



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440220 RIO 20W 4000K 2000lm

Luminaire:

Report No:

Voltage(V): 230.2700

Test No: KYZ-A251020063-02-002

Current(A): 0.0900

LampCAT: LED

Power (W): 20.0000

Lamp flux(lm): -1.0

PF: 0.9655

Number of Lamps: 1

Ballast type:

Length(mm): -175

Width(mm): -175

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2000.00

Efficiency(%): 100.00%

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 1015.745

Maximum intensity(cd): 1030.478

Angle of maximum intensity: C=45.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=83.4

[C90/270]Total=83.2

Field angle(10%Imax): [C0/180]Total=140.1

[C90/270]Total=138.4

Maximum s/h(1/2): C0_180=1.09 C90_270=1.16

Maximum s/h(1/4): C0_180=1.15 C90_270=1.21

Up flux rate of lamp(%): 0.91%

Down flux rate of lamp(%): 99.09%

Up flux rate of LUM(%): 0.91%

Down flux rate of LUM(%): 99.09%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 86.536%

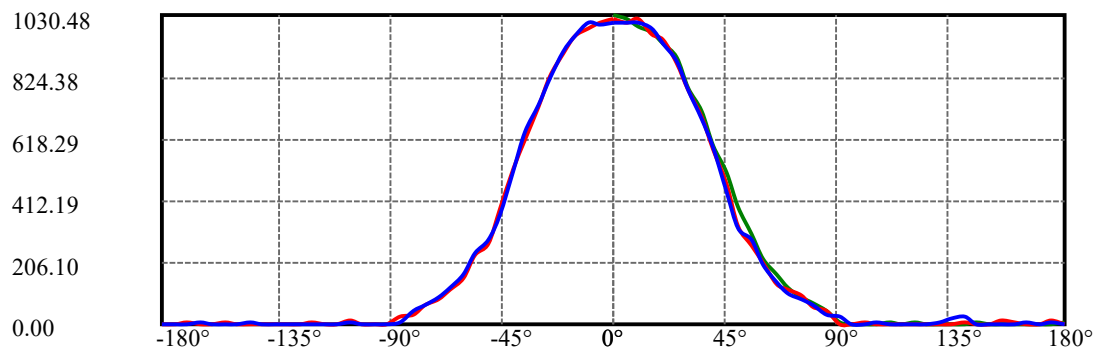
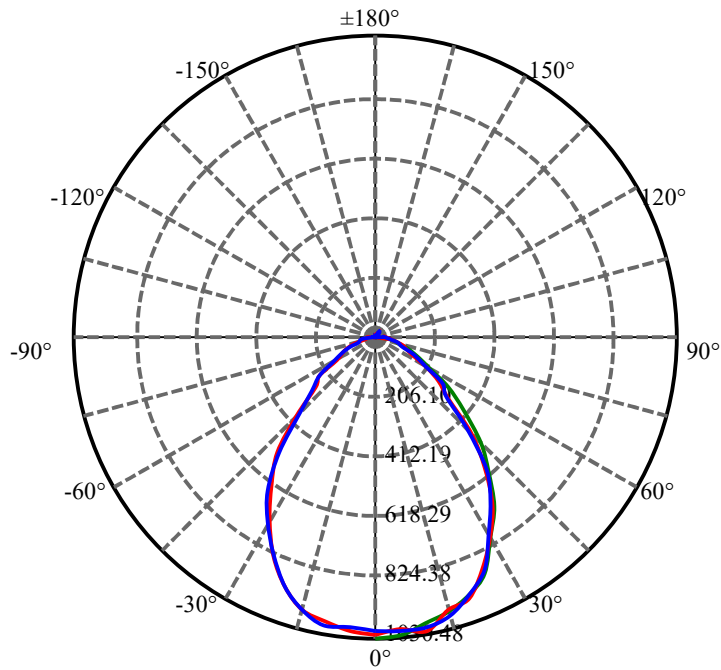
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1070.688	0.000	0	.000%	.000%
5.0	1059.336	24.213	24.213	.000%	1.211%
10.0	1052.342	71.831	96.044	.000%	4.802%
15.0	1018.396	116.801	212.845	.000%	10.642%
20.0	968.525	155.707	368.553	.000%	18.428%
25.0	892.724	185.622	554.175	.000%	27.709%
30.0	793.574	202.921	757.095	.000%	37.855%
35.0	693.026	208.160	965.255	.000%	48.263%
40.0	581.287	202.167	1167.422	.000%	58.371%
45.0	455.615	182.561	1349.982	.000%	67.499%
50.0	338.873	152.653	1502.635	.000%	75.132%
55.0	269.905	125.867	1628.502	.000%	81.425%
60.0	195.125	102.211	1730.713	.000%	86.536%
65.0	143.264	78.222	1808.935	.000%	90.447%
70.0	105.928	59.998	1868.933	.000%	93.447%
75.0	81.881	46.679	1915.612	.000%	95.780%
80.0	58.586	35.739	1951.351	.000%	97.567%
85.0	26.253	21.921	1973.271	.000%	98.663%
90.0	6.456	8.516	1981.787	.000%	99.089%
95.0	0.915	1.919	1983.706	.000%	99.185%
100.0	4.411	1.376	1985.082	.000%	99.254%
105.0	4.573	2.286	1987.368	.000%	99.368%
110.0	2.959	1.872	1989.24	.000%	99.462%
115.0	2.905	1.412	1990.652	.000%	99.532%
120.0	2.098	1.157	1991.809	.000%	99.590%
125.0	1.937	0.887	1992.696	.000%	99.635%
130.0	0.915	0.590	1993.285	.000%	99.664%
135.0	2.206	0.600	1993.885	.000%	99.694%
140.0	4.896	1.250	1995.135	.000%	99.757%
145.0	3.335	1.306	1996.441	.000%	99.822%
150.0	1.829	0.723	1997.164	.000%	99.858%
155.0	3.873	0.686	1997.85	.000%	99.892%
160.0	2.582	0.644	1998.494	.000%	99.925%
165.0	3.443	0.472	1998.966	.000%	99.948%
170.0	5.864	0.525	1999.491	.000%	99.974%
175.0	6.187	0.410	1999.901	.000%	99.995%
180.0	2.798	0.102	2000.003	.000%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	757.10	N.A.	37.85%
0-40	1167.42	N.A.	58.37%
0-60	1730.71	N.A.	86.54%
0-90	1981.79	N.A.	99.09%
0-120	1991.81	N.A.	99.59%
0-180	2000.00	N.A.	100.00%
60-90	353.29	N.A.	17.66%
90-120	18.54	N.A.	0.93%
90-130	20.01	N.A.	1.00%
90-150	23.89	N.A.	1.19%
90-180	26.63	N.A.	1.33%
0-53.87	1600.00	N.A.	80.00%

ZONAL LUMEN SUMMARY

0-10	96.04
10-20	272.51
20-30	388.54
30-40	410.33
40-50	335.21
50-60	228.08
60-70	138.22
70-80	82.42
80-90	30.44
90-100	3.29
100-110	4.16
110-120	2.57
120-130	1.48
130-140	1.85
140-150	2.03
150-160	1.33
160-170	1.00
170-180	0.41

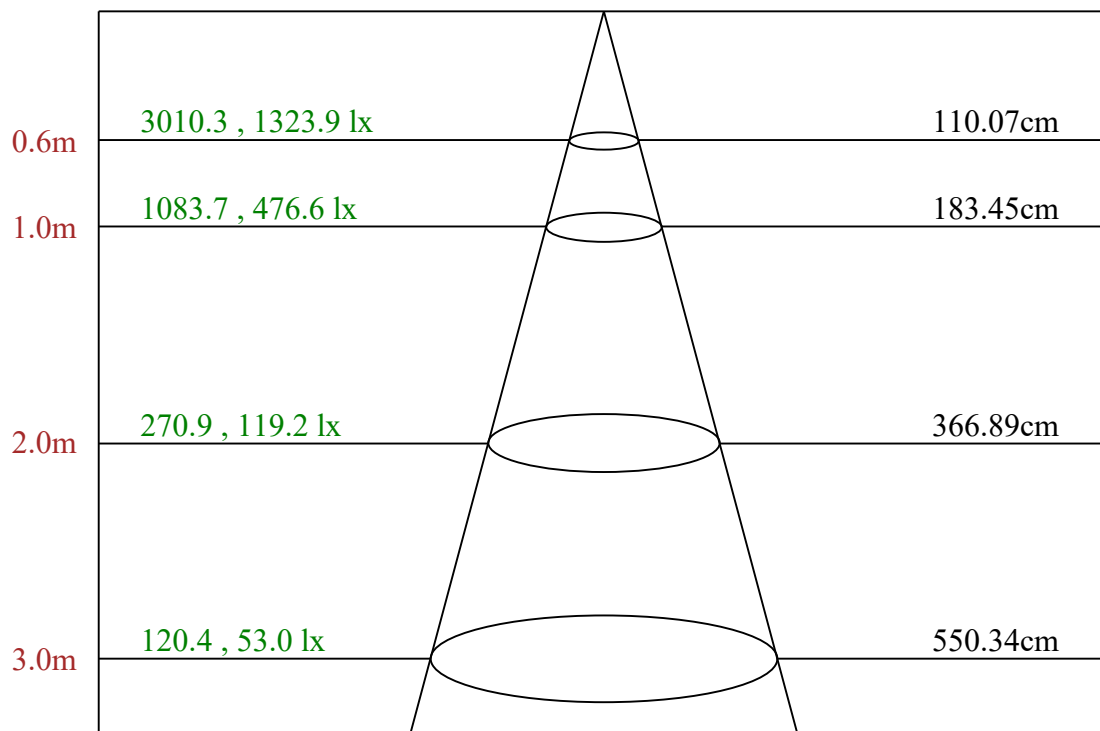
C45(Max): C0/C180: C90/C270: 

Field angle(10%Imax):C0/180Left:77.2 Right:62.9

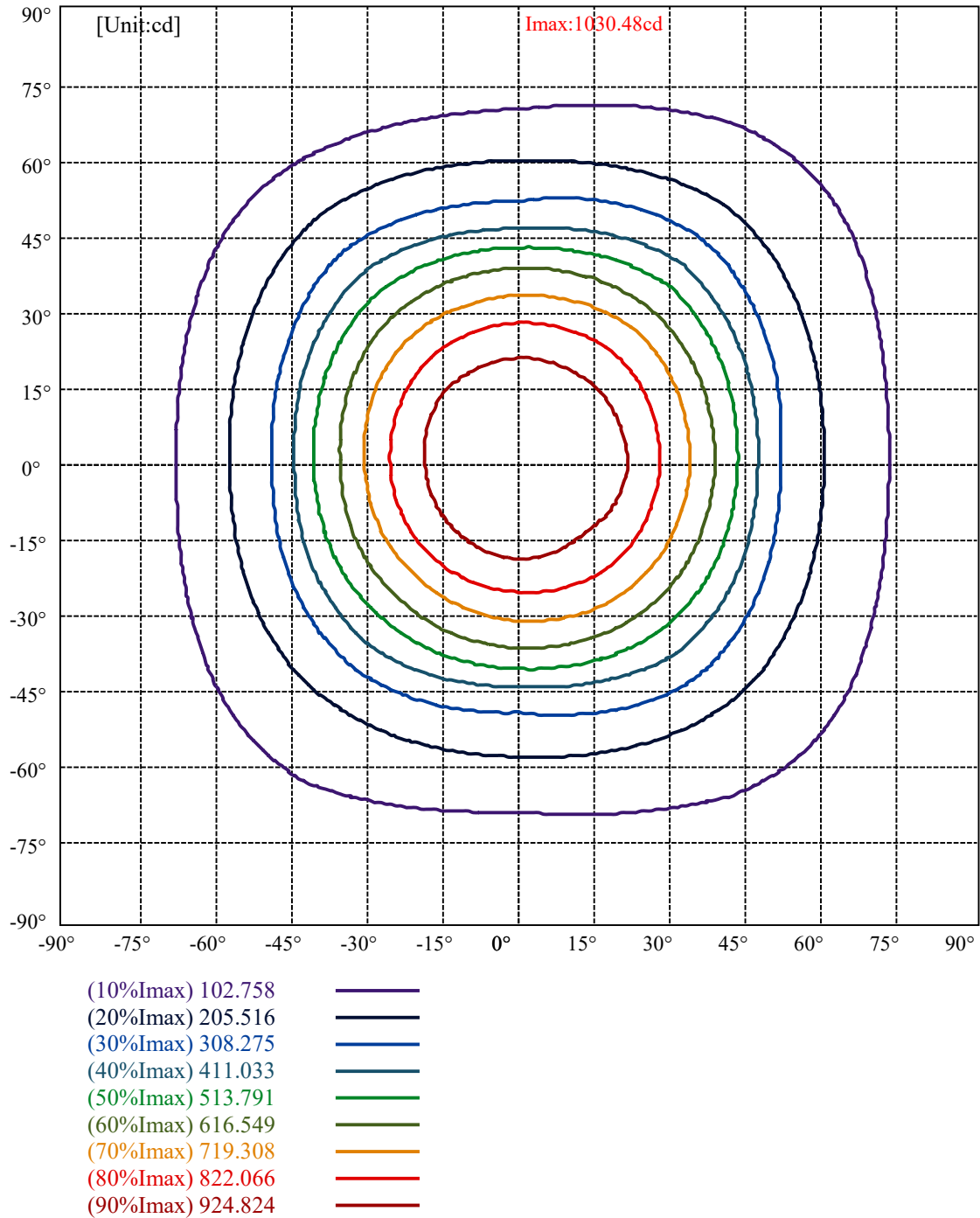
:C90/270Left:73.3 Right:65.1

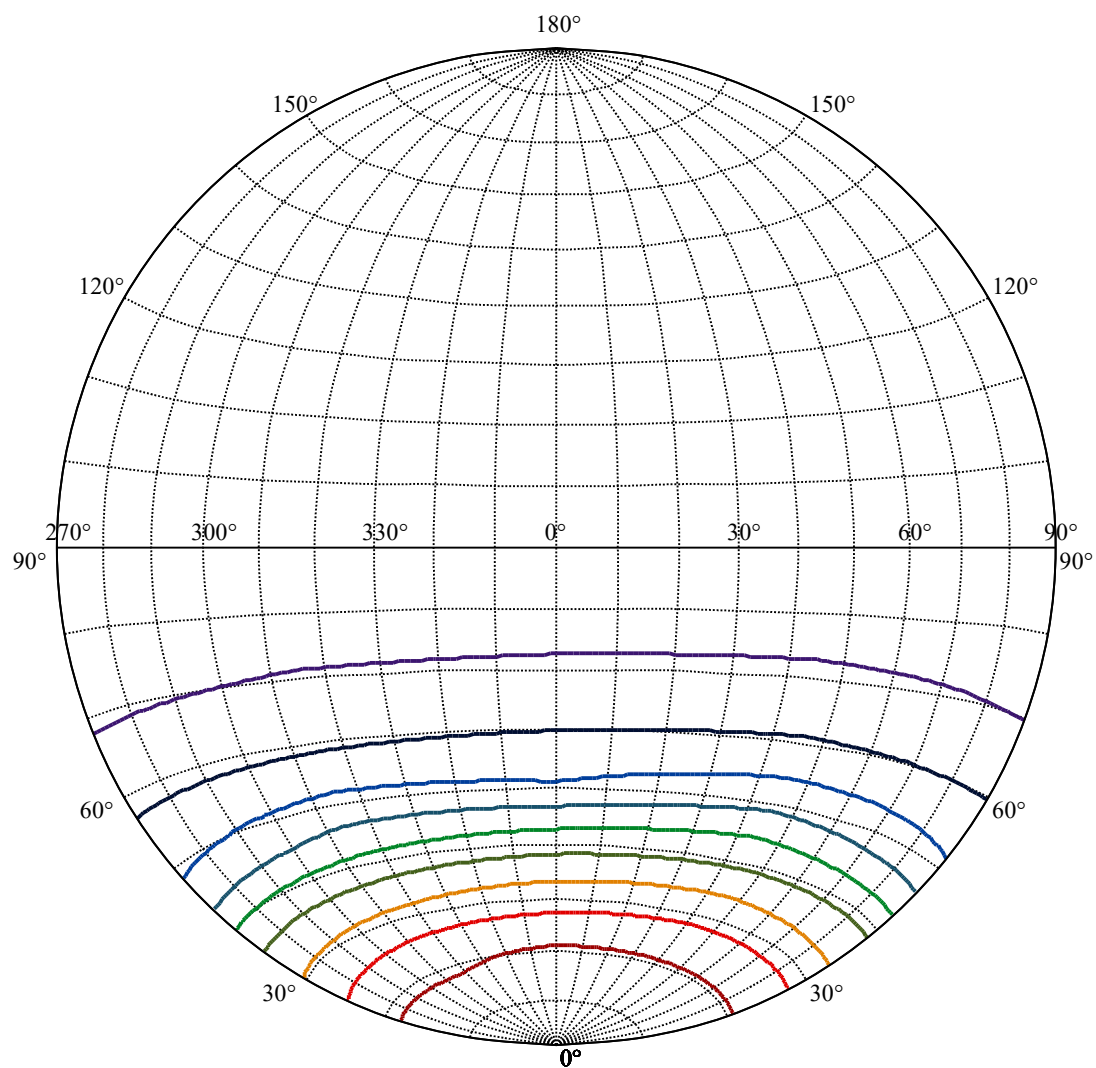
Beam Angle(50%Imax):C0/180Left:50.3 Right:33.1

:C90/270Left:45.3 Right:37.9



Max , Ave Beam angle of C45 plane 85.06





House

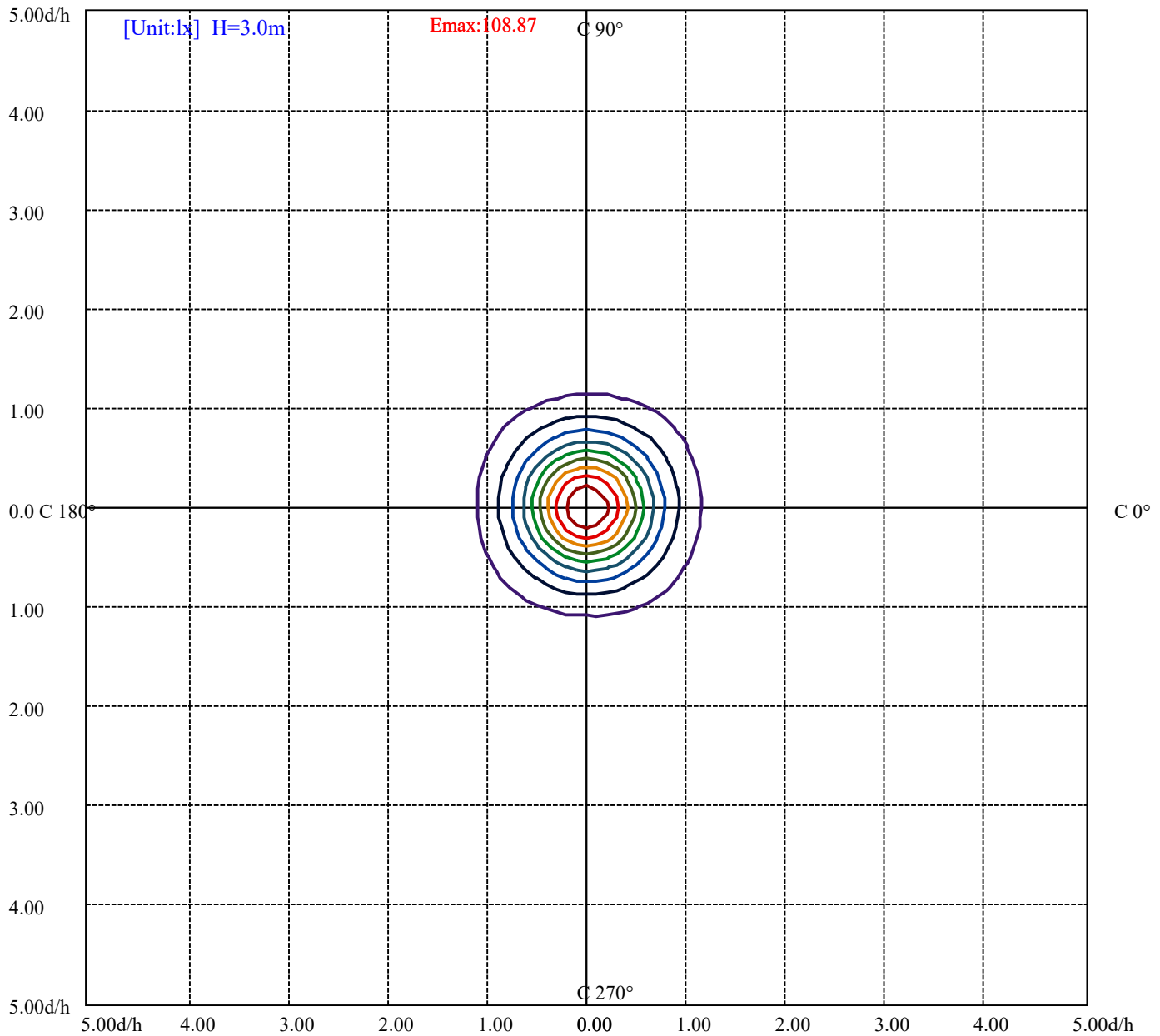
[Unit:cd]

Road

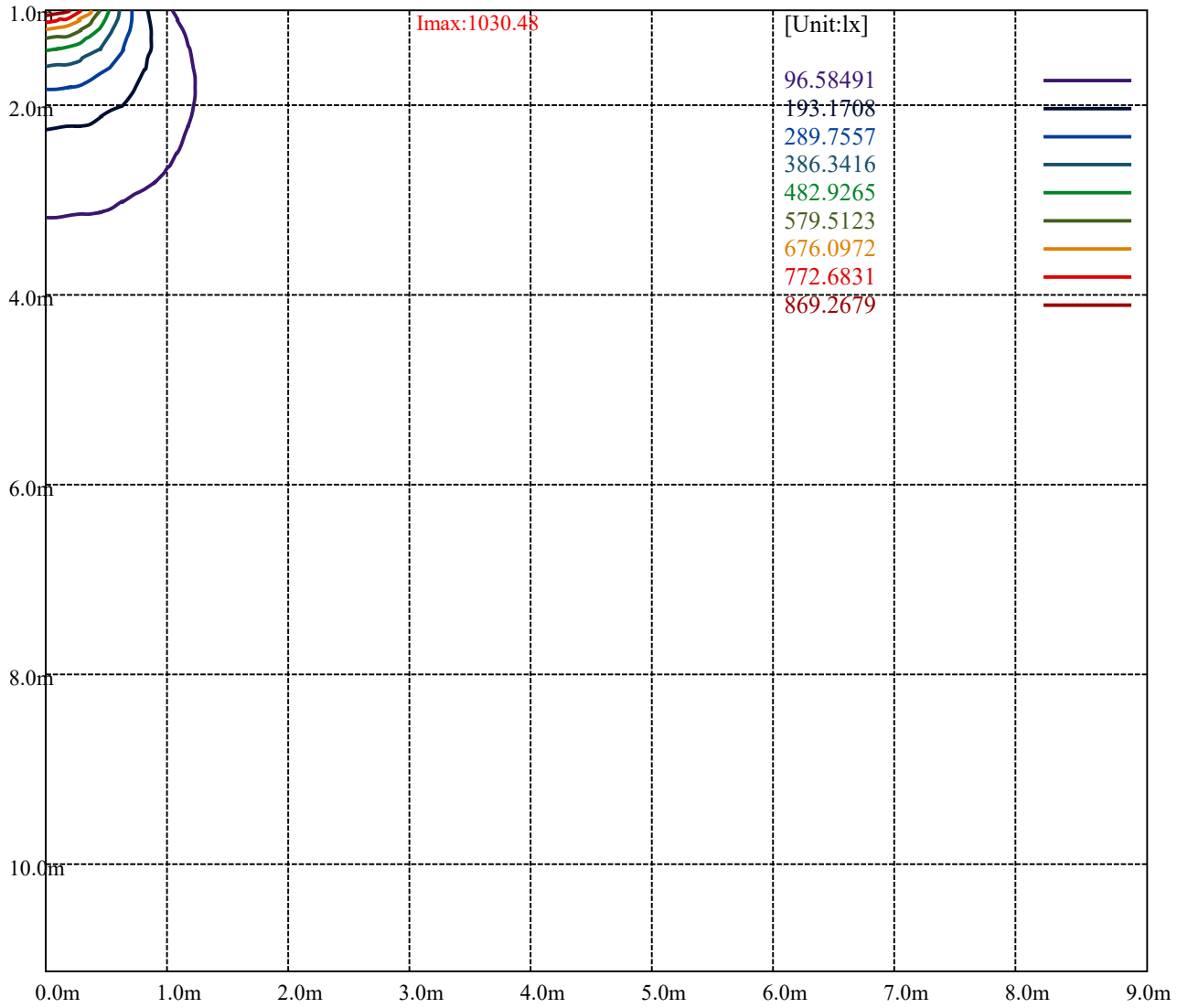
Imax:1030.48

(10%Imax) 97.9865
(20%Imax) 195.973
(30%Imax) 293.9586
(40%Imax) 391.9451
(50%Imax) 489.9316
(60%Imax) 587.9181
(70%Imax) 685.9036
(80%Imax) 783.8902
(90%Imax) 881.8766





(10%Emax)	10.88739	—
(20%Emax)	21.77467	—
(30%Emax)	32.66207	—
(40%Emax)	43.54935	—
(50%Emax)	54.43674	—
(60%Emax)	65.32402	—
(70%Emax)	76.21141	—
(80%Emax)	87.09869	—
(90%Emax)	97.98608	—



Luminance Table

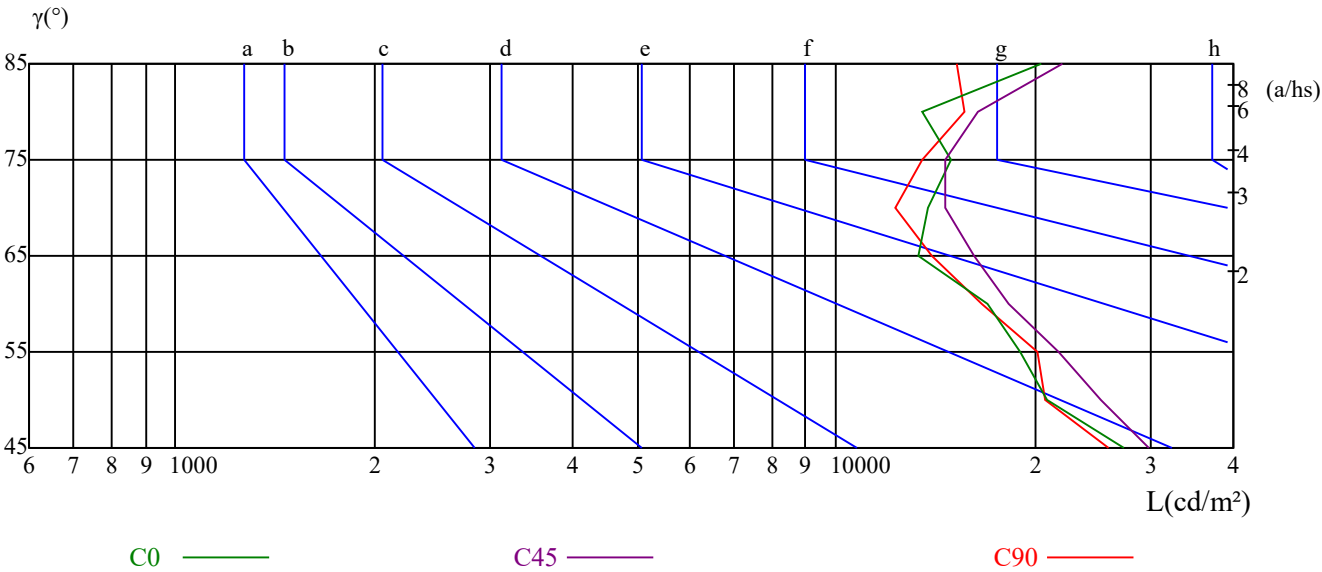
γ	45	50	55	60	65	70	75	80	85
C0	27334	20911	19074	16980	13366	13830	14923	13522	20498
C45	29861	25252	21803	18273	16144	14675	14660	16363	22060
C90	25939	20779	20260	16606	13970	12287	13542	15677	15227

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
12319	12923	14181	12753	11932	12671	15813	9468	11176

Glare Table

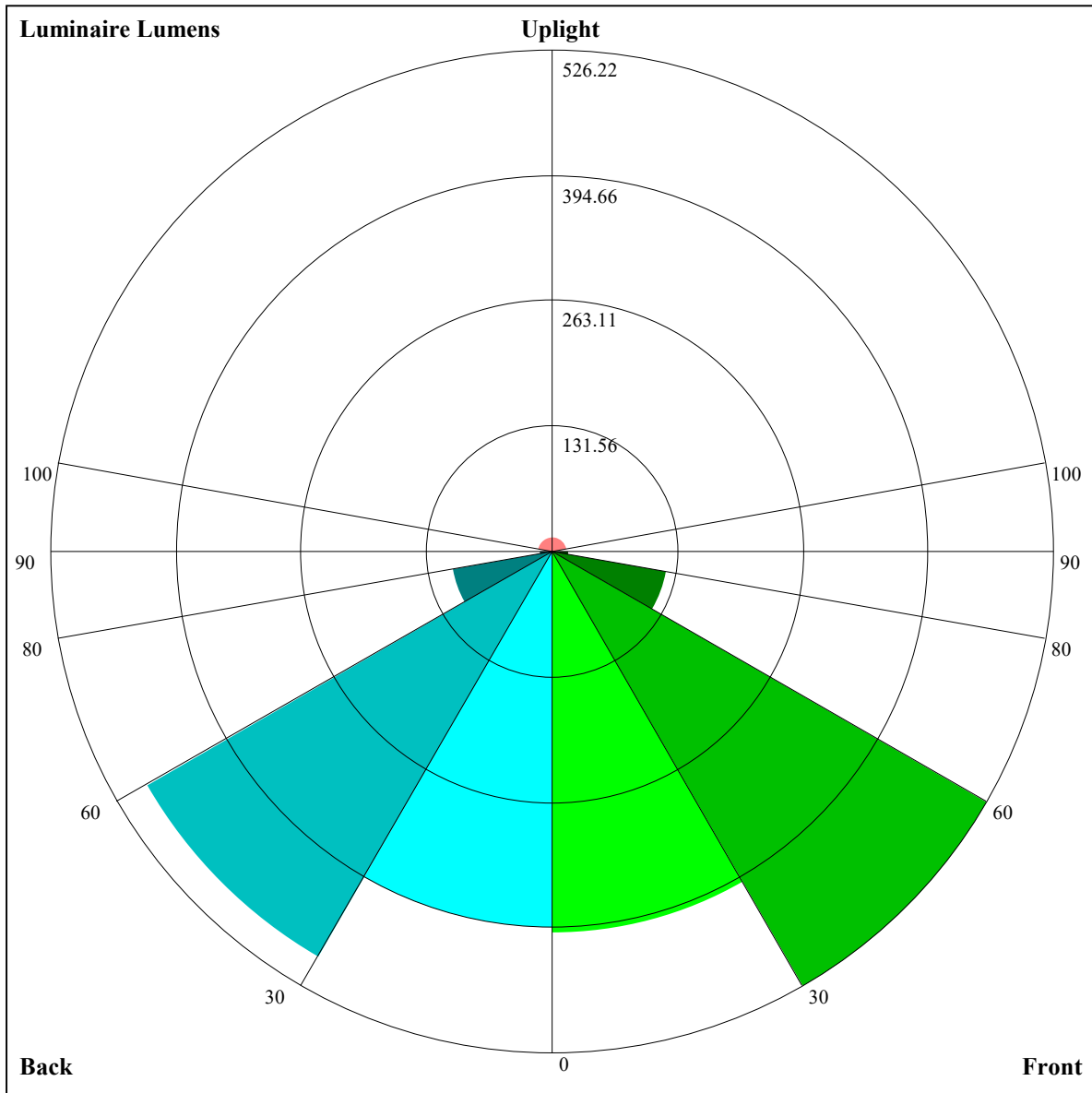
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	18.09	19.53	18.47	19.86	20.20	18.11	19.55	18.49	19.88	20.22
	3H	19.04	20.33	19.43	20.68	21.05	19.00	20.29	19.39	20.64	21.01
	4H	19.56	20.77	19.97	21.14	21.52	19.44	20.65	19.85	21.02	21.41
	6H	20.03	21.14	20.45	21.53	21.95	19.97	21.09	20.39	21.48	21.89
	8H	20.22	21.29	20.64	21.69	22.11	20.18	21.26	20.61	21.66	22.08
	12H	20.45	21.48	20.88	21.88	22.31	20.34	21.37	20.77	21.77	22.20
4H	2H	18.55	19.76	18.96	20.13	20.51	18.57	19.77	18.98	20.15	20.53
	3H	19.70	20.72	20.13	21.13	21.56	19.65	20.67	20.08	21.07	21.51
	4H	20.42	21.32	20.87	21.75	22.21	20.29	21.19	20.74	21.63	22.09
	6H	21.00	21.79	21.47	22.26	22.72	20.95	21.75	21.43	22.21	22.68
	8H	21.29	22.04	21.78	22.50	22.99	21.27	22.01	21.76	22.48	22.97
	12H	21.64	22.33	22.13	22.79	23.32	21.52	22.21	22.01	22.67	23.20
8H	4H	20.66	21.41	21.15	21.87	22.36	20.55	21.30	21.04	21.76	22.25
	6H	21.42	22.05	21.93	22.53	23.05	21.40	22.03	21.91	22.51	23.03
	8H	21.89	22.44	22.43	22.97	23.48	21.89	22.43	22.42	22.96	23.47
	12H	22.39	22.85	22.93	23.38	23.91	22.26	22.72	22.80	23.25	23.78
12H	4H	20.70	21.40	21.20	21.85	22.38	20.59	21.29	21.09	21.75	22.27
	6H	21.57	22.12	22.10	22.65	23.16	21.55	22.10	22.08	22.62	23.13
	8H	22.08	22.54	22.62	23.06	23.59	22.07	22.52	22.61	23.05	23.58
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.6					0.4/-0.7				
S = 1.5H		0.6/-1.1					0.6/-1.0				
S = 2.0H		1.3/-1.3					1.3/-1.3				
Standard tables:		BK4					BK4				
Uncorrected UGR		8.0					8.1				

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



Luminaire Lumens:

FL=400.74,FM=526.22,FH=122.67,FVH=17.16

BL=394.55,BM=491.62,BH=107.56,BVH=14.5

UL=3.46,UH=15.69

BUG Rating:B1-U2-G1

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	1015.74	1004.69	1017.38	967.45	946.99	867.60	783.70	693.67	582.76
45.0	1030.48	1020.25	994.05	973.18	935.53	890.52	789.84	708.81	597.91
90.0	1004.29	1007.97	1006.33	986.28	935.94	879.06	779.61	687.12	590.54
135.0	1021.88	1019.02	995.28	982.60	928.98	850.00	769.38	659.70	570.08
180.0	1015.74	1006.33	988.73	962.54	905.25	825.04	723.13	615.50	517.69
225.0	1030.48	1005.92	1001.01	955.59	897.88	810.71	701.85	606.91	499.69
270.0	1004.29	997.33	1002.65	962.13	907.29	820.13	729.27	638.42	511.96
315.0	1021.88	996.92	999.78	957.22	909.75	847.95	759.97	661.75	551.25
360.0	1015.74	1004.69	1017.38	967.45	946.99	867.60	783.70	693.67	582.76
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	464.90	323.30	263.14	204.21	135.87	113.77	92.90	56.48	42.97
45.0	507.87	390.42	300.79	219.76	164.11	120.73	91.26	68.34	46.24
90.0	441.17	321.26	279.51	199.71	142.01	101.08	84.30	65.48	31.92
135.0	457.13	343.76	258.23	197.66	139.96	82.67	76.94	65.89	33.15
180.0	382.23	268.46	230.00	153.88	114.59	85.53	65.89	33.15	23.33
225.0	405.15	297.93	231.63	151.83	124.00	101.08	62.61	50.75	7.78
270.0	363.41	284.43	234.09	168.61	120.73	90.44	64.25	43.38	7.78
315.0	444.03	348.27	255.78	188.66	148.56	110.50	84.71	62.20	6.55
360.0	464.90	323.30	263.14	204.21	135.87	113.77	92.90	56.48	42.97
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.00	0.00	3.27	0.00	2.05	0.00	0.00	0.00	2.87
45.0	9.00	0.00	0.00	1.23	6.96	1.23	4.50	0.00	0.00
90.0	23.74	0.00	0.00	9.41	0.00	0.00	0.00	0.00	4.09
135.0	10.64	1.23	11.87	0.00	0.00	6.14	2.05	11.46	0.00
180.0	0.00	0.00	0.00	10.64	0.00	2.05	6.14	0.00	0.00
225.0	5.73	5.73	15.14	2.87	4.09	1.23	3.27	0.00	0.00
270.0	0.00	0.00	0.00	3.68	0.00	0.00	0.00	0.00	0.00
315.0	0.00	0.00	3.27	6.96	9.41	11.46	0.00	3.27	0.00
360.0	0.00	0.00	3.27	0.00	2.05	0.00	0.00	0.00	2.87
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.00	7.78	0.00	0.00	13.51	5.32	1.23	0.00	15.14
45.0	0.00	0.00	7.78	0.00	0.00	0.00	0.00	0.00	0.00
90.0	16.37	22.51	0.00	0.00	0.00	0.00	6.14	2.05	3.68
135.0	0.00	0.00	0.00	2.46	9.00	6.96	7.37	0.00	2.05
180.0	0.00	0.00	0.00	0.00	3.27	0.00	0.00	8.59	0.00
225.0	0.41	6.14	9.00	11.46	3.68	7.37	2.46	27.42	3.68
270.0	0.00	0.00	8.59	0.00	0.00	0.00	9.00	0.00	2.87
315.0	0.00	0.82	0.00	0.00	0.00	0.00	0.00	6.55	19.64
360.0	0.00	7.78	0.00	0.00	13.51	5.32	1.23	0.00	15.14
C/γ(°)	180.0								
0.0	2.05								
45.0	8.59								
90.0	0.00								
135.0	0.00								
180.0	2.05								
225.0	8.59								
270.0	0.00								
315.0	0.00								
360.0	2.05								