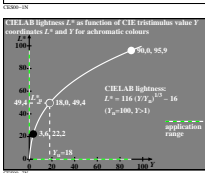
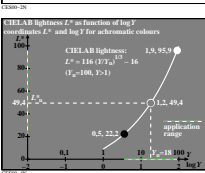


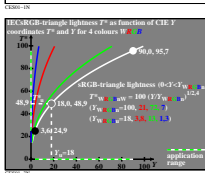
LARIND lightness L^* , tristimulus value discrimination dT , contrast (Y/dY) , and sensitivity (Y/dY)
LARIND lightness for all colours $L^*_{w=50}$ for $Y_{w=18}$
 $L^* = S_{w=50} \cdot (Y_{w=18})^{1/3}$ ($Y_{w=100}, Y > 1$)
 For the grey discrimination we get:
 $dL^*/dY = (116/3) \cdot (1/3) \cdot (Y/Y_{w=18})^{-2/3}$
 and for $dL^*=1$ (about 3 thresholds) we can write:
 $dY = 3 \cdot (Y_{w=18}/3)^{3/2}$
 or $\log(dY) = \log 3 \cdot (Y_{w=18}/3) + (2/3) \cdot \log(Y_{w=18})$
 therefore in a log-log diagram the slope is (2/3).
 for the CIE contrast sensitivity, and for $dL^* = 1$ it is valid:
 $Y/dY = (1/3) \cdot (116/3) \cdot (Y_{w=18}/3)^{3/2}$
 or $\log(Y/dY) = \log(1/3) \cdot (116/3) + (1/3) \cdot \log(Y_{w=18})$



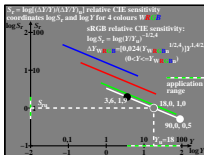
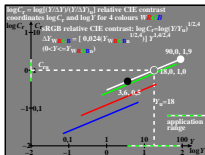
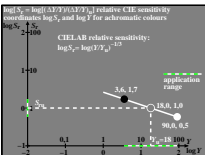
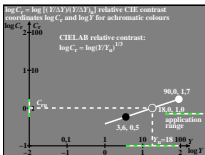
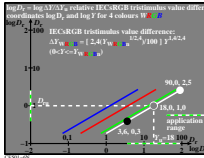
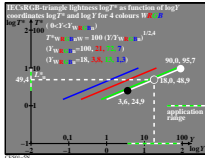
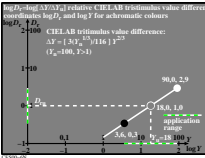
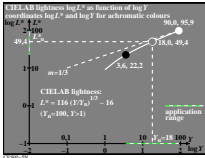
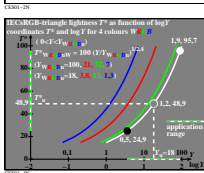
CIELAB lightness L^* , CIE tristimulus value discrimination dT and CIE contrast (Y/dY)
CIELAB lightness for all colours $L^*_{w=100}$:
 $L^* = 116 \cdot (Y/18)^{1/3} - 16$ ($Y_{w=100}, Y > 1$)
 For the grey discrimination we get:
 $dL^*/dY = (116/3) \cdot (1/3) \cdot (Y/Y_{w=18})^{-2/3}$
 and for $dL^*=1$ (about 3 thresholds) we can write:
 $dY = 3 \cdot (Y_{w=18}/3)^{3/2}$
 or $\log(dY) = \log(3 \cdot (Y_{w=18}/3)^{3/2}) + (2/3) \cdot \log(Y)$
 therefore in a log-log diagram the slope is (2/3).
 for the CIE contrast sensitivity, and for $dL^* = 1$ it is valid:
 $Y/dY = (1/3) \cdot (116/3) \cdot (Y_{w=18}/3)^{3/2}$
 or $\log(Y/dY) = \log(1/3) \cdot (116/3) + (1/3) \cdot \log(Y)$



sRGB-triangle lightness L^* , CIE tristimulus value discrimination dT and CIE contrast (Y/dY) sRGB: see REC 61966-2-1
sRGB-triangle lightness for achromatic colours: W
 $L^*_{sRGB,100} = 100 \cdot (Y/Y_{w=18})^{1/2.4}$ ($Y_{w=100}$)
 For the grey discrimination we get:
 $dL^*/dY = 100 \cdot (1/2.4) \cdot (Y/Y_{w=18})^{-1.424} = 0.42 \cdot (Y/Y_{w=18})^{-0.58}$
 and for $dL^*_{sRGB,100}=1$ (about 3 thresholds) we can write:
 $dY = 2.4 \cdot (Y_{w=18})^{1.424}$
 or $\log(dY) = \log(2.4) + (1.424) \cdot \log(Y_{w=18})$
 therefore in a log-log diagram the slope is 1.424.
 for the CIE contrast sensitivity, and for $dL^*_{sRGB,100}=1$:
 $Y/dY = (Y_{w=18})^{1.424} \cdot (2.4) \cdot (Y/Y_{w=18})^{0.58}$
 or $\log(Y/dY) = \log(Y_{w=18})^{1.424} + (2.4) \cdot \log(Y_{w=18})$



sRGB-triangle lightness L^* , CIE tristimulus value discrimination dT and CIE contrast (Y/dY) sRGB: see REC 61966-2-1
sRGB-triangle lightness for achromatic colours: W
 $L^*_{sRGB,100} = 100 \cdot (Y/Y_{w=18})^{1/2.4}$ ($Y_{w=100}$)
 $(Y_{w=100} = 18, X_{w=18}, Y_{w=18}, Z_{w=18})$
 For the discrimination we get:
 $dL^*/dY = 100 \cdot (Y/Y_{w=18})^{-1.424} = 0.42 \cdot (Y/Y_{w=18})^{-0.58}$
 and for $dL^*_{sRGB,100}=1$ (about 3 thresholds) we can write:
 $dY = 2.4 \cdot (Y_{w=18})^{1.424}$
 or $\log(dY) = \log(2.4) + (1.424) \cdot \log(Y_{w=18})$
 therefore in a log-log diagram the slope is 1.424.
 for the CIE contrast sensitivity, and for $dL^*_{sRGB,100}=1$:
 $Y/dY = (Y_{w=18})^{1.424} \cdot (2.4) \cdot (Y/Y_{w=18})^{0.58}$
 or $\log(Y/dY) = \log(Y_{w=18})^{1.424} + (2.4) \cdot \log(Y_{w=18})$



see similar files: http://farbe.it.tu-berlin.de/CESO/CESolON1.TXT / PS
 technical information: http://farbe.it.tu-berlin.de or http://color.it.tu-berlin.de

TUB registration: 20220401-CESO/CESolON1.TXT / PS
 application for measurement of display output
 TUB material code=thadta