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Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=300$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_a, \phi) = C_T(\phi) L_T^n - B_a(L_a, \phi)$  brightness  $B_{YT}^*$  [1]  
 $B_a(L_a, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_a^n]$  (n=0,31) [2]  
 $L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi) L_a^n]^{1/n}$  (=black threshold) [3]

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_a(L_a, \phi)$	$B_{YT}^*$	$L_{LT}$	$L_a/L_T$
831	120°	22.969	0.0718	0.2448	34.60	149.99	3.75	79.99
519	120°	22.969	0.0718	0.2448	34.60	124.99	3.75	79.99
300	120°	22.969	0.0718	0.2448	34.60	99.99	3.75	79.99
154	120°	22.969	0.0718	0.2448	34.60	74.99	3.75	79.99
67	120°	22.969	0.0718	0.2448	34.60	49.99	3.75	79.99
21	120°	22.969	0.0718	0.2448	34.60	24.99	3.75	79.99
3.75	120°	22.969	0.0718	0.2448	34.60	0.00	3.75	79.99
67	120°	22.969	0.0718	0.2448	35.53	49.99	3.75	79.99

hes40-1a j=0,  $L_a=300$ ,  $L_{aj}=300$ ,  $\phi=120^\circ$ ,  $B_a=34.60$ ,  $B_{YT}^*=99.99$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=300$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_a, \phi) = s_{Yra}(\phi) L_T^n - d_{Yra}(\phi)$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31) [2]  
 $s_{Yra}(\phi) = C_T(\phi)$  [3]  $d_{Yra}(\phi) = B_r(L_r, \phi)$  [4] (=s-scaling factor)

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$s_{Yra}(\phi)$	$d_{Yra}(\phi)$
831	120°	22.969	0.0718	0.2448	34.60	149.99	22.969	34.60
519	120°	22.969	0.0718	0.2448	34.60	124.99	22.969	34.60
300	120°	22.969	0.0718	0.2448	34.60	99.99	22.969	34.60
154	120°	22.969	0.0718	0.2448	34.60	74.99	22.969	34.60
67	120°	22.969	0.0718	0.2448	34.60	49.99	22.969	34.60
21	120°	22.969	0.0718	0.2448	34.60	24.99	22.969	34.60
3.75	120°	22.969	0.0718	0.2448	34.60	0.00	22.969	34.60
67	120°	22.969	0.0718	0.2448	35.53	49.99	22.969	34.60

hes40-2a j=0,  $L_r=300$ ,  $L_{aj}=300$ ,  $\phi=120^\circ$ ,  $B_r=34.60$ ,  $B_{YT}^*=99.99$ ,  $s_{Yra}=22.969$ ,  $d_{Yra}=34.60$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=200$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_a, \phi) = C_T(\phi) L_T^n - B_a(L_a, \phi)$  brightness  $B_{YT}^*$  [1]  
 $B_a(L_a, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_a^n]$  (n=0,31) [2]  
 $L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi) L_a^n]^{1/n}$  (=black threshold) [3]

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_a(L_a, \phi)$	$B_{YT}^*$	$L_{LT}$	$L_a/L_T$
552	120°	22.969	0.0718	0.2448	30.71	131.98	2.55	78.36
346	120°	22.969	0.0718	0.2448	30.71	109.99	2.55	78.36
200	120°	22.969	0.0718	0.2448	30.71	87.99	2.55	78.36
103	120°	22.969	0.0718	0.2448	30.71	65.99	2.55	78.36
44	120°	22.969	0.0718	0.2448	30.71	43.99	2.55	78.36
14	120°	22.969	0.0718	0.2448	30.71	21.99	2.55	78.36
2.55	120°	22.969	0.0718	0.2448	30.71	0.00	2.55	78.36
44	120°	22.969	0.0718	0.2448	31.54	43.99	2.55	78.36

hes41-1a j=2,  $L_a=300$ ,  $L_{aj}=200$ ,  $\phi=120^\circ$ ,  $B_a=30.71$ ,  $B_{YT}^*=87.99$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=200$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, \phi) = s_{Yra}(\phi) L_T^n - d_{Yra}(\phi)$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31,  $B_{ra}^*=B_{YT}^*/B_{LT,ra}^*$ ) [2]  
 $s_{Yra}(\phi) = C_T(\phi)$  [3]  $d_{Yra}(\phi) = B_r(L_r, \phi)$  [4] (=s-scaling factor)

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$s_{Yra}(\phi)$	$d_{Yra}(\phi)$
552	120°	22.969	0.0718	0.2448	30.71	131.98	22.969	30.71
346	120°	22.969	0.0718	0.2448	30.71	109.99	22.969	30.71
200	120°	22.969	0.0718	0.2448	30.71	87.99	22.969	30.71
103	120°	22.969	0.0718	0.2448	30.71	65.99	22.969	30.71
44	120°	22.969	0.0718	0.2448	30.71	43.99	22.969	30.71
14	120°	22.969	0.0718	0.2448	30.71	21.99	22.969	30.71
2.55	120°	22.969	0.0718	0.2448	30.71	0.00	22.969	30.71
44	120°	22.969	0.0718	0.2448	31.54	43.99	22.969	30.71

hes41-2a j=2,  $L_r=300$ ,  $L_{aj}=200$ ,  $\phi=120^\circ$ ,  $B_r=30.71$ ,  $B_{YT}^*=87.99$ ,  $s_{Yra}=22.969$ ,  $d_{Yra}=30.71$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=300$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, L_r, \phi) = [C_T(\phi) L_T^n - B_r(L_r, \phi)] B_{ra}^*$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31,  $B_{ra}^*=B_{YT}^*/B_{LT,ra}^*$ ) [2]  
 $L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi) L_r^n]^{1/n} B_{ra}^*$  (=black threshold) [3]

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$L_{YT}$	$L_a/L_T$
831	120°	22.969	0.0718	0.2448	34.60	149.99	3.75	79.99
519	120°	22.969	0.0718	0.2448	34.60	124.99	3.75	79.99
300	120°	22.969	0.0718	0.2448	34.60	99.99	3.75	79.99
154	120°	22.969	0.0718	0.2448	34.60	74.99	3.75	79.99
67	120°	22.969	0.0718	0.2448	34.60	49.99	3.75	79.99
21	120°	22.969	0.0718	0.2448	34.60	24.99	3.75	79.99
3.75	120°	22.969	0.0718	0.2448	34.60	0.00	3.75	79.99
67	120°	22.969	0.0718	0.2448	35.53	49.99	3.75	79.99

hes40-3a j=0,  $L_r=300$ ,  $L_{aj}=300$ ,  $\phi=120^\circ$ ,  $B_r=34.60$ ,  $B_{YT}^*=99.99$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=300$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, L_r, \phi) = s_{Yra}(\phi) L_T^n - d_{Yra}(\phi)$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31,  $B_{ra}^*=B_{YT}^*/B_{LT,ra}^*$ ) [2]  
 $s_{Yra}(\phi) = C_T(\phi) B_{ra}^*$  [3]  $d_{Yra}(\phi) = B_r(L_r, \phi) B_{ra}^*$  [4] (=s-scaling factor)

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$s_{Yra}(\phi)$	$d_{Yra}(\phi)$
831	120°	22.969	0.0718	0.2448	34.60	149.99	22.969	34.60
519	120°	22.969	0.0718	0.2448	34.60	124.99	22.969	34.60
300	120°	22.969	0.0718	0.2448	34.60	99.99	22.969	34.60
154	120°	22.969	0.0718	0.2448	34.60	74.99	22.969	34.60
67	120°	22.969	0.0718	0.2448	34.60	49.99	22.969	34.60
21	120°	22.969	0.0718	0.2448	34.60	24.99	22.969	34.60
3.75	120°	22.969	0.0718	0.2448	34.60	0.00	22.969	34.60
67	120°	22.969	0.0718	0.2448	35.53	49.99	22.969	34.60

hes40-4a j=0,  $L_r=300$ ,  $L_{aj}=300$ ,  $\phi=120^\circ$ ,  $B_r=34.60$ ,  $B_{YT}^*=99.99$ ,  $s_{Yra}=22.969$ ,  $d_{Yra}=34.60$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=200$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, L_r, \phi) = [C_T(\phi) L_T^n - B_r(L_r, \phi)] B_{ra}^*$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31,  $B_{ra}^*=B_{YT}^*/B_{LT,ra}^*$ ) [2]  
 $L_{YT}(L_a, \phi) = [S_0(\phi) + S_1(\phi) L_r^n]^{1/n} B_{ra}^*$  (=black threshold) [3]

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$L_{YT}$	$L_a/L_T$
628	120°	22.969	0.0718	0.2448	34.60	149.99	2.90	78.36
393	120°	22.969	0.0718	0.2448	34.60	124.99	2.90	78.36
227	120°	22.969	0.0718	0.2448	34.60	99.99	2.90	78.36
117	120°	22.969	0.0718	0.2448	34.60	74.99	2.90	78.36
51	120°	22.969	0.0718	0.2448	34.60	49.99	2.90	78.36
16	120°	22.969	0.0718	0.2448	34.60	24.99	2.90	78.36
2.55	120°	22.969	0.0718	0.2448	34.60	0.00	2.90	78.36
51	120°	22.969	0.0718	0.2448	35.53	49.99	2.90	78.36

hes41-3a j=2,  $L_r=300$ ,  $L_{aj}=200$ ,  $\phi=120^\circ$ ,  $B_r=34.60$ ,  $B_{YT}^*=95.57$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=200$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, L_r, \phi) = s_{Yra}(\phi) L_T^n - d_{Yra}(\phi)$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31,  $B_{ra}^*=B_{YT}^*/B_{LT,ra}^*$ ) [2]  
 $s_{Yra}(\phi) = C_T(\phi) B_{ra}^*$  [3]  $d_{Yra}(\phi) = B_r(L_r, \phi) B_{ra}^*$  [4] (=s-scaling factor)

$Y_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$s_{Yra}(\phi)$	$d_{Yra}(\phi)$
628	120°	22.969	0.0718	0.2448	34.60	149.99	26.10	34.90
393	120°	22.969	0.0718	0.2448	34.60	124.99	26.10	34.90
227	120°	22.969	0.0718	0.2448	34.60	99.99	26.10	34.90
117	120°	22.969	0.0718	0.2448	34.60	74.99	26.10	34.90
51	120°	22.969	0.0718	0.2448	34.60	49.99	26.10	34.90
16	120°	22.969	0.0718	0.2448	34.60	24.99	26.10	34.90
2.90	120°	22.969	0.0718	0.2448	34.60	0.00	26.10	34.90
51	120°	22.969	0.0718	0.2448	35.53	49.99	26.10	34.90

hes41-4a j=2,  $L_r=300$ ,  $L_{aj}=200$ ,  $\phi=120^\circ$ ,  $B_r=34.60$ ,  $B_{YT}^*=95.57$ ,  $s_{Yra}=26.10$ ,  $d_{Yra}=34.90$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=1000$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_a, \phi) = C_T(\phi) L_T^n - B_a(L_a, \phi)$  brightness  $B_{YT}^*$  [1]  
 $B_a(L_a, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_a^n]$  (n=0,31) [2]  
 $L_{LT}(L_a, \phi) = [S_0(\phi) + S_1(\phi) L_a^n]^{1/n}$  (=black threshold) [3]

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_a(L_a, \phi)$	$B_{YT}^*$	$L_{LT}$	$L_a/L_T$
2782	120°	22.969	0.0718	0.2448	49.51	218.98	11.91	83.94
1736	120°	22.969	0.0718	0.2448	49.51	182.48	11.91	83.94
1000	120°	22.969	0.0718	0.2448	49.51	145.98	11.91	83.94
513	120°	22.969	0.0718	0.2448	49.51	109.49	11.91	83.94
221	120°	22.969	0.0718	0.2448	49.51	72.99	11.91	83.94
70	120°	22.969	0.0718	0.2448	49.51	36.49	11.91	83.94
11.91	120°	22.969	0.0718	0.2448	49.51	0.00	11.91	83.94
221	120°	22.969	0.0718	0.2448	50.82	72.99	11.91	83.94

hes40-5a j=1,  $L_a=300$ ,  $L_{aj}=1000$ ,  $\phi=120^\circ$ ,  $B_a=49.51$ ,  $B_{YT}^*=145.98$

Relationship brightness  $B_{YT}^*$  and luminance  $L_T$  as function of tristimulus value  $Y_T$  for the adaptation luminance  $L_a=1000$  cd/m<sup>2</sup>

$B_{YT}^*(L_T, L_r, \phi) = s_{Yra}(\phi) L_T^n - d_{Yra}(\phi)$  brightness  $B_{YT}^*$  [1]  
 $B_r(L_r, \phi) = C_T(\phi) [S_0(\phi) + S_1(\phi) L_r^n]$  (n=0,31) [2]  
 $s_{Yra}(\phi) = C_T(\phi)$  [3]  $d_{Yra}(\phi) = B_r(L_r, \phi)$  [4] (=s-scaling factor)

$L_T$	$\phi$	$C_T(\phi)$	$S_0(\phi)$	$S_1(\phi)$	$B_r(L_r, \phi)$	$B_{YT}^*$	$s_{Yra}(\phi)$	$d_{Yra}(\phi)$
2782	120°	22.969	0.0718	0.2448	49.51	218.98	22.969	49.51
1736	120°	22.969	0.0718	0.2448	49.51	182.48	22.969	49.51
1000	120°	22.969	0.0718	0.2448	49.51	145.98	22.969	49.51
513	120°	22.969	0.0718	0.2448	49.51	109.49	22.969	49.51
221	120°	22.969	0.0718	0.2448	49.51	72.99	22.969	49.51
70	120°	22.969	0.0718					