

sensation scaling functions

lightness L^* and tristimulus value Y

adaptation on surround white:

$$L^* = 100 (Y / 100)^{1/2,0}$$

adaptation on surround gray:

$$L^* = 100 (Y / 100)^{1/2,4}$$

description with CIELAB 1976:

$$L^* = 116 (Y / 100)^{1/3,0} - 16$$

adaptation on surround black:

$$L^* = 100 (Y / 100)^{1/3,0}$$