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## Nata

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LumCAT: 3-1984-E	
Luminaire: 92.76.233.00	
Report No: NATA0100	Voltage(V): 6.3000
Test No: 2017011809	Current(A): 0.9860
LampCAT: CITIZEN CLC241	Power (W): 49.9900
Lamp flux(lm): 639.0	PF: 1.2180
Number of Lamps: 1	Ballast type:
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 581.33  
Efficiency(%): 90.98%  
Lumens(lm)/Power(W): 12.27  
Central intensity(cd): 5413.145  
Maximum intensity(cd): 5413.145  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=13.1  
                                  [C90/270]Total=13.1  
Field angle(10%Imax): [C0/180]Total=28.2  
                                  [C90/270]Total=28.2  
Maximum s/h(1/2): C0\_180=0.23 C90\_270=0.23  
Maximum s/h(1/4): C0\_180=0.23 C90\_270=0.23  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 95.95%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 93.501%

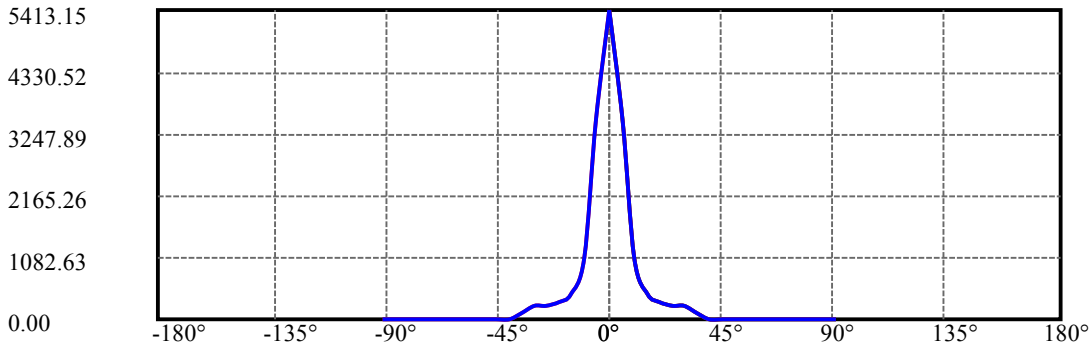
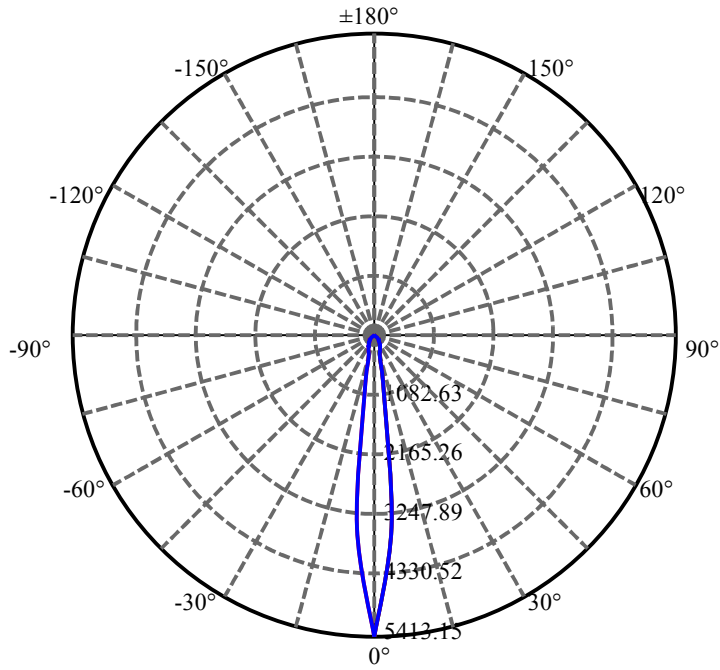
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5413.145	32.372	32.372	5.066%	5.569%
5.0	3458.643	165.231	197.603	25.858%	33.991%
10.0	1064.488	101.321	298.924	15.856%	51.420%
15.0	429.041	60.867	359.791	9.525%	61.891%
20.0	286.541	53.719	413.51	8.407%	71.131%
25.0	247.121	57.246	470.756	8.959%	80.979%
30.0	220.281	60.372	531.128	9.448%	91.364%
35.0	104.841	32.962	564.09	5.158%	97.034%
40.0	10.956	3.860	567.951	.604%	97.698%
45.0	4.047	1.568	569.519	.245%	97.968%
50.0	2.932	1.231	570.75	.193%	98.179%
55.0	2.794	1.255	572.005	.196%	98.395%
60.0	2.739	1.300	573.305	.203%	98.619%
65.0	2.835	1.409	574.713	.220%	98.861%
70.0	3.069	1.581	576.294	.247%	99.133%
75.0	2.780	1.472	577.766	.230%	99.386%
80.0	2.670	1.441	579.208	.226%	99.634%
85.0	2.629	1.436	580.643	.225%	99.881%
90.0	2.519	0.690	581.334	.108%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	531.13	83.12%	91.36%
0-40	567.95	88.88%	97.70%
0-60	573.30	89.72%	98.62%
0-90	580.64	90.87%	99.88%
0-120	580.64	90.87%	99.88%
0-180	581.33	90.98%	100.00%
60-90	8.64	1.35%	1.49%
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%
0-24.50	465.07	72.78%	80.00%

ZONAL LUMEN SUMMARY

0-10	298.92
10-20	114.59
20-30	117.62
30-40	36.82
40-50	2.80
50-60	2.55
60-70	2.99
70-80	2.91
80-90	1.44
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): ———

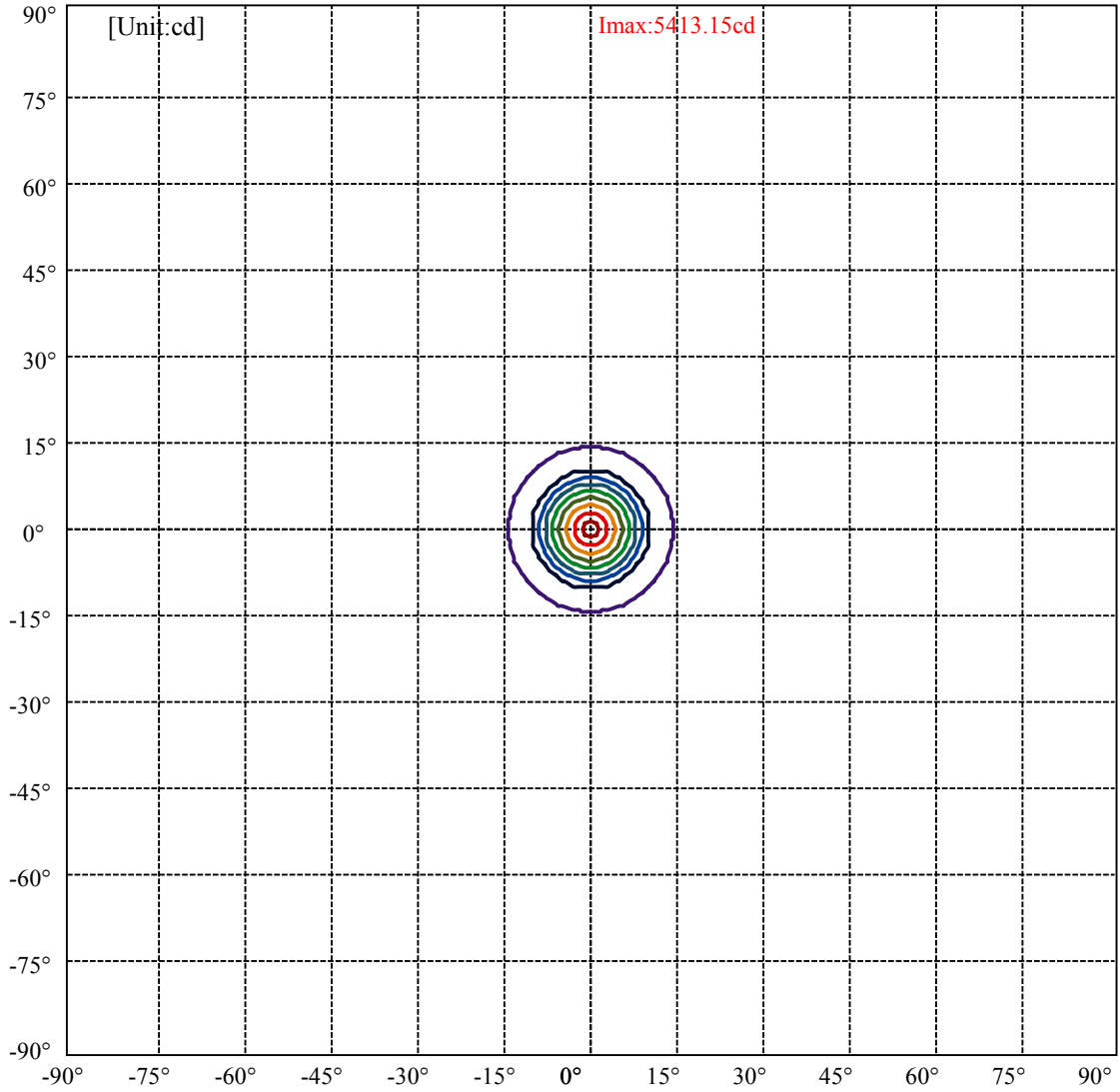
C0/C180: ———

C90/C270: ———

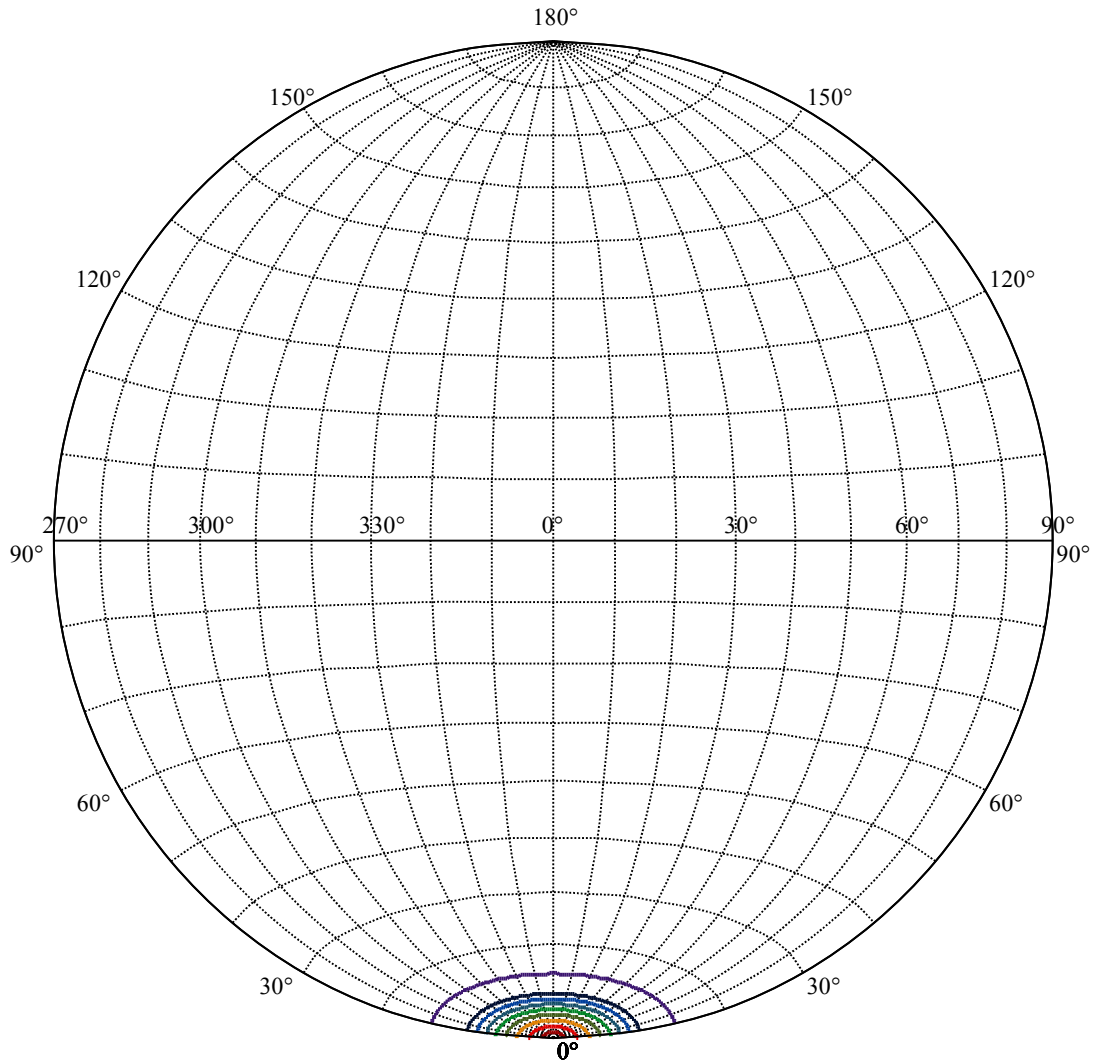
Field angle(10%Imax):C0/180Left:14.1 Right:14.1  
:C90/270Left:14.1 Right:14.1

Beam Angle(50%Imax):C0/180Left:6.6 Right:6.6  
:C90/270Left:6.6 Right:6.6





(10%I <sub>max</sub> ) 541.315	—
(20%I <sub>max</sub> ) 1082.63	—
(30%I <sub>max</sub> ) 1623.94	—
(40%I <sub>max</sub> ) 2165.26	—
(50%I <sub>max</sub> ) 2706.57	—
(60%I <sub>max</sub> ) 3247.89	—
(70%I <sub>max</sub> ) 3789.2	—
(80%I <sub>max</sub> ) 4330.52	—
(90%I <sub>max</sub> ) 4871.83	—



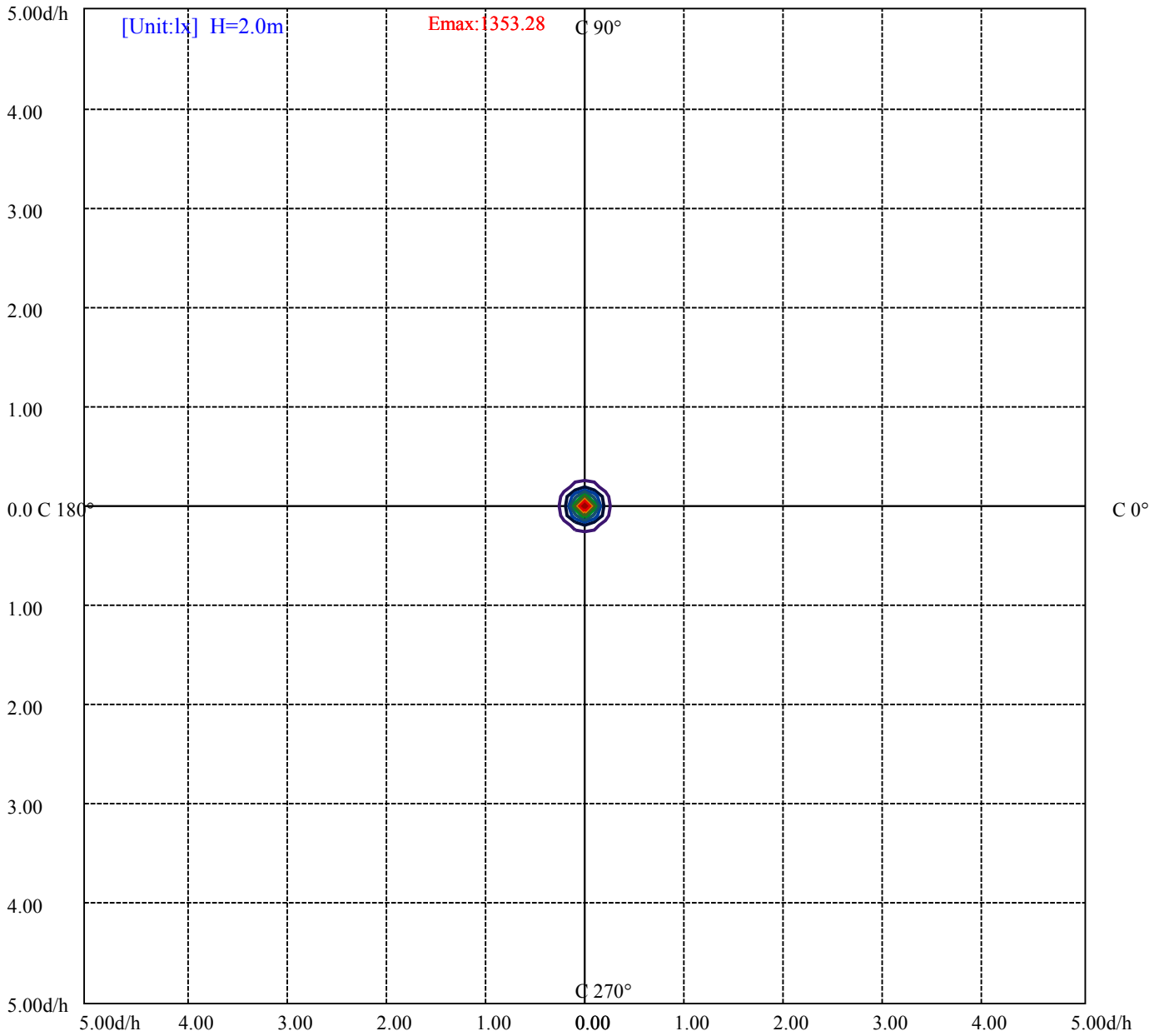
House

[Unit:cd]

Road

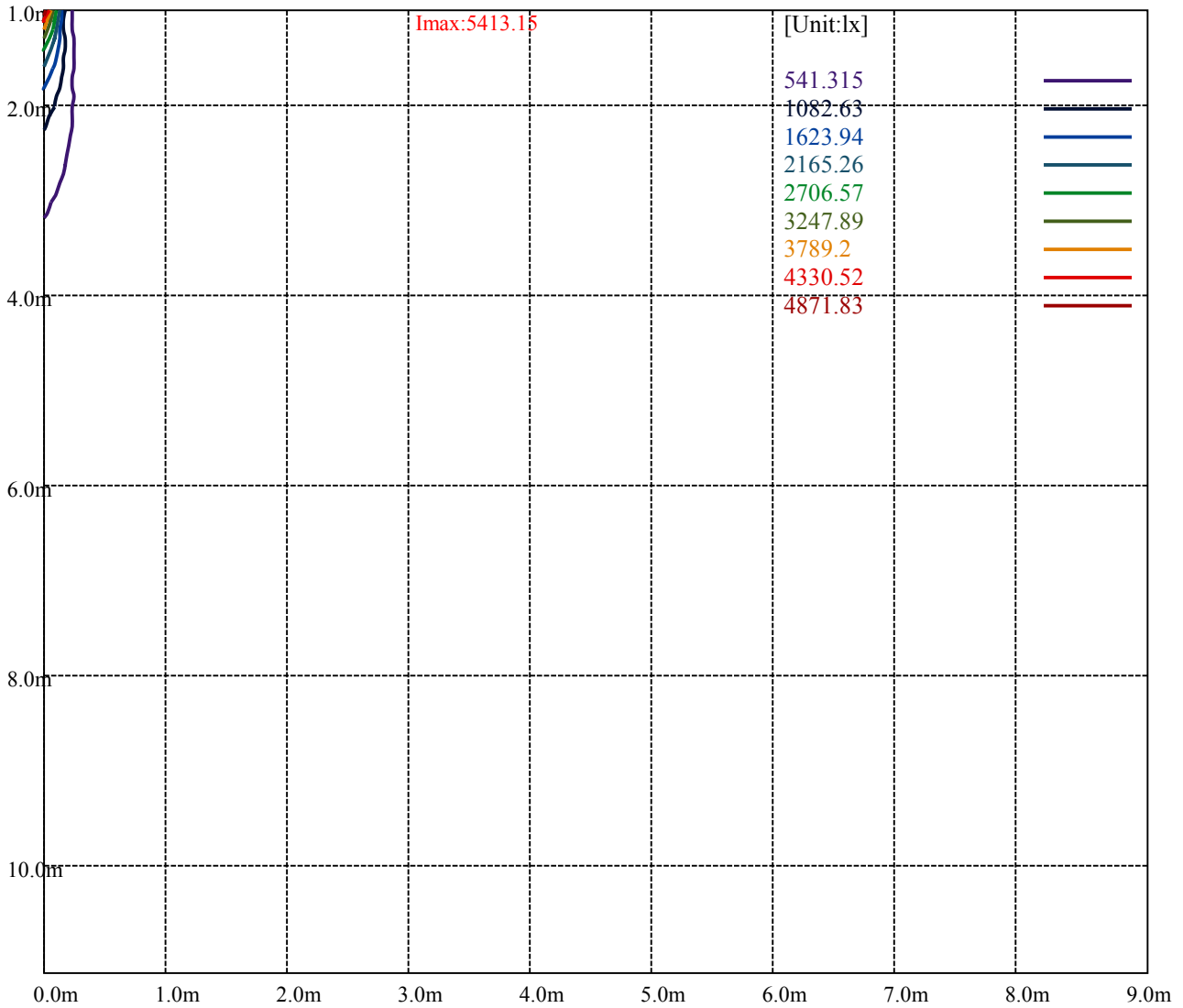
**Imax:5413.15**

(10%Imax) 541.315	—
(20%Imax) 1082.63	—
(30%Imax) 1623.94	—
(40%Imax) 2165.26	—
(50%Imax) 2706.57	—
(60%Imax) 3247.89	—
(70%Imax) 3789.2	—
(80%Imax) 4330.52	—
(90%Imax) 4871.83	—



(10%Emax) 135.3273	—
(20%Emax) 270.655	—
(30%Emax) 405.9825	—
(40%Emax) 541.3075	—
(50%Emax) 676.635	—
(60%Emax) 811.9625	—
(70%Emax) 947.29	—
(80%Emax) 1082.618	—
(90%Emax) 1217.945	—





Luminance Table

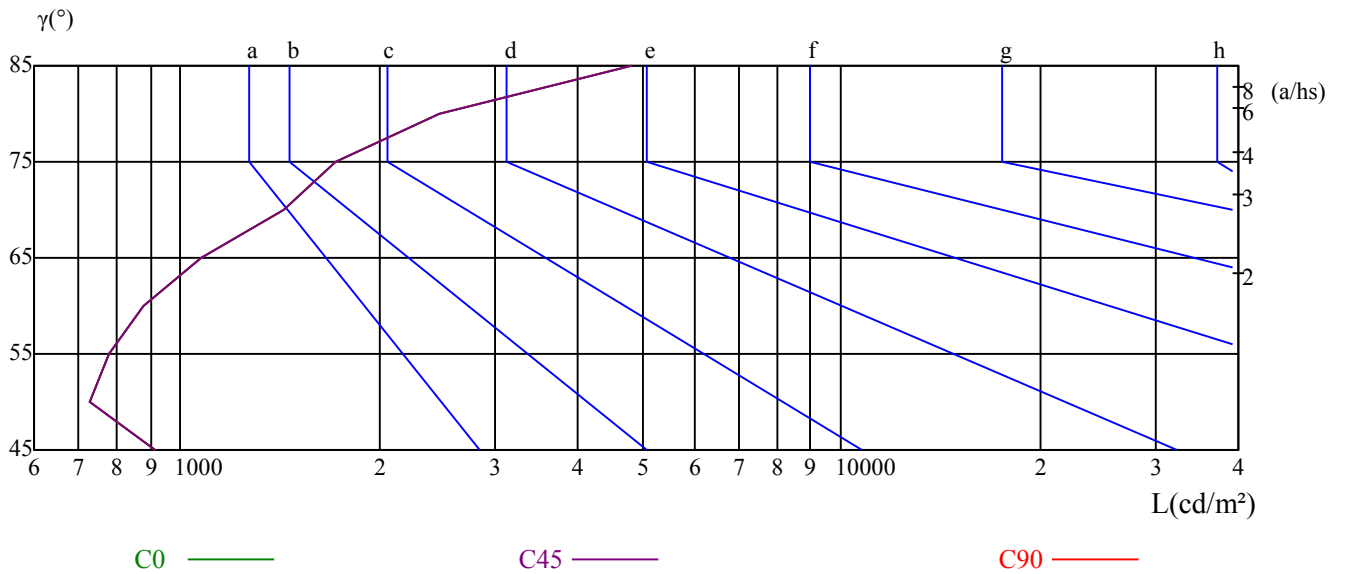
$\gamma$	45	50	55	60	65	70	75	80	85
C0	917	731	781	878	1075	1438	1721	2464	4833
C45	917	731	781	878	1075	1438	1721	2464	4833
C90	917	731	781	878	1075	1438	1721	2464	4833

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1075	1075	1075	1721	1721	1721	4833	4833	4833

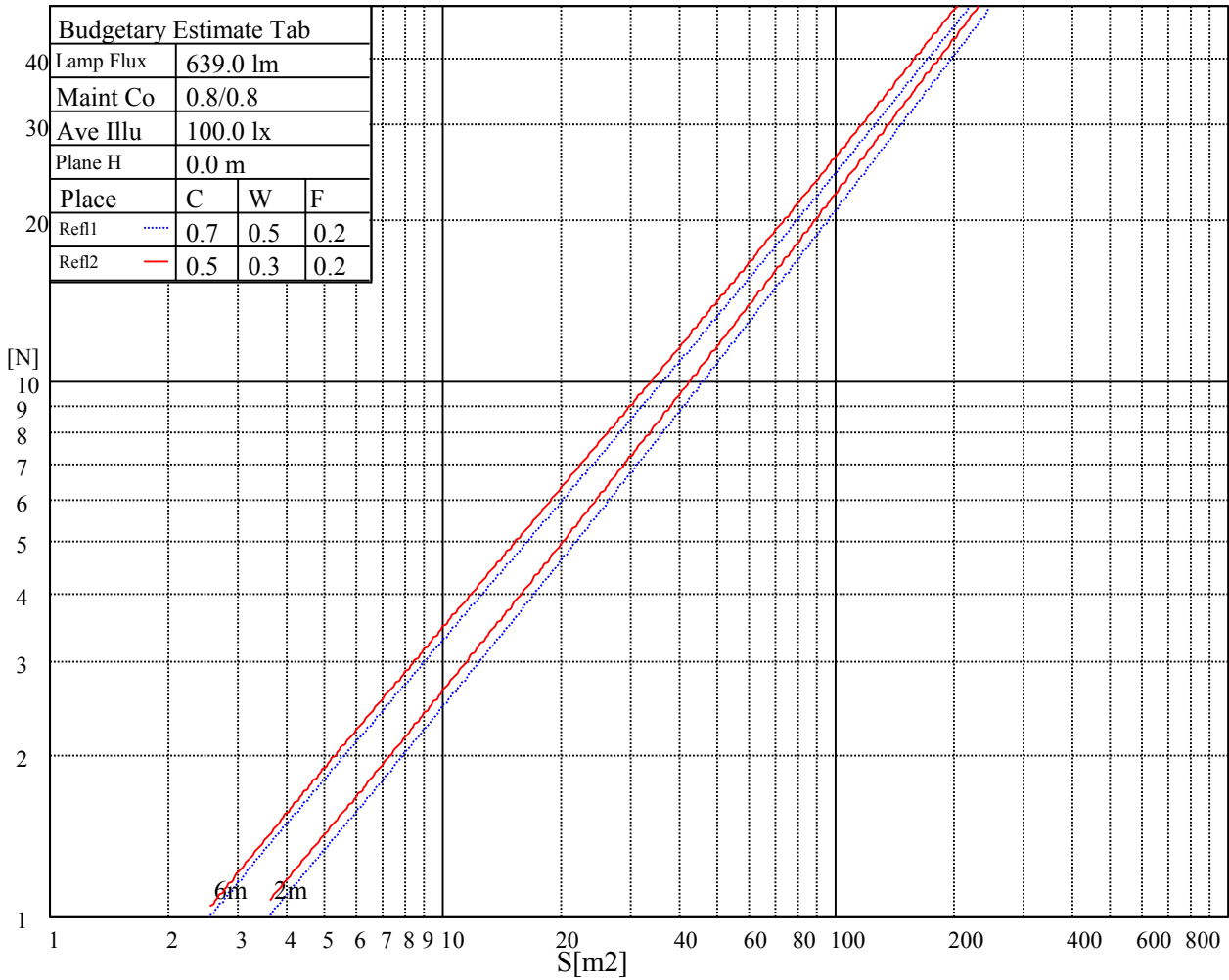
Glare Table

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

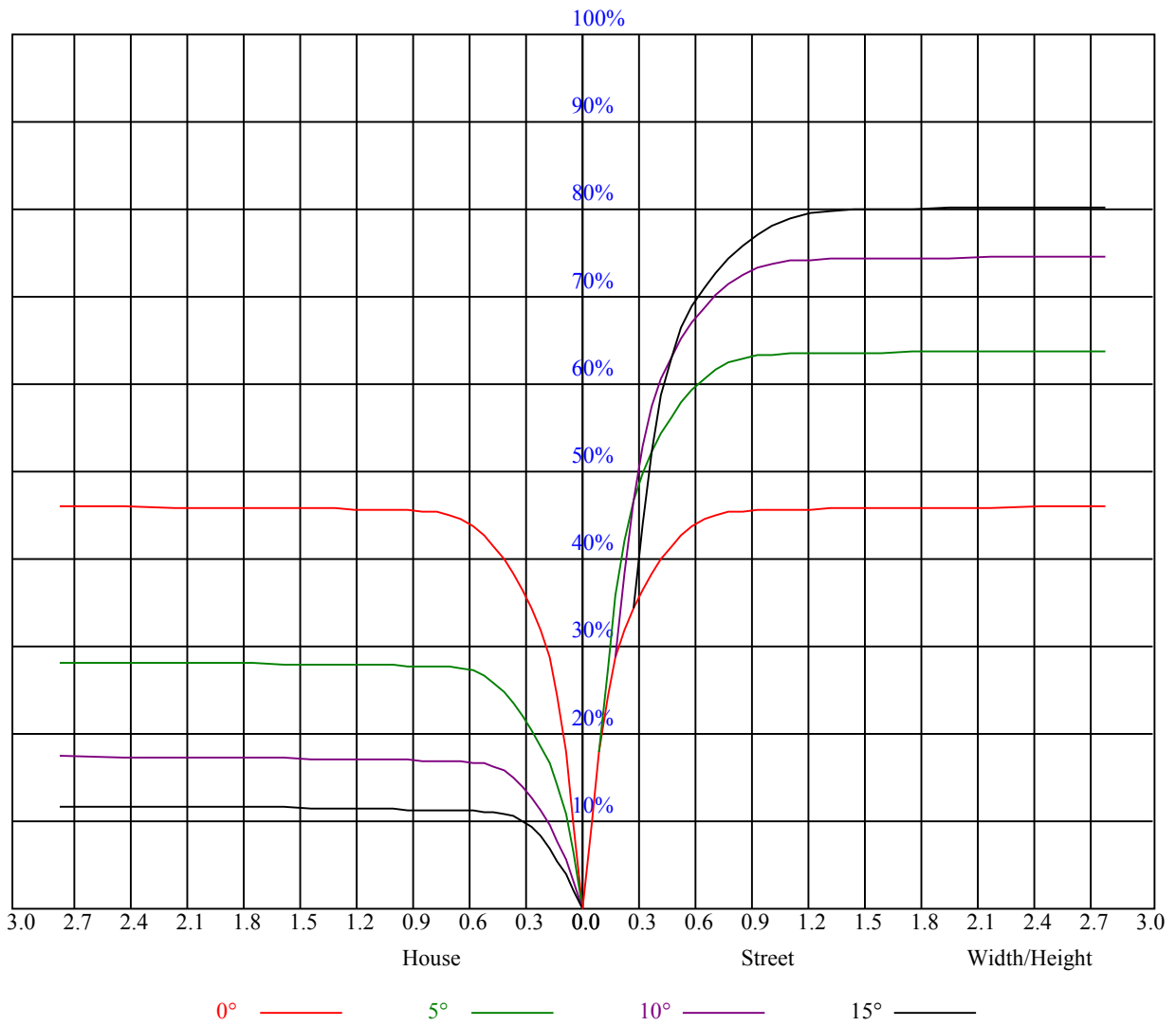
Luminance Limiting Curve



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	2.05	2.96	2.42	3.27	3.59	2.00	2.92	2.37	3.23	3.54
	3H	5.76	6.57	6.14	6.90	7.27	5.86	6.67	6.25	7.00	7.37
	4H	7.50	8.24	7.91	8.60	8.99	7.81	8.56	8.22	8.91	9.30
	6H	9.42	10.10	9.84	10.48	10.87	9.68	10.36	10.10	10.74	11.14
	8H	10.49	11.13	10.93	11.52	11.93	10.67	11.31	11.11	11.70	12.11
	12H	12.24	12.85	12.68	13.24	13.67	12.31	12.92	12.75	13.30	13.74
4H	2H	3.17	3.92	3.58	4.27	4.66	3.14	3.89	3.55	4.24	4.63
	3H	7.08	7.69	7.50	8.10	8.51	7.18	7.79	7.60	8.20	8.61
	4H	8.90	9.44	9.34	9.87	10.32	9.17	9.72	9.61	10.14	10.59
	6H	10.92	11.39	11.39	11.84	12.31	11.13	11.60	11.60	12.05	12.52
	8H	12.08	12.52	12.56	12.97	13.45	12.22	12.66	12.70	13.11	13.58
8H	12H	13.73	14.10	14.22	14.59	15.07	13.78	14.15	14.27	14.64	15.12
	4H	9.63	10.06	10.10	10.51	10.99	9.84	10.27	10.31	10.72	11.20
	6H	11.92	12.27	12.44	12.77	13.26	12.08	12.42	12.59	12.92	13.41
	8H	13.28	13.58	13.81	14.10	14.60	13.36	13.67	13.90	14.19	14.69
12H	12H	15.06	15.32	15.58	15.82	16.40	15.07	15.33	15.60	15.83	16.41
	4H	9.82	10.20	10.32	10.69	11.17	10.02	10.39	10.51	10.88	11.36
	6H	12.44	12.54	12.78	13.02	13.57	12.57	12.68	12.91	13.15	13.70
	8H	13.72	13.98	14.25	14.48	15.06	13.80	14.06	14.32	14.56	15.14
Variation with the observer position at spacings:											
S = 1.0H	5.5/-5.9					5.5/-5.9					
S = 1.5H	7.4/-4.3					7.4/-4.3					
S = 2.0H	8.6/-3.2					8.6/-3.2					
Standard tables:	BK3					BK3					
Uncorrected UGR	-4.6					-4.6					



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	1.14	1.14	1.14	1.12	1.12	1.12	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.96
1	1.01	0.98	0.94	0.99	0.96	0.93	0.95	0.92	0.90	0.91	0.89	0.87	0.88	0.86	0.85	0.83
2	0.96	0.92	0.88	0.94	0.90	0.87	0.91	0.88	0.85	0.88	0.86	0.83	0.86	0.83	0.81	0.80
3	0.92	0.87	0.83	0.90	0.86	0.82	0.88	0.84	0.81	0.86	0.82	0.80	0.83	0.81	0.79	0.77
4	0.88	0.83	0.79	0.87	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.75
5	0.85	0.80	0.76	0.84	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.72
6	0.82	0.77	0.73	0.81	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.70
7	0.79	0.74	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.74	0.70	0.68	0.67
9	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.65
10	0.73	0.68	0.65	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64



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	5386.17	3453.69	1034.73	419.20	282.05	246.49	220.94	104.94	9.52
45.0	5279.36	3425.61	1142.48	431.81	288.55	247.48	219.29	106.26	11.45
90.0	5699.44	3529.67	938.27	433.35	287.01	247.04	221.60	101.91	11.40
135.0	5287.62	3425.61	1142.48	431.81	288.55	247.48	219.29	106.26	11.45
180.0	5386.17	3453.69	1034.73	419.20	282.05	246.49	220.94	104.94	9.52
225.0	5279.36	3425.61	1142.48	431.81	288.55	247.48	219.29	106.26	11.45
270.0	5699.44	3529.67	938.27	433.35	287.01	247.04	221.60	101.91	11.40
315.0	5287.62	3425.61	1142.48	431.81	288.55	247.48	219.29	106.26	11.45
360.0	5386.17	3453.69	1034.73	419.20	282.05	246.49	220.94	104.94	9.52
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3.91	2.92	2.75	2.70	2.70	2.97	3.03	2.64	2.59
45.0	4.35	2.92	2.81	2.75	2.92	3.25	2.70	2.70	2.64
90.0	3.58	2.97	2.81	2.75	2.81	2.81	2.70	2.64	2.64
135.0	4.35	2.92	2.81	2.75	2.92	3.25	2.70	2.70	2.64
180.0	3.91	2.92	2.75	2.70	2.70	2.97	3.03	2.64	2.59
225.0	4.35	2.92	2.81	2.75	2.92	3.25	2.70	2.70	2.64
270.0	3.58	2.97	2.81	2.75	2.81	2.81	2.70	2.64	2.64
315.0	4.35	2.92	2.81	2.75	2.92	3.25	2.70	2.70	2.64
360.0	3.91	2.92	2.75	2.70	2.70	2.97	3.03	2.64	2.59
C/γ(°)	90.0								
0.0	2.48								
45.0	2.53								
90.0	2.53								
135.0	2.53								
180.0	2.48								
225.0	2.53								
270.0	2.53								
315.0	2.53								
360.0	2.48								