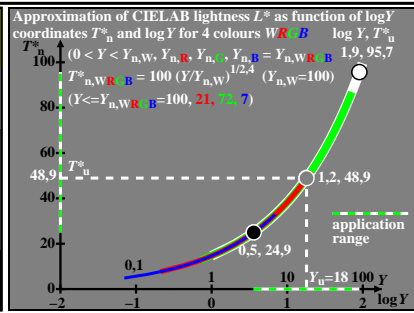


**sensation scaling functions**  
**lightness  $L^*$  and tristimulus value  $Y$**   
**adaptation on surround white  $W$**   
 $L^*_W = 100 (Y / 100)^{1/2,0}$   
**adaptation on surround grey  $U$**   
 $L^*_{IECsRGB} = 100 (Y / 100)^{1/2,4}$   
**description with CIELAB 1976**  
 $L^*_{CIELAB} = 116 (Y / 100)^{1/3,0} - 16$   
**adaptation on surround black  $N$**   
 $L^*_N = 100 (Y / 100)^{1/3,0}$



**lightness scaling (ln(10)=2,3,  $Y_u=18$ )**  
 **$L^*_{CIELAB}, T^*_{IECsRGB}, T^*_{TUBJND}$**   
**description with CIELAB 1976**  
 $L^*_{CIELAB} = 116 (Y / 100)^{1/3,0} - 16$   
**Approximation by IECsRGB 1999**  
 $T^*_{IECsRGB} = 100 (Y / 100)^{1/2,4}$   
**Approximation by TUBJND 2024**  
 $T^*_{TUBJND} = 47,49 (Y / Y_u)^{1/\ln(10)}$   
**In  $[T^*_{TUBJND,relative}]$  has the slope 1!**  
**In  $[T^*_{TUBJND,r}] = \log (Y / Y_u)$**

