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## NATA

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LumCAT: 3-2046-M	
Luminaire: 92.70.134.00	
Report No: NATA0100	Voltage(V): 34.9000
Test No: GC2019010911	Current(A): 0.7000
LampCAT: OSRAM SOLERIQ S19	Power (W): 24.4300
Lamp flux(lm): 3440.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 84	Width(mm): 84
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2980.46  
Efficiency(%): 86.64%  
Lumens(lm)/Power(W): 123.35  
Central intensity(cd): 6003.141  
Maximum intensity(cd): 6003.141  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=39.0  
                                  [C90/270]Total=39.0  
Field angle(10%Imax): [C0/180]Total=70.0  
                                  [C90/270]Total=70.0  
Maximum s/h(1/2): C0\_180=0.64 C90\_270=0.64  
Maximum s/h(1/4): C0\_180=0.63 C90\_270=0.63  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 87.60%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.653%

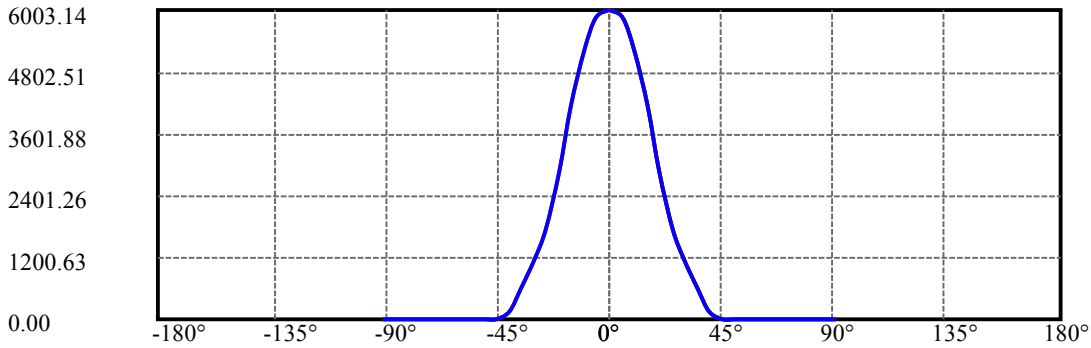
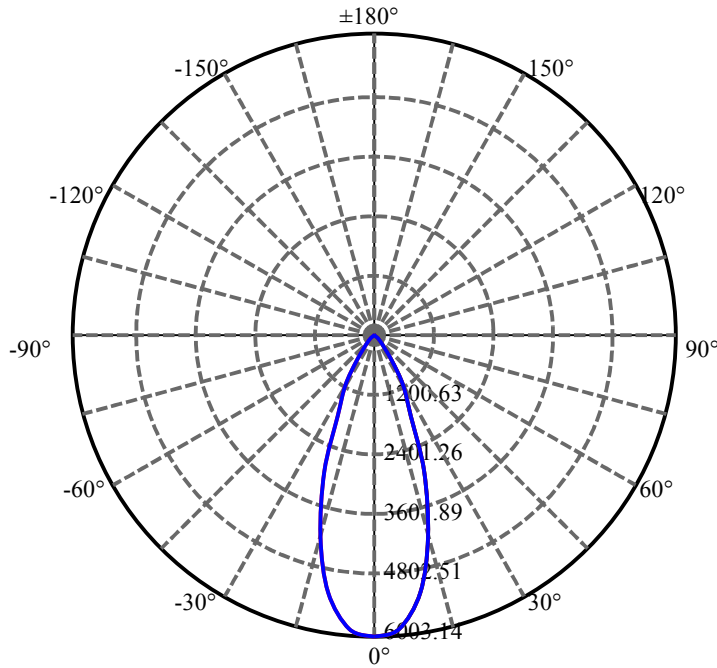
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6003.141	35.900	35.9	1.044%	1.205%
5.0	5862.445	280.068	315.968	8.142%	10.601%
10.0	5221.055	496.956	812.924	14.446%	27.275%
15.0	4145.414	588.103	1401.028	17.096%	47.007%
20.0	2880.633	540.044	1941.071	15.699%	65.127%
25.0	1760.484	407.821	2348.893	11.855%	78.810%
30.0	1167.117	319.870	2668.763	9.299%	89.542%
35.0	598.866	188.283	2857.046	5.473%	95.859%
40.0	166.655	58.718	2915.764	1.707%	97.829%
45.0	18.155	7.037	2922.801	.205%	98.066%
50.0	15.870	6.664	2929.464	.194%	98.289%
55.0	14.801	6.646	2936.11	.193%	98.512%
60.0	14.070	6.679	2942.789	.194%	98.736%
65.0	13.556	6.734	2949.523	.196%	98.962%
70.0	13.205	6.801	2956.325	.198%	99.190%
75.0	12.923	6.842	2963.167	.199%	99.420%
80.0	12.769	6.893	2970.06	.200%	99.651%
85.0	12.727	6.949	2977.009	.202%	99.884%
90.0	12.579	3.447	2980.457	.100%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2668.76	77.58%	89.54%
0-40	2915.76	84.76%	97.83%
0-60	2942.79	85.55%	98.74%
0-90	2977.01	86.54%	99.88%
0-120	2977.01	86.54%	99.88%
0-180	2980.46	86.64%	100.00%
60-90	40.90	1.19%	1.37%
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%
0-25.55	2384.37	69.31%	80.00%

ZONAL LUMEN SUMMARY

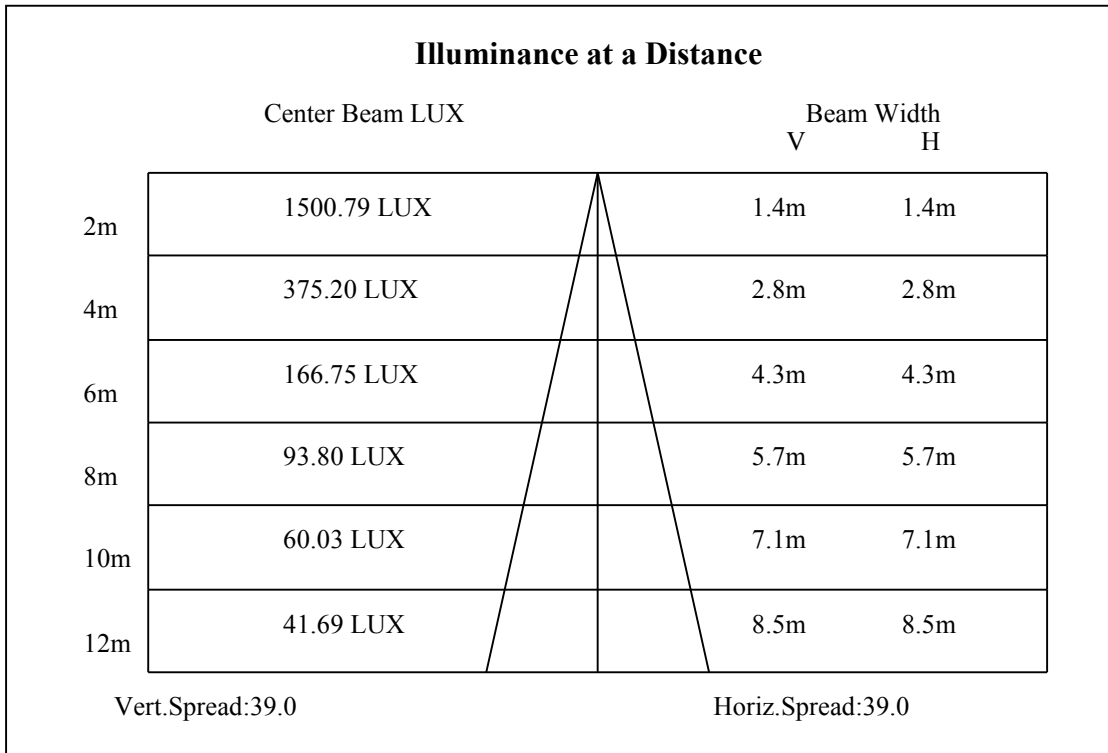
0-10	812.92
10-20	1128.15
20-30	727.69
30-40	247.00
40-50	13.70
50-60	13.32
60-70	13.54
70-80	13.74
80-90	6.95
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

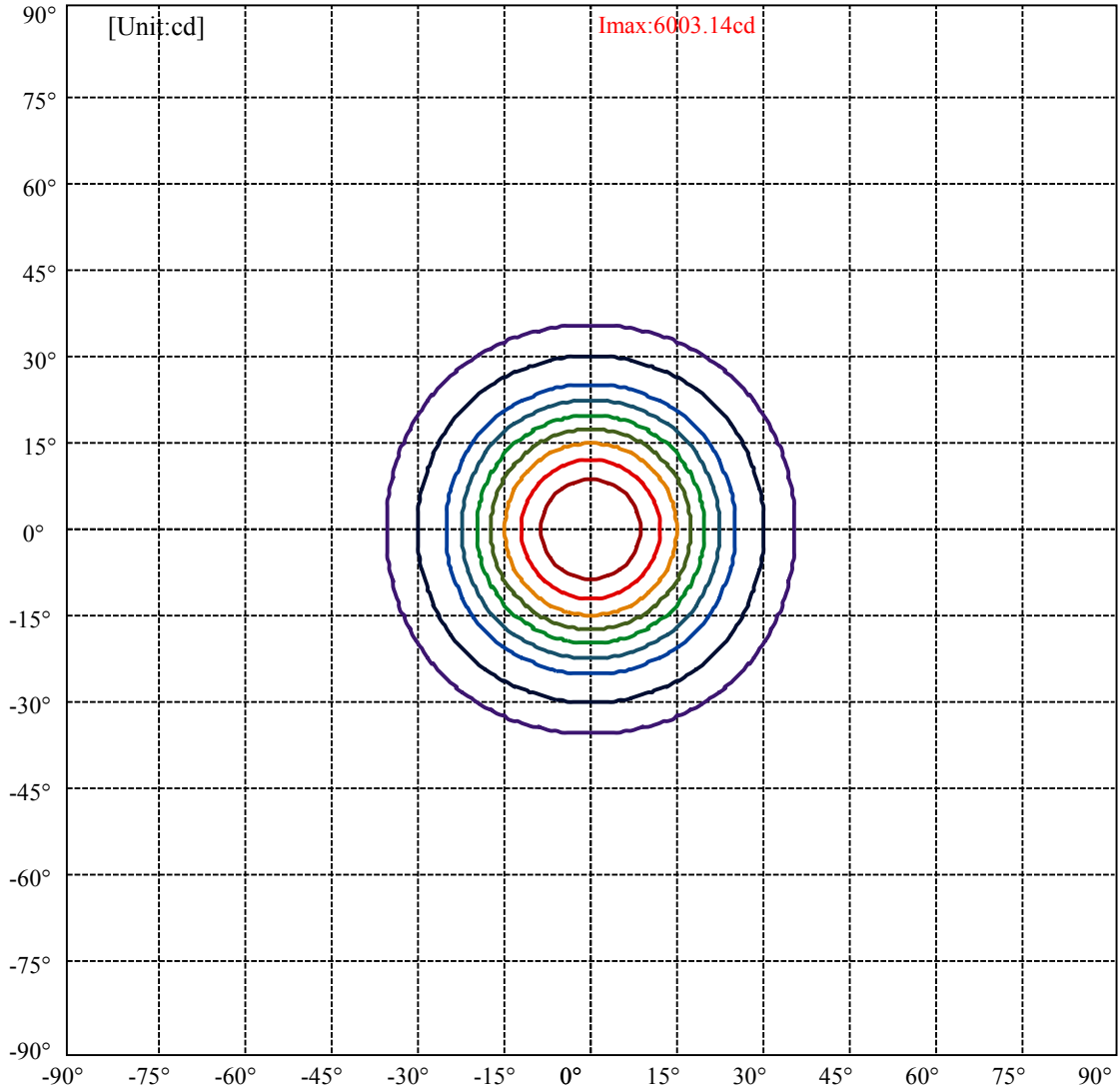


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

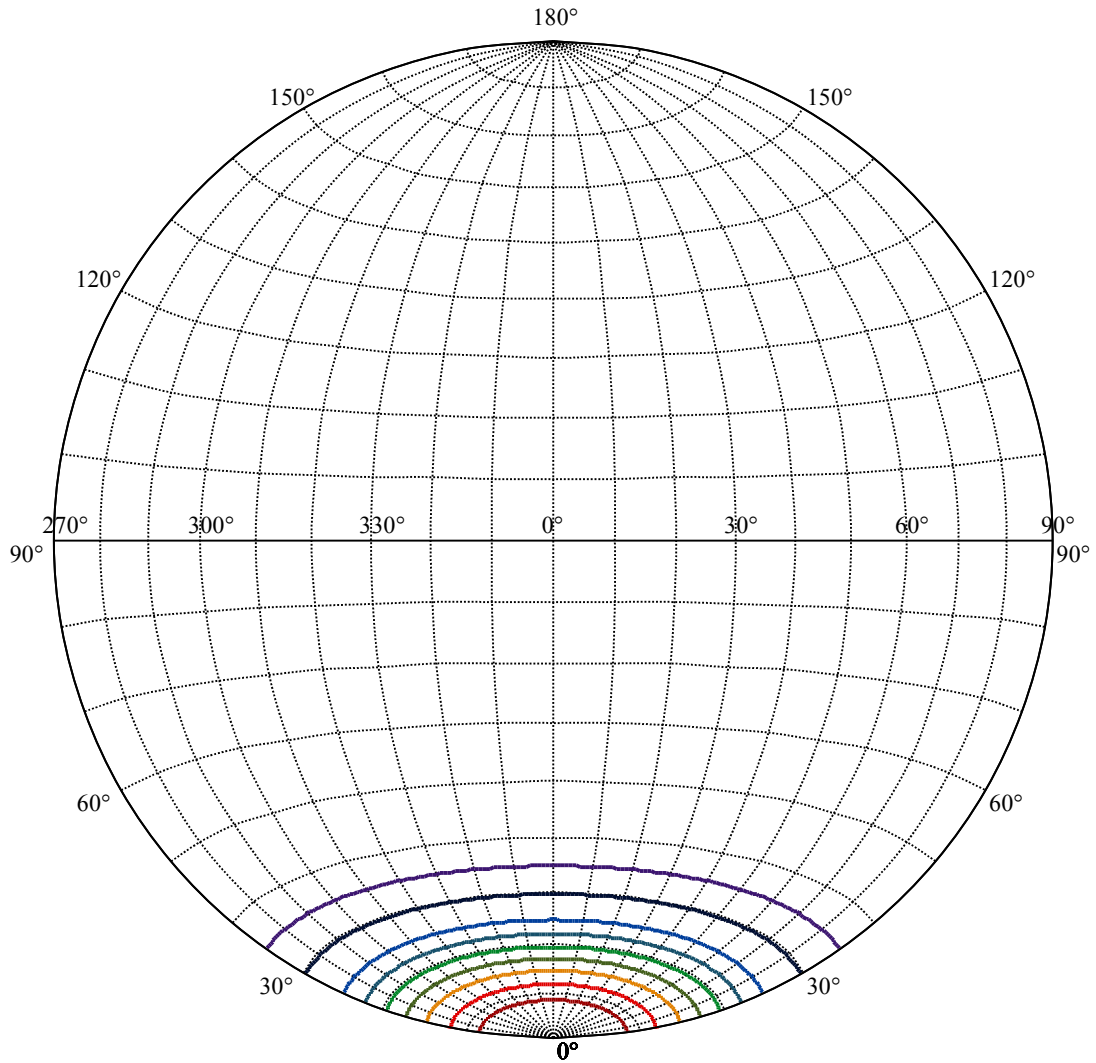
Field angle(10%Imax):C0/180Left:35.0 Right:35.0  
:C90/270Left:35.0 Right:35.0

Beam Angle(50%Imax):C0/180Left:19.5 Right:19.5  
:C90/270Left:19.5 Right:19.5





(10%Imax) 600.314	—
(20%Imax) 1200.63	—
(30%Imax) 1800.94	—
(40%Imax) 2401.26	—
(50%Imax) 3001.57	—
(60%Imax) 3601.88	—
(70%Imax) 4202.2	—
(80%Imax) 4802.51	—
(90%Imax) 5402.83	—



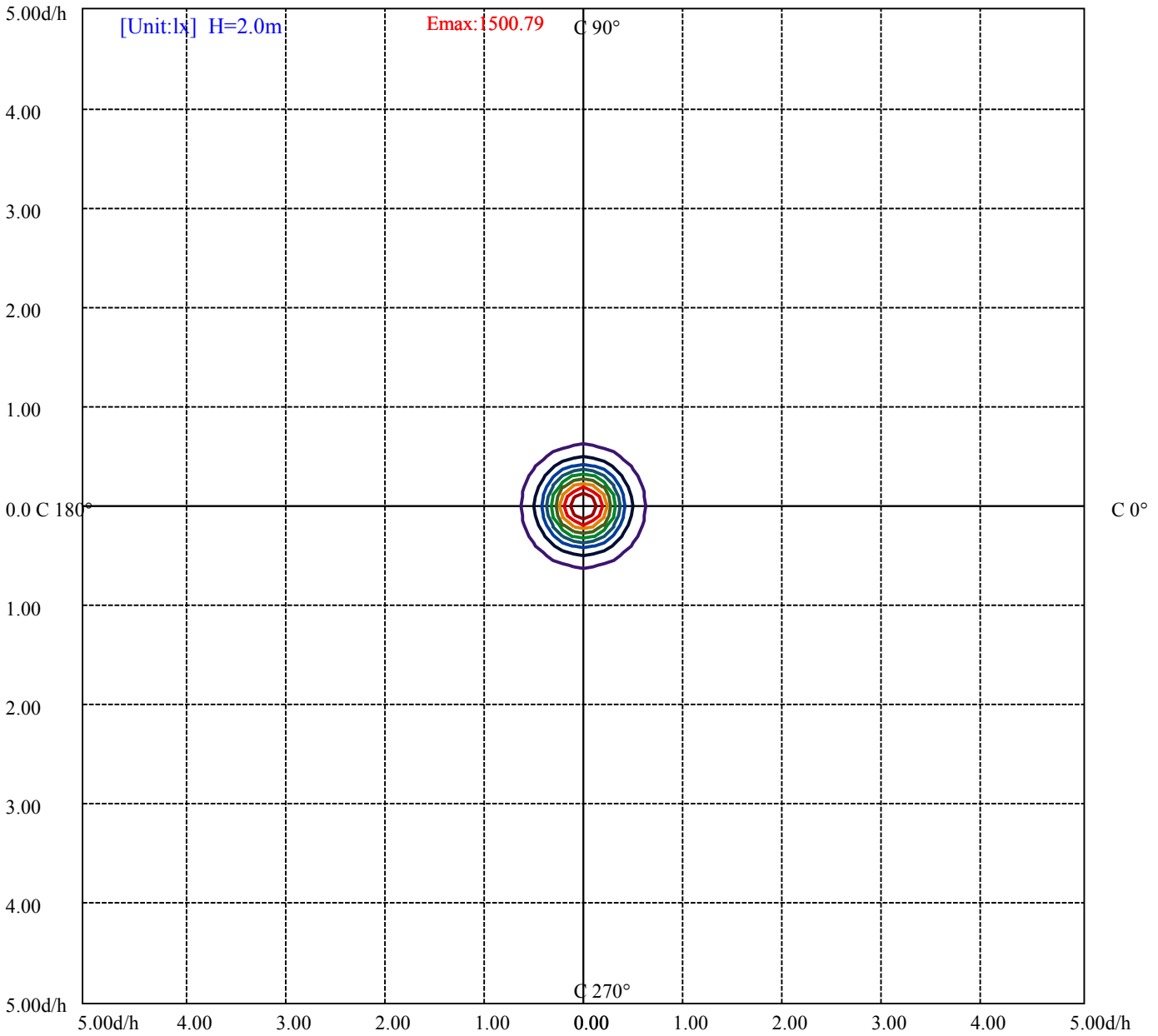
House

[Unit:cd]

Road

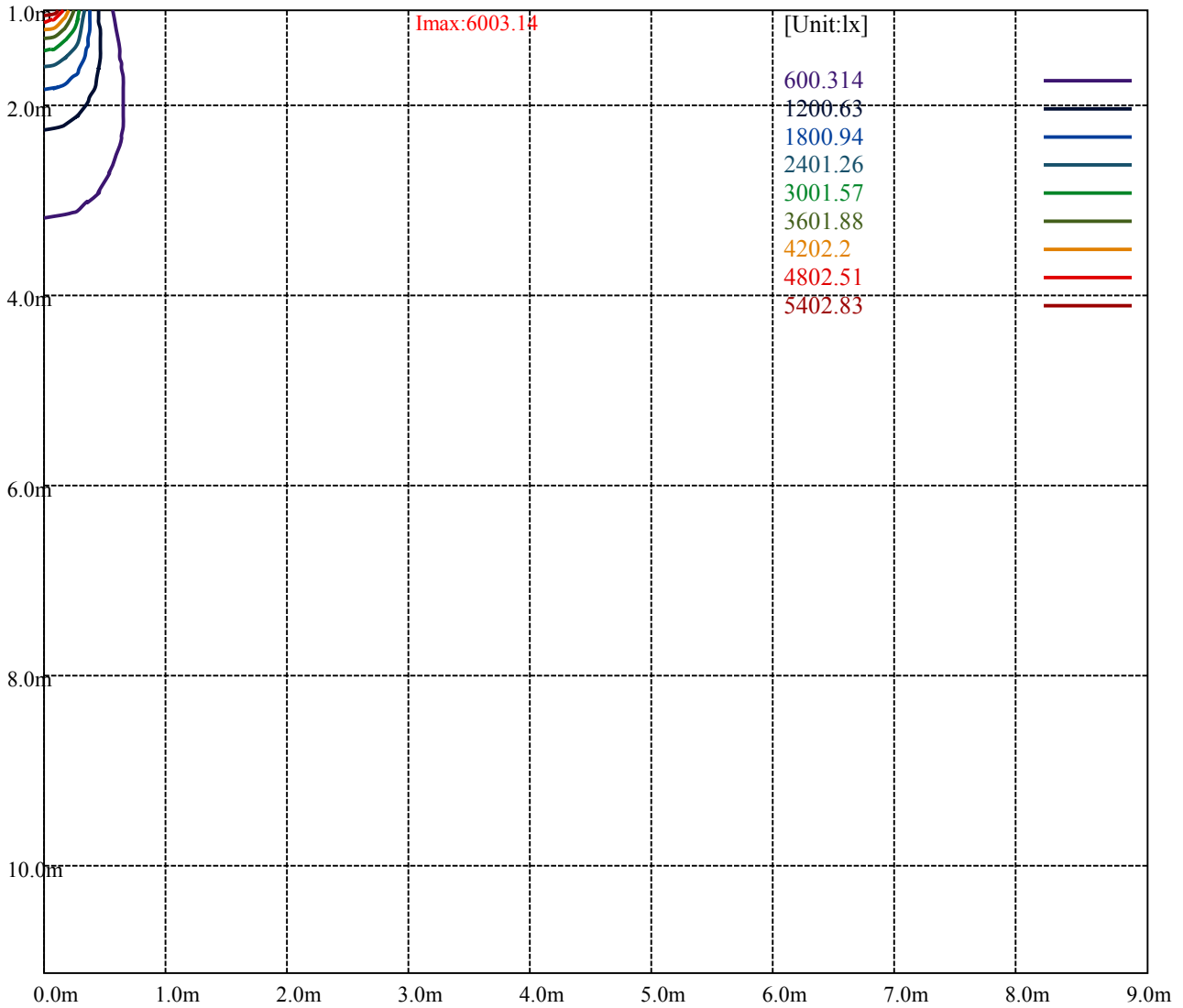
Imax:6003.14

(10%Imax)	600.314	—
(20%Imax)	1200.63	—
(30%Imax)	1800.94	—
(40%Imax)	2401.26	—
(50%Imax)	3001.57	—
(60%Imax)	3601.88	—
(70%Imax)	4202.2	—
(80%Imax)	4802.51	—
(90%Imax)	5402.83	—



- (10%Emax) 150.0785
- (20%Emax) 300.1575
- (30%Emax) 450.235
- (40%Emax) 600.3125
- (50%Emax) 750.3925
- (60%Emax) 900.47
- (70%Emax) 1050.55
- (80%Emax) 1200.627
- (90%Emax) 1350.705





Luminance Table

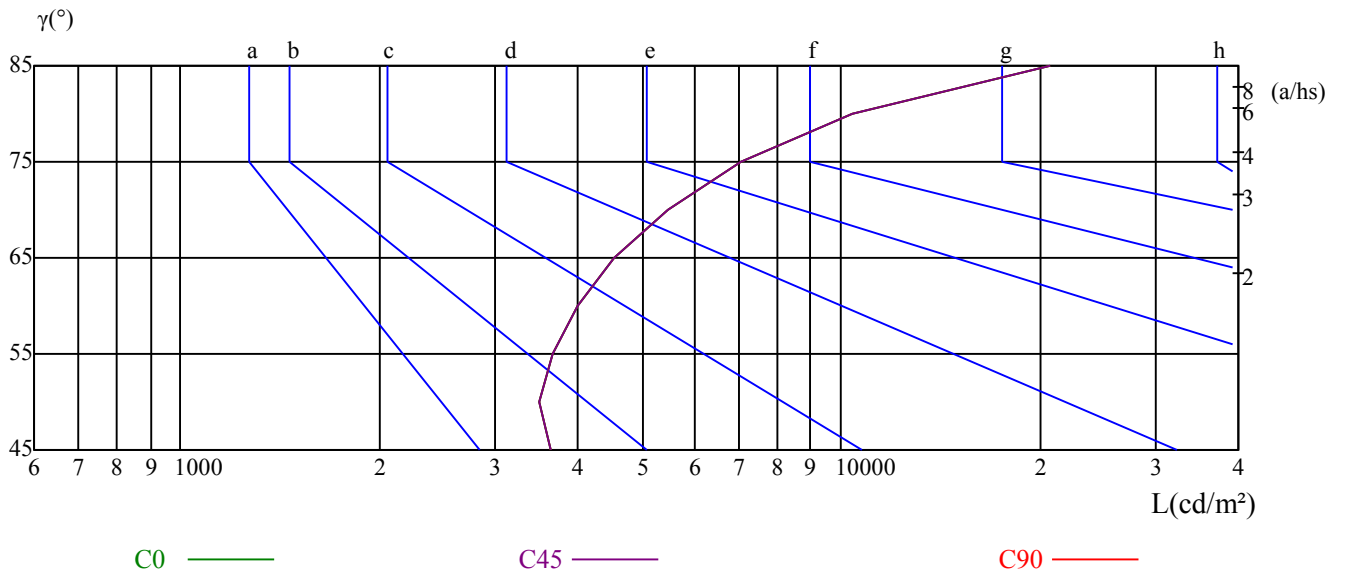
$\gamma$	45	50	55	60	65	70	75	80	85
C0	3639	3499	3657	3988	4546	5472	7077	10421	20695
C45	3639	3499	3657	3988	4546	5472	7077	10421	20695
C90	3639	3499	3657	3988	4546	5472	7077	10421	20695

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4546	4546	4546	7077	7077	7077	20695	20695	20695

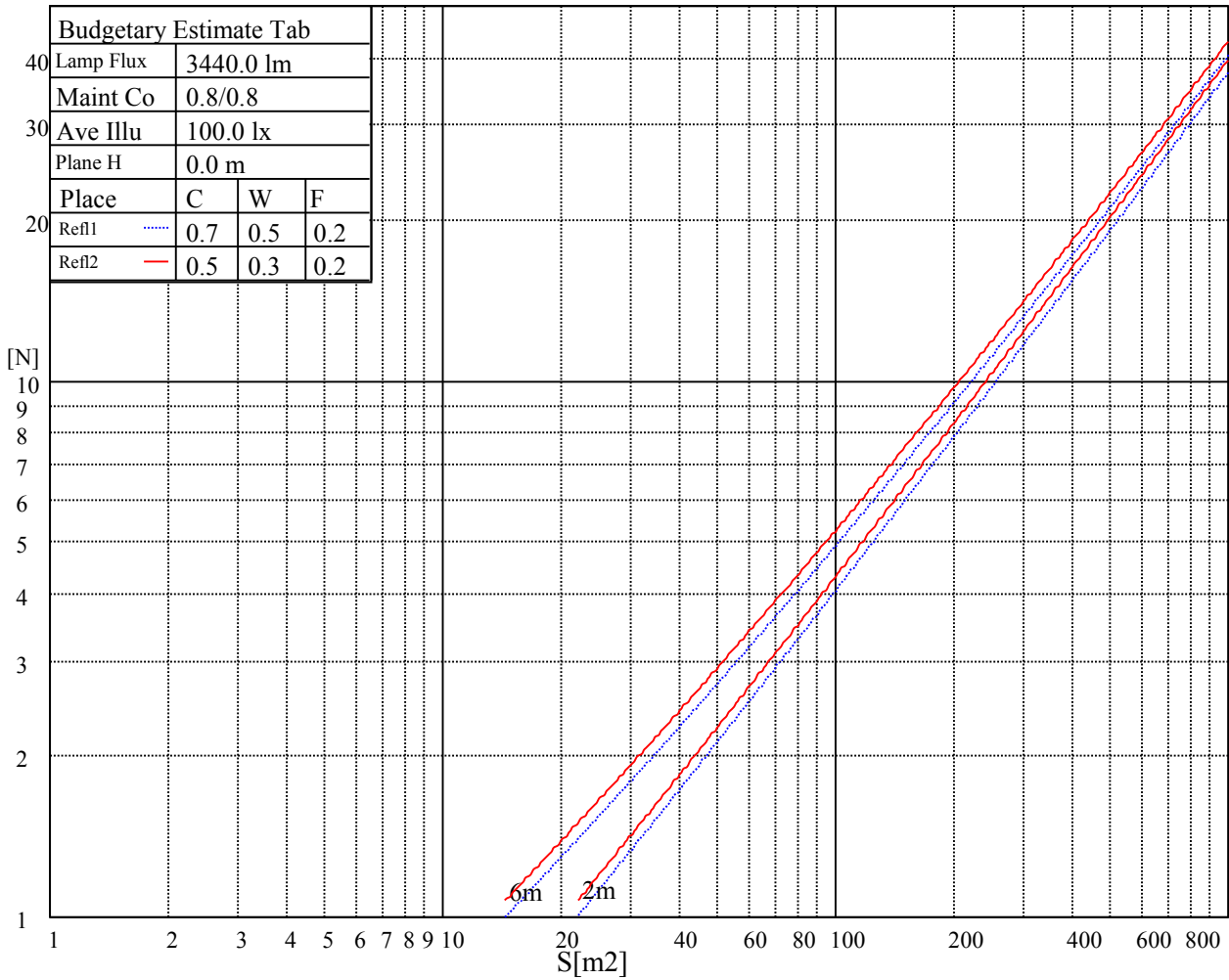
Glare Table

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

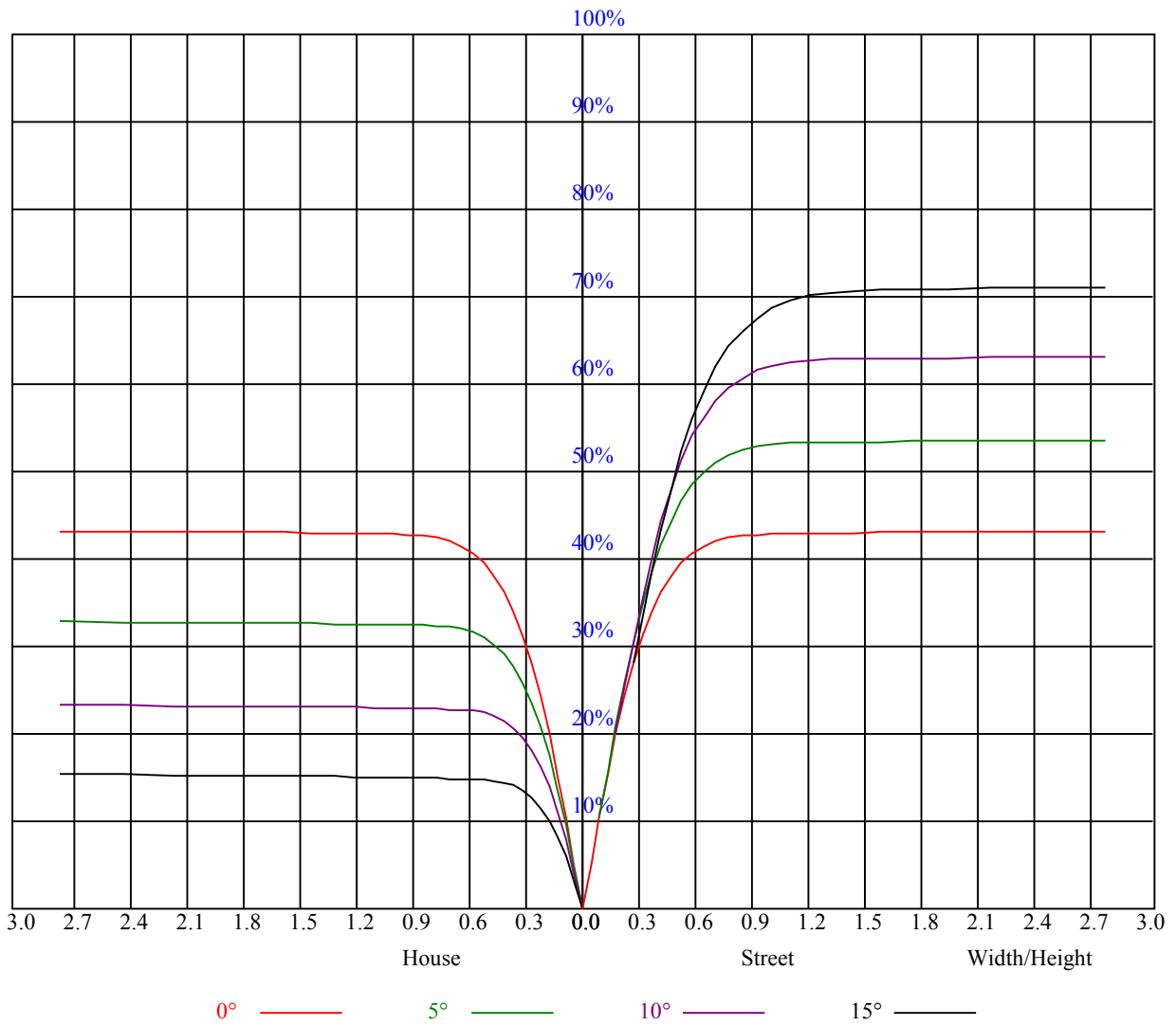
Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	1.71	2.62	2.07	2.93	3.25	1.67	2.59	2.04	2.90	3.21
	3H	4.87	5.67	5.25	6.00	6.37	4.83	5.63	5.21	5.97	6.34
	4H	6.58	7.32	6.98	7.68	8.07	6.55	7.30	6.96	7.65	8.05
	6H	8.52	9.20	8.94	9.58	9.98	8.50	9.19	8.92	9.56	9.96
	8H	9.61	10.25	10.04	10.64	11.05	9.59	10.23	10.03	10.62	11.03
	12H	11.37	11.99	11.81	12.37	12.80	11.36	11.97	11.80	12.35	12.79
4H	2H	2.59	3.34	3.00	3.69	4.08	2.57	3.31	2.97	3.67	4.06
	3H	5.99	6.61	6.41	7.02	7.42	5.96	6.57	6.38	6.98	7.39
	4H	7.88	8.42	8.32	8.85	9.30	7.86	8.41	8.30	8.83	9.28
	6H	9.98	10.45	10.46	10.90	11.38	9.97	10.44	10.45	10.89	11.37
	8H	11.17	11.61	11.65	12.06	12.54	11.16	11.60	11.64	12.05	12.53
	12H	12.84	13.22	13.34	13.71	14.19	12.83	13.20	13.32	13.69	14.17
8H	4H	8.59	9.03	9.07	9.48	9.96	8.58	9.02	9.06	9.47	9.94
	6H	10.98	11.32	11.49	11.83	12.32	10.97	11.31	11.48	11.82	12.30
	8H	12.36	12.67	12.90	13.19	13.69	12.35	12.65	12.89	13.18	13.68
	12H	14.17	14.43	14.70	14.93	15.51	14.16	14.42	14.68	14.92	15.50
12H	4H	8.80	9.17	9.29	9.66	10.14	8.79	9.16	9.28	9.65	10.13
	6H	11.50	11.60	11.84	12.08	12.63	11.49	11.59	11.83	12.07	12.62
	8H	12.81	13.07	13.33	13.57	14.15	12.80	13.06	13.32	13.56	14.14
Variation with the observer position at spacings:											
S = 1.0H		5.5/-7.1					5.5/-7.1				
S = 1.5H		7.6/-5.2					7.6/-5.2				
S = 2.0H		8.8/-3.8					8.8/-3.8				
Standard tables:		BK3					BK3				
Uncorrected UGR		1.0					1.0				



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	1.04	1.04	1.04	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.88
1	0.97	0.94	0.92	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.81
2	0.91	0.88	0.85	0.90	0.87	0.84	0.87	0.85	0.83	0.85	0.83	0.81	0.82	0.81	0.79	0.78
3	0.87	0.83	0.80	0.86	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.79	0.77	0.76	0.74
4	0.83	0.78	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
5	0.79	0.75	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
6	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.71	0.69	0.67	0.65
7	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61
9	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.59	0.58
10	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.63	0.60	0.57	0.56



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	6004.69	5889.38	5453.44	4419.00	3150.00	1978.31	1285.31	723.94	301.50
45.0	5995.69	5911.31	5421.94	4296.94	3065.63	1854.00	1225.13	644.63	302.63
90.0	6007.50	5869.13	5107.50	3948.19	2697.75	1623.38	1089.56	531.00	63.62
135.0	6004.69	5907.38	5232.38	4143.94	2844.00	1718.44	1180.69	613.13	159.75
180.0	6004.69	5837.06	4986.56	3895.88	2597.06	1582.88	1086.24	475.03	44.44
225.0	5995.69	5820.19	5071.50	4042.13	2755.69	1671.19	1118.93	520.54	55.63
270.0	6007.50	5855.63	5303.81	4278.94	3093.75	1890.00	1236.94	696.38	304.88
315.0	6004.69	5809.50	5191.31	4138.31	2841.19	1765.69	1114.14	586.29	100.80
360.0	6004.69	5889.38	5453.44	4419.00	3150.00	1978.31	1285.31	723.94	301.50
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	21.09	16.09	14.96	14.18	13.61	13.22	12.99	12.83	12.71
45.0	17.83	15.98	14.85	14.12	13.56	13.28	12.94	12.77	12.71
90.0	17.44	15.98	14.91	14.18	13.61	13.28	12.94	12.83	12.77
135.0	17.66	15.86	14.79	14.12	13.61	13.22	12.94	12.71	12.60
180.0	16.82	15.47	14.51	13.89	13.44	13.11	12.83	12.71	12.71
225.0	17.04	15.53	14.57	13.84	13.39	13.11	12.83	12.66	12.66
270.0	19.41	16.20	15.02	14.18	13.67	13.28	12.94	12.77	12.71
315.0	17.94	15.86	14.79	14.06	13.56	13.16	12.99	12.88	12.94
360.0	21.09	16.09	14.96	14.18	13.61	13.22	12.99	12.83	12.71
C/ $\gamma$ (°)	90.0								
0.0	12.66								
45.0	12.54								
90.0	12.54								
135.0	12.60								
180.0	12.54								
225.0	12.54								
270.0	12.54								
315.0	12.66								
360.0	12.66								