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NATA

LumCAT: 3-1550-A3
Luminaire: 99.02.73.172+92.76.365.00
Report No: NATA0100
Test No: GC2019011610
LampCAT: CITIZEN CMT1922
Lamp flux(lm): 2875.0
Number of Lamps: 1
Length(mm): 78
Phm Type: C

Voltage(V): 35.6000
Current(A): 0.6000
Power (W): 21.3600
PF: 0.0000
Ballast type: DC
Width(mm): 78
Height(mm): 0

Photometric Results

Lumens(lm): 2583.80
Efficiency(%): 89.87%
Lumens(lm)/Power(W): 122.10
Central intensity(cd): 4476.234
Maximum intensity(cd): 4476.234
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=43.6
 [C90/270]Total=43.6
Field angle(10%Imax): [C0/180]Total=73.8
 [C90/270]Total=73.8
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(%): 90.72%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.812%

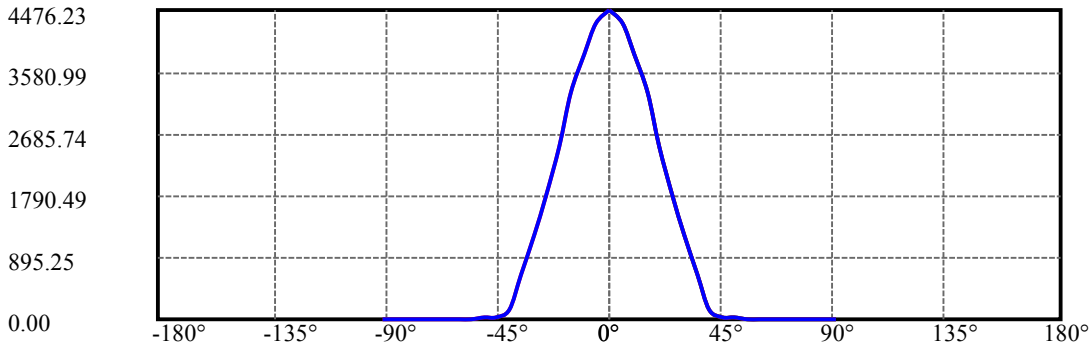
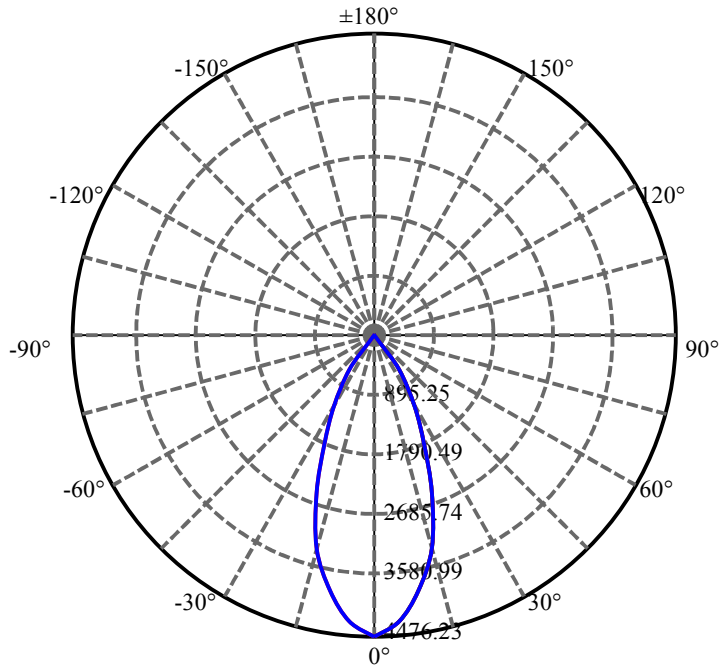
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4476.234	26.769	26.769	.931%	1.036%
5.0	4269.586	203.972	230.741	7.095%	8.930%
10.0	3847.922	366.257	596.998	12.739%	23.105%
15.0	3272.063	464.202	1061.2	16.146%	41.071%
20.0	2496.867	468.098	1529.298	16.282%	59.188%
25.0	1779.820	412.300	1941.599	14.341%	75.145%
30.0	1218.748	334.021	2275.619	11.618%	88.073%
35.0	636.251	200.036	2475.656	6.958%	95.815%
40.0	143.170	50.444	2526.1	1.755%	97.767%
45.0	18.443	7.148	2533.248	.249%	98.044%
50.0	14.217	5.970	2539.218	.208%	98.275%
55.0	13.163	5.910	2545.128	.206%	98.503%
60.0	12.452	5.911	2551.039	.206%	98.732%
65.0	11.932	5.928	2556.966	.206%	98.962%
70.0	11.552	5.950	2562.917	.207%	99.192%
75.0	11.271	5.968	2568.884	.208%	99.423%
80.0	11.067	5.974	2574.859	.208%	99.654%
85.0	10.941	5.974	2580.833	.208%	99.885%
90.0	10.814	2.964	2583.797	.103%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2275.62	79.15%	88.07%
0-40	2526.10	87.86%	97.77%
0-60	2551.04	88.73%	98.73%
0-90	2580.83	89.77%	99.89%
0-120	2580.83	89.77%	99.89%
0-180	2583.80	89.87%	100.00%
60-90	35.71	1.24%	1.38%
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%
0-26.88	2067.04	71.90%	80.00%

ZONAL LUMEN SUMMARY

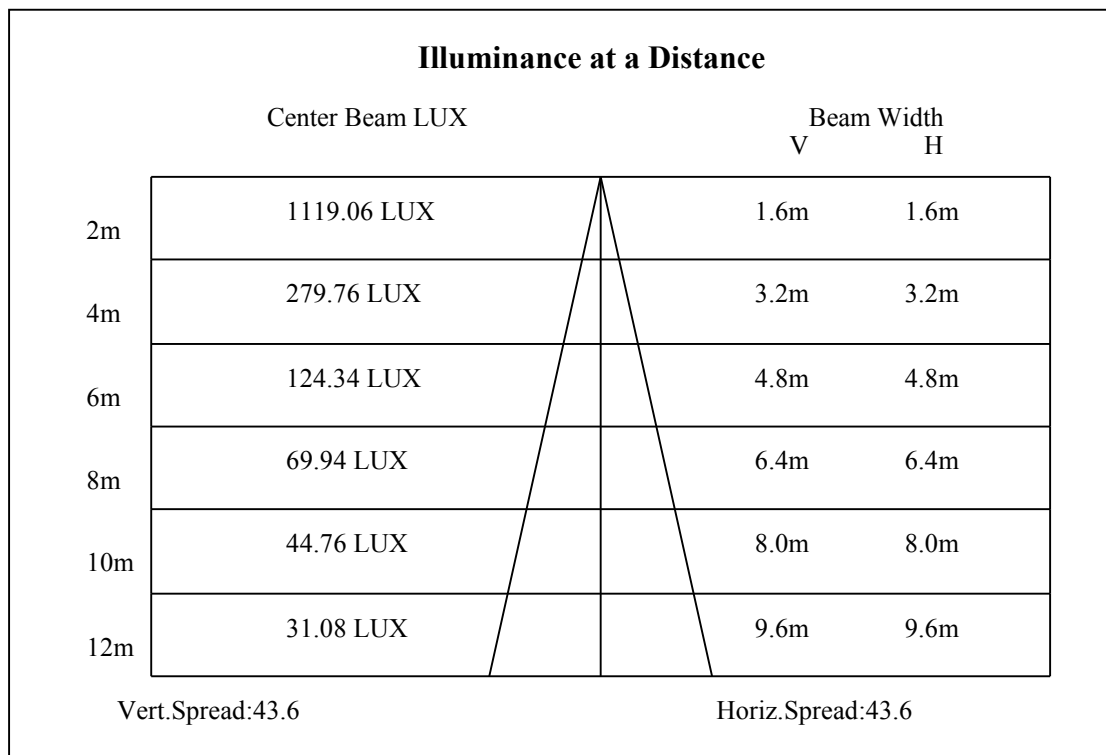
0-10	597.00
10-20	932.30
20-30	746.32
30-40	250.48
40-50	13.12
50-60	11.82
60-70	11.88
70-80	11.94
80-90	5.97
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

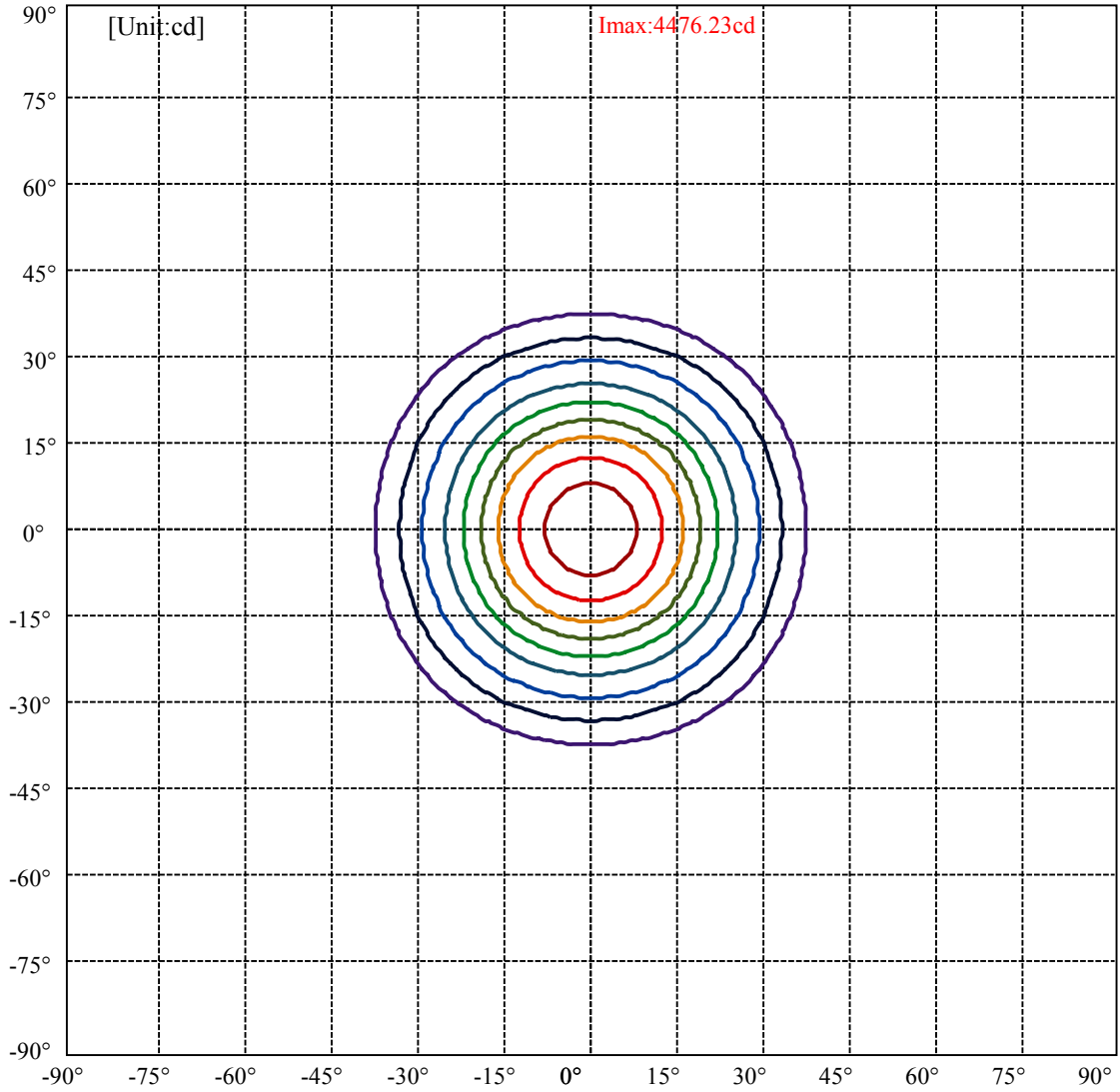


C0(Max): ———
C0/C180: ———
C90/C270: ———

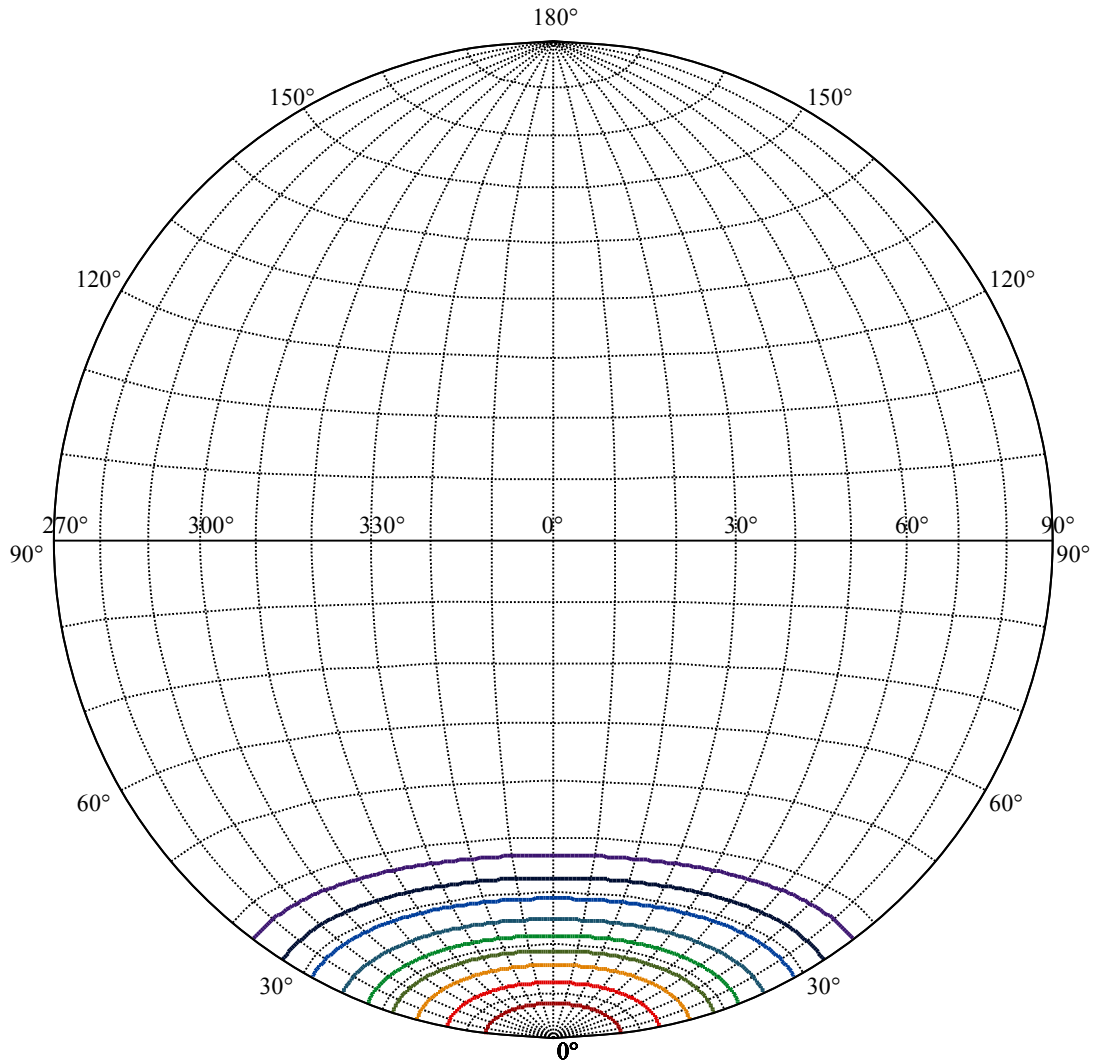
Field angle(10%Imax):C0/180Left:36.9 Right:36.9
:C90/270Left:36.9 Right:36.9

Beam Angle(50%Imax):C0/180Left:21.8 Right:21.8
:C90/270Left:21.8 Right:21.8





(10%Imax) 447.623	—
(20%Imax) 895.247	—
(30%Imax) 1342.87	—
(40%Imax) 1790.49	—
(50%Imax) 2238.12	—
(60%Imax) 2685.74	—
(70%Imax) 3133.36	—
(80%Imax) 3580.99	—
(90%Imax) 4028.61	—



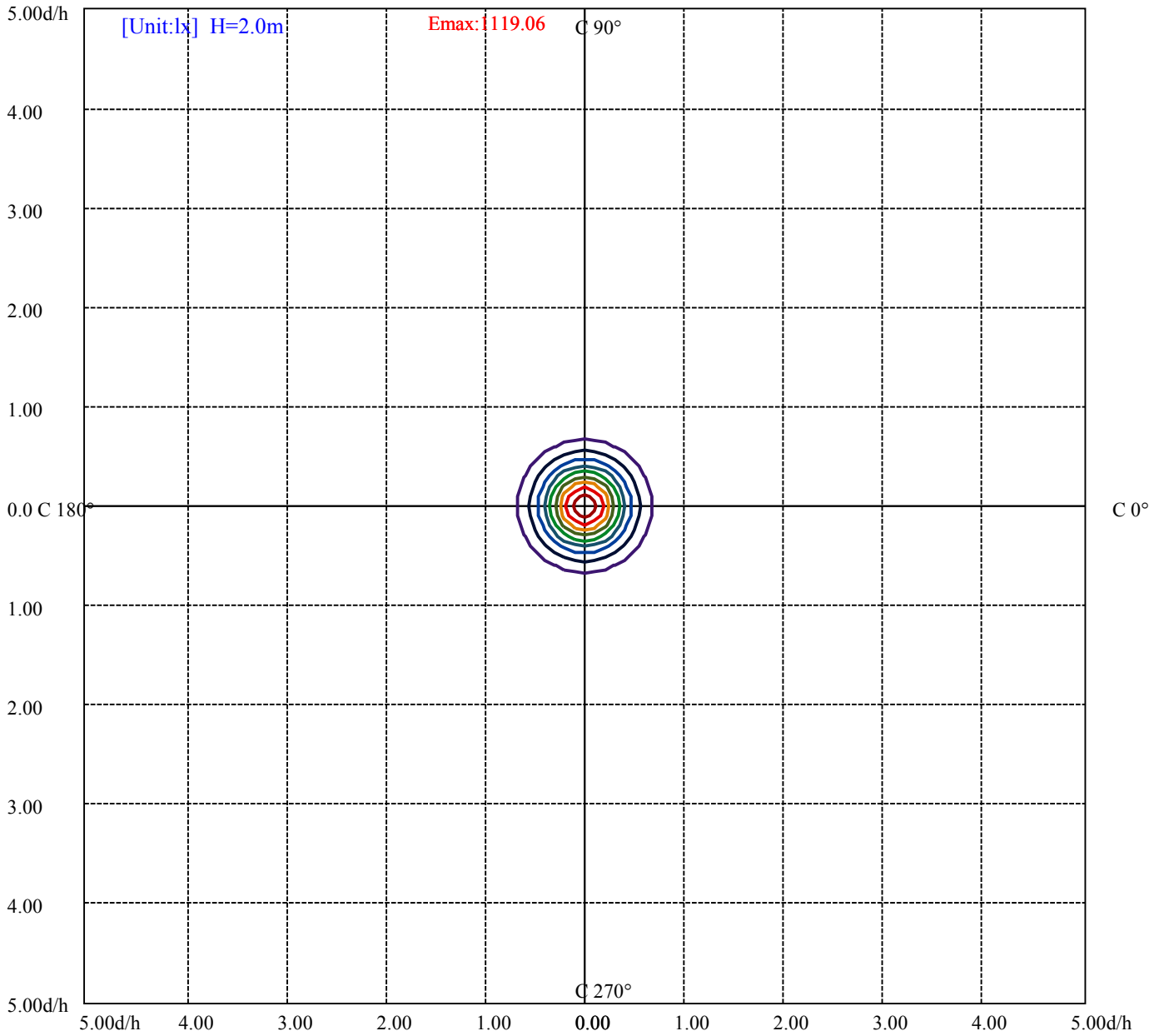
House

[Unit:cd]

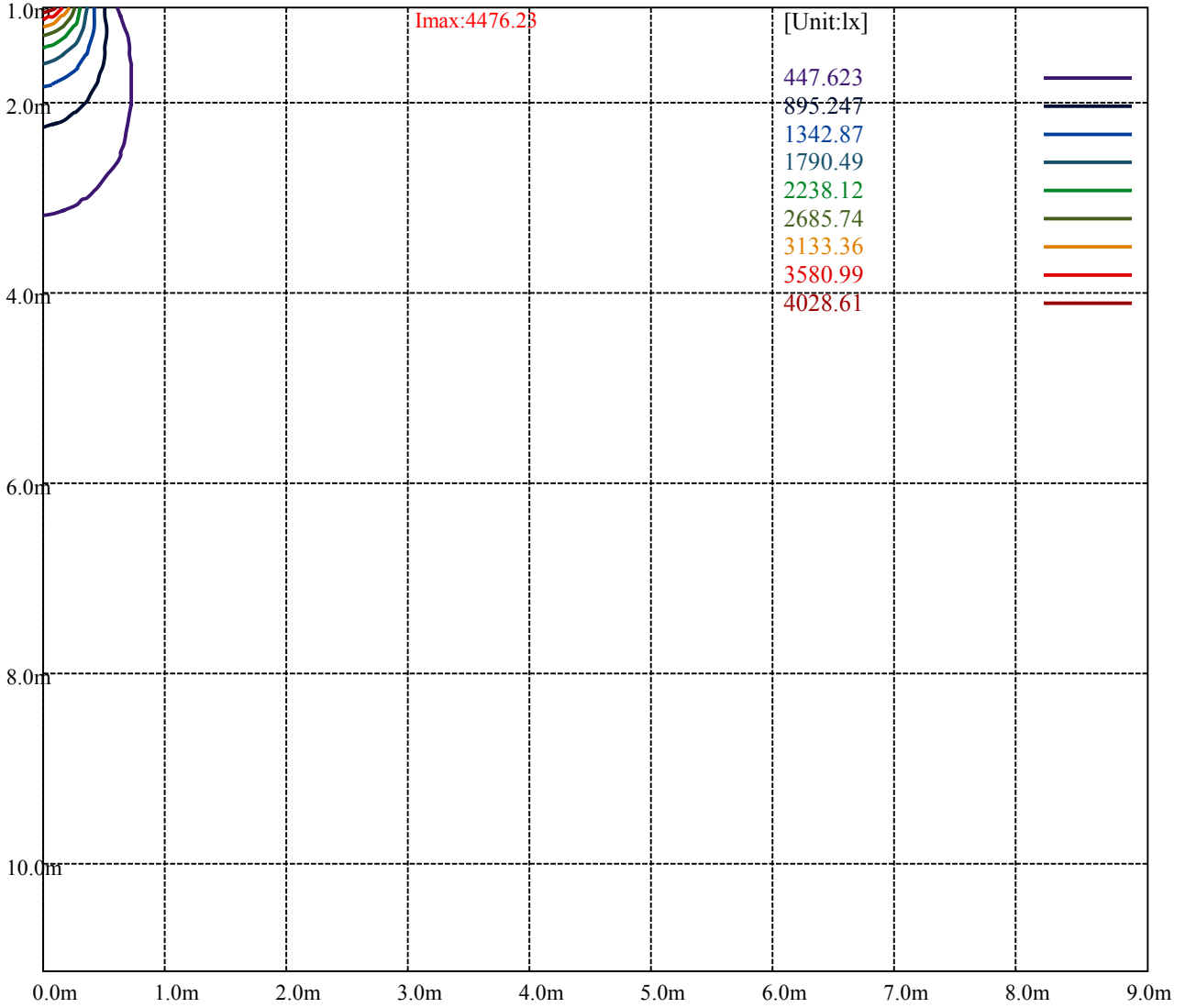
Road

Imax:4476.23

(10%Imax)	447.623	—
(20%Imax)	895.247	—
(30%Imax)	1342.87	—
(40%Imax)	1790.49	—
(50%Imax)	2238.12	—
(60%Imax)	2685.74	—
(70%Imax)	3133.36	—
(80%Imax)	3580.99	—
(90%Imax)	4028.61	—



(10%Emax) 111.9057	—
(20%Emax) 223.8115	—
(30%Emax) 335.7175	—
(40%Emax) 447.6225	—
(50%Emax) 559.5275	—
(60%Emax) 671.435	—
(70%Emax) 783.34	—
(80%Emax) 895.245	—
(90%Emax) 1007.153	—



Luminance Table

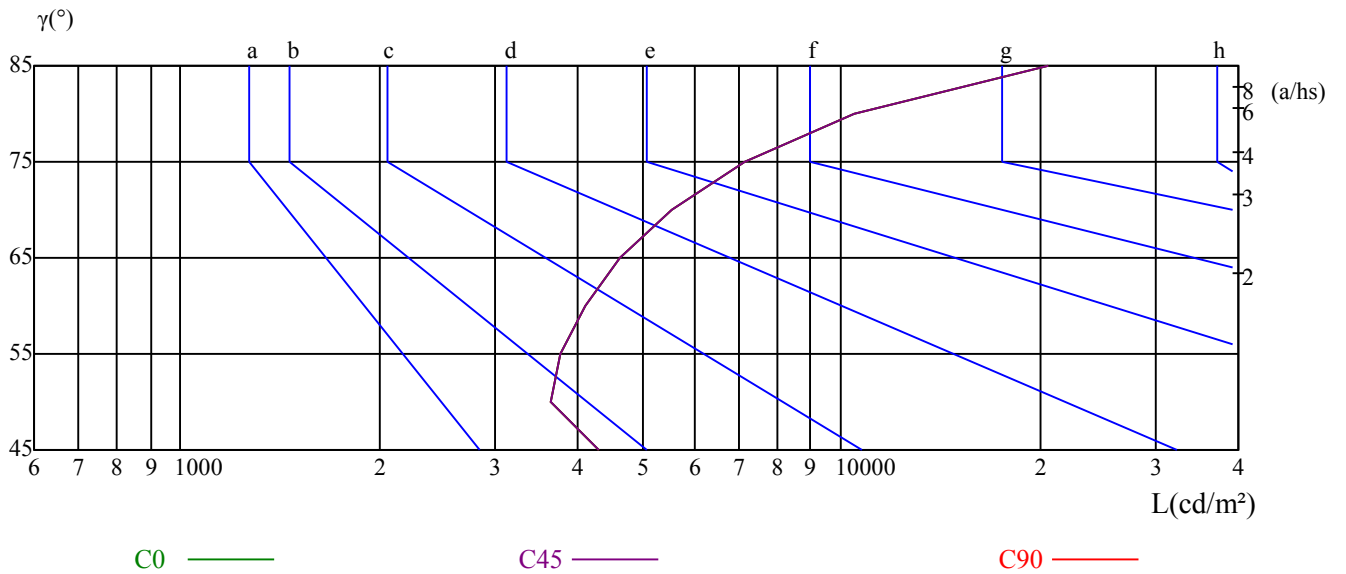
γ	45	50	55	60	65	70	75	80	85
C0	4287	3635	3772	4093	4641	5552	7158	10476	20633
C45	4287	3635	3772	4093	4641	5552	7158	10476	20633
C90	4287	3635	3772	4093	4641	5552	7158	10476	20633

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4641	4641	4641	7158	7158	7158	20633	20633	20633

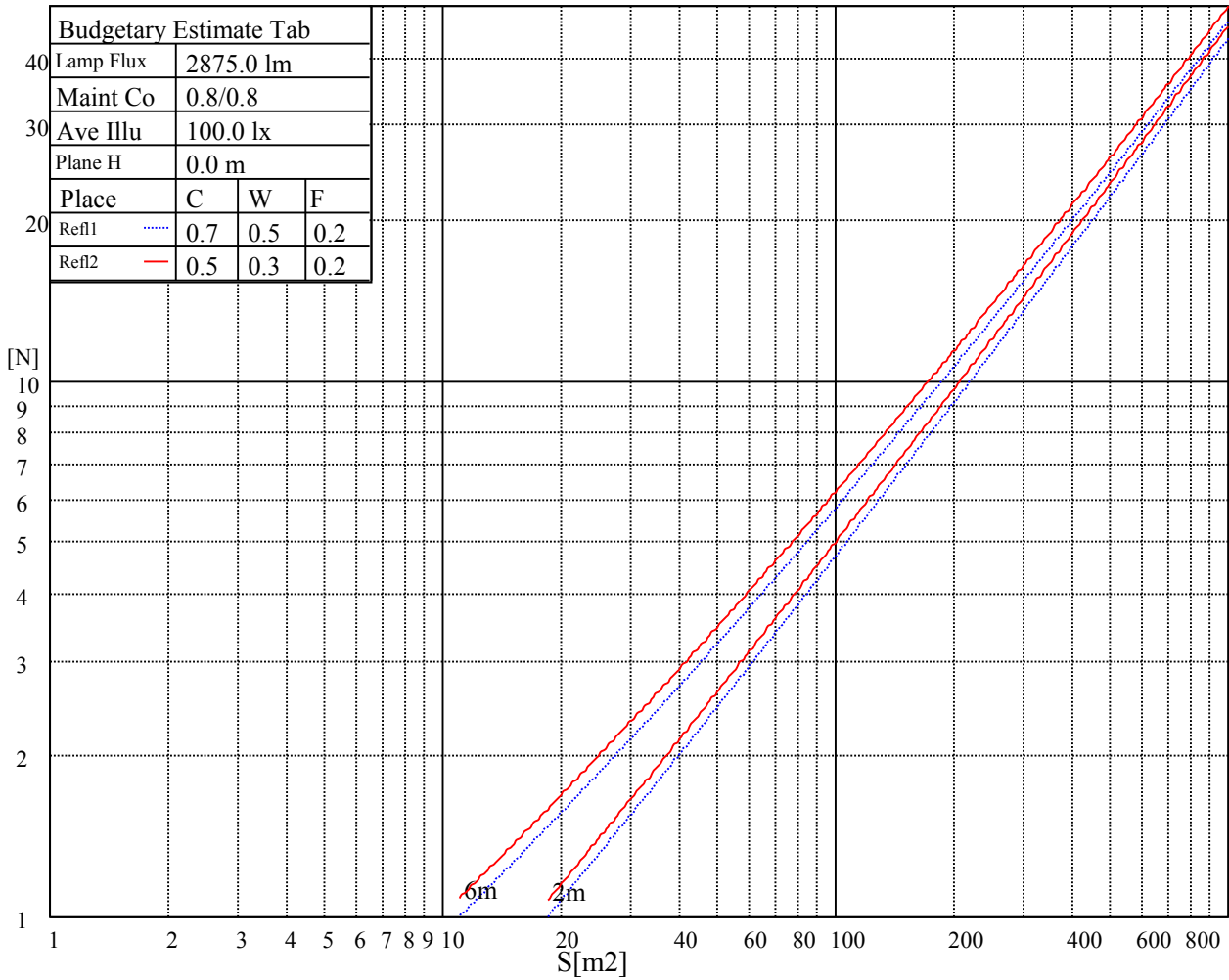
Glare Table

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

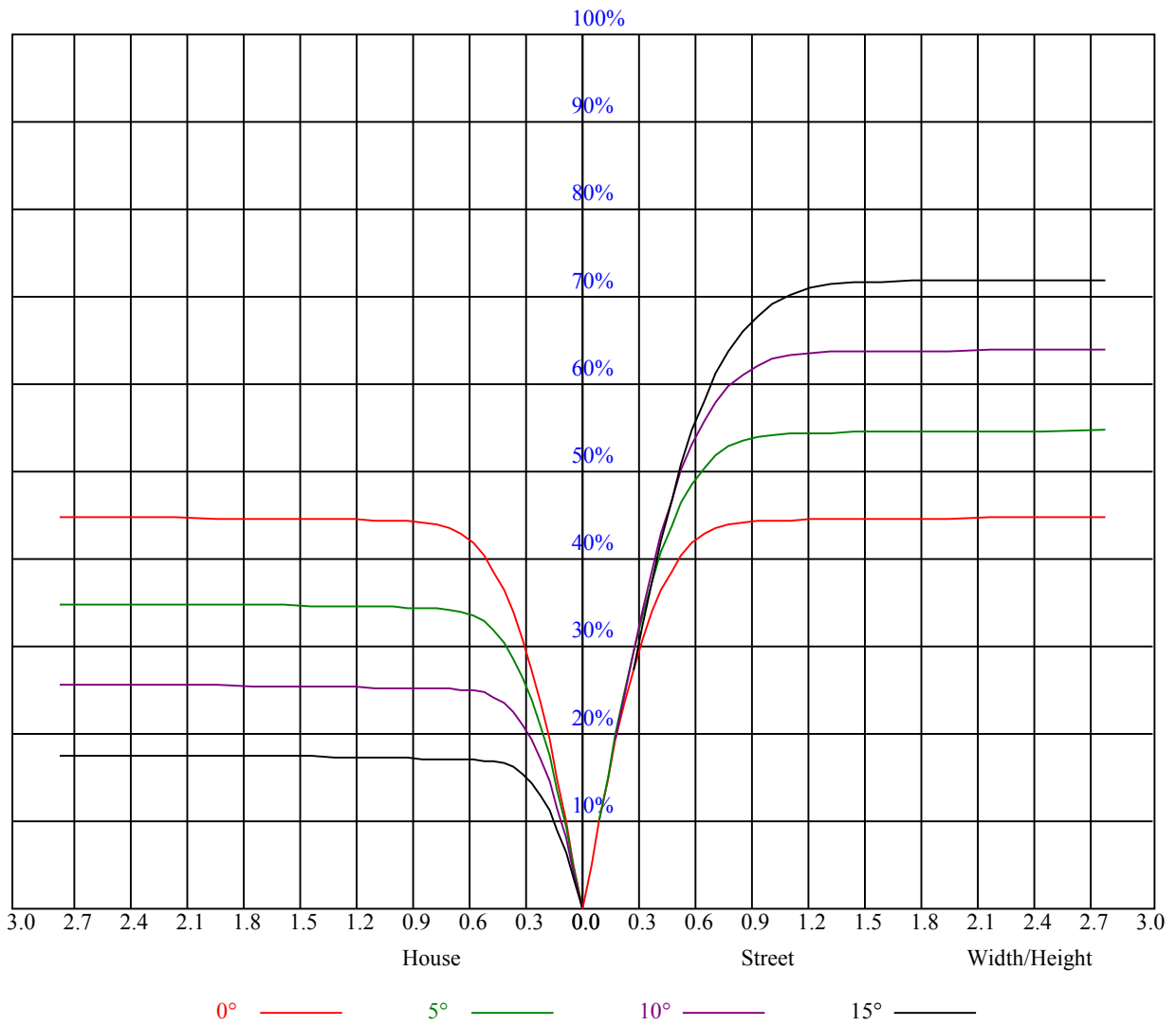
Luminance Limiting Curve



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	2.37	3.28	2.73	3.59	3.91	2.37	3.28	2.73	3.59	3.91
	3H	5.49	6.30	5.87	6.63	7.00	5.48	6.29	5.86	6.62	6.99
	4H	7.18	7.93	7.59	8.28	8.67	7.18	7.93	7.59	8.28	8.67
	6H	9.09	9.77	9.51	10.15	10.54	9.09	9.77	9.51	10.15	10.54
	8H	10.15	10.79	10.59	11.18	11.59	10.15	10.79	10.59	11.18	11.59
	12H	11.87	12.48	12.31	12.87	13.30	11.88	12.49	12.32	12.88	13.31
4H	2H	3.24	3.99	3.65	4.34	4.73	3.24	3.99	3.65	4.34	4.73
	3H	6.62	7.23	7.04	7.64	8.05	6.61	7.22	7.03	7.63	8.04
	4H	8.48	9.03	8.92	9.45	9.90	8.48	9.03	8.92	9.45	9.90
	6H	10.55	11.02	11.02	11.47	11.94	10.55	11.02	11.02	11.47	11.94
	8H	11.71	12.14	12.19	12.60	13.07	11.71	12.15	12.19	12.60	13.07
	12H	13.34	13.71	13.83	14.20	14.68	13.35	13.72	13.84	14.21	14.69
8H	4H	9.19	9.63	9.67	10.08	10.55	9.19	9.63	9.67	10.08	10.55
	6H	11.53	11.88	12.05	12.38	12.87	11.53	11.88	12.05	12.38	12.87
	8H	12.88	13.19	13.42	13.71	14.21	12.89	13.19	13.42	13.71	14.21
	12H	14.65	14.91	15.18	15.41	16.00	14.66	14.92	15.19	15.42	16.01
12H	4H	9.39	9.76	9.88	10.25	10.73	9.39	9.76	9.88	10.25	10.73
	6H	12.05	12.15	12.38	12.62	13.17	12.05	12.15	12.38	12.62	13.17
	8H	13.33	13.59	13.85	14.08	14.67	13.33	13.59	13.85	14.09	14.67
Variation with the observer position at spacings:											
S = 1.0H	5.7/-8.0					5.7/-8.0					
S = 1.5H	7.9/-6.1					7.9/-6.1					
S = 2.0H	9.4/-4.6					9.4/-4.6					
Standard tables:	BK2					BK2					
Uncorrected UGR	1.7					1.7					



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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.00	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.79	0.78	0.76
4	0.85	0.80	0.77	0.84	0.80	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.81	0.76	0.73	0.80	0.76	0.72	0.78	0.75	0.72	0.77	0.74	0.71	0.75	0.73	0.70	0.69
6	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
7	0.74	0.69	0.66	0.73	0.69	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
8	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.61
9	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.58
10	0.65	0.60	0.58	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	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	4471.88	4364.44	3941.44	3380.06	2613.94	1886.06	1362.94	743.63	285.19
45.0	4484.81	4310.44	3872.81	3269.81	2521.69	1774.69	1280.25	648.00	148.95
90.0	4471.31	4203.56	3749.63	3126.38	2358.00	1677.94	1090.52	499.16	53.16
135.0	4476.94	4256.44	3855.94	3266.44	2511.00	1791.56	1318.50	657.56	147.21
180.0	4471.88	4170.94	3720.38	3153.94	2359.13	1689.19	1113.53	526.28	50.46
225.0	4484.81	4257.56	3839.06	3299.63	2509.31	1783.13	1113.64	645.02	75.43
270.0	4471.31	4333.50	3951.00	3415.50	2651.06	1875.94	1366.31	775.13	313.31
315.0	4476.94	4259.81	3853.13	3264.75	2450.81	1760.06	1104.30	595.24	71.66
360.0	4471.88	4364.44	3941.44	3380.06	2613.94	1886.06	1362.94	743.63	285.19

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	21.32	14.23	13.22	12.49	11.98	11.59	11.31	11.08	10.97
45.0	19.35	14.18	13.16	12.43	11.93	11.59	11.31	11.08	10.91
90.0	16.76	14.12	13.16	12.43	11.93	11.53	11.25	11.08	10.91
135.0	19.63	14.40	13.28	12.54	11.98	11.59	11.31	11.08	10.97
180.0	16.48	14.06	13.05	12.43	11.87	11.53	11.25	11.03	10.97
225.0	16.93	14.23	13.11	12.38	11.93	11.53	11.25	11.08	10.97
270.0	19.74	14.46	13.28	12.49	11.98	11.59	11.25	11.08	10.91
315.0	17.33	14.06	13.05	12.43	11.87	11.48	11.25	11.03	10.91
360.0	21.32	14.23	13.22	12.49	11.98	11.59	11.31	11.08	10.97

C/γ(°)	90.0
0.0	10.80
45.0	10.80
90.0	10.86
135.0	10.80
180.0	10.80
225.0	10.86
270.0	10.80
315.0	10.80
360.0	10.80