

Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_00%_O0

$$I^*_{lab^*} = (L^* - L^*_N) / (L^*_W - L^*_N)$$

$$a^*_{\text{a}} = a^* - a^*_N - I^*_{lab^*} [a^*_W - a^*_N]$$

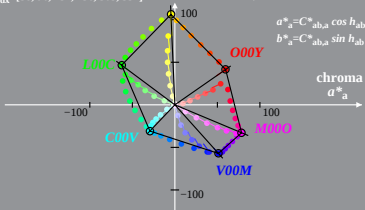
$$b^*_{\text{a}} = b^* - b^*_N - I^*_{lab^*} [b^*_W - b^*_N]$$

$$C^*_{ab,a} = [a^{*2}_{\text{a}} + b^{*2}_{\text{a}}]^{1/2}$$

CIELAB hue angles:

$h_{ab,d} = [35, 92, 143, 224, 313, 338]$

$h_{ab,dx} = [38, 96, 151, 236, 305, 354]$



Linear relation CIELAB (L^* , a^* , b^*) and *adapted (a)* CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_00%_O1

$$l^*_{lab^*} = (L^* - L^*_N) / (L^*_W - L^*_N)$$

$$a^*_{\text{a}} = a^* - a^*_N - l^*_{lab^*} [a^*_W - a^*_N]$$

$$b^*_{\text{a}} = b^* - b^*_N - l^*_{lab^*} [b^*_W - b^*_N]$$

$$C^*_{ab,a} = [a^{*2}_{\text{a}} + b^{*2}_{\text{a}}]^{1/2}$$

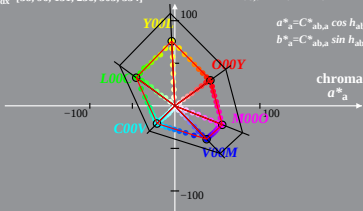
CIELAB hue angles:

$h_{ab,d} = [35, 92, 143, 224, 313, 338]$

$h_{ab,dx} = [38, 96, 151, 236, 305, 354]$

$$a^*_{\text{a}} = C^*_{ab,a} \cos h_{ab}$$

$$b^*_{\text{a}} = C^*_{ab,a} \sin h_{ab}$$



GE890-4A, 2; cf1=0.70; nt=0.18; nx=1.0

Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_25%_O0

$$l^*_{lab^*} = (L^* - L^*_N) / (L^*_W - L^*_N)$$

$$a^*_{\text{a}} = a^* - a^*_N - l^*_{lab^*} [a^*_W - a^*_N]$$

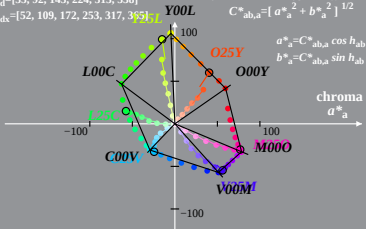
$$b^*_{\text{a}} = b^* - b^*_N - l^*_{lab^*} [b^*_W - b^*_N]$$

$$C^*_{ab,a} = [a^{*2}_{\text{a}} + b^{*2}_{\text{a}}]^{1/2}$$

CIELAB hue angles:

$h_{ab,d} = [35, 92, 143, 224, 313, 338]$

$h_{ab,dx} = [52, 109, 172, 253, 317, 365]$



Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_25%_O1

CIELAB hue angles:

$h_{ab,d}=[35, 92, 143, 224, 313, 338]$

$h_{ab,dx}=[52, 109, 172, 253, 317, 365]$

$$l^*_{lab*}=(L^*-L^*_N)/(L^*_W-L^*_N)$$

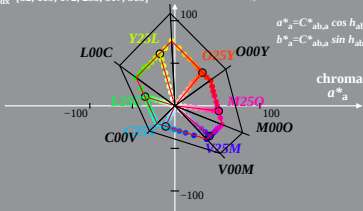
$$a^*_a=a^*-a^*_N-l^*_{lab*}[a^*_W-a^*_N]$$

$$b^*_a=b^*-b^*_N-l^*_{lab*}[b^*_W-b^*_N]$$

$$C^*_{ab,a}=[a^{*2}_a+b^{*2}_a]^{1/2}$$

$$a^*_a=C^*_{ab,a}\cos h_{ab}$$

$$b^*_a=C^*_{ab,a}\sin h_{ab}$$



Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_50%_O0

$$l^*_{lab^*} = (L^* - L^*_N) / (L^*_W - L^*_N)$$

$$a^*_a = a^* - a^*_N - l^*_{lab^*} [a^*_W - a^*_N]$$

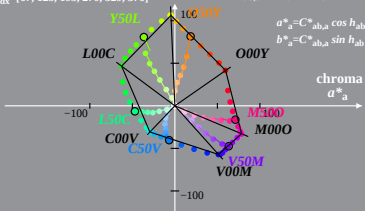
$$b^*_a = b^* - b^*_N - l^*_{lab^*} [b^*_W - b^*_N]$$

$$C^*_{ab,a} = [a^{*2}_a + b^{*2}_a]^{1/2}$$

CIELAB hue angles:

$h_{ab,d} = [35, 92, 143, 224, 313, 338]$

$h_{ab,dx} = [67, 123, 193, 270, 329, 376]$



Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)
 System: GE89_FRS09_92_D65_50%_O1

CIELAB hue angles:

$h_{ab,d}=[35, 92, 143, 224, 313, 338]$

$h_{ab,dx}=[67, 123, 193, 270, 329, 376]$

$$l^*_{lab*}=(L^*-L^*_N)/(L^*_W-L^*_N)$$

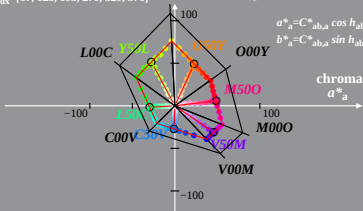
$$a^*_{*a}=a^*-a^*_N-l^*_{lab*}[a^*_W-a^*_N]$$

$$b^*_{*a}=b^*-b^*_N-l^*_{lab*}[b^*_W-b^*_N]$$

$$C^*_{ab,a}=[a^{*2}_{*a}+b^{*2}_{*a}]^{1/2}$$

$$a^*_{*a}=C^*_{ab,a}\cos h_{ab}$$

$$b^*_{*a}=C^*_{ab,a}\sin h_{ab}$$



Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_75%_O0

$$l^*_{lab*} = (L^* - L^*_N) / (L^*_W - L^*_N)$$

$$a^*_a = a^* - a^*_N - l^*_{lab*} [a^*_W - a^*_N]$$

$$b^*_a = b^* - b^*_N - l^*_{lab*} [b^*_W - b^*_N]$$

CIELAB hue angles:

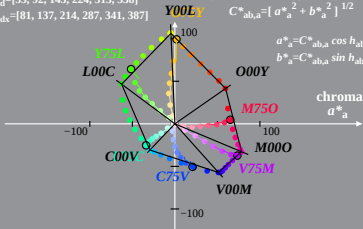
$$h_{ab,d} = [35, 92, 143, 224, 313, 338]$$

$$h_{ab,dx} = [81, 137, 214, 287, 341, 387]$$

$$C^*_{ab,a} = [a^{*2}_a + b^{*2}_a]^{1/2}$$

$$a^*_a = C^*_{ab,a} \cos h_{ab}$$

$$b^*_a = C^*_{ab,a} \sin h_{ab}$$



Linear relation CIELAB (L^* , a^* , b^*) and adapted (a) CIELAB ($C^*_{ab,a}$, L^*)

System: GE89_FRS09_92_D65_75%_O1

CIELAB hue angles:

$h_{ab,d}=[35, 92, 143, 224, 313, 338]$

$h_{ab,dx}=[81, 137, 214, 287, 341, 387]$

$$l^*_{lab*}=(L^*-L^*_N)/(L^*_W-L^*_N)$$

$$a^*_a=a^*-a^*_N-l^*_{lab*}[a^*_W-a^*_N]$$

$$b^*_a=b^*-b^*_N-l^*_{lab*}[b^*_W-b^*_N]$$

$$C^*_{ab,a}=[a^{*2}_a+b^{*2}_a]^{1/2}$$

$$a^*_a=C^*_{ab,a}\cos h_{ab}$$

$$b^*_a=C^*_{ab,a}\sin h_{ab}$$

