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Nata

LumCAT: 2-1121-A4

Luminaire: 99.02.73.172+92.76.365.00

Report No: NATA0100

Test No: GC2018082711

LampCAT: CITIZEN CLU038

Lamp flux(lm): 2534.0

Number of Lamps: 1

Length(mm): 71

Phm Type: C

Voltage(V): 35.3000

Current(A): 0.4900

Power (W): 17.2970

PF: 0.0000

Ballast type: DC

Width(mm): 71

Height(mm): 0

Photometric Results

Lumens(lm): 2318.95

Efficiency(%): 91.51%

Lumens(lm)/Power(W): 136.53

Central intensity(cd): 7491.663

Maximum intensity(cd): 7491.663

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=26.9

[C90/270]Total=26.9

Field angle(10%Imax): [C0/180]Total=63.0

[C90/270]Total=63.0

Maximum s/h(1/2): C0_180=0.46 C90_270=0.46

Maximum s/h(1/4): C0_180=0.44 C90_270=0.44

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 93.19%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.933%

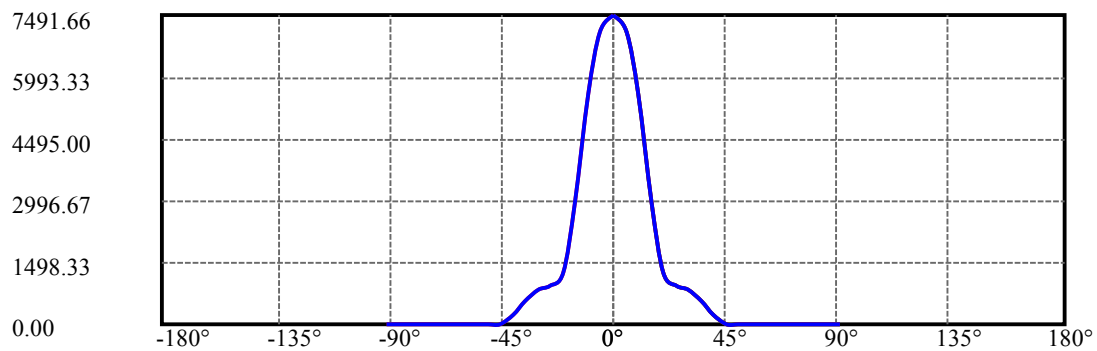
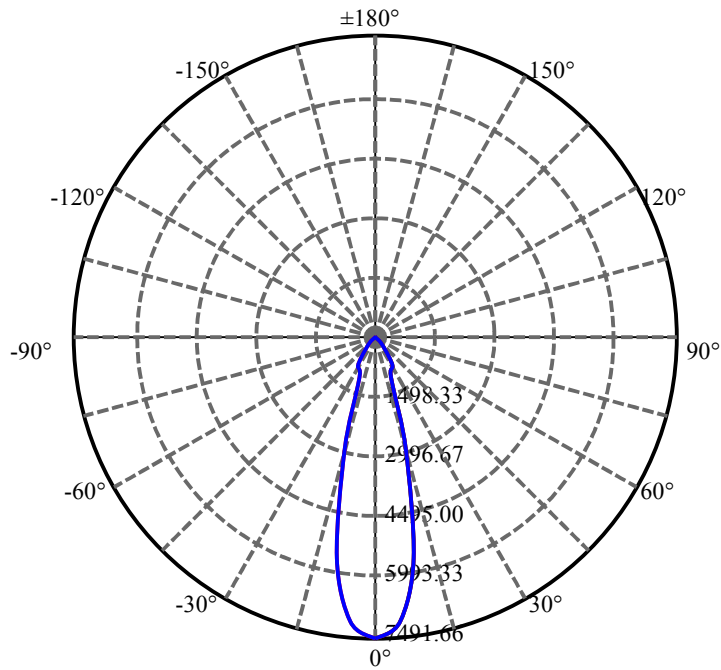
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7491.662	44.802	44.802	1.768%	1.932%
5.0	7067.177	337.623	382.424	13.324%	16.491%
10.0	5577.282	530.863	913.287	20.950%	39.384%
15.0	2929.207	415.562	1328.849	16.399%	57.304%
20.0	1263.806	236.931	1565.78	9.350%	67.521%
25.0	939.861	217.721	1783.501	8.592%	76.910%
30.0	821.896	225.256	2008.757	8.889%	86.623%
35.0	579.992	182.349	2191.106	7.196%	94.487%
40.0	209.503	73.816	2264.921	2.913%	97.670%
45.0	22.291	8.640	2273.561	.341%	98.043%
50.0	12.326	5.176	2278.736	.204%	98.266%
55.0	11.493	5.160	2283.897	.204%	98.488%
60.0	11.011	5.227	2289.124	.206%	98.714%
65.0	10.674	5.303	2294.427	.209%	98.942%
70.0	10.454	5.385	2299.811	.212%	99.175%
75.0	10.261	5.433	2305.244	.214%	99.409%
80.0	10.144	5.476	2310.72	.216%	99.645%
85.0	10.075	5.502	2316.222	.217%	99.882%
90.0	9.965	2.731	2318.953	.108%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2008.76	79.27%	86.62%
0-40	2264.92	89.38%	97.67%
0-60	2289.12	90.34%	98.71%
0-90	2316.22	91.41%	99.88%
0-120	2316.22	91.41%	99.88%
0-180	2318.95	91.51%	100.00%
60-90	32.32	1.28%	1.39%
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%
0-26.59	1855.16	73.21%	80.00%

ZONAL LUMEN SUMMARY

0-10	913.29
10-20	652.49
20-30	442.98
30-40	256.16
40-50	13.82
50-60	10.39
60-70	10.69
70-80	10.91
80-90	5.50
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: —————

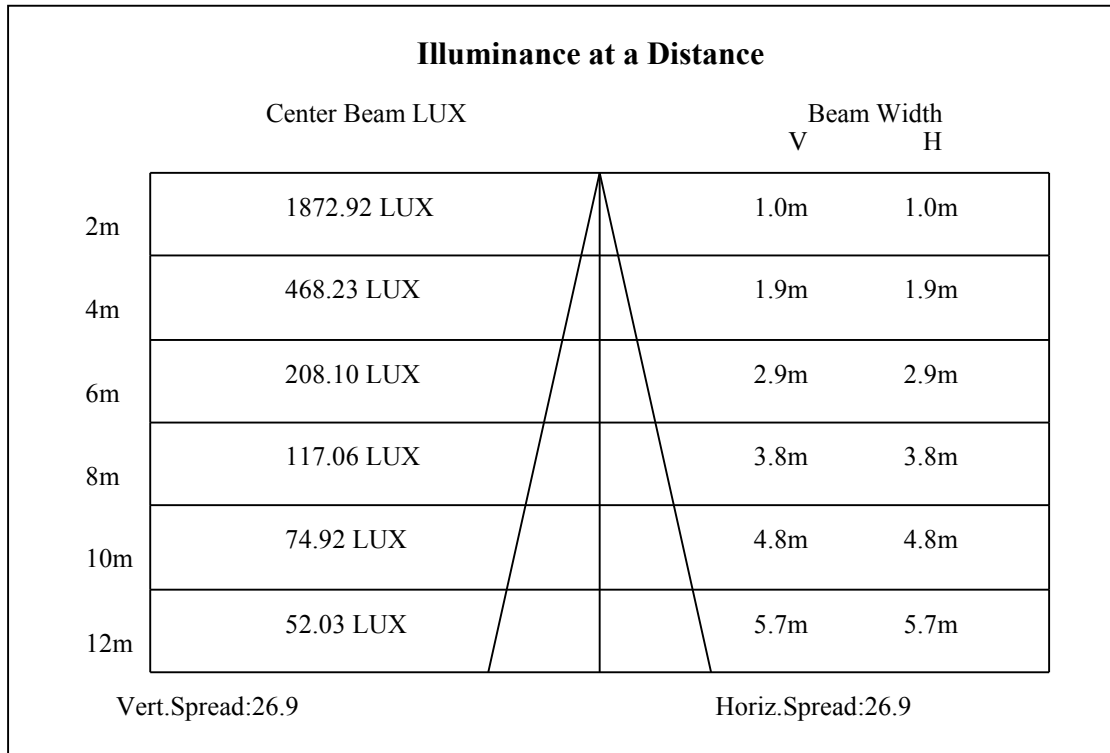
C90/C270: —————

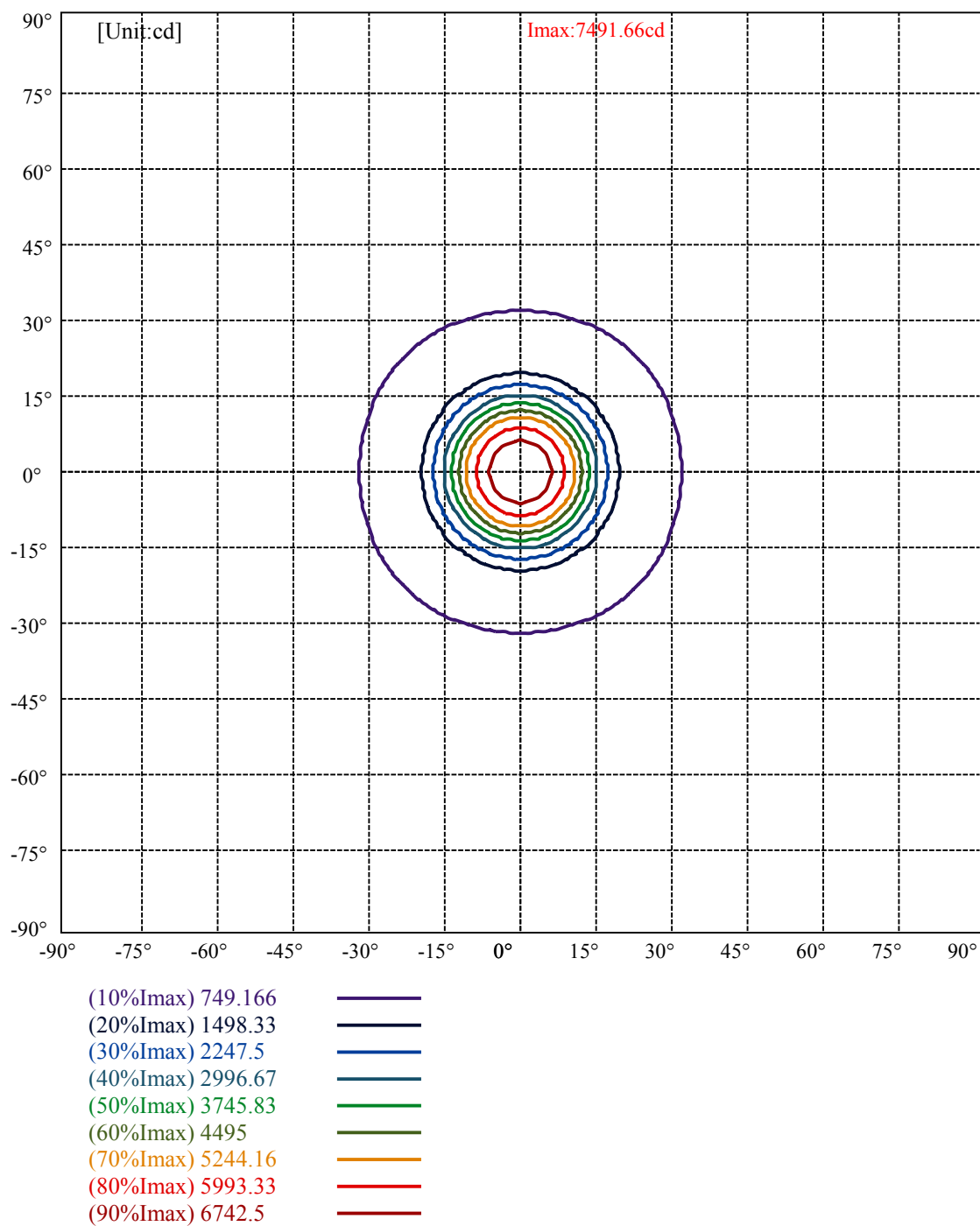
Field angle(10%Imax):C0/180Left:31.5 Right:31.5

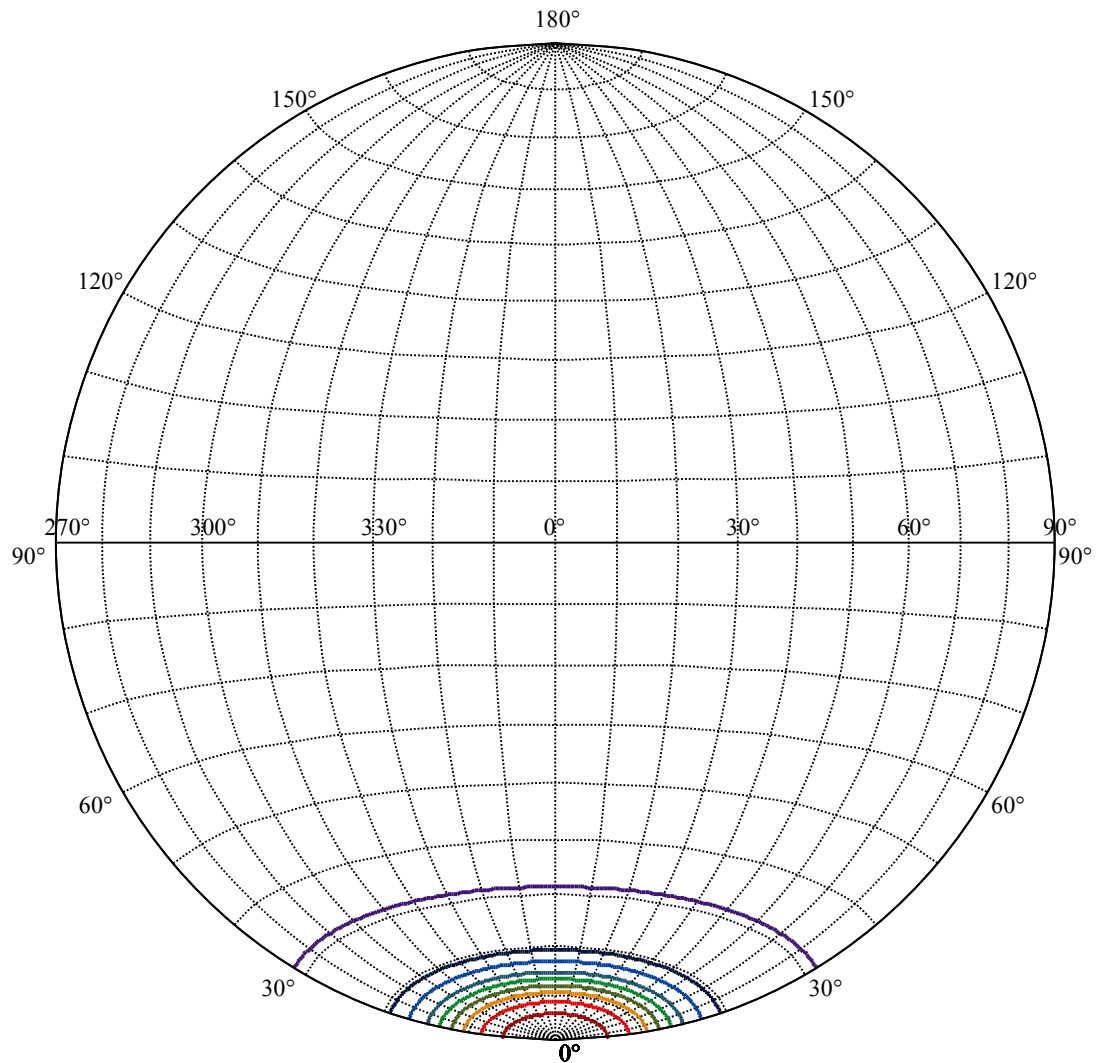
:C90/270Left:31.5 Right:31.5

Beam Angle(50%Imax):C0/180Left:13.5 Right:13.5

:C90/270Left:13.5 Right:13.5







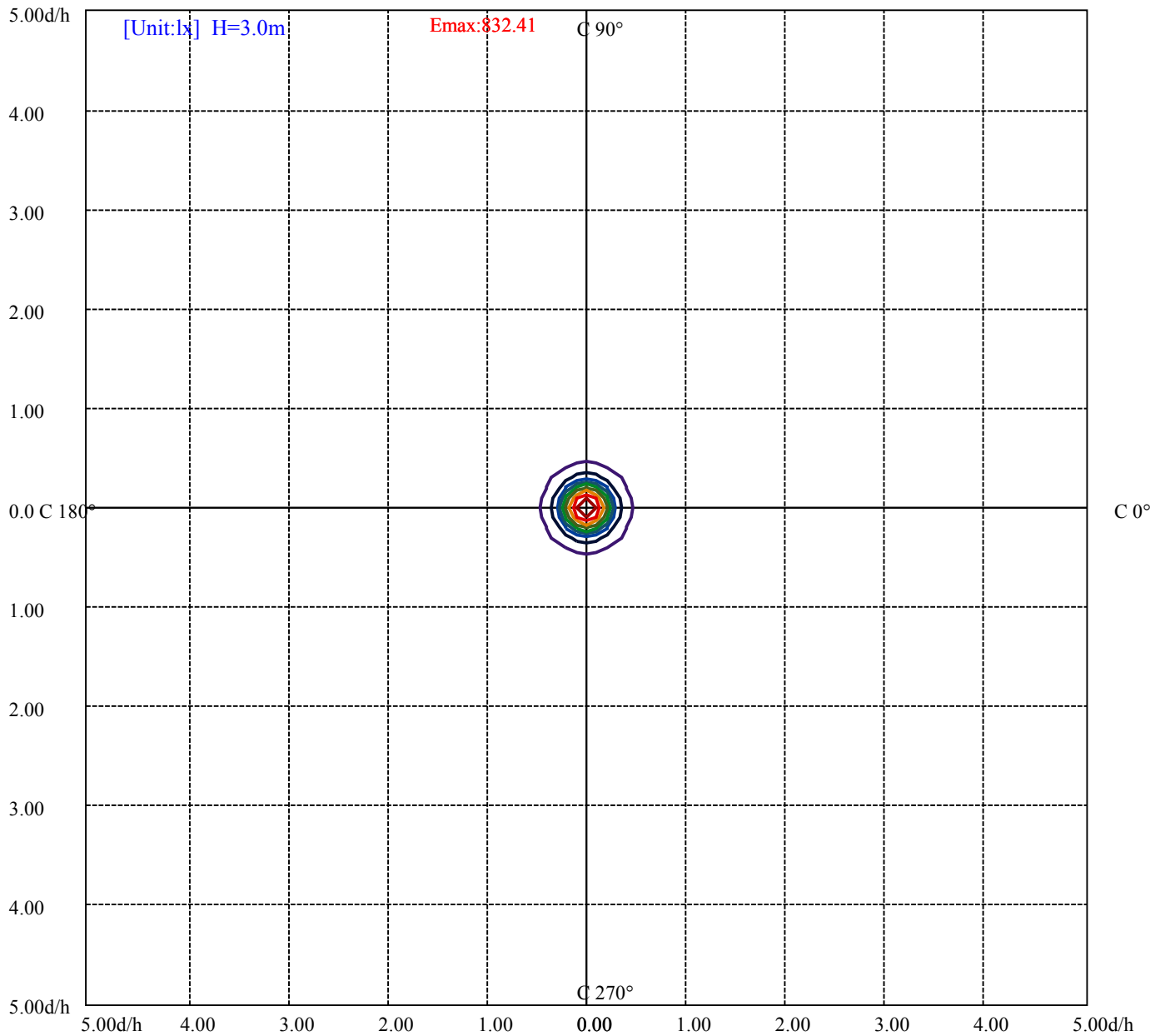
House

[Unit:cd]

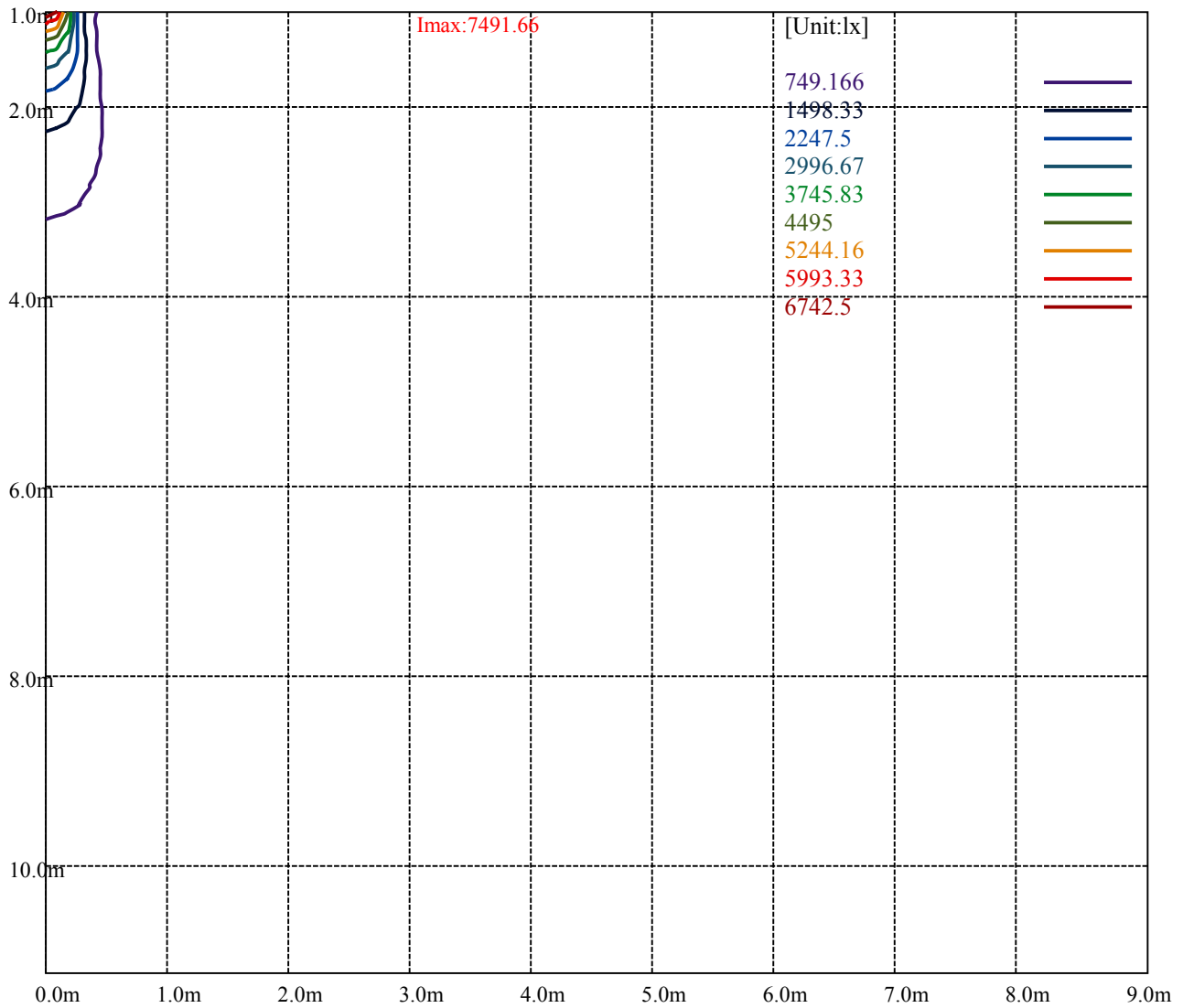
Road

Imax:7491.66

(10%Imax)	749.166	—
(20%Imax)	1498.33	—
(30%Imax)	2247.5	—
(40%Imax)	2996.67	—
(50%Imax)	3745.83	—
(60%Imax)	4495	—
(70%Imax)	5244.16	—
(80%Imax)	5993.33	—
(90%Imax)	6742.5	—



(10%Emax)	83.24055	—
(20%Emax)	166.4811	—
(30%Emax)	249.7211	—
(40%Emax)	332.9622	—
(50%Emax)	416.2022	—
(60%Emax)	499.4434	—
(70%Emax)	582.6833	—
(80%Emax)	665.9244	—
(90%Emax)	749.1644	—



Luminance Table

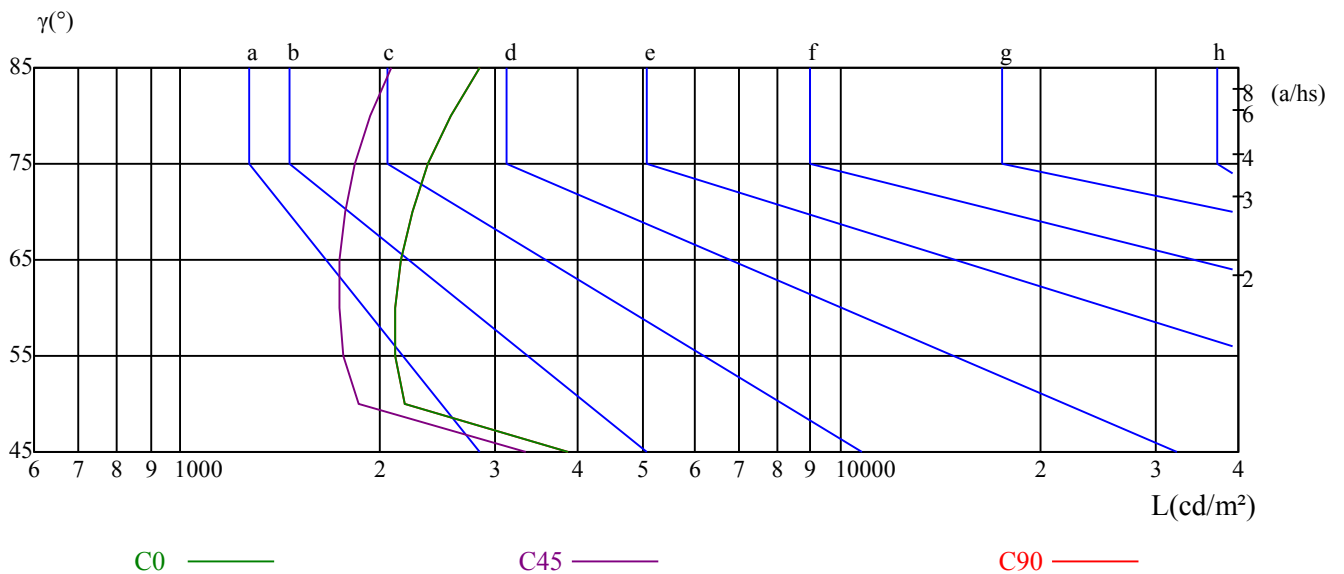
γ	45	50	55	60	65	70	75	80	85
C0	3861	2188	2109	2107	2151	2243	2374	2567	2837
C45	3333	1861	1765	1735	1740	1779	1841	1941	2081
C90	3861	2188	2109	2107	2151	2243	2374	2567	2837

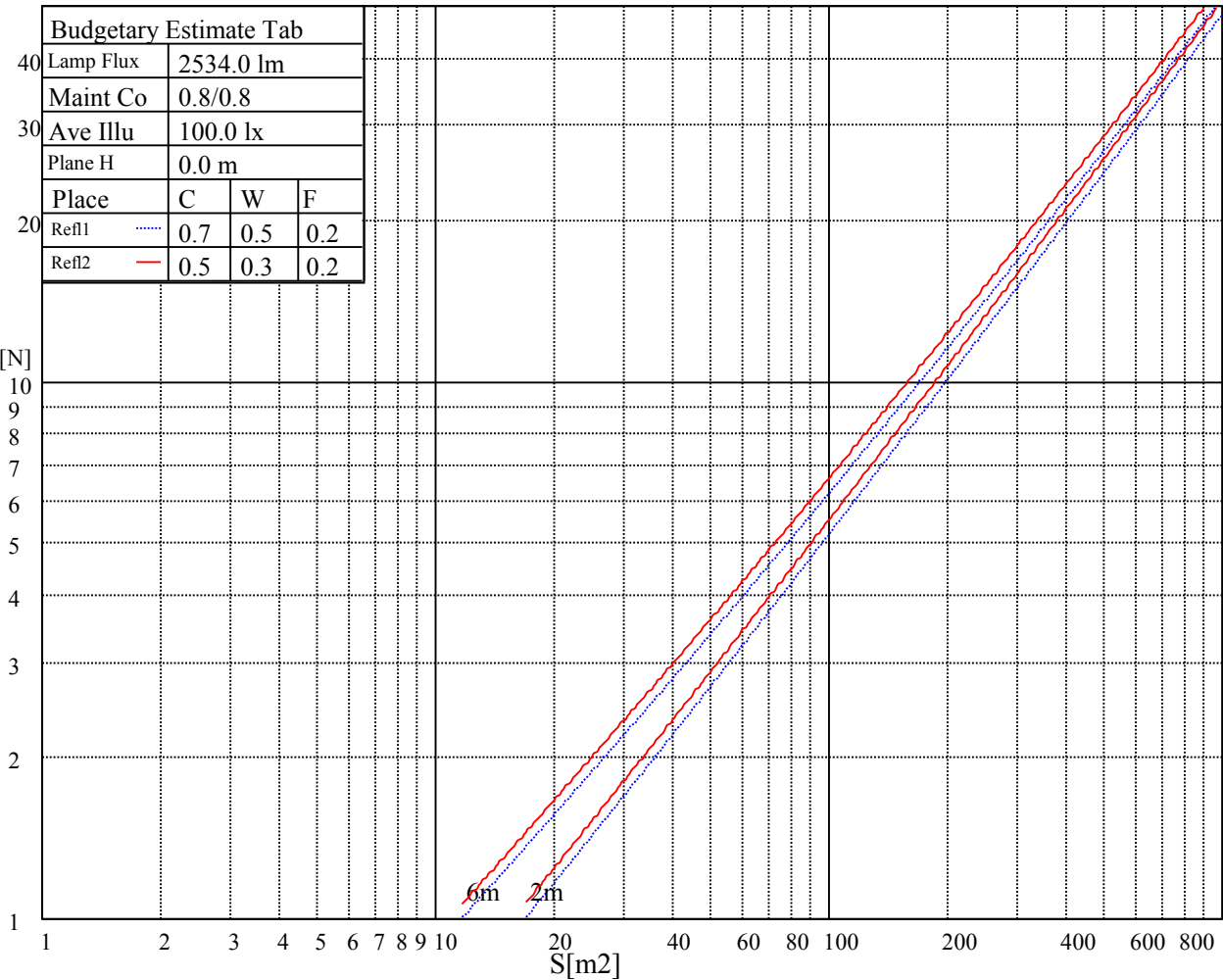
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5010	5010	5010	7865	7865	7865	22932	22932	22932

Glare Table

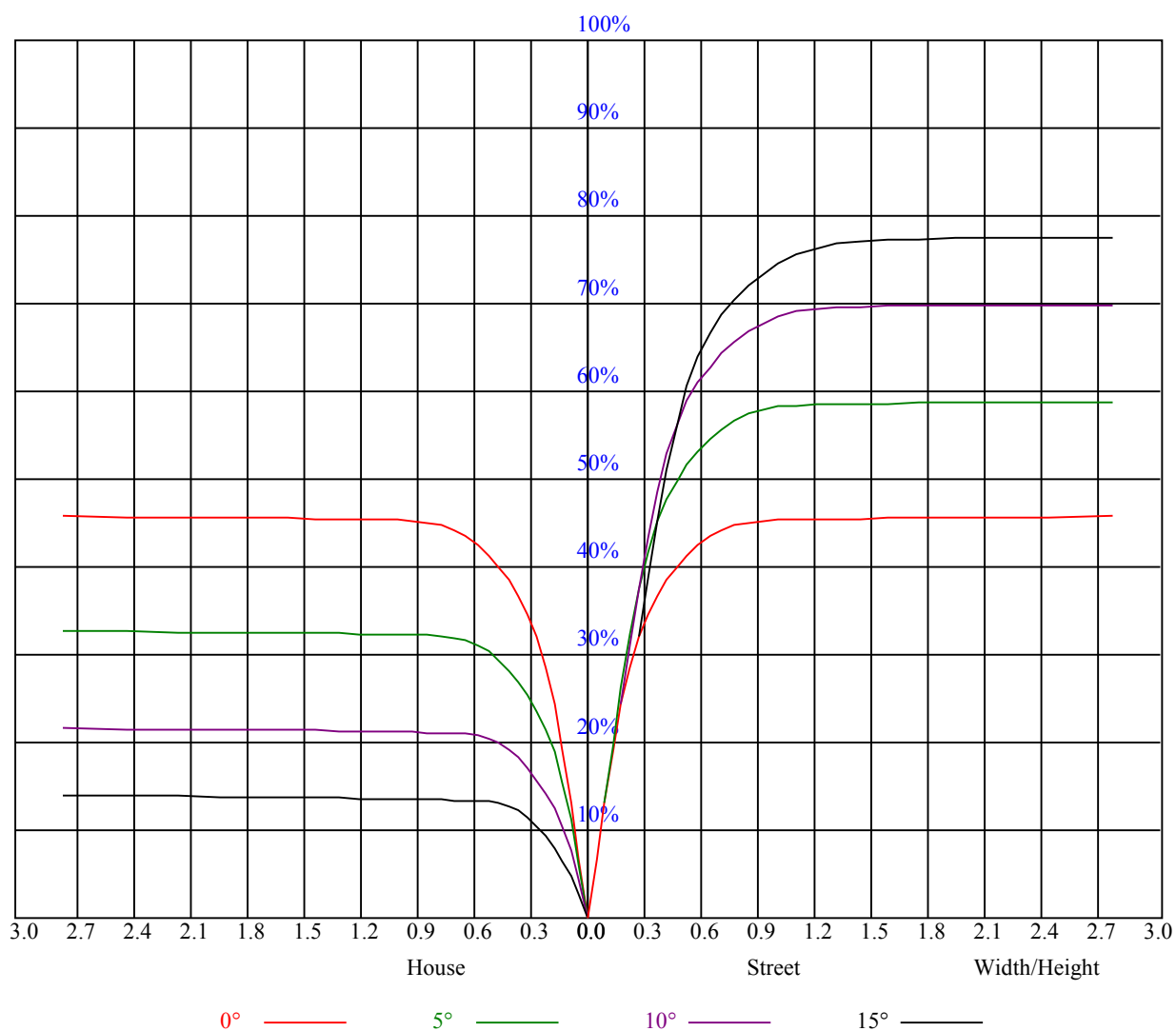
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.11	1.11	1.11	1.08	1.08	1.08	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	1.00	0.97	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.97	0.93	0.90	0.95	0.92	0.89	0.92	0.90	0.87	0.90	0.87	0.86	0.87	0.85	0.84	0.82
3	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.88	0.84	0.80	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.76
5	0.84	0.80	0.77	0.84	0.79	0.76	0.82	0.78	0.76	0.81	0.77	0.75	0.79	0.77	0.74	0.73
6	0.81	0.77	0.73	0.81	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.68
8	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.73	0.70	0.67	0.66
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.71	0.67	0.65	0.64
10	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.62



Intensity data(cd)										Appendix Page: 14 Total:14	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	7498.13	7250.38	6052.90	3284.11	1474.96	980.55	843.46	662.33	280.24		
45.0	7475.01	7283.41	6262.11	3873.77	1677.02	991.57	837.96	653.52	295.65		
90.0	7495.93	7022.44	5680.17	3020.39	1091.11	936.67	814.34	572.15	175.52		
135.0	7497.58	7074.75	5744.58	3026.45	1325.21	948.62	826.40	624.34	279.14		
180.0	7498.13	6966.84	5105.93	2395.50	1087.31	900.94	798.54	507.45	119.64		
225.0	7475.01	6949.22	5140.07	2361.37	1076.85	912.95	805.53	475.85	90.84		
270.0	7495.93	7070.34	5511.15	3020.94	1281.71	935.96	834.10	584.15	287.39		
315.0	7497.58	6920.04	5121.35	2451.11	1096.28	911.62	814.83	560.14	147.61		
360.0	7498.13	7250.38	6052.90	3284.11	1474.96	980.55	843.46	662.33	280.24		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	29.01	12.66	11.67	11.18	10.79	10.52	10.30	10.13	10.02		
45.0	27.97	13.05	11.89	11.29	10.90	10.63	10.35	10.24	10.13		
90.0	20.59	12.39	11.56	11.07	10.68	10.46	10.24	10.13	10.08		
135.0	23.40	12.22	11.45	10.96	10.63	10.41	10.24	10.13	10.08		
180.0	16.24	12.06	11.23	10.85	10.52	10.35	10.19	10.13	10.02		
225.0	17.01	12.00	11.40	10.90	10.63	10.41	10.30	10.13	10.08		
270.0	22.24	12.17	11.40	10.96	10.63	10.46	10.30	10.19	10.08		
315.0	21.86	12.06	11.34	10.90	10.63	10.41	10.19	10.08	10.13		
360.0	29.01	12.66	11.67	11.18	10.79	10.52	10.30	10.13	10.02		
C/ γ (°)	90.0										
0.0	9.97										
45.0	10.02										
90.0	9.97										
135.0	9.91										
180.0	9.97										
225.0	10.02										
270.0	9.97										
315.0	9.91										
360.0	9.97										