

$(\Delta Y/Y)$ and
 $(\Delta Y/Y) / (\Delta Y/Y)_u$

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

text lightness

$$L^* = s (Y/Y_n)^n - d \quad (Y_n=100, Y_u=18, s=100, n=1/\ln(10), d=0) \quad [1a]$$

$$L^* = r (Y/Y_u)^n - d \quad (r = s (Y_u/Y_n)^n = 47,48, L^*_u = r - d) \quad [1b]$$

text relative lightness

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

text $\log(L^*/L^*_u)$

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

text $\ln(L^*/L_u)$

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

text $L^*/L^*_u = e^{**x}$

$$\log [(dY/Y) / (dY/Y)_u] = (-n) \log(Y/Y_u) \quad [3f]$$