

http://130.149.60.45/~farbmetrikk/NE12/NE12L0N1.TXT/.PS; start output  
N: No Output Linearization (OL) data in File (F), Startup (S) or Device (D)

line element of *Stiles* (1946) with „color values“ *P, D, T*  
three separate color signal functions

$$F(P) = i \ln(1+9P)$$

$$F(D) = j \ln(1+9D)$$

$$F(T) = k \ln(1+9T)$$

Taylor-derivations:

$$\Delta F(P, D, T) = \frac{dF}{dP} \Delta P + \frac{dF}{dD} \Delta D + \frac{dF}{dT} \Delta T \\ = \frac{9i}{1+9P} \Delta P + \frac{9j}{1+9D} \Delta D + \frac{9k}{1+9T} \Delta T$$

NE12-1, B4\_47\_1

line element of *Vos & Walraven* (1972) with „color values“ *P, D, T*  
three separate color signal functions

$$F(P) = -2i\sqrt{P}$$

$$F(D) = -2j\sqrt{D}$$

$$F(T) = -2k\sqrt{T}$$

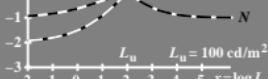
Taylor-derivations:

$$\Delta F(P, D, T) = \frac{dF}{dP} \Delta P + \frac{dF}{dD} \Delta D + \frac{dF}{dT} \Delta T \\ \Delta F(P, D, T) = \frac{i}{\sqrt{P}} \Delta P + \frac{j}{\sqrt{D}} \Delta D + \frac{k}{\sqrt{T}} \Delta T$$

NE12-2, B4\_47\_2

$F(x)$  „impulse rate = impulses / s“  
threshold process  $W = -2Q[1,0(x-u)]$

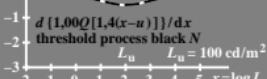
$$N: 1.00Q[1,4(x-u)]$$



NE12-1, B4\_52\_1

$dF(x)/dx$  „impulse rate change“  
white scaling  $W = d[-2Q[1,0(x-u)]]/dx$

$$sum\ for:\ scaling\ process$$

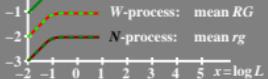


NE12-1-2, B4\_52\_2

$F(x)$  „color signal = impulses / s“

W-process: red R  
green G  
N-process: red r  
green g

function values with  $l = m = 1$ :  
W-process: mean RG  
N-process: mean rg



NE12-1-3, B4\_53\_1

TUB material: code=rha4ta

color signal: amplitude modulation

W-process: U  
N-process: u  
W-process:  $U + (R - G)$   
N-process:  $u + (r - g)$

The graph plots color signal (y-axis, -3 to 3) against  $x = \log L$  (x-axis, -2 to 5). It shows four curves: U (solid blue), u (dashed blue),  $U + (R - G)$  (solid orange), and  $u + (r - g)$  (dashed orange). The U and u curves are positive, while the  $U + (R - G)$  and  $u + (r - g)$  curves are negative. The  $U + (R - G)$  and  $u + (r - g)$  curves are lower than the U and u curves.

NE12-1-4, B4\_53\_2

achromatic- and *RG*-opponent signals

$W = -2Q[1,0(x-u+p)]$   
 $N = Q[1,4(x-u+p)]$

The graph plots signals (y-axis, -3 to 3) against  $x = \log L$  (x-axis, -2 to 5). It shows two sets of curves: one for the W process (red and green) and one for the N process (red and green). The W process curves are positive, while the N process curves are negative. The N process curves are higher than the W process curves.

NE12-1-5, B4\_54\_1

TUB material: code=rha4ta

chromatic signal *RG*: light and dark

$W = -2Q[1,0(x-u+p)]$   
 $N = Q[1,4(x-u+p)]$

The graph plots signals (y-axis, -3 to 3) against  $x = \log L$  (x-axis, -2 to 5). It shows two sets of curves: one for the W process (red and green) and one for the N process (red and green). The W process curves are positive, while the N process curves are negative. The N process curves are higher than the W process curves.

NE12-1-6, B4\_54\_2

achromatic ± *RG*-chromatic signals

$W = -2Q[1,0(x-u+p)]$   
 $N = Q[1,4(x-u+p)]$

The graph plots signals (y-axis, -3 to 3) against  $x = \log L$  (x-axis, -2 to 5). It shows two sets of curves: one for the W process (red and green) and one for the N process (red and green). The W process curves are positive, while the N process curves are negative. The N process curves are higher than the W process curves.

NE12-1-7, B4\_55\_1

TUB material: code=rha4ta

achromatic- and *RG*-opponent signals

$W = -2Q[1,0(x-u+p)]$   
 $N = Q[1,4(x-u+p)]$

The graph plots signals (y-axis, -3 to 3) against  $x = \log L$  (x-axis, -2 to 5). It shows two sets of curves: one for the W process (red and green) and one for the N process (red and green). The W process curves are positive, while the N process curves are negative. The N process curves are higher than the W process curves.

NE12-1-8, B4\_55\_2

double line element of *Richter* (1987) for the lighting technic with luminance  $L = \bar{F}(P, \bar{D}, T)$

luminance signal function  $F(L)$

$$F(L) = iQ(H) = \begin{cases} \frac{i}{\pi} Q(\frac{H}{\pi}) & (x < u) \\ \frac{i}{\pi} Q(\frac{\bar{H}}{\pi}) & (x \geq u) \end{cases}$$

with:  $k=1.4$     $\bar{k}=1$     $i=1$     $\bar{i}=-2$

$$x = \log L$$

$$u = \log L_u$$

$$H = e^{k(x-u)}$$

$$H = e^{k(x-u)}$$

$$\bar{H} = \bar{e}^{\bar{k}(x-u)}$$

$$H = e^{k(x-u)}$$

$$\bar{H} = \bar{e}^{\bar{k}(x-u)}$$

NE12-1-7, B4\_54\_1

double line element of *Richter* (1987) for the lighting technic with luminance  $L = \bar{F}(P, \bar{D}, T)$

luminance signal function  $F(L)$

$$F(L) = iQ(H) = H = e^{k(x-u)}$$

$$Q[\ln\{1+1/(1+\sqrt{2}H)\}]/\ln\sqrt{2}-1$$

Taylor-derivations:

$$\Delta F(L) = \frac{dF}{dL} \Delta L = i \frac{dQ}{dH} \Delta H \\ = -i\sqrt{2}\Delta H/[\ln\{2(1+\sqrt{2}H)(2+\sqrt{2}H)\}]$$

NE12-1-8, B4\_50\_2

input: *rgb setrgbc*

output: no colour data change

See original or copy: <http://www.me.com/klaus.richter/NE12/NE12L0N1.TXT/.PS>  
Technical information: <http://www.ps.bam.de> or <http://130.149.60.45/~farbmeth>