log (L^*/L^*_u) IECsRGB Helligkeit L^* normiert für die Umgebungshelligkeit L^*_u

L^*/L^*_u

$100L^* = s\,(Y/Y_n)^n - t$ (Y_n=100, s=100, n=(1/2,4), t=0) [1b]

$L^* = r\,(Y/Y_u)^n - t$ (Y_u=18, $r=s(Y_u/Y_n)^n = 48{,}95$) [1c]

$L^*/L^*_u = (Y/Y_u)^n$ [1d]

$\log(L^*/L^*_u) = n \log(Y/Y_u)$ [1e]

$\ln(L^*/L^*_u) = \ln(10)\, n \log(Y/Y_u)$ [1f]

$L^*/L^*_u = e^{\ln(10)\, n \log(Y/Y_u)}$ [1g]

$\log[(L^*/L^*_u)]=0$, m_u=0,41

L^*_u=50, Y_u=18

0,301

−0,532

Anwendungs-bereich

2, 100, 1, 10, 0, 1, −1, 0,1, Y_u=18, 100, Y, −2, −1, 0, 1, 2, log Y

hgc80−5a

log ($\Delta Y/\Delta Y_u$) CIE-Normfarbwertdifferenz ΔY normiert für ΔY_u

$\Delta Y/\Delta Y_u$

$100L^* = 100\,(Y/Y_n)^{1/2,4}$ (Y_n=100, Y_u=18, $1 \le Y \le 100$) [1d]

$dY = (2{,}4 \cdot Y_n/100)(Y/Y_n)^{1,4/2,4}$ [2d]

$dY_u = 2{,}4(Y_u/Y_n)^{1,4/2,4}$ [3d]

$dY/dY_u = (Y/Y_u)^{1,4/2,4}$ [4d]

$\log(dY/dY_u) = (1{,}4/2{,}4) \log(Y/Y_u)$ [5d]

Y_u=18, dY_u=0,90, (dY/Y_u)=0,048

$\log[(dY)/(dY_u)]]=0$, m_u=0,58

0,421

−0,745

Anwendungs-bereich

2, 100, 1, 10, 0, 1, −1, 0,1, Y_u=18, 100, Y, −2, −1, 0, 1, 2, log Y

hgc80−6a

log [($\Delta Y/Y$) / ($\Delta Y/Y$)$_u$] CIE Y-Empfindlichkeit normiert für $\Delta Y_u/Y_u$

$S_r/S_{ru} = (\Delta Y/Y)/(\Delta Y/Y)_u$

$100L^* = 100\,(Y/Y_n)^{1/2,4}$ (Y_n=100, Y_u=18, $1 \le Y \le 100$) [1f]

$dY/Y = (2{,}4/100) \cdot (Y/Y_n)^{1,4/2,4}$ [2f]

$dY/Y = c \cdot Y^{-1/2,4}$ [3f]

$dY/Y = d \cdot (Y/Y_u)^{-1/2,4}$ [4f]

c = 0,163 d = 0,882 [5f]

0,532

$\log[(dY/Y)_u/(dY/Y)_u]=0$, m_u=−0,41

Y_u=18, dY_u=0,90, (dY/Y_u)=0,048

−0,304

Anwendungs-bereich

2, 100, 1, 10, 0, 1, −1, 0,1, Y_u=18, 100, Y, −2, −1, 0, 1, 2, log Y

hgc80−7a

log[($Y/\Delta Y$) / ($Y/\Delta Y$)$_u$)] CIE Y-Kontrast normiert für $Y_u/\Delta Y_u$

$C_r/C_{ru} = (Y/\Delta Y)/(Y/\Delta Y)_u$

$100L^* = 100\,(Y/Y_n)^{1/2,4}$ (Y_n=100, Y_u=18, $1 \le Y \le 100$) [1h]

$Y/dY = (2{,}4/100) \cdot Y_n^{1/2,4} Y^{1,4/2,4}$ [2h]

$Y/dY = e \cdot (Y/Y_u)^{1,4/2,4}$ [3h]

$Y/dY = f \cdot (Y/Y_u)^{1,4/2,4}$ [4h]

e = 611,582 f = 3301,396 [5h]

L^*_u=50, Y_u=18, dY_u=0,90, (Y/dY_u)=21

$\log[(Y/dY)_u/(Y/dY)_u]=0$, m_u=0,41

0,301

−0,532

Anwendungs-bereich

2, 100, 1, 10, 0, 1, −1, 0,1, Y_u=18, 100, Y, −2, −1, 0, 1, 2, log Y

hgc80−8a

hgc80−7n