

CIE data, for example  $\lambda_1$ ,  $\lambda_2$ ,  $\lambda_d$ ,  $\lambda_c$  and XYZxy, LabCh\*, YABCh for all optimal colours of maximum (m) chromatic value for D65 and  $Y_w=100$  and 89

| $\lambda_1$ | $\lambda_2$ | $\lambda_d$ | $\lambda_c$ | i  | [X, Y, Z, x, y] <sub>100</sub> | [L*, a*, b*, C* <sub>ab</sub> , h <sub>ab</sub> , a', b', c', ab] <sub>100</sub> | [Y, A, B, G <sub>AB</sub> , h <sub>AB</sub> , a, b, c <sub>AB</sub> ] <sub>100</sub> | [L <sub>d</sub> , i <sub>c</sub> , $\lambda_d$ , $\lambda_c$ ] <sub>100</sub> | [X, Y, Z] <sub>89</sub> | [L*, a*, b*, C* <sub>ab</sub> , h <sub>ab</sub> ] <sub>89</sub> | [Y, A, B, G <sub>AB</sub> , h <sub>AB</sub> ] <sub>89</sub> |
|-------------|-------------|-------------|-------------|----|--------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|
| 405         | 561         | 483         | 589         | 00 | 32.6 58.2 108.1 0.219 0.391    | 80.9 -67.5 -32.4 75.0 205.7 0.181 -0.102 0.04                                    | 58.2 -22.6 -17.8 28.9 218.2 0.56 -0.742 0.497                                        | 16 483 37 589                                                                 | 28.9 51.6 95.8          | 77.0 -64.8 -31.2 72.0 205.7                                     | 51.6 -20.1 -15.8 25.6 218.2                                 |
| 435         | 562         | 486         | 610         | 01 | 29.1 58.8 88.7 0.198 0.401     | 81.2 -81.8 -19.2 84.1 193.2 0.173 -0.095 0.044                                   | 58.8 -26.7 -9.8 28.6 200.2 0.495 -0.603 0.486                                        | 17 486 42 610                                                                 | 25.8 52.1 78.6          | 77.3 -78.6 -18.4 80.8 193.2                                     | 52.1 -23.6 -8.7 25.3 200.2                                  |
| 450         | 563         | 496         | 496c        | 02 | 22.9 59.4 52.4 0.162 0.419     | 81.5 -109.0 11.4 109.7 174.0 0.16 -0.079 0.057                                   | 59.4 -33.4 4.9 33.9 171.6 0.386 -0.352 0.571                                         | 19 496 -1 496c                                                                | 20.3 52.6 46.4          | 77.7 -104.6 11.0 105.3 174.0                                    | 52.6 -29.6 4.4 30.0 171.6                                   |
| 460         | 565         | 506         | 506c        | 03 | 20.9 60.3 34.0 0.148 0.426     | 82.0 -120.6 33.3 125.2 164.6 0.154 -0.068 0.065                                  | 60.3 -36.4 12.7 38.6 160.8 0.346 -0.225 0.64                                         | 21 506 -1 506c                                                                | 18.5 53.4 30.1          | 78.1 -115.9 31.9 120.3 164.6                                    | 53.4 -32.2 11.2 34.2 160.8                                  |
| 465         | 567         | 506         | 506c        | 04 | 22.0 61.7 34.0 0.151 0.424     | 82.7 -118.7 34.5 123.7 163.8 0.155 -0.068 0.063                                  | 61.7 -36.6 13.2 39.0 160.1 0.356 -0.22 0.632                                         | 21 506 -1 506c                                                                | 19.5 54.6 30.1          | 78.8 -114.0 33.1 118.8 163.8                                    | 54.6 -32.4 11.7 34.5 160.1                                  |
| 470         | 569         | 520         | 520c        | 05 | 21.5 62.7 20.0 0.146 0.427     | 83.3 -123.4 57.5 136.2 155.0 0.153 -0.056 0.069                                  | 62.7 -38.0 19.3 42.8 153.1 0.342 -0.126 0.682                                        | 24 520 -1 520c                                                                | 19.0 55.6 17.7          | 79.4 -118.5 55.3 130.8 155.0                                    | 55.6 -33.7 17.1 37.9 153.1                                  |
| 475         | 573         | 528         | 528c        | 06 | 23.8 65.3 14.9 0.154 0.423     | 84.6 -118.6 70.4 138.0 149.3 0.156 -0.05 0.069                                   | 65.3 -38.2 22.5 44.4 149.6 0.364 -0.09 0.68                                          | 25 528 -1 528c                                                                | 21.1 57.8 13.2          | 80.7 -113.9 67.6 132.6 149.3                                    | 57.8 -33.8 19.9 39.3 149.6                                  |
| 480         | 580         | 537         | 537c        | 07 | 29.0 70.0 11.1 0.172 0.414     | 87.0 -107.184.2 136.3 141.9 0.163 -0.044 0.067                                   | 70.0 -37.4 26.0 45.6 145.2 0.415 -0.062 0.653                                        | 27 537 -1 537c                                                                | 25.7 62.0 9.8           | 82.9 -102.9 80.9 130.9 141.9                                    | 62.0 -33.1 23.1 40.4 145.2                                  |
| 485         | 595         | 548         | 548c        | 08 | 42.1 78.8 8.2 0.211 0.395      | 91.1 -80.4 100.1 128.5 128.8 0.178 -0.038 0.061                                  | 78.8 -32.6 31.0 45.1 136.6 0.535 -0.041 0.573                                        | 29 548 -1 548c                                                                | 37.3 69.8 7.3           | 86.9 -77.3 96.1 123.4 128.8                                     | 69.8 -28.9 27.5 39.9 136.6                                  |
| 490         | 490c        | 565         | 459         | 09 | 77.1 93.8 6.1 0.291 0.354      | 97.7 -23.1 119.1 121.3 101.0 0.205 -0.033 0.054                                  | 93.8 -12.0 38.4 40.3 107.4 0.822 -0.025 0.429                                        | 33 565 11 459                                                                 | 68.3 83.1 5.4           | 93.1 -22.1 114.3 116.5 101.0                                    | 83.1 -10.6 34.0 35.7 107.4                                  |
| 495         | 495c        | 566         | 462         | 10 | 77.0 92.3 4.5 0.294 0.353      | 96.9 -20.5 125.4 127.1 99.3 0.206 -0.03 0.057                                    | 92.3 -10.6 38.4 39.9 105.6 0.835 -0.019 0.432                                        | 33 566 12 462                                                                 | 68.3 81.8 4.0           | 92.5 -19.7 120.5 122.1 99.3                                     | 81.8 -9.4 34.0 35.3 105.6                                   |
| 500         | 500c        | 567         | 464         | 11 | 77.0 90.4 3.3 0.299 0.351      | 96.2 -17.2 131.2 132.3 97.5 0.208 -0.027 0.06                                    | 90.4 -8.8 38.1 39.1 103.2 0.852 -0.013 0.433                                         | 33 567 12 464                                                                 | 68.2 80.1 2.9           | 91.7 -16.6 126.0 127.0 97.5                                     | 80.1 -7.8 33.7 34.6 103.2                                   |
| 510         | 510c        | 569         | 469         | 12 | 76.9 85.3 1.6 0.311 0.345      | 94.0 -8.1 140.2 140.4 93.4 0.212 -0.021 0.065                                    | 85.3 -4.1 36.5 36.7 96.5 0.902 -0.007 0.431                                          | 33 569 13 469                                                                 | 68.1 75.5 1.5           | 89.7 -7.8 134.6 134.8 93.4                                      | 75.5 -3.6 32.3 32.5 96.5                                    |
| 520         | 520c        | 570         | 471         | 13 | 76.7 82.0 1.2 0.319 0.341      | 92.6 -2.4 143.0 143.0 91.0 0.214 -0.019 0.067                                    | 82.0 -1.2 35.2 35.3 92.0 0.935 -0.005 0.43                                           | 34 570 14 471                                                                 | 67.9 72.6 1.0           | 88.3 -2.3 137.3 137.3 91.0                                      | 72.6 -1.0 31.2 31.2 92.0                                    |
| 530         | 530c        | 573         | 475         | 14 | 75.5 74.0 0.6 0.338 0.331      | 88.9 10.8 144.4 144.8 85.7 0.221 -0.016 0.07                                     | 74.0 5.2 32.0 32.4 80.8 1.02 -0.002 0.438                                            | 34 573 15 475                                                                 | 66.9 65.6 0.5           | 84.8 10.4 138.3 138.6 85.7                                      | 65.6 4.6 28.4 28.7 80.8                                     |
| 540         | 540c        | 577         | 478         | 15 | 73.3 64.9 0.3 0.361 0.32       | 84.4 25.5 141.4 143.7 79.8 0.228 -0.012 0.075                                    | 64.9 11.6 28.2 30.4 67.7 1.129 -0.001 0.469                                          | 35 577 15 478                                                                 | 64.9 57.5 0.2           | 80.5 24.5 135.0 137.2 79.7                                      | 57.5 10.3 24.9 27.0 67.7                                    |
| 545         | 545c        | 579         | 479         | 16 | 71.7 60.1 0.2 0.373 0.313      | 81.9 33.1 138.3 142.2 76.6 0.232 -0.011 0.077                                    | 60.1 14.5 26.1 29.9 60.9 1.192 0.0 0.497                                             | 35 579 15 479                                                                 | 63.5 53.3 0.2           | 78.0 31.7 132.0 135.8 76.5                                      | 53.3 12.9 23.1 26.5 60.9                                    |
| 550         | 550c        | 582         | 480         | 17 | 69.7 55.3 0.1 0.387 0.307      | 79.2 40.6 134.5 140.5 73.2 0.237 -0.01 0.079                                     | 55.3 17.2 24.0 29.5 54.4 1.261 0.0 0.534                                             | 36 582 16 480                                                                 | 61.8 49.0 0.1           | 75.4 39.0 128.3 134.0 73.1                                      | 49.0 15.2 21.3 26.2 54.4                                    |
| 555         | 555c        | 584         | 481         | 18 | 67.4 50.4 0.1 0.401 0.3        | 76.3 48.0 130.1 138.7 69.8 0.241 -0.009 0.081                                    | 50.4 19.5 21.9 29.3 48.3 1.337 0.0 0.582                                             | 36 584 16 481                                                                 | 59.7 44.7 0.1           | 72.7 46.1 124.0 132.3 69.6                                      | 44.7 17.3 19.4 26.0 48.3                                    |
| 560         | 560c        | 589         | 483         | 19 | 61.8 41.0 0.1 0.43 0.285       | 70.2 61.6 120.1 135.0 62.8 0.251 -0.008 0.085                                    | 41.0 22.8 17.8 29.0 38.0 1.506 0.0 0.706                                             | 37 589 16 483                                                                 | 54.7 36.3 0.1           | 66.8 59.2 114.4 128.8 62.6                                      | 36.3 20.2 15.8 25.6 38.0                                    |
| 561         | 405         | 589         | 483         | 20 | 62.5 41.8 0.8 0.428 0.286      | 70.7 60.9 110.1 125.8 61.1 0.251 -0.021 0.074                                    | 41.8 22.7 17.9 28.9 38.2 1.495 -0.006 0.693                                          | 37 589 16 483                                                                 | 55.3 37.0 0.7           | 67.3 58.5 105.5 120.6 61.0                                      | 37.0 20.2 15.9 25.6 38.2                                    |
| 562         | 435         | 610         | 486         | 21 | 66.0 41.2 20.2 0.445 0.278     | 70.3 70.6 14.8 78.7 26.3 0.256 -0.065 0.047                                      | 41.2 26.8 9.9 28.6 20.2 1.601 -0.195 0.693                                           | 42 610 17 486                                                                 | 58.4 36.5 17.9          | 66.9 67.8 33.5 75.6 26.3                                        | 36.5 23.7 8.8 25.3 20.2                                     |
| 563         | 450         | 496c        | 496         | 22 | 72.1 40.6 56.5 0.47 0.265      | 69.9 85.9 -12.6 86.8 351.6 0.265 -0.093 0.051                                    | 40.6 33.5 -4.8 33.9 351.6 1.777 -0.556 0.836                                         | -1 496c 19 496                                                                | 63.9 35.9 50.1          | 66.5 82.5 -12.1 83.3 351.6                                      | 35.9 29.7 -4.3 30.0 351.6                                   |
| 565         | 460         | 506c        | 506         | 23 | 74.2 39.7 74.9 0.483 0.258     | 69.2 92.9 -29.4 97.5 342.4 0.27 -0.103 0.058                                     | 39.7 36.5 -12.6 38.6 340.8 1.869 -0.754 0.973                                        | -1 506c 21 506                                                                | 65.7 35.2 66.3          | 65.9 89.2 -28.3 93.6 342.4                                      | 35.2 32.3 -11.1 34.2 340.8                                  |
| 567         | 465         | 506c        | 506         | 24 | 73.1 38.3 74.9 0.488 0.256     | 68.3 94.8 -31.1 99.9 341.8 0.272 -0.104 0.06                                     | 38.3 36.7 -13.1 39.0 340.1 1.907 -0.78 1.017                                         | -1 506c 21 506                                                                | 64.7 34.0 66.3          | 64.9 91.1 -29.9 95.9 341.8                                      | 34.0 32.5 -11.6 34.5 340.1                                  |
| 569         | 470         | 520c        | 520         | 25 | 73.6 37.3 88.9 0.497 0.252     | 67.5 99.2 -42.9 108.2 336.6 0.275 -0.111 0.066                                   | 37.3 38.1 -19.2 42.8 333.1 1.974 -0.953 1.147                                        | -1 520c 24 520                                                                | 65.2 33.0 78.8          | 64.2 95.3 -41.2 103.9 336.6                                     | 33.0 33.8 -17.0 37.9 333.1                                  |
| 573         | 475         | 528c        | 528         | 26 | 71.3 34.7 94.0 0.507 0.247     | 65.5 102.9 -49.8 114.3 334.1 0.278 -0.116 0.071                                  | 34.7 38.3 -22.4 44.4 329.6 2.054 -1.082 1.279                                        | -1 528c 25 528                                                                | 63.1 30.7 83.3          | 62.3 98.8 -47.8 109.8 334.1                                     | 30.7 33.9 -19.8 39.3 329.6                                  |
| 580         | 480         | 537c        | 537         | 27 | 66.0 30.0 97.8 0.524 0.238     | 61.7 108.0 -58.9 123.0 331.3 0.285 -0.123 0.08                                   | 30.0 37.5 -25.9 45.6 325.2 2.198 -1.302 1.519                                        | -1 537c 27 537                                                                | 58.5 26.6 86.7          | 58.6 103.7 -56.6 118.2 331.3                                    | 26.6 33.2 -23.0 40.4 325.2                                  |
| 595         | 485         | 548c        | 548         | 28 | 52.9 21.2 100.7 0.555 0.223    | 53.2 113.0 -75.4 135.9 326.3 0.297 -0.14 0.099                                   | 21.2 32.7 -30.9 45.1 316.6 2.491 -1.894 2.122                                        | -1 548c 29 548                                                                | 46.9 18.8 89.2          | 50.5 108.5 -72.4 130.5 326.3                                    | 18.8 29.0 -27.4 39.9 316.6                                  |
| 490c        | 490         | 459         | 565         | 29 | 18.0 6.2 102.8 0.592 0.204     | 29.9 89.0 -116.9 147.0 307.3 0.312 -0.213 0.16                                   | 6.2 12.1 -38.3 40.3 287.4 2.899 -6.636 6.501                                         | 11 459 33 565                                                                 | 15.9 5.5 91.0           | 28.1 85.5 -112.3 141.2 307.3                                    | 5.5 10.7 -33.9 35.7 287.4                                   |
| 495c        | 495         | 462         | 566         | 30 | 18.0 7.7 104.4 0.539 0.23      | 33.4 74.4 -112.0 134.6 303.6 0.291 -0.199 0.137                                  | 7.7 10.7 -38.3 39.9 285.6 2.339 -5.424 5.179                                         | 12 462 33 566                                                                 | 15.9 6.8 92.5           | 31.4 71.5 -107.6 129.2 303.6                                    | 6.8 9.5 -33.9 35.3 285.6                                    |
| 500c        | 500         | 464         | 567         | 31 | 18.0 9.6 105.6 0.485 0.258     | 37.1 58.4 -106.3 121.4 298.8 0.27 -0.185 0.115                                   | 9.6 8.9 -38.0 39.1 283.2 1.881 -4.41 4.083                                           | 12 464 33 567                                                                 | 16.0 8.5 93.6           | 35.0 56.1 -102.1 116.6 298.8                                    | 8.5 7.9 -33.6 34.6 283.2                                    |
| 510c        | 510         | 469         | 569         | 32 | 18.1 14.7 107.3 0.381 0.309    | 45.3 23.9 -93.3 96.4 284.4 0.235 -0.161 0.079                                    | 14.7 4.2 -36.4 36.7 276.5 1.233 -2.913 2.495                                         | 13 469 33 569                                                                 | 16.1 13.0 95.0          | 42.8 23.0 -89.6 92.6 284.4                                      | 13.0 3.7 -32.2 32.5 276.5                                   |
| 520c        | 520         | 471         | 570         | 33 | 18.4 18.0 107.7 0.338 0.331    | 49.5 6.8 -86.2 86.6 274.5 0.221 -0.151 0.067                                     | 18.0 1.3 -35.1 35.3 272.0 1.02 -2.392 1.958                                          | 14 471 34 570                                                                 | 16.3 16.0 95.4          | 46.9 6.5 -82.8 83.2 274.5                                       | 16.0 1.1 -31.1 31.2 272.0                                   |
| 530c        | 530         | 475         | 573         | 34 | 19.5 26.0 108.3 0.273 0.363    | 58.0 -23.9 -72.0 76.0 251.6 0.199 -0.134 0.052                                   | 26.0 -5.1 -31.9 32.4 260.8 0.752 -1.668 1.25                                         | 15 475 34 573                                                                 | 17.3 23.0 96.0          | 55.1 -22.9 -69.1 72.9 251.6                                     | 23.0 -4.5 -28.3 28.7 260.8                                  |
| 540c        | 540         | 478         | 577         | 35 | 21.8 35.1 108.6 0.237 0.382    | 65.8 -46.6 -58.7 75.1 231.5 0.187 -0.121 0.047                                   | 35.1 -11.5 -28.1 30.4 247.7 0.621 -1.237 0.868                                       | 15 478 35 577                                                                 | 19.3 31.1 96.2          | 62.6 -44.8 -56.3 72.1 231.5                                     | 31.1 -10.2 -24.8 27.0 247.7                                 |
| 545c        | 545         | 479         | 579         | 36 | 23.4 39.9 108.7 0.227 0.387    | 69.4 -54.6 -52.6 75.9 223.9 0.183 -0.116 0.046                                   | 39.9 -14.4 -26.0 29.9 240.9 0.587 -1.09 0.749                                        | 15 479 35 579                                                                 | 20.7 35.3 96.3          | 66.0 -52.4 -50.5 72.9 223.9                                     | 35.3 -12.8 -23.0 26.5 240.9                                 |
| 550c        | 550         | 480         | 582         | 37 | 25.3 44.7 108.8 0.221 0.39     | 72.7 -60.5 -46.9 76.7 217.8 0.181 -0.112 0.044                                   | 44.7 -17.1 -23.9 29.5 234.4 0.566 -0.972 0.66                                        | 16 480 36 582                                                                 | 22.4 39.6 96.4          | 69.2 -58.1 -45.0 73.6 217.8                                     | 39.6 -15.1 -21.2 26.2 234.4                                 |
| 555c        | 555         | 481         | 584         | 38 | 27.6 49.6 108.8 0.218 0.391    | 75.8 -64.4 -41.5 76.8 212.8 0.18 -0.108 0.043                                    | 49.6 -19.4 -21.8 29.3 228.3 0.557 -0.876 0.592                                       | 16 481 36 584                                                                 | 24.5 43.9 96.4          | 72.2 -61.9 -39.9 73.7 212.8                                     | 43.9 -17.2 -19.3 26.0 228.3                                 |
| 560c        | 560         | 483         | 589         | 39 | 33.3 59.0 108.8 0.22 0.39      | 81.3 -66.9 -32.1 74.3 205.7 0.181 -0.102 0.039                                   | 59.0 -22.7 -17.7 29.0 218.0 0.564 -0.737 0.491                                       | 16 483 37 589                                                                 | 29.5 52.3 96.5          | 77.4 -64.2 -30.9 71.4 205.7                                     | 52.3 -20.1 -15.7 25.6 218.0                                 |
| 0x          | 0x          | 0x          | 0x          | 40 | 95.0 100.0 108.9 0.322 0.339   | 100.0 0.0 0.0 0.0 0.0 0.215 -0.085 0.01                                          | 100.0 0.0 0.0 0.0 0.0 0.95 -0.435 0.01                                               | 0 0x 0 0x                                                                     | 84.2 88.6 96.5          | 95.4 0.0 0.0 0.0 0.0                                            | 88.6 0.0 0.0 0.0 2.9                                        |