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## NATA

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LumCAT: 3-1550-A3  
Luminaire: 99.02.73.172+92.76.365.00  
Report No: NATA0100  
Test No: GC2019011510  
LampCAT: LUMINUS CLM-14-AC30  
Lamp flux(lm): 3533.0  
Number of Lamps: 1  
Length(mm): 78  
Phm Type: C

Voltage(V): 35.1000  
Current(A): 0.7000  
Power (W): 24.5700  
PF: 0.0000  
Ballast type: DC  
Width(mm): 78  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 3200.11  
Efficiency(%): 90.58%  
Lumens(lm)/Power(W): 131.47  
Central intensity(cd): 5560.171  
Maximum intensity(cd): 5560.171  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=43.6  
                                  [C90/270]Total=43.6  
Field angle(10%Imax): [C0/180]Total=73.7  
                                  [C90/270]Total=73.7  
Maximum s/h(1/2): C0\_180=0.69 C90\_270=0.69  
Maximum s/h(1/4): C0\_180=0.72 C90\_270=0.72  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 91.43%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.815%

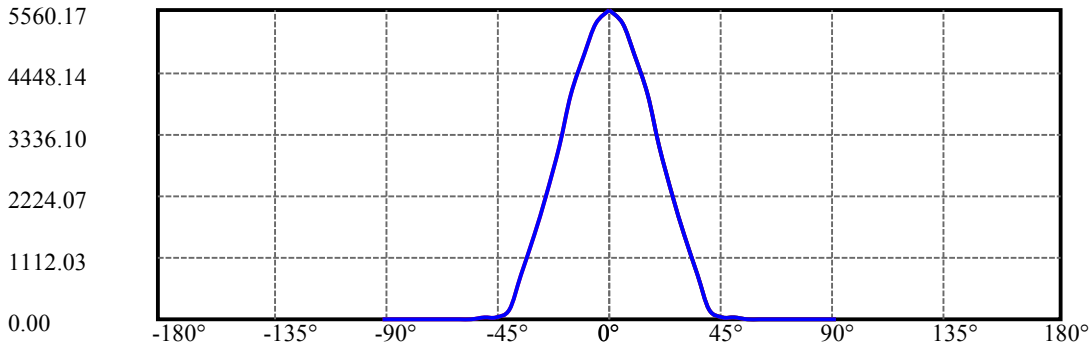
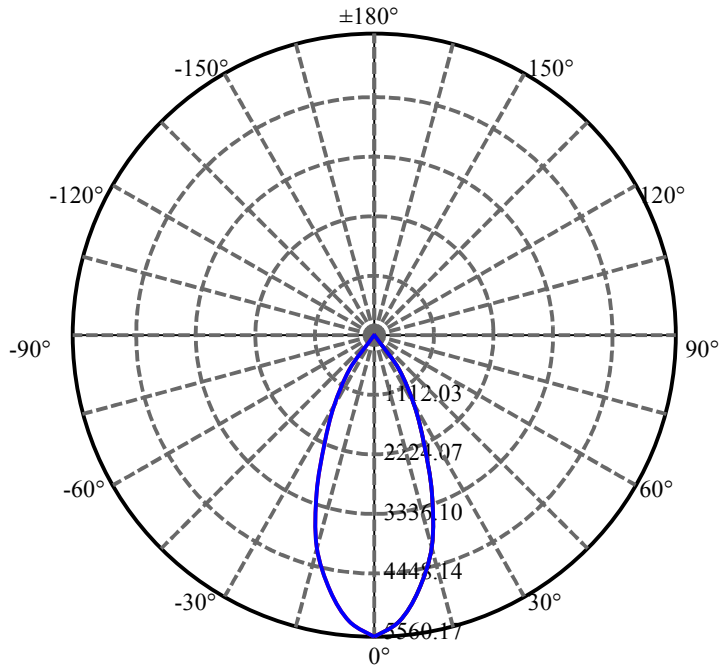
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5560.172	33.251	33.251	.941%	1.039%
5.0	5312.109	253.777	287.028	7.183%	8.969%
10.0	4769.508	453.976	741.004	12.850%	23.156%
15.0	4040.930	573.280	1314.285	16.226%	41.070%
20.0	3093.820	580.011	1894.296	16.417%	59.195%
25.0	2217.516	513.694	2407.989	14.540%	75.247%
30.0	1511.965	414.382	2822.372	11.729%	88.196%
35.0	788.738	247.978	3070.35	7.019%	95.945%
40.0	165.495	58.310	3128.659	1.650%	97.767%
45.0	23.808	9.228	3137.887	.261%	98.056%
50.0	17.480	7.340	3145.227	.208%	98.285%
55.0	16.151	7.252	3152.479	.205%	98.512%
60.0	15.314	7.270	3159.748	.206%	98.739%
65.0	14.660	7.283	3167.031	.206%	98.966%
70.0	14.217	7.323	3174.354	.207%	99.195%
75.0	13.880	7.349	3181.703	.208%	99.425%
80.0	13.655	7.371	3189.074	.209%	99.655%
85.0	13.528	7.387	3196.461	.209%	99.886%
90.0	13.317	3.650	3200.111	.103%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2822.37	79.89%	88.20%
0-40	3128.66	88.56%	97.77%
0-60	3159.75	89.44%	98.74%
0-90	3196.46	90.47%	99.89%
0-120	3196.46	90.47%	99.89%
0-180	3200.11	90.58%	100.00%
60-90	43.98	1.24%	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%
0-26.84	2560.09	72.46%	80.00%

ZONAL LUMEN SUMMARY

0-10	741.00
10-20	1153.29
20-30	928.08
30-40	306.29
40-50	16.57
50-60	14.52
60-70	14.61
70-80	14.72
80-90	7.39
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: ———

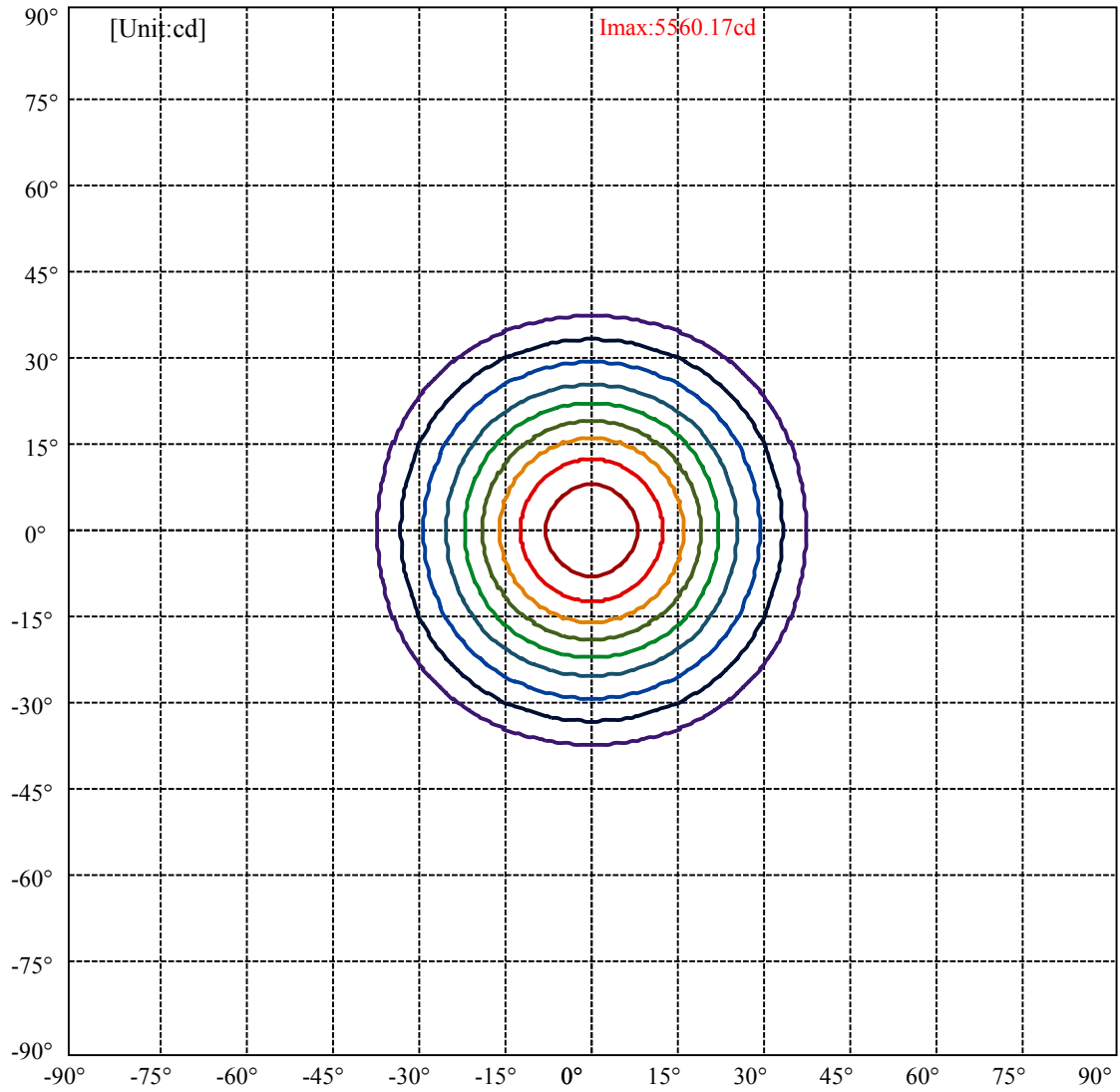
Field angle(10%Imax):C0/180Left:36.9 Right:36.9

:C90/270Left:36.9 Right:36.9

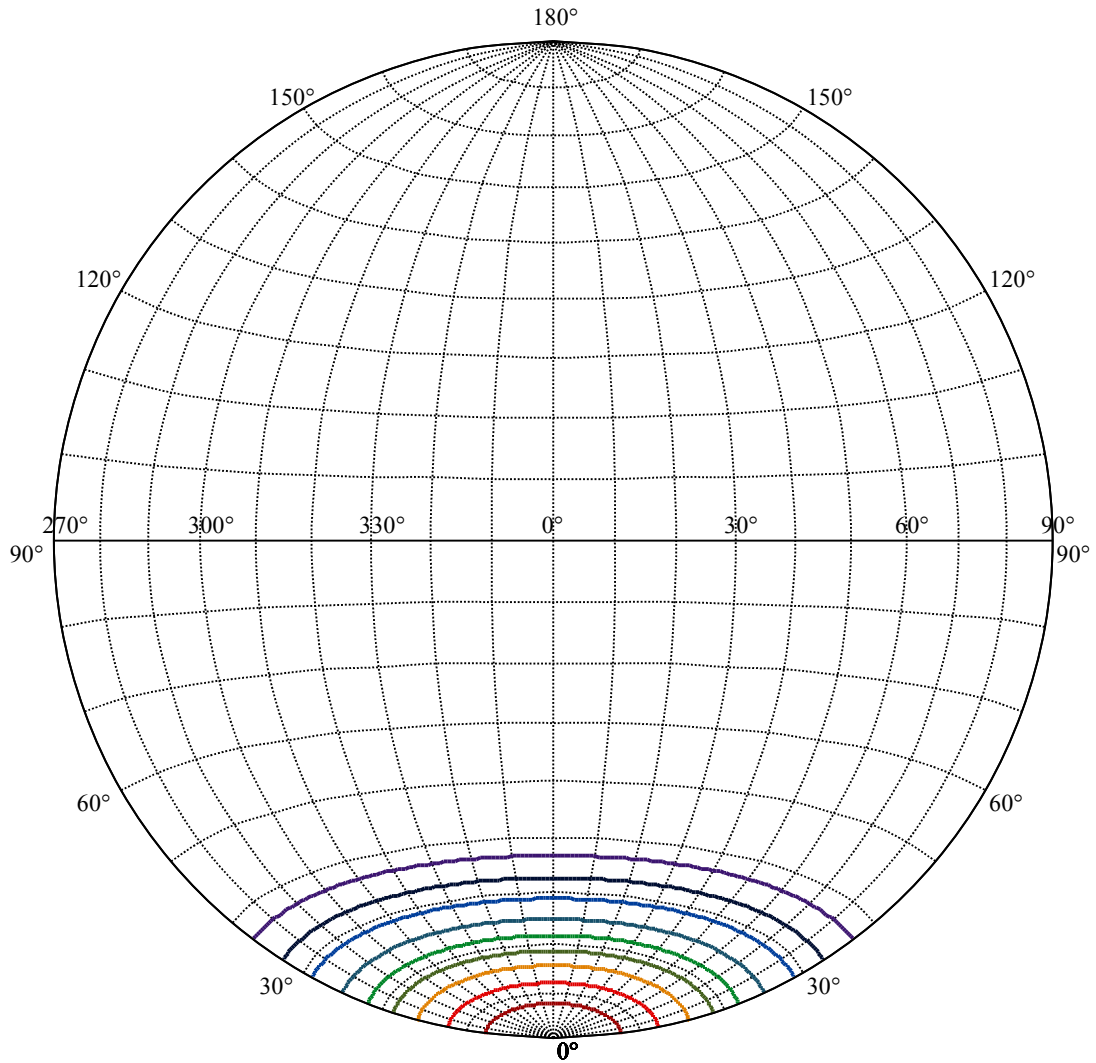
Beam Angle(50%Imax):C0/180Left:21.8 Right:21.8

:C90/270Left:21.8 Right:21.8





(10%Imax) 556.017	—
(20%Imax) 1112.03	—
(30%Imax) 1668.05	—
(40%Imax) 2224.07	—
(50%Imax) 2780.09	—
(60%Imax) 3336.1	—
(70%Imax) 3892.12	—
(80%Imax) 4448.14	—
(90%Imax) 5004.15	—



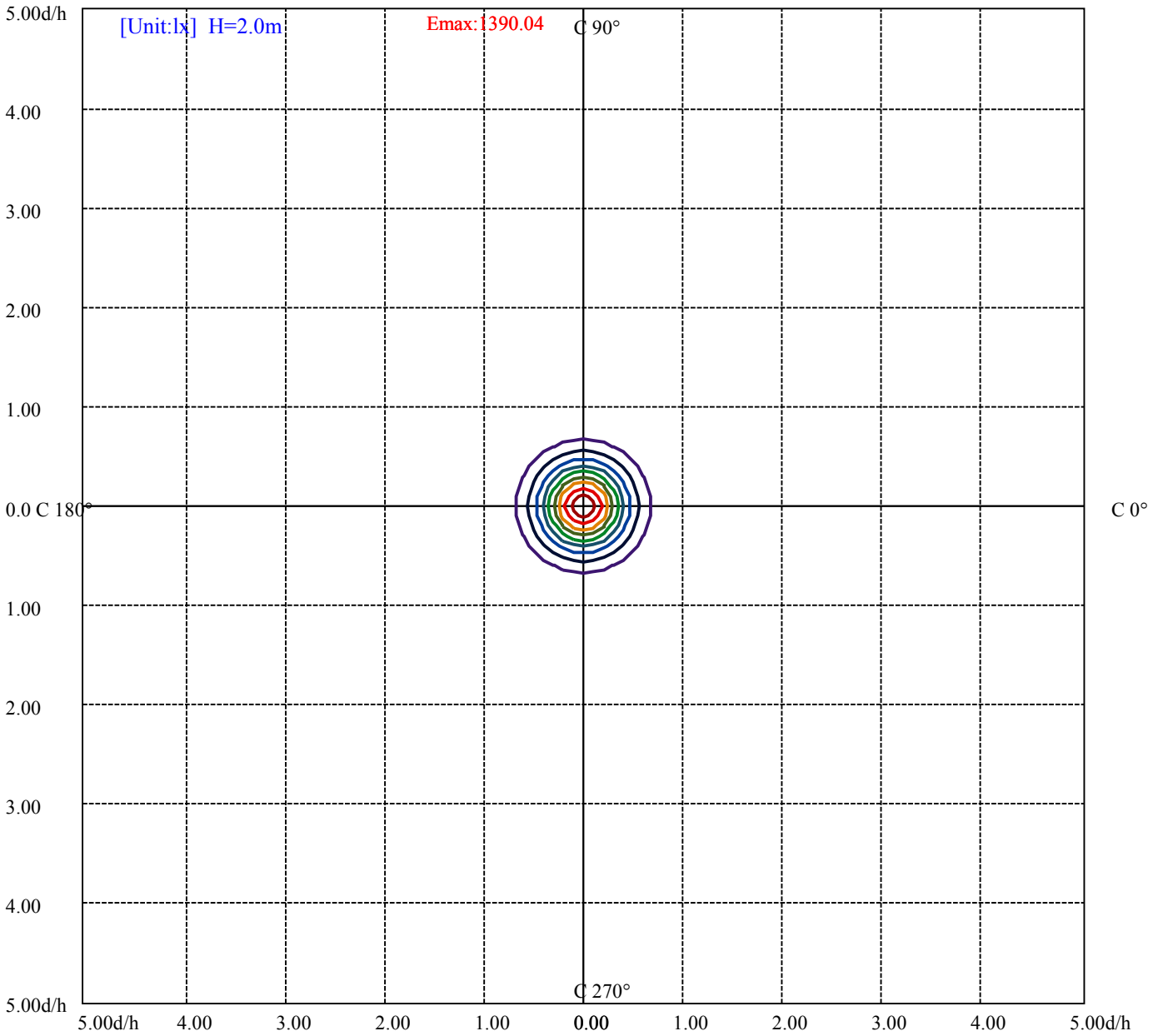
House

[Unit:cd]

Road

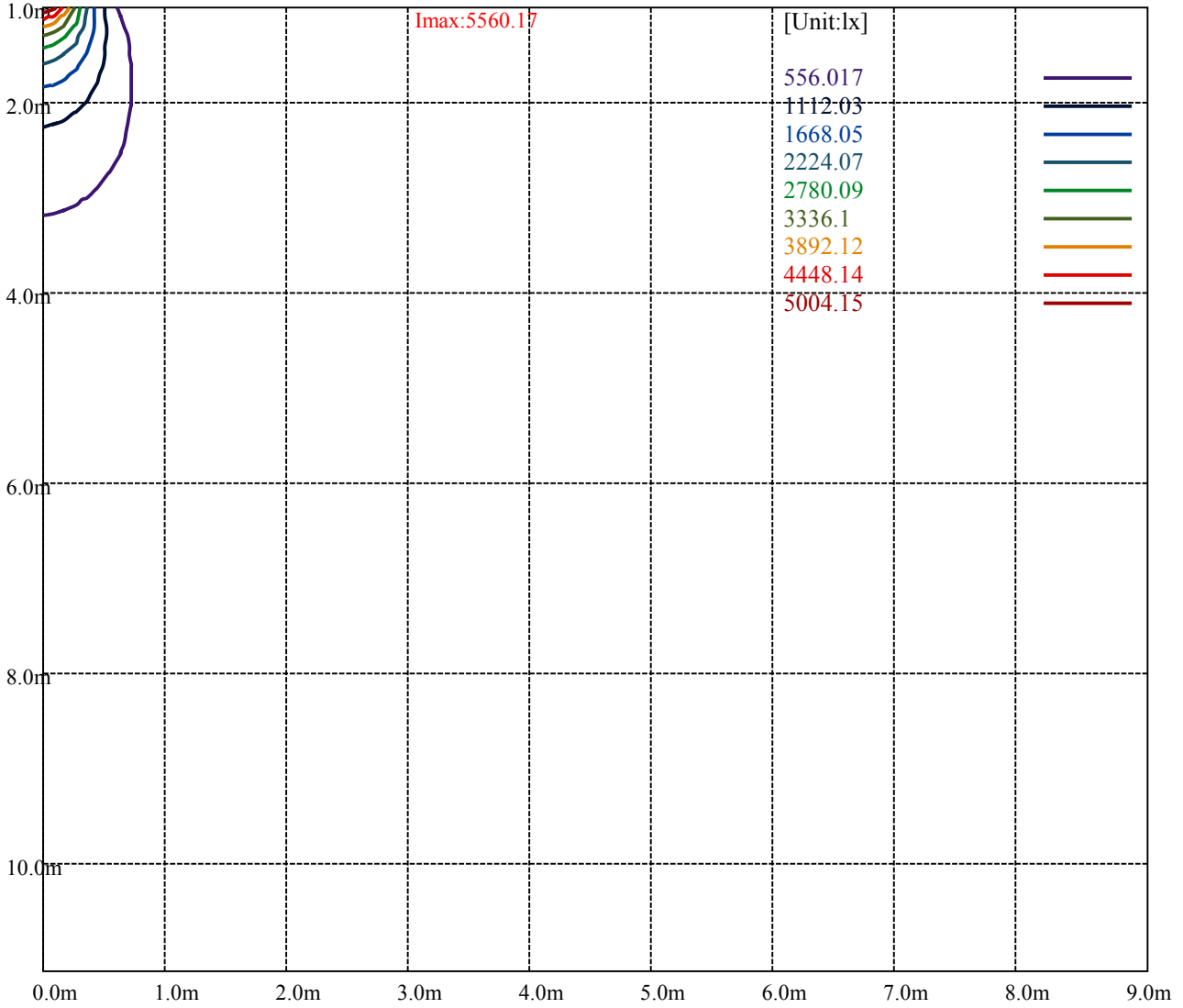
**Imax:5560.17**

(10%Imax) 556.017	—
(20%Imax) 1112.03	—
(30%Imax) 1668.05	—
(40%Imax) 2224.07	—
(50%Imax) 2780.09	—
(60%Imax) 3336.1	—
(70%Imax) 3892.12	—
(80%Imax) 4448.14	—
(90%Imax) 5004.15	—



(10%E <sub>max</sub> ) 139.004	—
(20%E <sub>max</sub> ) 278.0075	—
(30%E <sub>max</sub> ) 417.0125	—
(40%E <sub>max</sub> ) 556.0175	—
(50%E <sub>max</sub> ) 695.02	—
(60%E <sub>max</sub> ) 834.025	—
(70%E <sub>max</sub> ) 973.0275	—
(80%E <sub>max</sub> ) 1112.032	—
(90%E <sub>max</sub> ) 1251.037	—





Luminance Table

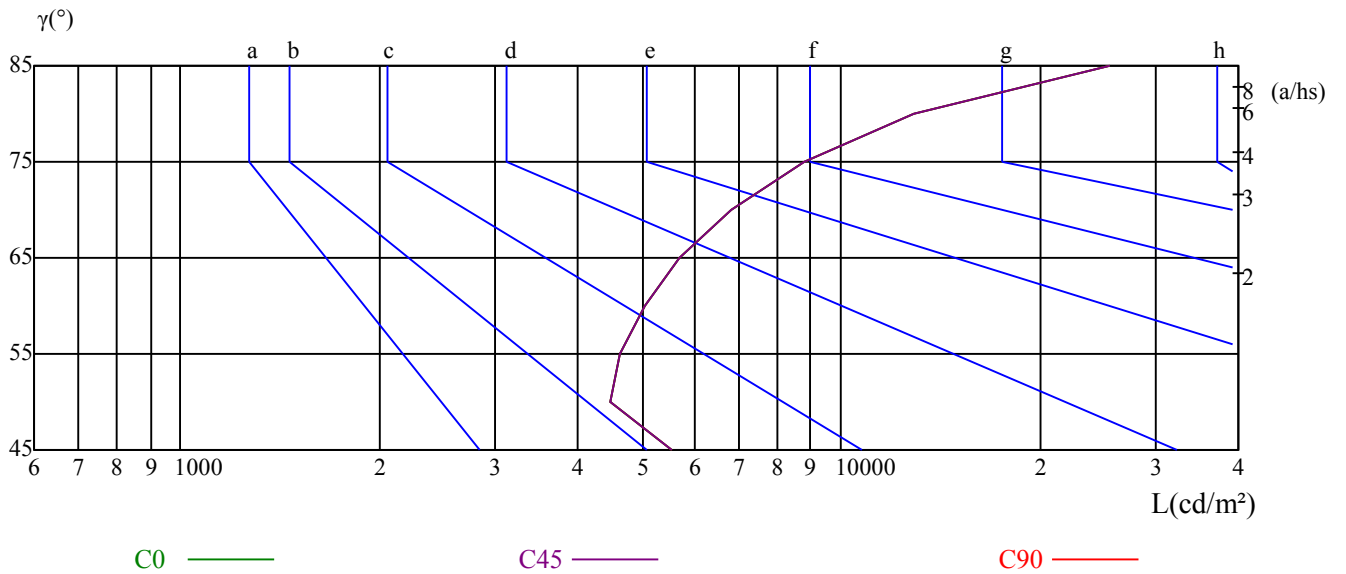
$\gamma$	45	50	55	60	65	70	75	80	85
C0	5534	4470	4628	5034	5702	6832	8814	12925	25512
C45	5534	4470	4628	5034	5702	6832	8814	12925	25512
C90	5534	4470	4628	5034	5702	6832	8814	12925	25512

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5702	5702	5702	8814	8814	8814	25512	25512	25512

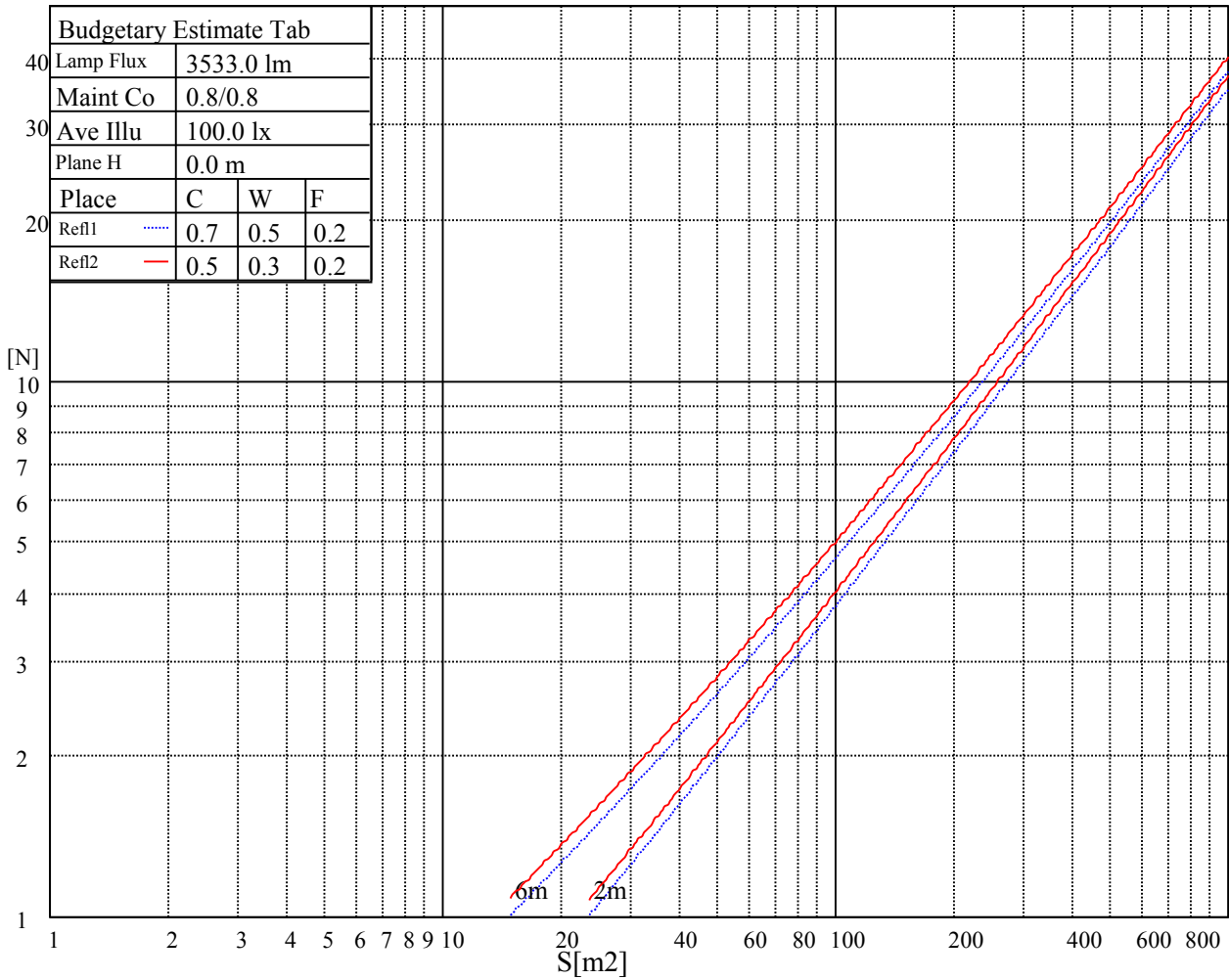
Glare Table

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

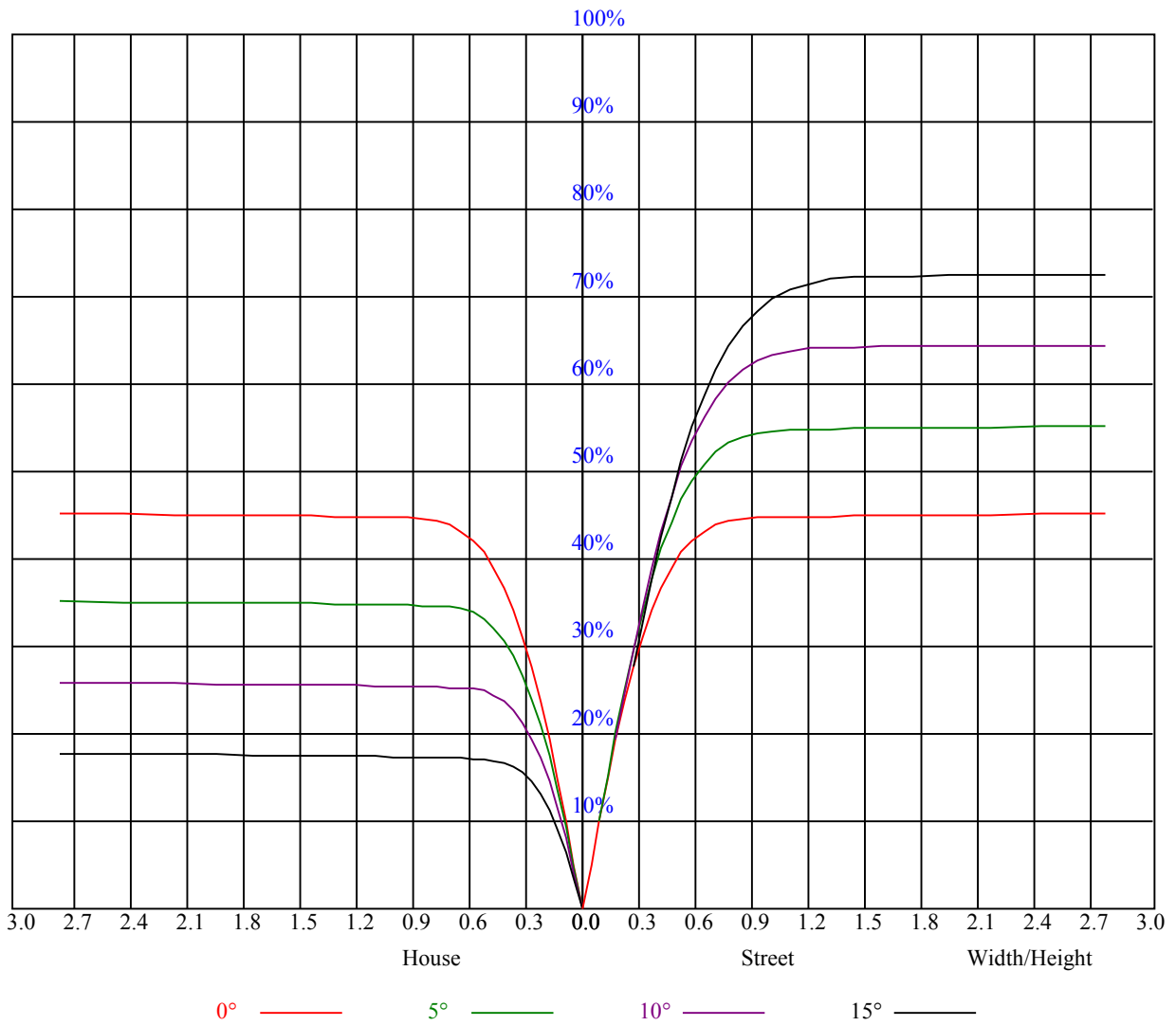
Luminance Limiting Curve



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	2.29	3.21	2.66	3.52	3.84	2.33	3.25	2.70	3.56	3.88
	3H	5.41	6.21	5.79	6.55	6.92	5.44	6.25	5.83	6.58	6.95
	4H	7.10	7.84	7.51	8.20	8.59	7.14	7.89	7.55	8.24	8.64
	6H	9.02	9.70	9.44	10.08	10.47	9.07	9.75	9.49	10.13	10.53
	8H	10.08	10.72	10.52	11.12	11.53	10.15	10.79	10.59	11.18	11.59
	12H	11.82	12.43	12.25	12.81	13.24	11.91	12.52	12.35	12.91	13.34
4H	2H	3.17	3.92	3.58	4.27	4.66	3.20	3.95	3.61	4.30	4.69
	3H	6.53	7.14	6.95	7.55	7.96	6.57	7.18	6.98	7.59	8.00
	4H	8.39	8.94	8.83	9.37	9.82	8.44	8.99	8.88	9.41	9.86
	6H	10.48	10.94	10.95	11.40	11.87	10.53	11.00	11.00	11.45	11.92
	8H	11.64	12.08	12.12	12.53	13.01	11.71	12.14	12.18	12.59	13.07
	12H	13.28	13.65	13.77	14.14	14.62	13.37	13.74	13.86	14.23	14.71
8H	4H	9.11	9.54	9.59	10.00	10.47	9.14	9.58	9.62	10.03	10.51
	6H	11.47	11.81	11.98	12.32	12.80	11.51	11.85	12.02	12.36	12.84
	8H	12.82	13.13	13.36	13.65	14.15	12.88	13.18	13.41	13.70	14.20
	12H	14.61	14.87	15.13	15.36	15.95	14.68	14.94	15.20	15.44	16.02
12H	4H	9.31	9.69	9.80	10.18	10.65	9.34	9.72	9.84	10.21	10.69
	6H	11.98	12.09	12.32	12.56	13.11	12.02	12.12	12.36	12.60	13.15
	8H	13.27	13.53	13.79	14.03	14.61	13.32	13.58	13.84	14.08	14.66
Variation with the observer position at spacings:											
S = 1.0H	5.7/-8.1					5.7/-8.1					
S = 1.5H	8.0/-6.1					8.0/-6.1					
S = 2.0H	9.4/-4.6					9.4/-4.6					
Standard tables:	BK2					BK2					
Uncorrected UGR	2.5					2.5					



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	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.99	0.96	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.90	0.89	0.89	0.88	0.87	0.85
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	0.90	0.86	0.83	0.89	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.74	0.73
5	0.81	0.77	0.73	0.80	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.78	0.73	0.69	0.77	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
7	0.74	0.69	0.66	0.74	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.71	0.67	0.65	0.64
8	0.71	0.66	0.63	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.61
9	0.68	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.59
10	0.65	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.56



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	5534.44	5510.81	5076.00	4405.50	3543.75	2523.94	1852.88	1188.56	321.19
45.0	5560.88	5402.25	4902.75	4180.50	3203.44	2306.25	1649.25	879.19	298.69
90.0	5560.88	5221.13	4618.69	3752.44	2816.44	2016.56	1085.79	558.96	48.09
135.0	5584.50	5229.56	4654.13	3955.50	2878.31	2056.50	1457.44	593.44	52.48
180.0	5534.44	5117.06	4503.38	3705.19	2647.13	1927.13	1078.99	420.02	46.91
225.0	5560.88	5212.13	4605.19	3902.06	2931.75	2103.19	1531.69	663.53	60.98
270.0	5560.88	5384.25	4902.19	4217.06	3380.06	2423.25	1733.06	1051.31	297.00
315.0	5584.50	5419.69	4893.75	4209.19	3349.69	2383.31	1706.63	954.90	198.62
360.0	5534.44	5510.81	5076.00	4405.50	3543.75	2523.94	1852.88	1188.56	321.19
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	34.37	18.39	16.71	15.69	14.96	14.46	14.06	13.84	13.61
45.0	24.24	17.61	16.26	15.41	14.68	14.23	13.89	13.67	13.44
90.0	18.84	16.99	15.86	15.08	14.51	14.12	13.78	13.61	13.39
135.0	18.62	16.99	15.86	15.13	14.57	14.18	13.89	13.61	13.56
180.0	18.51	16.88	15.69	15.13	14.51	14.12	13.84	13.67	13.89
225.0	20.98	17.16	15.98	15.19	14.57	14.12	13.78	13.56	13.39
270.0	27.79	18.11	16.43	15.41	14.74	14.23	13.89	13.61	13.44
315.0	27.11	17.72	16.43	15.47	14.74	14.29	13.89	13.67	13.50
360.0	34.37	18.39	16.71	15.69	14.96	14.46	14.06	13.84	13.61
C/γ(°)	90.0								
0.0	13.39								
45.0	13.28								
90.0	13.28								
135.0	13.33								
180.0	13.39								
225.0	13.28								
270.0	13.28								
315.0	13.33								
360.0	13.39								