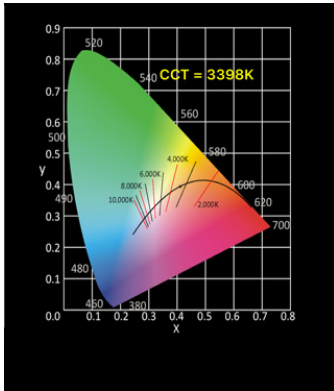


Report of Photometry & Chromaticity for NVC Lighting Ltd. NDE15/835 DENALI LED OPAL AMENITY LUMINAIRE



A. Product Description

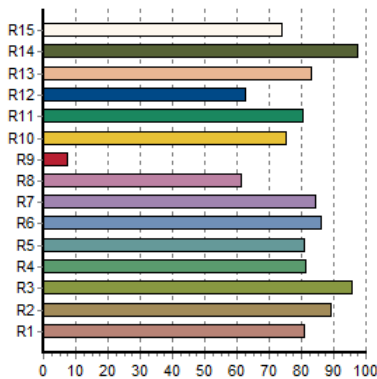
Product Name	Denali LED OPAL Amenity	NDE15/835
Date	27-04-2017	
Manufacturer	NVC Lighting Ltd	
Tester	lightlab photometrics	Reviewer KB
Temperature	25degC	Re. Humidity(%) 53
Spectrum Range : 380 ~ 780 nm.	Wavelength Step : 1 nm.	



CIE1931 Chromaticity Diagram

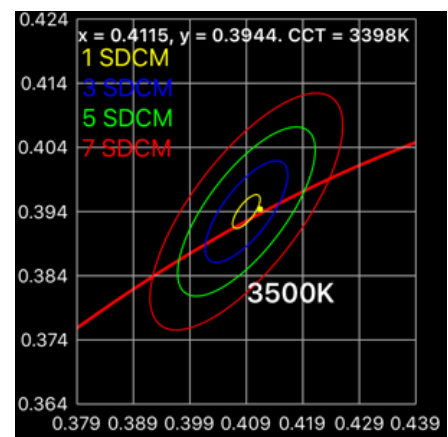
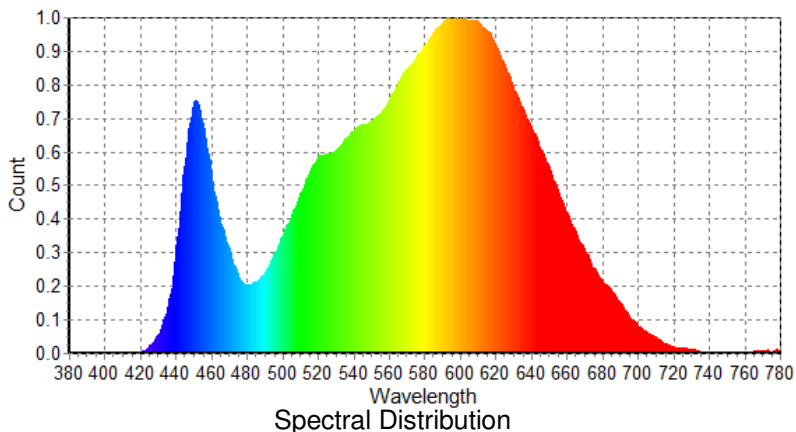
C. Photometry and Chromaticity

CIE_x	0.4115	Δv	0.0003
CIE_y	0.3944	Ld(nm)	581.1
CIE_u'	0.2382	Purity(%)	42.0
CIE_v'	0.5137	FWHM(nm)	143.0
CCT(K)	3398	SP ratio	1.48
Luminaire lumens	1450	PPFD(umol/sec m^2)	
Lp(nm)	600.0		0.3
TLCI(Qa)	68.83	GAI	62.7



Histogram Diagram of CRI

CRI(Ra)		83	Re(thru R1~R15)		76
Qa		83			
 R1	81.4	 R6	86.4	 R11	80.9
 R2	89.7	 R7	84.7	 R12	62.9
 R3	96.0	 R8	61.9	 R13	83.4
 R4	81.6	 R9	7.7	 R14	97.9
 R5	81.1	 R10	75.7	 R15	74.3



IEC SDCM

filename : DNDE15-835.LDT
 meas. number : 2247
 luminaire number : NDE15/835
 date / operator : 26-04-2017

**default lamp type(s)**

no of lamps	lamp type	luminaire lumens	input wattage
1	LED MODULE	1450 lm	17.7 W

dimensions

luminaire		luminous area	
diameter	: 275 mm	diameter	: 230 mm
height	: 75 mm	height	: 20 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

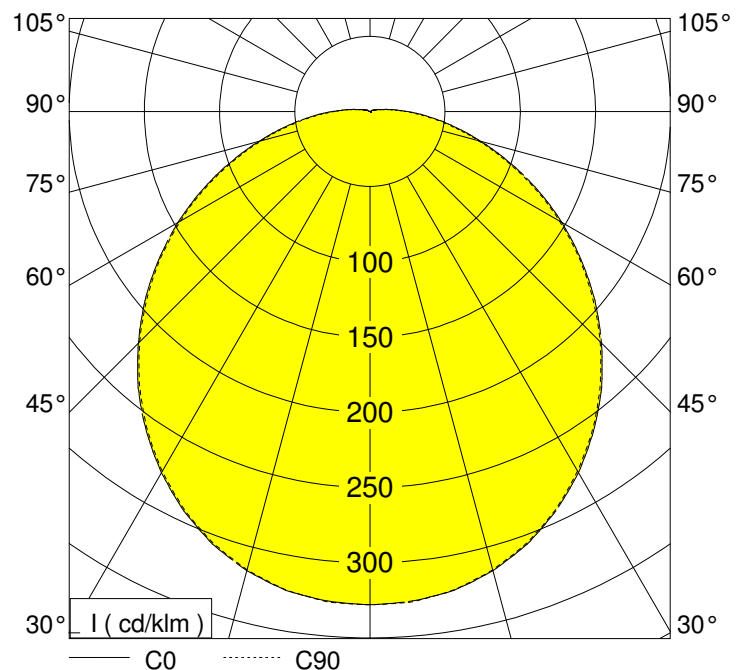
light output ratio : 100.0 %
 DFF : 97.6 %
 UFF : 2.4 %

classification

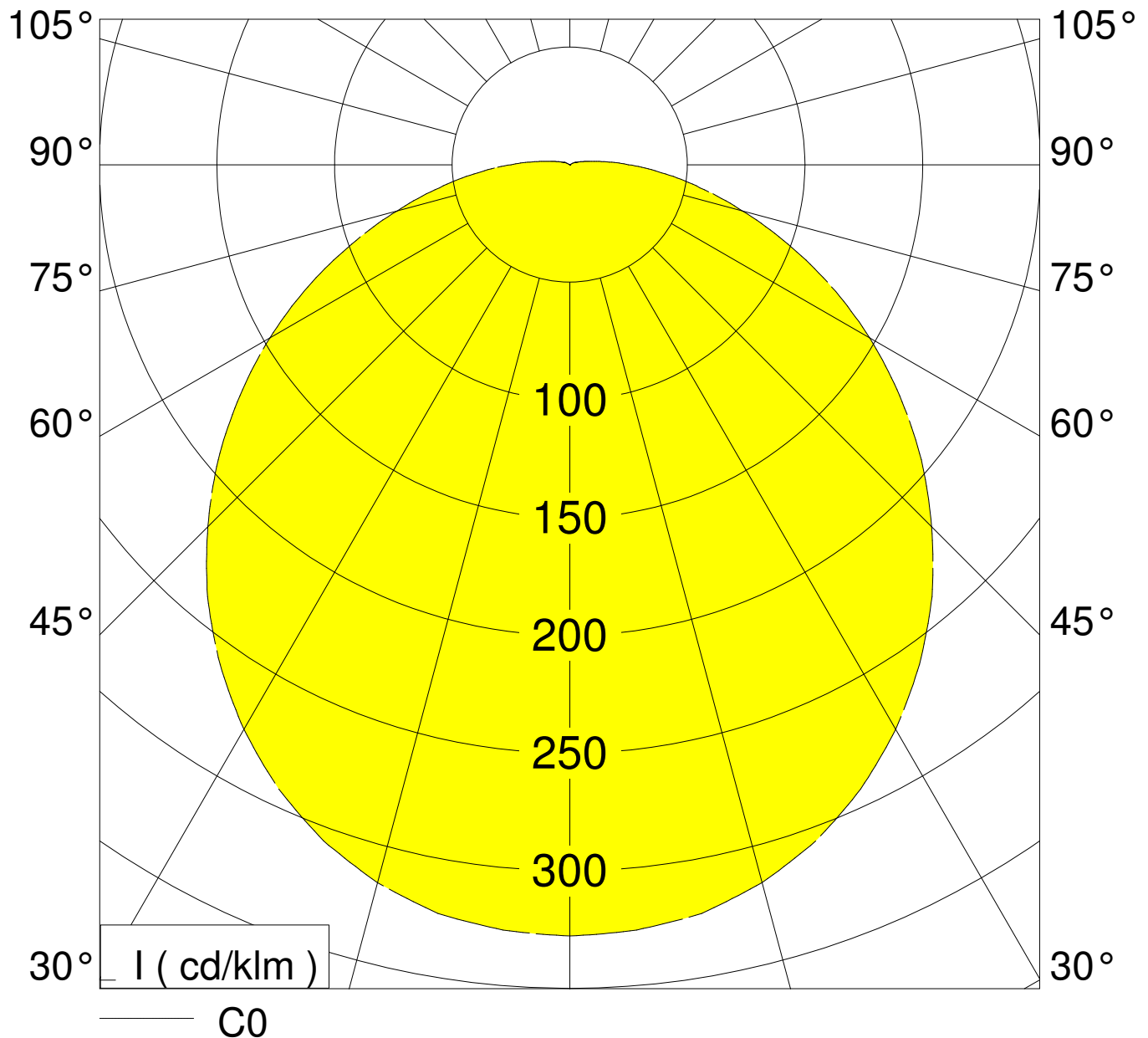
LiTG / DIN : A41
 : 0.98E+0.02T
 UTE : 45 75 93 98 100
 CIE : 4 5 5 5 5 5 5 5 5

BZ

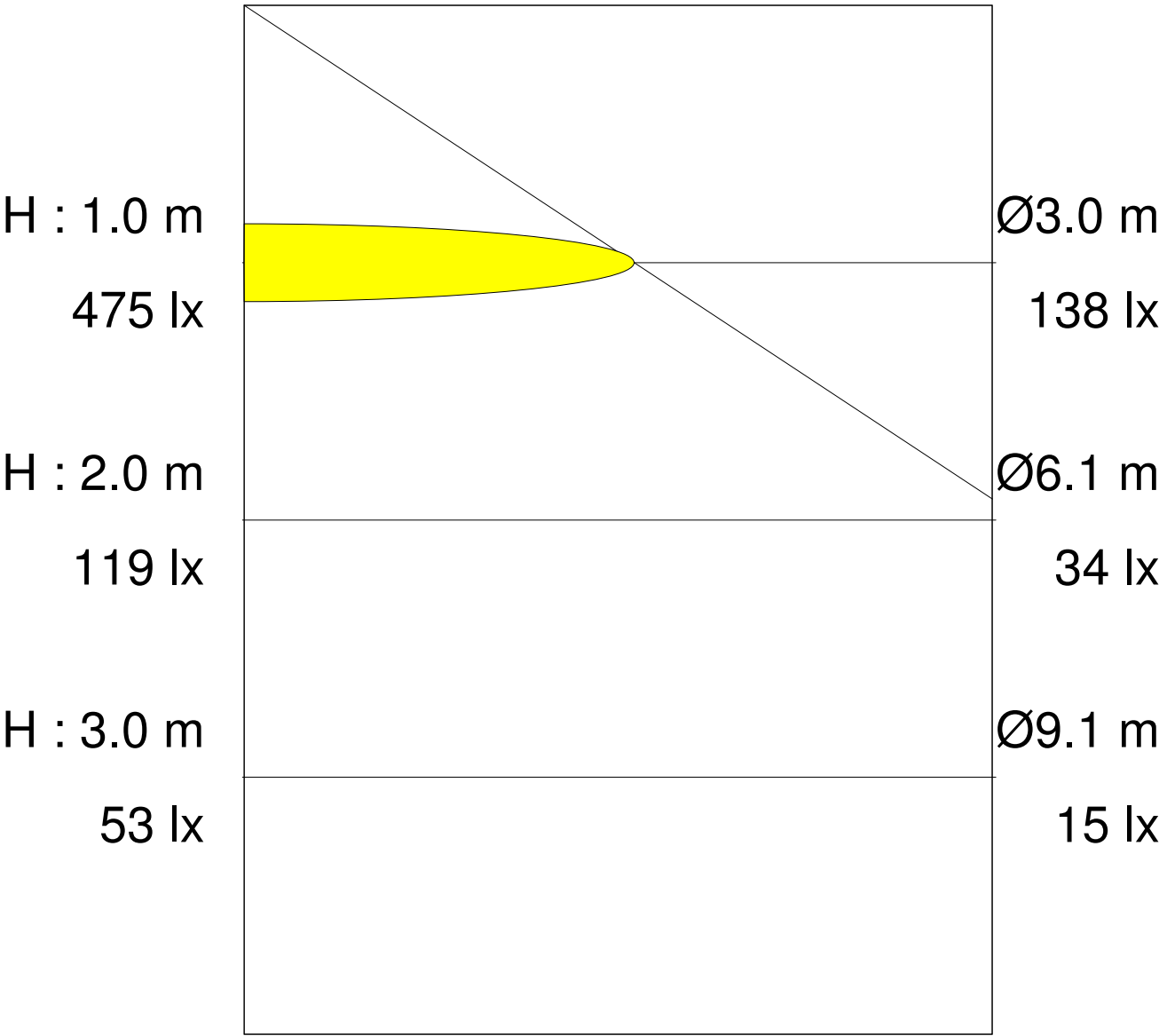
Ambient Temperature : 25 degC
 Input Voltage : 240 V
 Circuit Watts : 17.7W
 Amps (running) : 0.079A
 V.A. : 19.13VA
 Power Factor : 0.93
 CCT : 3398K (measured): 3500K (declared)
 CRI (Ra) : 83
 Luminaire Lumens : 1450 LLm
 Output Current DC : 480mA
 Output Voltage DC : 29.9V
 Output Power : 14.35W
 Luminaire Lm/circ.Watt : 82Lm/circ.Watt
 Driver Efficiency : 81%
 Driver Details : NVC CN22-10-001



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 : 113.2°



	C 0.0	C 15.0	C 30.0	C 45.0	C 60.0	C 75.0	C 90.0
0.0°	327.50	327.50	327.50	327.50	327.50	327.50	327.50
5.0°	326.20	326.40	326.60	326.50	326.50	326.70	326.80
10.0°	322.80	322.70	322.60	322.40	322.30	322.40	322.40
15.0°	315.60	315.50	315.40	315.20	315.00	315.10	315.10
20.0°	305.60	305.30	305.00	304.90	304.80	304.80	304.80
25.0°	292.50	292.30	292.00	291.80	291.50	291.60	291.70
30.0°	276.90	276.60	276.20	276.00	275.80	275.80	275.70
35.0°	259.00	258.60	258.20	257.90	257.60	257.80	257.90
40.0°	239.40	238.80	238.20	238.00	237.90	237.90	237.90
45.0°	217.40	217.00	216.60	216.30	215.90	216.00	216.20
50.0°	195.00	194.40	193.80	193.50	193.20	193.20	193.30
55.0°	171.10	170.60	170.10	169.70	169.30	169.50	169.70
60.0°	147.10	146.30	145.60	145.40	145.10	145.20	145.30
65.0°	122.70	122.00	121.30	120.90	120.60	120.80	121.00
70.0°	98.60	98.00	97.40	97.10	96.90	96.90	96.90
75.0°	76.00	75.50	75.10	74.60	74.10	74.30	74.50
80.0°	56.20	55.50	54.80	54.50	54.20	54.30	54.40
85.0°	39.20	38.70	38.20	37.50	36.90	37.20	37.40
90.0°	25.00	24.70	24.40	24.10	23.80	23.80	23.80
95.0°	14.90	14.80	14.70	14.20	13.80	13.90	14.10
100.0°	8.20	8.20	8.20	7.90	7.50	7.60	7.70
105.0°	5.10	4.90	4.70	4.50	4.40	4.40	4.40
110.0°	3.10	3.10	3.10	3.10	3.00	3.00	3.00
115.0°	2.30	2.40	2.50	2.50	2.60	2.60	2.60
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	20.3	21.8	20.6	22.0	22.3	20.2	21.7	20.5	22.0	22.2
	3H	21.4	22.5	21.6	22.7	23.0	21.3	22.5	21.6	22.7	22.9
	4H	22.1	23.2	22.4	23.5	23.7	22.0	23.2	22.3	23.4	23.7
	6H	22.7	23.8	23.1	24.1	24.4	22.6	23.7	23.0	24.0	24.3
	8H	23.1	24.1	23.4	24.4	24.7	23.0	24.0	23.3	24.3	24.6
	12H	23.4	24.4	23.7	24.7	25.0	23.2	24.3	23.6	24.6	24.9
4H	2H	20.5	21.6	20.8	21.8	22.1	20.4	21.6	20.7	21.8	22.1
	3H	22.4	23.5	22.7	23.8	24.1	22.3	23.4	22.7	23.7	24.0
	4H	23.4	24.4	23.7	24.7	25.1	23.3	24.3	23.7	24.7	25.0
	6H	23.9	24.8	24.3	25.2	25.5	23.9	24.7	24.3	25.1	25.4
	8H	24.3	25.1	24.7	25.5	25.9	24.2	25.0	24.6	25.4	25.8
	12H	24.8	25.6	25.3	26.0	26.5	24.7	25.5	25.2	25.9	26.4
8H	4H	23.5	24.4	24.0	24.7	25.2	23.5	24.3	23.9	24.7	25.1
	6H	24.8	25.5	25.3	26.0	26.5	24.7	25.5	25.2	25.9	26.4
	8H	25.3	26.1	25.9	26.6	27.1	25.3	26.0	25.8	26.5	27.0
	12H	25.7	26.3	26.2	26.8	27.4	25.6	26.2	26.1	26.7	27.3
12H	4H	23.8	24.6	24.2	25.0	25.5	23.7	24.5	24.2	24.9	25.4
	6H	25.0	25.7	25.5	26.2	26.8	24.9	25.7	25.4	26.2	26.7
	8H	25.4	26.0	26.0	26.6	27.1	25.3	26.0	25.9	26.5	27.0
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		BK07					BK07				
correction for luminaire		8.2					8.2				
correct glare indices for a total flux of 1450lm											

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

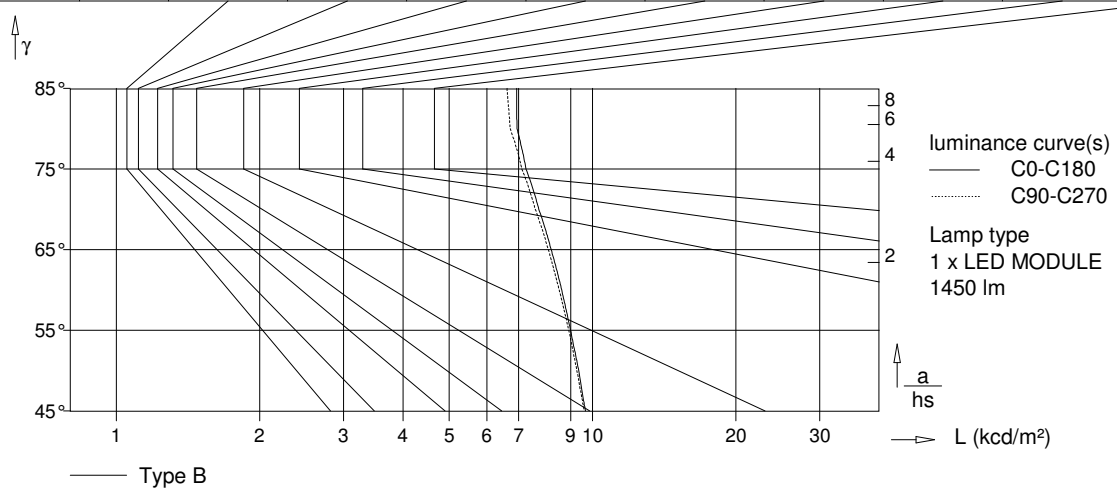


Table of intensities

gamma	C 0	C 90	C 180	C 270
45°	9660.4	9607.0	9660.4	9607.0
50°	9353.3	9271.7	9353.3	9271.7
55°	8989.3	8915.8	8989.3	8915.8
60°	8615.4	8509.9	8615.4	8509.9
65°	8188.4	8074.9	8188.4	8074.9
70°	7714.5	7581.5	7714.5	7581.5
75°	7251.6	7108.5	7251.6	7108.5
80°	6938.4	6716.2	6938.4	6716.2
85°	6928.7	6610.5	6928.7	6610.5

all values in cd/m²

utilization factors / TM5											
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	66	73	78	85	90	94	98	101
70	30	20	50	58	66	71	79	84	88	94	97
70	10	20	45	52	60	65	74	79	84	90	94
50	50	20	56	64	70	75	82	86	89	94	96
50	30	20	49	57	64	69	76	81	85	90	93
50	10	20	44	52	59	64	72	77	81	87	90
30	50	20	54	61	68	72	78	83	86	89	92
30	30	20	48	55	62	67	74	79	82	86	89
30	10	20	44	51	58	63	70	75	79	84	87
0	0	0	41	48	55	59	66	71	74	79	82
BZ-class			4	5	5	5	5	5	5	5	5
SHRnom : 1.50						SHRmax : 1.605					

