
Nata

LumCAT: 1689-M	
Luminaire: 92.70.124.00	
Report No: NT2017091501	Voltage(V): 35.4000
Test No: GC2017091501	Current(A): 0.3000
LampCAT: CITIZEN CLU026	Power (W): 10.6200
Lamp flux(lm): 1398.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1305.78
Efficiency(%): 93.40%
Lumens(lm)/Power(W): 122.96
Central intensity(cd): 1188.579
Maximum intensity(cd): 1188.579
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=68.3
[C90/270]Total=68.3
Field angle(10%Imax): [C0/180]Total=94.8
[C90/270]Total=94.8
Maximum s/h(1/2): C0_180=0.95 C90_270=0.95
Maximum s/h(1/4): C0_180=1.02 C90_270=1.02
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.40%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.704%

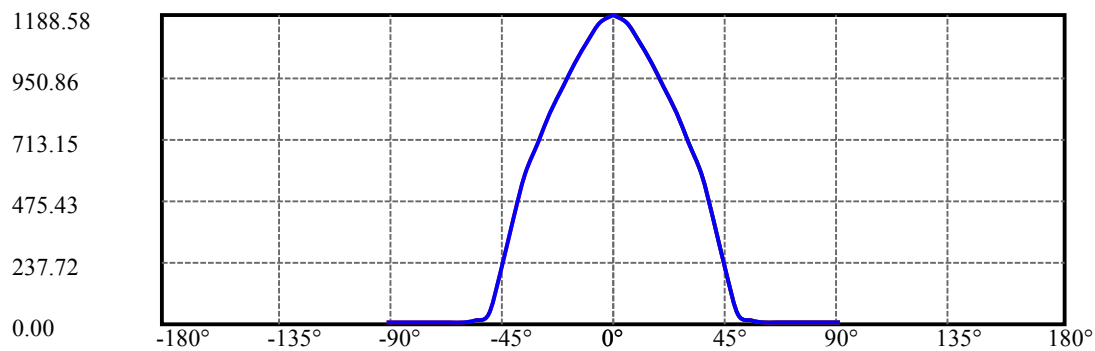
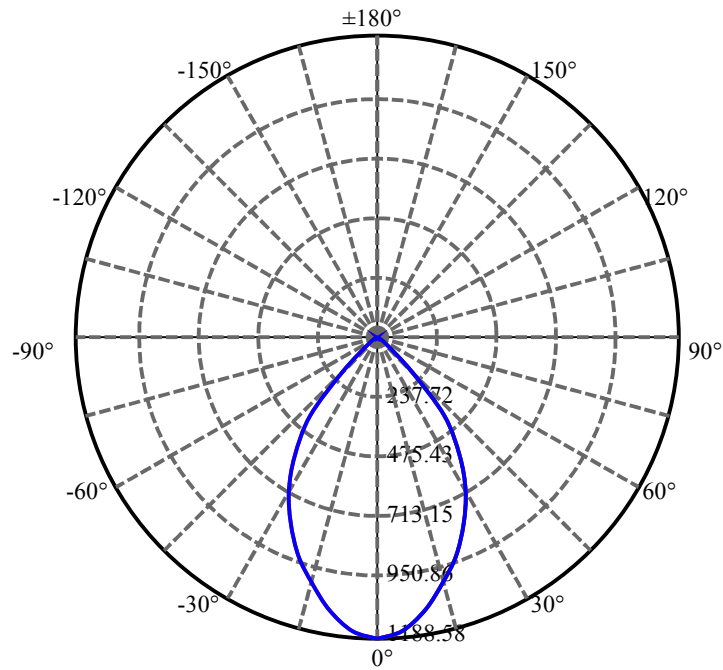
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1188.579	0.000	0	.000%	.000%
5.0	1159.863	28.075	28.075	2.008%	2.150%
10.0	1093.408	80.607	108.682	5.766%	8.323%
15.0	1001.722	124.282	232.963	8.890%	17.841%
20.0	915.984	158.046	391.009	11.305%	29.944%
25.0	814.190	181.463	572.472	12.980%	43.841%
30.0	698.664	191.453	763.925	13.695%	58.503%
35.0	573.330	187.310	951.235	13.398%	72.848%
40.0	406.410	163.462	1114.697	11.693%	85.366%
45.0	193.494	111.077	1225.774	7.945%	93.873%
50.0	38.184	46.814	1272.588	3.349%	97.458%
55.0	13.565	11.252	1283.84	.805%	98.319%
60.0	8.132	5.015	1288.855	.359%	98.704%
65.0	6.059	3.450	1292.305	.247%	98.968%
70.0	5.329	2.883	1295.189	.206%	99.189%
75.0	4.988	2.697	1297.885	.193%	99.395%
80.0	4.856	2.634	1300.519	.188%	99.597%
85.0	4.821	2.629	1303.148	.188%	99.798%
90.0	4.807	2.636	1305.785	.189%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	763.93	54.64%	58.50%
0-40	1114.70	79.74%	85.37%
0-60	1288.86	92.19%	98.70%
0-90	1303.15	93.22%	99.80%
0-120	1303.15	93.22%	99.80%
0-180	1305.78	93.40%	100.00%
60-90	19.31	1.38%	1.48%
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%
0-37.86	1044.63	74.72%	80.00%

ZONAL LUMEN SUMMARY

0-10	108.68
10-20	282.33
20-30	372.92
30-40	350.77
40-50	157.89
50-60	16.27
60-70	6.33
70-80	5.33
80-90	2.63
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:

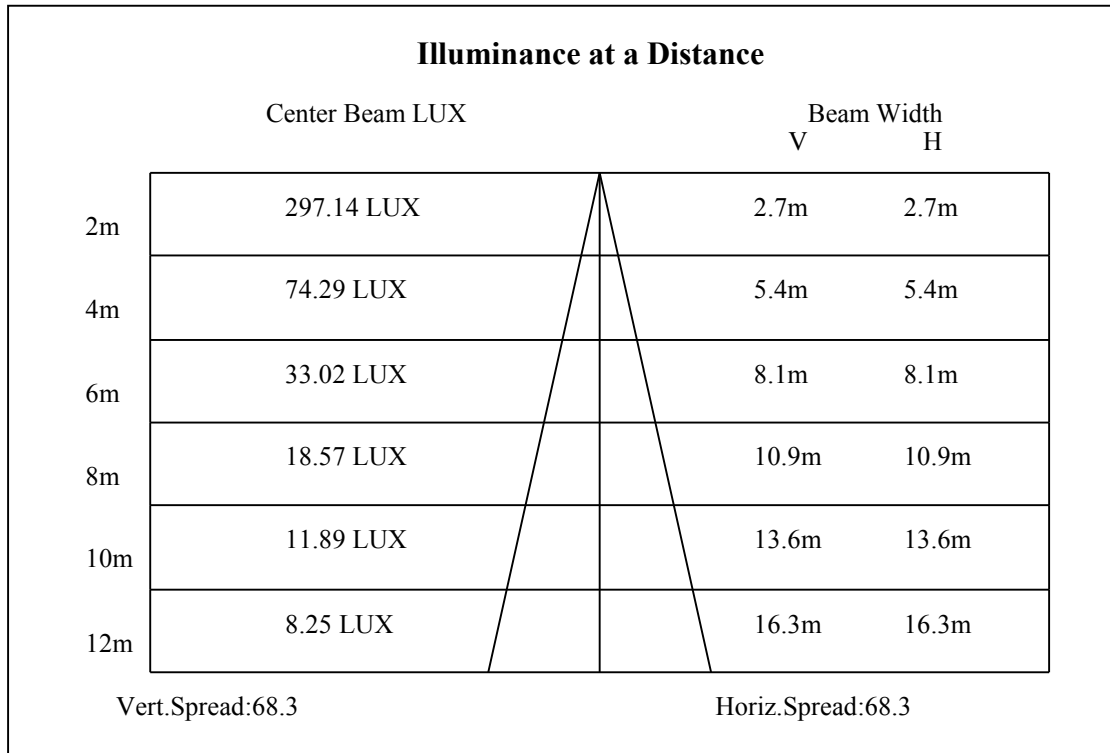
C90/C270:

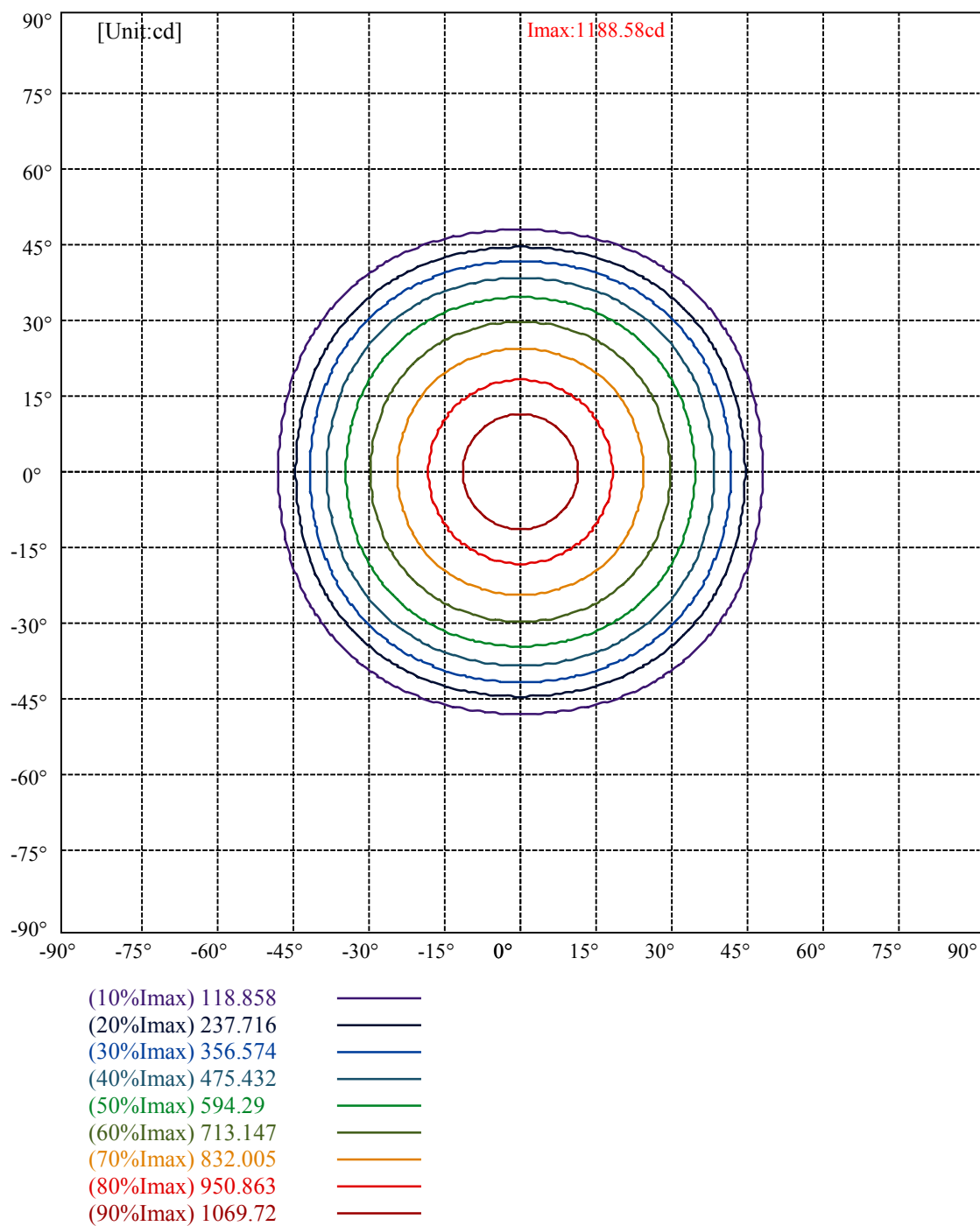
Field angle(10%Imax):C0/180Left:47.4 Right:47.4

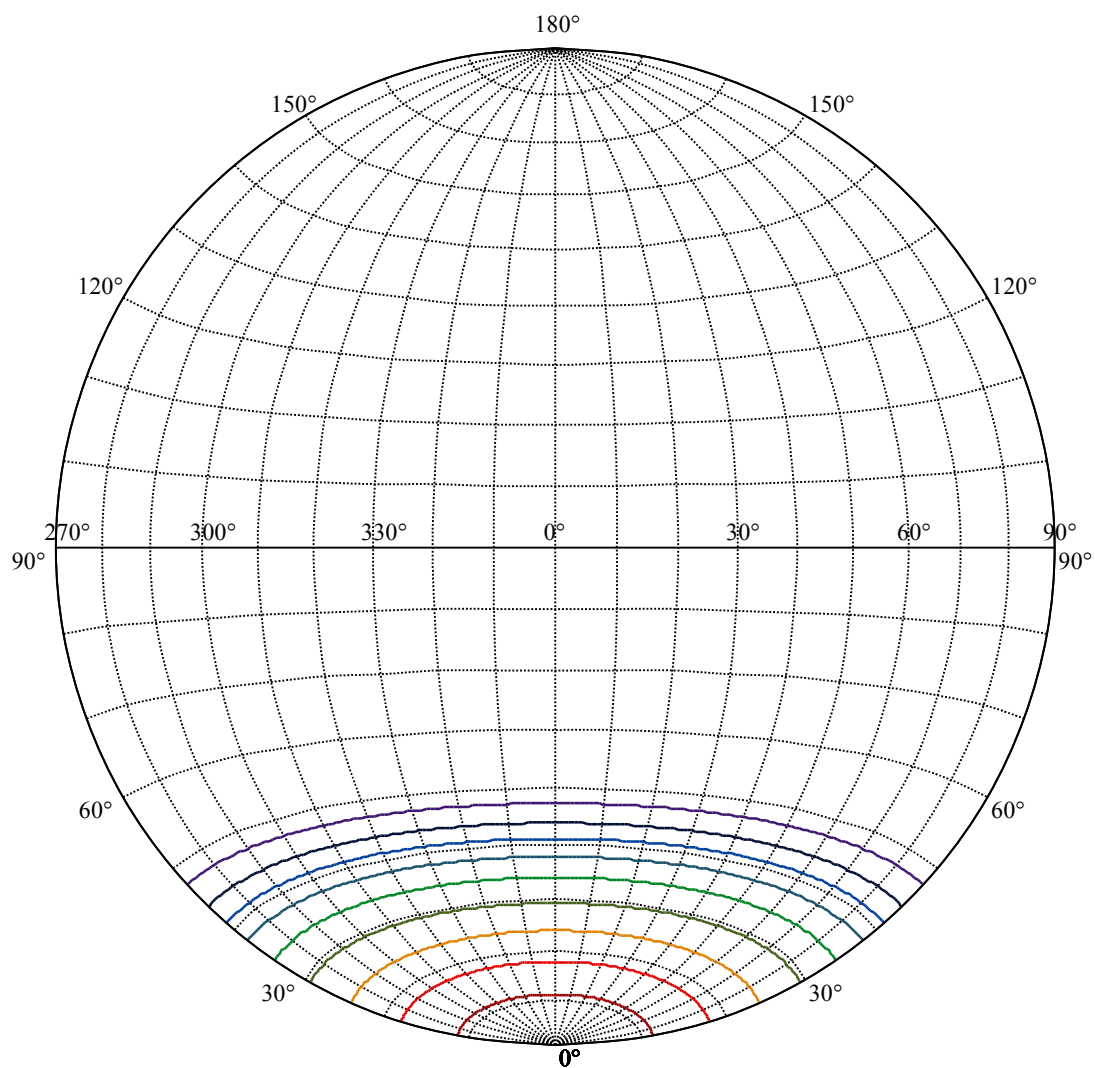
:C90/270Left:47.4 Right:47.4

Beam Angle(50%Imax):C0/180Left:34.2 Right:34.2

:C90/270Left:34.2 Right:34.2







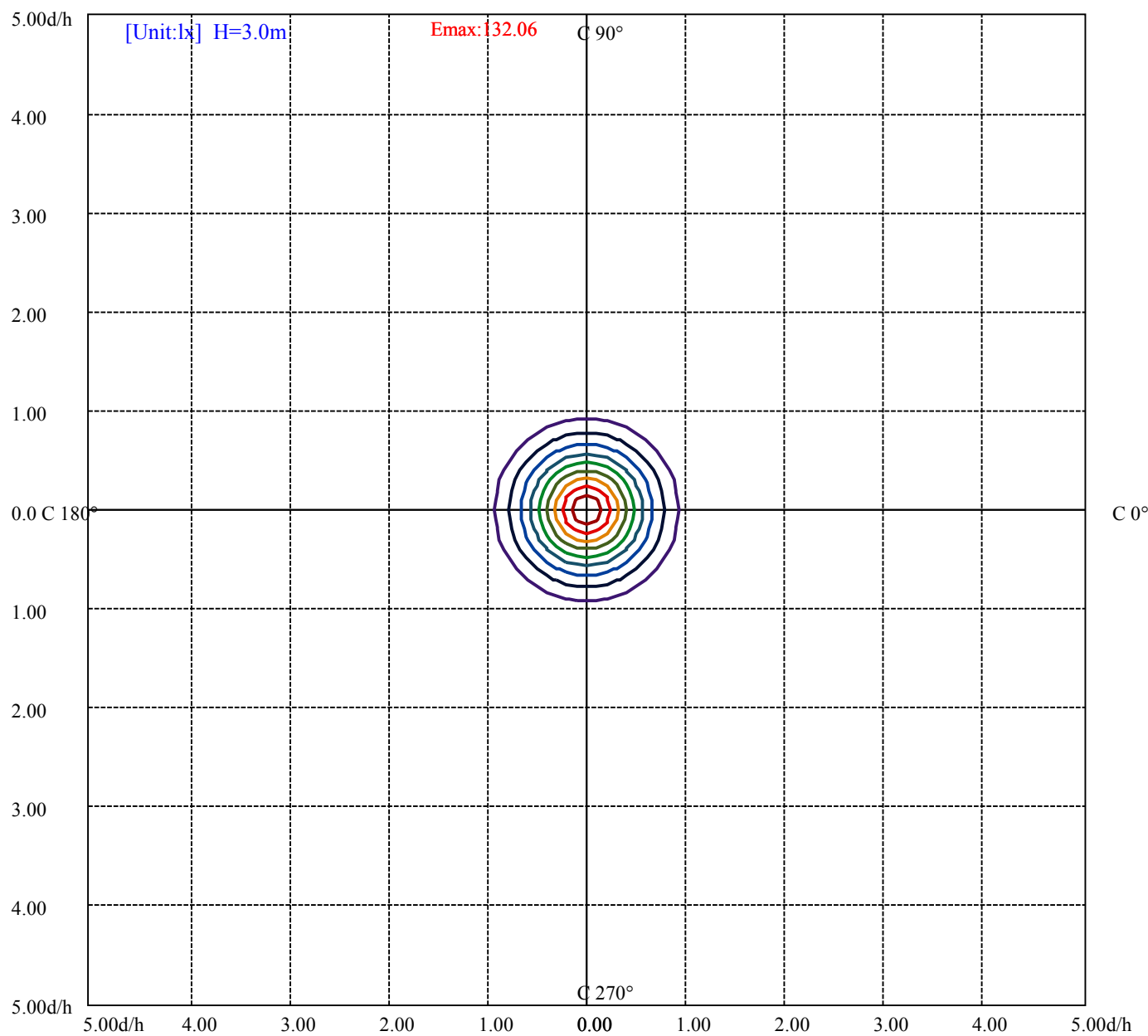
House

[Unit:cd]

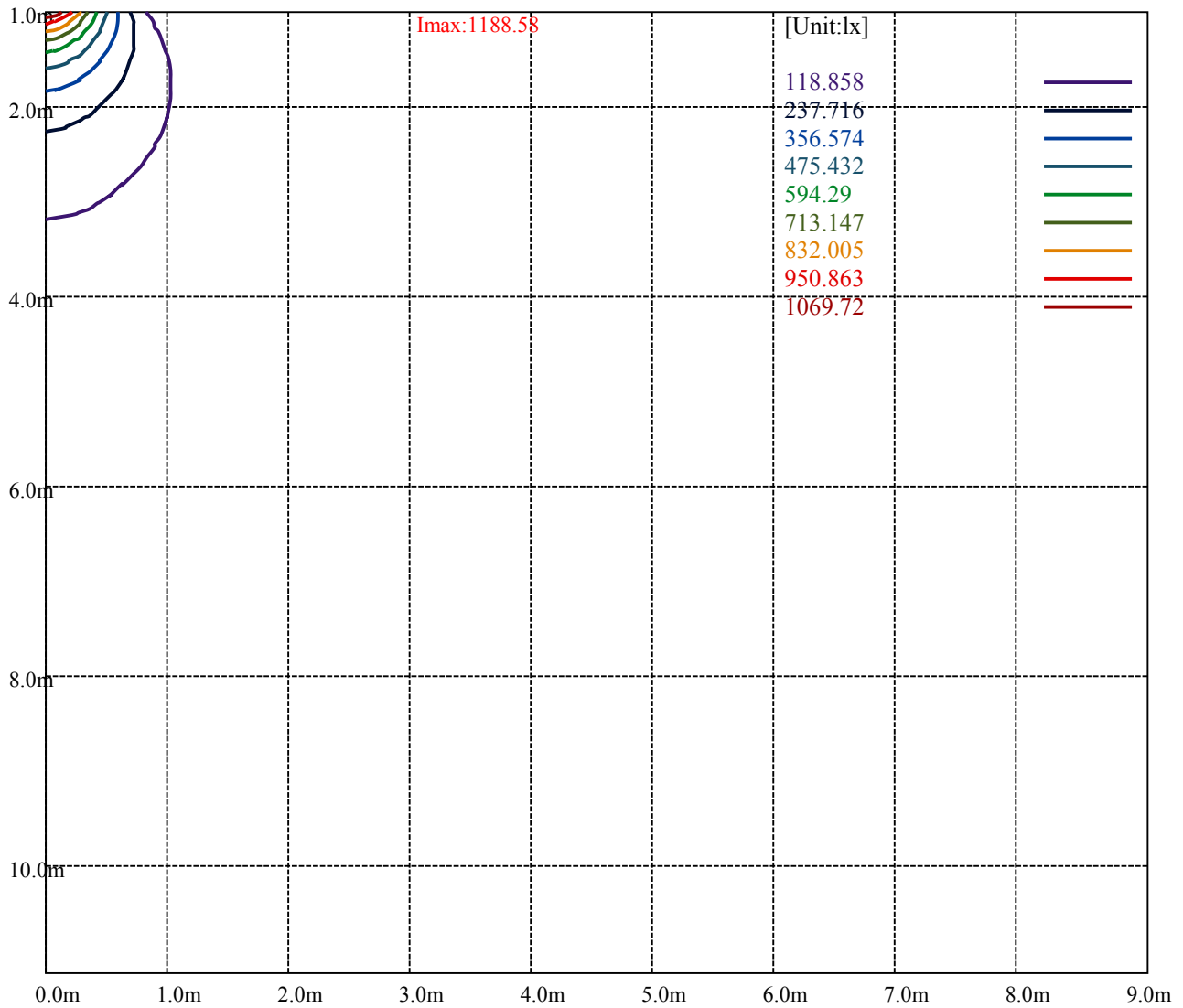
Road

Imax:1188.58

(10%Imax)	118.858	—
(20%Imax)	237.716	—
(30%Imax)	356.574	—
(40%Imax)	475.432	—
(50%Imax)	594.29	—
(60%Imax)	713.147	—
(70%Imax)	832.005	—
(80%Imax)	950.863	—
(90%Imax)	1069.72	—



(10%E _{max}) 13.20644	—
(20%E _{max}) 26.41289	—
(30%E _{max}) 39.61922	—
(40%E _{max}) 52.82567	—
(50%E _{max}) 66.03211	—
(60%E _{max}) 79.23856	—
(70%E _{max}) 92.445	—
(80%E _{max}) 105.6514	—
(90%E _{max}) 118.8578	—



Luminance Table

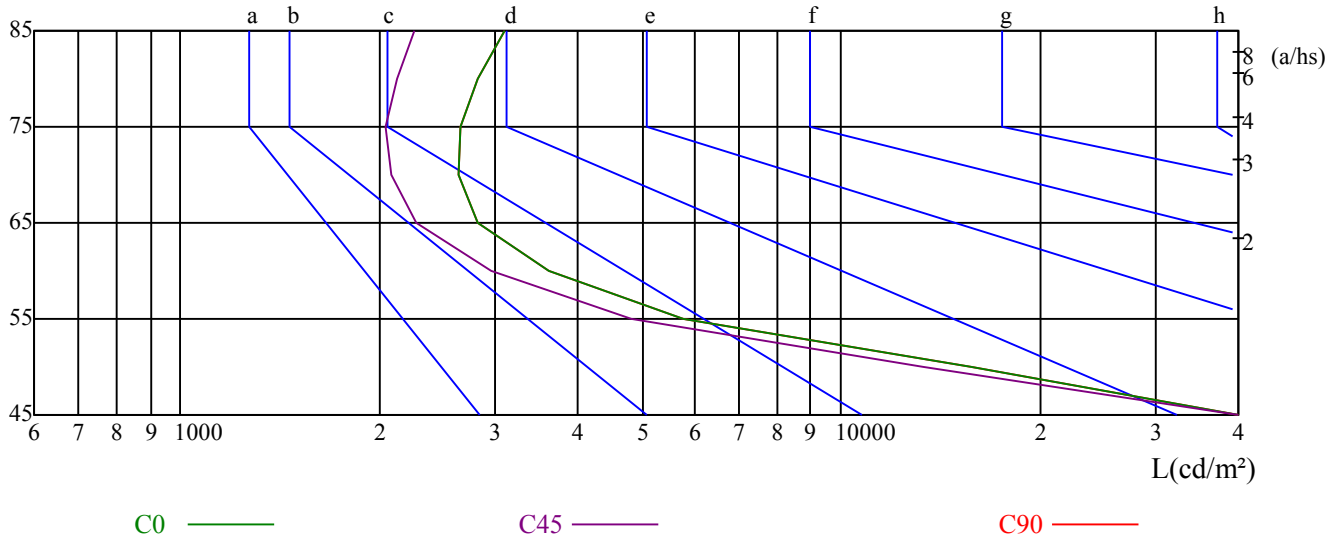
γ	45	50	55	60	65	70	75	80	85
C0	78273	15796	5787	3609	2825	2637	2652	2812	3092
C45	67273	13374	4823	2959	2275	2083	2050	2121	2265
C90	78273	15796	5787	3609	2825	2637	2652	2812	3092

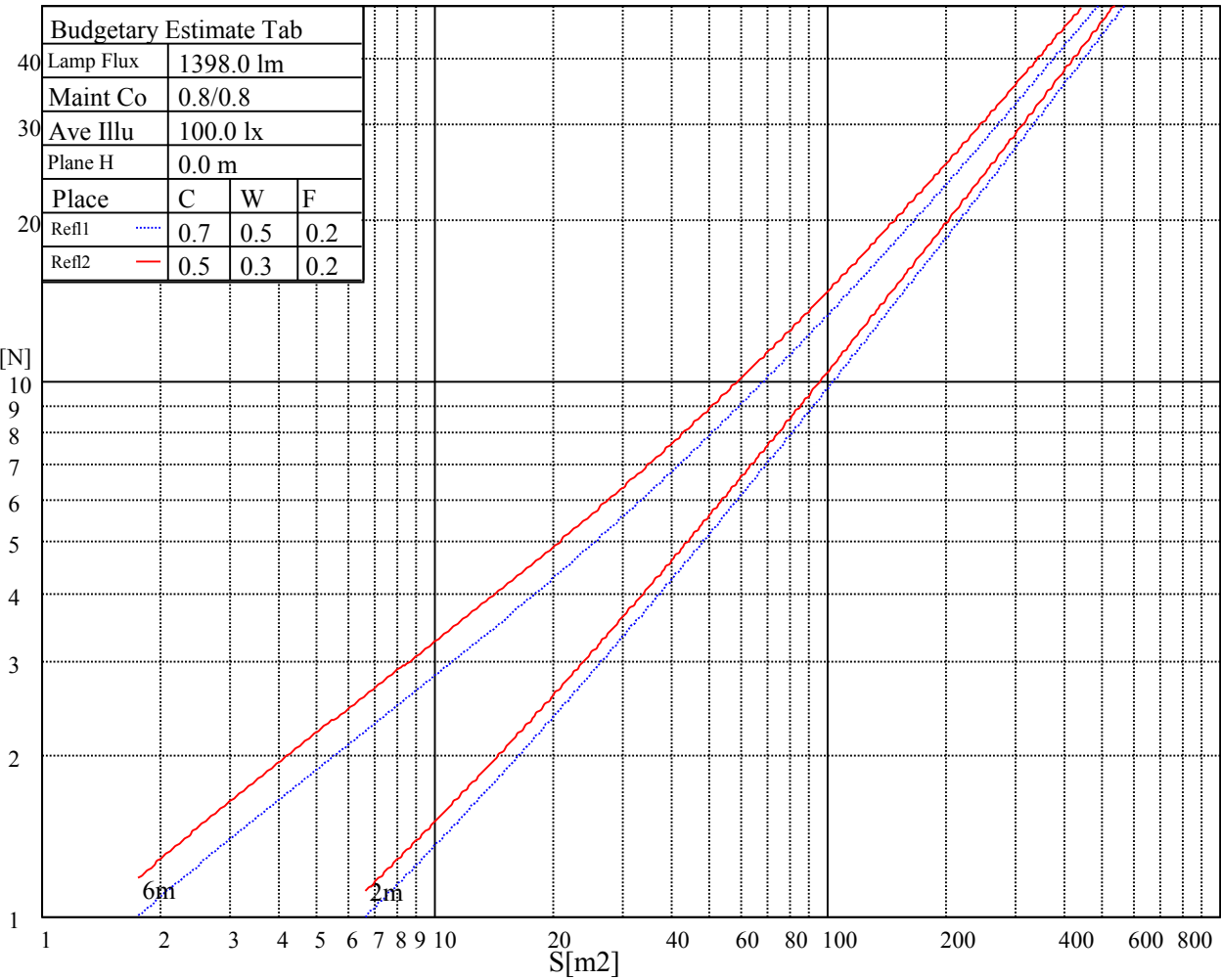
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6776	6776	6776	9107	9107	9107	26140	26140	26140

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

 $\gamma(^{\circ})$ 



RHOC	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	1.11	1.11	1.11	1.09	1.09	1.09	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.03	1.00	0.98	1.01	0.98	0.96	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.95	0.91	0.87	0.93	0.89	0.86	0.90	0.87	0.84	0.87	0.85	0.82	0.85	0.82	0.81	0.79
3	0.87	0.82	0.78	0.86	0.81	0.78	0.84	0.80	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.73
4	0.81	0.75	0.71	0.80	0.75	0.71	0.78	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.68	0.67
5	0.75	0.69	0.65	0.74	0.69	0.65	0.73	0.68	0.64	0.71	0.67	0.63	0.69	0.66	0.63	0.61
6	0.70	0.64	0.59	0.69	0.63	0.59	0.68	0.63	0.59	0.66	0.62	0.58	0.65	0.61	0.58	0.57
7	0.65	0.59	0.55	0.64	0.59	0.55	0.63	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.52
8	0.61	0.55	0.51	0.60	0.54	0.50	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.50	0.48
9	0.57	0.51	0.47	0.56	0.51	0.47	0.56	0.50	0.47	0.55	0.50	0.47	0.54	0.50	0.46	0.45
10	0.53	0.48	0.44	0.53	0.47	0.44	0.52	0.47	0.43	0.51	0.47	0.43	0.51	0.46	0.43	0.42

Nata 1689-M

Intensity data(cd)										Appendix Page: 13 Total:13	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	1185.38	1180.37	1125.28	1037.35	951.64	863.71	752.41	627.19	494.19		
45.0	1192.06	1170.91	1105.24	1012.30	918.25	822.53	711.78	592.69	452.45		
90.0	1186.49	1152.54	1065.34	968.00	876.96	768.94	655.97	546.33	358.01		
135.0	1190.39	1153.10	1082.42	987.26	898.77	791.37	675.05	558.19	371.75		
180.0	1185.38	1108.13	1059.61	961.55	873.84	767.88	645.45	514.33	316.32		
225.0	1192.06	1162.56	1086.99	992.10	907.62	791.25	683.96	553.90	366.91		
270.0	1186.49	1175.36	1116.93	1032.89	952.20	856.48	734.04	598.81	447.44		
315.0	1190.39	1175.92	1105.46	1022.32	948.58	851.36	730.65	595.19	444.21		
360.0	1185.38	1180.37	1125.28	1037.35	951.64	863.71	752.41	627.19	494.19		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	288.83	70.34	20.54	11.19	7.35	5.73	5.18	4.84	4.84		
45.0	285.49	44.02	16.86	9.29	6.40	5.34	4.95	4.73	4.73		
90.0	126.27	33.95	13.80	8.51	6.18	5.40	4.95	4.84	4.79		
135.0	129.50	35.45	15.14	9.52	6.79	5.68	5.18	5.01	4.84		
180.0	91.10	23.65	10.52	7.29	5.68	5.18	4.84	4.79	4.84		
225.0	141.86	26.71	8.79	6.07	5.18	5.01	4.84	4.79	4.79		
270.0	282.71	36.56	10.18	6.07	5.29	5.06	4.95	4.84	4.79		
315.0	202.18	34.78	12.69	7.12	5.62	5.23	5.01	5.01	4.95		
360.0	288.83	70.34	20.54	11.19	7.35	5.73	5.18	4.84	4.84		
C/ γ (°)	90.0										
0.0	4.84										
45.0	4.79										
90.0	4.79										
135.0	4.79										
180.0	4.84										
225.0	4.79										
270.0	4.79										
315.0	4.84										
360.0	4.84										