http://farbe.li.tu-berlin.de/hes8/hes8l0n1.txt /.ps; only vector graphic VG; start output
see separate images of this page: http://farbe.li.tu-berlin.de/hes8/hes8.htm

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 1500$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
8372	120°	22,969	0,0718	0,2448	68,92	308,83	34,63	86,80
5219	120°	22,969	0,0718	0,2448	68,92	257,36	34,63	86,60
3000	120°	22,969	0,0718	0,2448	68,92	205,89	34,63	86,60
1536	120°	22,969	0,0718	0,2448	68,92	154,42	34,63	86,60
660	120°	22,969	0,0718	0,2448	68,92	102,94	34,63	86,60
209	120°	22,969	0,0718	0,2448	68,92	51,47	34,63	86,60
34,63	120°	22,969	0,0718	0,2448	68,92	0,00	34,63	86,60
16	120°	22,969	0,0718	0,2448	70,75	102,94	32,96	92,96

hes8l-1a | y=0, L_a=300, L_d=3000, φ=120°, B_d=68,92, $B^{\bar{1}}_{T}$=205,89

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 1500$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
4066	120°	22,969	0,0718	0,2448	34,60	149,99	16,82	86,60
2535	120°	22,969	0,0718	0,2448	34,60	124,99	16,82	86,60
1457	120°	22,969	0,0718	0,2448	34,60	99,99	16,82	86,60
746	120°	22,969	0,0718	0,2448	34,60	74,99	16,82	86,60
320	120°	22,969	0,0718	0,2448	34,60	49,99	16,82	86,60
101	120°	22,969	0,0718	0,2448	34,60	24,99	16,82	86,60
34,63	120°	22,969	0,0718	0,2448	34,60	0,00	16,82	86,60
320	120°	22,969	0,0718	0,2448	35,53	49,99	16,82	86,60

hes8l-3a | y=0, L_a=300, L_d=3000, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=116,67

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 300$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
8372	120°	22,969	0,0718	0,2448	68,92	308,83	34,63	86,80
5219	120°	22,969	0,0718	0,2448	68,92	257,36	34,63	86,60
3000	120°	22,969	0,0718	0,2448	68,92	205,89	34,63	86,60
1536	120°	22,969	0,0718	0,2448	68,92	154,42	34,63	86,60
660	120°	22,969	0,0718	0,2448	68,92	102,94	34,63	86,60
209	120°	22,969	0,0718	0,2448	68,92	51,47	34,63	86,60
34,63	120°	22,969	0,0718	0,2448	68,92	0,00	34,63	86,60
16	120°	22,969	0,0718	0,2448	70,75	102,94	32,96	92,96

hes8l-1a | y=0, L_a=300, L_d=3000, φ=120°, B_d=68,92, $B^{\bar{1}}_{T}$=205,89, x_r=22,96, d_{rd}=68,92

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 1500$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
4066	120°	22,969	0,0718	0,2448	34,60	149,99	11,15	33,47
2535	120°	22,969	0,0718	0,2448	34,60	124,99	11,15	33,47
1457	120°	22,969	0,0718	0,2448	34,60	99,99	11,15	33,47
746	120°	22,969	0,0718	0,2448	34,60	74,99	11,15	33,47
320	120°	22,969	0,0718	0,2448	34,60	49,99	11,15	33,47
101	120°	22,969	0,0718	0,2448	34,60	24,99	11,15	33,47
34,63	120°	22,969	0,0718	0,2448	34,60	0,00	11,15	33,47
320	120°	22,969	0,0718	0,2448	35,53	49,99	11,15	33,47

hes8l-3a | y=0, L_a=300, L_d=3000, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=149,99, x_r=11,15, d_{rd}=33,47

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 300$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
8372	120°	22,969	0,0718	0,2448	68,92	308,83	22,96	68,92
5219	120°	22,969	0,0718	0,2448	68,92	257,36	22,96	68,92
3000	120°	22,969	0,0718	0,2448	68,92	205,89	22,96	68,92
1536	120°	22,969	0,0718	0,2448	68,92	154,42	22,96	68,92
660	120°	22,969	0,0718	0,2448	68,92	102,94	22,96	68,92
209	120°	22,969	0,0718	0,2448	68,92	51,47	22,96	68,92
34,63	120°	22,969	0,0718	0,2448	68,92	0,00	22,96	68,92
16	120°	22,969	0,0718	0,2448	70,75	102,94	22,96	68,92

hes8l-1a | y=0, L_a=300, L_d=3000, φ=120°, B_d=68,92, $B^{\bar{1}}_{T}$=205,89, x_r=22,96, d_{rd}=68,92

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 300$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
831	120°	22,969	0,0718	0,2448	34,60	149,99	25,79	86,60
519	120°	22,969	0,0718	0,2448	34,60	124,99	25,79	86,60
300	120°	22,969	0,0718	0,2448	34,60	99,99	25,79	86,60
154	120°	22,969	0,0718	0,2448	34,60	74,99	25,79	86,60
67	120°	22,969	0,0718	0,2448	34,60	49,99	25,79	86,60
21	120°	22,969	0,0718	0,2448	34,60	24,99	25,79	86,60
3,75	120°	22,969	0,0718	0,2448	34,60	0,00	25,79	86,60
67	120°	22,969	0,0718	0,2448	35,53	49,99	25,79	86,60

hes8l-5a | y=1, L_a=300, L_d=300, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=99,99

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 300$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
831	120°	22,969	0,0718	0,2448	34,60	149,99	25,79	86,60
519	120°	22,969	0,0718	0,2448	34,60	124,99	25,79	86,60
300	120°	22,969	0,0718	0,2448	34,60	99,99	25,79	86,60
154	120°	22,969	0,0718	0,2448	34,60	74,99	25,79	86,60
67	120°	22,969	0,0718	0,2448	34,60	49,99	25,79	86,60
21	120°	22,969	0,0718	0,2448	34,60	24,99	25,79	86,60
3,75	120°	22,969	0,0718	0,2448	34,60	0,00	25,79	86,60
67	120°	22,969	0,0718	0,2448	35,53	49,99	25,79	86,60

hes8l-5a | y=1, L_a=300, L_d=300, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=99,99, x_r=22,96, d_{rd}=34,60

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 300$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
170	120°	22,969	0,0718	0,2448	34,60	149,99	91,40	17,08
107	120°	22,969	0,0718	0,2448	34,60	124,99	91,40	17,08
62	120°	22,969	0,0718	0,2448	34,60	99,99	91,40	17,08
32	120°	22,969	0,0718	0,2448	34,60	74,99	91,40	17,08
14	120°	22,969	0,0718	0,2448	34,60	49,99	91,40	17,08
4,4	120°	22,969	0,0718	0,2448	34,60	24,99	91,40	17,08
0,43	120°	22,969	0,0718	0,2448	34,60	0,00	91,40	17,08
14	120°	22,969	0,0718	0,2448	35,53	49,99	91,40	17,08

hes8l-3a | y=2, L_a=300, L_d=30, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=65,07

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 3$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
7	120°	22,969	0,0718	0,2448	9,55	34,10	0,05	50,79
5	120°	22,969	0,0718	0,2448	9,55	28,41	0,05	50,79
3	120°	22,969	0,0718	0,2448	9,55	22,73	0,05	50,79
1	120°	22,969	0,0718	0,2448	9,55	17,05	0,05	50,79
0	120°	22,969	0,0718	0,2448	9,55	11,36	0,05	50,79
0	120°	22,969	0,0718	0,2448	9,55	5,68	0,05	50,79
0,05	120°	22,969	0,0718	0,2448	9,55	0,00	0,05	50,79
0	120°	22,969	0,0718	0,2448	9,83	11,36	0,05	50,79

hes8l-5a | y=3, L_a=300, L_d=3, φ=120°, B_d=9,55, $B^{\bar{1}}_{T}$=22,73

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 3$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = C_T(y) L_T^{\bar{1}} - B_d(L_a, y)$ brightness $B^{\bar{1}}_{T}$ [1]
$B_d(L_a, y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (n=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$L_T(L_a, y) = [S_d(y) + S_T(y) L_a^{\bar{1}}]^{1/n}$ (=black threshold) [3]

L_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
34	120°	22,969	0,0718	0,2448	34,60	149,99	0,25	50,79
22	120°	22,969	0,0718	0,2448	34,60	124,99	0,25	50,79
13	120°	22,969	0,0718	0,2448	34,60	99,99	0,25	50,79
7	120°	22,969	0,0718	0,2448	34,60	74,99	0,25	50,79
3	120°	22,969	0,0718	0,2448	34,60	49,99	0,25	50,79
1	120°	22,969	0,0718	0,2448	34,60	24,99	0,25	50,79
0,05	120°	22,969	0,0718	0,2448	34,60	0,00	0,25	50,79
3	120°	22,969	0,0718	0,2448	35,53	49,99	0,25	50,79

hes8l-5a | y=3, L_a=300, L_d=3, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=99,99

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 3$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
170	120°	22,969	0,0718	0,2448	34,60	149,99	91,40	47,71
107	120°	22,969	0,0718	0,2448	34,60	124,99	91,40	47,71
62	120°	22,969	0,0718	0,2448	34,60	99,99	91,40	47,71
32	120°	22,969	0,0718	0,2448	34,60	74,99	91,40	47,71
14	120°	22,969	0,0718	0,2448	34,60	49,99	91,40	47,71
4,4	120°	22,969	0,0718	0,2448	34,60	24,99	91,40	47,71
0,43	120°	22,969	0,0718	0,2448	34,60	0,00	91,40	47,71
14	120°	22,969	0,0718	0,2448	35,53	49,99	91,40	47,71

hes8l-3a | y=2, L_a=300, L_d=30, φ=120°, B_d=34,60, $B^{\bar{1}}_{T}$=65,07, x_r=47,71, d_{rd}=36,95

Relationship brightness $B^{\bar{1}}_{T}$ and luminance L_T as function of tristimulus value Y_T for the adaptation luminance $L_a = 3$ cd/m²

$B^{\bar{1}}_{T}(L_T, L_a, y) = s_T(y) L_T^{\bar{1}} - d_T(y)$ brightness $B^{\bar{1}}_{T}$ [1]
$s_T(y) = C_T(y)[S_d(y) + S_T(y) L_a^{\bar{1}}]$ (=0.31, $B^{\bar{1}}_{T}$=$B^{\bar{1}}_{T}$ $L_T/B^{\bar{1}}_{T}$) [2]
$d_T(y) = B_d(L_a, y)$ [4] (=scaling factor)

Y_T	φ	$C_T(y)$	$S_d(y)$	$S_T(y)$	$B_d(L_a,y)$	$B^{\bar{1}}_{T}$	L_{T1}	L_d/L_a
7	120°	22,969	0,0718	0,2448	9,55	34,10	0,25	50,79
5	120°	22,969	0,0718	0,2448	9,55	28,41	0,25	50,79
3	120°	22,969	0,0718	0,2448	9,55	22,73	0,25	50,79
1	120°	22,969	0,0718	0,2448	9,55	17,05	0,25	50,79
0	120°	22,969	0,0718	0,2448	9,55	11,36	0,25	50,79
0	120°	22,969	0,0718	0,2448	9,55	5,68	0,25	50,79
0,05	120°	22,969	0,0718	0,2448	9,55	0,00	0,25	50,79
3	120°	22,969	0,0718	0,2448	9,83	11,36	0,25	50,79

hes8l-5a | y=3, L_a=300, L_d=3, φ=120°, B_d=9,55, $B^{\bar{1}}_{T}$=22,73, x_r=22,96, d_{rd}=9,55

TUB-test chart hes8; HAULAB, scaling of achromatic colours in white surround of 180 degree, *Hauber* (1980), Adaptations L_{wa}=1500, 300, 30 & 3cd/m²; 7 viewing angles 120° to 10°

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

TUB registration: 20241201-hes8/hes8l0n1.txt /.ps
application for evaluation and measurement of display or print output

TUB material: code=rha4a