

CIELAB_u 2022 L^*u a^*u b^*u color space
 definition and reversal ($X_u/X_n=Y_u/Y_n=Z_u/Z_n=0,18$)

$$L^*u = u_L (Y/Y_u)^{1/3} - 16 = L^*_{\text{CIELAB}} - 0,49$$

$$a^*u = u_a [(X/X_u)^{1/3} - (Y/Y_u)^{1/3}] = a^*_{\text{CIELAB}}$$

$$b^*u = u_b [(Y/Y_u)^{1/3} - (Z/Z_u)^{1/3}] = b^*_{\text{CIELAB}}$$

$$X = X_u [(L^*u + 16) / u_L + a^*u / u_a]^3$$

$$Y = Y_u [(L^*u + 16) / u_L]^3 \quad Y_u = 18$$

$$Z = Z_u [(L^*u + 16) / u_L - b^*u / u_b]^3$$

$$c_u = [Y_u/Y_n]^{1/3} = 0,18^{1/3} = 0,5647, \text{ similar for } X, Z$$

$$u_L = 116c_u = 65,51, u_a = 500c_u = 282,35, u_b = 200c_u = 112,94$$