



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: 2-1122-A4  
Luminaire: 99.02.73.172+92.76.365.00  
Report No: NATA0100  
Test No: GC2019011506  
LampCAT: LUMINUS CLM-14-AC30  
Lamp flux(lm): 3533.0  
Number of Lamps: 1  
Length(mm): 70  
Phm Type: C

Voltage(V): 35.1000  
Current(A): 0.7000  
Power (W): 24.5700  
PF: 0.0000  
Ballast type: DC  
Width(mm): 70  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 3238.63  
Efficiency(%): 91.67%  
Lumens(lm)/Power(W): 133.46  
Central intensity(cd): 7285.219  
Maximum intensity(cd): 7285.219  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=35.2  
                                  [C90/270]Total=35.2  
Field angle(10%Imax): [C0/180]Total=71.0  
                                  [C90/270]Total=71.0  
Maximum s/h(1/2): C0\_180=0.58 C90\_270=0.58  
Maximum s/h(1/4): C0\_180=0.59 C90\_270=0.59  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 92.81%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.558%

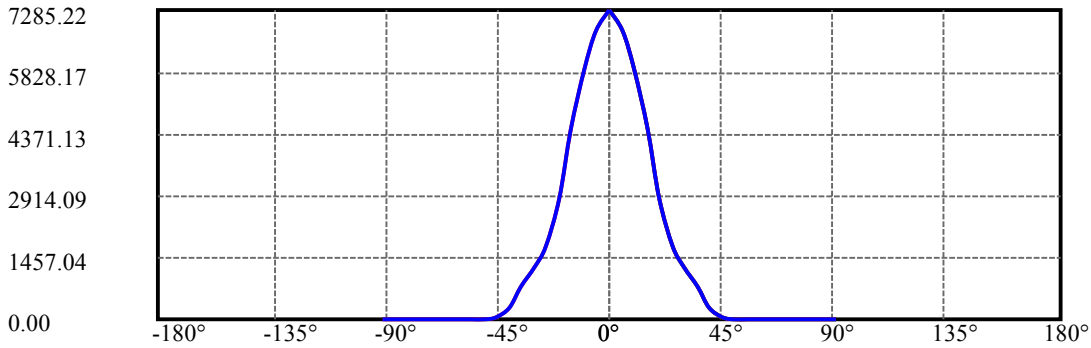
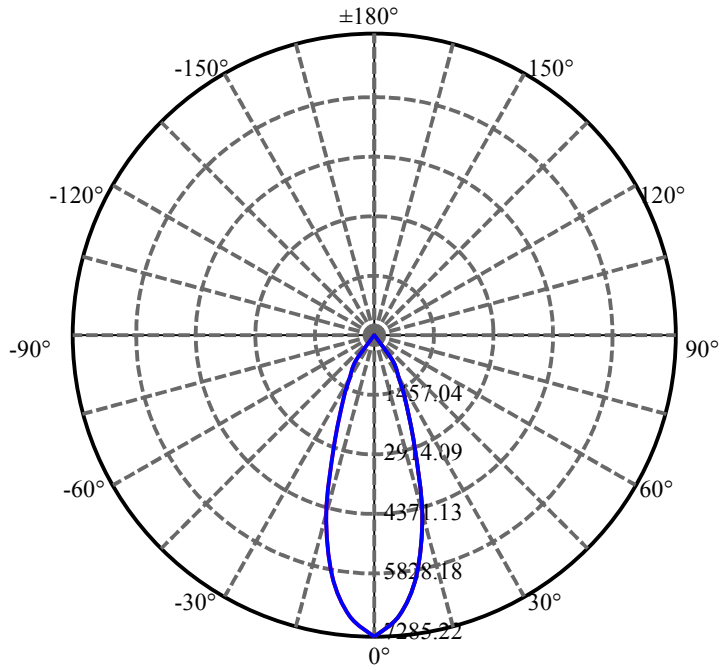
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7285.219	43.567	43.567	1.233%	1.345%
5.0	6808.711	325.275	368.842	9.207%	11.389%
10.0	5868.141	558.548	927.389	15.809%	28.635%
15.0	4480.945	635.705	1563.094	17.993%	48.264%
20.0	2865.867	537.276	2100.37	15.207%	64.854%
25.0	1712.180	396.631	2497.001	11.226%	77.101%
30.0	1219.894	334.335	2831.336	9.463%	87.424%
35.0	784.273	246.574	3077.91	6.979%	95.037%
40.0	250.826	88.375	3166.285	2.501%	97.766%
45.0	29.932	11.601	3177.886	.328%	98.124%
50.0	16.889	7.092	3184.978	.201%	98.343%
55.0	15.595	7.002	3191.98	.198%	98.560%
60.0	14.843	7.046	3199.026	.199%	98.777%
65.0	14.280	7.094	3206.121	.201%	98.996%
70.0	13.915	7.167	3213.288	.203%	99.217%
75.0	13.627	7.215	3220.503	.204%	99.440%
80.0	13.451	7.261	3227.763	.206%	99.664%
85.0	13.289	7.257	3235.02	.205%	99.888%
90.0	13.177	3.611	3238.631	.102%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2831.34	80.14%	87.42%
0-40	3166.28	89.62%	97.77%
0-60	3199.03	90.55%	98.78%
0-90	3235.02	91.57%	99.89%
0-120	3235.02	91.57%	99.89%
0-180	3238.63	91.67%	100.00%
60-90	43.04	1.22%	1.33%
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%
0-26.40	2590.91	73.33%	80.00%

ZONAL LUMEN SUMMARY

0-10	927.39
10-20	1172.98
20-30	730.97
30-40	334.95
40-50	18.69
50-60	14.05
60-70	14.26
70-80	14.48
80-90	7.26
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: —————

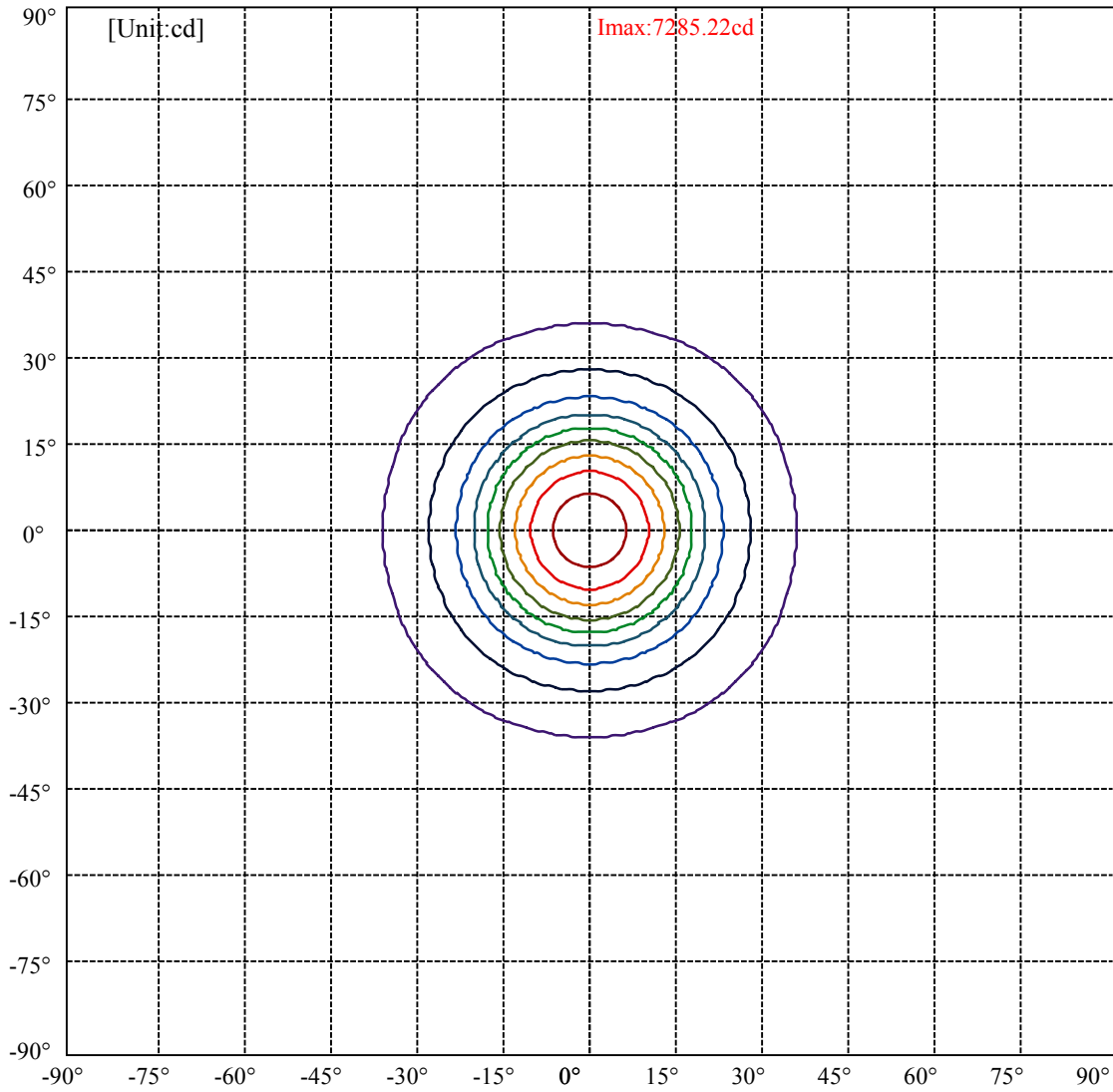
Field angle(10%Imax):C0/180Left:35.5 Right:35.5

:C90/270Left:35.5 Right:35.5

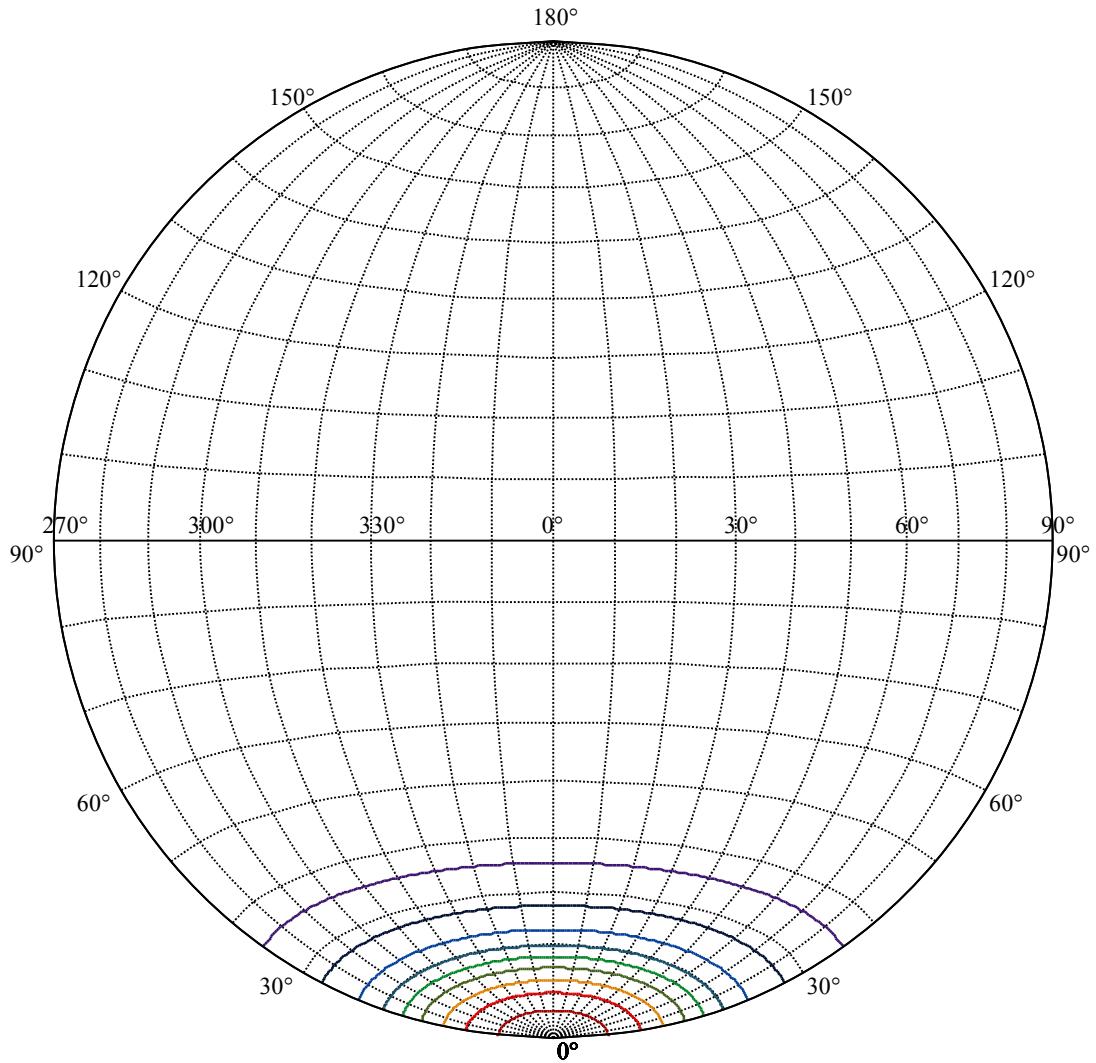
Beam Angle(50%Imax):C0/180Left:17.6 Right:17.6

:C90/270Left:17.6 Right:17.6





(10%Imax) 728.522	—
(20%Imax) 1457.04	—
(30%Imax) 2185.57	—
(40%Imax) 2914.09	—
(50%Imax) 3642.61	—
(60%Imax) 4371.13	—
(70%Imax) 5099.65	—
(80%Imax) 5828.17	—
(90%Imax) 6556.7	—



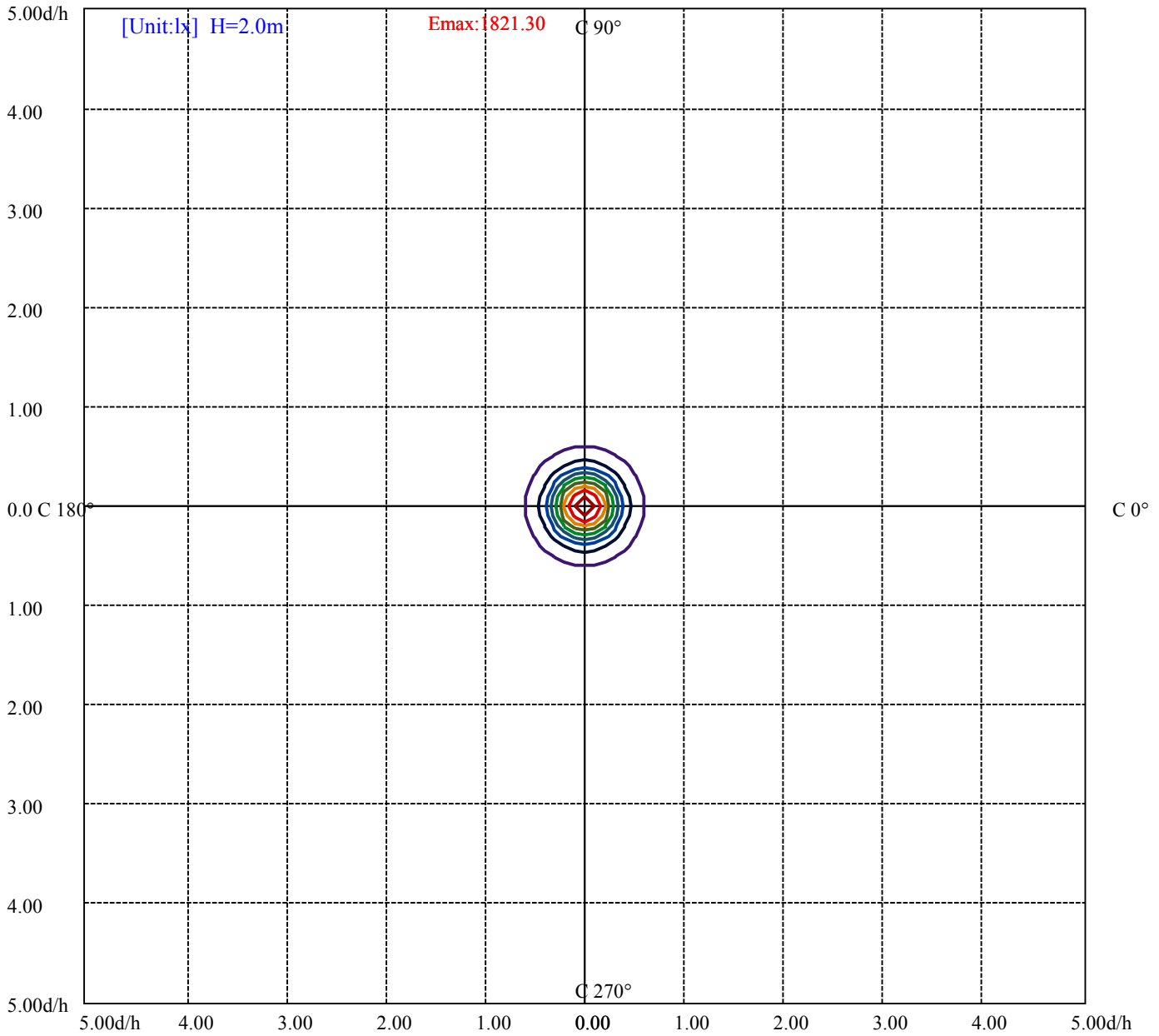
House

[Unit:cd]

Road

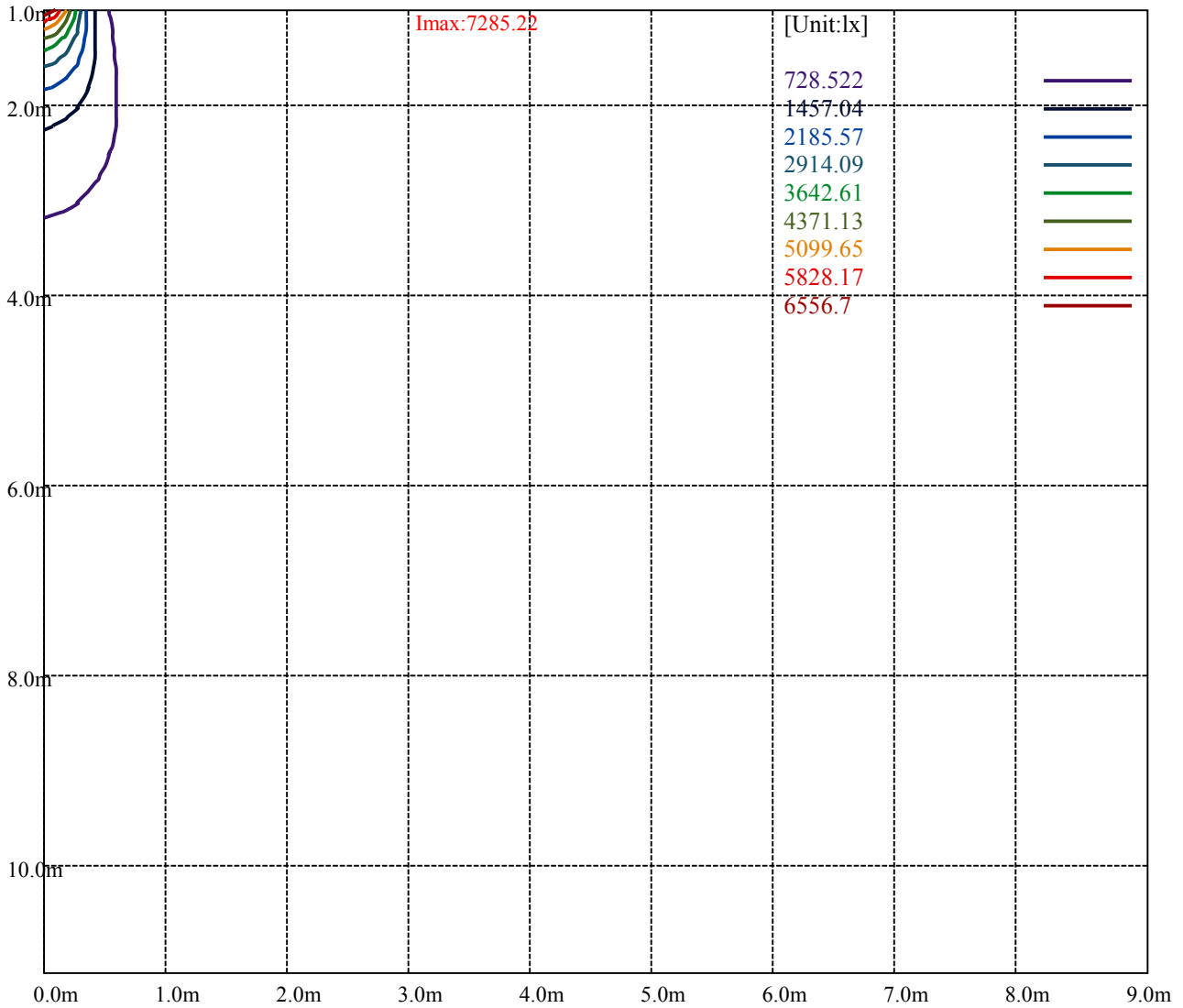
**Imax:7285.22**

(10%Imax) 728.522	—
(20%Imax) 1457.04	—
(30%Imax) 2185.57	—
(40%Imax) 2914.09	—
(50%Imax) 3642.61	—
(60%Imax) 4371.13	—
(70%Imax) 5099.65	—
(80%Imax) 5828.17	—
(90%Imax) 6556.7	—



(10%Emax) 182.13	—
(20%Emax) 364.26	—
(30%Emax) 546.39	—
(40%Emax) 728.52	—
(50%Emax) 910.65	—
(60%Emax) 1092.78	—
(70%Emax) 1274.91	—
(80%Emax) 1457.04	—
(90%Emax) 1639.17	—





Luminance Table

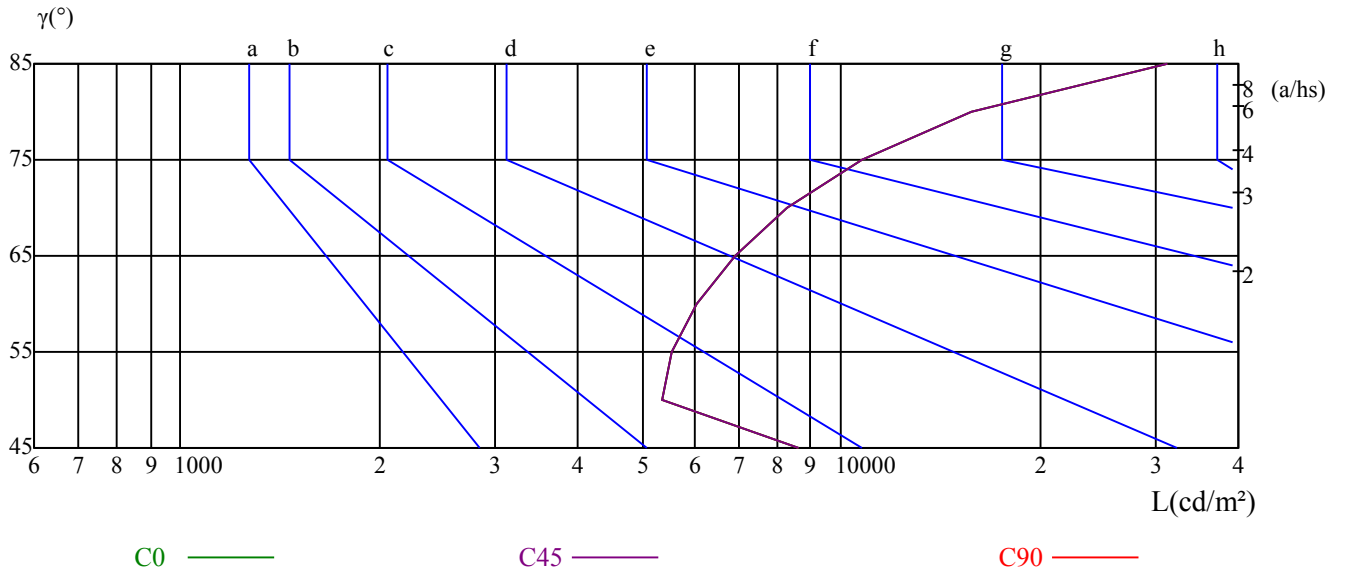
$\gamma$	45	50	55	60	65	70	75	80	85
C0	8639	5362	5549	6058	6896	8303	10745	15808	31117
C45	8639	5362	5549	6058	6896	8303	10745	15808	31117
C90	8639	5362	5549	6058	6896	8303	10745	15808	31117

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6896	6896	6896	10745	10745	10745	31117	31117	31117

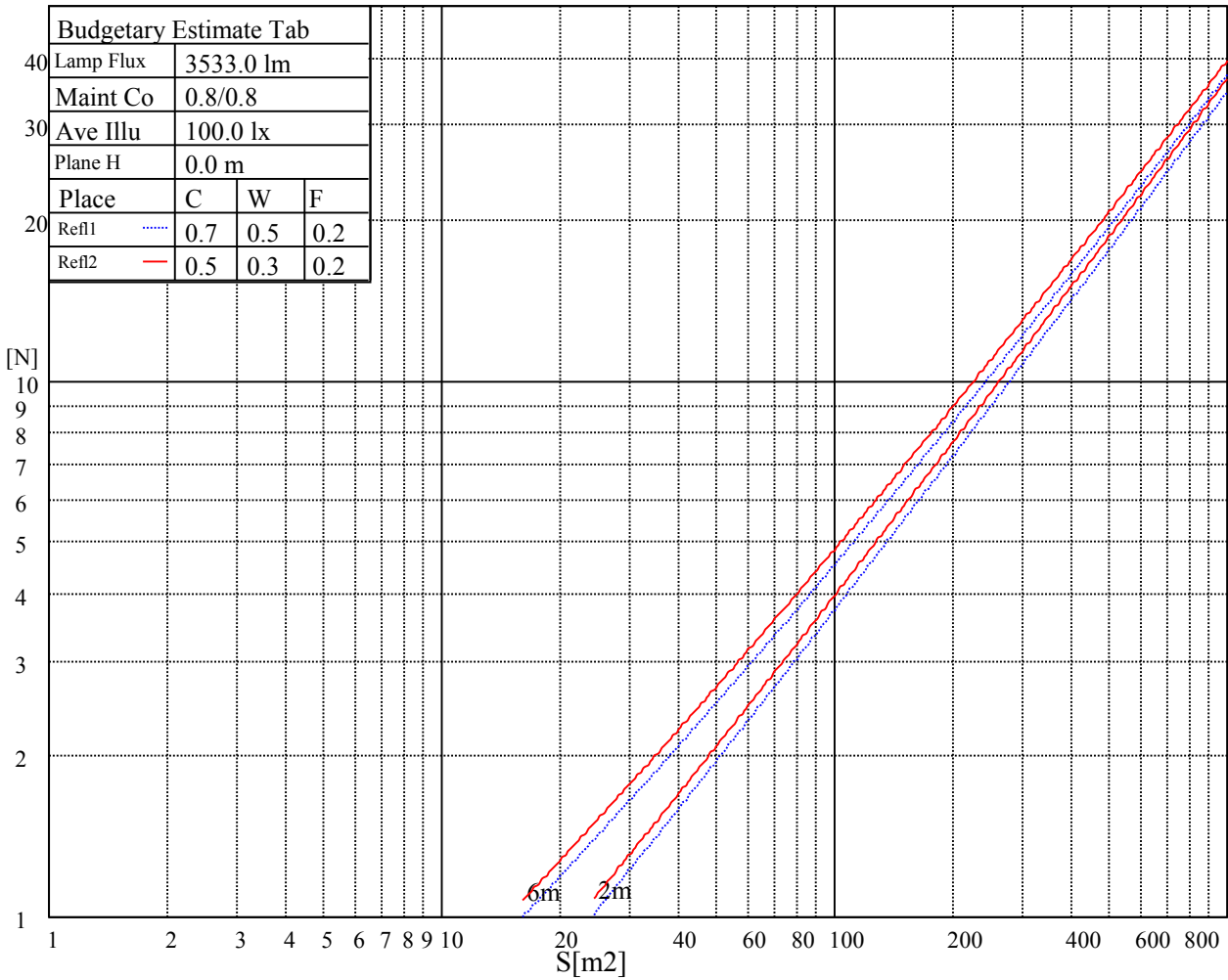
Glare Table

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

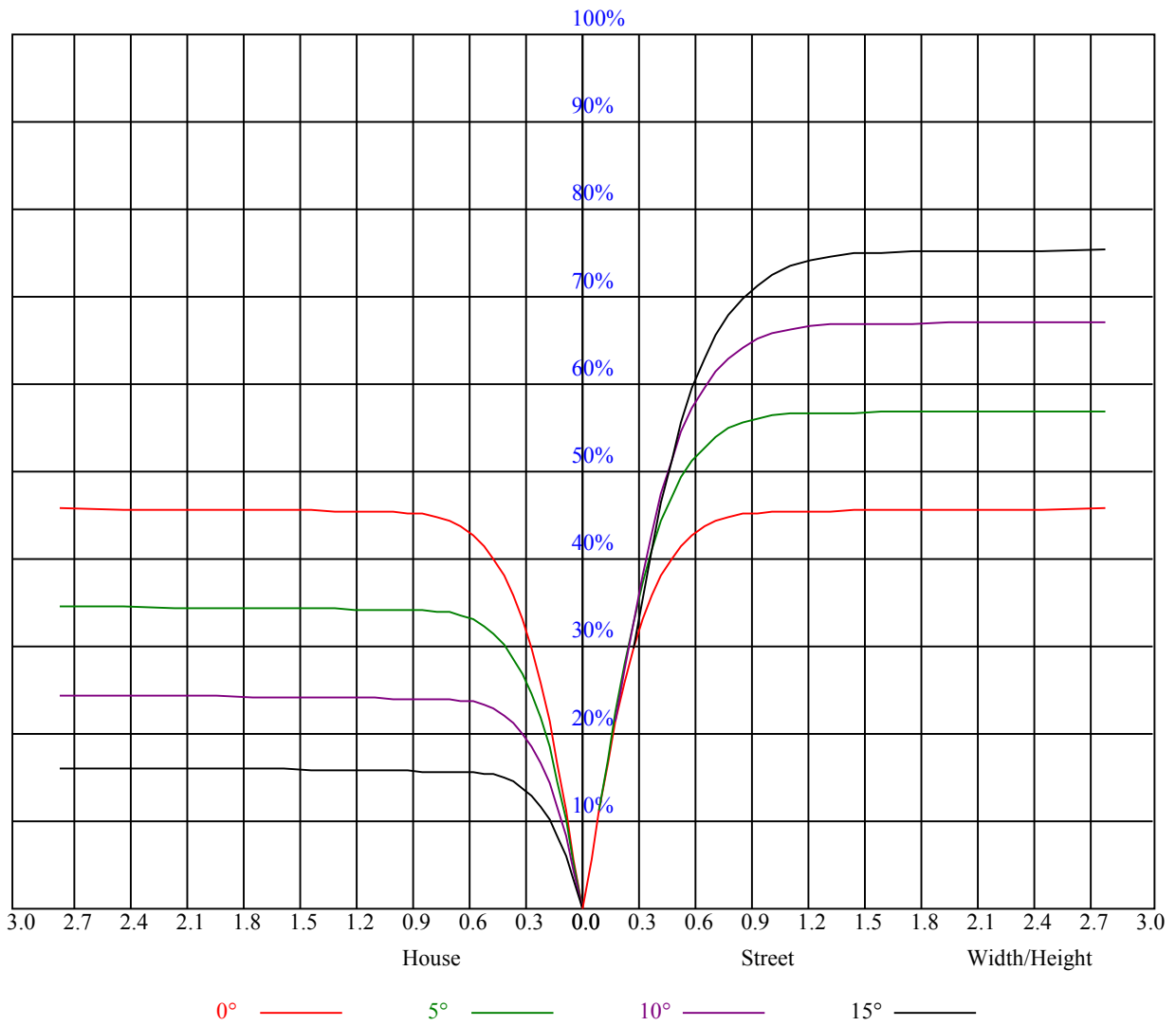
Luminance Limiting Curve



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	2.78	3.70	3.15	4.01	4.33	2.77	3.69	3.14	4.00	4.31
	3H	5.92	6.73	6.31	7.07	7.44	5.91	6.71	6.29	7.05	7.42
	4H	7.64	8.39	8.05	8.74	9.13	7.61	8.36	8.02	8.71	9.10
	6H	9.58	10.26	10.00	10.64	11.03	9.54	10.22	9.96	10.60	11.00
	8H	10.65	11.29	11.09	11.69	12.10	10.61	11.25	11.05	11.64	12.05
	12H	12.40	13.01	12.84	13.40	13.83	12.35	12.96	12.79	13.35	13.78
4H	2H	3.67	4.41	4.08	4.77	5.16	3.66	4.40	4.07	4.76	5.15
	3H	7.06	7.67	7.48	8.08	8.49	7.04	7.66	7.46	8.07	8.47
	4H	8.94	9.49	9.38	9.91	10.36	8.92	9.47	9.36	9.89	10.34
	6H	11.04	11.51	11.52	11.96	12.44	11.01	11.48	11.48	11.93	12.40
	8H	12.22	12.65	12.70	13.11	13.58	12.18	12.62	12.66	13.07	13.54
	12H	13.87	14.24	14.36	14.73	15.21	13.83	14.20	14.32	14.69	15.17
8H	4H	9.66	10.10	10.14	10.55	11.02	9.65	10.08	10.12	10.53	11.01
	6H	12.04	12.38	12.55	12.89	13.37	12.01	12.35	12.52	12.86	13.34
	8H	13.40	13.71	13.94	14.23	14.73	13.37	13.67	13.91	14.20	14.70
	12H	15.19	15.45	15.71	15.95	16.53	15.16	15.42	15.68	15.92	16.50
12H	4H	9.86	10.24	10.36	10.73	11.21	9.85	10.23	10.34	10.72	11.19
	6H	12.56	12.66	12.89	13.13	13.68	12.53	12.63	12.87	13.11	13.66
	8H	13.85	14.11	14.37	14.61	15.19	13.82	14.08	14.35	14.58	15.16
Variation with the observer position at spacings:											
S = 1.0H	5.1/-7.8					5.1/-7.8					
S = 1.5H	7.4/-5.8					7.4/-5.8					
S = 2.0H	8.8/-4.4					8.8/-4.4					
Standard tables:	BK2					BK2					
Uncorrected UGR	2.8					2.8					



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	1.10	1.10	1.10	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	1.02	1.00	0.98	1.00	0.98	0.96	0.97	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	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.84	0.82
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	0.87	0.83	0.79	0.86	0.82	0.79	0.84	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.75
5	0.83	0.79	0.75	0.83	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.72
6	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.66
8	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.64
9	0.71	0.66	0.63	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60



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	7307.44	6701.06	5800.50	4337.44	2683.69	1663.31	1232.44	757.69	286.88
45.0	7294.50	6739.31	5787.00	4275.56	2695.50	1631.25	1204.31	707.63	293.63
90.0	7281.00	6783.75	5773.50	4283.44	2703.38	1630.69	1100.08	725.46	172.91
135.0	7257.94	7011.56	6149.25	4915.69	3280.50	1891.69	1334.25	911.81	329.63
180.0	7307.44	6909.75	5945.06	4668.19	3015.56	1760.06	1218.94	811.58	232.37
225.0	7294.50	6927.19	5979.94	4703.06	3089.25	1783.69	1271.25	849.83	263.36
270.0	7281.00	6858.56	5951.25	4656.38	3019.50	1771.31	1276.31	871.88	307.69
315.0	7257.94	6538.50	5558.63	4007.81	2439.56	1565.44	1121.57	638.33	120.15
360.0	7307.44	6701.06	5800.50	4337.44	2683.69	1663.31	1232.44	757.69	286.88

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	31.33	16.76	15.53	14.74	14.18	13.84	13.44	13.33	13.16
45.0	29.59	16.54	15.47	14.79	14.23	13.95	13.67	13.50	13.33
90.0	28.29	16.48	15.36	14.68	14.18	13.84	13.61	13.39	13.28
135.0	39.54	17.10	15.64	14.91	14.29	13.95	13.67	13.44	13.28
180.0	31.89	16.93	15.64	14.79	14.23	13.84	13.56	13.39	13.22
225.0	27.84	17.33	15.81	15.02	14.46	14.06	13.78	13.61	13.44
270.0	27.62	17.38	15.86	15.02	14.46	14.01	13.73	13.56	13.39
315.0	23.34	16.59	15.47	14.79	14.23	13.84	13.56	13.39	13.22
360.0	31.33	16.76	15.53	14.74	14.18	13.84	13.44	13.33	13.16

C/γ(°)	90.0
0.0	13.05
45.0	13.28
90.0	13.22
135.0	13.16
180.0	13.05
225.0	13.28
270.0	13.22
315.0	13.16
360.0	13.05