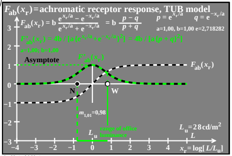
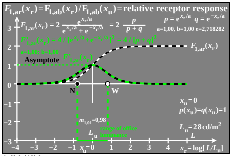
http://farbe.li.tu-berlin.de/her0/her0l0n1.txt /.ps; only vector graphic VG; start output
see similar files: http://farbe.li.tu-berlin.de/her0/her0.htm

see similar files of the whole serie: http://farbe.li.tu-berlin.de/hers.htm
technical information: http://farbe.li.tu-berlin.de or http://color.li.tu-berlin.de



her00−1n fek00−1n



her00−2n fek00−2n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

$F_{ab}(x/a)=b\tanh(x/a)=b\frac{e^{x/a}-e^{-x/a}}{e^{x/a}+e^{-x/a}}=b\frac{u(x/a)}{v(x/a)}$ [1]

$F'_{ab}(x/a)=b\frac{u'(x/a)\,v(x/a)-u(x/a)\,v'(x/a)}{v^2(x/a)}$ [2]

$F'_{ab}(x/a)=b\frac{v^2(x/a)-u^2(x/a)}{a\,v^2(x/a)}$ [3]

$F'_{ab}(x/a)=\frac{4b}{a\,[e^{x/a}+e^{-x/a}]^2}=\frac{b}{a\cosh^2(x/a)}$ [4]

her01−1n fek01−1n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

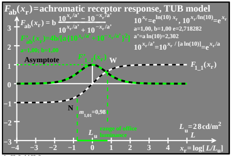
$F_{abu}(x/a)=[\tanh(x/a)+1]\,/\,[\tanh(x_u/a)+1]$ [1u]

$F'_{abu}(x/a)=\tanh(x/a)$ with $\tanh(x_u/a)=0$ [2u]

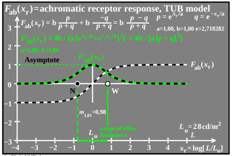
$F'_{abu}(x/a)=\frac{v^2(x/a)-u^2(x/a)}{a\,v^2(x/a)}$ [3u]

$F'_{abu}(x/a)=\frac{4}{a\,[e^{x/a}+e^{-x/a}]^2}=\frac{1}{a\cosh^2(x/a)}$ [4u]

her01−2n fek01−2n



her00−3n fek00−3n



her00−4n fek00−4n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

$F_{ab}(x/a)=b\tanh(x/a)=b\frac{e^{x/a}-e^{-x/a}}{e^{x/a}+e^{-x/a}}=b\frac{u(x/a)}{v(x/a)}$ [1]

$F'_{ab}(x/a)=b\frac{u'(x/a)\,v(x/a)-u(x/a)\,v'(x/a)}{v^2(x/a)}$ [2]

$F'_{ab}(x/a)=b\frac{v^2(x/a)-u^2(x/a)}{a\,v^2(x/a)}$ [3]

$F'_{ab}(x/a)=\frac{4b}{a\,[e^{x/a}+e^{-x/a}]^2}=\frac{b}{a\cosh^2(x/a)}$ [4]

her01−3n fek01−3n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

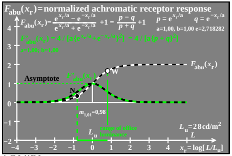
$F_{abu}(x/a)=\tanh(x/a)=\frac{e^{x/a}-e^{-x/a}}{e^{x/a}+e^{-x/a}}=\frac{u(x/a)}{v(x/a)}$ [1u]

$F'_{abu}(x/a)=\frac{u'(x/a)\,v(x/a)-u(x/a)\,v'(x/a)}{v^2(x/a)}$ [2u]

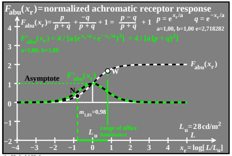
$F'_{abu}(x/a)=\frac{v^2(x/a)-u^2(x/a)}{a\,v^2(x/a)}$ [3u]

$F'_{abu}(x/a)=\frac{4}{a\,[e^{x/a}+e^{-x/a}]^2}=\frac{1}{a\cosh^2(x/a)}$ [4u]

her01−4n fek01−4n



her00−5n fek00−5n



her00−6n fek00−6n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

$F_{ab}(x/a)=b\tanh(x/a)=b\frac{e^{x/a}-e^{-x/a}}{e^{x/a}+e^{-x/a}}$ [1]

$\frac{dF_{ab}(x/a)}{dx}=\frac{4b}{a[e^{x/a}+e^{-x/a}]^2}=\frac{b}{a\cosh^2(x/a)}$ [4]

$\frac{dF_{ab}(x_r/a)}{dx_r}=\frac{4b}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $x_r=\log(L/L_u)$, $dx_r/dL=\ln(10)/L$ [5]

$\frac{dF_{ab}(x_r/a)}{dx_r}\frac{dx_r}{dL}=\frac{4b}{a[e^{x_r/a}+e^{-x_r/a}]^2}\frac{\ln(10)}{L}$ [6]

her01−5n fek01−5n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

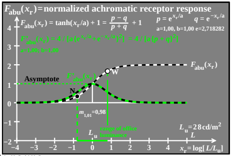
$F_{abu}(x/a)=\tanh(x/a)=\frac{e^{x/a}-e^{-x/a}}{e^{x/a}+e^{-x/a}}$ [1u]

$\frac{dF_{abu}(x/a)}{dx}=\frac{4}{a[e^{x/a}+e^{-x/a}]^2}=\frac{1}{a\cosh^2(x/a)}$ [4u]

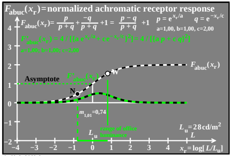
$\frac{dF_{abu}(x_r/a)}{dx_r}=\frac{4}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $x_r=\log(L/L_u)$, $dx_r/dL=\ln(10)/L$ [5u]

$\frac{dF_{abu}(x_r/a)}{dx_r}\frac{dx_r}{dL}=\frac{4}{a[e^{x_r/a}+e^{-x_r/a}]^2}\frac{\ln(10)}{L}$ [6u]

her01−6n fek01−6n



her00−7n fek00−7n



her00−8n fek00−8n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

$F_{ab}(x_r/a)=b\tanh(x_r/a)=b\frac{e^{x_r/a}-e^{-x_r/a}}{e^{x_r/a}+e^{-x_r/a}}$ [1]

$\frac{dF_{ab}(x_r/a)}{dx_r}=\frac{4b}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $x_r=\log(L/L_u)$, $dx_r/dL=\ln(10)/L$ [5]

$\frac{dF_{ab}(x_r/a)}{dx_r}\frac{dx_r}{dL}=\frac{4b}{a[e^{x_r/a}+e^{-x_r/a}]^2}\frac{\ln(10)}{L}$ [6]

$\frac{L}{dL}=\frac{4b\ln(10)}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $dL=\frac{a[e^{x_r/a}+e^{-x_r/a}]^2L}{4b\ln(10)}$ [7]

her01−7n fek01−7n

Mathematical equations of hyperbolic functions

See: Handbook of mathematical functions, NBS, USA, Sec. 4.5

$F_{abu}(x_r/a)=\tanh(x_r/a)=\frac{e^{x_r/a}-e^{-x_r/a}}{e^{x_r/a}+e^{-x_r/a}}$ [1u]

$\frac{dF_{abu}(x_r/a)}{dx_r}=\frac{4}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $x_r=\log(L/L_u)$, $dx_r/dL=\ln(10)/L$ [5u]

$\frac{dF_{abu}(x_r/a)}{dx_r}\frac{dx_r}{dL}=\frac{4}{a[e^{x_r/a}+e^{-x_r/a}]^2}\frac{\ln(10)}{L}$ [6u]

$\frac{L}{dL}=\frac{4\ln(10)}{a[e^{x_r/a}+e^{-x_r/a}]^2}$ $dL=\frac{a[e^{x_r/a}+e^{-x_r/a}]^2L}{4\ln(10)}$ [7u]

her01−8n fek01−8n

TUB registration: 20241201-her0/her0l0n1.txt /.ps
application for evaluation and measurement of display or print output
TUB material: code=rha4ta

TUB-test chart her0; Model of normalized response function $F_{ab}(x_r)$ and derivation $F'_{ab}(x_r)$
Mathematical calculation of the derivation $F'_{ab}(x_r)$, of the contrast $L/\Delta L$, and the discrimination ΔL