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## NATA

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LumCAT: 1762-A	
Luminaire: 99.02.73.171	
Report No: NATA0100	Voltage(V): 36.5000
Test No: GC2018101503	Current(A): 0.4000
LampCAT: CITIZEN CLU028-1203C4	Power (W): 14.6000
Lamp flux(lm): 1490.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 1293.36  
Efficiency(%): 86.80%  
Lumens(lm)/Power(W): 90.81  
Central intensity(cd): 5633.859  
Maximum intensity(cd): 5633.859  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=23.8  
                                  [C90/270]Total=23.8  
Field angle(10%Imax): [C0/180]Total=49.8  
                                  [C90/270]Total=49.8  
Maximum s/h(1/2): C0\_180=0.40 C90\_270=0.40  
Maximum s/h(1/4): C0\_180=0.44 C90\_270=0.44  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 88.98%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.249%

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Equipment:  
Temperature(°C): 25.0

Date: 2018/10/15  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50

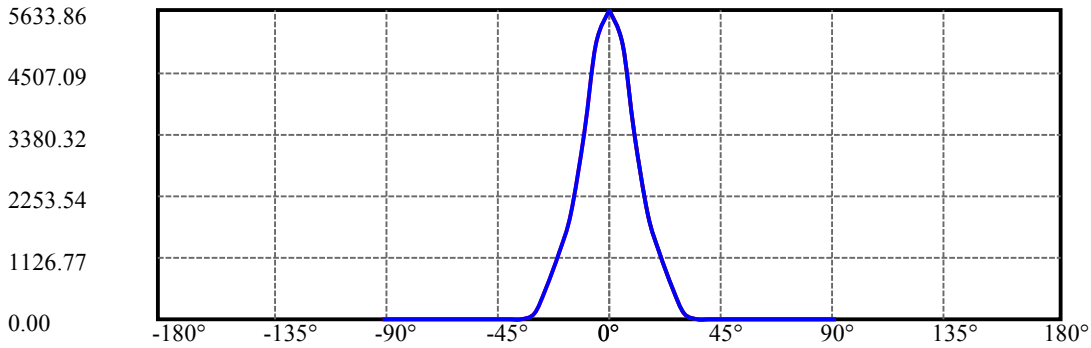
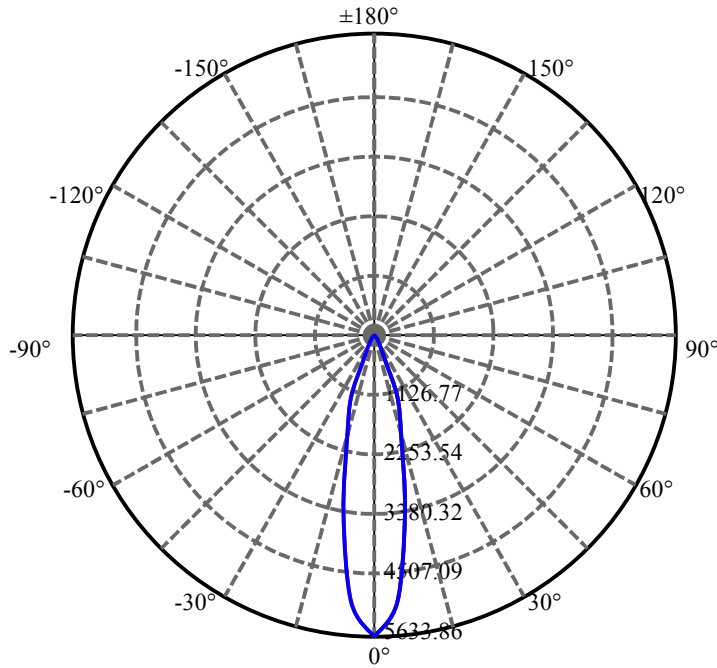
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5633.859	33.692	33.692	2.261%	2.605%
5.0	5014.828	239.575	273.267	16.079%	21.128%
10.0	3377.320	321.464	594.73	21.575%	45.983%
15.0	1919.391	272.301	867.031	18.275%	67.037%
20.0	1213.713	227.540	1094.571	15.271%	84.630%
25.0	549.534	127.301	1221.872	8.544%	94.472%
30.0	117.752	32.272	1254.144	2.166%	96.968%
35.0	17.445	5.485	1259.629	.368%	97.392%
40.0	11.018	3.882	1263.511	.261%	97.692%
45.0	8.501	3.295	1266.806	.221%	97.947%
50.0	7.432	3.121	1269.926	.209%	98.188%
55.0	6.834	3.069	1272.995	.206%	98.425%
60.0	6.511	3.091	1276.086	.207%	98.664%
65.0	6.272	3.116	1279.202	.209%	98.905%
70.0	6.103	3.144	1282.345	.211%	99.148%
75.0	5.984	3.168	1285.513	.213%	99.393%
80.0	5.864	3.165	1288.679	.212%	99.638%
85.0	5.822	3.179	1291.858	.213%	99.884%
90.0	5.491	1.505	1293.363	.101%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1254.14	84.17%	96.97%
0-40	1263.51	84.80%	97.69%
0-60	1276.09	85.64%	98.66%
0-90	1291.86	86.70%	99.88%
0-120	1291.86	86.70%	99.88%
0-180	1293.36	86.80%	100.00%
60-90	18.86	1.27%	1.46%
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%
0-18.68	1034.69	69.44%	80.00%

ZONAL LUMEN SUMMARY

0-10	594.73
10-20	499.84
20-30	159.57
30-40	9.37
40-50	6.42
50-60	6.16
60-70	6.26
70-80	6.33
80-90	3.18
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: —————

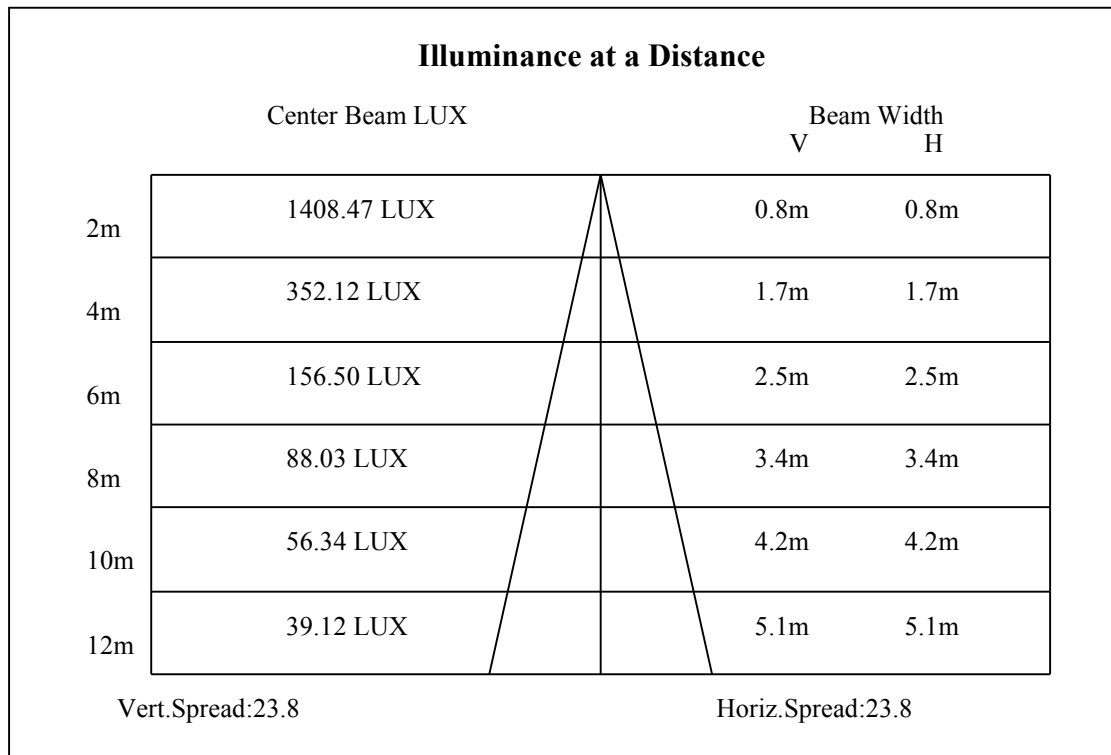
C90/C270: —————

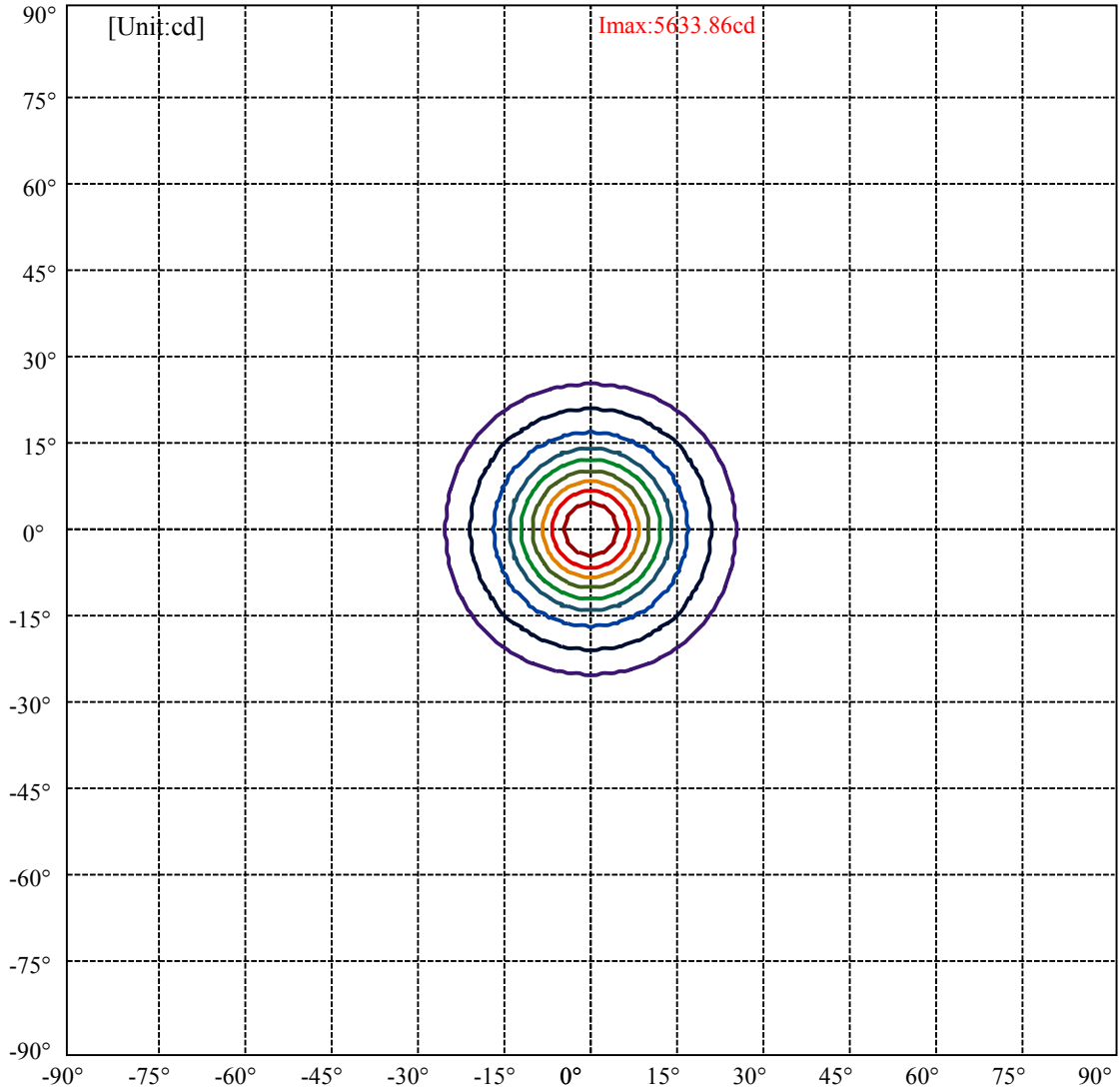
Field angle(10%Imax):C0/180Left:24.9 Right:24.9

:C90/270Left:24.9 Right:24.9

Beam Angle(50%Imax):C0/180Left:11.9 Right:11.9

:C90/270Left:11.9 Right:11.9



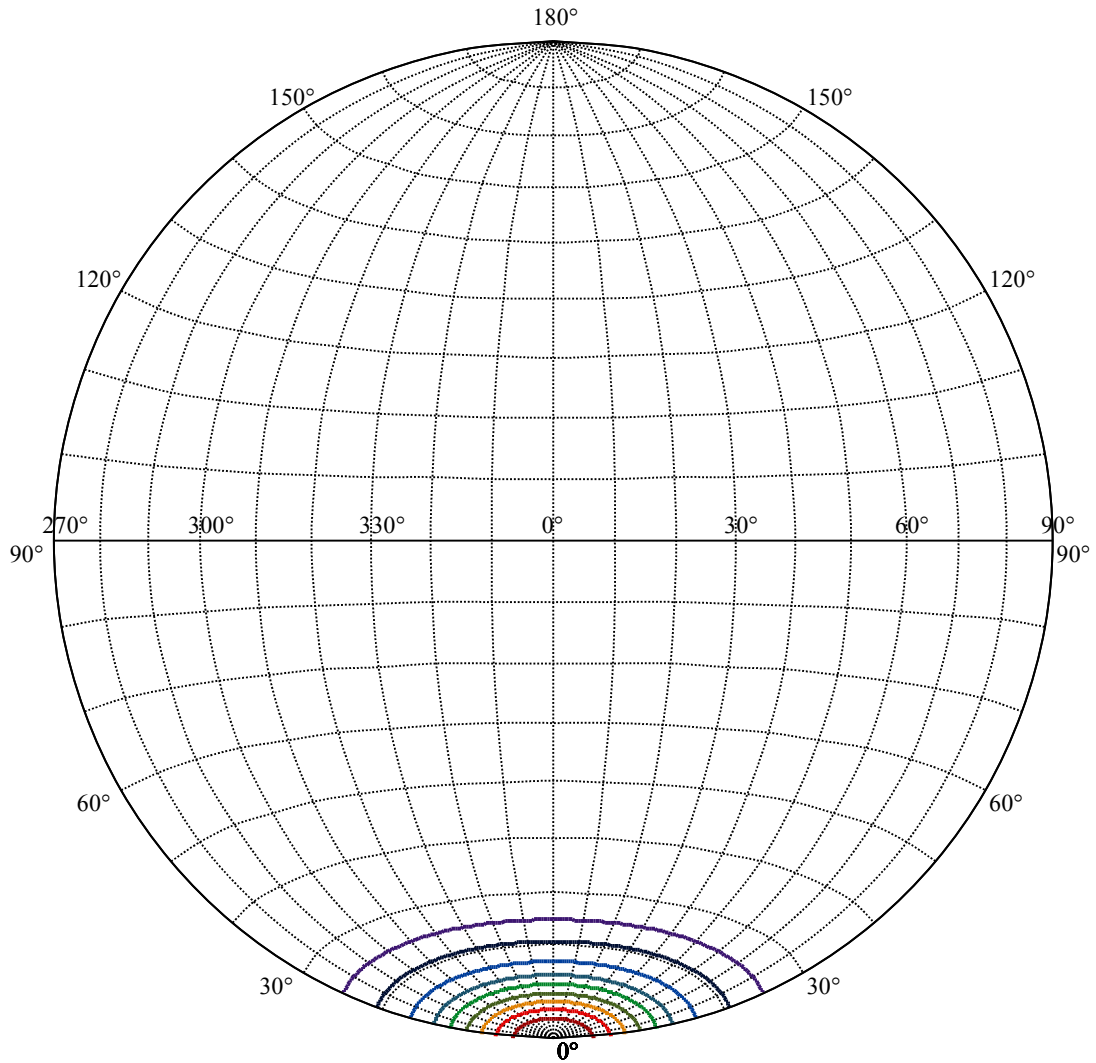


(10%Imax) 563.386	—
(20%Imax) 1126.77	—
(30%Imax) 1690.16	—
(40%Imax) 2253.54	—
(50%Imax) 2816.93	—
(60%Imax) 3380.32	—
(70%Imax) 3943.7	—
(80%Imax) 4507.09	—
(90%Imax) 5070.47	—

Equipment:  
Temperature(°C): 25.0

Date: 2018/10/15  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50



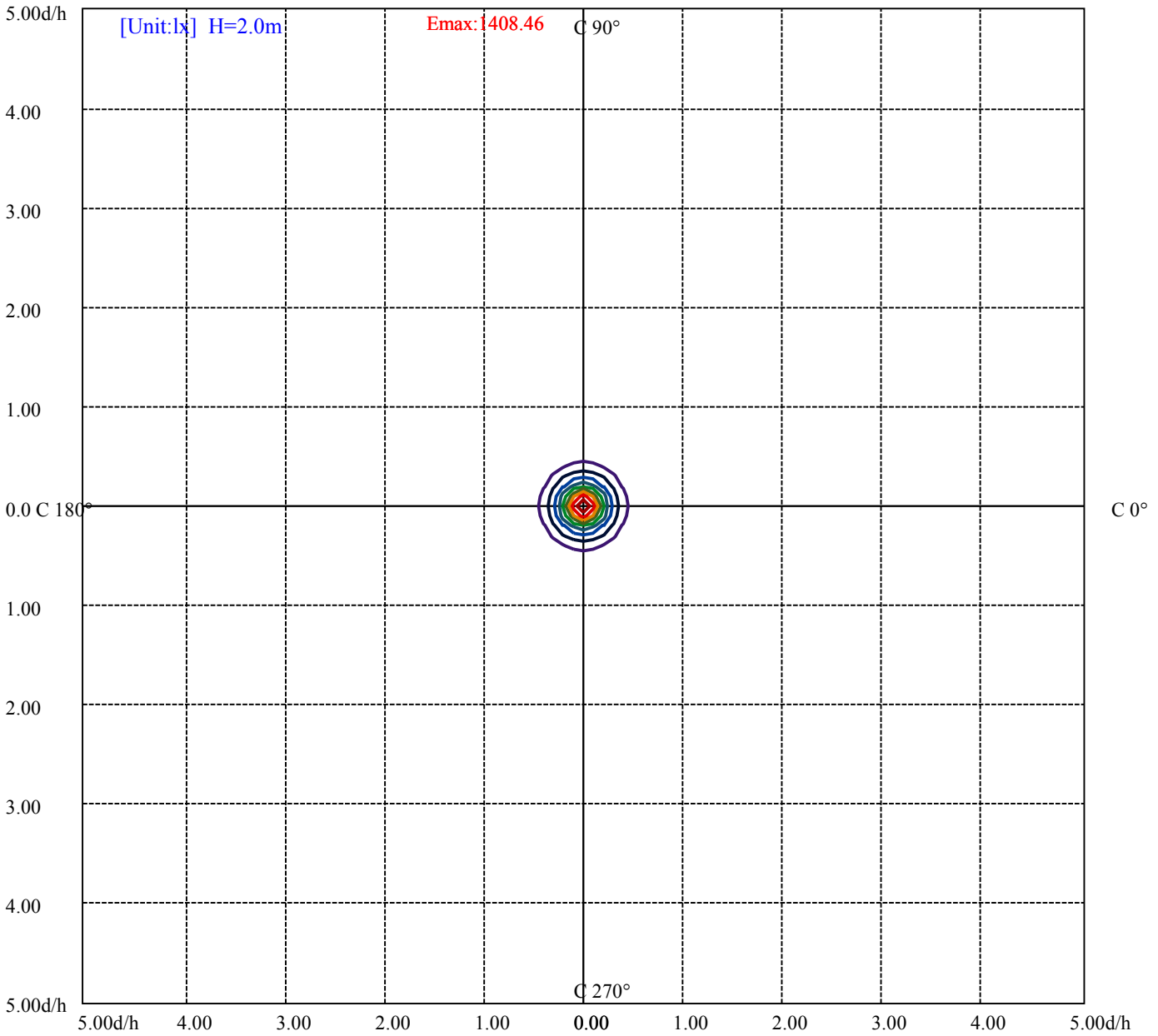
House

[Unit:cd]

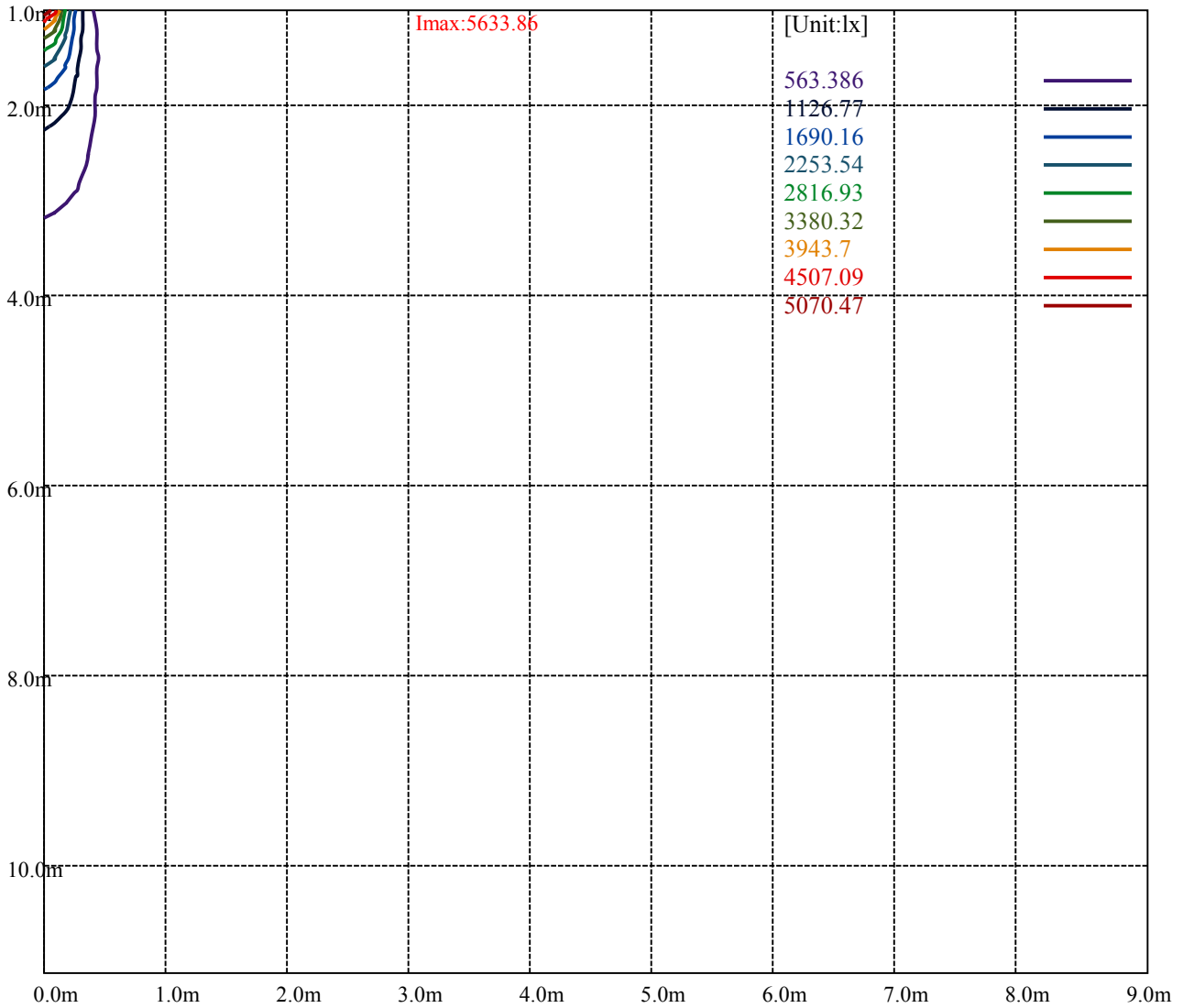
Road

**Imax:5633.86**

(10%Imax) 563.386	—
(20%Imax) 1126.77	—
(30%Imax) 1690.16	—
(40%Imax) 2253.54	—
(50%Imax) 2816.93	—
(60%Imax) 3380.32	—
(70%Imax) 3943.7	—
(80%Imax) 4507.09	—
(90%Imax) 5070.47	—







Luminance Table

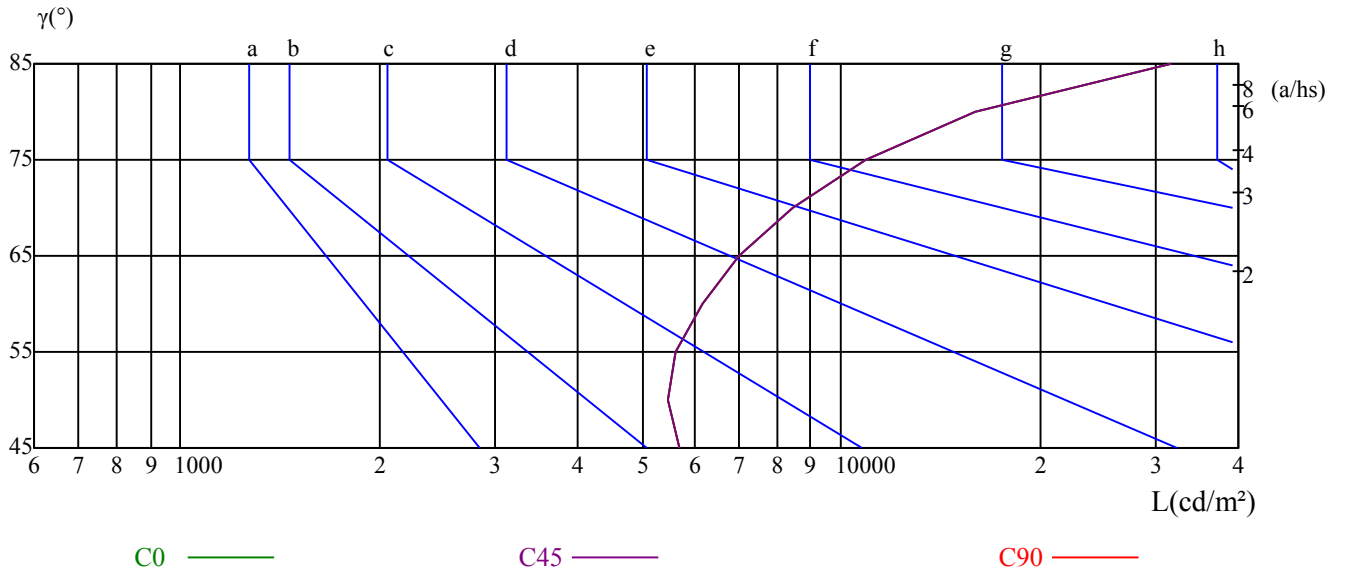
$\gamma$	45	50	55	60	65	70	75	80	85
C0	5681	5464	5631	6154	7013	8433	10926	15959	31568
C45	5681	5464	5631	6154	7013	8433	10926	15959	31568
C90	5681	5464	5631	6154	7013	8433	10926	15959	31568

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7013	7013	7013	10926	10926	10926	31568	31568	31568

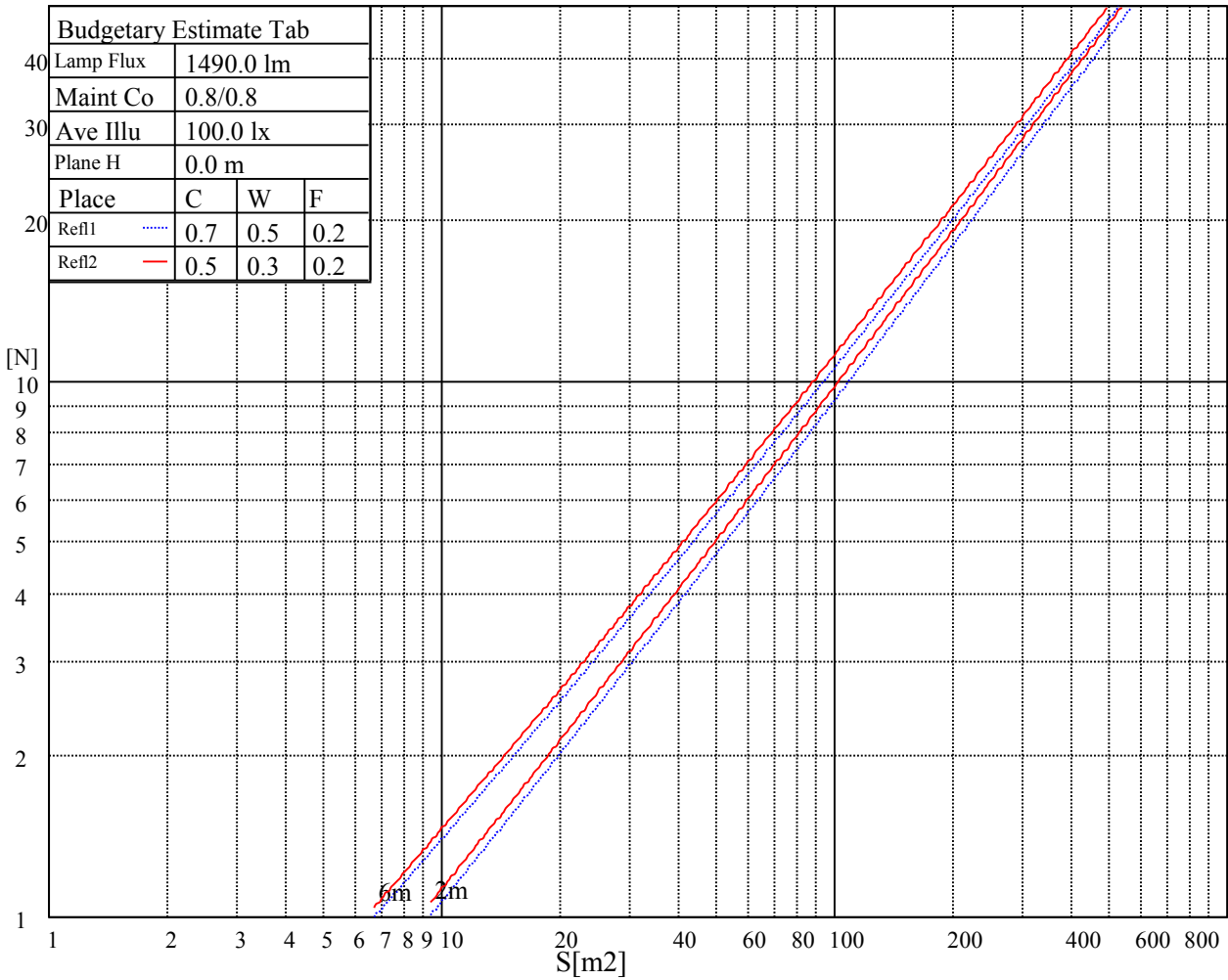
Glare Table

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

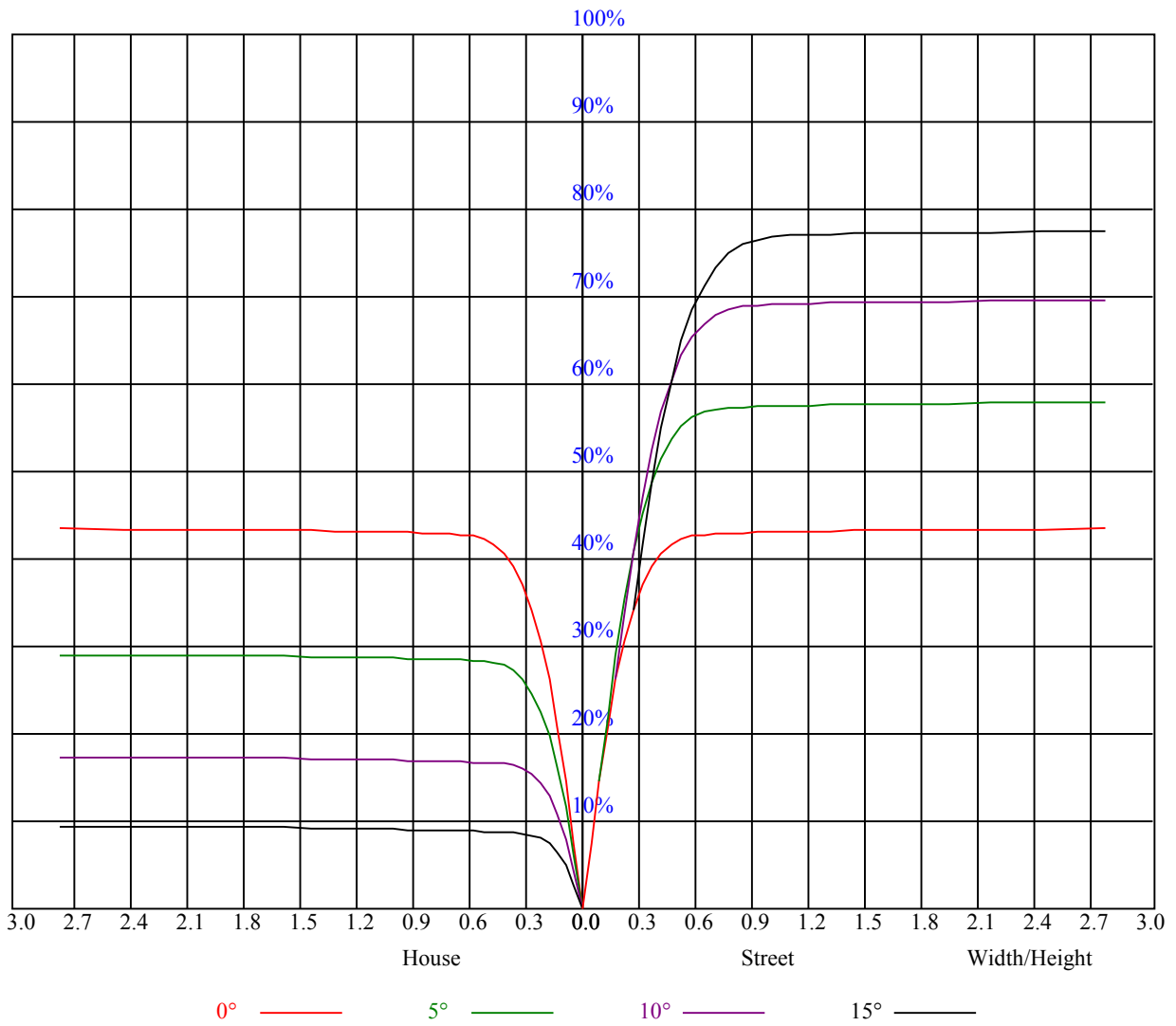
Luminance Limiting Curve



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	6.28	7.20	6.65	7.51	7.82	6.36	7.28	6.73	7.59	7.90
	3H	9.42	10.23	9.81	10.57	10.94	9.55	10.36	9.93	10.69	11.06
	4H	11.14	11.89	11.55	12.24	12.63	11.28	12.03	11.69	12.38	12.77
	6H	13.06	13.75	13.48	14.12	14.52	13.22	13.91	13.64	14.28	14.68
	8H	14.12	14.76	14.56	15.16	15.57	14.31	14.95	14.75	15.35	15.76
	12H	15.84	16.45	16.28	16.84	17.27	16.10	16.71	16.54	17.10	17.53
4H	2H	7.18	7.93	7.59	8.28	8.67	7.24	7.98	7.65	8.34	8.73
	3H	10.57	11.18	10.98	11.59	12.00	10.67	11.29	11.09	11.70	12.10
	4H	12.46	13.01	12.90	13.43	13.88	12.57	13.12	13.01	13.54	13.99
	6H	14.51	14.97	14.98	15.43	15.90	14.64	15.11	15.11	15.56	16.04
	8H	15.67	16.11	16.15	16.56	17.04	15.84	16.28	16.32	16.73	17.21
	12H	17.30	17.68	17.80	18.17	18.65	17.54	17.92	18.03	18.41	18.89
8H	4H	13.18	13.62	13.66	14.07	14.55	13.27	13.71	13.75	14.16	14.63
	6H	15.51	15.86	16.02	16.36	16.85	15.62	15.96	16.13	16.47	16.96
	8H	16.87	17.17	17.40	17.70	18.20	17.01	17.32	17.55	17.84	18.34
	12H	18.64	18.90	19.16	19.40	19.98	18.85	19.11	19.37	19.61	20.19
12H	4H	13.39	13.76	13.88	14.25	14.73	13.46	13.84	13.96	14.33	14.81
	6H	16.03	16.14	16.37	16.61	17.16	16.13	16.23	16.46	16.71	17.25
	8H	17.32	17.58	17.84	18.08	18.66	17.45	17.71	17.97	18.21	18.79
Variation with the observer position at spacings:											
S = 1.0H	1.7/-1.6					1.7/-1.6					
S = 1.5H	1.6/-1.4					1.6/-1.4					
S = 2.0H	1.6/-1.1					1.6/-1.1					
Standard tables:	BKBF					BKBF					
Uncorrected UGR	0.0					0.0					



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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.97	0.95	0.93	0.96	0.93	0.91	0.92	0.90	0.88	0.89	0.87	0.86	0.86	0.84	0.83	0.82
2	0.93	0.90	0.87	0.92	0.89	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.81	0.79
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.81	0.79	0.82	0.80	0.78	0.77
4	0.86	0.82	0.79	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.73
6	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.78	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.74	0.71	0.69	0.68
9	0.74	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
10	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.71	0.68	0.66	0.65



NATA 1762-A

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	5636.25	5294.81	3805.88	2217.38	1416.94	744.19	311.06	23.12	13.39
45.0	5619.38	5252.63	3571.31	2017.13	1249.31	622.69	169.59	20.03	11.08
90.0	5635.13	4844.81	2964.94	1632.94	1109.53	413.72	53.16	13.89	9.62
135.0	5644.69	5005.69	3315.38	1801.13	1260.56	513.00	57.94	15.08	10.01
180.0	5636.25	4809.94	2986.31	1675.69	1122.13	382.56	45.62	14.29	9.79
225.0	5619.38	4671.00	3159.56	1764.56	1071.90	416.25	51.64	14.57	10.01
270.0	5635.13	5129.44	3718.13	2166.19	1384.31	726.19	167.51	19.18	12.09
315.0	5644.69	5110.31	3497.06	2080.13	1095.02	577.69	85.50	19.41	12.15
360.0	5636.25	5294.81	3805.88	2217.38	1416.94	744.19	311.06	23.12	13.39
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	9.45	7.88	7.03	6.69	6.41	6.24	6.13	6.02	5.85
45.0	8.61	7.48	6.86	6.53	6.24	6.02	5.91	5.74	5.57
90.0	7.93	7.09	6.58	6.36	6.13	5.96	5.85	5.74	5.63
135.0	8.16	7.26	6.81	6.47	6.24	6.13	6.02	5.91	5.85
180.0	8.04	7.26	6.75	6.53	6.30	6.19	6.02	5.96	6.24
225.0	8.10	7.20	6.69	6.36	6.13	5.96	5.85	5.74	5.85
270.0	8.83	7.54	6.92	6.53	6.30	6.08	5.96	5.85	5.74
315.0	8.89	7.76	7.03	6.64	6.41	6.24	6.13	5.96	5.85
360.0	9.45	7.88	7.03	6.69	6.41	6.24	6.13	6.02	5.85
C/ $\gamma$ (°)	90.0								
0.0	5.68								
45.0	5.40								
90.0	5.34								
135.0	5.51								
180.0	5.57								
225.0	5.34								
270.0	5.46								
315.0	5.63								
360.0	5.68								