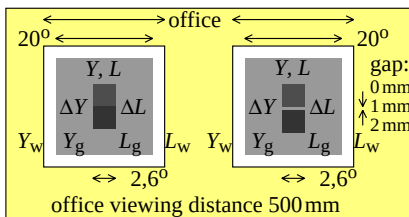


http://farbe.li.tu-berlin.de/AEQ2/AEQ2L0NP.PDF /.PS; only vector graphic VG; start output
N: no 3D-linearization (OL) in file (F) or PS-startup (S)

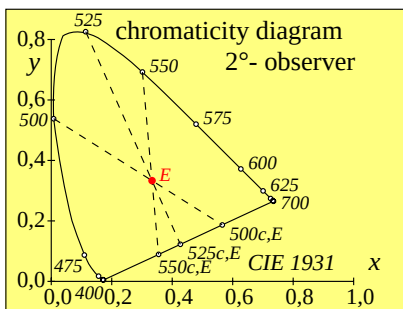
see similar files: http://farbe.li.tu-berlin.de/AEQ2/AEQ2L0NP.PDF /.PS
technical information: http://farbe.li.tu-berlin.de or http://130.149.60.45/~farbmeterik

TUB registration: 20201101-AEQ2/AEQ2L0NP.PDF /.PS
application for evaluation and measurement of display or print output

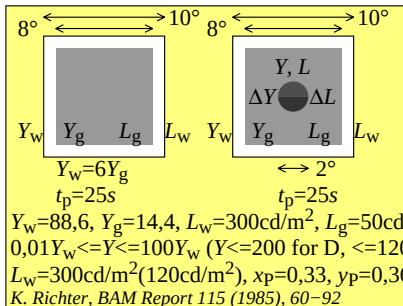
TUB material: code=rha4ta



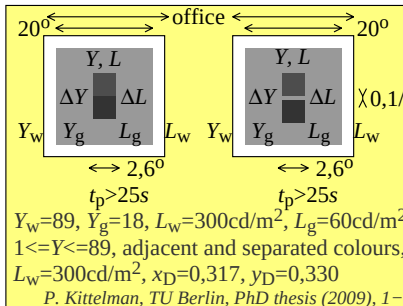
AEQ20-1N



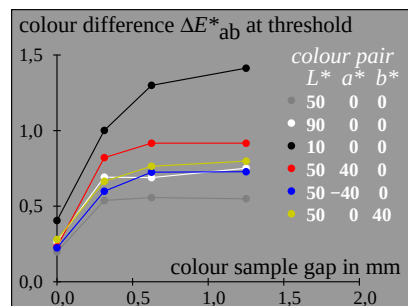
AEQ20-1N



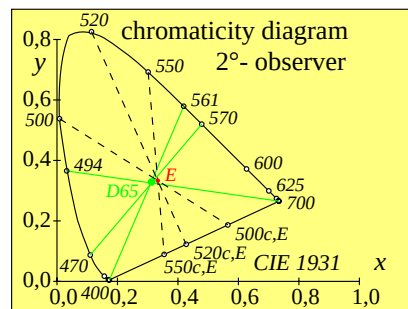
AEQ20-5N



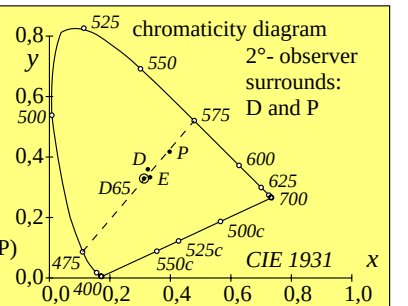
AEQ20-5N



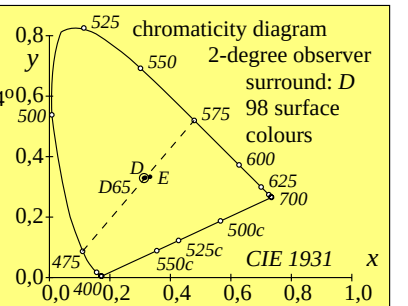
AEQ20-2N



AEQ20-4N



AEQ20-5N



AEQ20-7N

Colour-difference formula LABJND 1985 (JND=just noticeable difference)

$$\Delta E^*_{JND} = \Delta E^*_{85} = A_0 [(\Delta Y)^2 + (A_3 \Delta a'' \cdot Y)^2 + (A_4 \Delta b'' \cdot Y)^2]^{1/2} / (A_1 + A_2 \cdot Y)$$

$$a = x / y \quad a_n = x_n / y_n \quad b = -0,4 z / Y \quad b_n = -0,4 z_n / y_n$$

$$a'' = a_n + (a - a_n) / (1 + 0,5 |a - a_n|) \quad n = D65 \text{ or } A \text{ (background)}$$

$$b'' = b_n + (b - b_n) / (1 + 0,5 |b - b_n|)$$

$$Y = (Y_1 + Y_2) / 2 \quad \Delta Y = Y_1 - Y_2 \quad \Delta a'' = a''_1 - a''_2 \quad \Delta b'' = b''_1 - b''_2$$

$$A_1 = 0,0170 \quad A_2 = 0,0058$$

$$A_3 = 1,0 \quad A_4 = 1,8 \quad A_0 = 1,5 \quad \text{background D65}$$

$$A_3 = 1,0 \quad A_4 = 1,7 \quad A_0 = 1,0 \quad \text{background A}$$

Just noticeable difference (JND) in four colour directions

$$\Delta Y = \text{const} (A_1 + A_2 \cdot Y) / A_0 \quad \text{in luminance direction WN}$$

$$\Delta a'' \cdot Y = \text{const} (A_1 + A_2 \cdot Y) / (A_0 \cdot A_3) \quad \text{in chromaticity direction RG}$$

$$\Delta b'' \cdot Y = \text{const} (A_1 + A_2 \cdot Y) / (A_0 \cdot A_4) \quad \text{in chromaticity direction YB}$$

$$\Delta c_{ab}'' \cdot Y = \text{const} (A_1 + A_2 \cdot Y) / (A_0 \cdot [A_3^2 + A_4^2]^{1/2}) \quad \text{in any chromaticity direction } c_{ab}$$

AEQ20-1N

Colour-difference formula LABJND 1985 only for achromatic colours

$$\Delta E^*_{JND} = \Delta E^*_{85} = A_0 [(\Delta Y)^2 + (A_3 \Delta a \cdot Y)^2 + (A_4 \Delta b \cdot Y)^2]^{1/2} / (A_1 + A_2 \cdot Y)$$

$$a = x / y \quad b = -0,4 z / y$$

$$Y = (Y_1 + Y_2) / 2 \quad \Delta Y = Y_1 - Y_2 \quad \Delta a = a_1 - a_2 \quad \Delta b = b_1 - b_2$$

$$A_1 = 0,0170 \quad A_2 = 0,0058$$

$$A_3 = 1,0 \quad A_4 = 1,8 \quad A_0 = 1,5 \quad \text{background D65}$$

$$A_3 = 1,0 \quad A_4 = 1,7 \quad A_0 = 1,0 \quad \text{background A}$$

Just noticeable difference (JND) in three colour directions and line elements

$$A_0 \cdot \Delta Y = (A_1 + A_2 \cdot Y) \quad \text{in luminance direction WN}$$

$$A_0 \cdot \Delta a \cdot A_3 \cdot Y = (A_1 + A_2 \cdot Y) \quad \text{in chromaticity direction RG}$$

$$A_0 \cdot \Delta b \cdot A_4 \cdot Y = (A_1 + A_2 \cdot Y) \quad \text{in chromaticity direction YB}$$

$$dE^*_{85,L} = \frac{\delta}{\delta Y} L^*_{85} = \frac{\delta}{\delta Y} [(A_0 / A_2) \cdot \ln (A_1 + A_2 \cdot Y)] = A_0 \cdot dY / (A_1 + A_2 \cdot Y)$$

$$dE^*_{85,a} = \frac{\delta}{\delta a} a^*_{85} = \frac{\delta}{\delta a} [(A_0 \cdot A_3 \cdot Y \cdot a) / (A_1 + A_2 \cdot Y)] = A_0 \cdot da \cdot A_3 \cdot Y / (A_1 + A_2 \cdot Y)$$

$$dE^*_{85,b} = \frac{\delta}{\delta b} b^*_{85} = \frac{\delta}{\delta b} [(A_0 \cdot A_4 \cdot Y \cdot b) / (A_1 + A_2 \cdot Y)] = A_0 \cdot db \cdot A_4 \cdot Y / (A_1 + A_2 \cdot Y)$$

AEQ20-1N

TUB-test chart AEQ2; Colour threshold experiments

Viewing situations for separate and adjacent colours chromaticity (x,y), LABJND formula and line elements

input: rgb/cmy0/000k/n