$CIELAB_u$ 2022 L^{*u} a^{*u} b^{*u} color space

definition and reversal $(X_u/X_n=Y_u/Y_n=Z_u/Z_n=0{,}18)$

$$L^{*u}=65{,}51\,(Y/Y_u)^{1/3}-16=L^*_{CIELAB}-0{,}49$$

$$a^{*u}=282{,}35\,[(X/X_u)^{1/3}-(Y/Y_u)^{1/3}]=a^*_{CIELAB}$$

$$b^{*u}=112{,}94\,[(Y/Y_u)^{1/3}-(Z/Z_u)^{1/3}]=b^*_{CIELAB}$$

$$X=X_u[\,(L^{*u}+16)/65{,}51+a^{*u}/282{,}35]^3$$

$$Y=Y_u[\,(L^{*u}+16)/65{,}51]^3 \qquad Y_u=18$$

$$Z=Z_u[\,(L^{*u}+16)/65{,}51-b^{*u}/112{,}94]^3$$

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

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