.0	0.0	0.0	10	$84.2=n(84.2+38.32)$	$88.59=n(88.59+40.32)$	$96.46=n(96.46+43.9)$	0.3127	0.329	1.0
N0	0.0	0.0	0.0	59.62	0.0	0.0	0.0	10	$26.33=n(0.0+38.32)$	$27.71=n(0.0+40.32)$	$30.17=n(0.0+43.9)$	0.3127	0.329	0.3128
W1	1.0	1.0	1.0	95.41	0.0	0.0	0.0	10	$84.2=n(84.2+38.32)$	$88.59=n(88.59+40.32)$	$96.46=n(96.46+43.9)$	0.3127	0.329	1.0

IE330-7N, Colorimetric data of Television Luminous System TLS03a for CIE standard illuminant D65; LCD projector; Page: 9/9

TUB-test chart IE33; Hue circle and colorimetric data

Display measurement: LCD, CRT and LCD projector, page 9/9

input: $olv^* \text{ setrgbcolor}$

output: no change compared to input