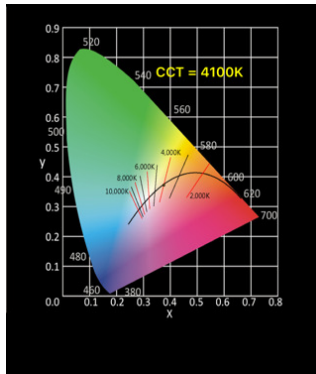
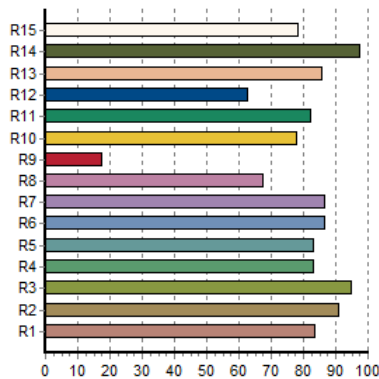


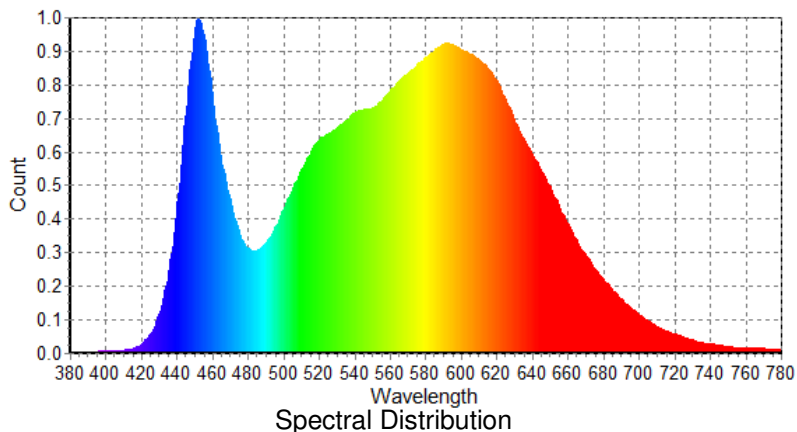
# Report of Photometry & Chromaticity for Morgan Hope Industries Ltd. COLT LEDLITE-ECO - LED OPAL AMENITY LUMINAIRE



CIE1931 Chromaticity Diagram



Histogram Diagram of CRI


















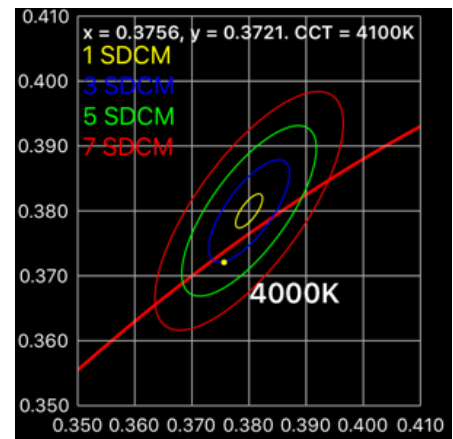
## A. Product Description

Product Name	colt ledlite-eco	Sample Number	COLT LEDLITE-ECO
Date	15-08-2016		
Manufacturer	Morgan Hope Industries Ltd		
Tester	lightlab photometrics	Reviewer	KB
Temperature	25degC	Re. Humidity(%)	51
Spectrum Range	380 ~ 780 nm.	Wavelength Step	1 nm.

## C. Photometry and Chromaticity

CIE_x	0.3756	Dv	-0.0008
CIE_y	0.3721	Ld(nm)	579.1
CIE_u'	0.2238	Purity(%)	24.0
CIE_v'	0.4988	FWHM(nm)	27.8
CCT(K)	4100	SP ratio	1.74
Luminaire lumens	1520	PPFD(umol/sec m^2)	
Lp(nm)	452.0		10.5
TLCI(Qa)	70.92	GAI	75.8

CRI(Ra)		85	Re(thru R1~R15)		79
Qa		84			
 R1	84.0	 R6	87.0	 R11	82.7
 R2	91.2	 R7	87.0	 R12	63.2
 R3	95.3	 R8	68.0	 R13	86.0
 R4	83.6	 R9	18.0	 R14	97.6
 R5	83.7	 R10	78.1	 R15	78.5



IEC SDCM

filename : COLT-LEDLITE-ECO.LDT  
 meas. number : 2004  
 luminaire number : COLT-LEDLITE-ECO  
 date / operator : 15-08-2016

**default lamp type(s)**

no of lamps	lamp type	luminaire lumens	input wattage
1	LED MODULE	1520 lm	14.5 W

**dimensions**

luminaire		luminous area	
diameter	: 320 mm	diameter	: 260 mm
height	: 90 mm	height	: 30 mm

**coordinate system**

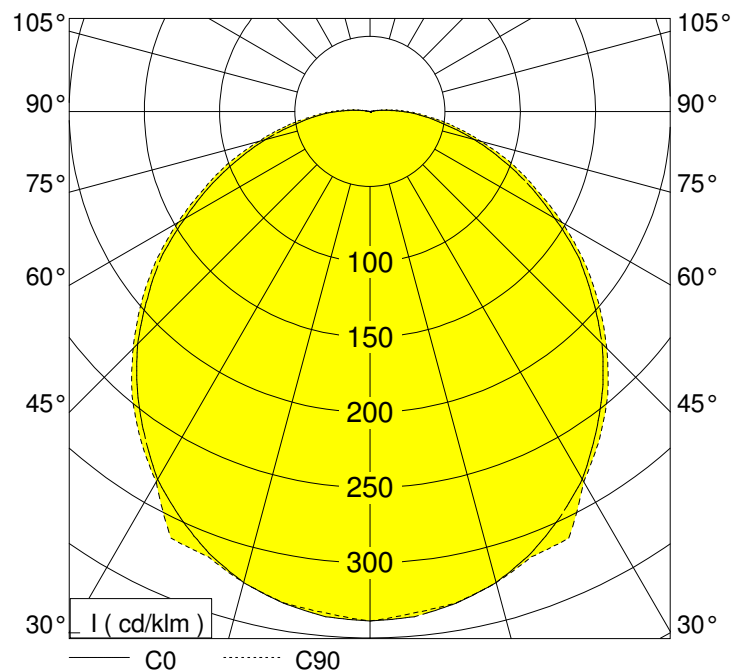
no of planes	: 7	samples / plane	: 37
first c-plane	: 0.0 °	first gamma-angle	: 0.0 °
step angle	: 15.0 °	step angle	: 5.0 °
last c-plane	: 90.0 °	last gamma-angle	: 180.0 °
symmetrics	: symmetry to C0 / C90		

**performance**

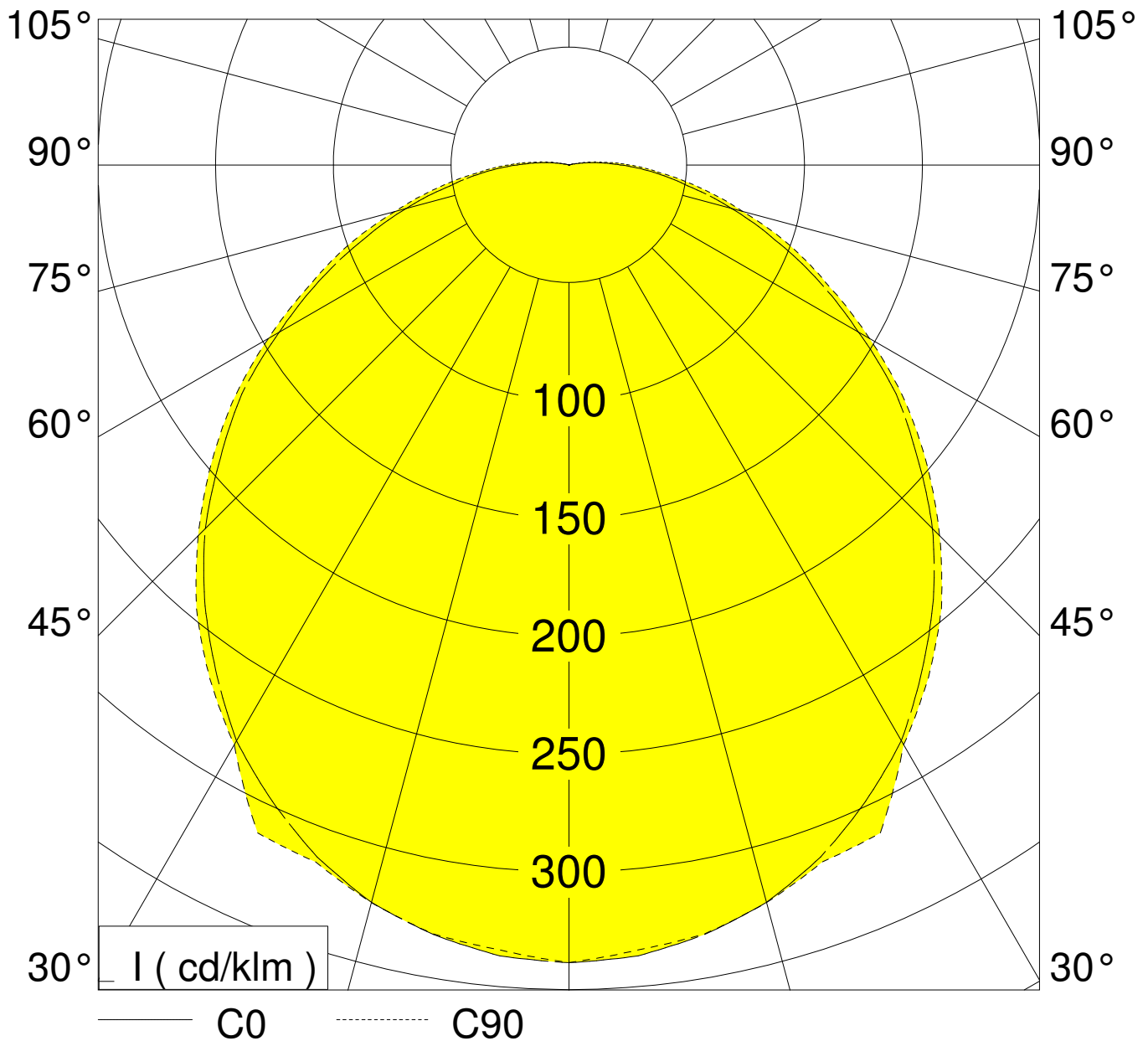
light output ratio	: 100.0 %
DFF	: 98.5 %
UFF	: 1.5 %

**classification**

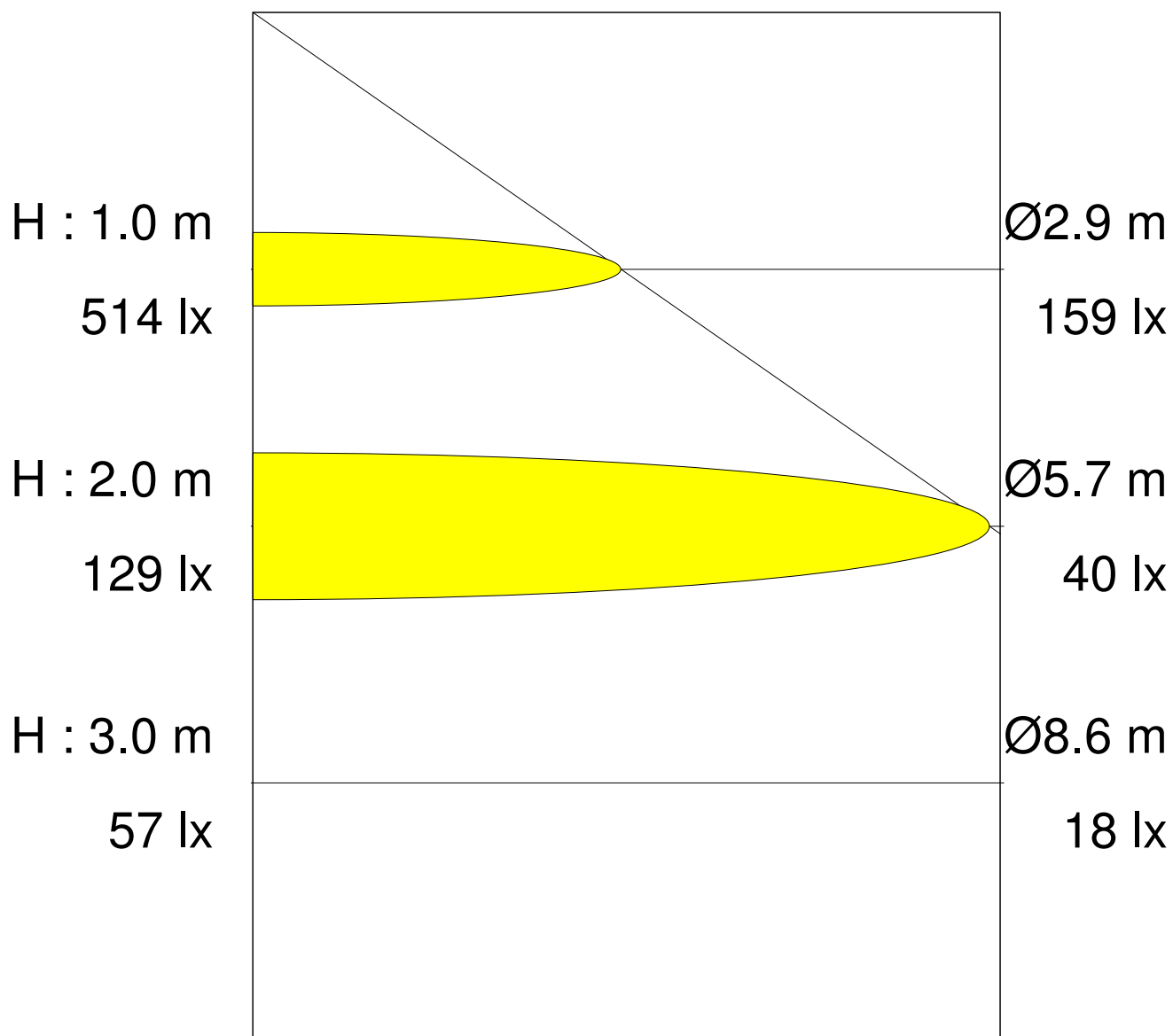
LiTG / DIN	: A41
UTE	: 0.98E+0.02T
CIE	: 46 76 93 98 100
BZ	: 4 5 5 5 5 5 5 5 5
Ambient Temperature	: 25 degC
Input Voltage	: 240 V
Circuit Watts	: 14.5W
Amps (running)	: 0.116A
V.A.	: 27.88VA
Power Factor	: 0.52
CCT	: 4100K (measured): 4000K (declared)
CRI (Ra)	: 85
Luminaire Lumens	: 1520 LLm
Output Current DC	: 340mA
Output Voltage DC	: 34.9V
Output Power	: 11.87W
Luminaire Lm/circ.Watt	: 104.8 Lm/circ.Watt
Driver Efficiency	: 82%
Driver Details	: ECOPAC ECP15-350IL



Measurements made are in absolute units. The luminaire is treated as if it was a lamp as it is not possible to measure each LED separately - hence an LOR of 100%  
The Light output ratio in real terms would be less than 100%. If it was possible to compare real LED lumens with the total output from the luminaire we could obtain an actual LOR  
This also means that the total lumens emitted from the LED's would be greater than the Luminaire Lumens measured. In reality the LED lumens would approximate to this value divided by the actual Light Output.



Half peak divergence :  $110.2^{\circ}$



	C 0.0	C 15.0	C 30.0	C 45.0	C 60.0	C 75.0	C 90.0
0.0°	338.30	338.30	338.30	338.30	338.30	338.30	338.30
5.0°	336.70	335.70	334.80	335.80	336.80	335.50	334.20
10.0°	331.40	330.50	329.60	330.60	331.50	331.40	331.20
15.0°	323.80	323.00	322.20	322.70	323.10	323.50	323.90
20.0°	312.30	311.80	311.30	312.20	313.10	313.80	314.50
25.0°	297.80	297.60	297.40	299.60	301.90	307.30	312.60
30.0°	282.00	280.70	279.30	280.70	282.20	283.10	284.00
35.0°	261.30	261.60	261.80	263.70	265.60	265.70	265.70
40.0°	240.50	240.90	241.20	242.70	244.20	245.00	245.80
45.0°	218.10	217.60	217.10	218.70	220.40	221.40	222.40
50.0°	192.90	193.50	194.10	195.20	196.30	197.40	198.40
55.0°	169.40	169.40	169.30	166.90	164.40	169.10	173.80
60.0°	141.80	142.30	142.80	144.30	145.80	146.50	147.30
65.0°	117.20	117.50	117.80	119.80	121.80	121.70	121.70
70.0°	93.10	93.70	94.30	96.00	97.70	98.70	99.80
75.0°	71.60	71.60	71.60	73.10	74.60	75.50	76.30
80.0°	51.30	52.00	52.60	53.60	54.60	55.80	57.00
85.0°	36.10	36.60	37.20	38.00	38.90	39.00	39.20
90.0°	21.90	21.70	21.40	22.60	23.70	24.70	25.70
95.0°	11.00	11.50	11.90	11.90	12.00	12.90	13.90
100.0°	3.30	3.10	3.00	3.80	4.60	5.30	6.00
105.0°	0.70	0.70	0.80	0.70	0.50	0.50	0.50
110.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.0°	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	cd / klm						

glare rating according to UGR											
ρ -ceiling		70	70	50	50	30	70	70	50	50	30
ρ -walls		50	30	50	30	30	50	30	50	30	30
ρ -workplane		20	20	20	20	20	20	20	20	20	20
room dimensions X                      Y		viewed crosswise					viewed endwise				
2H	2H	19.4	20.9	19.6	21.1	21.3	19.5	21.0	19.8	21.2	21.5
	3H	20.3	21.5	20.6	21.7	21.9	20.5	21.7	20.8	21.9	22.1
	4H	21.0	22.1	21.3	22.4	22.6	21.2	22.4	21.5	22.6	22.8
	6H	21.5	22.6	21.9	22.9	23.2	21.8	22.9	22.2	23.2	23.4
	8H	21.8	22.9	22.2	23.2	23.5	22.1	23.2	22.5	23.5	23.8
	12H	22.1	23.2	22.4	23.4	23.7	22.4	23.5	22.8	23.8	24.1
4H	2H	19.5	20.6	19.8	20.9	21.1	19.6	20.7	19.9	21.0	21.2
	3H	21.3	22.4	21.7	22.7	23.0	21.5	22.6	21.9	22.9	23.2
	4H	22.2	23.3	22.6	23.6	23.9	22.5	23.5	22.8	23.8	24.1
	6H	22.7	23.6	23.1	23.9	24.3	23.0	23.9	23.4	24.2	24.6
	8H	23.1	23.9	23.5	24.3	24.6	23.4	24.2	23.8	24.6	24.9
	12H	23.5	24.3	24.0	24.7	25.2	23.9	24.6	24.3	25.1	25.5
8H	4H	22.4	23.2	22.8	23.6	24.0	22.6	23.4	23.0	23.8	24.2
	6H	23.6	24.3	24.0	24.8	25.2	23.8	24.6	24.3	25.0	25.5
	8H	24.1	24.8	24.6	25.3	25.8	24.4	25.1	24.9	25.6	26.1
	12H	24.4	25.0	24.9	25.5	26.0	24.7	25.3	25.2	25.8	26.4
12H	4H	22.6	23.4	23.1	23.8	24.3	22.8	23.6	23.3	24.0	24.5
	6H	23.8	24.5	24.3	25.0	25.5	24.0	24.8	24.5	25.2	25.8
	8H	24.2	24.8	24.7	25.3	25.8	24.4	25.1	25.0	25.5	26.1
variation of observer position											
S =	1.0H	+0.1/                      -0.1				+0.1/                      -0.1					
	1.5H	+0.2/                      -0.3				+0.2/                      -0.3					
	2.0H	+0.3/                      -0.5				+0.3/                      -0.5					
standard-table		BK06					BK07				
correction for luminaire		6.6					7.3				
correct glare indices for a total flux of 1520lm											

class		glare rating for service value of illuminance (lx)								
A	A	1000	750	500	--	≤ 300				
1	B	2000	1500	1000	750	500	≤ 300			
2	D					2000	1000	500	≤ 300	
3	E						2000	1000	500	≤ 300

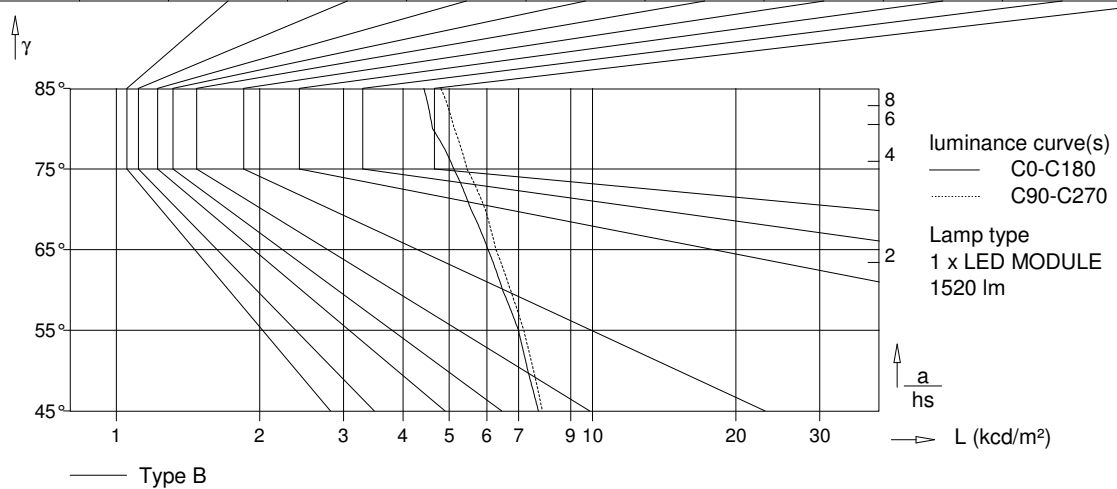


Tabelle der berechneten Leuchtdichten

gamma	C 0	C 90	C 180	C 270
45°	7699.2	7851.0	7699.2	7851.0
50°	7311.4	7519.9	7311.4	7519.9
55°	6988.9	7170.5	6988.9	7170.5
60°	6472.3	6723.3	6472.3	6723.3
65°	6037.3	6269.1	6037.3	6269.1
70°	5552.0	5951.6	5552.0	5951.6
75°	5115.3	5451.1	5115.3	5451.1
80°	4613.7	5126.3	4613.7	5126.3
85°	4426.0	4806.1	4426.0	4806.1

alle Werte in cd/m²

<b>utilization factors / TM5</b>											
reflection			room index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	20	58	67	74	79	86	91	94	99	101
70	30	20	51	59	66	72	79	85	89	94	98
70	10	20	45	53	61	66	74	80	84	90	94
50	50	20	57	64	71	76	82	87	90	94	97
50	30	20	50	58	65	70	77	82	86	91	94
50	10	20	45	52	60	65	72	78	82	87	91
30	50	20	55	62	69	73	79	83	86	90	93
30	30	20	49	56	63	68	75	79	83	87	90
30	10	20	45	52	59	64	71	76	80	85	88
0	0	0	42	49	56	61	67	72	75	80	83
BZ-class			4	5	5	5	5	5	5	5	5
SHRnom : 1.50						SHRmax : 1.582					



