

Achromatic receptor response function

$$Q_{1m}[k(u-u_0)] = Q_{1m}[(u-u_0)/a]; \quad k=1/a$$

with $u = \log L$ (L = test luminance)

$u_0 = \log L_u$ (L_u = surround luminance)

$$Q_{1m}[k(u-u_0)] = \frac{1}{\ln \sqrt{2}} \ln q[k(u-u_0)] - m$$

$$q[k(u-u_0)] = 1 + 1/[1 + \sqrt{2} e^{k(u-u_0)}]$$

$$Q_{11}[k(u-u_0) \rightarrow +\infty] = -1 \quad u = \log L$$

$$Q_{11}[k(u-u_0) = 0] = 0 \quad u_0 = \log L_u$$

$$Q_{11}[k(u-u_0) \rightarrow -\infty] = +1 \text{ for } m=1$$