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## Nata

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LumCAT: 4-2220-A  
Luminaire: BJB47.319.2030  
Report No: NT2017091909  
Test No: GC2017091909  
LampCAT: CITIZEN CLU044  
Lamp flux(lm): 5761.0  
Number of Lamps: 1  
Length(mm): 100  
Phm Type: C

Voltage(V): 51.4000  
Current(A): 0.8000  
Power (W): 41.1200  
PF: 0.0000  
Ballast type: DC  
Width(mm): 100  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 5162.58  
Efficiency(%): 89.61%  
Lumens(lm)/Power(W): 125.55  
Central intensity(cd): 16778.440  
Maximum intensity(cd): 16778.440  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=27.4  
                                  [C90/270]Total=27.4  
Field angle(10%Imax): [C0/180]Total=61.4  
                                  [C90/270]Total=61.4  
Maximum s/h(1/2): C0\_180=0.46 C90\_270=0.46  
Maximum s/h(1/4): C0\_180=0.47 C90\_270=0.47  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 91.27%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.923%

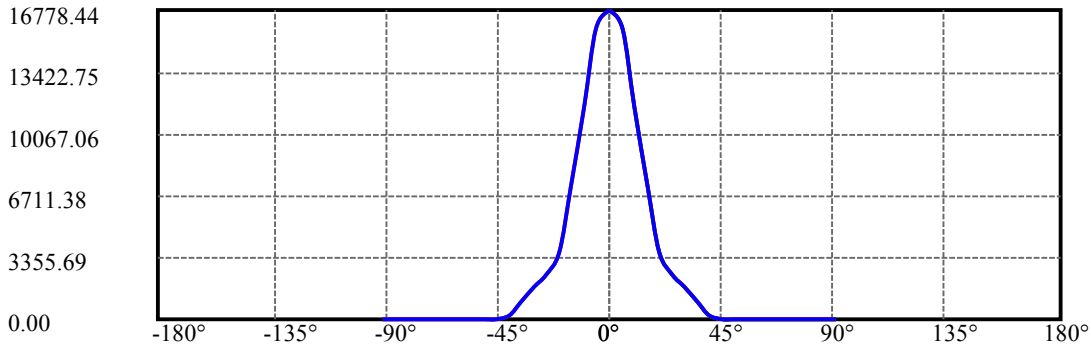
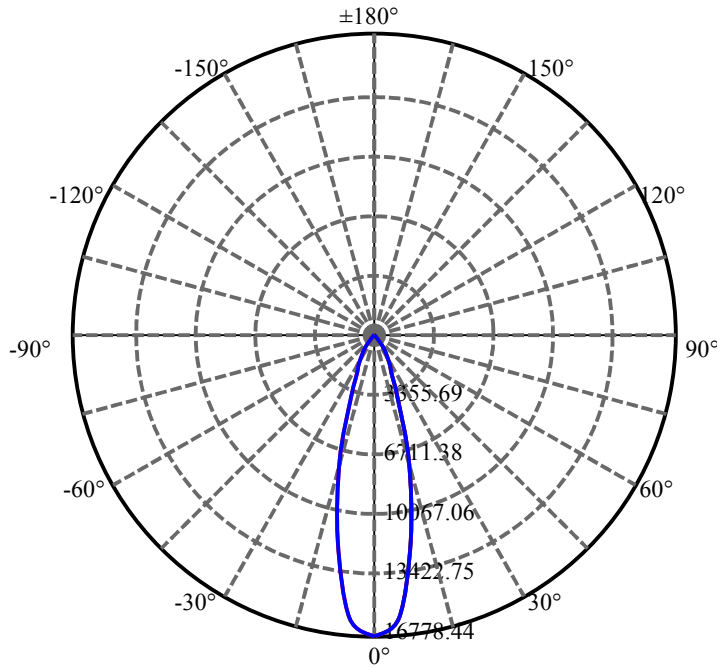
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	16778.438	100.338	100.338	1.742%	1.944%
5.0	15788.111	754.250	854.589	13.092%	16.554%
10.0	11612.427	1105.306	1959.895	19.186%	37.963%
15.0	7237.714	1026.803	2986.698	17.823%	57.853%
20.0	3596.559	674.261	3660.96	11.704%	70.913%
25.0	2353.248	545.137	4206.096	9.463%	81.473%
30.0	1802.959	494.135	4700.231	8.577%	91.044%
35.0	893.118	280.795	4981.026	4.874%	96.483%
40.0	193.799	68.282	5049.308	1.185%	97.806%
45.0	33.929	13.150	5062.459	.228%	98.061%
50.0	26.565	11.154	5073.613	.194%	98.277%
55.0	24.906	11.183	5084.796	.194%	98.493%
60.0	24.046	11.415	5096.211	.198%	98.714%
65.0	23.461	11.655	5107.866	.202%	98.940%
70.0	23.103	11.900	5119.766	.207%	99.171%
75.0	22.869	12.108	5131.874	.210%	99.405%
80.0	22.869	12.345	5144.219	.214%	99.644%
85.0	22.470	12.270	5156.489	.213%	99.882%
90.0	22.222	6.090	5162.579	.106%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	4700.23	81.59%	91.04%
0-40	5049.31	87.65%	97.81%
0-60	5096.21	88.46%	98.71%
0-90	5156.49	89.51%	99.88%
0-120	5156.49	89.51%	99.88%
0-180	5162.58	89.61%	100.00%
60-90	71.69	1.24%	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%
0-24.30	4130.06	71.69%	80.00%

ZONAL LUMEN SUMMARY

0-10	1959.90
10-20	1701.06
20-30	1039.27
30-40	349.08
40-50	24.30
50-60	22.60
60-70	23.55
70-80	24.45
80-90	12.27
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



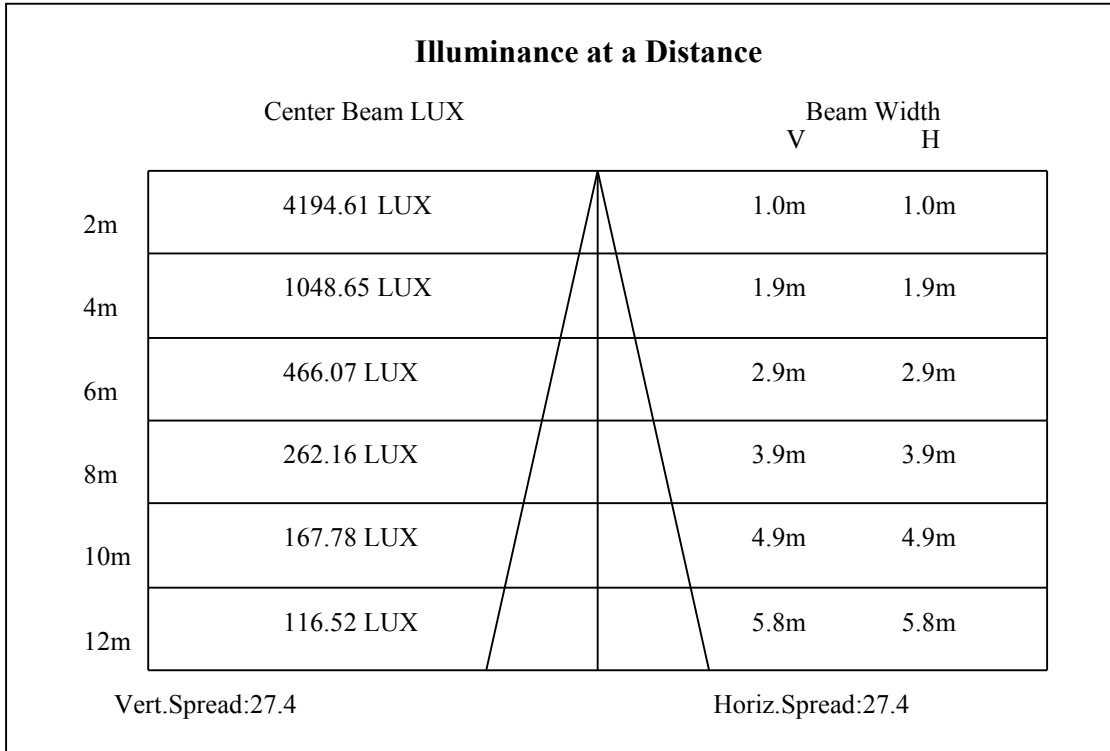
C0(Max): ———

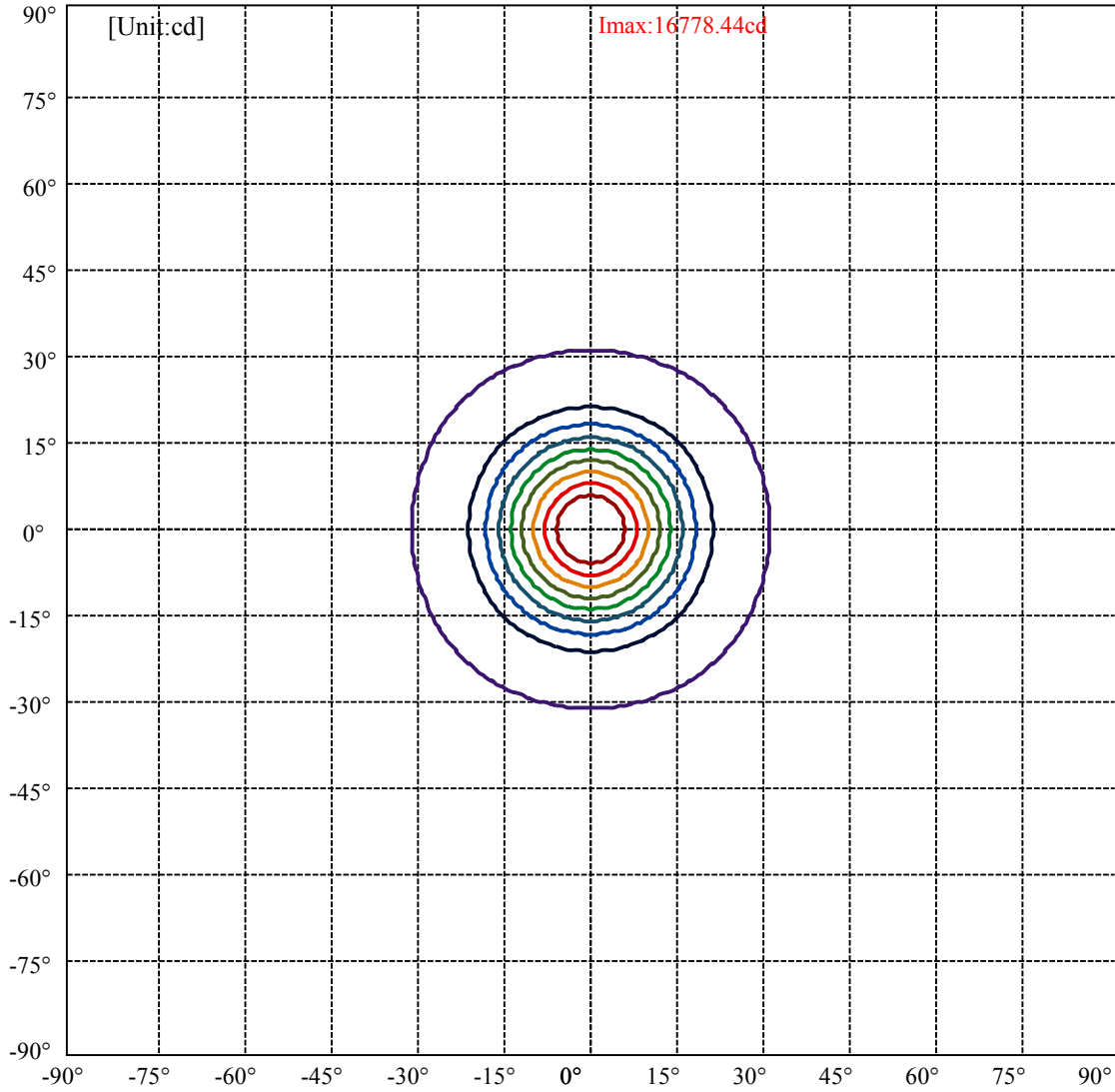
C0/C180: ———

C90/C270: ———

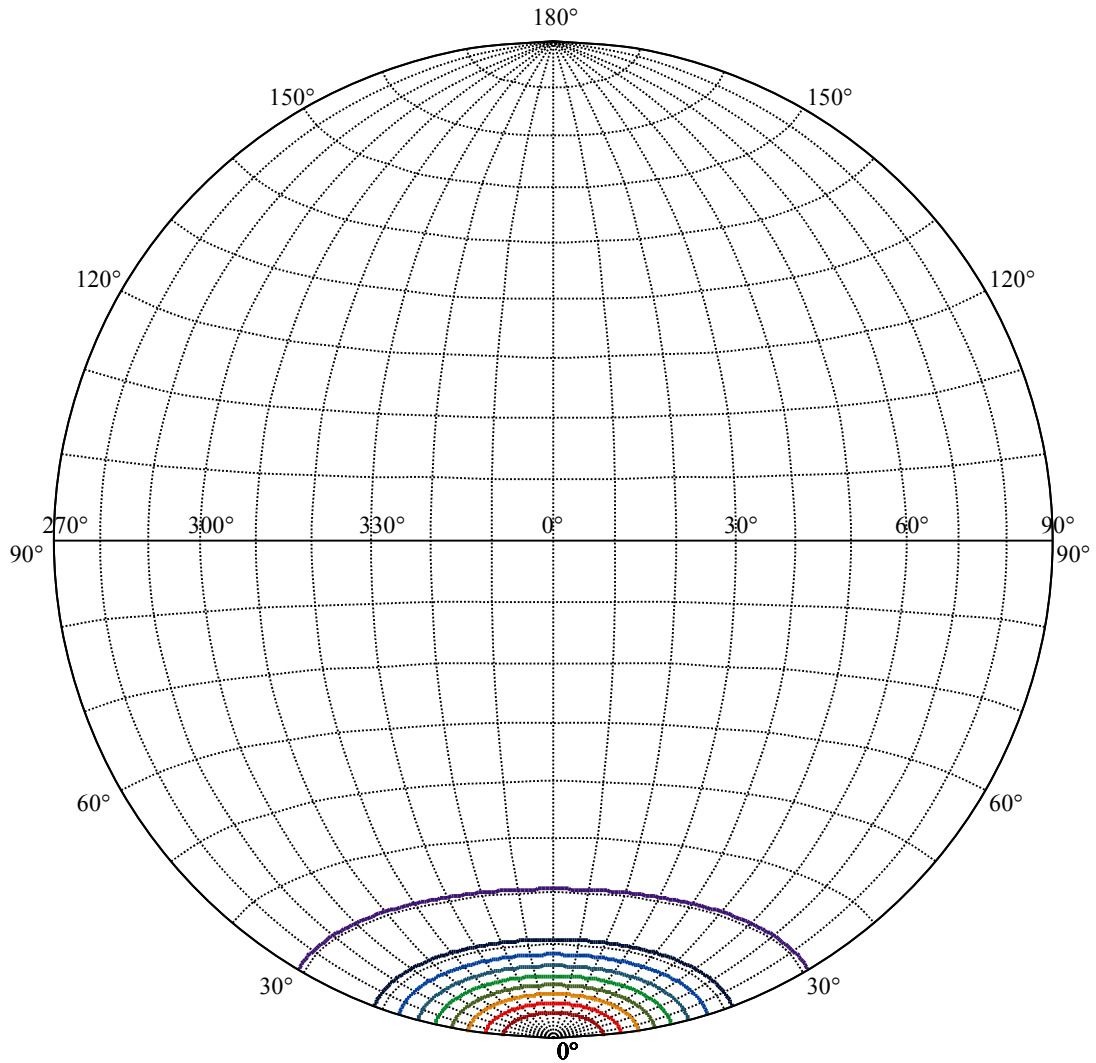
Field angle(10%Imax):C0/180Left:30.7 Right:30.7  
:C90/270Left:30.7 Right:30.7

Beam Angle(50%Imax):C0/180Left:13.7 Right:13.7  
:C90/270Left:13.7 Right:13.7





(10%Imax) 1677.84	—
(20%Imax) 3355.69	—
(30%Imax) 5033.53	—
(40%Imax) 6711.38	—
(50%Imax) 8389.22	—
(60%Imax) 10067.1	—
(70%Imax) 11744.9	—
(80%Imax) 13422.8	—
(90%Imax) 15100.6	—



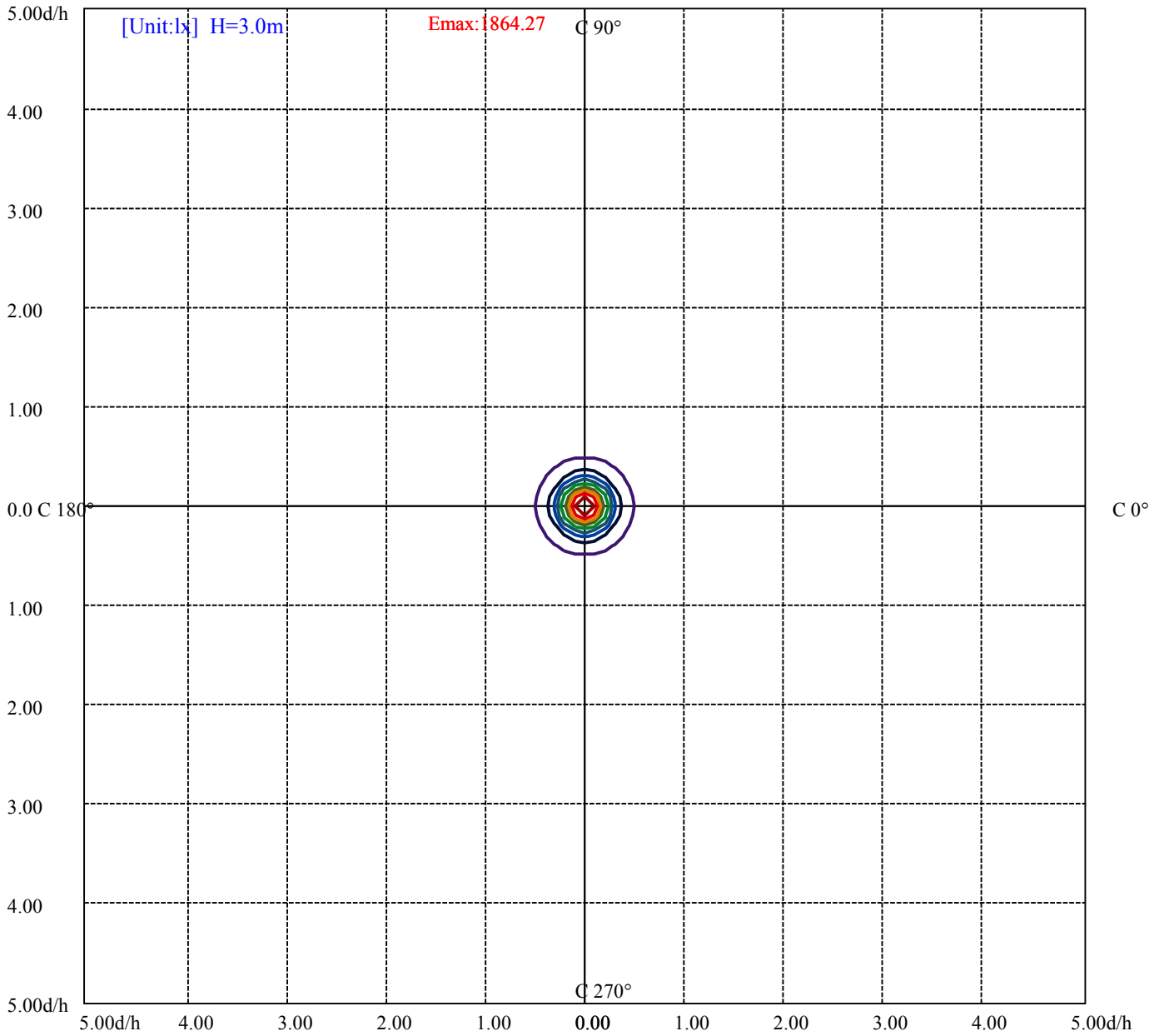
House

[Unit:cd]

Road

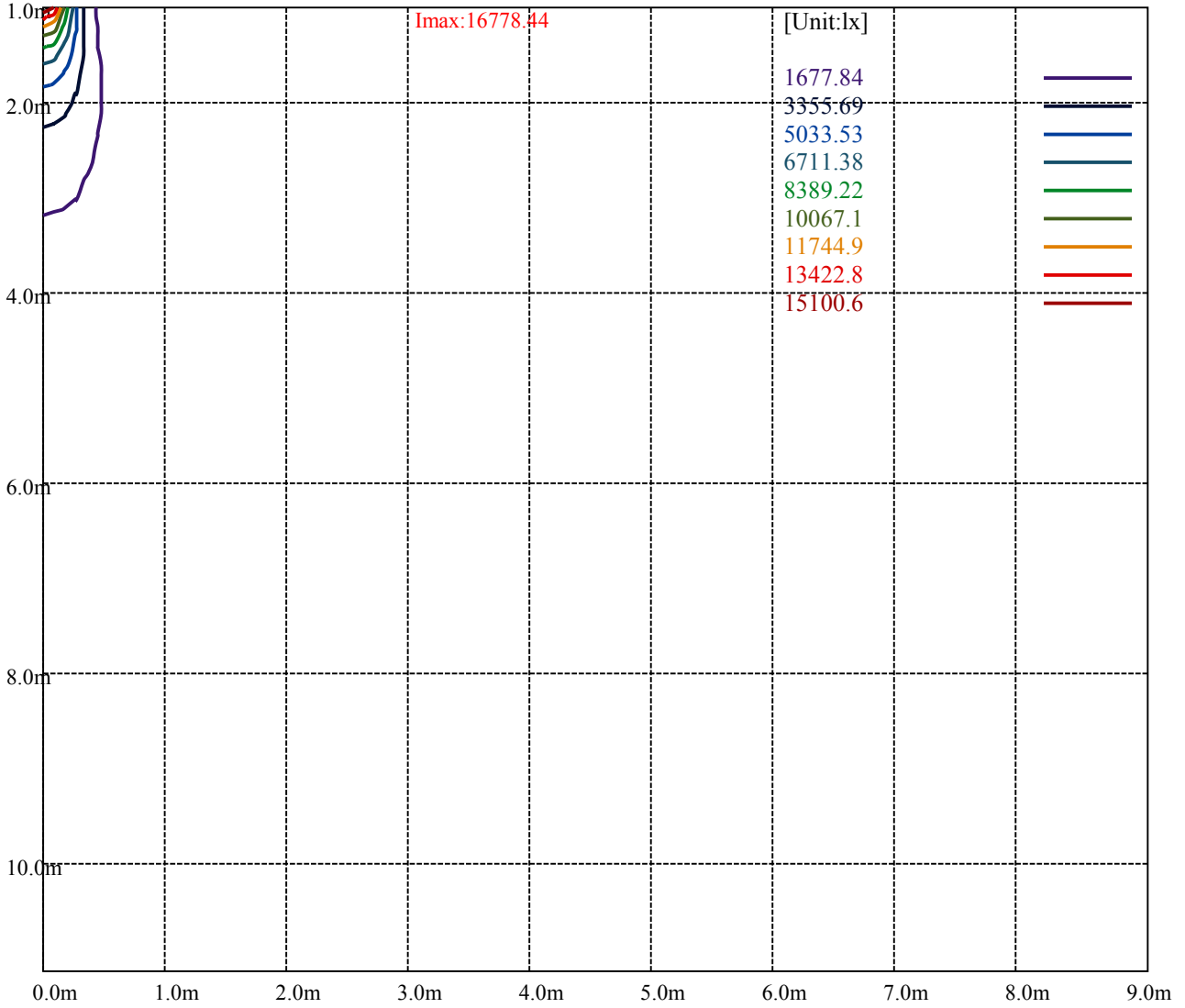
**Imax:16778.44**

(10%Imax) 1677.84	—
(20%Imax) 3355.69	—
(30%Imax) 5033.53	—
(40%Imax) 6711.38	—
(50%Imax) 8389.22	—
(60%Imax) 10067.1	—
(70%Imax) 11744.9	—
(80%Imax) 13422.8	—
(90%Imax) 15100.6	—



- (10%Emax) 186.4267
- (20%Emax) 372.8533
- (30%Emax) 559.28
- (40%Emax) 745.7067
- (50%Emax) 932.1334
- (60%Emax) 1118.556
- (70%Emax) 1304.989
- (80%Emax) 1491.411
- (90%Emax) 1677.844





Luminance Table

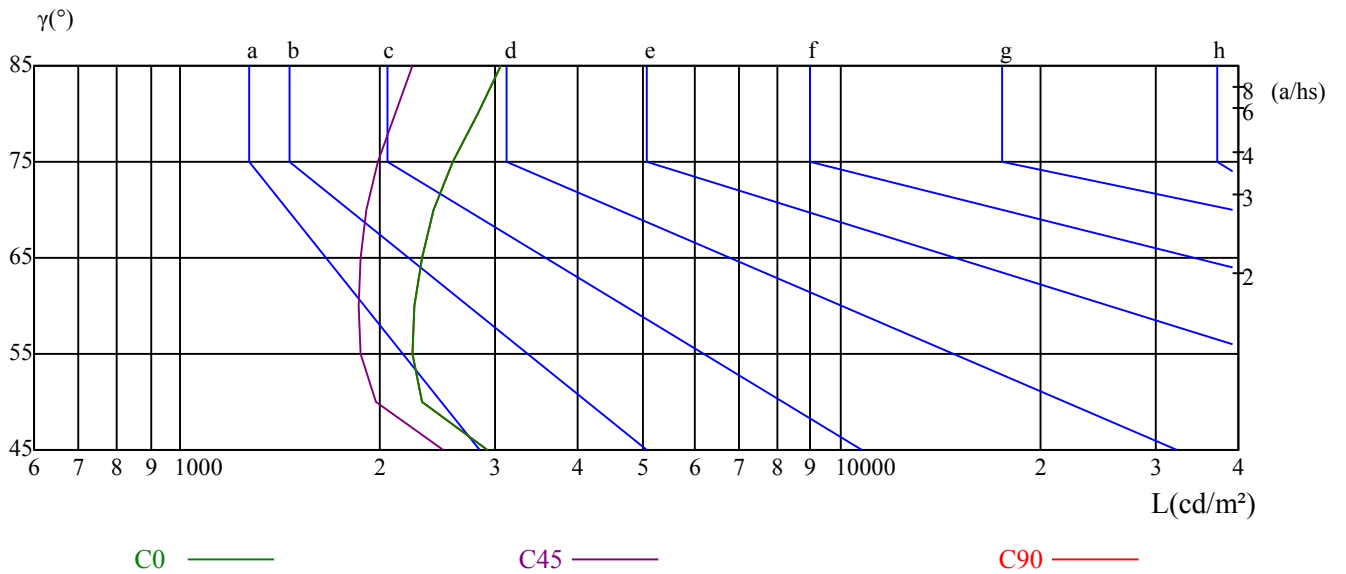
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2908	2329	2252	2262	2319	2425	2579	2810	3058
C45	2500	1972	1877	1855	1868	1916	1994	2120	2241
C90	2908	2329	2252	2262	2319	2425	2579	2810	3058

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5551	5551	5551	8836	8836	8836	25781	25781	25781

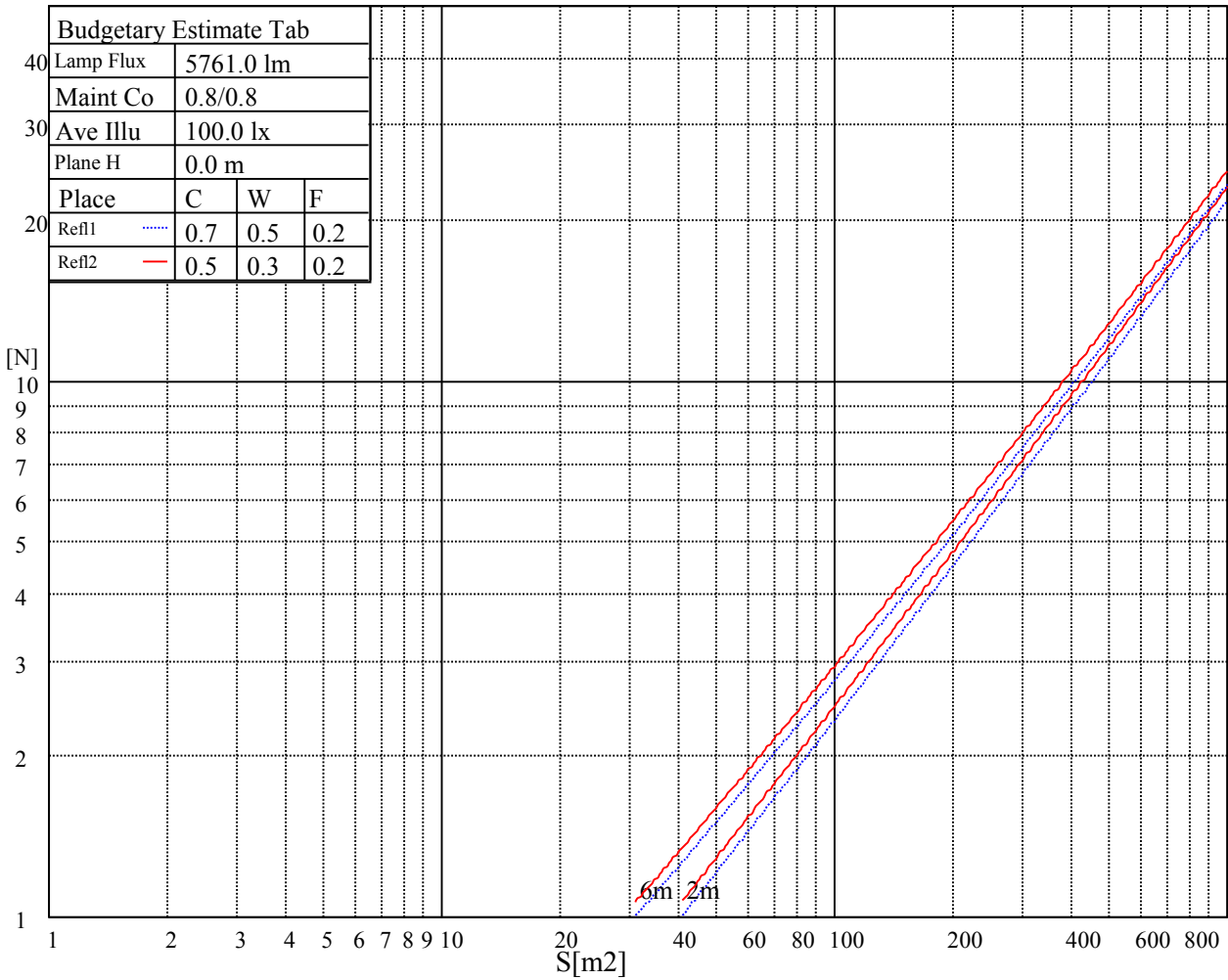
Glare Table

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

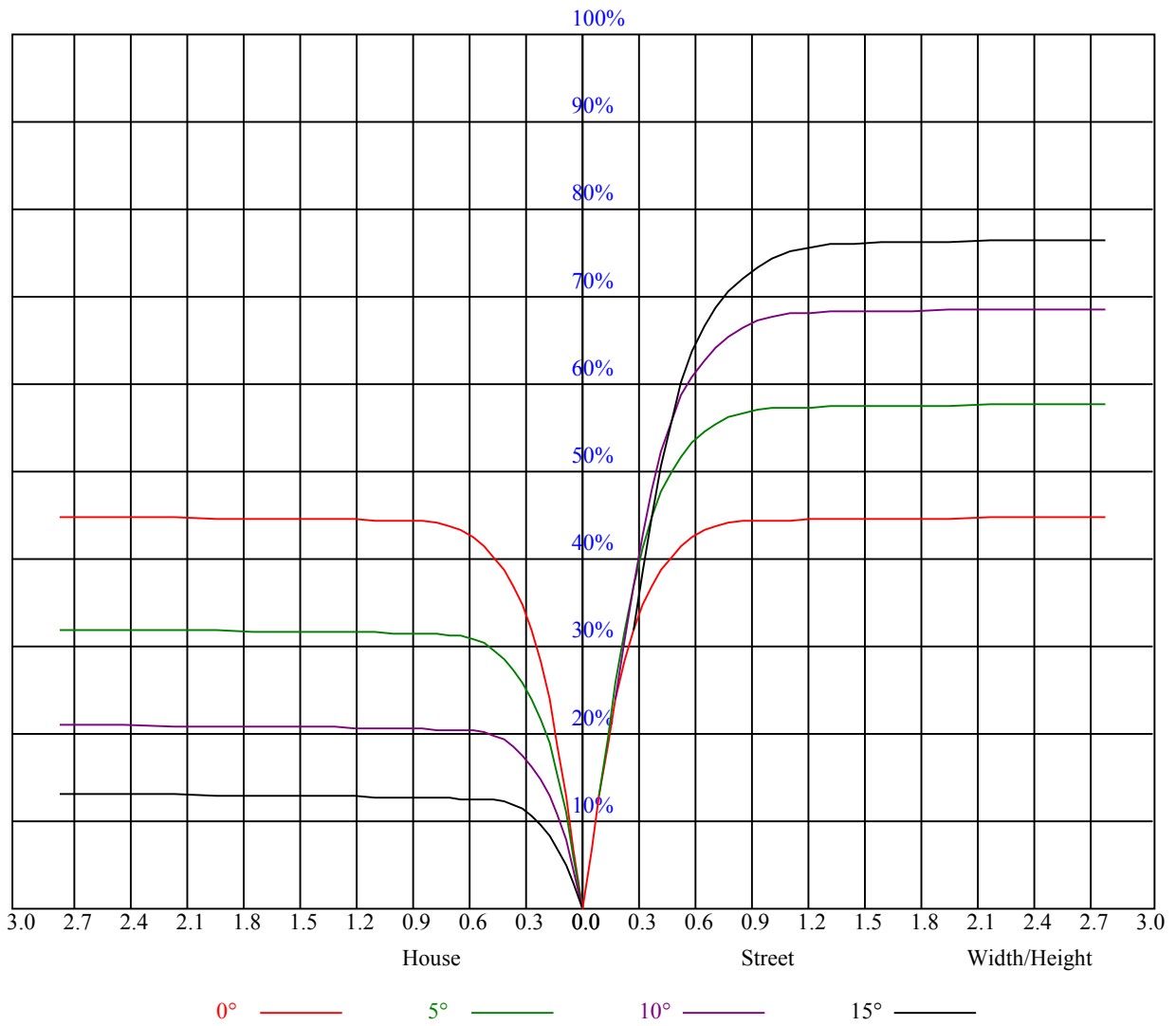
Luminance Limiting Curve



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	-1.79	-0.88	-1.43	-0.57	-0.25	-1.66	-0.75	-1.30	-0.44	-0.12
	3H	0.51	1.31	0.89	1.65	2.02	0.66	1.46	1.04	1.80	2.17
	4H	1.77	2.52	2.18	2.87	3.26	1.93	2.68	2.34	3.03	3.42
	6H	3.09	3.77	3.51	4.15	4.55	3.30	3.98	3.72	4.36	4.75
	8H	3.75	4.39	4.19	4.78	5.19	3.97	4.60	4.40	5.00	5.41
	12H	4.77	5.38	5.20	5.76	6.19	4.97	5.58	5.40	5.96	6.39
4H	2H	-1.29	-0.54	-0.88	-0.19	0.21	-1.18	-0.44	-0.77	-0.08	0.31
	3H	1.31	1.92	1.73	2.33	2.74	1.43	2.04	1.85	2.45	2.86
	4H	2.74	3.29	3.18	3.72	4.17	2.88	3.43	3.32	3.85	4.30
	6H	4.16	4.63	4.64	5.08	5.56	4.33	4.79	4.80	5.25	5.72
	8H	4.93	5.37	5.41	5.82	6.29	5.11	5.55	5.59	6.00	6.47
8H	12H	5.94	6.31	6.43	6.80	7.28	6.11	6.49	6.61	6.98	7.45
	4H	3.19	3.63	3.67	4.08	4.56	3.31	3.74	3.78	4.19	4.67
	6H	4.86	5.20	5.37	5.70	6.19	5.00	5.34	5.51	5.84	6.33
	8H	5.77	6.08	6.31	6.60	7.10	5.93	6.24	6.47	6.76	7.26
12H	12H	6.91	7.17	7.43	7.67	8.25	7.06	7.32	7.59	7.82	8.41
	4H	3.29	3.67	3.78	4.16	4.63	3.39	3.77	3.89	4.26	4.74
	6H	5.23	5.34	5.57	5.81	6.36	5.36	5.47	5.70	5.94	6.49
	8H	6.05	6.31	6.57	6.81	7.39	6.19	6.45	6.72	6.95	7.53
Variation with the observer position at spacings:											
S = 1.0H	5.6/-7.2					5.6/-7.2					
S = 1.5H	7.9/-5.5					7.9/-5.5					
S = 2.0H	9.5/-4.4					9.5/-4.4					
Standard tables:	BK2					BK2					
Uncorrected UGR	-2.7					-2.7					



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	1.09	1.09	1.09	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.00	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.86	0.84
2	0.95	0.92	0.89	0.94	0.90	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.82	0.80	0.83	0.81	0.79	0.78
4	0.87	0.83	0.79	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.72
6	0.80	0.76	0.73	0.80	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.66
9	0.72	0.68	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62



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	16759.17	15944.33	12194.99	7895.09	3771.36	2333.29	1896.14	988.81	303.36
45.0	16770.18	15916.81	12217.02	7350.03	3743.84	2295.85	1821.27	1000.37	291.25
90.0	16786.70	15443.32	10949.62	6333.14	3156.93	2198.95	1651.69	639.48	62.60
135.0	16797.71	15768.15	12167.46	7344.52	3617.21	2338.25	1822.92	874.30	314.37
180.0	16759.17	15674.56	10834.55	6770.29	3449.83	2229.23	1735.93	833.28	93.60
225.0	16770.18	15636.02	10863.73	6987.21	3456.44	2239.14	1748.59	844.73	93.27
270.0	16786.70	16142.54	12690.50	8142.84	4052.15	2895.97	1932.48	1098.38	291.25
315.0	16797.71	15779.16	10981.55	7078.60	3524.71	2295.30	1814.66	865.60	100.70
360.0	16759.17	15944.33	12194.99	7895.09	3771.36	2333.29	1896.14	988.81	303.36
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	36.89	27.14	25.22	24.28	23.67	23.34	23.23	22.96	22.74
45.0	33.25	26.32	24.67	23.78	23.23	22.85	22.68	22.52	22.35
90.0	29.29	25.66	24.39	23.62	23.12	22.79	22.52	22.35	22.30
135.0	32.59	26.70	25.05	24.22	23.56	23.23	22.90	22.63	22.63
180.0	33.86	26.92	25.49	24.61	24.06	23.67	23.51	24.33	22.52
225.0	33.09	26.43	24.83	23.95	23.45	23.07	22.79	23.18	22.46
270.0	37.16	26.81	24.89	24.00	23.34	22.96	22.68	22.46	22.35
315.0	35.29	26.54	24.72	23.89	23.23	22.90	22.63	22.52	22.41
360.0	36.89	27.14	25.22	24.28	23.67	23.34	23.23	22.96	22.74
C/γ(°)	90.0								
0.0	22.35								
45.0	22.13								
90.0	22.19								
135.0	22.30								
180.0	22.30								
225.0	22.02								
270.0	22.19								
315.0	22.30								
360.0	22.35								