

| 48 step circle with interpretation <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> device hue steps of 1080 standard colours                                                                                                                                                                                            |                          |            |            |            |                                         |                          |            |            |            |                                         |                          |             |            |             |                                         |                          |            |             |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------|------------|------------|-----------------------------------------|--------------------------|------------|------------|------------|-----------------------------------------|--------------------------|-------------|------------|-------------|-----------------------------------------|--------------------------|------------|-------------|------------|-----------------------------------------|--------------------------|-------------|------------|-------------|-----------------------------------------|--------------------------|------------|-------------|------------|-------------|------|-------|----------------|
| <i>rgb</i> -> <i>rgb</i> * <sub>d</sub>                                                                                                                                                                                                                                                                         | <i>a</i> <sub>ab,a</sub> | <i>L</i> * | <i>a</i> * | <i>b</i> * | <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> | <i>a</i> <sub>ab,a</sub> | <i>L</i> * | <i>a</i> * | <i>b</i> * | <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> | <i>a</i> <sub>ab,a</sub> | <i>L</i> *  | <i>a</i> * | <i>b</i> *  | <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> | <i>a</i> <sub>ab,a</sub> | <i>L</i> * | <i>a</i> *  | <i>b</i> * | <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> | <i>a</i> <sub>ab,a</sub> | <i>L</i> *  | <i>a</i> * | <i>b</i> *  | <i>rgb</i> -> <i>rgb</i> * <sub>d</sub> | <i>a</i> <sub>ab,a</sub> | <i>L</i> * | <i>a</i> *  | <i>b</i> * |             |      |       |                |
| 1.0 0.0 0.0                                                                                                                                                                                                                                                                                                     | 32.2                     | 50.5       | 69.4       | 43.8       | 1.0 1.0 0.0                             | 92.7                     | 90.9       | -4.1       | 87.7       | 0.0 1.0 0.0                             | 153.5                    | 55.0        | -62.9      | 31.2        | 0.0 1.0 1.0                             | 229.1                    | 61.4       | -38.8       | -44.8      | 0.0 0.0 1.0                             | 292.2                    | 26.8        | 19.6       | -48.0       | 1.0 0.0 1.0                             | 355.9                    | 51.2       | 73.9        | -5.2       |             |      |       |                |
| 1.0 0.12 0.0                                                                                                                                                                                                                                                                                                    | 38.8                     | 54.6       | 60.5       | 48.7       | 0.87 1.0 0.0                            | 96.4                     | 86.9       | -9.2       | 82.4       | 0.0 1.0 0.12                            | 161.0                    | 55.8        | -61.3      | 21.0        | 0.0 0.87 1.0                            | 233.8                    | 57.6       | -33.1       | -45.3      | 0.12 0.0 1.0                            | 304.6                    | 29.4        | 29.4       | -42.6       | 1.0 0.0 0.87                            | 0.0                      | 51.2       | 73.2        | 0.0        |             |      |       |                |
| 1.0 0.25 0.0                                                                                                                                                                                                                                                                                                    | 46.2                     | 59.0       | 51.1       | 53.5       | 0.75 1.0 0.0                            | 99.9                     | 83.1       | -13.8      | 78.5       | 0.0 1.0 0.25                            | 170.1                    | 56.6        | -59.1      | 10.2        | 0.0 0.75 1.0                            | 238.8                    | 53.9       | -27.5       | -45.6      | 0.25 0.0 1.0                            | 315.4                    | 31.4        | 37.5       | -36.9       | 1.0 0.0 0.75                            | 3.8                      | 51.1       | 72.5        | 4.8        |             |      |       |                |
| 1.0 0.37 0.0                                                                                                                                                                                                                                                                                                    | 55.4                     | 64.2       | 40.7       | 59.2       | 0.62 1.0 0.0                            | 106.9                    | 77.7       | -20.6      | 67.7       | 0.0 1.0 0.37                            | 181.5                    | 57.5        | -56.1      | -1.5        | 0.0 0.62 1.0                            | 245.8                    | 49.1       | -20.6       | -46.1      | 0.37 0.0 1.0                            | 321.8                    | 35.7        | 42.3       | -33.2       | 1.0 0.0 0.62                            | 8.5                      | 51.2       | 71.3        | 10.7       |             |      |       |                |
| 1.0 0.5 0.0                                                                                                                                                                                                                                                                                                     | 65.0                     | 69.7       | 30.2       | 65.1       | 0.5 1.0 0.0                             | 113.8                    | 73.3       | -27.1      | 61.3       | 0.0 1.0 0.5                             | 192.1                    | 58.2        | -53.3      | -11.4       | 0.0 0.5 1.0                             | 254.1                    | 44.5       | -13.2       | -46.5      | 0.5 0.0 1.0                             | 332.5                    | 39.1        | 51.1       | -26.5       | 1.0 0.0 0.5                             | 13.2                     | 50.8       | 71.3        | 16.7       |             |      |       |                |
| 1.0 0.62 0.0                                                                                                                                                                                                                                                                                                    | 74.2                     | 75.5       | 20.0       | 71.3       | 0.37 1.0 0.0                            | 122.0                    | 68.5       | -34.4      | 55.0       | 0.0 1.0 0.62                            | 202.2                    | 58.8        | -50.3      | -20.6       | 0.0 0.37 1.0                            | 264.0                    | 39.6       | -4.8        | -46.6      | 0.62 0.0 1.0                            | 341.3                    | 42.1        | 58.2       | -19.6       | 1.0 0.0 0.37                            | 17.9                     | 50.9       | 70.6        | 22.9       |             |      |       |                |
| 1.0 0.75 0.0                                                                                                                                                                                                                                                                                                    | 81.6                     | 80.8       | 11.3       | 76.7       | 0.25 1.0 0.0                            | 137.1                    | 62.0       | -45.0      | 41.7       | 0.0 1.0 0.75                            | 212.2                    | 59.6        | -46.6      | -29.4       | 0.0 0.25 1.0                            | 272.7                    | 35.6       | 2.2         | -47.3      | 0.75 0.0 1.0                            | 345.8                    | 46.2        | 62.8       | -15.8       | 1.0 0.0 0.25                            | 23.7                     | 50.8       | 69.9        | 30.7       |             |      |       |                |
| 1.0 0.87 0.0                                                                                                                                                                                                                                                                                                    | 87.6                     | 85.8       | 3.4        | 81.7       | 0.12 1.0 0.0                            | 145.6                    | 58.7       | -53.5      | 36.5       | 0.0 1.0 0.87                            | 220.4                    | 60.5        | -43.1      | -36.8       | 0.0 0.12 1.0                            | 282.0                    | 31.6       | 10.1        | -47.6      | 0.87 0.0 1.0                            | 351.0                    | 48.9        | 68.2       | -10.7       | 1.0 0.0 0.12                            | 28.2                     | 50.7       | 69.5        | 37.3       |             |      |       |                |
| <b>RYGB<sub>ton</sub></b> : 25.4, 92.3, 162.2, 271.7 <b>RYGB<sub>all</sub></b> : 25.4    42.1    58.8    75.6    92.3    109.7    127.2    144.7    162.2    189.6    216.9    244.3    271.7    300.1    328.6    357.0 <b>LAB*<sub>Nio</sub></b> : 22.2, 0.5, 0.5 <b>LAB*<sub>Wio</sub></b> : 96.3, -0.5, 1.9 |                          |            |            |            |                                         |                          |            |            |            |                                         |                          |             |            |             |                                         |                          |            |             |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
| 25.4                                                                                                                                                                                                                                                                                                            | 42.1                     |            | 58.8       |            | 75.6                                    |                          | 92.3       |            | 109.7      |                                         | 127.2                    |             | 144.7      |             | 162.2                                   |                          | 189.6      |             | 216.9      |                                         | 244.3                    |             | 271.7      |             | 300.1                                   |                          | 328.6      |             | 357.0      |             |      |       |                |
| 46                                                                                                                                                                                                                                                                                                              | 1                        | 3          |            | 5          |                                         | 7                        |            | 11         |            | 13                                      |                          | 14          |            | 17          |                                         | 19                       |            | 22          |            | 26                                      |                          | 29          |            | 32          |                                         | 35                       |            | 40          |            |             |      |       |                |
| 17.9 23.7                                                                                                                                                                                                                                                                                                       | 32.2                     | 38.8       |            | 46.2 55.4  |                                         | 65.0 74.2                |            | 81.6 87.6  |            | 99.9 106.9                              |                          | 113.8 122.0 |            | 122.0 137.1 |                                         | 153.5 161.0              |            | 170.1 181.5 |            | 202.2 212.2                             |                          | 233.8 238.8 |            | 254.1 264.0 |                                         | 282.0 292.2              |            | 315.4 321.8 |            | 351.0 355.9 |      |       |                |
| 28.2 32.2                                                                                                                                                                                                                                                                                                       | 46.2                     | 55.4       |            | 65.0 74.2  |                                         | 81.6 87.6                |            | 92.7 96.4  |            | 113.8 122.0                             |                          | 137.1 145.6 |            | 145.6 153.5 |                                         | 170.1 181.5              |            | 192.1 202.2 |            | 220.4 229.1                             |                          | 245.8 254.1 |            | 272.7 282.0 |                                         | 304.6 315.4              |            | 332.5 341.3 |            | 0.0 3.8     |      |       |                |
| 0.382                                                                                                                                                                                                                                                                                                           | 0.452                    |            | 0.356      |            | 0.178                                   |                          | 0.922      |            | 0.408      |                                         | 0.343                    |             | 0.89       |             | 0.124                                   |                          | 0.76       |             | 0.573      |                                         | 0.787                    |             | 0.884      |             | 0.641                                   |                          | 0.63       |             | 0.265      |             |      |       |                |
| 651 650                                                                                                                                                                                                                                                                                                         | 648 657                  |            | 666 675    |            | 684 693                                 |                          | 702 711    |            | 558 477    |                                         | 396 315                  |             | 315 234    |             | 72 73                                   |                          | 74 75      |             | 77 78      |                                         | 71 62                    |             | 44 35      |             | 17 8                                    |                          | 170 251    |             | 575 656    |             |      |       |                |
| 649 648                                                                                                                                                                                                                                                                                                         | 666 675                  |            | 684 693    |            | 702 711                                 |                          | 720 639    |            | 396 315    |                                         | 234 153                  |             | 153 72     |             | 74 75                                   |                          | 76 77      |             | 79 80      |                                         | 53 44                    |             | 26 17      |             | 89 170                                  |                          | 332 413    |             | 655 654    |             |      |       |                |
| 507 506                                                                                                                                                                                                                                                                                                         | 504 531                  |            | 558 585    |            | 612 639                                 |                          | 666 693    |            | 234 711    |                                         | 468 225                  |             | 225 702    |             | 216 217                                 |                          | 218 219    |             | 221 222    |                                         | 197 170                  |             | 116 89     |             | 35 8                                    |                          | 494 17     |             | 269 512    |             |      |       |                |
| 505 504                                                                                                                                                                                                                                                                                                         | 558 585                  |            | 612 639    |            | 666 693                                 |                          | 720 477    |            | 468 225    |                                         | 702 459                  |             | 459 216    |             | 218 219                                 |                          | 220 221    |             | 223 224    |                                         | 143 116                  |             | 62 35      |             | 251 494                                 |                          | 260 503    |             | 511 510    |             |      |       |                |
| <b>16 step elementary hue circle with intended elementary hues: <i>h</i><sub>ab,a</sub> = 25.4, 92.3, 162.2, 271.7</b>                                                                                                                                                                                          |                          |            |            |            |                                         |                          |            |            |            |                                         |                          |             |            |             |                                         |                          |            |             |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
| <i>r00j</i> = <i>R</i>                                                                                                                                                                                                                                                                                          | 329                      | 1173       | 935        | 789        | 697                                     | 669                      | 667        | 674        | 687        | 639                                     | 570                      | 595         | 695        | 707         | 591                                     | 498                      | 469        | 418         |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 329                      | 286        | 491        | 1963       | 4763                                    | 6932                     | 8013       | 8463       | 8652       | 8747                                    | 8802                     | 8814        | 8824       | 8827        | 8844                                    | 8864                     | 8859       | 8876        | 35.3       | 19.1                                    | 5.4                      | 0.59        | 0.318      | 13.0        | 50.8                                    | 69.9                     | 34.3       | 50.8        | 69.7       | 33.2        | 77.2 | 25.4  | 1.00 0.00 0.00 |
| <i>r25j</i>                                                                                                                                                                                                                                                                                                     | 1247                     | 1003       | 753        | 569        | 453                                     | 406                      | 390        | 407        | 462        | 471                                     | 460                      | 589         | 917        | 1219        | 1265                                    | 1208                     | 1189       | 1125        | 38.9       | 24.5                                    | 4.0                      | 0.576       | 0.364      | 22.2        | 56.6                                    | 56.2                     | 52.2       | 56.6        | 56.2       | 50.9        | 75.8 | 42.2  | 1.00 0.25 0.00 |
|                                                                                                                                                                                                                                                                                                                 | 993                      | 905        | 1171       | 2760       | 5375                                    | 7254                     | 8154       | 8523       | 8680       | 8762                                    | 8808                     | 8815        | 8823       | 8823        | 8839                                    | 8857                     | 8853       | 8873        | 46.1       | 35.5                                    | 5.0                      | 0.531       | 0.409      | 37.9        | 66.1                                    | 36.9                     | 62.6       | 66.1        | 36.9       | 61.2        | 71.5 | 58.8  | 1.00 0.50 0.00 |
| <i>r50j</i>                                                                                                                                                                                                                                                                                                     | 1431                     | 1173       | 887        | 662        | 513                                     | 446                      | 424        | 447        | 532        | 572                                     | 592                      | 826         | 1444       | 2185        | 2552                                    | 2615                     | 2632       | 2578        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 2427                     | 2315       | 2609       | 4110       | 6259                                    | 7684                     | 8344       | 8611       | 8731       | 8795                                    | 8834                     | 8837        | 8841       | 8838        | 8853                                    | 8871                     | 8865       | 8880        | 46.1       | 35.5                                    | 5.0                      | 0.531       | 0.409      | 37.9        | 66.1                                    | 36.9                     | 62.6       | 66.1        | 36.9       | 61.2        | 71.5 | 58.8  | 1.00 0.50 0.00 |
| <i>r75j</i>                                                                                                                                                                                                                                                                                                     | 1642                     | 1384       | 1057       | 775        | 591                                     | 507                      | 474        | 505        | 621        | 698                                     | 750                      | 1112        | 2087       | 3411        | 4272                                    | 4544                     | 4641       | 4630        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 4508                     | 4412       | 4671       | 5827       | 7267                                    | 8146                     | 8539       | 8698       | 8777       | 8827                                    | 8858                     | 8852        | 8853       | 8852        | 8862                                    | 8880                     | 8873       | 8887        | 55.7       | 50.5                                    | 6.4                      | 0.494       | 0.448      | 62.0        | 76.3                                    | 18.3                     | 73.8       | 76.3        | 18.5       | 72.2        | 74.6 | 75.5  | 1.00 0.75 0.00 |
| <i>j00g</i> = <i>J</i>                                                                                                                                                                                                                                                                                          | 1994                     | 1703       | 1314       | 968        | 726                                     | 617                      | 564        | 609        | 774        | 903                                     | 1007                     | 1560        | 3094       | 5403        | 7229                                    | 8001                     | 8299       | 8447        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 8508                     | 8568       | 8605       | 8687       | 8738                                    | 8783                     | 8825       | 8853       | 8884       | 8914                                    | 8934                     | 8927        | 8924       | 8920        | 8933                                    | 8947                     | 8938       | 8951        | 73.0       | 77.7                                    | 8.7                      | 0.457       | 0.487      | 94.4        | 90.6                                    | -3.9                     | 89.3       | 90.6        | -3.5       | 87.4        | 87.5 | 92.3  | 1.00 1.00 0.00 |
| <i>j25g</i>                                                                                                                                                                                                                                                                                                     | 1346                     | 1297       | 1104       | 857        | 654                                     | 561                      | 527        | 572        | 738        | 861                                     | 963                      | 1497        | 2948       | 4999        | 6332                                    | 6543                     | 6278       | 5831        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 5302                     | 4882       | 4611       | 4476       | 4361                                    | 4282                     | 4277       | 4294       | 4332       | 4433                                    | 4572                     | 4643        | 4611       | 4533        | 4407                                    | 4306                     | 4353       | 4597        | 39.9       | 49.7                                    | 8.0                      | 0.408       | 0.509      | 121.8       | 75.9                                    | -23.5                    | 66.3       | 75.9        | -23.3      | 64.7        | 68.8 | 109.8 | 0.75 1.00 0.00 |
| <i>j50g</i>                                                                                                                                                                                                                                                                                                     | 952                      | 1015       | 951        | 770        | 596                                     | 520                      | 495        | 545        | 702        | 823                                     | 919                      | 1427        | 2805       | 4667        | 5689                                    | 5591                     | 5045       | 4337        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 3584                     | 3012       | 2671       | 2499       | 2367                                    | 2277                     | 2264       | 2280       | 2319       | 2429                                    | 2588                     | 2679        | 2647       | 2558        | 2414                                    | 2300                     | 2363       | 2642        | 24.2       | 35.4                                    | 7.5                      | 0.36        | 0.527      | 139.6       | 66.0                                    | -38.2                    | 51.4       | 66.0        | -38.1      | 50.0        | 62.9 | 127.3 | 0.50 1.00 0.00 |
| <i>j75g</i>                                                                                                                                                                                                                                                                                                     | 741                      | 920        | 927        | 788        | 629                                     | 556                      | 540        | 594        | 759        | 883                                     | 979                      | 1489        | 2832       | 4541        | 5312                                    | 4992                     | 4272       | 3415        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 2548                     | 1914       | 1554       | 1379       | 1250                                    | 1165                     | 1153       | 1170       | 1207       | 1313                                    | 1472                     | 1567        | 1537       | 1453        | 1314                                    | 1207                     | 1273       | 1553        | 15.4       | 27.1                                    | 7.8                      | 0.305       | 0.539      | 152.5       | 59.1                                    | -52.4                    | 38.3       | 59.1        | -52.4      | 37.0        | 64.2 | 144.7 | 0.25 1.00 0.00 |
| <i>g00b</i> = <i>G</i>                                                                                                                                                                                                                                                                                          | 734                      | 1027       | 1182       | 1130       | 998                                     | 952                      | 965        | 1047       | 1234       | 1366                                    | 1462                     | 1960        | 3216       | 4700        | 5224                                    | 4751                     | 3930       | 2994        |            |                                         |                          |             |            |             |                                         |                          |            |             |            |             |      |       |                |
|                                                                                                                                                                                                                                                                                                                 | 2069                     | 1404       | 1036       | 861        | 737                                     | 656                      | 647        | 666        | 701        | 807                                     | 965                      | 1063        | 1036       | 954         | 818                                     | 718                      | 784        | 1064        | 11.9       | 23.8                                    | 11.3                     | 0.252       | 0.506      | 164.2       | 55.9                                    | -61.0                    | 20.8       | 55.9        | -61.1.     |             |      |       |                |