

**Colorimetric "Adapted data (b)": Television Luminous System TLS00b for CIE lightness  $L^*=00$  of black and for illuminant D65**

| System TLS00b                                          | Color i   | $r^*_{a,d}$ | $g^*_{a,d}$ | $b^*_{a,d}$ | $L^*_d$ | $a^*_{a,d}$ | $b^*_{a,d}$ | $C^*_{ab,d}$ | $h_{ab,d}$ | $X_{a,d}$         | $Y_{a,d}$         | $Z_{a,d}$         | $x_{a,d}$ | $y_{a,d}$ | $Y_{a,d}/88.59$ |
|--------------------------------------------------------|-----------|-------------|-------------|-------------|---------|-------------|-------------|--------------|------------|-------------------|-------------------|-------------------|-----------|-----------|-----------------|
| <b>D65 reflection:</b><br>$Y_N = 0.0$<br>$L^*_N = 0.0$ | 01, $O_d$ | 0.0         | 0.0         | 0.0         | 0.01    | 0.0         | 0.0         | 0.01         | 0          | 0.0(=0.0+0.0)     | 0.0(=0.0+0.0)     | 0.0(=0.0+0.0)     | 0.3118    | 0.3281    | 0.0             |
|                                                        | 02, $I_d$ | 0.067       | 0.067       | 0.067       | 6.36    | 0.0         | 0.0         | 0.01         | 0          | 0.67(=0.67+0.0)   | 0.7(=0.7+0.0)     | 0.77(=0.77+0.0)   | 0.3127    | 0.329     | 0.0079          |
|                                                        | 03, $2_d$ | 0.133       | 0.133       | 0.133       | 12.72   | 0.0         | 0.0         | 0.01         | 0          | 1.44(=1.44+0.0)   | 1.52(=1.52+0.0)   | 1.65(=1.65+0.0)   | 0.3127    | 0.329     | 0.0171          |
|                                                        | 04, $3_d$ | 0.2         | 0.2         | 0.2         | 19.08   | 0.0         | 0.0         | 0.01         | 0          | 2.63(=2.63+0.0)   | 2.77(=2.76+0.0)   | 3.01(=3.01+0.0)   | 0.3127    | 0.329     | 0.0312          |
|                                                        | 05, $4_d$ | 0.267       | 0.267       | 0.267       | 25.44   | 0.0         | 0.0         | 0.01         | 0          | 4.33(=4.33+0.0)   | 4.56(=4.56+0.0)   | 4.96(=4.96+0.0)   | 0.3127    | 0.329     | 0.0515          |
|                                                        | 06, $5_d$ | 0.333       | 0.333       | 0.333       | 31.8    | 0.0         | 0.0         | 0.01         | 0          | 6.65(=6.65+0.0)   | 7.0(=7.0+0.0)     | 7.62(=7.62+0.0)   | 0.3127    | 0.329     | 0.079           |
|                                                        | 07, $6_d$ | 0.4         | 0.4         | 0.4         | 38.16   | 0.0         | 0.0         | 0.01         | 0          | 9.67(=9.67+0.0)   | 10.18(=10.18+0.0) | 11.08(=11.08+0.0) | 0.3127    | 0.329     | 0.1149          |
|                                                        | 08, $7_d$ | 0.467       | 0.467       | 0.467       | 44.52   | 0.0         | 0.0         | 0.01         | 0          | 13.5(=13.5+0.0)   | 14.2(=14.2+0.0)   | 15.46(=15.46+0.0) | 0.3127    | 0.329     | 0.1603          |
|                                                        | 09, $8_d$ | 0.533       | 0.533       | 0.533       | 50.89   | 0.0         | 0.0         | 0.01         | 0          | 18.22(=18.22+0.0) | 19.17(=19.17+0.0) | 20.88(=20.88+0.0) | 0.3127    | 0.329     | 0.2164          |
|                                                        | 10, $9_d$ | 0.6         | 0.6         | 0.6         | 57.25   | 0.0         | 0.0         | 0.01         | 0          | 23.93(=23.93+0.0) | 25.18(=25.18+0.0) | 27.42(=27.41+0.0) | 0.3127    | 0.329     | 0.2842          |
|                                                        | 11, $A_d$ | 0.667       | 0.667       | 0.667       | 63.61   | 0.0         | 0.0         | 0.01         | 0          | 30.72(=30.72+0.0) | 32.32(=32.32+0.0) | 35.19(=35.19+0.0) | 0.3127    | 0.329     | 0.3649          |
|                                                        | 12, $B_d$ | 0.733       | 0.733       | 0.733       | 69.97   | 0.0         | 0.0         | 0.01         | 0          | 38.69(=38.69+0.0) | 40.71(=40.71+0.0) | 44.32(=44.32+0.0) | 0.3127    | 0.329     | 0.4595          |
|                                                        | 13, $C_d$ | 0.8         | 0.8         | 0.8         | 76.33   | 0.0         | 0.0         | 0.01         | 0          | 47.92(=47.92+0.0) | 50.43(=50.42+0.0) | 54.9(=54.9+0.0)   | 0.3127    | 0.329     | 0.5692          |
|                                                        | 14, $D_d$ | 0.867       | 0.867       | 0.867       | 82.69   | 0.0         | 0.0         | 0.01         | 0          | 58.53(=58.53+0.0) | 61.58(=61.58+0.0) | 67.05(=67.05+0.0) | 0.3127    | 0.329     | 0.6951          |
|                                                        | 15, $E_d$ | 0.933       | 0.933       | 0.933       | 89.05   | 0.0         | 0.0         | 0.01         | 0          | 70.59(=70.59+0.0) | 74.27(=74.27+0.0) | 80.87(=80.86+0.0) | 0.3127    | 0.329     | 0.8383          |
|                                                        | 16, $F_d$ | 1.0         | 1.0         | 1.0         | 95.41   | 0.0         | 0.0         | 0.01         | 0          | 84.2(=84.2+0.0)   | 88.59(=88.59+0.0) | 96.46(=96.46+0.0) | 0.3127    | 0.329     | 1.0             |
|                                                        | 17, $N_d$ | 0.0         | 0.0         | 0.0         | 0.01    | 0.0         | 0.0         | 0.01         | 0          | 0.0(=0.0+0.0)     | 0.0(=0.0+0.0)     | 0.0(=0.0+0.0)     | 0.3118    | 0.3281    | 0.0             |
|                                                        | 18, $W_d$ | 1.0         | 1.0         | 1.0         | 95.41   | 0.0         | 0.0         | 0.01         | 0          | 84.2(=84.2+0.0)   | 88.59(=88.59+0.0) | 96.46(=96.46+0.0) | 0.3127    | 0.329     | 1.0             |

**Calculated colorimetric data (b): Television Luminous Systems TLS18b for CIE lightness  $L^*=18$  of black and for illuminant D65**

|                                                                                                   | Color i                  | r <sup>*</sup> <sub>a,d</sub> | g <sup>*</sup> <sub>a,d</sub> | b <sup>*</sup> <sub>a,d</sub> | L <sup>*</sup> <sub>d</sub> | a <sup>*</sup> <sub>d</sub> | b <sup>*</sup> <sub>d</sub> | C <sup>*</sup> <sub>ab,d</sub> | h <sub>ab,d</sub> | X <sub>a,d</sub>  | Y <sub>a,d</sub>   | Z <sub>a,d</sub>   | x <sub>a,d</sub> | y <sub>a,d</sub> | Y <sub>a,d</sub> /88.59 |
|---------------------------------------------------------------------------------------------------|--------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|-------------------|-------------------|--------------------|--------------------|------------------|------------------|-------------------------|
| <b>D65 reflection:</b><br><b>Y<sub>N</sub> = 2.52</b><br><b>L<sup>*</sup><sub>N</sub> = 18.01</b> | 01, <i>O<sub>d</sub></i> | 0.0                           | 0.0                           | 0.0                           | 18.01                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 2.4(=0.0+2.4)     | 2.52(=0.0+2.52)    | 2.74(=0.0+2.74)    | 0.3127           | 0.329            | 0.0285                  |
|                                                                                                   | 02, <i>I<sub>d</sub></i> | 0.067                         | 0.067                         | 0.067                         | 20.84                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 3.05(=0.65+2.4)   | 3.2(=0.68+2.52)    | 3.49(=0.74+2.74)   | 0.3127           | 0.329            | 0.0362                  |
|                                                                                                   | 03, <i>2<sub>d</sub></i> | 0.133                         | 0.133                         | 0.133                         | 23.65                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 3.8(=1.4+2.4)     | 3.99(=1.47+2.52)   | 4.35(=1.61+2.74)   | 0.3127           | 0.329            | 0.0451                  |
|                                                                                                   | 04, <i>3<sub>d</sub></i> | 0.2                           | 0.2                           | 0.2                           | 27.32                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 4.95(=2.55+2.4)   | 5.21(=2.69+2.52)   | 5.67(=2.93+2.74)   | 0.3127           | 0.329            | 0.0588                  |
|                                                                                                   | 05, <i>4<sub>d</sub></i> | 0.267                         | 0.267                         | 0.267                         | 31.69                       | 0.0                         | 0.0                         | 0.0                            | 3                 | 6.6(=4.21+2.4)    | 6.95(=4.43+2.52)   | 7.57(=4.82+2.74)   | 0.3127           | 0.329            | 0.0784                  |
|                                                                                                   | 06, <i>5<sub>d</sub></i> | 0.333                         | 0.333                         | 0.333                         | 36.59                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 8.86(=6.46+2.4)   | 9.32(=6.8+2.52)    | 10.15(=7.4+2.74)   | 0.3127           | 0.329            | 0.1052                  |
|                                                                                                   | 07, <i>6<sub>d</sub></i> | 0.4                           | 0.4                           | 0.4                           | 41.86                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 11.79(=9.4+2.4)   | 12.41(=9.89+2.52)  | 13.51(=10.77+2.74) | 0.3127           | 0.329            | 0.1401                  |
|                                                                                                   | 08, <i>7<sub>d</sub></i> | 0.467                         | 0.467                         | 0.467                         | 47.39                       | 0.0                         | 0.0                         | 0.0                            | 353               | 15.51(=13.11+2.4) | 16.32(=13.8+2.52)  | 17.77(=15.02+2.74) | 0.3127           | 0.329            | 0.1842                  |
|                                                                                                   | 09, <i>8<sub>d</sub></i> | 0.533                         | 0.533                         | 0.533                         | 53.11                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 20.1(=17.7+2.4)   | 21.15(=18.63+2.52) | 23.03(=20.28+2.74) | 0.3127           | 0.329            | 0.2387                  |
|                                                                                                   | 10, <i>9<sub>d</sub></i> | 0.6                           | 0.6                           | 0.6                           | 58.96                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 25.65(=23.25+2.4) | 26.98(=24.46+2.52) | 29.38(=26.64+2.74) | 0.3127           | 0.329            | 0.3046                  |
|                                                                                                   | 11, <i>A<sub>d</sub></i> | 0.667                         | 0.667                         | 0.667                         | 64.9                        | 0.0                         | 0.0                         | 0.0                            | 0                 | 32.24(=29.85+2.4) | 33.92(=31.4+2.52)  | 36.94(=34.19+2.74) | 0.3127           | 0.329            | 0.3829                  |
|                                                                                                   | 12, <i>B<sub>d</sub></i> | 0.733                         | 0.733                         | 0.733                         | 70.92                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 39.98(=37.59+2.4) | 42.07(=39.55+2.52) | 45.8(=43.06+2.74)  | 0.3127           | 0.329            | 0.4749                  |
|                                                                                                   | 13, <i>C<sub>d</sub></i> | 0.8                           | 0.8                           | 0.8                           | 76.99                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 48.96(=46.56+2.4) | 51.51(=48.99+2.52) | 56.09(=53.34+2.74) | 0.3127           | 0.329            | 0.5814                  |
|                                                                                                   | 14, <i>D<sub>d</sub></i> | 0.867                         | 0.867                         | 0.867                         | 83.1                        | 0.0                         | 0.0                         | 0.0                            | 0                 | 59.26(=56.86+2.4) | 62.35(=59.83+2.52) | 67.89(=65.14+2.74) | 0.3127           | 0.329            | 0.7038                  |
|                                                                                                   | 15, <i>E<sub>d</sub></i> | 0.933                         | 0.933                         | 0.933                         | 89.24                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 70.97(=68.58+2.4) | 74.68(=72.16+2.52) | 81.31(=78.57+2.74) | 0.3127           | 0.329            | 0.8429                  |
|                                                                                                   | 16, <i>F<sub>d</sub></i> | 1.0                           | 1.0                           | 1.0                           | 95.41                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 84.2(=81.8+2.4)   | 88.59(=86.07+2.52) | 96.46(=93.72+2.74) | 0.3127           | 0.329            | 1.0                     |
|                                                                                                   | 17, <i>N<sub>d</sub></i> | 0.0                           | 0.0                           | 0.0                           | 18.01                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 2.4(=0.0+2.4)     | 2.52(=0.0+2.52)    | 2.74(=0.0+2.74)    | 0.3127           | 0.329            | 0.0285                  |
|                                                                                                   | 18, <i>W<sub>d</sub></i> | 1.0                           | 1.0                           | 1.0                           | 95.41                       | 0.0                         | 0.0                         | 0.0                            | 0                 | 84.2(=81.8+2.4)   | 88.59(=86.07+2.52) | 96.46(=93.72+2.74) | 0.3127           | 0.329            | 1.0                     |

**Calculated colorimetric data (b): Television Luminous Systems TLS70b for CIE lightness  $L^*=70$  of black and for illuminant D65**

| Color i                                                   | $r^*_{a,d}$ | $g^*_{a,d}$ | $b^*_{a,d}$ | $L^*_d$ | $a^*_{a,d}$ | $b^*_{a,d}$ | $C^*_{ab,d}$ | $h_{ab,d}$ | $X_{a,d}$           | $Y_{a,d}$           | $Z_{a,d}$          | $x_{a,d}$ | $y_{a,d}$ | $Y_{a,d}/88.59$ |
|-----------------------------------------------------------|-------------|-------------|-------------|---------|-------------|-------------|--------------|------------|---------------------|---------------------|--------------------|-----------|-----------|-----------------|
| <b>D65 reflection:</b><br>$Y_N = 40.32$<br>$L^*_N = 69.7$ | 01, $O_d$   | 0.0         | 0.0         | 0.0     | 69.7        | 0.0         | 0.0          | 0          | 38.32(=0.0+38.32)   | 40.32(=0.0+40.32)   | 43.9(=0.0+43.9)    | 0.3127    | 0.329     | 0.4551          |
|                                                           | 02, $I_d$   | 0.067       | 0.067       | 0.067   | 69.97       | 0.0         | 0.0          | 0          | 38.68(=0.36+38.32)  | 40.7(=0.38+40.32)   | 44.32(=0.42+43.9)  | 0.3127    | 0.329     | 0.4594          |
|                                                           | 03, $2_d$   | 0.133       | 0.133       | 0.133   | 70.28       | 0.0         | 0.0          | 0          | 39.11(=0.79+38.32)  | 41.15(=0.83+40.32)  | 44.8(=0.9+43.9)    | 0.3127    | 0.329     | 0.4644          |
|                                                           | 04, $3_d$   | 0.2         | 0.2         | 0.2     | 70.75       | 0.0         | 0.0          | 0          | 39.75(=1.43+38.32)  | 41.83(=1.51+40.32)  | 45.54(=1.64+43.9)  | 0.3127    | 0.329     | 0.4721          |
|                                                           | 05, $4_d$   | 0.267       | 0.267       | 0.267   | 71.42       | 0.0         | 0.0          | 0          | 40.68(=2.36+38.32)  | 42.8(=2.48+40.32)   | 46.61(=2.7+43.9)   | 0.3127    | 0.329     | 0.4832          |
|                                                           | 06, $5_d$   | 0.333       | 0.333       | 0.333   | 72.32       | 0.0         | 0.0          | 0          | 41.94(=3.62+38.32)  | 44.13(=3.81+40.32)  | 48.05(=4.15+43.9)  | 0.3127    | 0.329     | 0.4981          |
|                                                           | 07, $6_d$   | 0.4         | 0.4         | 0.4     | 73.46       | 0.0         | 0.0          | 0          | 43.59(=5.27+38.32)  | 45.87(=5.55+40.32)  | 49.94(=6.04+43.9)  | 0.3127    | 0.329     | 0.5177          |
|                                                           | 08, $7_d$   | 0.467       | 0.467       | 0.467   | 74.86       | 0.0         | 0.0          | 0          | 45.67(=7.35+38.32)  | 48.06(=7.74+40.32)  | 52.33(=8.43+43.9)  | 0.3127    | 0.329     | 0.5425          |
|                                                           | 09, $8_d$   | 0.533       | 0.533       | 0.533   | 76.54       | 0.0         | 0.0          | 0          | 48.25(=9.93+38.32)  | 50.77(=10.45+40.32) | 55.28(=11.38+43.9) | 0.3127    | 0.329     | 0.573           |
|                                                           | 10, $9_d$   | 0.6         | 0.6         | 0.6     | 78.49       | 0.0         | 0.0          | 0          | 51.36(=13.04+38.32) | 54.04(=13.72+40.32) | 58.84(=14.94+43.9) | 0.3127    | 0.329     | 0.61            |
|                                                           | 11, $A_d$   | 0.667       | 0.667       | 0.667   | 80.7        | 0.0         | 0.0          | 0          | 55.06(=16.74+38.32) | 57.93(=17.61+40.32) | 63.08(=19.18+43.9) | 0.3127    | 0.329     | 0.6539          |
|                                                           | 12, $B_d$   | 0.733       | 0.733       | 0.733   | 83.18       | 0.0         | 0.0          | 0          | 59.4(=21.08+38.32)  | 62.5(=22.18+40.32)  | 68.05(=24.15+43.9) | 0.3127    | 0.329     | 0.7055          |
|                                                           | 13, $C_d$   | 0.8         | 0.8         | 0.8     | 85.9        | 0.0         | 0.0          | 0          | 64.43(=26.11+38.32) | 67.8(=27.48+40.32)  | 73.82(=29.92+43.9) | 0.3127    | 0.329     | 0.7653          |
|                                                           | 14, $D_d$   | 0.867       | 0.867       | 0.867   | 88.86       | 0.0         | 0.0          | 0          | 70.21(=31.89+38.32) | 73.87(=33.55+40.32) | 80.43(=36.53+43.9) | 0.3127    | 0.329     | 0.8339          |
|                                                           | 15, $E_d$   | 0.933       | 0.933       | 0.933   | 92.04       | 0.0         | 0.0          | 0          | 76.78(=38.46+38.32) | 80.79(=40.47+40.32) | 87.96(=44.06+43.9) | 0.3127    | 0.329     | 0.9119          |
|                                                           | 16, $F_d$   | 1.0         | 1.0         | 1.0     | 95.41       | 0.0         | 0.0          | 0          | 84.2(=45.88+38.32)  | 88.59(=48.27+40.32) | 96.46(=52.56+43.9) | 0.3127    | 0.329     | 1.0             |
|                                                           | 17, $N_d$   | 0.0         | 0.0         | 0.0     | 69.7        | 0.0         | 0.0          | 0          | 38.32(=0.0+38.32)   | 40.32(=0.0+40.32)   | 43.9(=0.0+43.9)    | 0.3127    | 0.329     | 0.4551          |
|                                                           | 18, $W_d$   | 1.0         | 1.0         | 1.0     | 95.41       | 0.0         | 0.0          | 0          | 84.2(=45.88+38.32)  | 88.59(=48.27+40.32) | 96.46(=52.56+43.9) | 0.3127    | 0.329     | 1.0             |

CEI50-7N00

Test chart CEI5; 16 grey steps and  $NW_d$  for TLS00, TLS00a & TLS00b

Calculation of CIE-colour data for sRGB display for 3 reflections

input: *rgb*output:  $\rightarrow$  *rgb<sub>ad</sub>*