

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

relative CIE tristimulus
value Y difference

$\Delta Y/\Delta Y_u$

$$L^* = (t/a) \ln(1 + a \cdot Y) \quad a=0.3411 \quad t/a=258.6$$

relative tristimulus difference

$$\begin{aligned} \log(dY/dY_u) &= \log[(1+a \cdot Y)/t] - \log[(1+a \cdot Y_u)/t] \\ &= \log[(1+b \cdot (Y/Y_u))/t] - \log[(1+b)/t] \end{aligned}$$

$$Y_u=18, dY_u=0.08, dY_u/Y_u=0.004$$

$$\log[(dY)/(dY_u)]=0, m_u=0.86$$

application
range

$Y_u=18 \quad 100$

Y
 $\log(Y)$