

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

System: HE82\_HRS16\_96\_D65\_00%\_O0  $l^*_{lab^*} = (L^* - L^*_N) / (L^*_W - L^*_N)$

CIELAB hue angles:

$h_{ab,d} = [32, 99, 151, 233, 300, 349]$

$h_{ab,ex} = [26, 92, 162, 217, 272, 329]$

$h_{ab,e} = [26, 92, 162, 217, 272, 329]$

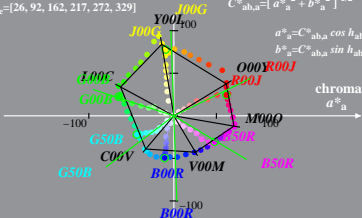
$$a^*_{a'} = a^* - a^*_N - l^*_{lab^*} [a^*_W - a^*_N]$$

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

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

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

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



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

System: HE82\_HRS16\_96\_D65\_00%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[26, 92, 162, 217, 272, 329]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

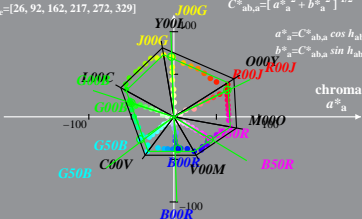
$$a^*_{a}=a^* - a^*_N - l^*_{lab^*} [ a^*_W - a^*_N ]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_25%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[42, 109, 175, 230, 286, 343]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

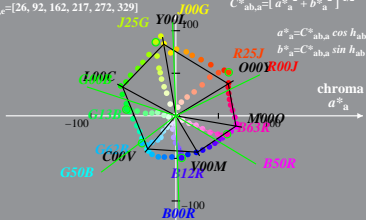
$$a^*_{a^*}=a^* - a^*_N - l^*_{lab^*} [ a^*_W - a^*_N ]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted ( $a$ ) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_25%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[42, 109, 175, 230, 286, 343]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

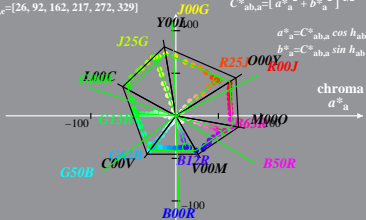
$$a^*_{a}=a^* - a^*_N - l^*_{lab^*} [ a^*_W - a^*_N ]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_50%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[59, 127, 189, 244, 300, 357]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

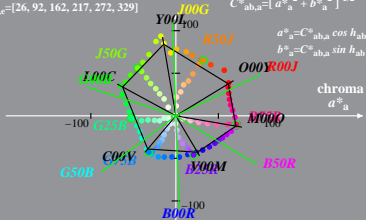
$$a^*_{a'}=a^* - a^*_N - l^*_{lab^*} [ a^*_W - a^*_N ]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_50%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[59, 127, 189, 244, 300, 357]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

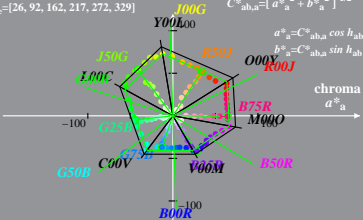
$$a^*_{a^*}=a^* - a^*_N - l^*_{lab^*} [ a^*_W - a^*_N ]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_75%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[75, 144, 203, 258, 314, 371]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

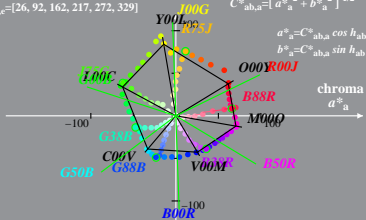
$$a^*_{a} = a^* - a^*_N - l^*_{lab*} [a^*_W - a^*_N]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE82\_HRS16\_96\_D65\_75%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 233, 300, 349]$

$h_{ab,ex}=[75, 144, 203, 258, 314, 371]$

$h_{ab,e}=[26, 92, 162, 217, 272, 329]$

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

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

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

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

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

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

