
PL-R-Multi-W-24V (5000K)

Client:

LumCAT: PL-R-Multi-W-24V(5000K)

Luminaire: LED Lamp

Report No:

Ballast type:

Test No: LCZP25060168

Voltage(V): 24.020

LampCAT:

Current(A): 0.124

Lamp flux(lm): 228.0

Power (W): 2.970

Number of Lamps: 1

PF: 1.000

Length(mm): -40

Width(mm): -40

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 228.04, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 76.78

Central intensity(cd): 81.105, Maximum intensity(cd): 81.105

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=110.0

[C90/270]Total=110.2

Field angle(10%Imax): [C0/180]Total=161.8

[C90/270]Total=162.2

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

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

Up flux rate of lamp(%): 0.11%

Down flux rate of lamp(%): 99.89%

Up flux rate of LUM(%): 0.11%

Down flux rate of LUM(%): 99.89%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 78.466%

Zonal flux distribution table

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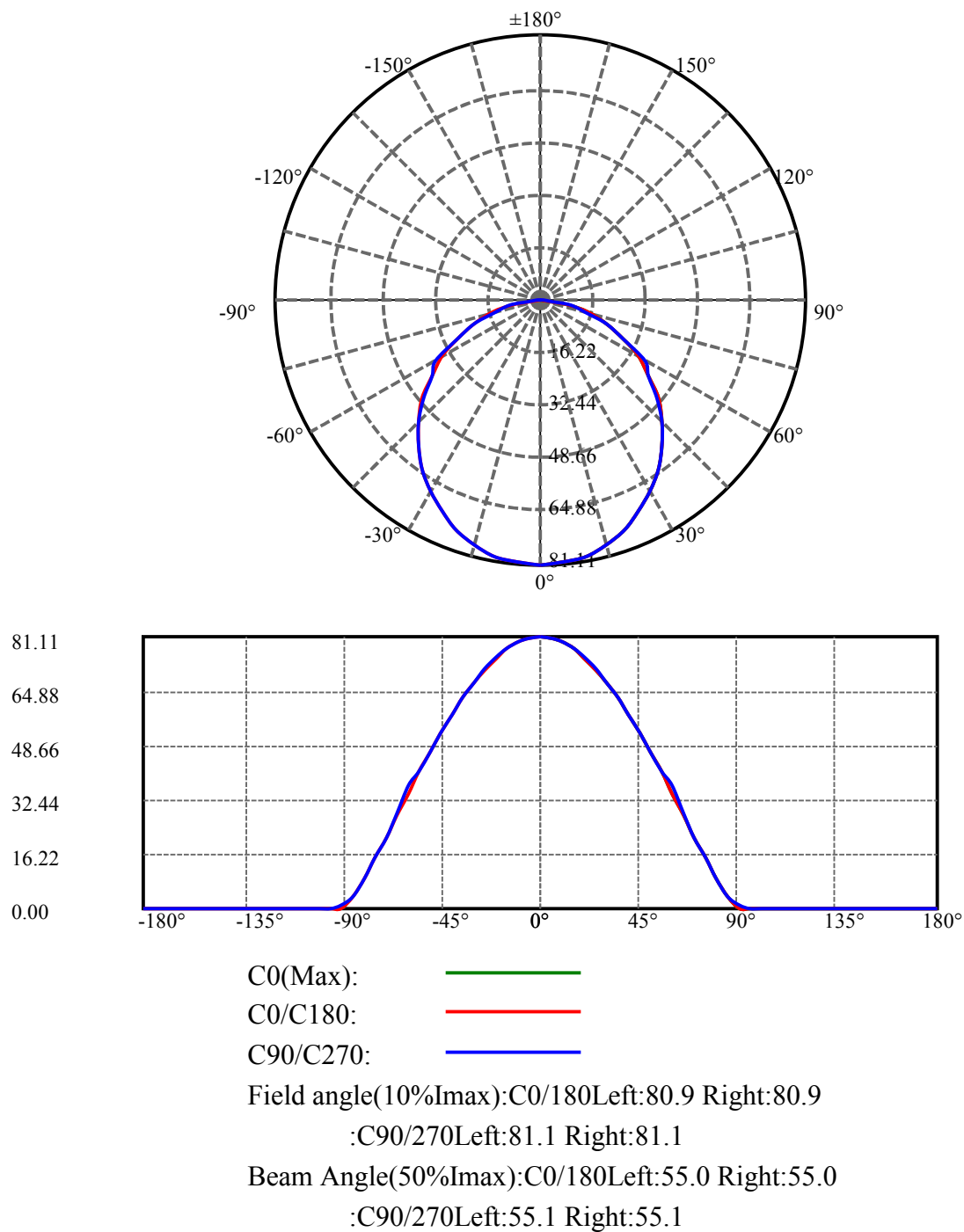
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	81.105	0.000	0	0.00%	0.00%
5.0	80.646	1.934	1.934	0.85%	0.85%
10.0	79.431	5.726	7.66	2.51%	3.36%
15.0	77.435	9.305	16.965	4.08%	7.44%
20.0	74.852	12.551	29.516	5.50%	12.94%
25.0	71.423	15.342	44.857	6.73%	19.67%
30.0	67.476	17.578	62.435	7.71%	27.38%
35.0	63.035	19.219	81.654	8.43%	35.81%
40.0	58.157	20.220	101.874	8.87%	44.67%
45.0	52.643	20.515	122.389	9.00%	53.67%
50.0	46.829	20.100	142.489	8.81%	62.48%
55.0	40.721	19.036	161.525	8.35%	70.83%
60.0	34.593	17.409	178.934	7.63%	78.47%
65.0	28.019	15.221	194.155	6.67%	85.14%
70.0	21.465	12.530	206.685	5.49%	90.63%
75.0	15.189	9.581	216.266	4.20%	94.84%
80.0	9.383	6.575	222.84	2.88%	97.72%
85.0	3.971	3.629	226.469	1.59%	99.31%
90.0	0.873	1.326	227.795	0.58%	99.89%
95.0	0.000	0.239	228.034	0.10%	100.00%
100.0	0.000	0.000	228.034	0.00%	100.00%
105.0	0.000	0.000	228.034	0.00%	100.00%
110.0	0.000	0.000	228.034	0.00%	100.00%
115.0	0.000	0.000	228.034	0.00%	100.00%
120.0	0.000	0.000	228.034	0.00%	100.00%
125.0	0.000	0.000	228.034	0.00%	100.00%
130.0	0.000	0.000	228.034	0.00%	100.00%
135.0	0.000	0.000	228.034	0.00%	100.00%
140.0	0.000	0.000	228.034	0.00%	100.00%
145.0	0.000	0.000	228.034	0.00%	100.00%
150.0	0.000	0.000	228.034	0.00%	100.00%
155.0	0.000	0.000	228.034	0.00%	100.00%
160.0	0.004	0.000	228.035	0.00%	100.00%
165.0	0.011	0.001	228.036	0.00%	100.00%
170.0	0.022	0.002	228.038	0.00%	100.00%
175.0	0.045	0.002	228.04	0.00%	100.00%
180.0	0.030	0.001	228.041	0.00%	100.00%

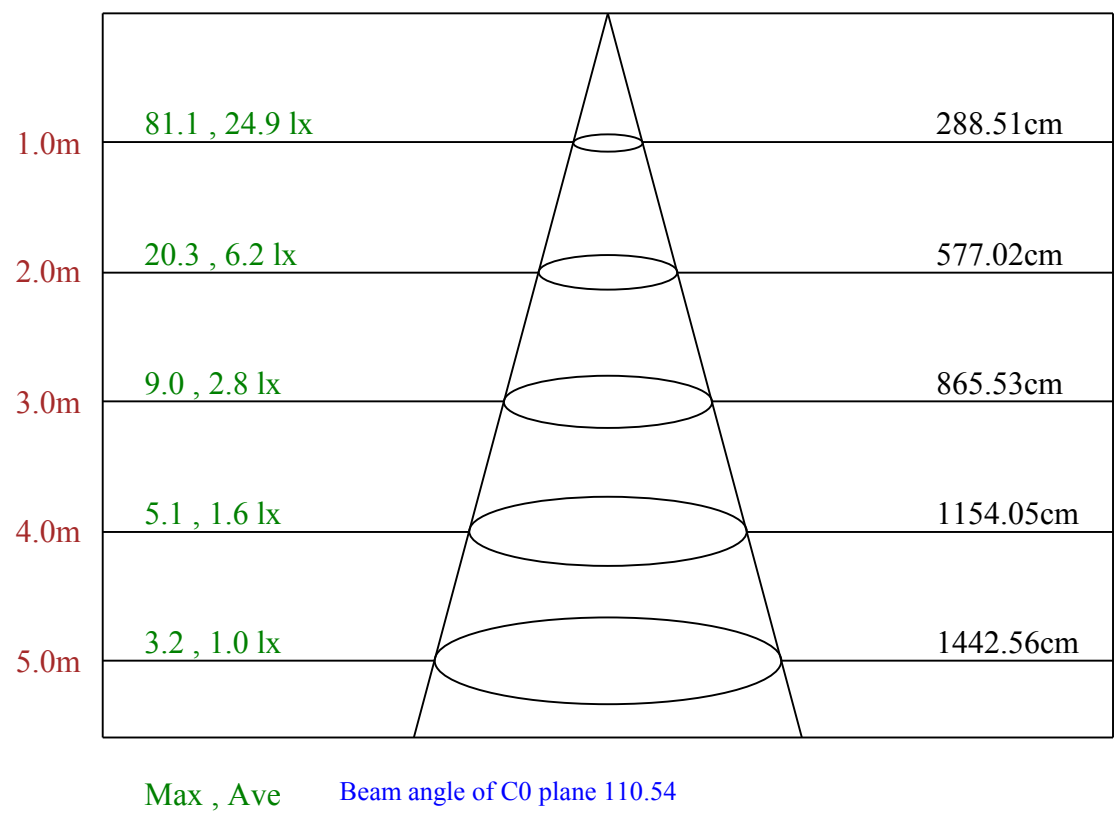
ZONAL LUMEN SUMMARY

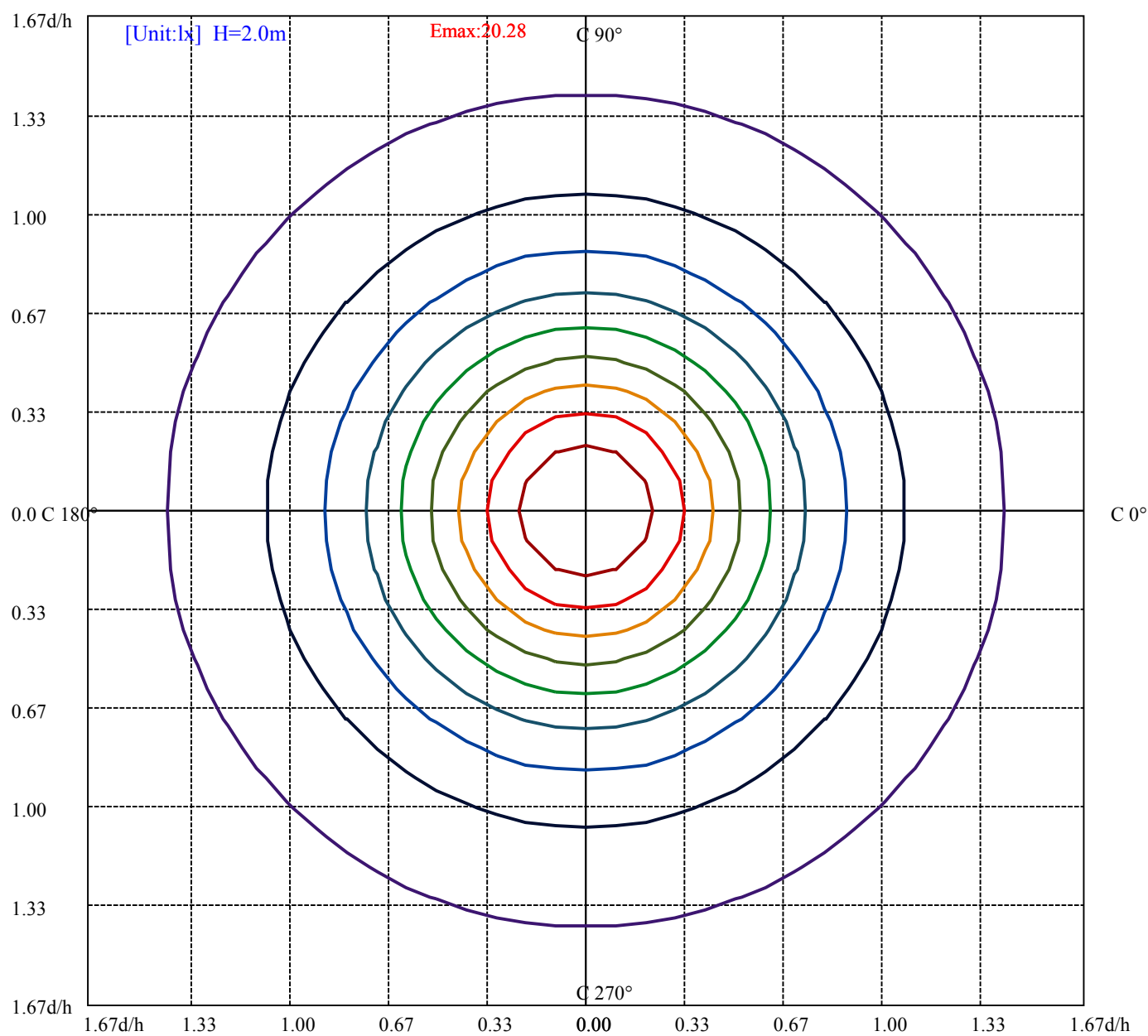
Zone	Lumens	%Lamp	%Fixt
0-30	62.44	27.38%	27.38%
0-40	101.87	44.67%	44.67%
0-60	178.93	78.47%	78.47%
0-90	227.80	99.89%	99.89%
0-120	228.03	100.00%	100.00%
0-180	228.04	100.00%	100.00%
60-90	48.86	21.43%	21.43%
90-120	0.24	0.10%	0.10%
90-130	0.24	0.10%	0.10%
90-150	0.24	0.10%	0.10%
90-180	0.24	0.11%	0.11%
0-61.15	182.43	80.00%	80.00%

ZONAL LUMEN SUMMARY

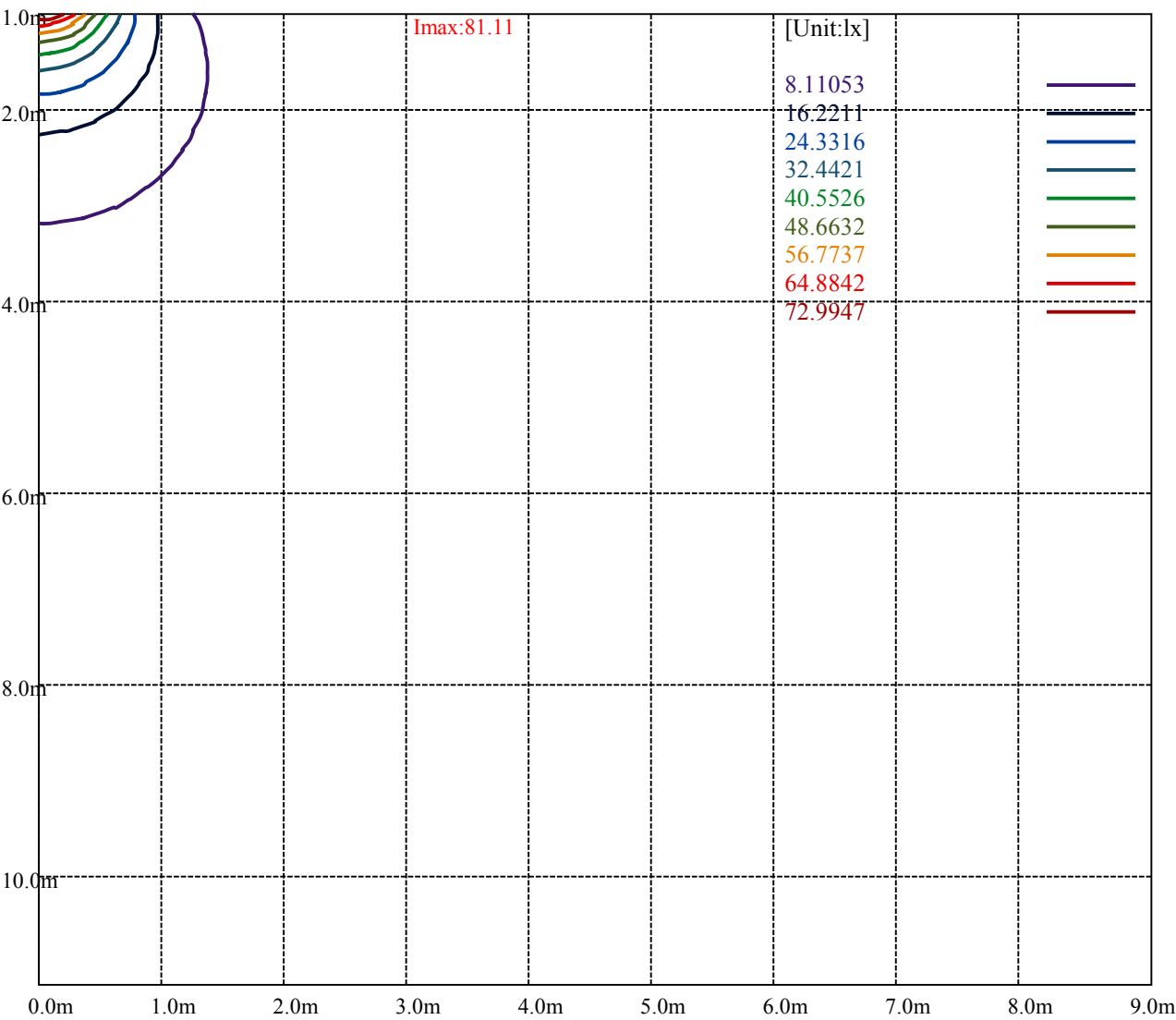
0-10	7.66
10-20	21.86
20-30	32.92
30-40	39.44
40-50	40.62
50-60	36.45
60-70	27.75
70-80	16.16
80-90	4.95
90-100	0.24
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Emax) 2.027632	
(20%Emax) 4.055275	
(30%Emax) 6.0829	
(40%Emax) 8.110525	
(50%Emax) 10.13815	
(60%Emax) 12.1658	
(70%Emax) 14.19343	
(80%Emax) 16.22105	
(90%Emax) 18.24867	



Luminance Limiting Curve(no luminous side)

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Luminance Table

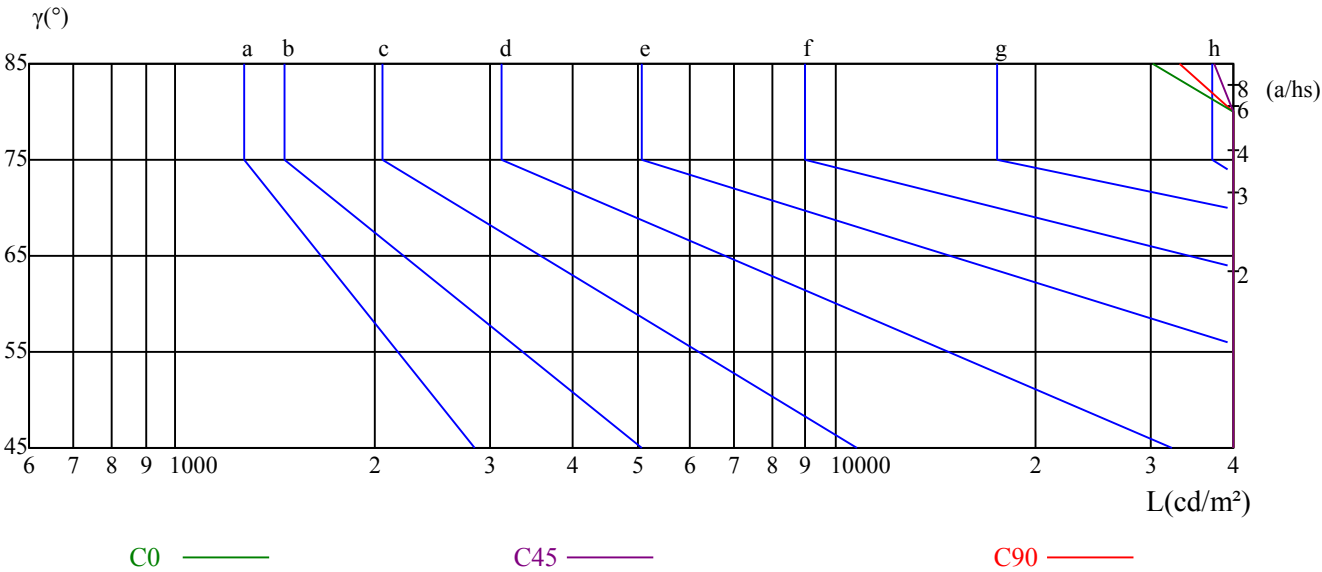
γ	45	50	55	60	65	70	75	80	85
C0	59153	58137	56325	54700	52565	49627	46016	41891	30276
C45	59163	57879	56262	54925	52423	50041	46791	41946	37388
C90	59037	57851	56387	58486	52760	49780	46378	42665	33103

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
52565	52760	52423	46016	46378	46791	30276	33103	37388

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	0.95	1.01	0.97	0.94	0.97	0.94	0.91	0.93	0.91	0.88	0.90	0.87	0.85	0.83
2	0.90	0.83	0.78	0.88	0.82	0.77	0.85	0.79	0.75	0.82	0.77	0.73	0.78	0.75	0.71	0.69
3	0.79	0.71	0.64	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	0.56	0.47	0.41	0.55	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	0.35	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	0.28	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	81.11	80.21	78.86	76.71	73.85	69.81	65.96	61.12	56.01
15.0	81.11	80.57	78.95	76.98	74.02	70.52	66.57	62.26	56.79
30.0	81.11	80.48	78.69	76.82	74.05	71.37	67.08	61.99	57.17
45.0	81.11	80.75	79.58	77.79	75.01	71.87	68.02	63.54	58.61
60.0	81.11	80.75	79.94	77.88	75.37	72.59	68.65	64.26	59.60
75.0	81.11	81.11	79.94	78.42	76.09	73.04	69.37	65.42	60.67
90.0	81.11	81.02	80.48	78.87	76.81	74.03	70.27	66.42	61.68
105.0	81.11	81.20	80.84	79.22	77.51	74.54	71.39	67.08	62.67
120.0	81.11	81.82	81.02	79.85	78.05	74.73	71.67	67.72	63.14
135.0	81.11	81.28	80.66	79.59	78.06	75.20	71.81	67.96	63.58
150.0	81.11	81.83	81.47	80.03	76.78	75.70	72.64	68.68	64.09
165.0	81.11	82.19	81.38	80.65	78.66	76.13	72.79	68.81	63.74
180.0	81.11	80.84	80.21	78.42	75.73	72.50	68.92	64.97	59.96
195.0	81.11	80.84	80.03	78.14	75.36	72.31	68.54	64.24	59.48
210.0	81.11	80.48	79.32	77.53	74.94	71.73	67.80	63.15	58.51
225.0	81.11	80.48	79.49	77.43	74.74	71.07	67.21	62.82	57.45
240.0	81.11	80.21	78.95	76.98	73.85	70.62	66.05	62.11	56.55
255.0	81.11	80.21	78.78	75.91	73.40	69.90	65.15	60.67	55.47
270.0	81.11	80.03	78.51	76.09	72.87	68.84	64.28	59.71	54.25
285.0	81.11	80.12	78.41	75.71	72.65	68.34	64.02	58.90	57.91
300.0	81.11	79.85	78.05	75.18	74.46	67.81	63.14	58.20	52.90
315.0	81.11	79.41	77.08	74.49	71.09	67.24	62.51	57.68	51.78
330.0	81.11	79.76	77.77	74.89	71.38	67.24	62.65	57.34	51.76
345.0	81.11	80.11	77.94	74.87	71.70	67.00	62.93	57.78	51.99
360.0	81.11	80.21	78.86	76.71	73.85	69.81	65.96	61.12	56.01
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	50.37	44.54	38.09	31.99	25.45	18.82	12.64	6.90	1.25
15.0	51.14	45.31	39.12	32.39	26.38	19.65	13.37	7.36	1.79
30.0	51.99	46.18	40.02	33.59	26.89	20.45	14.11	8.31	2.95
45.0	52.96	47.32	41.05	35.13	28.05	22.05	15.41	9.23	3.67
60.0	53.95	48.48	42.48	36.21	29.66	23.21	16.94	10.31	4.84
75.0	55.29	49.65	43.55	37.37	31.28	24.65	18.10	11.65	5.83
90.0	56.22	50.85	44.76	38.67	32.50	25.78	19.25	13.07	7.07
105.0	57.55	51.79	46.13	39.92	33.72	26.80	20.59	14.12	8.00
120.0	58.65	52.72	47.15	40.96	34.58	27.93	21.29	15.09	8.98
135.0	58.84	53.21	47.48	41.49	34.96	28.53	22.09	15.56	9.39
150.0	59.23	53.56	47.80	41.86	35.56	28.99	22.50	15.84	9.81
165.0	59.86	53.98	48.19	41.95	35.90	28.93	22.60	16.00	9.86
180.0	54.76	49.38	43.11	36.74	30.38	23.84	17.30	11.38	5.38
195.0	54.10	48.54	42.53	35.98	29.88	23.42	16.78	10.68	5.11
210.0	53.15	47.34	41.27	35.01	28.58	22.06	15.99	9.56	4.56
225.0	52.25	46.51	40.15	34.23	27.69	21.06	14.70	8.69	3.32
240.0	51.08	45.35	38.98	32.71	26.17	19.99	13.35	7.71	2.24
255.0	49.83	43.91	38.09	31.19	25.00	18.55	12.10	10.75	1.08
270.0	48.70	42.61	36.52	34.82	23.54	17.01	10.92	5.55	0.18
285.0	47.84	41.90	35.43	28.86	22.75	15.92	10.07	4.59	0.00
300.0	46.71	41.05	34.67	27.93	21.56	15.00	9.07	3.50	0.00
315.0	46.23	39.97	33.53	27.18	20.66	14.40	8.67	3.13	0.00
330.0	46.45	39.70	33.67	27.19	20.52	14.13	8.28	3.24	0.00
345.0	46.29	40.06	33.55	26.85	20.80	14.01	8.41	2.98	0.00
360.0	50.37	44.54	38.09	31.99	25.45	18.82	12.64	6.90	1.25

C/ $\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75.0	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.0	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120.0	3.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.0	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.0	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165.0	4.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.0	0.27	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	0.00	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	0.00
345.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
360.0	0.00	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	0.09	0.00	0.00	0.09
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	0.00
45.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
60.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
75.0	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
105.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.09	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	0.09
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	0.09
210.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	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	0.09
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	0.09
300.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00
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	0.09	0.00	0.00	0.09

Intensity data(cd)

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C/γ(°)	180.0
0.0	0.09
15.0	0.09
30.0	0.09
45.0	0.09
60.0	0.09
75.0	0.00
90.0	0.09
105.0	0.09
120.0	0.00
135.0	0.00
150.0	0.00
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