

$$L^*/L^*_u$$

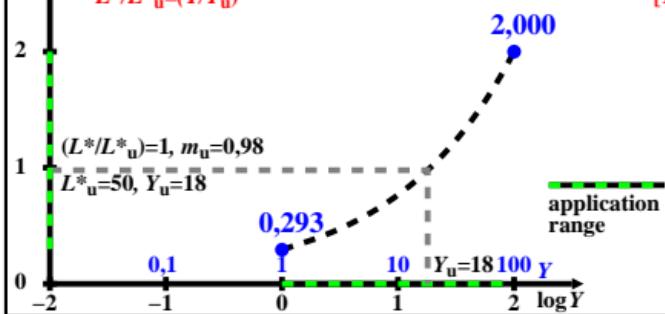
IECsRGB lightness L^* normalized to the background lightness L^*_u

$$L^*/L^*_u$$

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

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

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



hec91-1a

$$\Delta Y/\Delta Y_u$$

CIE tristimulus value difference ΔY normalized to ΔY_u

$$\Delta Y/\Delta Y_u$$

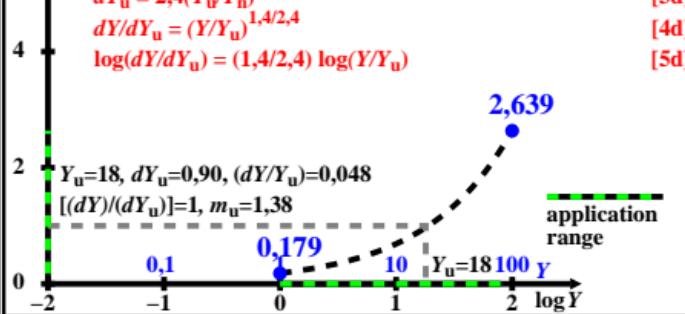
$$L^* = 100(Y/Y_u)^{1/2,4} \quad (Y_u=100, Y_u=18, 1 \leq Y \leq 100) \quad [1d]$$

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

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

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

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



hec91-2a

$$(\Delta Y/Y) / (\Delta Y/Y_u)$$

CIE Y sensitivity normalized to $\Delta Y_u/Y_u$

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

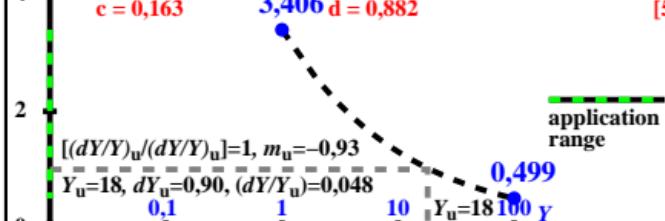
$$L^* = 100(Y/Y_u)^{1/2,4} \quad (Y_u=100, Y_u=18, 1 \leq Y \leq 100) \quad [1f]$$

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

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

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

$$c = 0,163 \quad 3,406 \quad d = 0,882 \quad [5f]$$



hec91-3a

hec91-3n

$$(Y/\Delta Y) / (Y/\Delta Y_u)$$

CIE Y-based contrast normalized to $Y_u/\Delta Y_u$

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

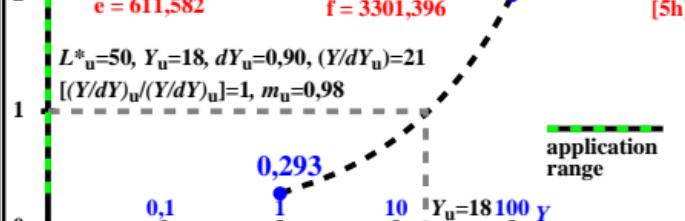
$$L^* = 100(Y/Y_u)^{1/2,4} \quad (Y_u=100, Y_u=18, 1 \leq Y \leq 100) \quad [1h]$$

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

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

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

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



hec91-4a