

sRGB-triangle lightness t^* , CIE tristimulus value discrimination dY and CIE contrast (Y/dY) sRGB: see IEC 61966-2-1

sRGB-triangle lightness for *achromatic* colours: W

$$t^*_{\text{sRGB},100} = 100 (Y/Y_n)^{1/2,4} \quad (Y_n=100)$$

For the grey discrimination we get:

$$dt^*_{\text{sRGB},100}/dY = (1/2,4) (Y/Y_n)^{-1,4/2,4} = 0,42 (Y/Y_n)^{-0,58}$$

and for $dt^*_{\text{sRGB},100}=1$ (about 3 thresholds) we can write:

$$dY = 2,4 (Y/Y_n)^{1,4/2,4}$$

or $\log(dY) = \log(2,4) + (1,4/2,4) \log(Y/Y_n)$

therefore in a log-log diagram the slope is 1,4/2,4.

for the CIE contrast sensitivity, and for $dt^*_{\text{sRGB},100}=1$:

$$Y/dY = (Y_n^{1,4/2,4}/2,4) (Y/Y_n)^{1/2,4}$$

or $\log(Y/dY) = \log(Y_n^{1,4/2,4}/2,4) + 1/2,4 \log(Y/Y_n)$