log (L^*) IECsRGB lightness with Y_u=18

log(L^*) L^*

3 1000

IECsRGB lightness for all colours, L^*_W=100:

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

2 100

L^*_u=50, Y_u=18

log(L^*_u)=1,68, m_u=0,41

1 10

application range

0 1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−1A

log (L^*/L^*_u) relative IECsRGB lightness with Y_u=18

L^*/L^*_u

2 100

relative normalized IECsRGB data

IECsRGB lightness for all colours with , L^*_u=50:

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

1 10

L^*_u=50, Y_u=18

log[(L^*)/(L^*_u)]=0, m_u=0,41

0 1

application range

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−2A

log ΔY IECsRGB-tristimulus value difference

log(ΔY) ΔY

2 100

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

IECsRGB-tristimulus value difference

log(dY) = log(2,4 (Y_u/100)) + (1−(1/2,4)) log(Y/Y_n)

= log(2,4($Y_u^{1/2,4}$)/100) + (1−(1/2,4)) log(Y)

1 10

Y_u=18, dY_u=0,90, dY_u/Y_u=0,0480

log(dY)=0,88, m_u=0,58

0 1

application range

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−3A

log($\Delta Y/\Delta Y_u$) relative IECsRGB-tristimulus value difference

$\Delta Y/\Delta Y_u$

2 100

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

relative IECsRGB-tristimulus value difference

log(dY) = log(2,4 (Y_u/100)) + (1−(1/2,4)) log(Y/Y_n)

= log(2,4($Y_u^{1/2,4}$)/100) + (1−(1/2,4)) log(Y)

1 10

Y_u=18, dY_u=0,90, dY_u/Y_u=0,0480

log[(dY)/(dY_u)]=0, m_u=0,58

0 1

application range

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−4A

log ($\Delta Y/Y$) IECsRGB-tristimulus value sensitivity

log(C_r) C_r=($\Delta Y/Y$)

1 10

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

IECsRGB-tristimulus value sensitivity

log[(dY/Y = log(2,4($Y_n^{1/2,4}$)/100) − (1/2,4) log(Y)

0 1

application range

−1 0,1

log(dY/Y)=−1,30, m_u=−0,41

Y_u=18, dY_u=0,90, dY_u/Y_u=0,0480

−2 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−5A

log [($\Delta Y/Y$) / ($\Delta Y_u/Y_u$)] relative IECsRGB-tistimulus value sensitivity

C_r/C_{ru}=($\Delta Y/Y$)/($\Delta Y_u/Y_u$)

2 100

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

relative IECsRGB-tristimulus value sensitivity

log(dY/Y)/(dY_u/Y_u)] = log(Y/Y_u)$^{-1/2,4}$

1 10

application range

0 1

log[(dY/Y)/(dY_u/Y_u)]=0, m_u=−0,41

Y_u=18, dY_u=0,90, dY_u/Y_u=0,0480

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−6A

log ($Y/\Delta Y$) IECsRGB-tristimulus value contrast

log(S_r) S_r=($Y/\Delta Y$)

2 100

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

IECsRGB-tristimulus value contrast

log(Y/dY)= log[(1/2,4) (100/Y_n)] + (1/2,4) log(Y/Y_n)

= log[(1/2,4) 100/($Y_u^{1/2,4}$)] + (1/2,4) log(Y)

1 10

L^*_u=50, Y_u=18, dY_u=0,90, Y_u/dY_u=20

log(Y/dY)=1,30, m_u=0,41

0 1

application range

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−7A

log [($Y/\Delta Y$) / ($Y_u/\Delta Y_u$)] relative IECsRGB-tistimulus value contrast

log(S_r) S_r/S_{ru}=($Y/\Delta Y$)/($Y_u/\Delta Y_u$)

3 1000

$L^*_{IECsRGB}=s(Y/Y_u)^{1/2,4}$ (s=50, Y_u=18, 1/255<Y<100)

relative IECsRGB-tristimulus value contrast

log[($Y/\Delta Y$)/($Y_u/\Delta Y_u$)] = log(Y/Y_u)$^{1/2,4}$

2 100

L^*_u=50, Y_u=18, dY_u=0,90

L^*_u=50, Y_u=18, dY_u=0,90, Y_u/dY_u=20

log[(Y/dY)/(Y_u/dY_u)]=0, m_u=0,41

1 10

application range

0 1

−1 0,1 1 Y_N=4 10 Y_u=18 100 Y

−2 −1 0 1 2 log(Y)

BEU81−8A

BEU81−7N