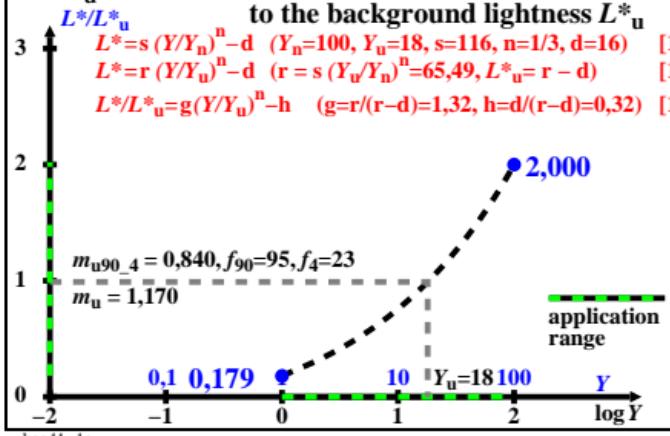
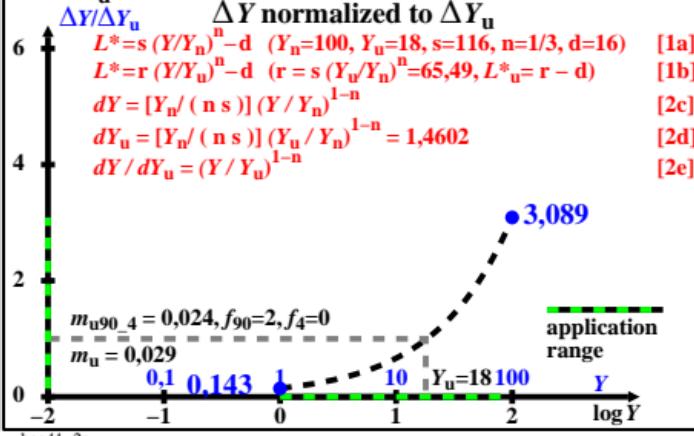


CIELAB lightness L^* normalized to the background lightness L^*_u



CIELAB tristimulus value difference ΔY normalized to ΔY_u



CIELAB-Y sensitivity normalized to $(\Delta Y/Y)_u$

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

$L^*/s = s(Y/Y_u)^n - d \quad (Y_n=100, Y_u=18, s=116, n=1/3, d=16) \quad [1a]$

$L^*/r = r(Y/Y_u)^n - d \quad (r=s(Y_u/Y_n)^n=65,49, L^*_u=r-d) \quad [1b]$

$dY/Y = [(Y_n / (n s)) (Y/Y_u)^{1-n}] / Y \quad [3c]$

$(dY/Y)_u = [(Y_n / (n s)) (Y_u/Y_n)^{1-n}] / Y_u \quad [3d]$

$(dY/Y) / (dY/Y)_u = (Y/Y_u)^{-n} \quad [3e]$



heo41-3a

heo41-3n

CIELAB-Y contrast normalized to $(Y/\Delta Y)_u$

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

$L^*/s = s(Y/Y_u)^n - d \quad (Y_n=100, Y_u=18, s=116, n=1/3, d=16) \quad [1a]$

$L^*/r = r(Y/Y_u)^n - d \quad (r=s(Y_u/Y_n)^n=65,49, L^*_u=r-d) \quad [1b]$

$Y/dY = Y / \{ [(Y_n / (n s)) (Y/Y_u)^{1-n}] \} \quad [4c]$

$(Y/Y)_u = Y_u / \{ [(Y_n / (n s)) (Y_u/Y_n)^{1-n}] \} \quad [4d]$

$(Y/dY) / (Y/dY)_u = (Y/Y_u)^n \quad [4e]$



heo41-4a