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## NATA

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LumCAT: 3-2040-M	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 36.1000
Test No: GC2018111215	Current(A): 0.5500
LampCAT: OSRAM SOLERIQ S15	Power (W): 19.8550
Lamp flux(lm): 2582.0	PF: 1.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2337.75  
Efficiency(%): 90.54%  
Lumens(lm)/Power(W): 120.90  
Central intensity(cd): 10870.730  
Maximum intensity(cd): 10870.730  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=20.5  
                                  [C90/270]Total=20.5  
Field angle(10%Imax): [C0/180]Total=46.5  
                                  [C90/270]Total=46.5  
Maximum s/h(1/2): C0\_180=0.35 C90\_270=0.35  
Maximum s/h(1/4): C0\_180=0.36 C90\_270=0.36  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 92.97%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.204%

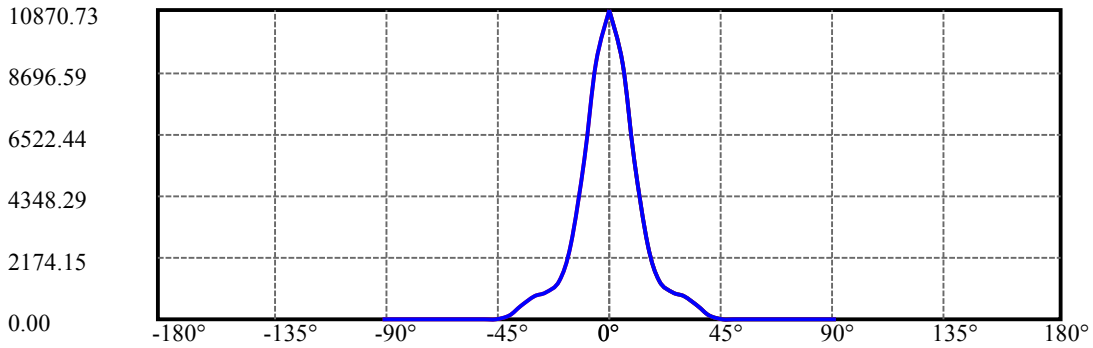
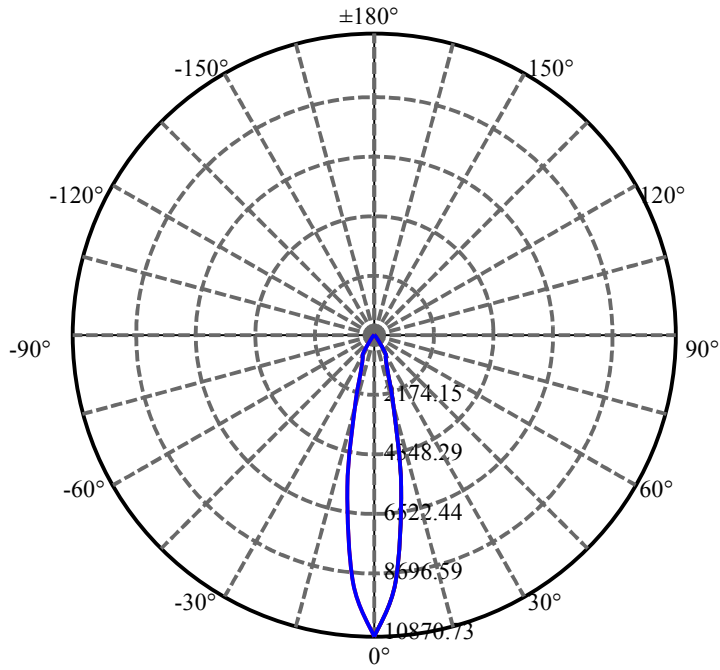
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10870.734	65.009	65.009	2.518%	2.781%
5.0	8988.820	429.426	494.435	16.632%	21.150%
10.0	5587.664	531.851	1026.286	20.598%	43.901%
15.0	2659.359	377.279	1403.565	14.612%	60.039%
20.0	1373.196	257.439	1661.004	9.971%	71.052%
25.0	929.918	215.418	1876.422	8.343%	80.266%
30.0	802.666	219.986	2096.407	8.520%	89.676%
35.0	486.113	152.833	2249.241	5.919%	96.214%
40.0	110.187	38.823	2288.063	1.504%	97.875%
45.0	15.652	6.066	2294.13	.235%	98.134%
50.0	12.558	5.273	2299.403	.204%	98.360%
55.0	11.194	5.026	2304.429	.195%	98.575%
60.0	10.498	4.983	2309.412	.193%	98.788%
65.0	10.111	5.023	2314.435	.195%	99.003%
70.0	9.914	5.107	2319.542	.198%	99.221%
75.0	9.738	5.156	2324.698	.200%	99.442%
80.0	9.654	5.211	2329.909	.202%	99.665%
85.0	9.584	5.233	2335.142	.203%	99.889%
90.0	9.499	2.603	2337.745	.101%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2096.41	81.19%	89.68%
0-40	2288.06	88.62%	97.87%
0-60	2309.41	89.44%	98.79%
0-90	2335.14	90.44%	99.89%
0-120	2335.14	90.44%	99.89%
0-180	2337.75	90.54%	100.00%
60-90	30.71	1.19%	1.31%
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%
0-24.86	1870.20	72.43%	80.00%

ZONAL LUMEN SUMMARY

0-10	1026.29
10-20	634.72
20-30	435.40
30-40	191.66
40-50	11.34
50-60	10.01
60-70	10.13
70-80	10.37
80-90	5.23
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: —————

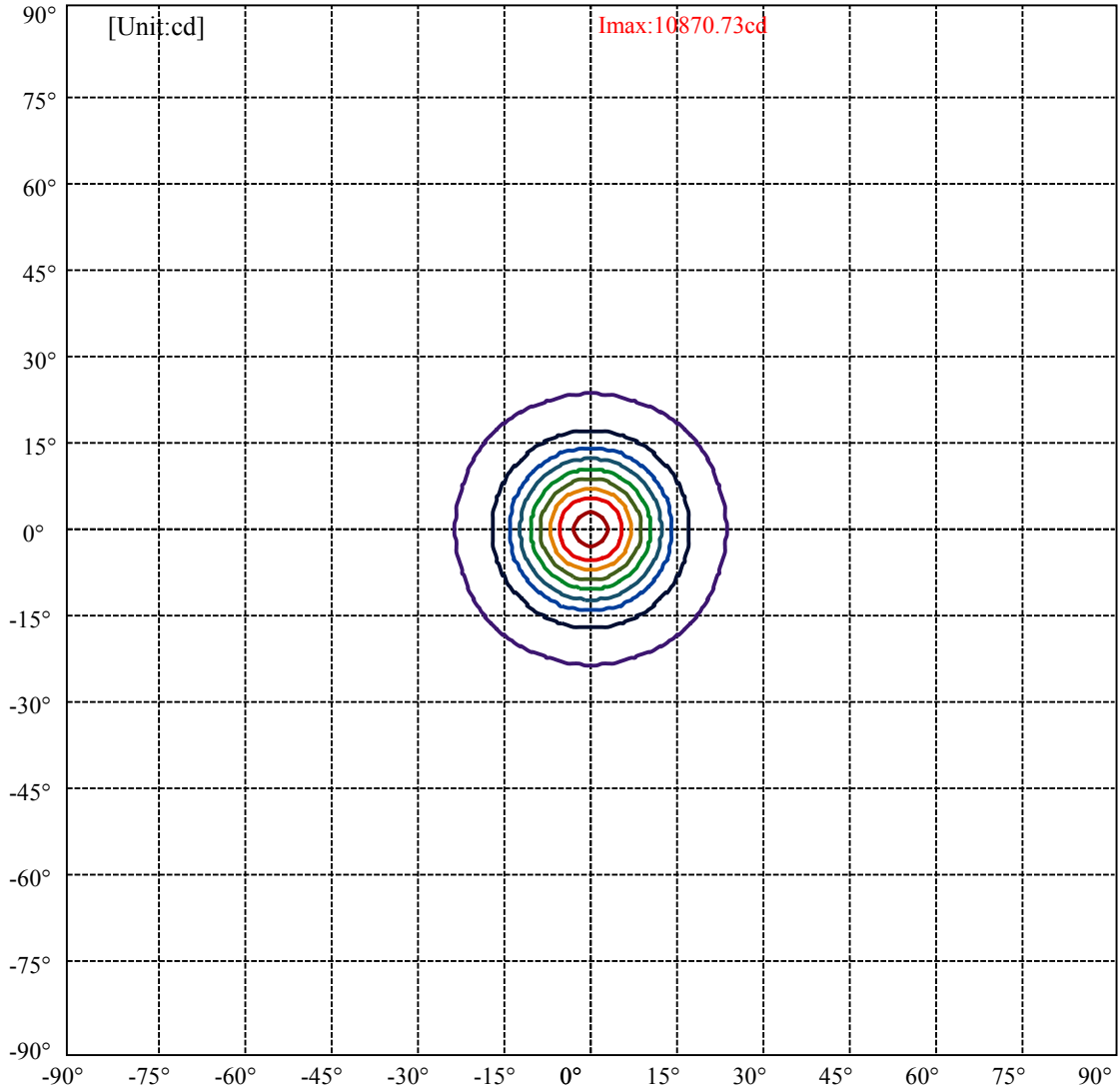
Field angle(10%Imax):C0/180Left:23.2 Right:23.2

:C90/270Left:23.2 Right:23.2

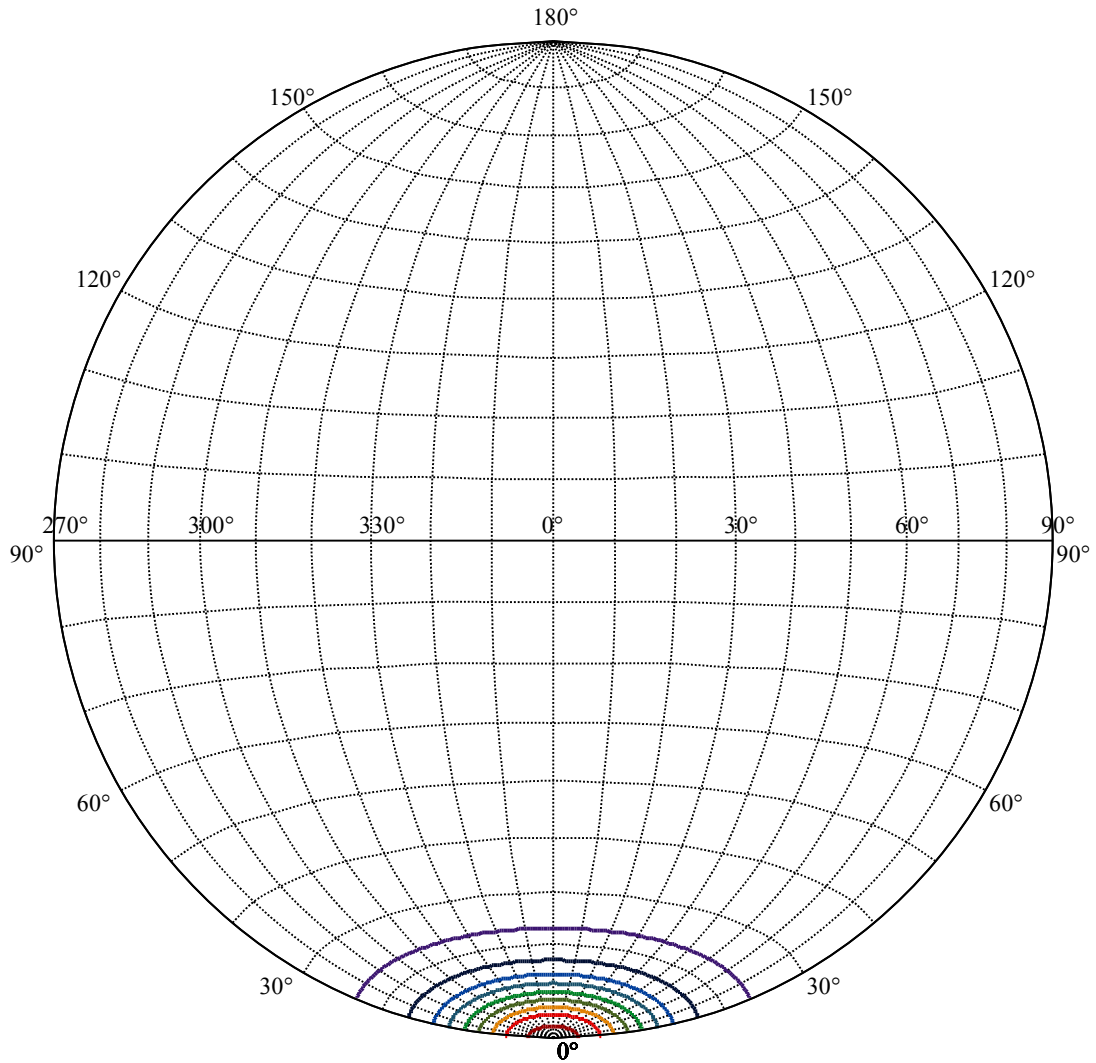
Beam Angle(50%Imax):C0/180Left:10.3 Right:10.3

:C90/270Left:10.3 Right:10.3





(10%Imax) 1087.07	—
(20%Imax) 2174.15	—
(30%Imax) 3261.22	—
(40%Imax) 4348.29	—
(50%Imax) 5435.37	—
(60%Imax) 6522.44	—
(70%Imax) 7609.51	—
(80%Imax) 8696.59	—
(90%Imax) 9783.66	—



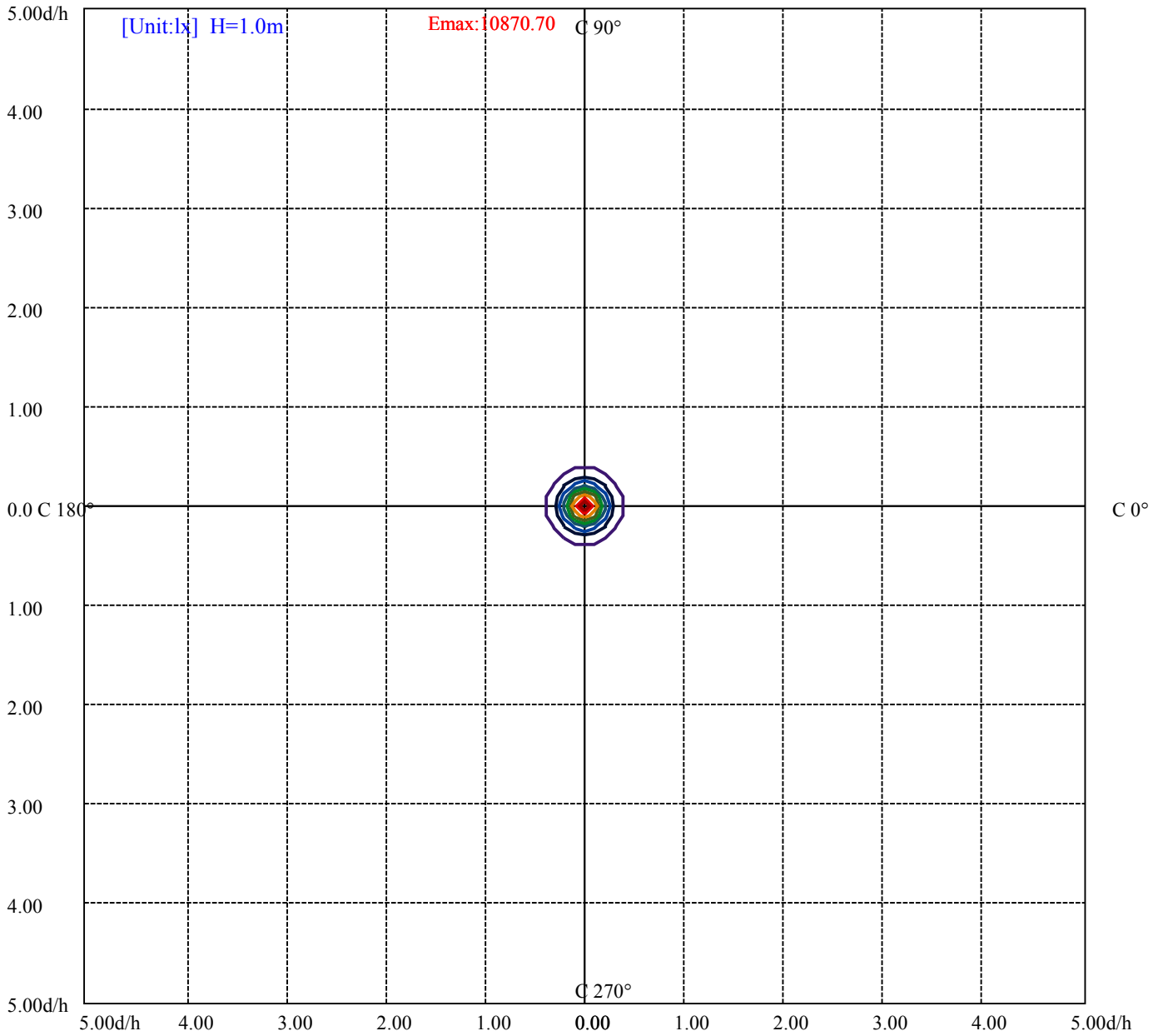
House

[Unit:cd]

Road

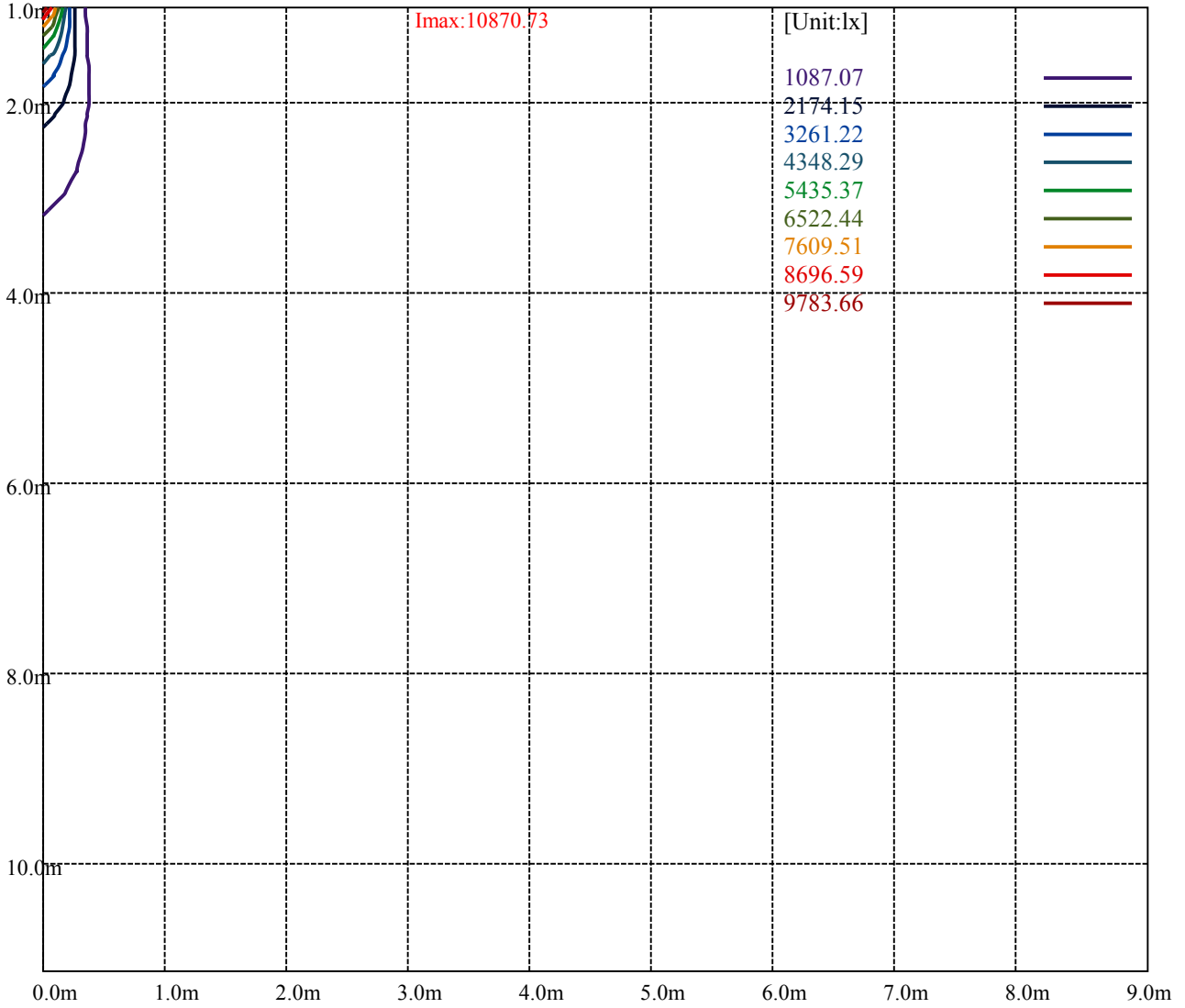
**Imax:10870.73**

(10%Imax) 1087.07	—
(20%Imax) 2174.15	—
(30%Imax) 3261.22	—
(40%Imax) 4348.29	—
(50%Imax) 5435.37	—
(60%Imax) 6522.44	—
(70%Imax) 7609.51	—
(80%Imax) 8696.59	—
(90%Imax) 9783.66	—



(10%Emax) 1087.07	—
(20%Emax) 2174.14	—
(30%Emax) 3261.2	—
(40%Emax) 4348.27	—
(50%Emax) 5435.34	—
(60%Emax) 6522.41	—
(70%Emax) 7609.47	—
(80%Emax) 8696.54	—
(90%Emax) 9783.61	—





Luminance Table

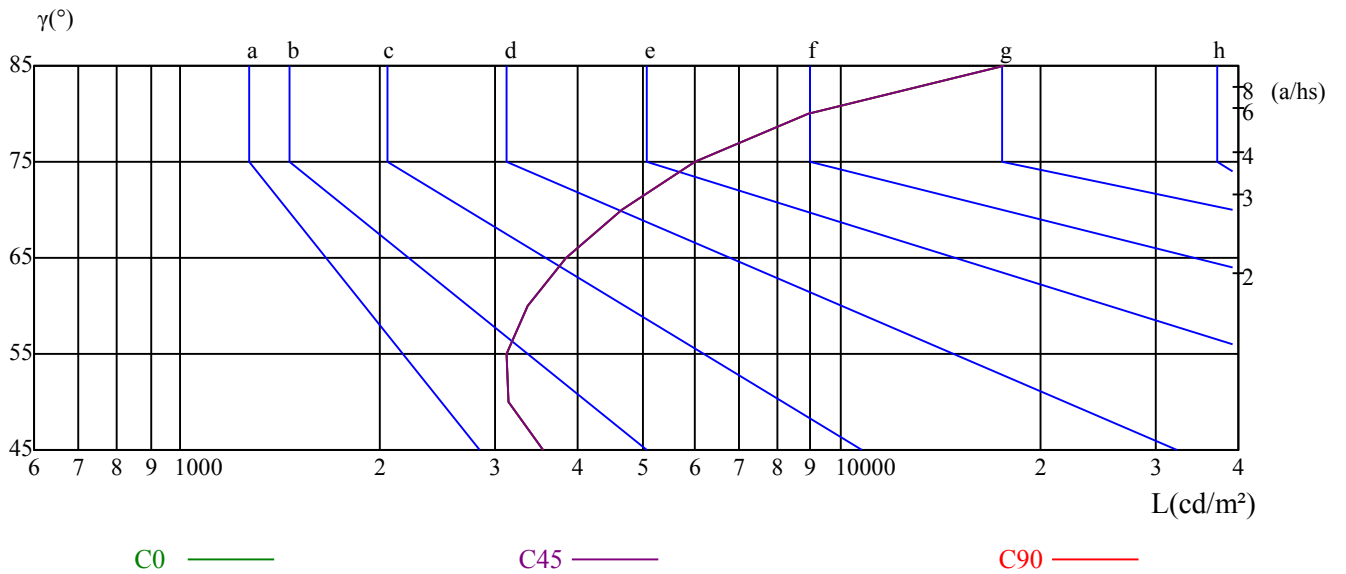
$\gamma$	45	50	55	60	65	70	75	80	85
C0	3547	3130	3127	3364	3833	4645	6029	8908	17619
C45	3547	3130	3127	3364	3833	4645	6029	8908	17619
C90	3547	3130	3127	3364	3833	4645	6029	8908	17619

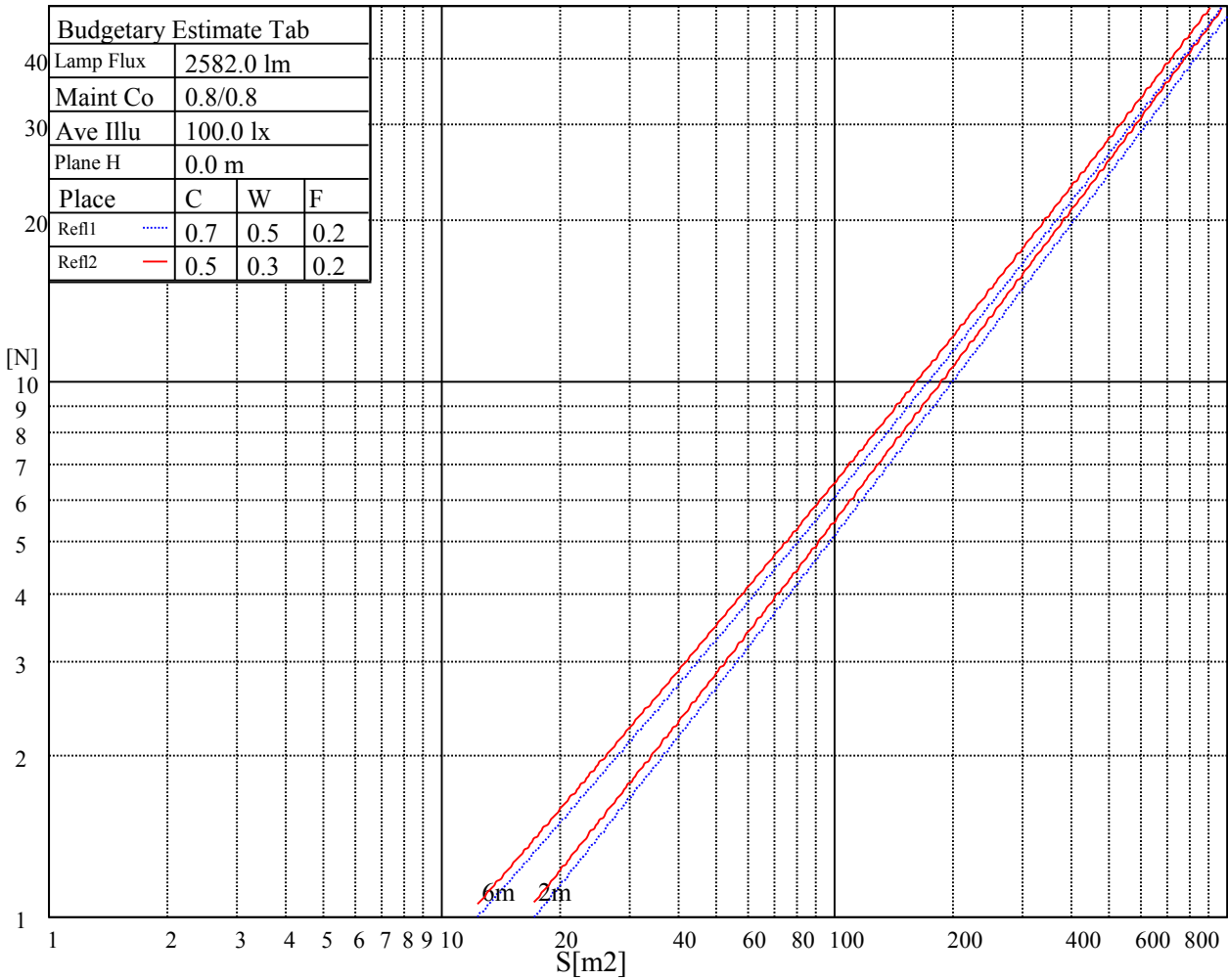
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3833	3833	3833	6029	6029	6029	17619	17619	17619

Glare Table

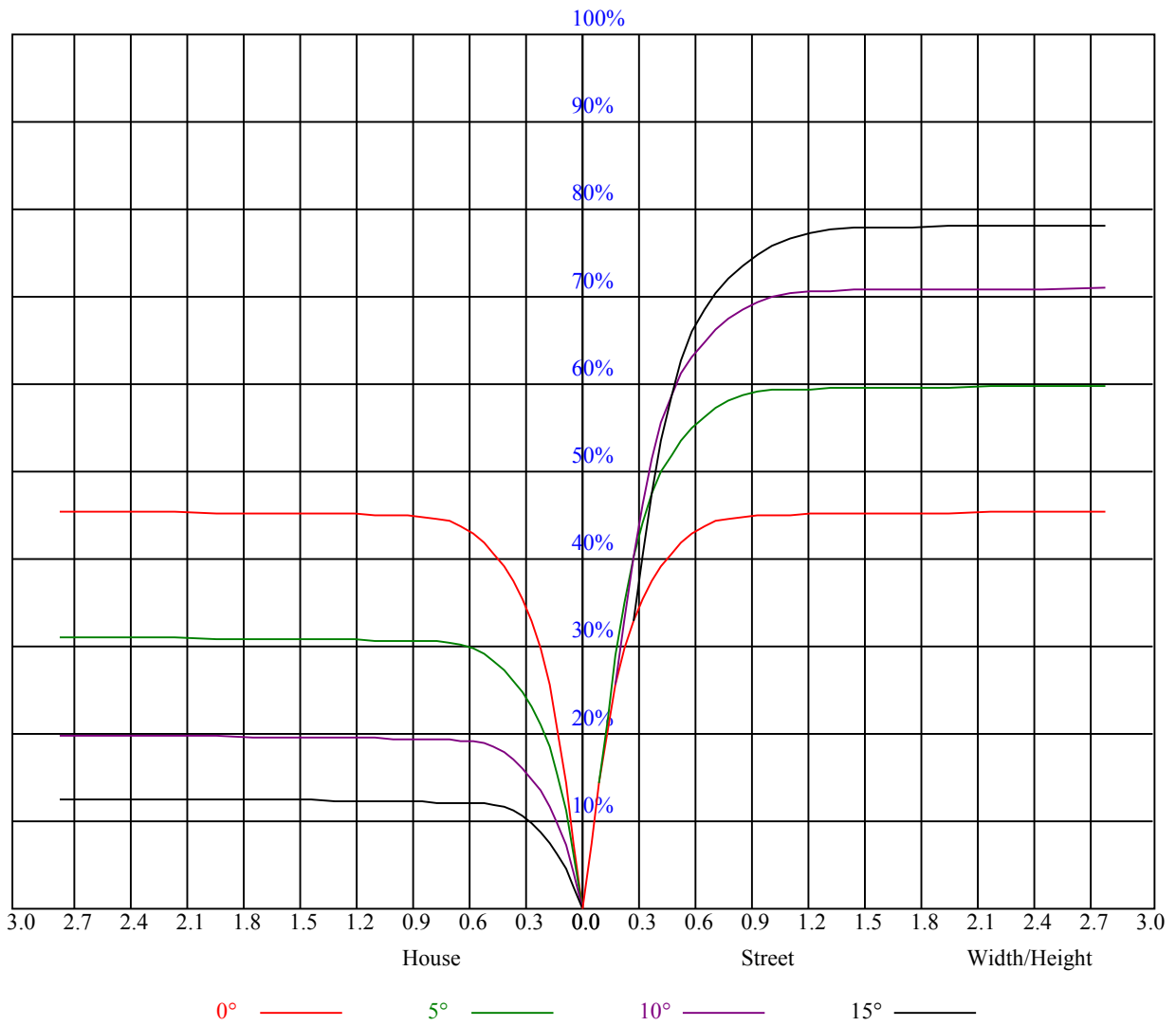
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.01	0.99	0.96	0.99	0.97	0.95	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.87	0.86	0.85
2	0.96	0.92	0.89	0.95	0.91	0.88	0.92	0.89	0.86	0.89	0.87	0.85	0.86	0.84	0.83	0.81
3	0.92	0.88	0.84	0.90	0.87	0.84	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.78
4	0.88	0.83	0.80	0.87	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	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	0.78	0.75	0.79	0.77	0.74	0.73
6	0.81	0.77	0.74	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
9	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
10	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64



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	10836.56	9741.38	6512.63	3165.75	1588.50	1000.69	832.50	654.75	309.94
45.0	11008.69	8545.50	5076.56	2284.31	1275.19	893.81	786.94	428.06	31.89
90.0	10671.19	7867.69	4413.94	2007.00	1105.03	859.84	750.15	277.99	23.57
135.0	10966.50	8517.38	5235.75	2350.69	1256.06	891.00	789.19	398.25	31.67
180.0	10836.56	8307.56	4609.69	2232.00	1097.66	862.99	781.59	356.12	25.31
225.0	11008.69	9572.63	6041.25	2845.69	1483.88	956.31	817.82	564.86	91.46
270.0	10671.19	9937.13	6720.75	3502.69	1709.44	1036.13	844.31	654.19	288.56
315.0	10966.50	9421.31	6090.75	2886.75	1469.81	938.59	818.83	554.68	79.09
360.0	10836.56	9741.38	6512.63	3165.75	1588.50	1000.69	832.50	654.75	309.94

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	17.66	12.88	11.42	10.52	10.13	9.90	9.73	9.68	9.56
45.0	13.67	12.09	10.91	10.41	10.13	9.90	9.73	9.62	9.56
90.0	13.73	12.26	10.97	10.41	10.13	9.96	9.79	9.79	9.56
135.0	13.89	12.21	11.03	10.58	10.07	9.90	9.73	9.62	9.56
180.0	13.44	12.04	10.86	10.35	10.01	9.84	9.68	9.62	9.51
225.0	16.71	12.94	11.42	10.52	10.07	9.90	9.73	9.56	9.56
270.0	19.24	13.16	11.64	10.69	10.24	10.01	9.84	9.73	9.79
315.0	16.88	12.88	11.31	10.52	10.13	9.90	9.68	9.62	9.56
360.0	17.66	12.88	11.42	10.52	10.13	9.90	9.73	9.68	9.56

C/γ(°)	90.0
0.0	9.51
45.0	9.51
90.0	9.51
135.0	9.51
180.0	9.51
225.0	9.45
270.0	9.51
315.0	9.51
360.0	9.51