

| color mixture and color attributes of low and high color metrics |             |              |  |
|------------------------------------------------------------------|-------------|--------------|--|
| mode of color mixture                                            |             |              |  |
|                                                                  | dichromatic | trichromatic |  |
| <b>lower color- or valence metrics:</b>                          |             |              |  |
| white value $W$                                                  | $V$         | $V$          |  |
| black value $N$                                                  | $100 - Y$   | $100 - O$    |  |
| chromatic value $C$                                              | $Y - V$     | $O - V$      |  |
| <b>higher color- or sensation metrics:</b>                       |             |              |  |
| whiteness $W^*$                                                  | $V^*$       | $V^*$        |  |
| blackness $N^*$                                                  | $100 - Y^*$ | $100 - O^*$  |  |
| chromaticness $C^*$                                              | $Y^* - V^*$ | $O^* - V^*$  |  |

NE410-3, BT2\_01

| basic and mixed colors of standard color printing by DIN 16 539 |                           |        |                                |        |        |
|-----------------------------------------------------------------|---------------------------|--------|--------------------------------|--------|--------|
| basic color or mixed color and name                             | CIE standard chromaticity |        | CIE standard tristimulus value |        |        |
|                                                                 | $x$                       | $y$    | $X$                            | $Y$    | $Z$    |
| <i>three subtractive basic colors:</i>                          |                           |        |                                |        |        |
| $C$ cyanblue                                                    | 0,1553                    | 0,1967 | 16,92                          | 21,44  | 70,62  |
| $M$ magentared                                                  | 0,4675                    | 0,2314 | 33,88                          | 16,77  | 21,82  |
| $Y$ yellow                                                      | 0,4399                    | 0,4925 | 68,13                          | 76,28  | 10,48  |
| <i>three subtractive mixed colors:</i>                          |                           |        |                                |        |        |
| $O$ orangered                                                   | 0,6152                    | 0,3226 | 30,51                          | 16,00  | 3,08   |
| $L$ leafgreen                                                   | 0,1958                    | 0,5256 | 6,05                           | 16,23  | 8,06   |
| $V$ violetblue                                                  | 0,1807                    | 0,1009 | 4,86                           | 2,72   | 19,33  |
| $NLC$ (white)                                                   | 0,3101                    | 0,3162 | 98,07                          | 100,00 | 118,22 |

NE411-3, BT5\_01

| color threshold formula LABJNDS 1985 (JND=just noticeable difference)                                                   |  |
|-------------------------------------------------------------------------------------------------------------------------|--|
| $\Delta E_{JND}^* = Y_0 [ (\Delta Y)^2 + (a_0 \Delta a'' \cdot Y)^2 + (b_0 \Delta b'' \cdot Y)^2 ]^{1/2} / (s + d Y^e)$ |  |
| $a = x/y \quad a_n = x_n/y_n \quad b = -0,4 z/y \quad b_n = -0,4 z_n/y_n$                                               |  |
| $a'' = a_n + (a - a_n) / (1 + 0,5  a - a_n ) \quad n = D65 \text{ or } A (\text{surround})$                             |  |
| $b'' = b_n + (b - b_n) / (1 + 0,5  b - b_n )$                                                                           |  |
| $Y = (Y_1 + Y_2) / 2 \quad \Delta Y = Y_1 - Y_2 \quad \Delta a'' = a_1'' - a_2'' \quad \Delta b'' = b_1'' - b_2''$      |  |
| $s = 0,0170 \quad d = 0,0058 \quad e = 1,0$                                                                             |  |
| $a_0 = 1,0 \quad b_0 = 1,8 \quad Y_0 = 1,5 \quad \text{surround } D65$                                                  |  |
| $a_0 = 1,0 \quad b_0 = 1,7 \quad Y_0 = 1,0 \quad \text{surround } A$                                                    |  |

NE410-7, BT4\_01

| basic and mixed colors of standard color television by DIN 6169 |                           |        |                                |        |        |
|-----------------------------------------------------------------|---------------------------|--------|--------------------------------|--------|--------|
| basic color or mixed color and name                             | CIE standard chromaticity |        | CIE standard tristimulus value |        |        |
|                                                                 | $x$                       | $y$    | $X$                            | $Y$    | $Z$    |
| <i>three additive basic colors:</i>                             |                           |        |                                |        |        |
| $O$ orangered                                                   | 0,6400                    | 0,3300 | 43,03                          | 22,19  | 2,02   |
| $L$ leafgreen                                                   | 0,2900                    | 0,6000 | 34,16                          | 70,68  | 12,96  |
| $V$ violetblue                                                  | 0,1415                    | 0,0482 | 17,82                          | 7,13   | 93,87  |
| <i>three additive mixed colors:</i>                             |                           |        |                                |        |        |
| $C$ cyanblue                                                    | 0,2197                    | 0,3288 | 51,98                          | 77,81  | 106,83 |
| $M$ magentared                                                  | 0,3270                    | 0,1576 | 60,85                          | 29,32  | 95,89  |
| $Y$ yellow                                                      | 0,4172                    | 0,5019 | 77,19                          | 92,87  | 14,98  |
| $D65$ (white)                                                   | 0,3127                    | 0,3291 | 95,01                          | 100,00 | 108,85 |

NE411-7, BT5\_02