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## Nata

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LumCAT: 3-2731-L

Luminaire:

Report No: 220819-B007

Voltage(V): 35.5300

Test No: 220819-C007

Current(A): 0.4810

LampCAT: CITIZEN CLU038

Power (W): 17.0890

Lamp flux(lm): 2282.7

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 43

Width(mm): 43

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1924.94

Efficiency(%): 84.33%

Lumens(lm)/Power(W): 112.64

Central intensity(cd): 3359.607

Maximum intensity(cd): 3359.607

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=44.2

[C90/270]Total=44.2

Field angle(10%Imax): [C0/180]Total=68.7

[C90/270]Total=68.7

Maximum s/h(1/2): C0\_180=0.72 C90\_270=0.72

Maximum s/h(1/4): C0\_180=0.69 C90\_270=0.69

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 84.33%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.729%

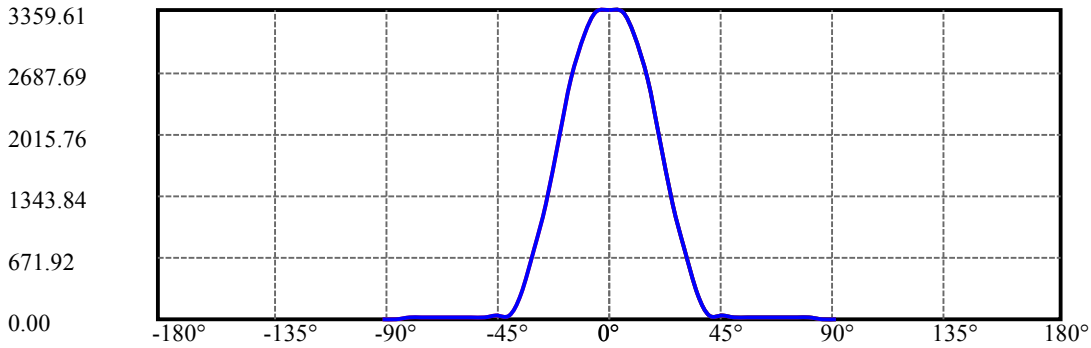
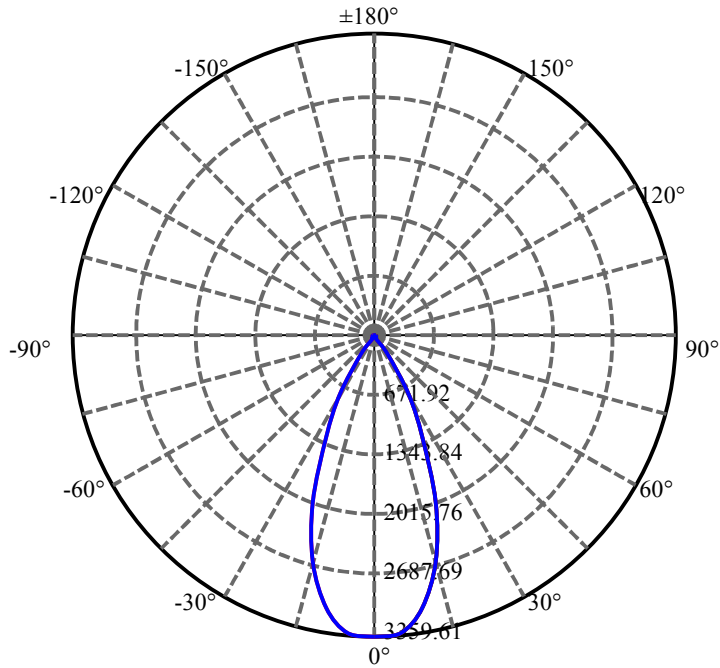
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3359.607	0.000	0	.000%	.000%
5.0	3332.345	80.000	80	3.505%	4.156%
10.0	3094.901	229.923	309.923	10.072%	16.100%
15.0	2617.028	338.828	648.751	14.843%	33.702%
20.0	1982.302	379.049	1027.8	16.605%	53.394%
25.0	1260.331	340.092	1367.893	14.899%	71.062%
30.0	762.432	255.982	1623.875	11.214%	84.360%
35.0	271.106	152.196	1776.071	6.667%	92.266%
40.0	49.050	53.416	1829.486	2.340%	95.041%
45.0	37.062	15.944	1845.431	.698%	95.870%
50.0	30.474	13.647	1859.077	.598%	96.579%
55.0	24.588	11.972	1871.05	.524%	97.200%
60.0	19.457	10.181	1881.231	.446%	97.729%
65.0	16.746	8.801	1890.032	.386%	98.187%
70.0	15.125	8.070	1898.101	.354%	98.606%
75.0	15.132	7.909	1906.01	.346%	99.017%
80.0	13.698	7.714	1913.725	.338%	99.417%
85.0	9.531	6.312	1920.036	.277%	99.745%
90.0	8.373	4.902	1924.939	.215%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1623.88	71.14%	84.36%
0-40	1829.49	80.15%	95.04%
0-60	1881.23	82.41%	97.73%
0-90	1920.04	84.11%	99.75%
0-120	1920.04	84.11%	99.75%
0-180	1924.94	84.33%	100.00%
60-90	48.99	2.15%	2.54%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.36	1539.95	67.46%	80.00%

ZONAL LUMEN SUMMARY

0-10	309.92
10-20	717.88
20-30	596.07
30-40	205.61
40-50	29.59
50-60	22.15
60-70	16.87
70-80	15.62
80-90	6.31
90-100	0.00
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



C0(Max): —————

C0/C180: —————

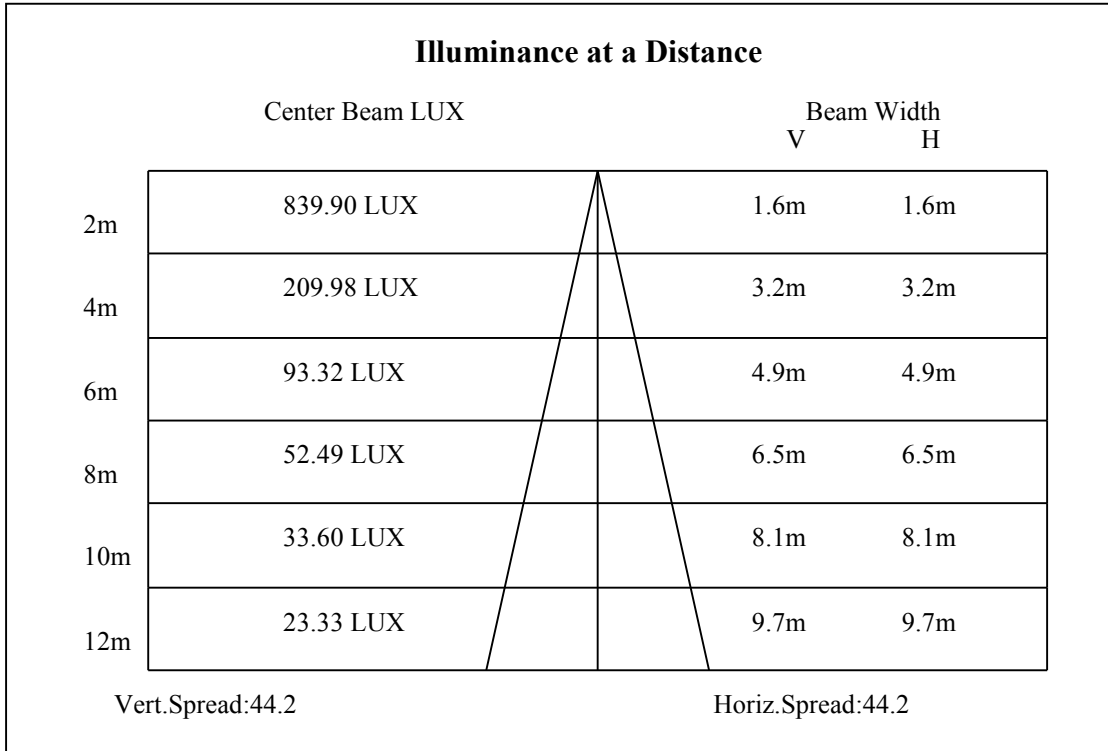
C90/C270: —————

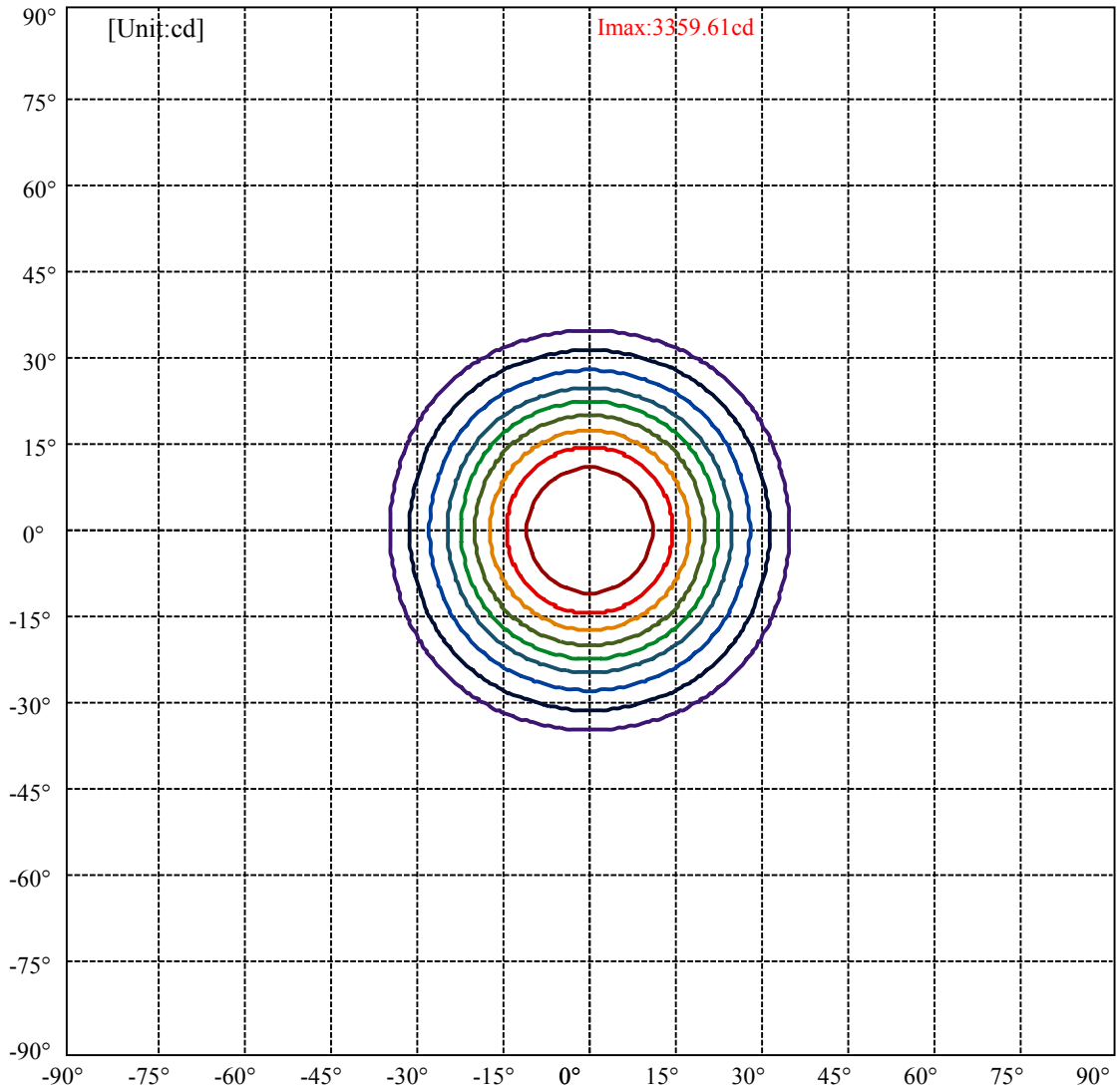
Field angle(10%Imax):C0/180Left:34.3 Right:34.3

:C90/270Left:34.3 Right:34.3

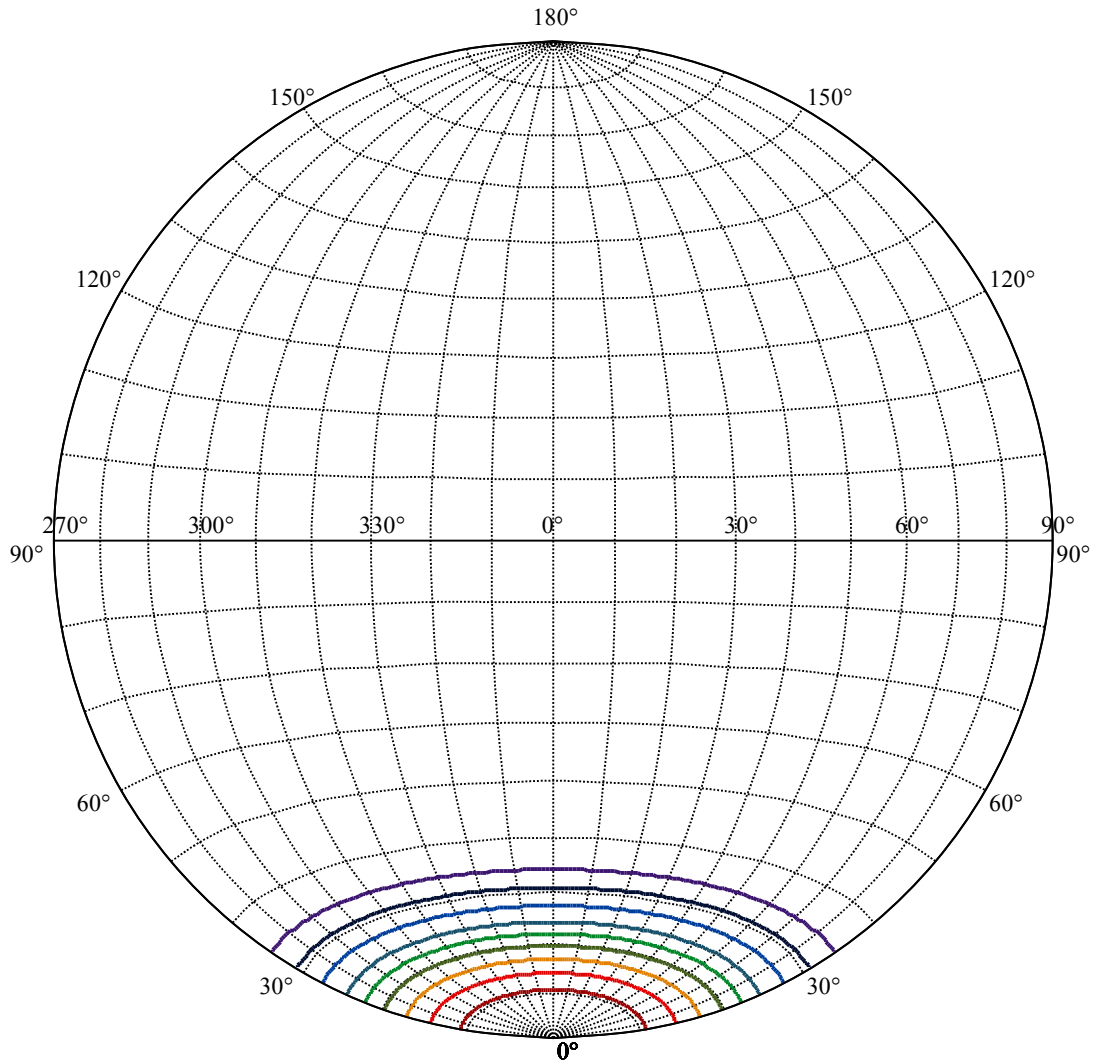
Beam Angle(50%Imax):C0/180Left:22.1 Right:22.1

:C90/270Left:22.1 Right:22.1





(10%Imax) 335.961	—
(20%Imax) 671.921	—
(30%Imax) 1007.88	—
(40%Imax) 1343.84	—
(50%Imax) 1679.8	—
(60%Imax) 2015.76	—
(70%Imax) 2351.72	—
(80%Imax) 2687.69	—
(90%Imax) 3023.65	—



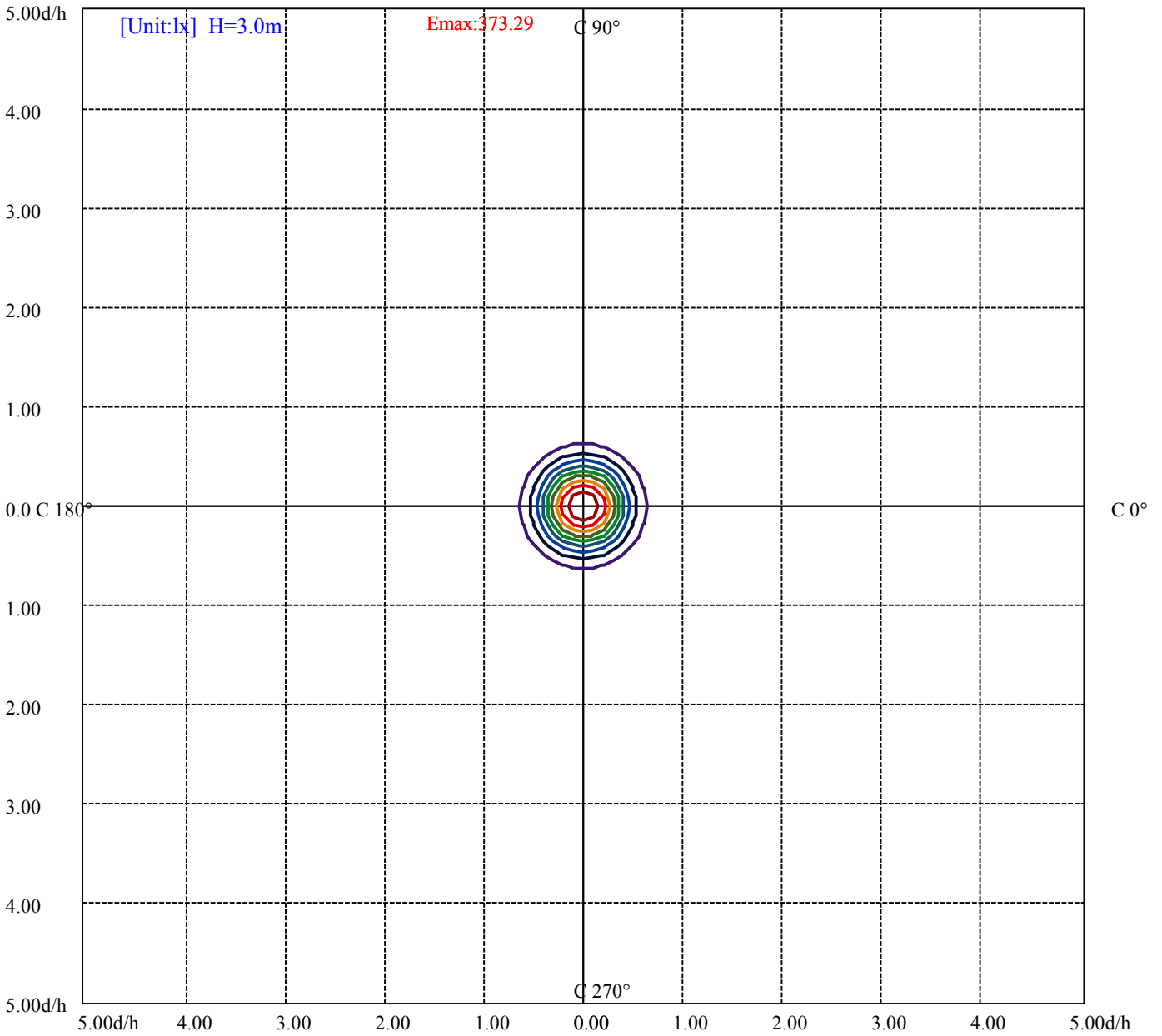
House

[Unit:cd]

Road

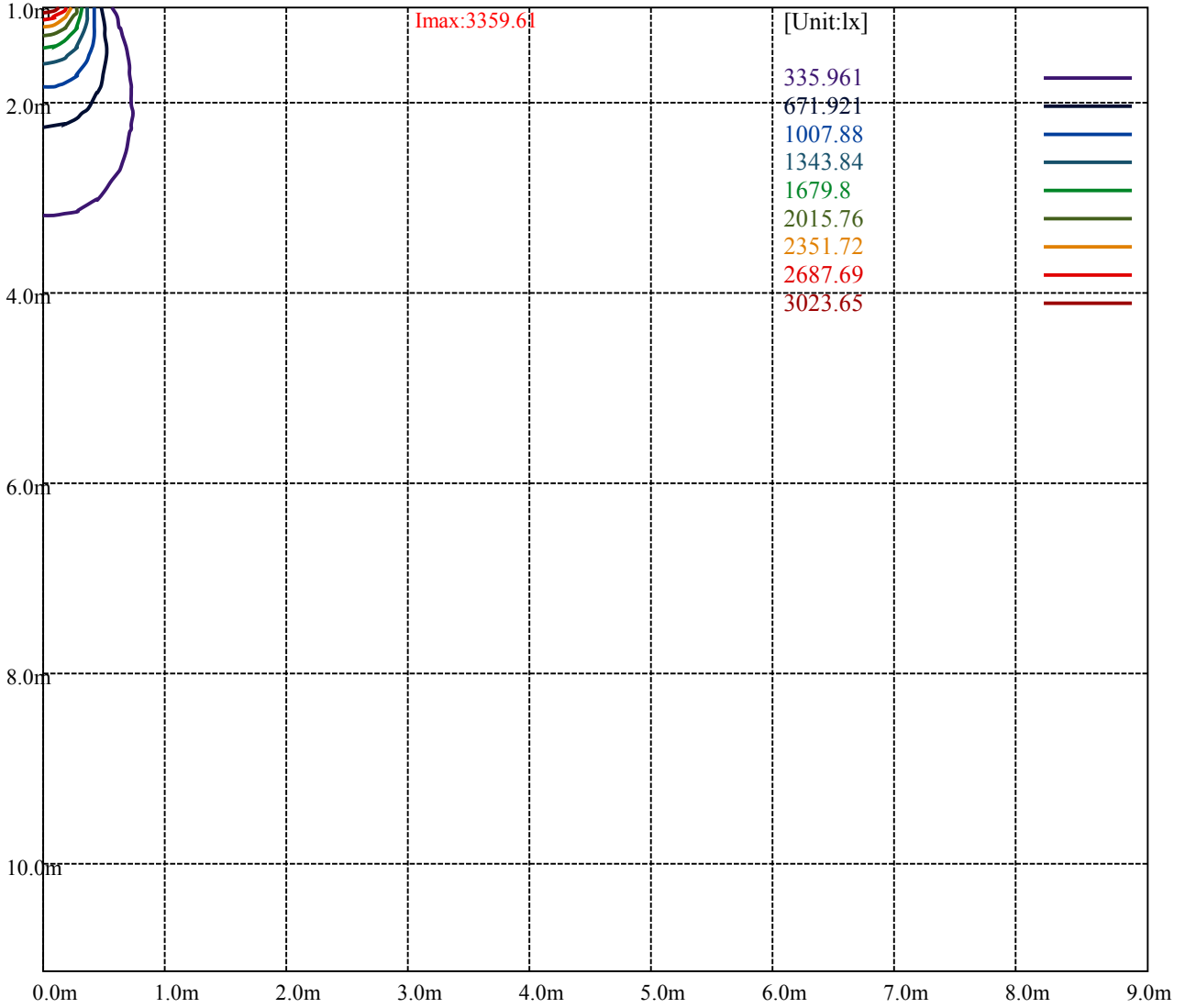
I<sub>max</sub>:3359.61

(10%I <sub>max</sub> )	335.961	—
(20%I <sub>max</sub> )	671.921	—
(30%I <sub>max</sub> )	1007.88	—
(40%I <sub>max</sub> )	1343.84	—
(50%I <sub>max</sub> )	1679.8	—
(60%I <sub>max</sub> )	2015.76	—
(70%I <sub>max</sub> )	2351.72	—
(80%I <sub>max</sub> )	2687.69	—
(90%I <sub>max</sub> )	3023.65	—



(10%Emax) 37.329	—
(20%Emax) 74.65789	—
(30%Emax) 111.9867	—
(40%Emax) 149.3156	—
(50%Emax) 186.6445	—
(60%Emax) 223.9733	—
(70%Emax) 261.3022	—
(80%Emax) 298.6322	—
(90%Emax) 335.9611	—





Luminance Table

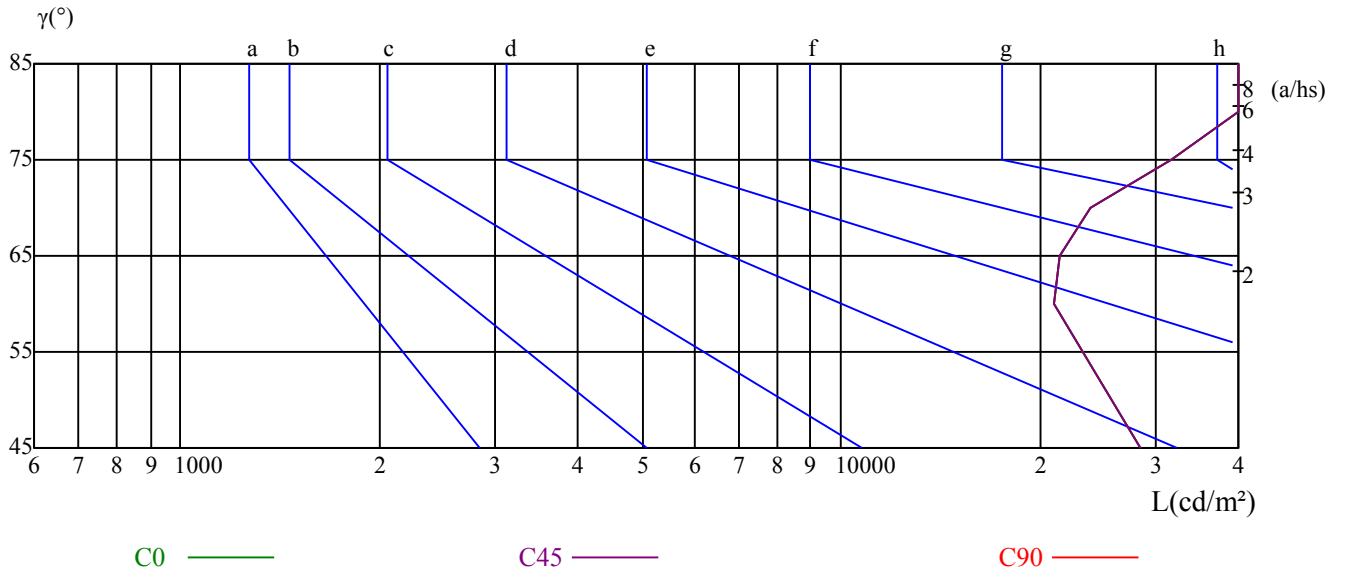
$\gamma$	45	50	55	60	65	70	75	80	85
C0	28347	25640	23185	21046	21430	23917	31621	42664	59141
C45	28347	25640	23185	21046	21430	23917	31621	42664	59141
C90	28347	25640	23185	21046	21430	23917	31621	42664	59141

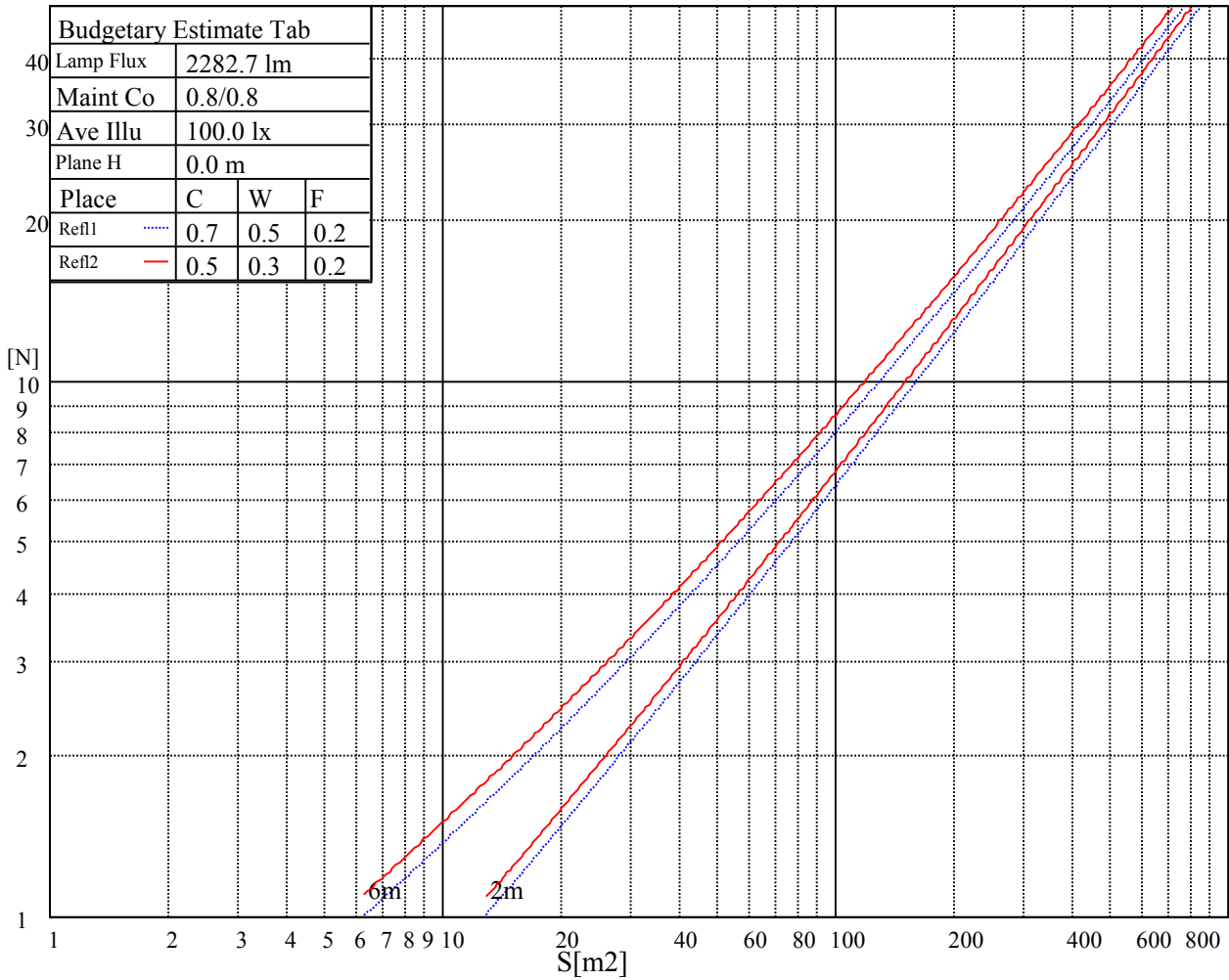
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
21430	21430	21430	31621	31621	31621	59141	59141	59141

Glare Table

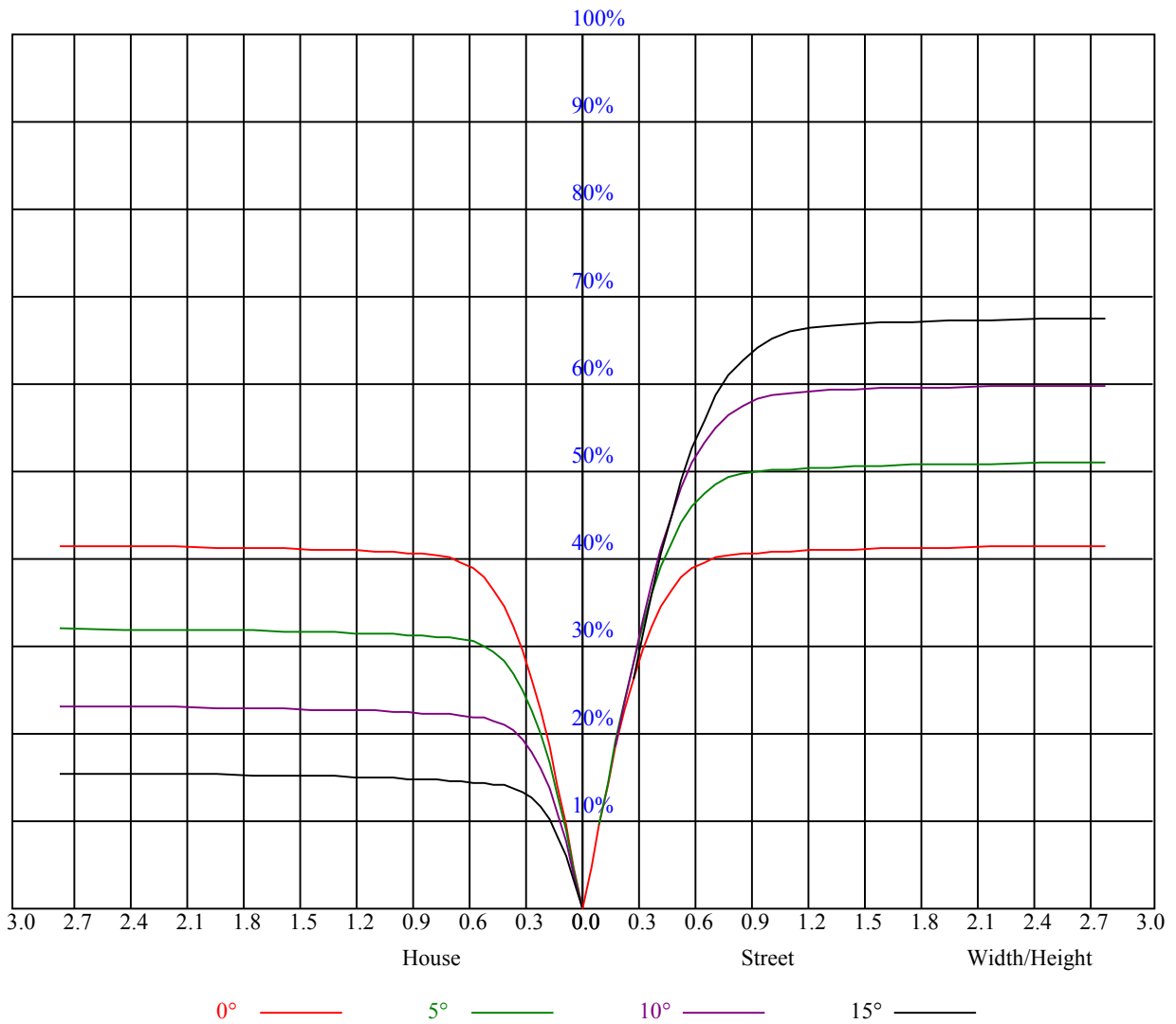
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	COEFFICIENTS OF UTILIZATION RHOFC=20 CU															
0	1.00	1.00	1.00	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.84
1	0.94	0.92	0.90	0.92	0.90	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.79
2	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.76	0.75
3	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.75	0.73	0.72	0.70
4	0.78	0.74	0.70	0.77	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.68	0.72	0.70	0.68	0.66
5	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
6	0.70	0.66	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
7	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57
8	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.61	0.58	0.55	0.54
9	0.61	0.56	0.53	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.58	0.55	0.53	0.52
10	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.51	0.56	0.53	0.50	0.56	0.53	0.50	0.49



Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	3359.91	3362.30	3189.01	2756.40	2166.64	1463.95	920.79	374.65	58.50
45.0	3357.52	3321.07	3059.35	2547.86	1912.09	1235.69	697.91	313.11	46.25
90.0	3359.31	3288.20	2994.22	2452.26	1769.88	1150.96	599.74	115.50	43.02
135.0	3361.70	3332.42	3075.48	2617.77	1958.70	1263.18	705.08	319.68	45.23
180.0	3359.91	3299.56	2999.00	2454.05	1809.32	1148.99	600.58	121.84	43.20
225.0	3357.52	3347.95	3131.65	2663.78	2051.32	1168.65	813.36	273.73	50.25
270.0	3359.31	3361.70	3184.83	2808.39	2162.46	1468.73	947.68	372.86	55.75
315.0	3361.70	3345.56	3125.67	2635.70	2028.01	1182.51	814.31	277.49	50.19
360.0	3359.91	3362.30	3189.01	2756.40	2166.64	1463.95	920.79	374.65	58.50
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	39.80	32.39	26.53	20.50	17.45	15.06	15.18	14.22	10.52
45.0	36.45	30.06	23.78	18.94	16.49	15.12	14.94	13.21	8.72
90.0	34.72	28.80	22.89	18.58	15.60	15.18	14.82	12.67	8.90
135.0	35.97	29.88	23.84	19.06	16.85	15.18	14.94	13.21	9.08
180.0	35.13	29.46	22.95	18.52	15.60	15.18	14.82	13.21	8.54
225.0	37.82	31.07	25.39	19.90	17.27	15.00	15.24	14.04	9.92
270.0	39.26	31.73	26.35	20.55	17.81	15.24	15.72	14.94	10.52
315.0	37.35	30.41	24.98	19.60	16.91	15.06	15.42	14.10	10.04
360.0	39.80	32.39	26.53	20.50	17.45	15.06	15.18	14.22	10.52
C/ $\gamma$ (°)	90.0								
0.0	8.37								
45.0	8.37								
90.0	8.37								
135.0	8.37								
180.0	8.31								
225.0	8.43								
270.0	8.43								
315.0	8.37								
360.0	8.37								