
PL-R-Multi-W-24V (4000K)

Client:

LumCAT: PL-R-Multi-W-24V(4000K)

Luminaire: LED Lamp

Report No:

Ballast type:

Test No: LCZP25060168

Voltage(V): 24.030

LampCAT:

Current(A): 0.123

Lamp flux(lm): 229.4

Power (W): 2.950

Number of Lamps: 1

PF: 1.000

Length(mm): -40

Width(mm): -40

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 229.41, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 77.77

Central intensity(cd): 81.696, Maximum intensity(cd): 81.696

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=110.2

[C90/270]Total=110.6

Field angle(10%Imax): [C0/180]Total=162.4

[C90/270]Total=161.4

Maximum s/h(1/2): C0_180=1.23 C90_270=1.24

Maximum s/h(1/4): C0_180=1.36 C90_270=1.36

Up flux rate of lamp(%): 0.06%

Down flux rate of lamp(%): 99.94%

Up flux rate of LUM(%): 0.06%

Down flux rate of LUM(%): 99.94%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 78.623%

Zonal flux distribution table

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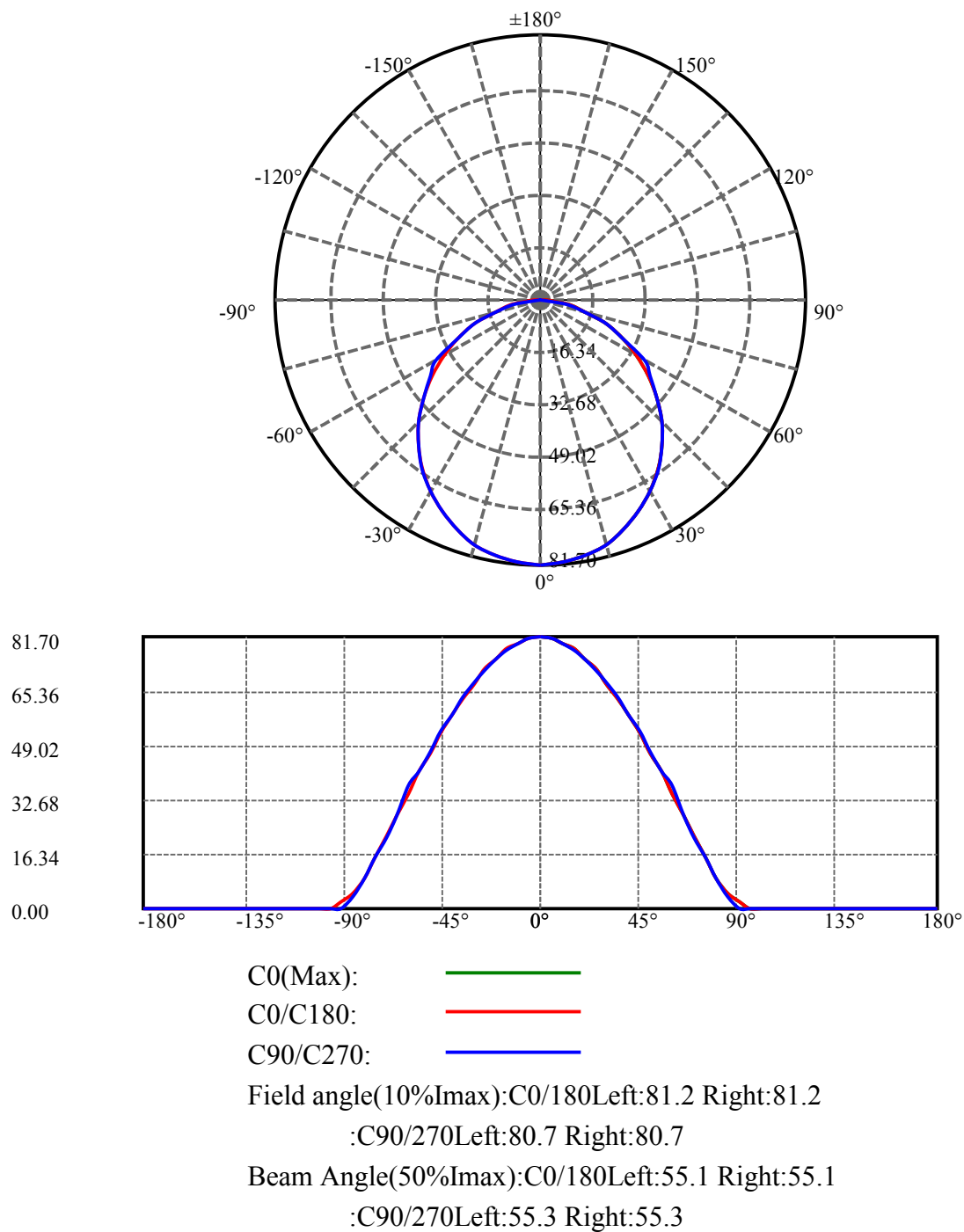
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	81.696	0.000	0	0.00%	0.00%
5.0	81.274	1.948	1.948	0.85%	0.85%
10.0	80.044	5.771	7.719	2.52%	3.36%
15.0	78.149	9.384	17.103	4.09%	7.46%
20.0	75.386	12.653	29.756	5.52%	12.97%
25.0	72.044	15.463	45.219	6.74%	19.71%
30.0	68.018	17.725	62.944	7.73%	27.44%
35.0	63.476	19.363	82.307	8.44%	35.88%
40.0	58.662	20.378	102.685	8.88%	44.76%
45.0	53.050	20.684	123.369	9.02%	53.78%
50.0	47.162	20.249	143.619	8.83%	62.60%
55.0	41.084	19.188	162.806	8.36%	70.97%
60.0	34.900	17.563	180.37	7.66%	78.62%
65.0	28.179	15.335	195.704	6.68%	85.31%
70.0	21.645	12.616	208.32	5.50%	90.81%
75.0	15.200	9.631	217.95	4.20%	95.00%
80.0	9.360	6.572	224.522	2.86%	97.87%
85.0	3.776	3.569	228.091	1.56%	99.42%
90.0	0.509	1.173	229.264	0.51%	99.94%
95.0	0.000	0.139	229.404	0.06%	100.00%
100.0	0.000	0.000	229.404	0.00%	100.00%
105.0	0.000	0.000	229.404	0.00%	100.00%
110.0	0.000	0.000	229.404	0.00%	100.00%
115.0	0.000	0.000	229.404	0.00%	100.00%
120.0	0.000	0.000	229.404	0.00%	100.00%
125.0	0.000	0.000	229.404	0.00%	100.00%
130.0	0.000	0.000	229.404	0.00%	100.00%
135.0	0.000	0.000	229.404	0.00%	100.00%
140.0	0.000	0.000	229.404	0.00%	100.00%
145.0	0.000	0.000	229.404	0.00%	100.00%
150.0	0.000	0.000	229.404	0.00%	100.00%
155.0	0.000	0.000	229.404	0.00%	100.00%
160.0	0.000	0.000	229.404	0.00%	100.00%
165.0	0.011	0.001	229.405	0.00%	100.00%
170.0	0.037	0.003	229.407	0.00%	100.00%
175.0	0.049	0.003	229.411	0.00%	100.00%
180.0	0.037	0.001	229.412	0.00%	100.00%

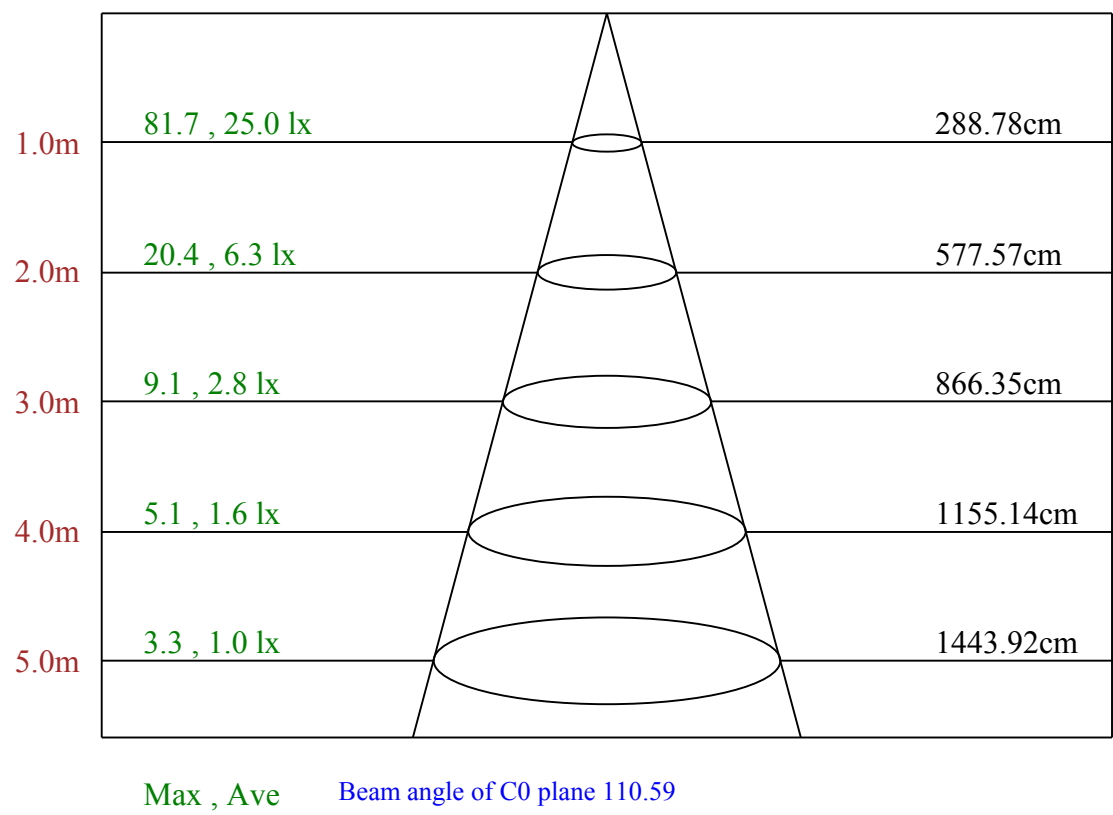
ZONAL LUMEN SUMMARY

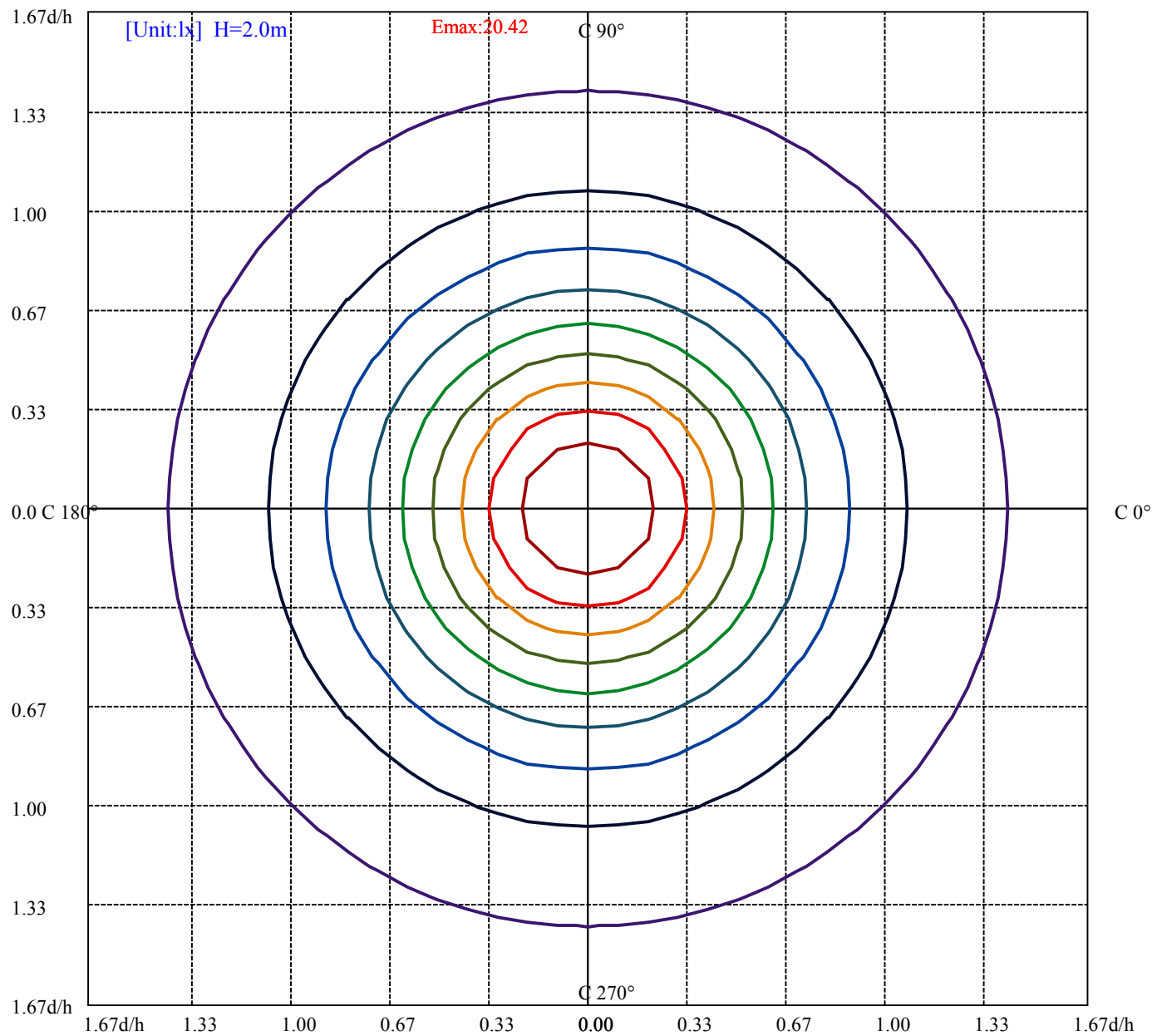
Zone	Lumens	%Lamp	%Fixt
0-30	62.94	27.44%	27.44%
0-40	102.69	44.76%	44.76%
0-60	180.37	78.62%	78.62%
0-90	229.26	99.94%	99.94%
0-120	229.40	100.00%	100.00%
0-180	229.41	100.00%	100.00%
60-90	48.89	21.31%	21.31%
90-120	0.14	0.06%	0.06%
90-130	0.14	0.06%	0.06%
90-150	0.14	0.06%	0.06%
90-180	0.15	0.06%	0.06%
0-61.03	183.53	80.00%	80.00%

ZONAL LUMEN SUMMARY

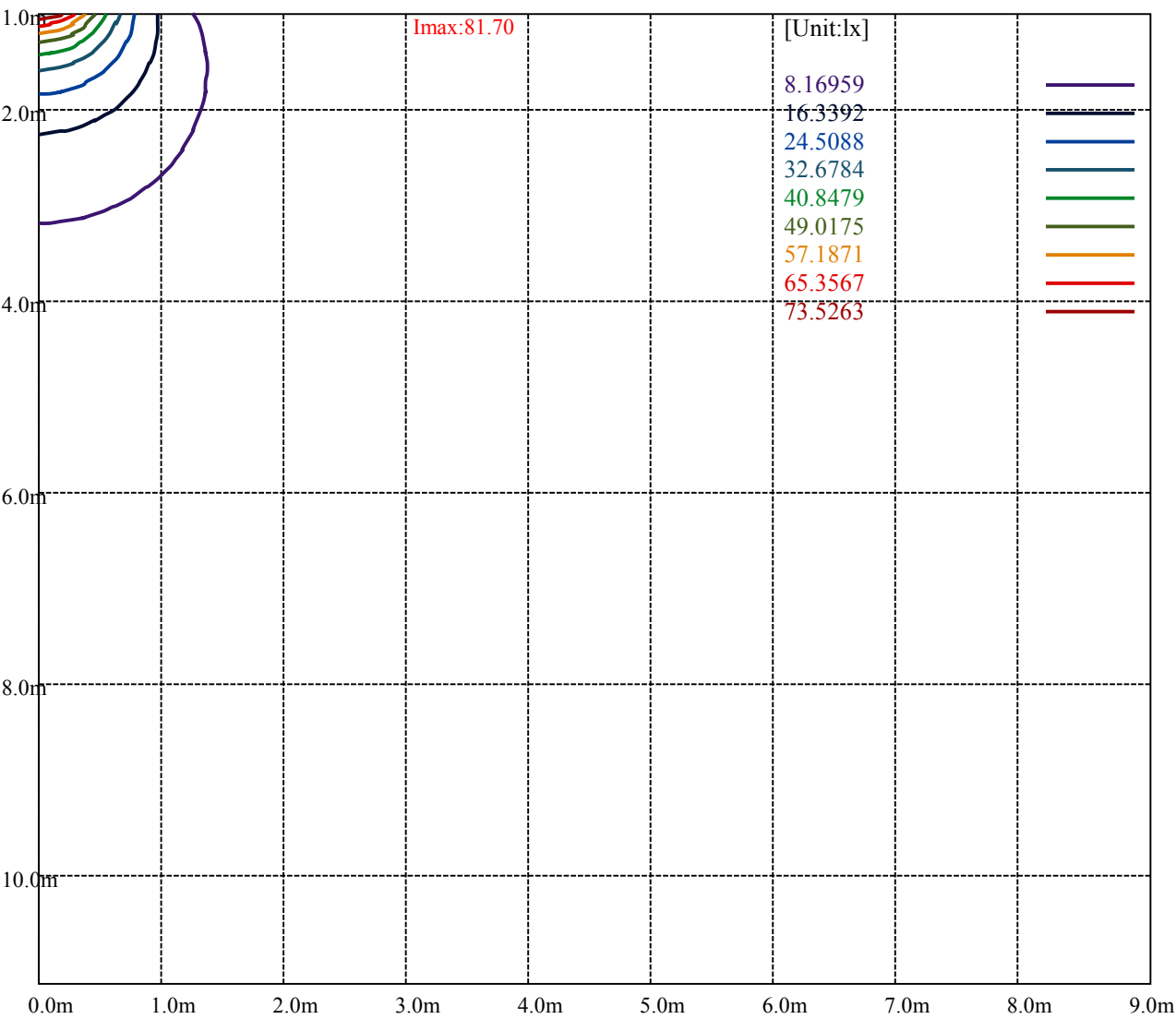
0-10	7.72
10-20	22.04
20-30	33.19
30-40	39.74
40-50	40.93
50-60	36.75
60-70	27.95
70-80	16.20
80-90	4.74
90-100	0.14
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Emax) 2.042397	
(20%Emax) 4.0848	
(30%Emax) 6.1272	
(40%Emax) 8.1696	
(50%Emax) 10.21198	
(60%Emax) 12.25438	
(70%Emax) 14.29677	
(80%Emax) 16.33917	
(90%Emax) 18.38157	



Luminance Limiting Curve(no luminous side)

Luminance Table

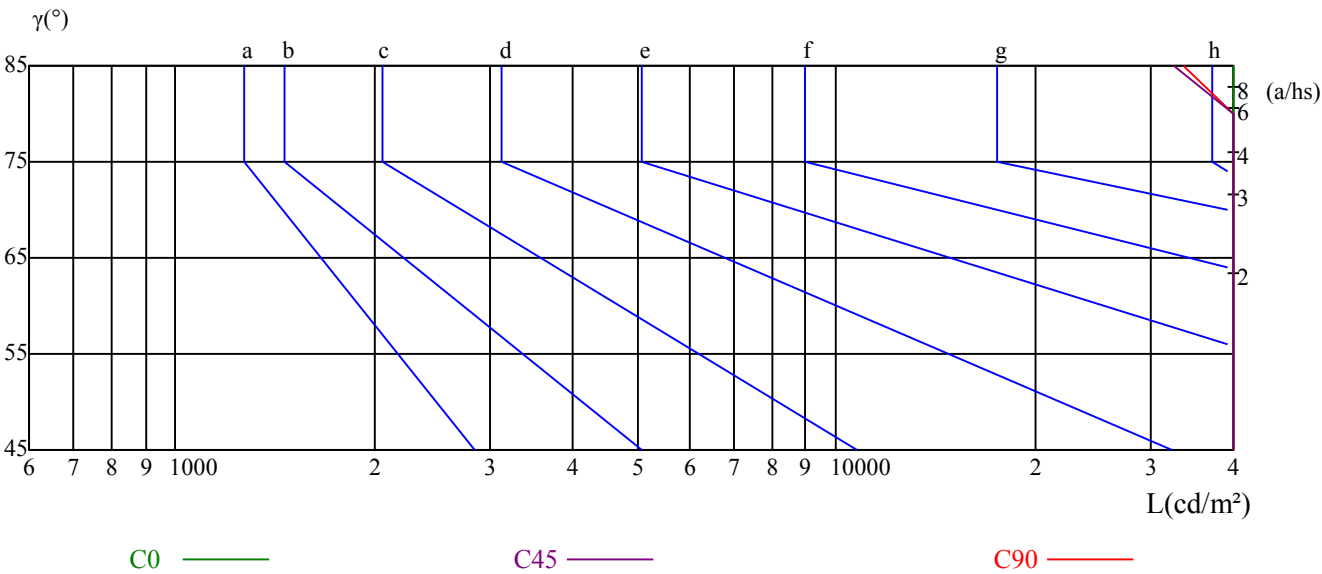
γ	45	50	55	60	65	70	75	80	85
C0	59565	58047	56796	54900	52737	50383	47046	42646	42893
C45	59827	58498	56953	55285	53434	50239	46976	42113	32414
C90	59716	58324	56982	58959	52990	50175	46771	41006	33497

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
52737	52990	53434	47046	46771	46976	42893	33497	32414

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



RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1	1.04	0.99	0.96	1.01	0.98	0.94	0.97	0.94	0.91	0.93	0.91	0.88	0.90	0.88	0.86	0.83
2	0.90	0.83	0.78	0.88	0.82	0.77	0.85	0.80	0.75	0.82	0.77	0.73	0.79	0.75	0.72	0.69
3	0.79	0.71	0.65	0.78	0.70	0.64	0.75	0.68	0.63	0.72	0.66	0.62	0.69	0.65	0.61	0.58
4	0.70	0.61	0.55	0.69	0.61	0.54	0.66	0.59	0.53	0.64	0.58	0.53	0.62	0.56	0.52	0.50
5	0.63	0.54	0.47	0.62	0.53	0.47	0.59	0.52	0.46	0.57	0.51	0.46	0.56	0.50	0.45	0.43
6	0.57	0.48	0.41	0.56	0.47	0.41	0.54	0.46	0.40	0.52	0.45	0.40	0.50	0.44	0.40	0.38
7	0.51	0.42	0.36	0.50	0.42	0.36	0.49	0.41	0.36	0.47	0.41	0.36	0.46	0.40	0.35	0.33
8	0.47	0.38	0.32	0.46	0.38	0.32	0.45	0.37	0.32	0.43	0.37	0.32	0.42	0.36	0.32	0.30
9	0.43	0.35	0.29	0.42	0.34	0.29	0.41	0.34	0.29	0.40	0.33	0.29	0.39	0.33	0.29	0.27
10	0.40	0.32	0.26	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.31	0.26	0.36	0.30	0.26	0.24

Intensity data(cd)

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C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	81.70	81.96	81.25	80.71	78.47	75.88	72.39	68.27	63.71
15.0	81.70	82.15	81.61	80.80	78.28	75.67	72.08	68.39	63.63
30.0	81.70	82.06	81.34	80.35	77.65	74.96	71.45	67.41	63.00
45.0	81.70	81.52	81.25	79.72	77.56	74.69	70.46	66.51	62.01
60.0	81.70	81.88	80.80	79.36	76.93	73.97	70.28	65.88	60.93
75.0	81.70	81.43	80.53	78.29	76.14	72.83	69.07	64.68	59.66
90.0	81.70	81.07	79.91	77.94	75.43	71.94	68.18	63.62	58.52
105.0	81.70	81.52	80.35	78.01	75.58	71.80	67.66	63.34	58.12
120.0	81.70	81.34	79.63	77.66	74.79	71.29	66.99	62.50	57.12
135.0	81.70	81.07	79.72	77.38	74.60	70.73	66.87	62.01	56.71
150.0	81.70	80.98	79.45	77.12	71.65	70.84	66.36	61.61	56.59
165.0	81.70	80.89	79.37	77.05	74.10	70.43	66.41	61.58	55.95
180.0	81.70	80.26	78.03	75.52	71.85	67.92	62.90	57.89	52.79
195.0	81.70	80.53	78.55	75.85	72.44	68.57	63.99	58.87	53.30
210.0	81.70	80.53	78.82	76.39	73.07	68.84	64.53	59.50	54.55
225.0	81.70	80.44	78.91	76.93	73.52	69.83	65.25	60.58	55.18
240.0	81.70	80.98	79.27	77.20	74.15	70.46	66.15	61.20	56.26
255.0	81.70	80.98	79.46	77.31	74.62	71.04	66.74	62.17	57.06
270.0	81.70	81.07	79.73	77.76	74.81	71.41	67.83	63.08	58.25
285.0	81.70	81.52	80.44	78.55	75.94	72.88	68.65	64.15	63.16
300.0	81.70	81.43	80.71	78.65	78.29	72.82	69.14	64.57	59.99
315.0	81.70	81.70	80.62	79.09	76.48	73.25	69.65	65.16	60.49
330.0	81.70	81.88	80.80	79.01	76.67	73.80	69.86	65.37	60.35
345.0	81.70	81.43	80.53	78.93	76.24	73.20	69.54	65.07	60.51
360.0	81.70	81.96	81.25	80.71	78.47	75.88	72.39	68.27	63.71
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	59.06	53.06	47.51	41.34	34.99	28.72	21.74	15.57	9.40
15.0	58.42	52.76	47.00	40.80	34.60	27.95	21.39	14.92	8.99
30.0	57.79	51.86	46.29	39.99	33.43	26.96	20.58	14.11	8.09
45.0	56.80	51.32	45.03	39.10	32.53	25.97	19.32	12.85	6.92
60.0	55.54	50.06	44.31	37.57	31.28	24.54	17.80	11.77	6.02
75.0	54.46	48.46	42.73	36.37	29.83	23.29	16.57	10.48	4.84
90.0	53.42	47.42	41.52	34.90	28.37	21.92	15.66	9.22	4.03
105.0	52.63	46.61	40.49	33.92	27.26	20.96	14.40	8.46	2.79
120.0	51.56	45.74	39.37	33.09	26.45	19.91	13.27	7.44	2.06
135.0	51.23	45.21	38.92	32.44	26.06	19.14	13.03	7.10	1.53
150.0	50.85	44.75	38.65	32.19	25.56	19.01	12.55	6.99	1.17
165.0	51.04	44.96	38.61	32.09	25.38	19.22	12.69	6.88	1.34
180.0	46.80	40.71	34.36	27.65	21.03	14.59	8.86	3.04	0.00
195.0	47.54	41.43	34.87	28.67	21.84	15.55	9.44	3.77	0.00
210.0	48.44	42.42	36.04	29.39	22.74	16.36	10.07	4.85	0.00
225.0	49.52	43.23	37.03	30.38	24.27	17.53	11.23	5.66	0.27
240.0	50.42	44.67	38.47	31.82	25.34	18.60	12.67	6.38	1.17
255.0	51.51	45.60	39.33	33.23	26.60	20.16	13.53	12.18	2.33
270.0	52.70	46.80	40.62	39.19	27.92	21.21	14.76	8.68	3.31
285.0	53.98	48.14	41.93	35.63	29.06	22.40	16.11	9.90	4.32
300.0	54.52	48.61	42.87	36.41	29.95	23.41	16.68	10.49	4.84
315.0	55.09	49.25	43.23	37.03	30.65	23.73	17.53	11.14	5.48
330.0	54.97	49.59	43.40	37.40	30.67	24.12	17.67	11.30	5.92
345.0	54.88	49.25	43.44	37.00	30.48	24.22	17.25	11.44	5.81
360.0	59.06	53.06	47.51	41.34	34.99	28.72	21.74	15.57	9.40

C/ $\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.0	3.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.0	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.0	0.00	0.00	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	0.00	0.00
135.0	0.00	0.00	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	0.00	0.00
165.0	0.00	0.00	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	0.00	0.00
195.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
240.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
255.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
315.0	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330.0	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345.0	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
360.0	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C/ $\gamma(^{\circ})$	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
30.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
45.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
60.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
75.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
105.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
120.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
135.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
150.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
165.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
180.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
195.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
225.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
240.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
255.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
315.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
345.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
360.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00

Intensity data(cd)

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C/γ(°)	180.0
0.0	0.09
15.0	0.00
30.0	0.09
45.0	0.00
60.0	0.09
75.0	0.09
90.0	0.09
105.0	0.09
120.0	0.09
135.0	0.09
150.0	0.09
165.0	0.09
180.0	0.00
195.0	0.00
210.0	0.00
225.0	0.00
240.0	0.00
255.0	0.00
270.0	0.00
285.0	0.00
300.0	0.00
315.0	0.00
330.0	0.00
345.0	0.00
360.0	0.09