

**Relationship brightness  $B^*_{LT}$  and luminance  $L_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=3000 \text{ cd/m}^2$**

$$B^*_{LT}(L_T, L_a, \phi) = C_T(\phi)L_T^n - B_0(L_a, \phi) \quad \text{brightness } B^*_{LT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31) \quad [2]$$

$$L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} \quad (\text{=black threshold}) \quad [3]$$

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{LT}$	$L_{LT}$	$L_a/L_{LT}$
3000	120'	22.969	0.0718	0.2448	68.92	205.89	34.63	86.60
3000	100'	23.128	0.0747	0.2494	68.92	205.89	34.63	86.60
3000	90'	23.415	0.1086	0.2526	70.75	205.97	36.85	81.41
3000	60'	23.973	0.1313	0.2657	73.32	206.83	39.74	75.48
3000	30'	26.235	0.1797	0.3188	79.38	207.45	47.58	63.05
3000	20'	27.971	0.2013	0.3555	104.81	209.08	87.17	34.41
3000	10'	30.747	0.2730	0.3984	124.62	210.03	123.95	24.20
660,0U120'		22.969	0.0718	0.2448	68.92	102,94U	34.63	86.60

hep60-1a  $L_{aj}=3000, L_r=3000, L_{ajdr}=10.00, L_{ajdrn}=2.04, 0' < \phi < 120'$

**Relationship brightness  $B^*_{YT}$  and tristimulus value  $Y_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=3000 \text{ cd/m}^2$**

$$B^*_{YT}(L_T, L_a, \phi) = [C_T(\phi)L_T^n - B_0(L_a, \phi)]L_{ra}^n \quad \text{brightness } B^*_{YT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31, L_{ra}^n=(L_{3000}/L_a)^n) \quad [2]$$

$$L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} L_{ra}^n \quad (\text{=black threshold})$$

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{YT}$	$L_{YT}$	$L_a/L_{YT}$
3000	120'	22.969	0.0718	0.2448	68.92	100.84	16.96	86.60
3000	100'	23.128	0.0747	0.2494	68.92	100.84	16.96	86.60
3000	90'	23.415	0.1086	0.2526	70.75	100.88	18.04	81.41
3000	60'	23.973	0.1313	0.2657	73.32	101.30	19.46	75.48
3000	30'	26.235	0.1797	0.3188	79.38	101.60	23.30	63.05
3000	20'	27.971	0.2013	0.3555	104.81	102.40	42.69	34.41
3000	10'	30.747	0.2730	0.3984	124.62	102.87	60.71	24.20
92.3U 120'		22.969	0.0718	0.2448	68.92	50,00U	16.96	86.60

hep60-3a  $L_{aj}=3000, L_r=3000, L_{ajdr}=10.00, L_{ajdrn}=2.04, 0' < \phi < 120'$   
 hep60-3R-R

**Relationship brightness  $B^*_{LT}$  and luminance  $L_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=300 \text{ cd/m}^2$**

$$B^*_{LT}(L_T, L_a, \phi) = C_T(\phi)L_T^n - B_0(L_a, \phi) \quad \text{brightness } B^*_{LT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31) \quad [2]$$

$$L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} \quad (\text{=black threshold}) \quad [3]$$

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{LT}$	$L_{LT}$	$L_a/L_{LT}$
300	120'	22.969	0.0718	0.2448	34.60	99.99	3.75	79.99
300	100'	23.128	0.0747	0.2494	35.53	99.99	3.99	75.07
300	90'	23.415	0.1086	0.2526	37.21	100.00	4.45	67.31
300	60'	23.973	0.1313	0.2657	40.48	99.99	5.42	55.33
300	30'	26.235	0.1797	0.3188	53.74	100.00	10.10	29.68
300	20'	27.971	0.2013	0.3555	63.91	99.99	14.37	20.86
300	10'	30.747	0.2730	0.3984	80.18	99.99	22.02	13.62
67,0U 120'		22.969	0.0718	0.2448	34.60	49,99U	3.75	79.99

hep60-5a  $L_{aj}=300, L_r=300, L_{ajdr}=1.00, L_{ajdrn}=1.00, 0' < \phi < 120'$

**Relationship brightness  $B^*_{YT}$  and tristimulus value  $Y_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=300 \text{ cd/m}^2$**

$$B^*_{YT}(L_T, L_a, \phi) = [C_T(\phi)L_T^n - B_0(L_a, \phi)]L_{ra}^n \quad \text{brightness } B^*_{YT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31, L_{ra}^n=(L_{300}/L_a)^n) \quad [2]$$

$$L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} L_{ra}^n \quad (\text{=black threshold})$$

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{YT}$	$L_{YT}$	$L_a/L_{YT}$
300	120'	22.969	0.0718	0.2448	34.60	99.99	3.75	79.99
300	100'	23.128	0.0747	0.2494	35.53	99.99	3.99	75.07
300	90'	23.415	0.1086	0.2526	37.21	100.00	4.45	67.31
300	60'	23.973	0.1313	0.2657	40.48	99.99	5.42	55.33
300	30'	26.235	0.1797	0.3188	53.74	100.00	10.10	29.68
300	20'	27.971	0.2013	0.3555	63.91	99.99	14.37	20.86
300	10'	30.747	0.2730	0.3984	80.18	99.99	22.02	13.62
21,0U 120'		22.969	0.0718	0.2448	34.60	50,00U	3.75	79.99

hep60-7a  $L_{aj}=300, L_r=300, L_{ajdr}=1.00, L_{ajdrn}=1.00, 0' < \phi < 120'$   
 hep60-3R-R

**Relationship brightness  $B^*_{LT}$  and luminance  $L_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=30 \text{ cd/m}^2$**

$$B^*_{LT}(L_T, L_a, \phi) = C_T(\phi)L_T^n - B_0(L_a, \phi) \quad \text{brightness } B^*_{LT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31) \quad [2]$$

$$L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} \quad (\text{=black threshold}) \quad [3]$$

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{LT}$	$L_{LT}$	$L_a/L_{LT}$
30	120'	22.969	0.0718	0.2448	17.78	48.13	0.43	68.40
30	100'	23.128	0.0747	0.2494	18.28	48.09	0.46	64.00
30	90'	23.415	0.1086	0.2526	19.52	47.68	0.55	53.91
30	60'	23.973	0.1313	0.2657	21.43	47.37	0.69	43.03
30	30'	26.235	0.1797	0.3188	28.72	46.57	1.34	22.38
30	20'	27.971	0.2013	0.3555	34.17	46.10	1.90	15.71
30	10'	30.747	0.2730	0.3984	43.55	44.69	3.07	9.75
6,9U 120'		22.969	0.0718	0.2448	17,78	24,06U	0,43	68,40

hep61-1a  $L_{aj}=30, L_r=300, L_{ajdr}=0.10, L_{ajdrn}=0.48, 0' < \phi < 120'$

**Relationship brightness  $B^*_{YT}$  and tristimulus value  $Y_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=30 \text{ cd/m}^2$**

$$B^*_{YT}(L_T, L_a, \phi) = [C_T(\phi)L_T^n - B_0(L_a, \phi)]L_{ra}^n \quad \text{brightness } B^*_{YT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31, L_{ra}^n=(L_{300}/L_a)^n) \quad [2]$$

$$L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} L_{ra}^n \quad (\text{=black threshold})$$

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{YT}$	$L_{YT}$	$L_a/L_{YT}$
30	120'	22.969	0.0718	0.2448	17,78	98,27	0,89	68,40
30	100'	23.128	0.0747	0.2494	18,28	98,19	0,95	64,00
30	90'	23.415	0.1086	0.2526	19,52	97,35	1,13	53,91
30	60'	23.973	0.1313	0.2657	21,43	96,71	1,42	43,03
30	30'	26.235	0.1797	0.3188	28,72	95,08	2,73	22,38
30	20'	27.971	0.2013	0.3555	34,17	94,13	3,89	15,71
30	10'	30.747	0.2730	0.3984	43,55	91,25	6,27	9,75
7,1U 120'		22.969	0.0718	0.2448	17,78	50,00U	0,89	68,40

hep61-3a  $L_{aj}=30, L_r=300, L_{ajdr}=0.10, L_{ajdrn}=0.48, 0' < \phi < 120'$   
 hep60-3R-R

**Relationship brightness  $B^*_{LT}$  and luminance  $L_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=3 \text{ cd/m}^2$**

$$B^*_{LT}(L_T, L_a, \phi) = C_T(\phi)L_T^n - B_0(L_a, \phi) \quad \text{brightness } B^*_{LT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31) \quad [2]$$

$$L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} \quad (\text{=black threshold}) \quad [3]$$

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{LT}$	$L_{LT}$	$L_a/L_{LT}$
3	120'	22.969	0.0718	0.2448	9.55	22.73	0.05	50.79
3	100'	23.128	0.0747	0.2494	9.83	22.67	0.06	47.27
3	90'	23.415	0.1086	0.2526	10.86	22.05	0.08	35.75
3	60'	23.973	0.1313	0.2657	12.10	21.59	0.11	27.18
3	30'	26.235	0.1797	0.3188	16.47	20.40	0.22	13.45
3	20'	27.971	0.2013	0.3555	19.61	19.70	0.31	9.42
3	10'	30.747	0.2730	0.3984	25.61	17.60	0.55	5.40
0,7U 120'		22.969	0.0718	0.2448	9,55	11,36U	0,05	50,79

hep61-5a  $L_{aj}=3, L_r=300, L_{ajdr}=0.01, L_{ajdrn}=0.23, 0' < \phi < 120'$

**Relationship brightness  $B^*_{YT}$  and tristimulus value  $Y_T$  as function of viewing angle  $\phi$  for test equal adaptation luminance  $L_a=3 \text{ cd/m}^2$**

$$B^*_{YT}(L_T, L_a, \phi) = [C_T(\phi)L_T^n - B_0(L_a, \phi)]L_{ra}^n \quad \text{brightness } B^*_{YT} \quad [1]$$

$$B_0(L_a, \phi) = C_T(\phi)[S_0(\phi) + S_1(\phi)L_a^n] \quad (n=0,31, L_{ra}^n=(L_{300}/L_a)^n) \quad [2]$$

$$L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi)L_a^n]^{1/n} L_{ra}^n \quad (\text{=black threshold})$$

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_0(L_a, \phi)$	$B^*_{YT}$	$L_{YT}$	$L_a/L_{YT}$
3	120'	22.969	0.0718	0.2448	9.55	94.76	0.24	50.79
3	100'	23.128	0.0747	0.2494	9.83	94.52	0.26	47.27
3	90'	23.415	0.1086	0.2526	10.86	91.93	0.34	35.75
3	60'	23.973	0.1313	0.2657	12.10	90.02	0.45	27.18
3	30'	26.235	0.1797	0.3188	16.47	85.05	0.92	13.45
3	20'	27.971	0.2013	0.3555	19.61	82.15	1.32	9.42
3	10'	30.747	0.2730	0.3984	25.61	73.39	2.31	5.40
3,5U 120'		22.969	0.0718	0.2448	9,55	50,00U	0,24	50,79

hep61-7a  $L_{aj}=3, L_r=300, L_{ajdr}=0.01, L_{ajdrn}=0.23, 0' < \phi < 120'$   
 hep60-3R-R