

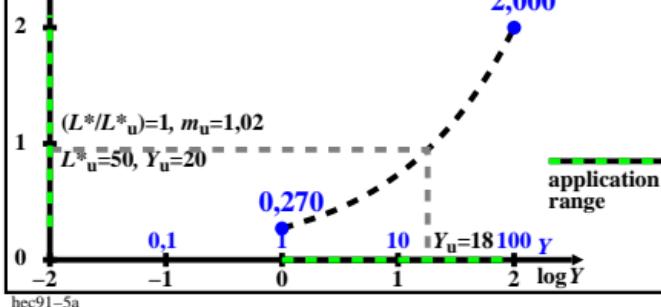
L^*/L^*_u TUBsRGB lightness L^* normalized to the background lightness L^*_u

L^*/L^*_u

$L^* = s(Y/Y_n)^n - t \quad (Y_n=100, s=100, n=(1/\ln(10)), t=0) \quad [1b]$

$L^* = r(Y_u)^n - t \quad (Y_u=18, r=s(Y_u/Y_n)^n = 47,45) \quad [1c]$

$L^*/L^*_u = (Y/Y_u)^{1/\ln(10)} \quad (\ln(x)=\ln(10) \log(x)) \quad [1d]$

 $\Delta Y/\Delta Y_u$ CIE tristimulus value difference ΔY normalized to ΔY_u

$\Delta Y/\Delta Y_u$

CIE tristimulus value difference ΔY normalized to ΔY_u

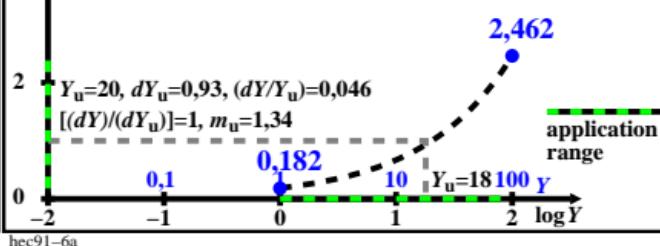
$L^*=100(Y/Y_n)^{1/\ln(10)} \quad (Y_n=100, Y_u=18, 1 \leq Y \leq 100) \quad [1d]$

$dY = (2,4Y_n/100) \cdot (Y/Y_n)^{(\ln(10)-1)/\ln(10)} \quad [2d]$

$dY_u = \ln(10) \cdot (Y_u/Y_n)^{(\ln(10)-1)/\ln(10)} \quad [3d]$

$dY/dY_u = (Y/Y_u)^{(\ln(10)-1)/\ln(10)} \quad [4d]$

$\log(dY/dY_u) = \{(\ln(10)-1)/\ln(10)\} \log \cdot (Y/Y_u) \quad [5d]$

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

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

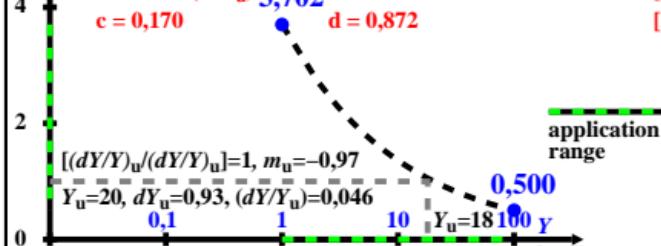
$L^*=100(Y/Y_n)^{1/\ln(10)} \quad (Y_n=100, Y_u=18, 1 \leq Y \leq 100) \quad [1f]$

$dY/Y = (2,3/100) \cdot (Y/Y_n)^{1,3/2,3} \quad [2f]$

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

$dY/Y = d \cdot (Y/Y_u)^{-1/2,3} \quad 3,702 \quad [4f]$

$c = 0,170 \quad d = 0,872 \quad [5f]$



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

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

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

$L^*=100(Y/Y_n)^{1/\ln(10)} \quad (Y_n=100, Y_u=18, 1 \leq Y \leq 100) \quad [1h]$

$Y/dY = (2,3/100) \cdot Y^{1,2,3} \cdot Y^{1,3/2,3} \quad [2h]$

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

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

$e = 587,093 \quad f = 3007,521 \quad [5h]$

