

Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted ( $a$ ) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE86\_HRS16\_96\_D65\_00%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

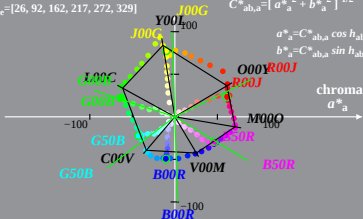
$$a^*_a=a^*-a^*_N-I^*_{lab*}[a^*_W-a^*_N]$$

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

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

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

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



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

System: HE86\_HRS16\_96\_D65\_00%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

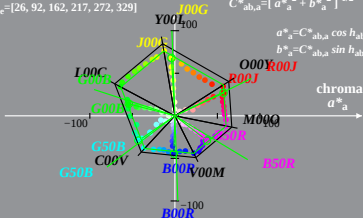
$$a^*_a = a^* - a^*_N - I^*_{lab*} [a^*_W - a^*_N]$$

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

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

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

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



Linear relation CIELAB ( $L^*$ ,  $a^*$ ,  $b^*$ ) and adapted (a) CIELAB ( $C^*_{ab,a}$ ,  $L^*$ )  
 System: HE86\_HRS16\_96\_D65\_25%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

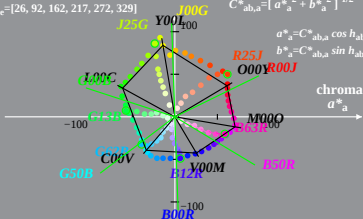
$$a^*_a=a^*-a^*_N-I^*_{lab^*}[a^*_W-a^*_N]$$

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

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

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

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



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

System: HE86\_HRS16\_96\_D65\_25%\_O1

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

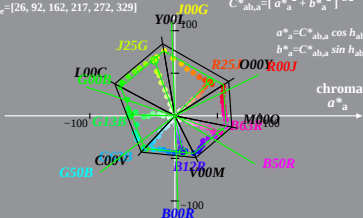
$$a^*_a = a^* - a^*_N - I^*_{lab*} [a^*_W - a^*_N]$$

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

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

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

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



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

System: HE86\_HRS16\_96\_D65\_50%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

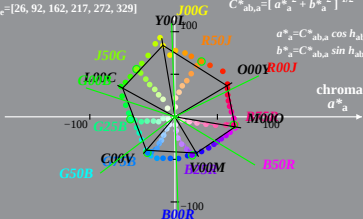
$$a^*_a=a^*-a^*_N-I^*_{lab*}[a^*_W-a^*_N]$$

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

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

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

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



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

System: HE86\_HRS16\_96\_D65\_50%\_O1  $L^*_{lab,a} = (L^* - L^*_N) / (L^*_W - L^*_N)$

CIELAB hue angles:

$h_{ab,d} = [32, 99, 151, 227, 296, 348]$

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

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

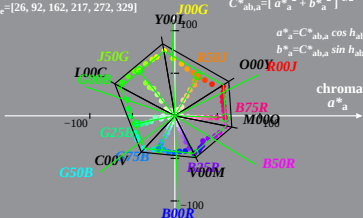
$$a^*_a = a^* - a^*_N - L^*_{lab,a} [a^*_W - a^*_N]$$

$$b^*_a = b^* - b^*_N - L^*_{lab,a} [b^*_W - b^*_N]$$

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

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

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



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

System: HE86\_HRS16\_96\_D65\_75%\_O0

CIELAB hue angles:

$h_{ab,d}=[32, 99, 151, 227, 296, 348]$

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

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

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

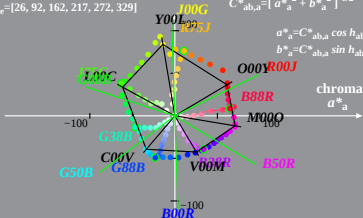
$$a^*_a=a^*-a^*_N-I^*_{lab*}[a^*_W-a^*_N]$$

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

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

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

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



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

System: HE86\_HRS16\_96\_D65\_75%\_O1  $I^*_{lab,a} = (L^* - L^*_N) / (L^*_W - L^*_N)$

CIELAB hue angles:

$h_{ab,d} = [32, 99, 151, 227, 296, 348]$

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

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

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

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

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

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

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

