

l^* LABJNDu4 standard lightness l^* $Y_{nc}=Y_{wRGBnc}=100, 21, 72, 7$ l^*
4 10000

$$l^*_{LABJNDu4} = \ln(A_{1n} + A_{2n}Y) / (A_{2n}A_{0n}) \quad (Y_{nc}/100 < Y \leq Y_{nc})$$

$$l^*_{LABJNDu4} = \ln(A_{1n} + A_{2u}x) / (A_{2u}A_{0n}) \quad (x = Y/Y_u)$$

$$l^*_N(3,6)=146, l^*_u(18)=332, l^*_W(90)=517$$

3 1000

$$\log[l^*/l^*_u]=0, m_u=0,33$$

$$L^*_u=49, l^*_u=332$$

2 100

application
range1
-2 -1 0 1 10 100 Y
-2 -1 0 1 2 log(Y)
 $x_N=0,2$ $x_u=1$ $x_W=5$