



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

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## Nata

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LumCAT: 2-1285-N	
Luminaire: 92.70.064.00	
Report No: NATA0100	Voltage(V): 36.4000
Test No: GC2018092710	Current(A): 0.4000
LampCAT: CITIZEN CLU028-1203C4	Power (W): 14.5600
Lamp flux(lm): 1506.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 57	Width(mm): 57
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 1239.49  
Efficiency(%): 82.30%  
Lumens(lm)/Power(W): 86.23  
Central intensity(cd): 2867.766  
Maximum intensity(cd): 2867.766  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=33.7  
                                  [C90/270]Total=33.7  
Field angle(10%Imax): [C0/180]Total=66.1  
                                  [C90/270]Total=66.1  
Maximum s/h(1/2): C0\_180=0.55 C90\_270=0.55  
Maximum s/h(1/4): C0\_180=0.60 C90\_270=0.60  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 83.36%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.640%

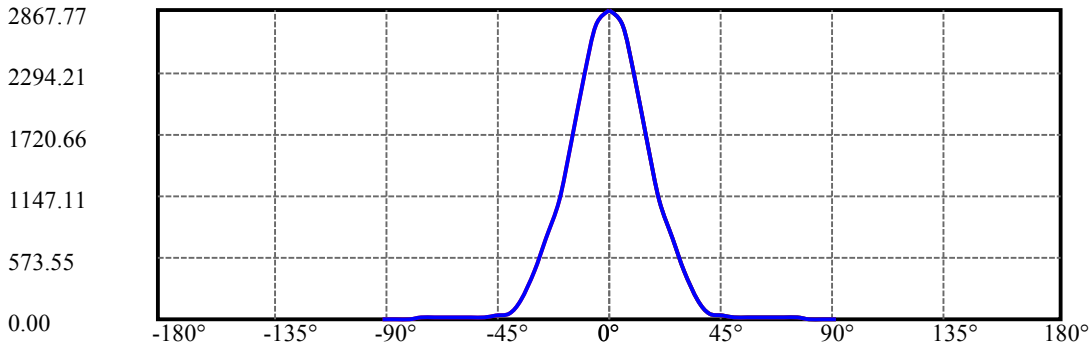
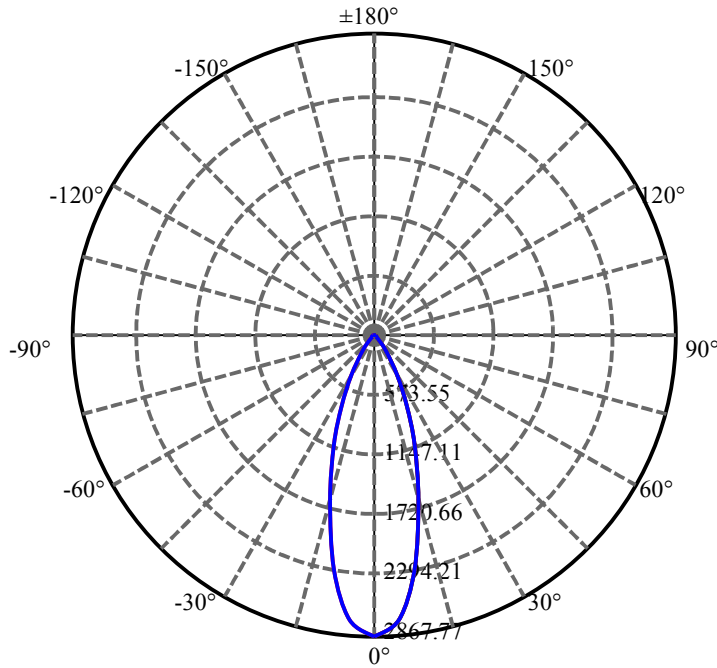
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2867.766	17.150	17.15	1.139%	1.384%
5.0	2722.289	130.053	147.203	8.636%	11.876%
10.0	2260.547	215.166	362.368	14.287%	29.235%
15.0	1627.875	230.944	593.312	15.335%	47.868%
20.0	1108.596	207.833	801.145	13.800%	64.635%
25.0	755.775	175.077	976.223	11.625%	78.760%
30.0	452.960	124.142	1100.365	8.243%	88.776%
35.0	180.295	56.685	1157.05	3.764%	93.349%
40.0	44.606	15.716	1172.766	1.044%	94.617%
45.0	31.915	12.370	1185.136	.821%	95.615%
50.0	26.269	11.030	1196.166	.732%	96.505%
55.0	21.122	9.484	1205.65	.630%	97.270%
60.0	16.073	7.630	1213.28	.507%	97.886%
65.0	12.621	6.270	1219.55	.416%	98.391%
70.0	10.758	5.541	1225.091	.368%	98.838%
75.0	8.958	4.743	1229.834	.315%	99.221%
80.0	7.973	4.304	1234.138	.286%	99.568%
85.0	6.968	3.805	1237.943	.253%	99.875%
90.0	5.639	1.545	1239.488	.103%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1100.37	73.07%	88.78%
0-40	1172.77	77.87%	94.62%
0-60	1213.28	80.56%	97.89%
0-90	1237.94	82.20%	99.88%
0-120	1237.94	82.20%	99.88%
0-180	1239.49	82.30%	100.00%
60-90	32.29	2.14%	2.61%
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%
0-25.62	991.59	65.84%	80.00%

ZONAL LUMEN SUMMARY

0-10	362.37
10-20	438.78
20-30	299.22
30-40	72.40
40-50	23.40
50-60	17.11
60-70	11.81
70-80	9.05
80-90	3.80
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: —————

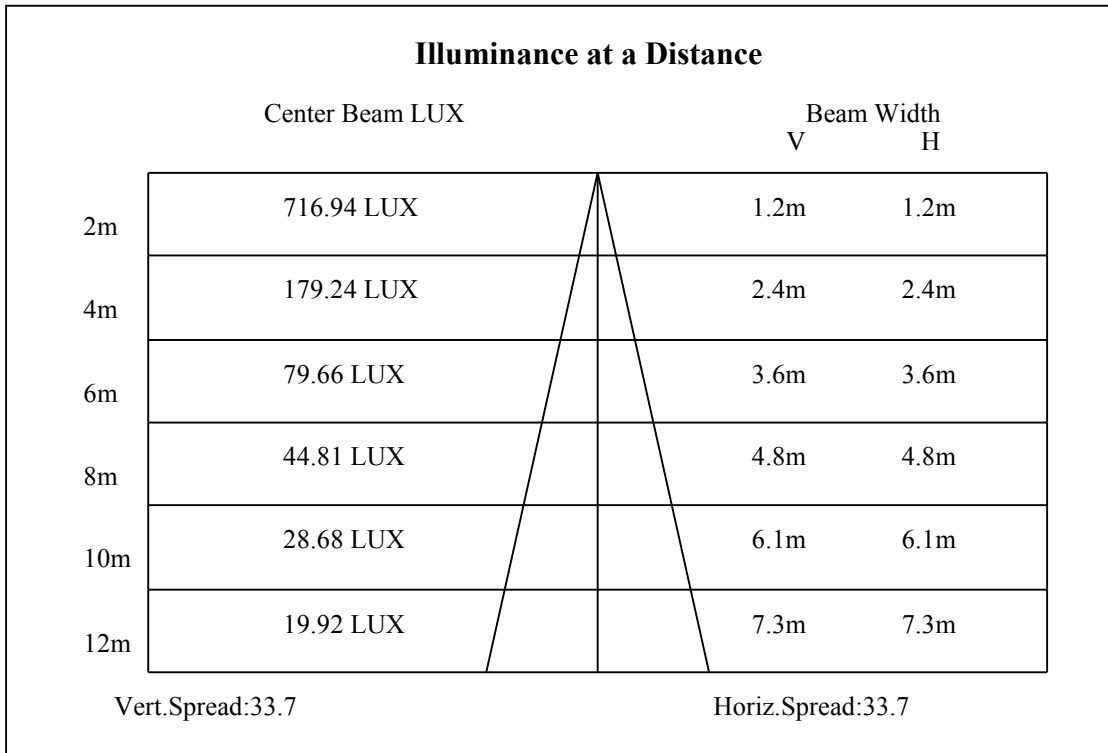
C90/C270: —————

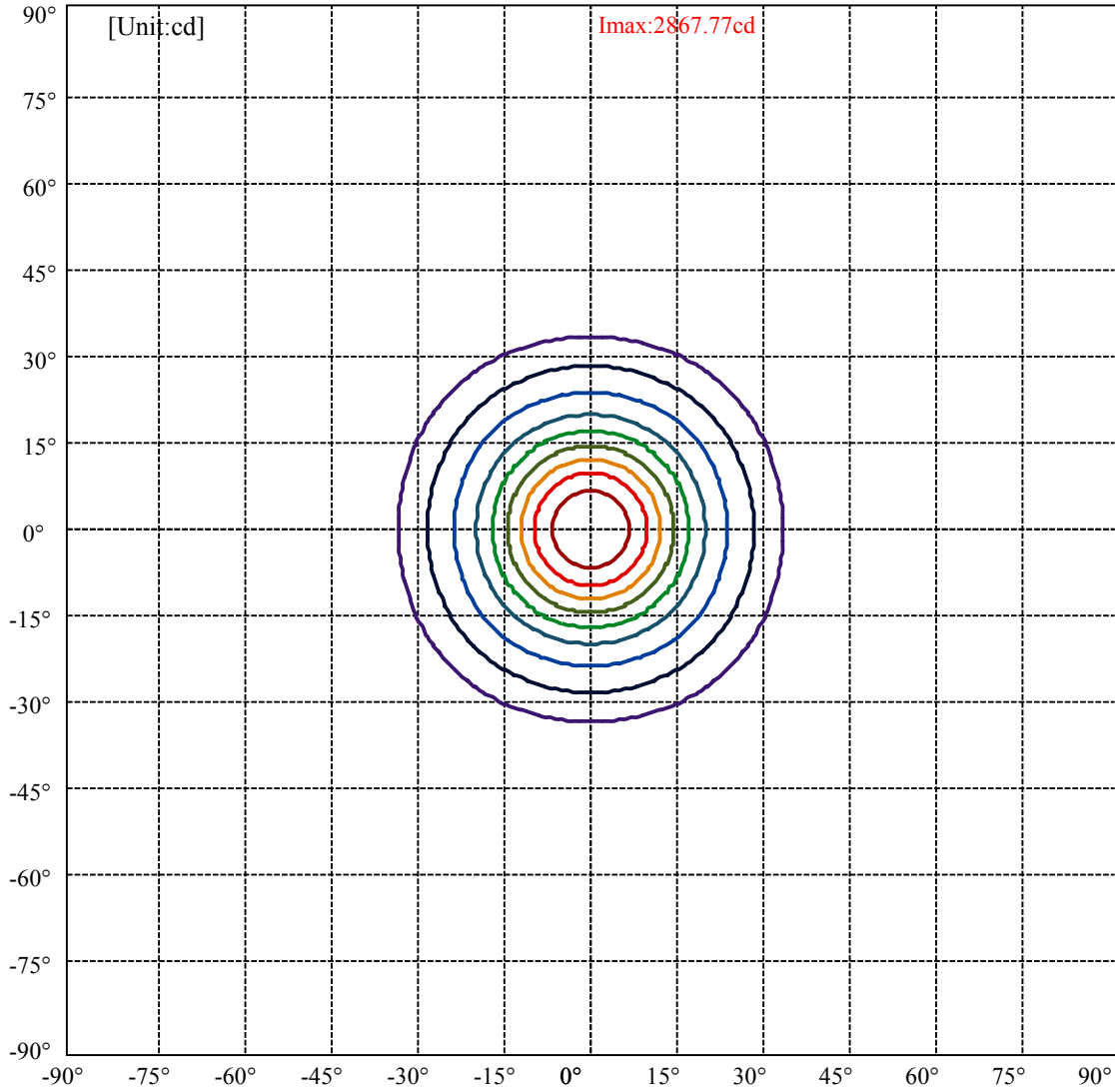
Field angle(10%Imax):C0/180Left:33.0 Right:33.0

:C90/270Left:33.0 Right:33.0

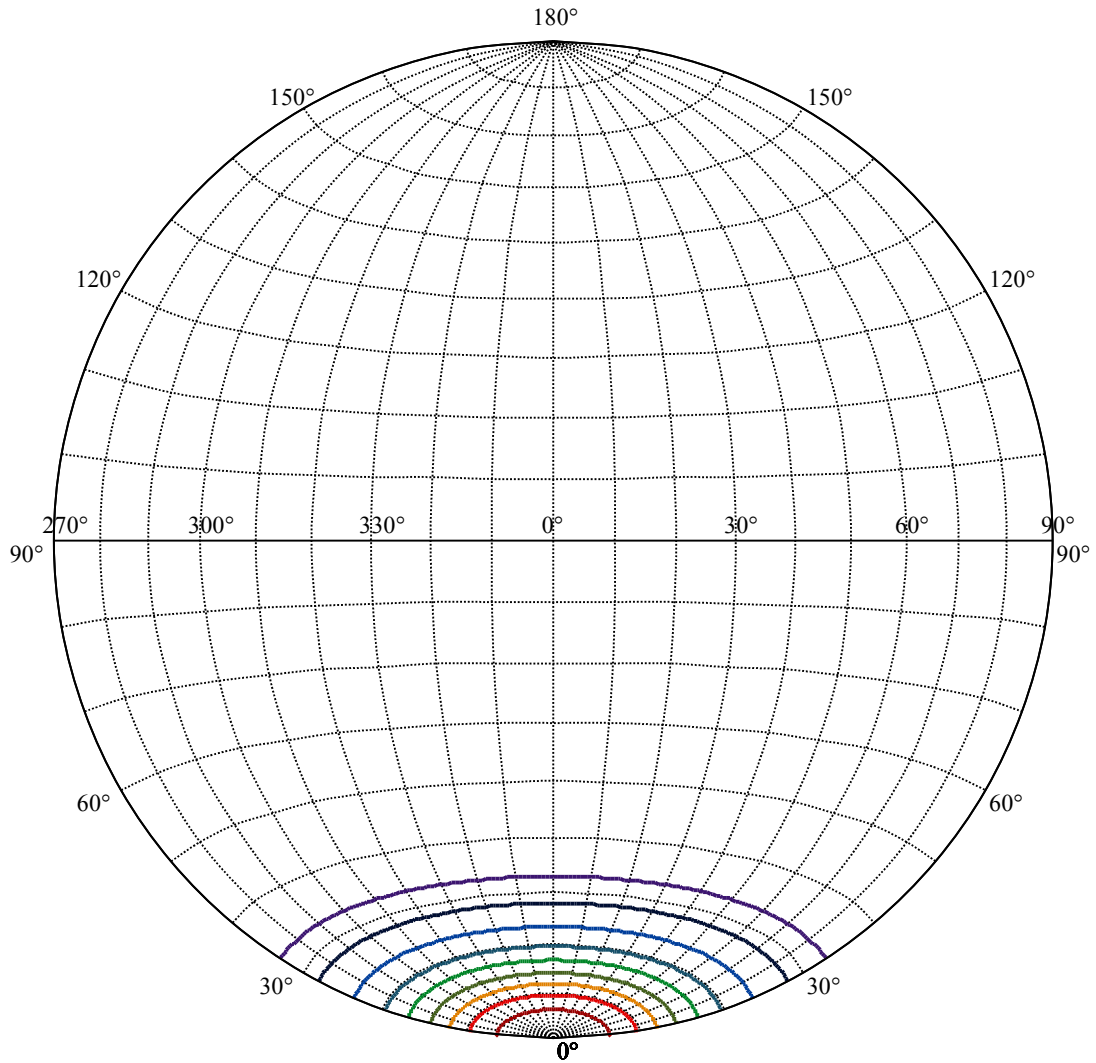
Beam Angle(50%Imax):C0/180Left:16.9 Right:16.9

:C90/270Left:16.9 Right:16.9





(10%Imax) 286.777	—
(20%Imax) 573.553	—
(30%Imax) 860.33	—
(40%Imax) 1147.11	—
(50%Imax) 1433.88	—
(60%Imax) 1720.66	—
(70%Imax) 2007.44	—
(80%Imax) 2294.21	—
(90%Imax) 2580.99	—



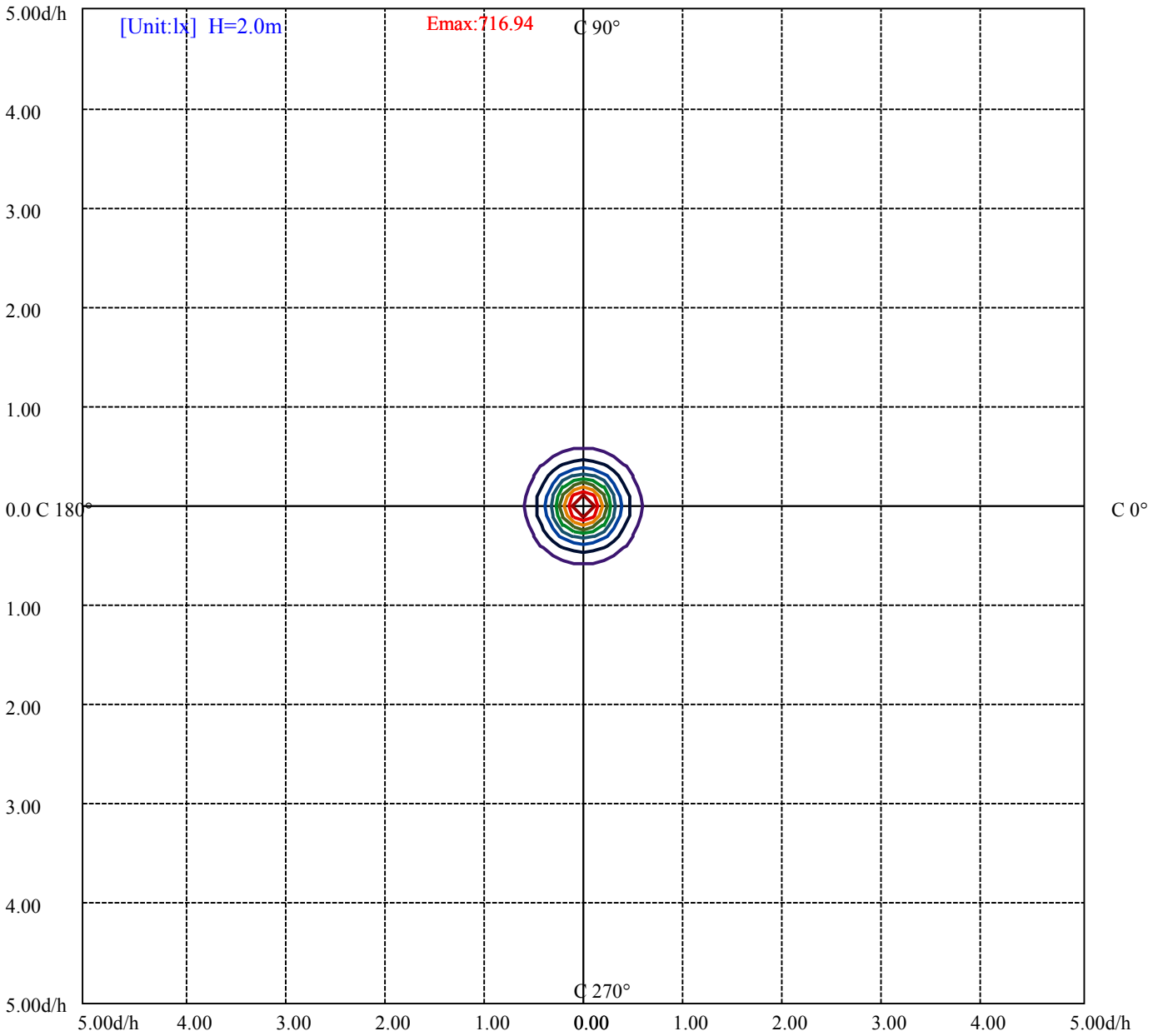
House

[Unit:cd]

Road

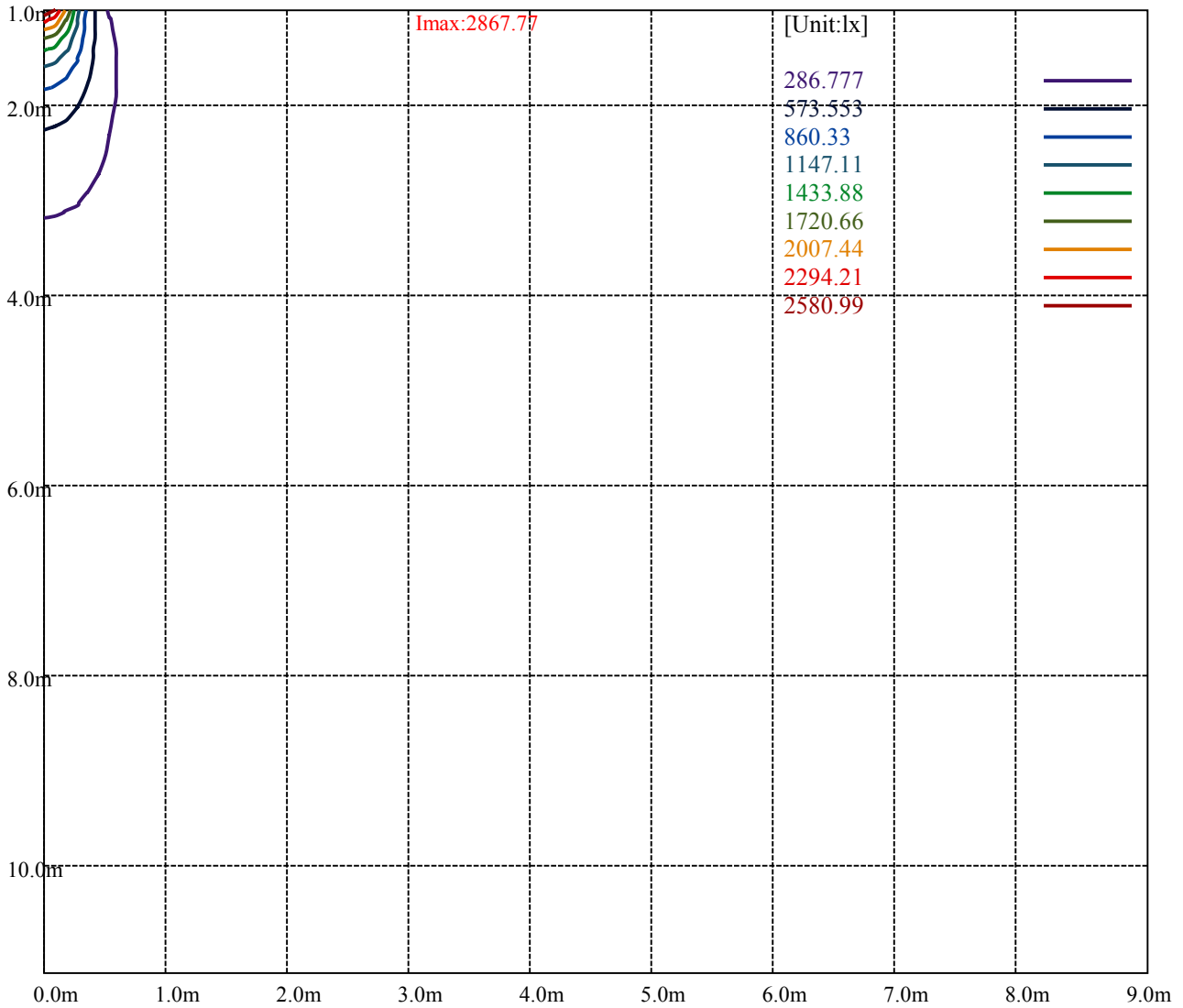
Imax:2867.77

(10%Imax)	286.777	—
(20%Imax)	573.553	—
(30%Imax)	860.33	—
(40%Imax)	1147.11	—
(50%Imax)	1433.88	—
(60%Imax)	1720.66	—
(70%Imax)	2007.44	—
(80%Imax)	2294.21	—
(90%Imax)	2580.99	—



- (10%Emax) 71.694
- (20%Emax) 143.388
- (30%Emax) 215.082
- (40%Emax) 286.775
- (50%Emax) 358.47
- (60%Emax) 430.165
- (70%Emax) 501.8575
- (80%Emax) 573.5525
- (90%Emax) 645.2475





Luminance Table

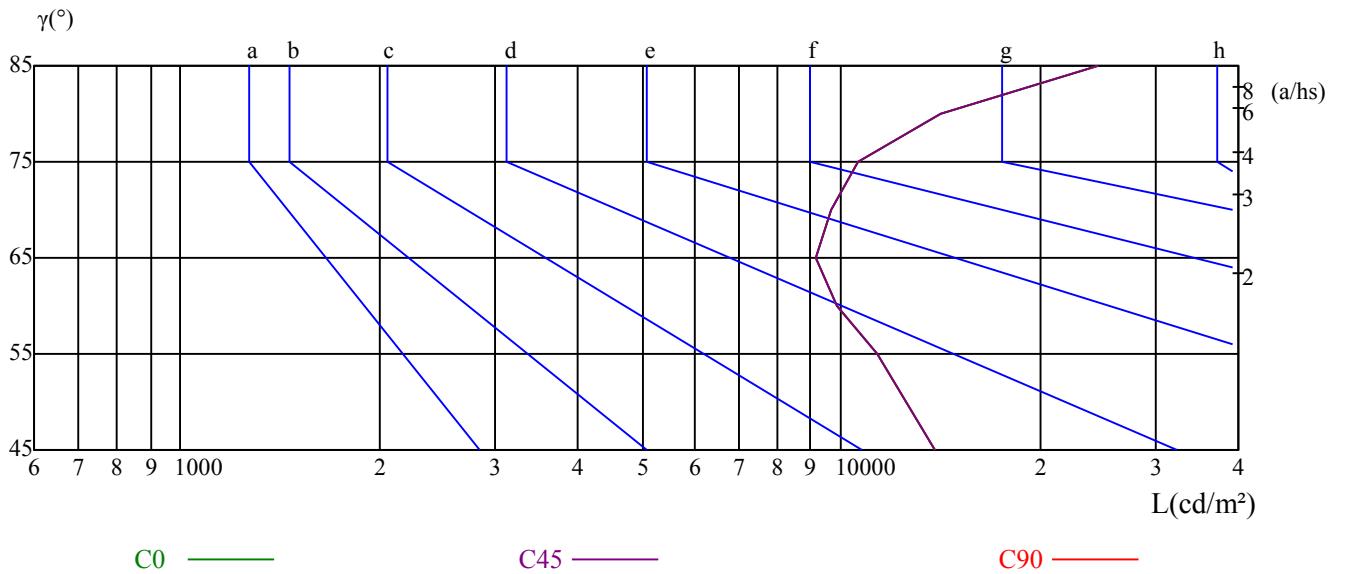
$\gamma$	45	50	55	60	65	70	75	80	85
C0	13892	12578	11334	9894	9192	9681	10653	14133	24607
C45	13892	12578	11334	9894	9192	9681	10653	14133	24607
C90	13892	12578	11334	9894	9192	9681	10653	14133	24607

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
9192	9192	9192	10653	10653	10653	24607	24607	24607

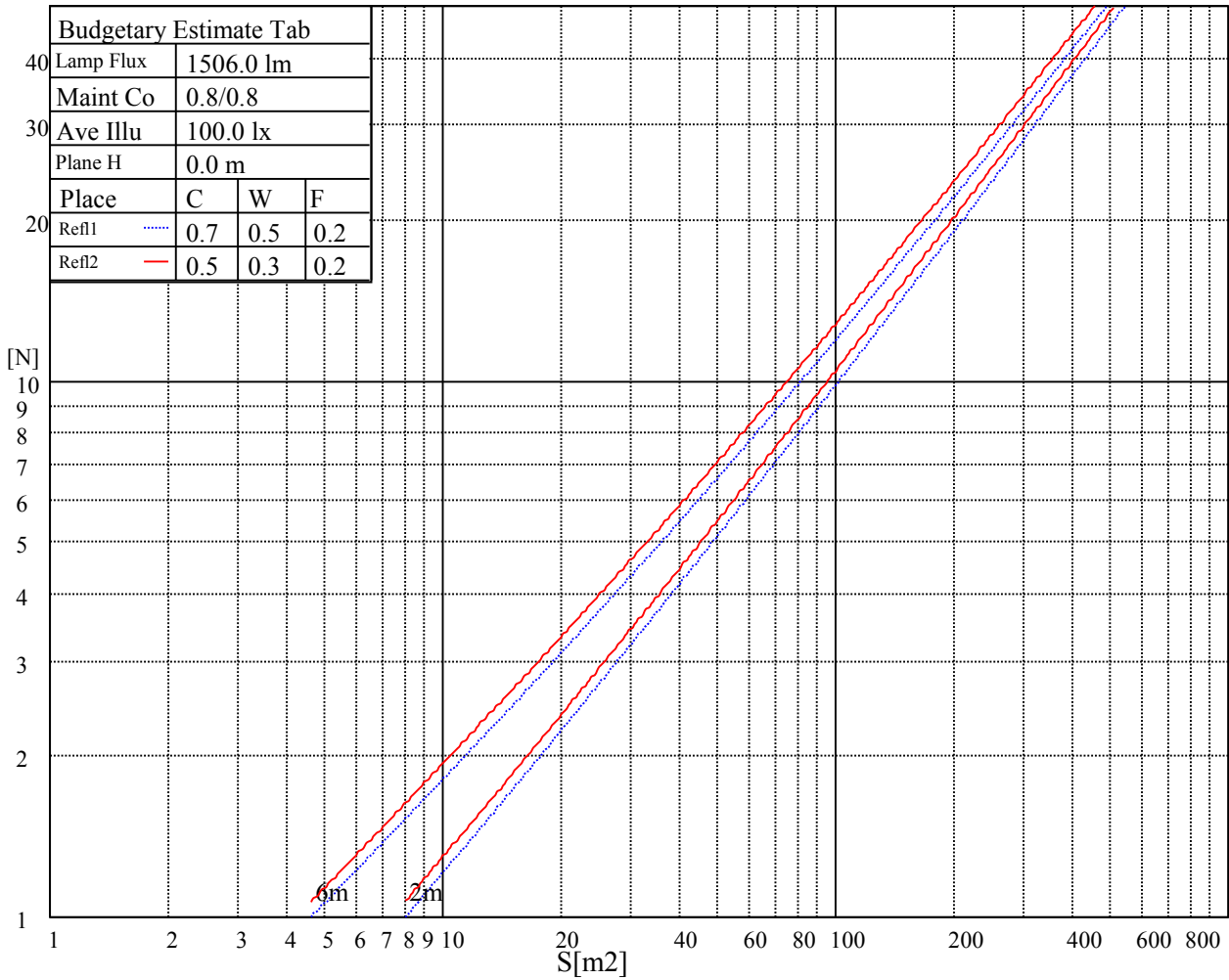
Glare Table

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

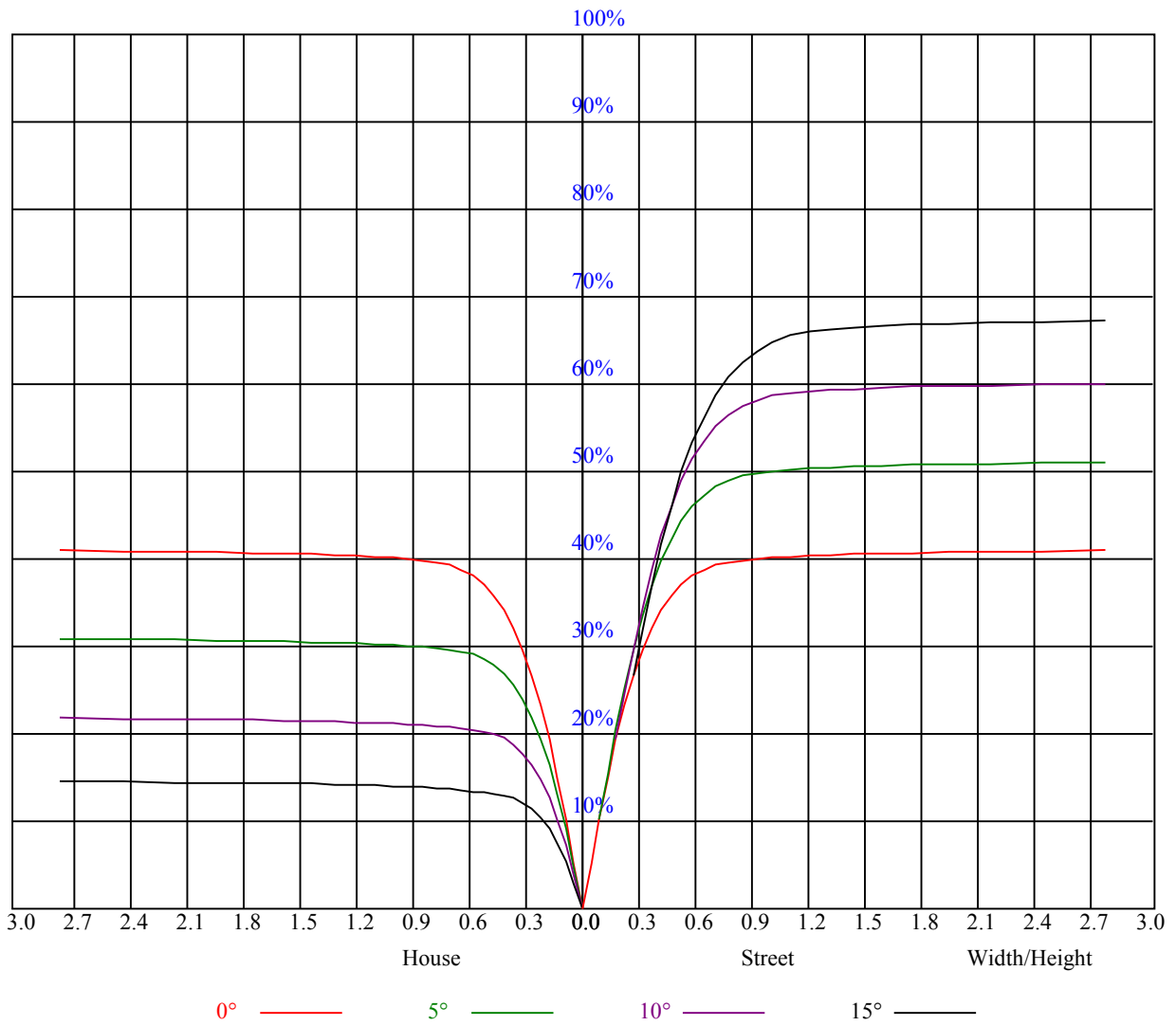
Luminance Limiting Curve



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	12.05	13.01	12.41	13.33	13.64	12.24	13.21	12.60	13.52	13.83
	3H	13.70	14.56	14.08	14.89	15.26	13.93	14.79	14.31	15.12	15.49
	4H	14.60	15.40	15.01	15.75	16.14	14.79	15.58	15.19	15.93	16.32
	6H	15.69	16.41	16.11	16.79	17.18	15.81	16.54	16.23	16.91	17.31
	8H	16.31	16.99	16.75	17.38	17.79	16.42	17.10	16.86	17.49	17.91
	12H	17.40	18.05	17.84	18.44	18.87	17.51	18.16	17.94	18.54	18.97
4H	2H	12.46	13.25	12.86	13.60	13.99	12.61	13.40	13.02	13.76	14.15
	3H	14.43	15.08	14.85	15.49	15.90	14.62	15.27	15.03	15.68	16.08
	4H	15.53	16.11	15.97	16.54	16.99	15.67	16.25	16.10	16.67	17.12
	6H	16.72	17.22	17.19	17.67	18.14	16.82	17.31	17.29	17.76	18.24
	8H	17.49	17.96	17.97	18.41	18.88	17.58	18.04	18.05	18.49	18.97
	12H	18.62	19.02	19.11	19.51	19.98	18.70	19.10	19.19	19.59	20.07
8H	4H	15.96	16.42	16.44	16.87	17.35	16.07	16.54	16.55	16.99	17.46
	6H	17.45	17.82	17.96	18.33	18.81	17.53	17.89	18.04	18.40	18.88
	8H	18.42	18.75	18.95	19.27	19.77	18.48	18.81	19.02	19.33	19.83
	12H	19.83	20.11	20.35	20.61	21.19	19.91	20.19	20.43	20.69	21.27
12H	4H	16.06	16.46	16.55	16.94	17.42	16.16	16.56	16.65	17.05	17.53
	6H	17.92	17.99	18.20	18.46	19.01	17.99	18.06	18.27	18.53	19.08
	8H	18.75	19.03	19.27	19.53	20.11	18.81	19.09	19.33	19.59	20.17
Variation with the observer position at spacings:											
S = 1.0H	4.0/-2.4					4.0/-2.4					
S = 1.5H	5.4/-2.0					5.4/-2.0					
S = 2.0H	6.4/-1.7					6.4/-1.7					
Standard tables:	BK4					BK4					
Uncorrected UGR	2.1					2.1					



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	0.99	0.99	0.99	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.83
1	0.92	0.89	0.87	0.90	0.88	0.86	0.86	0.85	0.83	0.83	0.82	0.81	0.80	0.79	0.79	0.77
2	0.86	0.83	0.80	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.76	0.78	0.76	0.75	0.73
3	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.77	0.74	0.72	0.75	0.73	0.71	0.70
4	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.67	0.74	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
6	0.71	0.67	0.64	0.71	0.67	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.61
7	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.59
8	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.57
9	0.63	0.59	0.57	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.55
10	0.61	0.57	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.53



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	2872.69	2787.19	2412.00	1845.56	1247.63	840.38	550.13	290.81	44.49
45.0	2858.06	2815.88	2487.94	1889.44	1312.31	878.06	594.00	302.06	54.39
90.0	2869.88	2769.75	2255.63	1645.31	1078.14	693.51	420.41	155.14	50.96
135.0	2870.44	2783.25	2359.69	1702.69	1180.69	816.75	515.25	297.00	47.70
180.0	2872.69	2707.88	2188.69	1539.00	1052.83	725.91	392.18	92.76	36.56
225.0	2858.06	2620.69	2081.25	1450.13	982.86	686.93	352.52	75.26	36.00
270.0	2869.88	2644.31	2181.94	1530.00	1020.38	707.63	402.19	109.07	43.99
315.0	2870.44	2649.38	2117.25	1420.88	993.94	697.05	397.01	120.26	42.75
360.0	2872.69	2787.19	2412.00	1845.56	1247.63	840.38	550.13	290.81	44.49
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	31.33	27.17	23.29	17.89	13.56	11.36	8.89	7.82	6.86
45.0	33.86	27.56	23.18	17.89	13.50	11.25	9.11	7.99	6.92
90.0	35.72	27.96	21.32	16.26	12.49	10.58	8.89	7.82	6.75
135.0	33.92	27.73	21.66	16.26	12.43	10.80	9.00	7.93	6.86
180.0	28.46	24.64	20.25	15.41	12.43	10.69	8.94	8.10	7.26
225.0	27.90	23.12	18.39	14.57	12.26	10.35	9.11	8.33	7.26
270.0	32.18	25.93	20.59	15.24	12.15	10.35	9.00	8.16	7.09
315.0	31.95	26.04	20.31	15.08	12.15	10.69	8.72	7.65	6.75
360.0	31.33	27.17	23.29	17.89	13.56	11.36	8.89	7.82	6.86
C/ $\gamma$ (°)	90.0								
0.0	5.79								
45.0	5.85								
90.0	5.63								
135.0	5.68								
180.0	5.63								
225.0	5.51								
270.0	5.46								
315.0	5.57								
360.0	5.79								