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NATA

LumCAT: 4-1983-M

Luminaire:

Report No: NATA0100

Voltage(V): 17.9000

Test No: GC2018103006

Current(A): 0.6000

LampCAT: XICATO XTM LES 19MM

Power (W): 10.7400

Lamp flux(lm): 1088.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 100

Width(mm): 100

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 953.84

Efficiency(%): 87.67%

Lumens(lm)/Power(W): 90.99

Central intensity(cd): 4068.422

Maximum intensity(cd): 4068.422

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=22.1

[C90/270]Total=22.1

Field angle(10%Imax): [C0/180]Total=47.6

[C90/270]Total=47.6

Maximum s/h(1/2): C0_180=0.37 C90_270=0.37

Maximum s/h(1/4): C0_180=0.37 C90_270=0.37

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.82%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.452%

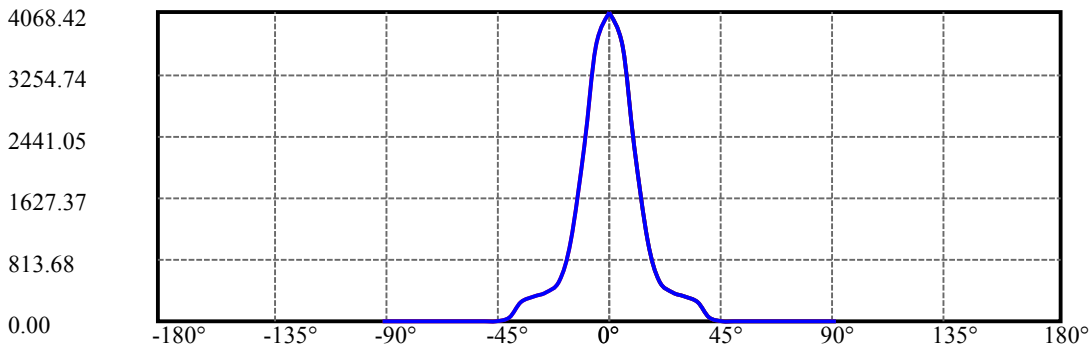
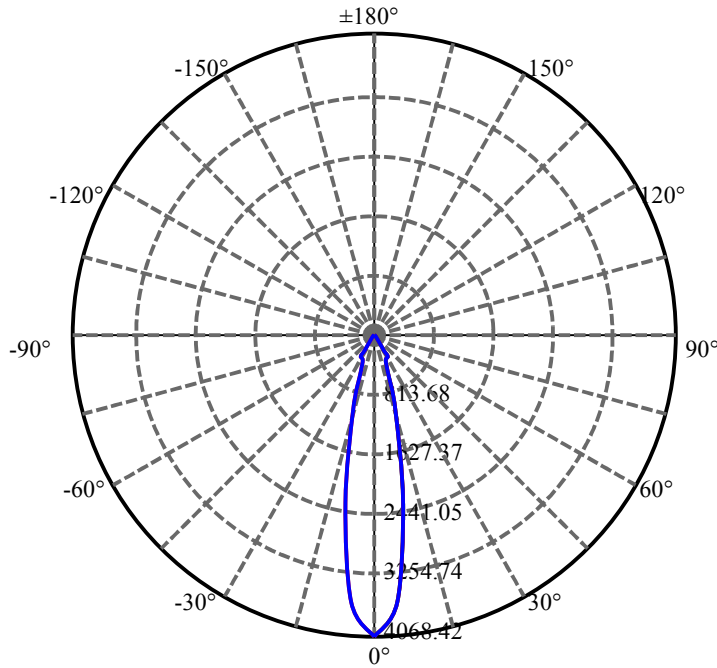
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4068.422	24.330	24.33	2.236%	2.551%
5.0	3610.195	172.471	196.801	15.852%	20.633%
10.0	2287.617	217.742	414.543	20.013%	43.461%
15.0	1055.257	149.708	564.251	13.760%	59.156%
20.0	523.238	98.093	662.344	9.016%	69.440%
25.0	370.596	85.850	748.194	7.891%	78.440%
30.0	340.882	93.425	841.619	8.587%	88.235%
35.0	247.113	77.692	919.311	7.141%	96.380%
40.0	45.007	15.858	935.169	1.457%	98.043%
45.0	5.112	1.981	937.15	.182%	98.251%
50.0	4.219	1.771	938.922	.163%	98.436%
55.0	4.022	1.806	940.727	.166%	98.626%
60.0	3.909	1.856	942.583	.171%	98.820%
65.0	3.825	1.900	944.483	.175%	99.019%
70.0	3.783	1.948	946.432	.179%	99.224%
75.0	3.755	1.988	948.42	.183%	99.432%
80.0	3.755	2.027	950.447	.186%	99.645%
85.0	4.359	2.380	952.827	.219%	99.894%
90.0	3.684	1.010	953.837	.093%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	841.62	77.35%	88.24%
0-40	935.17	85.95%	98.04%
0-60	942.58	86.63%	98.82%
0-90	952.83	87.58%	99.89%
0-120	952.83	87.58%	99.89%
0-180	953.84	87.67%	100.00%
60-90	12.10	1.11%	1.27%
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%
0-25.80	763.07	70.14%	80.00%

ZONAL LUMEN SUMMARY

0-10	414.54
10-20	247.80
20-30	179.27
30-40	93.55
40-50	3.75
50-60	3.66
60-70	3.85
70-80	4.01
80-90	2.38
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: —————

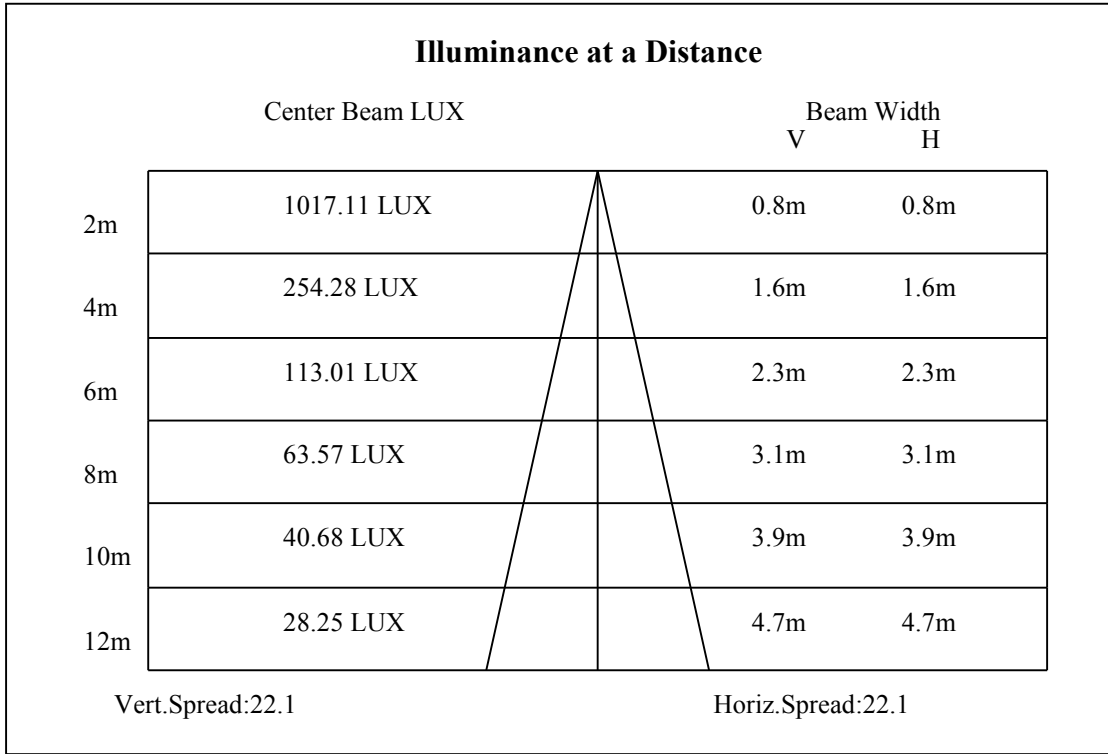
C90/C270: —————

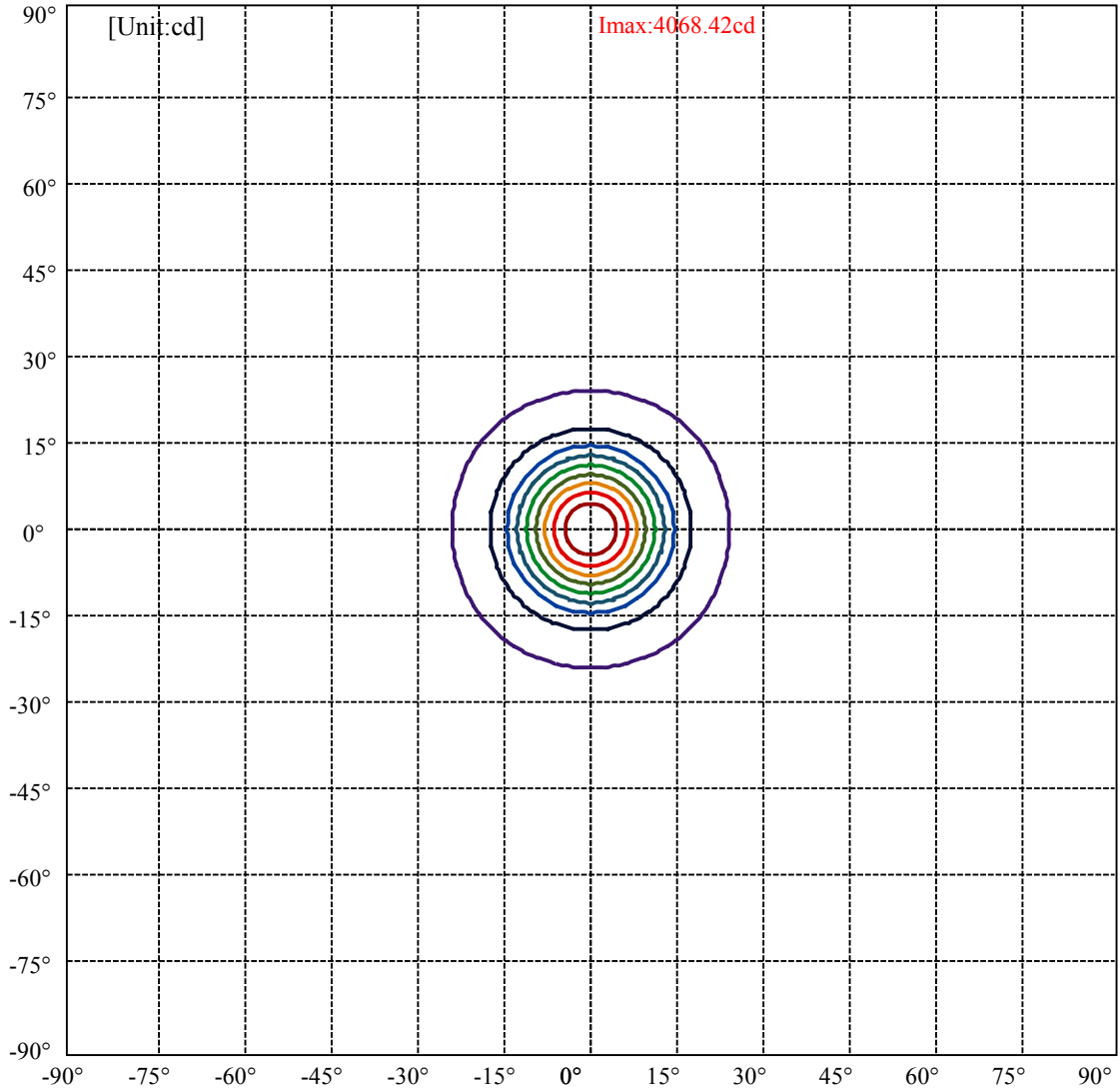
Field angle(10%Imax):C0/180Left:23.8 Right:23.8

:C90/270Left:23.8 Right:23.8

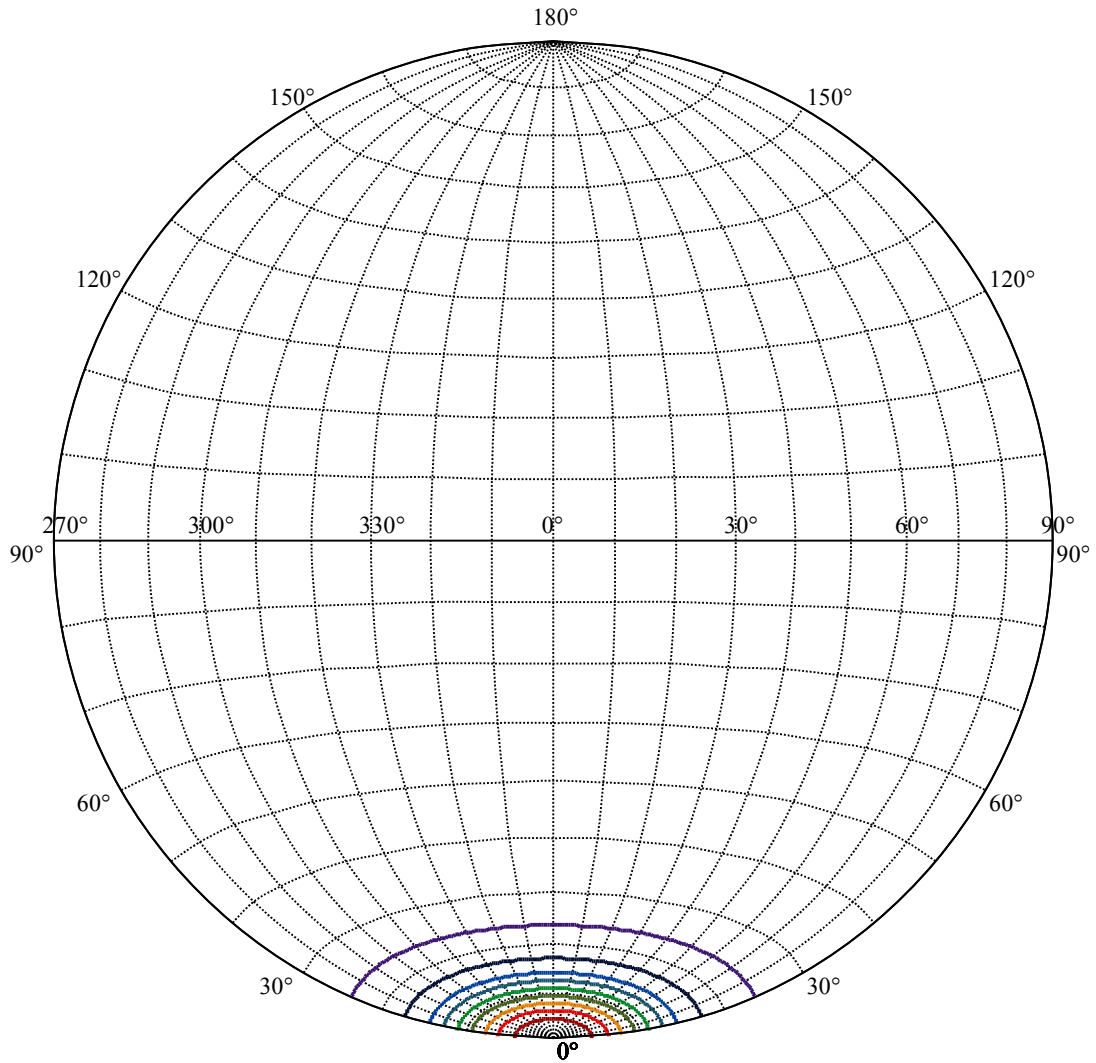
Beam Angle(50%Imax):C0/180Left:11.0 Right:11.0

:C90/270Left:11.0 Right:11.0





(10%Imax) 406.842	—
(20%Imax) 813.684	—
(30%Imax) 1220.53	—
(40%Imax) 1627.37	—
(50%Imax) 2034.21	—
(60%Imax) 2441.05	—
(70%Imax) 2847.9	—
(80%Imax) 3254.74	—
(90%Imax) 3661.58	—



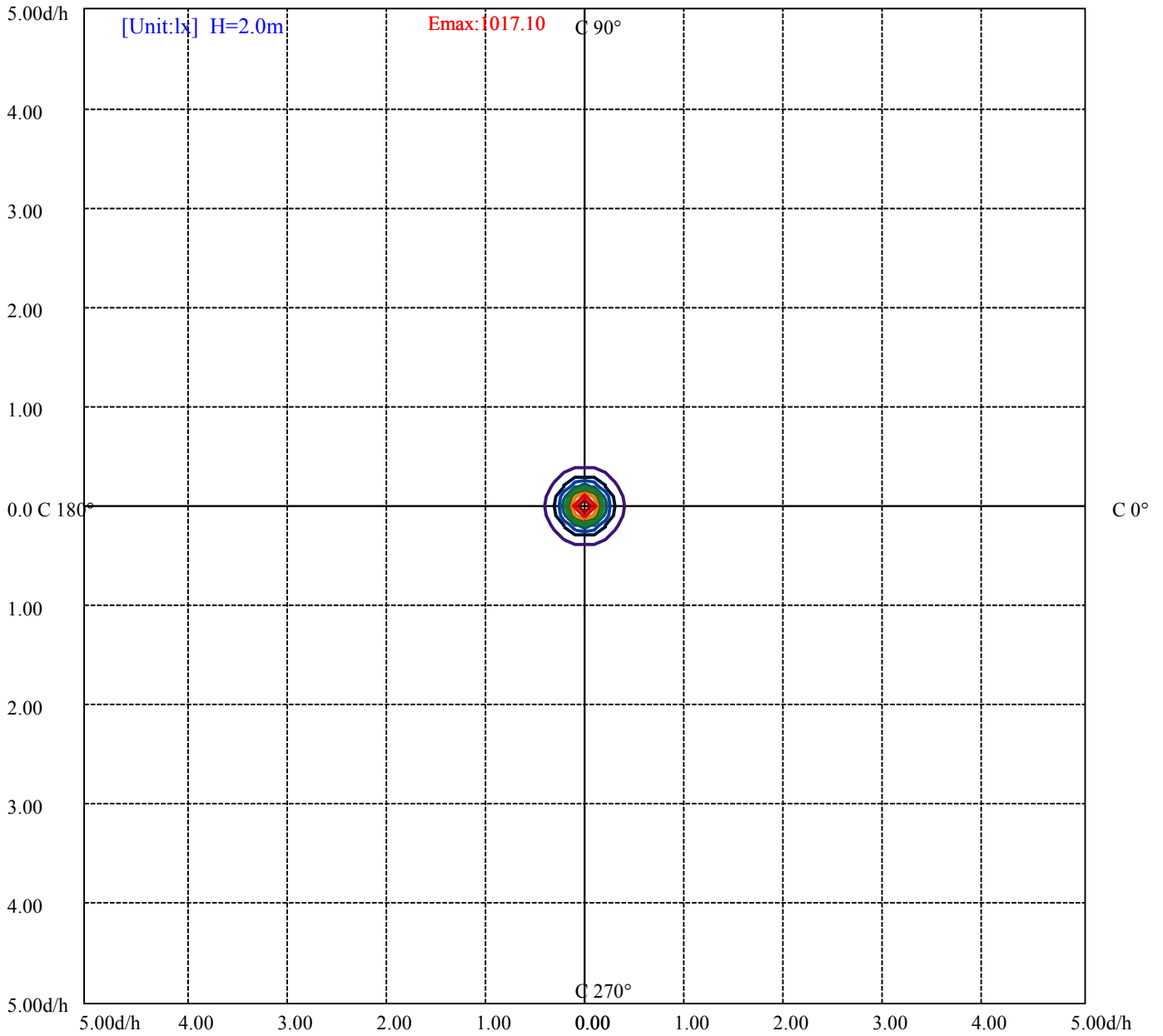
House

[Unit:cd]

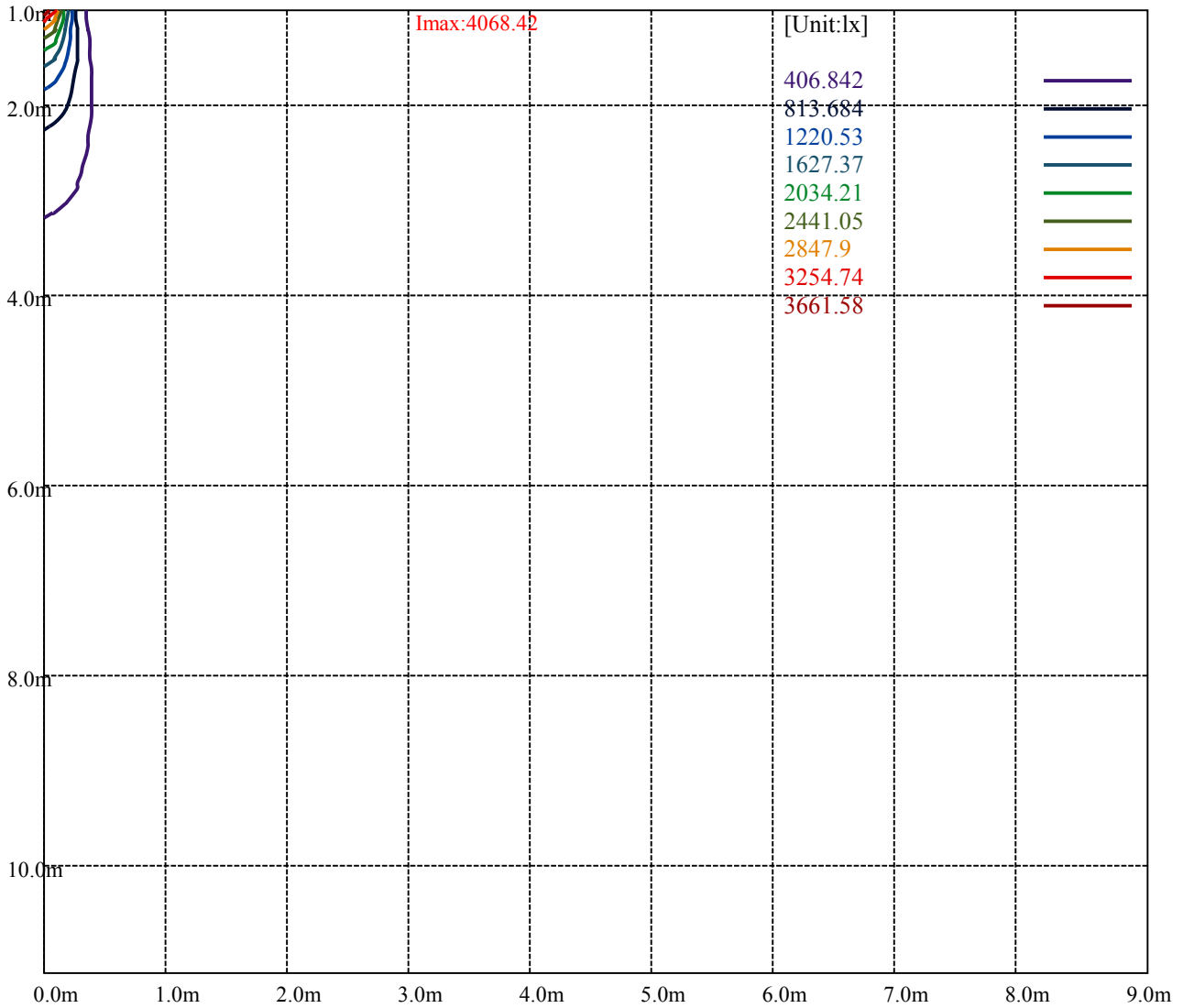
Road

Imax:4068.42

(10%Imax) 406.842	—
(20%Imax) 813.684	—
(30%Imax) 1220.53	—
(40%Imax) 1627.37	—
(50%Imax) 2034.21	—
(60%Imax) 2441.05	—
(70%Imax) 2847.9	—
(80%Imax) 3254.74	—
(90%Imax) 3661.58	—



- (10%Emax) 101.7103
- (20%Emax) 203.4205
- (30%Emax) 305.13
- (40%Emax) 406.84
- (50%Emax) 508.55
- (60%Emax) 610.26
- (70%Emax) 711.9725
- (80%Emax) 813.6825
- (90%Emax) 915.3925



Luminance Table

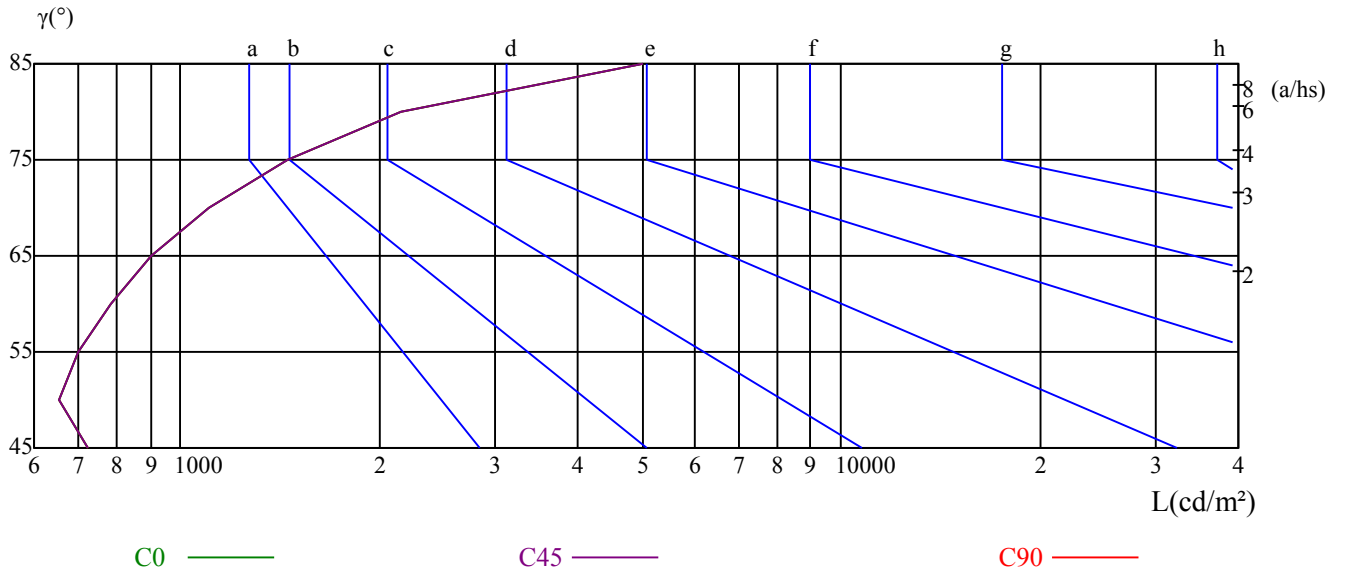
γ	45	50	55	60	65	70	75	80	85
C0	723	656	701	782	905	1106	1451	2162	5002
C45	723	656	701	782	905	1106	1451	2162	5002
C90	723	656	701	782	905	1106	1451	2162	5002

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
905	905	905	1451	1451	1451	5002	5002	5002

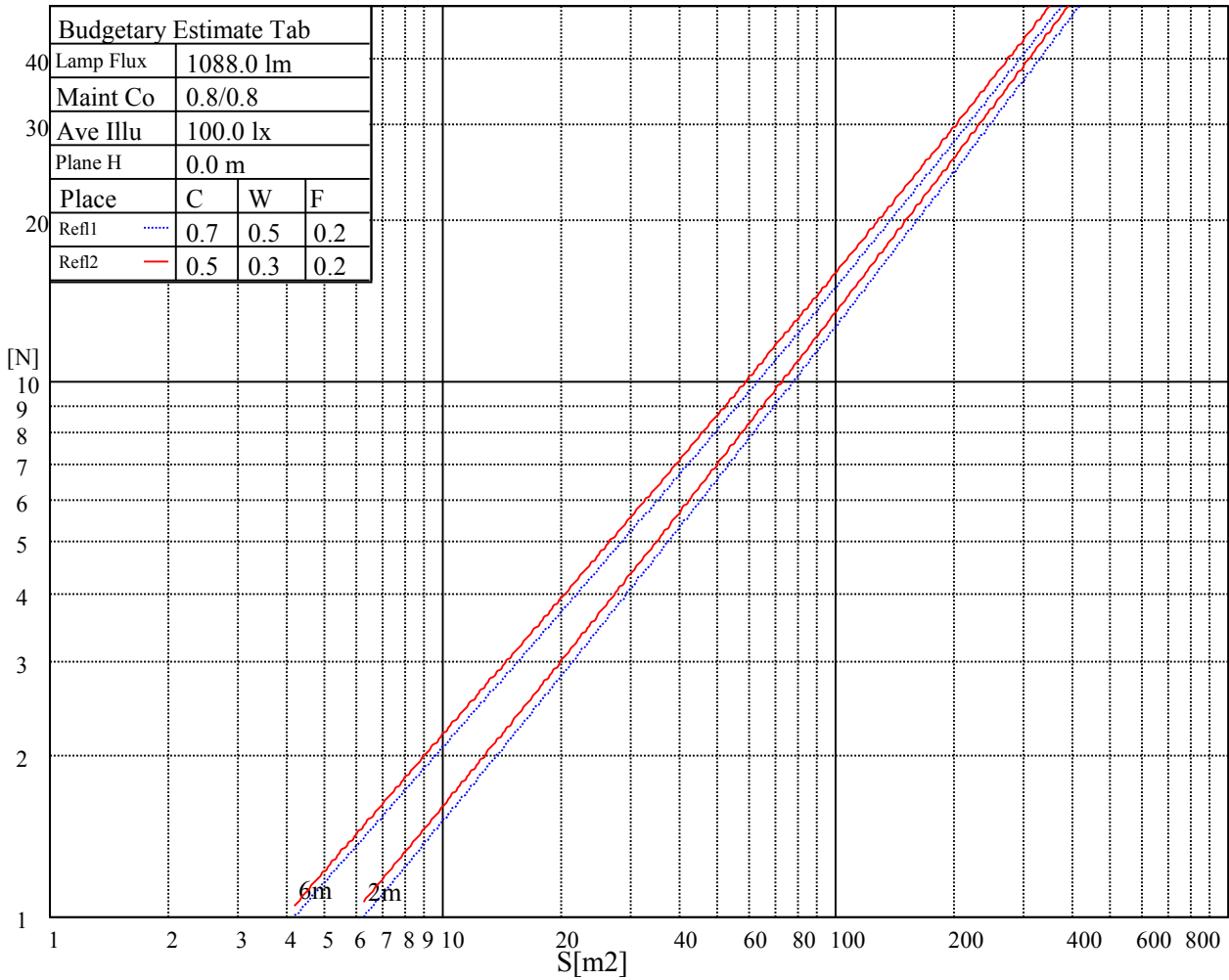
Glare Table

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

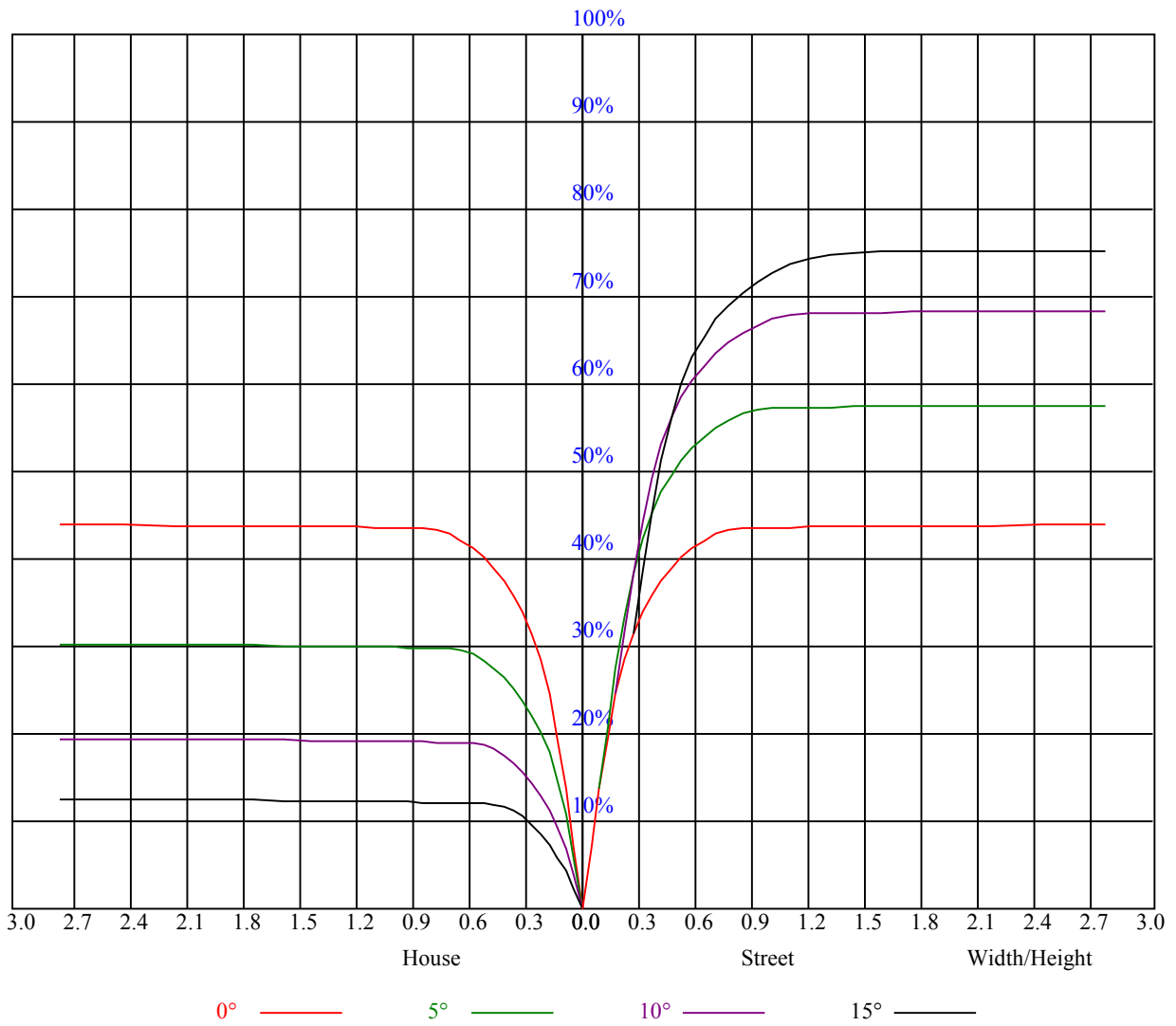
Luminance Limiting Curve



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	-0.61	0.30	-0.24	0.61	0.93	-0.50	0.41	-0.14	0.72	1.03
	3H	2.73	3.53	3.11	3.87	4.24	2.79	3.59	3.18	3.93	4.30
	4H	4.52	5.26	4.93	5.61	6.01	4.60	5.35	5.01	5.70	6.09
	6H	6.55	7.22	6.96	7.60	8.00	6.64	7.32	7.06	7.69	8.09
	8H	7.74	8.37	8.18	8.77	9.18	7.91	8.55	8.35	8.94	9.35
	12H	9.72	10.33	10.16	10.71	11.15	10.09	10.70	10.53	11.09	11.52
4H	2H	0.36	1.10	0.76	1.45	1.84	0.43	1.17	0.84	1.52	1.91
	3H	3.91	4.52	4.33	4.93	5.34	3.96	4.57	4.38	4.98	5.39
	4H	5.85	6.40	6.29	6.82	7.27	5.94	6.48	6.37	6.91	7.36
	6H	8.04	8.50	8.51	8.95	9.43	8.12	8.59	8.60	9.04	9.52
	8H	9.34	9.77	9.82	10.22	10.70	9.51	9.94	9.98	10.39	10.87
	12H	11.22	11.59	11.71	12.08	12.56	11.57	11.94	12.07	12.43	12.91
8H	4H	6.61	7.04	7.09	7.49	7.97	6.67	7.10	7.15	7.56	8.03
	6H	9.08	9.42	9.59	9.92	10.41	9.15	9.49	9.66	10.00	10.49
	8H	10.59	10.90	11.13	11.42	11.92	10.75	11.05	11.29	11.58	12.08
	12H	12.60	12.86	13.12	13.36	13.94	12.93	13.19	13.45	13.69	14.27
12H	4H	6.84	7.21	7.33	7.70	8.18	6.89	7.26	7.38	7.75	8.23
	6H	9.64	9.75	9.98	10.22	10.77	9.71	9.81	10.05	10.28	10.83
	8H	11.11	11.37	11.64	11.87	12.45	11.25	11.51	11.78	12.01	12.59
Variation with the observer position at spacings:											
S = 1.0H	5.3/-8.3					5.3/-8.3					
S = 1.5H	7.6/-6.2					7.6/-6.2					
S = 2.0H	8.9/-4.6					8.9/-4.6					
Standard tables:	BK3					BK3					
Uncorrected UGR	-3.8					-3.8					



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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	0.98	0.95	0.93	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.86	0.86	0.85	0.84	0.82
2	0.93	0.90	0.87	0.91	0.88	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.76
4	0.85	0.81	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.75	0.79	0.76	0.74	0.73
5	0.82	0.77	0.74	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.66
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61



NATA 4-1983-M

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	4035.94	3910.50	2870.44	1398.94	700.88	396.56	349.88	300.94	104.34
45.0	4068.56	3843.56	2678.06	1240.31	594.56	376.88	340.88	288.56	75.21
90.0	4087.69	3604.50	2224.13	1002.21	473.29	362.76	334.86	220.61	36.00
135.0	4081.50	3570.19	2279.81	1028.25	500.63	368.44	340.88	290.25	39.21
180.0	4035.94	3242.25	1693.13	783.56	424.97	355.56	331.88	159.69	10.52
225.0	4068.56	3436.31	1918.13	839.08	453.49	363.15	339.24	192.88	16.59
270.0	4087.69	3638.81	2302.88	1090.13	522.56	372.94	347.06	288.00	40.89
315.0	4081.50	3635.44	2334.38	1059.58	515.53	368.49	342.39	235.97	37.29
360.0	4035.94	3910.50	2870.44	1398.94	700.88	396.56	349.88	300.94	104.34

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	7.93	4.33	4.11	3.94	3.83	3.83	3.77	3.77	3.71
45.0	4.95	4.28	4.05	3.94	3.88	3.77	3.77	3.71	3.94
90.0	4.67	4.16	3.99	3.88	3.77	3.77	3.71	3.71	4.22
135.0	4.78	4.28	4.05	3.94	3.83	3.83	3.77	3.77	5.63
180.0	4.33	4.11	4.05	3.99	3.83	3.77	3.83	3.83	5.34
225.0	4.61	4.16	3.94	3.83	3.83	3.77	3.77	3.77	4.39
270.0	4.84	4.22	3.99	3.88	3.83	3.77	3.71	3.77	3.88
315.0	4.78	4.22	3.99	3.88	3.83	3.77	3.71	3.71	3.77
360.0	7.93	4.33	4.11	3.94	3.83	3.83	3.77	3.77	3.71

C/γ(°)	90.0
0.0	3.71
45.0	3.71
90.0	3.71
135.0	3.66
180.0	3.71
225.0	3.66
270.0	3.66
315.0	3.66
360.0	3.71