



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

---

## NATA

---

Client:

LumCAT: 2-1678-M

Luminaire: 92.70.127.00

Report No: nt0100

Test No: GC2019122707

LampCAT: LUMINUS CLM-9-AA40

Lamp flux(lm): 1312.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 216.9000

Current(A): 0.1040

Power (W): 12.1000

PF: 0.5350

Ballast type: DC

Width(mm): 0

Height(mm): 0

---

## Photometric Results

---

Lumens(lm): 1193.71, Efficiency(%): 90.98% , Luminous Efficacy(lm/W): 98.65

Central intensity(cd): 12441.090, Maximum intensity(cd): 12441.090

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=11.8

[C90/270]Total=11.8

Field angle(10%Imax): [C0/180]Total=22.6

[C90/270]Total=22.6

Maximum s/h(1/2): C0\_180=0.20 C90\_270=0.20

Maximum s/h(1/4): C0\_180=0.20 C90\_270=0.20

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.98%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.628%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12441.094	0.000	0	.000%	.000%
1.0	12138.891	11.761	11.761	.896%	.985%
2.0	11616.188	34.096	45.857	2.599%	3.842%
3.0	10652.203	53.259	99.115	4.059%	8.303%
4.0	9356.203	66.975	166.09	5.105%	13.914%
5.0	7743.938	73.564	239.654	5.607%	20.076%
6.0	6009.117	72.276	311.93	5.509%	26.131%
7.0	4540.148	65.479	377.409	4.991%	31.616%
8.0	3357.914	56.525	433.934	4.308%	36.352%
9.0	2436.469	46.960	480.894	3.579%	40.286%
10.0	1853.191	38.820	519.714	2.959%	43.538%
11.0	1317.452	31.681	551.395	2.415%	46.192%
12.0	1068.827	26.085	577.481	1.988%	48.377%
13.0	889.530	23.241	600.721	1.771%	50.324%
14.0	772.566	21.275	621.996	1.622%	52.106%
15.0	696.431	20.167	642.163	1.537%	53.796%
16.0	646.959	19.684	661.847	1.500%	55.445%
17.0	606.101	19.514	681.361	1.487%	57.079%
18.0	578.988	19.540	700.901	1.489%	58.716%
19.0	559.948	19.815	720.716	1.510%	60.376%
20.0	542.489	20.178	740.893	1.538%	62.066%
21.0	528.553	20.566	761.46	1.568%	63.789%
22.0	517.620	21.023	782.483	1.602%	65.551%
23.0	506.995	21.499	803.982	1.639%	67.352%
24.0	496.962	21.950	825.932	1.673%	69.190%
25.0	488.412	22.405	848.337	1.708%	71.067%
26.0	480.122	22.862	871.2	1.743%	72.983%
27.0	472.099	23.296	894.496	1.776%	74.934%
28.0	463.500	23.687	918.183	1.805%	76.918%
29.0	454.781	24.025	942.208	1.831%	78.931%
30.0	446.323	24.330	966.538	1.854%	80.969%
31.0	437.843	24.605	991.143	1.875%	83.030%
32.0	429.469	24.847	1015.99	1.894%	85.112%
33.0	416.805	24.932	1040.922	1.900%	87.201%
34.0	393.398	24.519	1065.441	1.869%	89.255%
35.0	352.990	23.180	1088.621	1.767%	91.196%
36.0	301.901	20.852	1109.473	1.589%	92.943%
37.0	250.031	18.001	1127.474	1.372%	94.451%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	189.408	14.668	1142.142	1.118%	95.680%
39.0	123.047	10.665	1152.807	.813%	96.573%
40.0	76.774	6.969	1159.776	.531%	97.157%
41.0	41.653	4.217	1163.993	.321%	97.511%
42.0	20.440	2.256	1166.249	.172%	97.700%
43.0	12.825	1.232	1167.481	.094%	97.803%
44.0	9.745	0.852	1168.333	.065%	97.874%
45.0	8.163	0.688	1169.021	.052%	97.932%
46.0	7.474	0.612	1169.633	.047%	97.983%
47.0	7.088	0.579	1170.212	.044%	98.032%
48.0	6.912	0.566	1170.778	.043%	98.079%
49.0	6.764	0.562	1171.339	.043%	98.126%
50.0	6.595	0.557	1171.896	.042%	98.173%
51.0	6.469	0.553	1172.449	.042%	98.219%
52.0	6.370	0.551	1173	.042%	98.265%
53.0	6.237	0.548	1173.548	.042%	98.311%
54.0	6.138	0.545	1174.094	.042%	98.357%
55.0	6.033	0.543	1174.637	.041%	98.402%
56.0	5.948	0.541	1175.179	.041%	98.448%
57.0	5.843	0.539	1175.718	.041%	98.493%
58.0	5.766	0.537	1176.255	.041%	98.538%
59.0	5.709	0.536	1176.791	.041%	98.583%
60.0	5.646	0.536	1177.328	.041%	98.628%
61.0	5.569	0.535	1177.863	.041%	98.672%
62.0	5.541	0.535	1178.398	.041%	98.717%
63.0	5.463	0.535	1178.933	.041%	98.762%
64.0	5.442	0.535	1179.468	.041%	98.807%
65.0	5.414	0.537	1180.006	.041%	98.852%
66.0	5.372	0.538	1180.544	.041%	98.897%
67.0	5.330	0.538	1181.082	.041%	98.942%
68.0	5.309	0.539	1181.621	.041%	98.987%
69.0	5.280	0.540	1182.161	.041%	99.033%
70.0	5.252	0.541	1182.702	.041%	99.078%
71.0	5.238	0.542	1183.244	.041%	99.123%
72.0	5.217	0.544	1183.788	.041%	99.169%
73.0	5.210	0.545	1184.333	.042%	99.214%
74.0	5.182	0.546	1184.879	.042%	99.260%
75.0	5.161	0.546	1185.426	.042%	99.306%

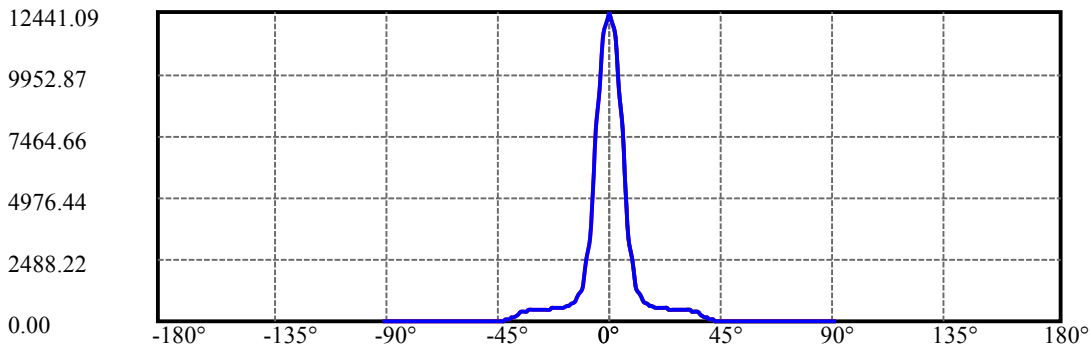
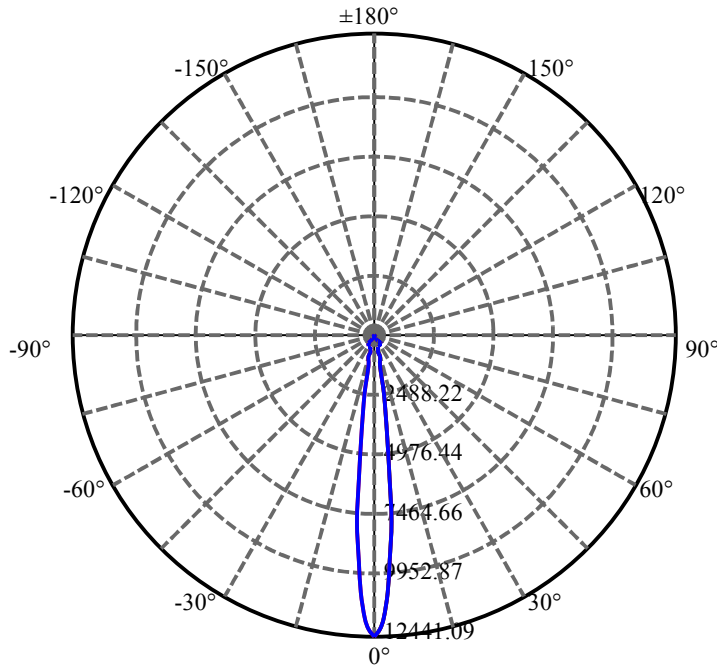
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.168	0.548	1185.974	.042%	99.352%
77.0	5.147	0.550	1186.524	.042%	99.398%
78.0	5.126	0.550	1187.074	.042%	99.444%
79.0	5.126	0.551	1187.625	.042%	99.490%
80.0	5.105	0.552	1188.176	.042%	99.536%
81.0	5.091	0.551	1188.728	.042%	99.583%
82.0	5.091	0.552	1189.28	.042%	99.629%
83.0	5.084	0.553	1189.833	.042%	99.675%
84.0	5.091	0.554	1190.387	.042%	99.722%
85.0	5.077	0.555	1190.942	.042%	99.768%
86.0	5.070	0.555	1191.497	.042%	99.815%
87.0	5.041	0.553	1192.05	.042%	99.861%
88.0	5.041	0.552	1192.602	.042%	99.907%
89.0	5.055	0.553	1193.156	.042%	99.954%
90.0	5.048	0.554	1193.71	.042%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	966.54	73.67%	80.97%
0-40	1159.78	88.40%	97.16%
0-60	1177.33	89.74%	98.63%
0-90	1193.16	90.94%	99.95%
0-120	1193.16	90.94%	99.95%
0-180	1193.71	90.98%	100.00%
60-90	16.36	1.25%	1.37%
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%
0-29.52	954.97	72.79%	80.00%

ZONAL LUMEN SUMMARY

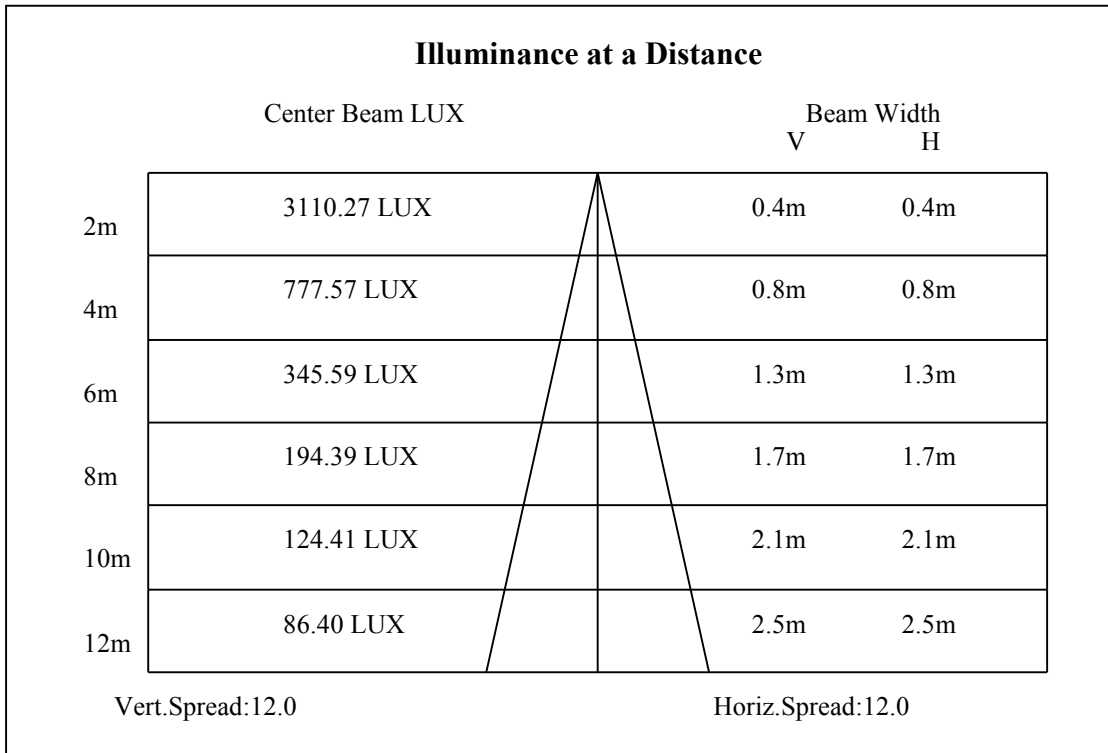
0-10	519.71
10-20	221.18
20-30	225.64
30-40	193.24
40-50	12.12
50-60	5.43
60-70	5.37
70-80	5.47
80-90	4.98
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

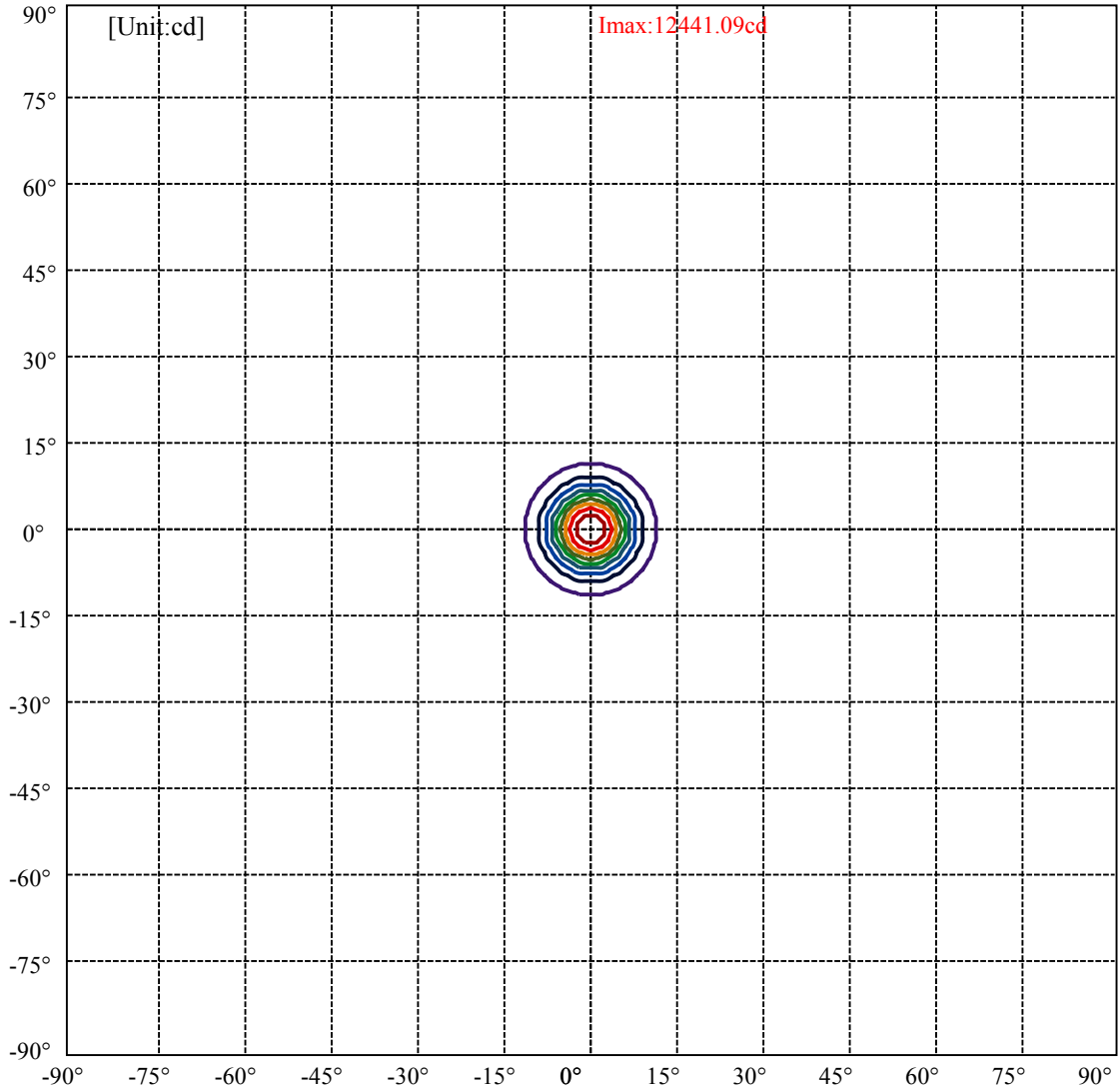


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:11.3 Right:11.3  
:C90/270Left:11.3 Right:11.3

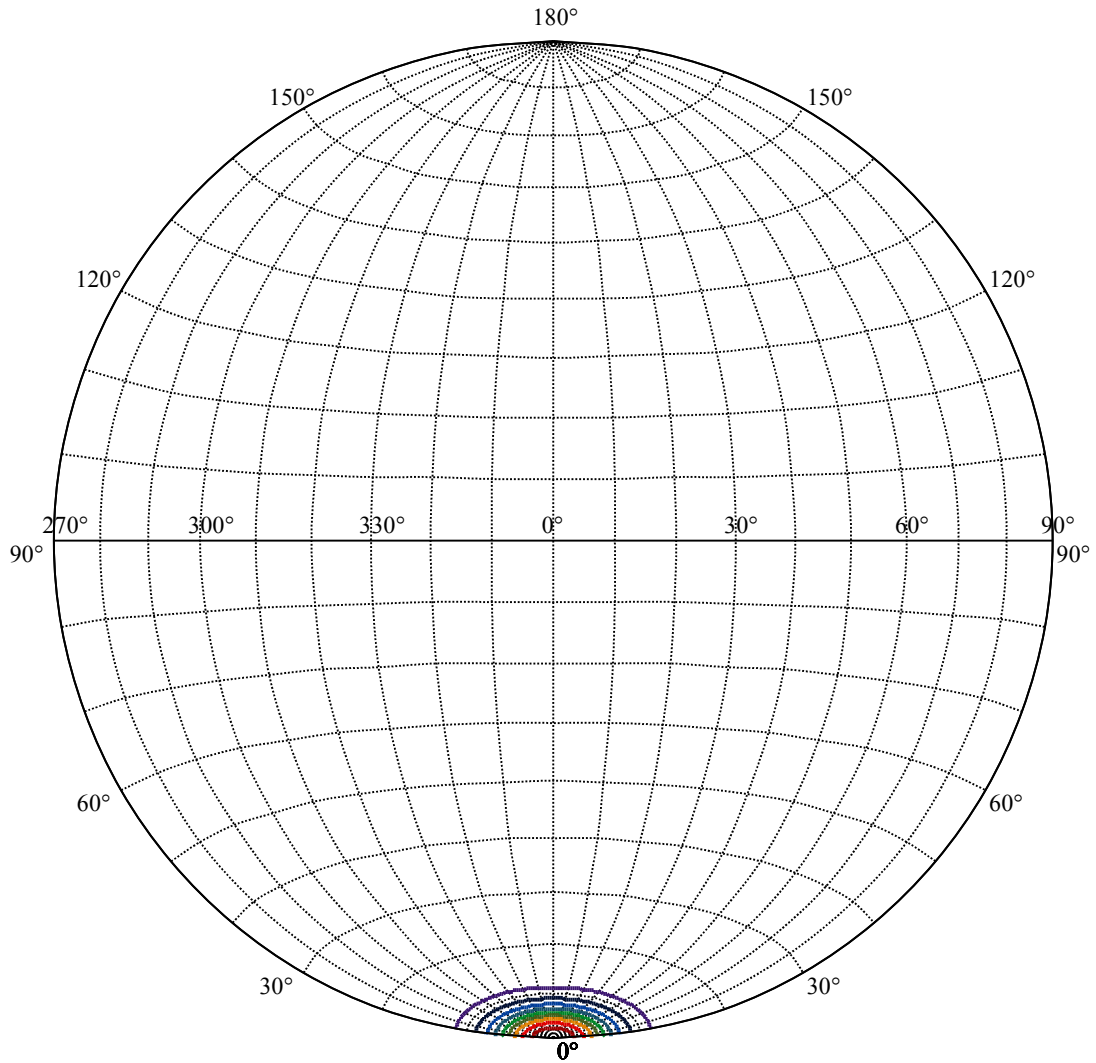
Beam Angle(50%Imax):C0/180Left:5.9 Right:5.9  
:C90/270Left:5.9 Right:5.9





(10%Imax) 1244.11	—
(20%Imax) 2488.22	—
(30%Imax) 3732.33	—
(40%Imax) 4976.44	—
(50%Imax) 6220.55	—
(60%Imax) 7464.66	—
(70%Imax) 8708.76	—
(80%Imax) 9952.87	—
(90%Imax) 11197	—





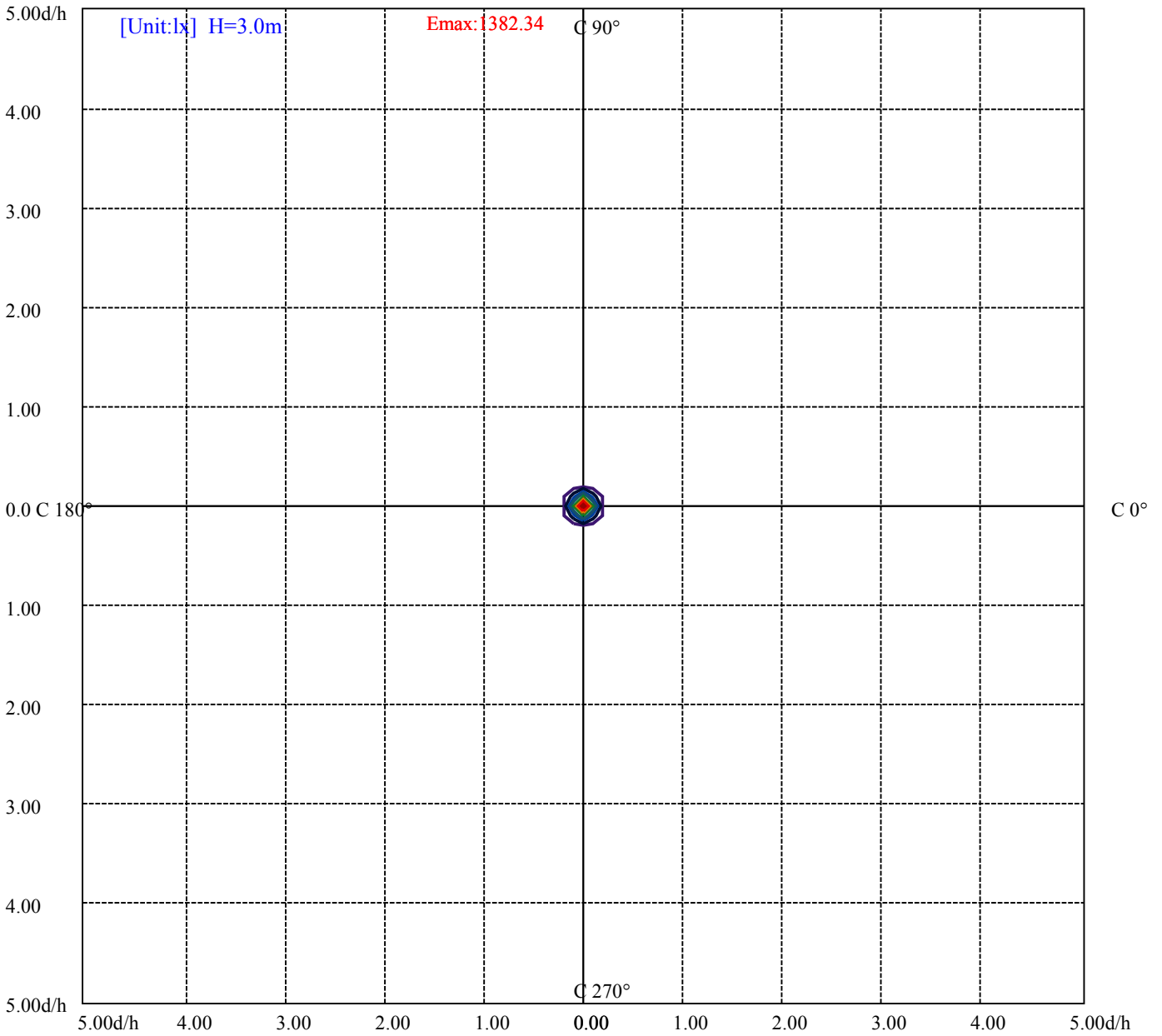
House

[Unit:cd]

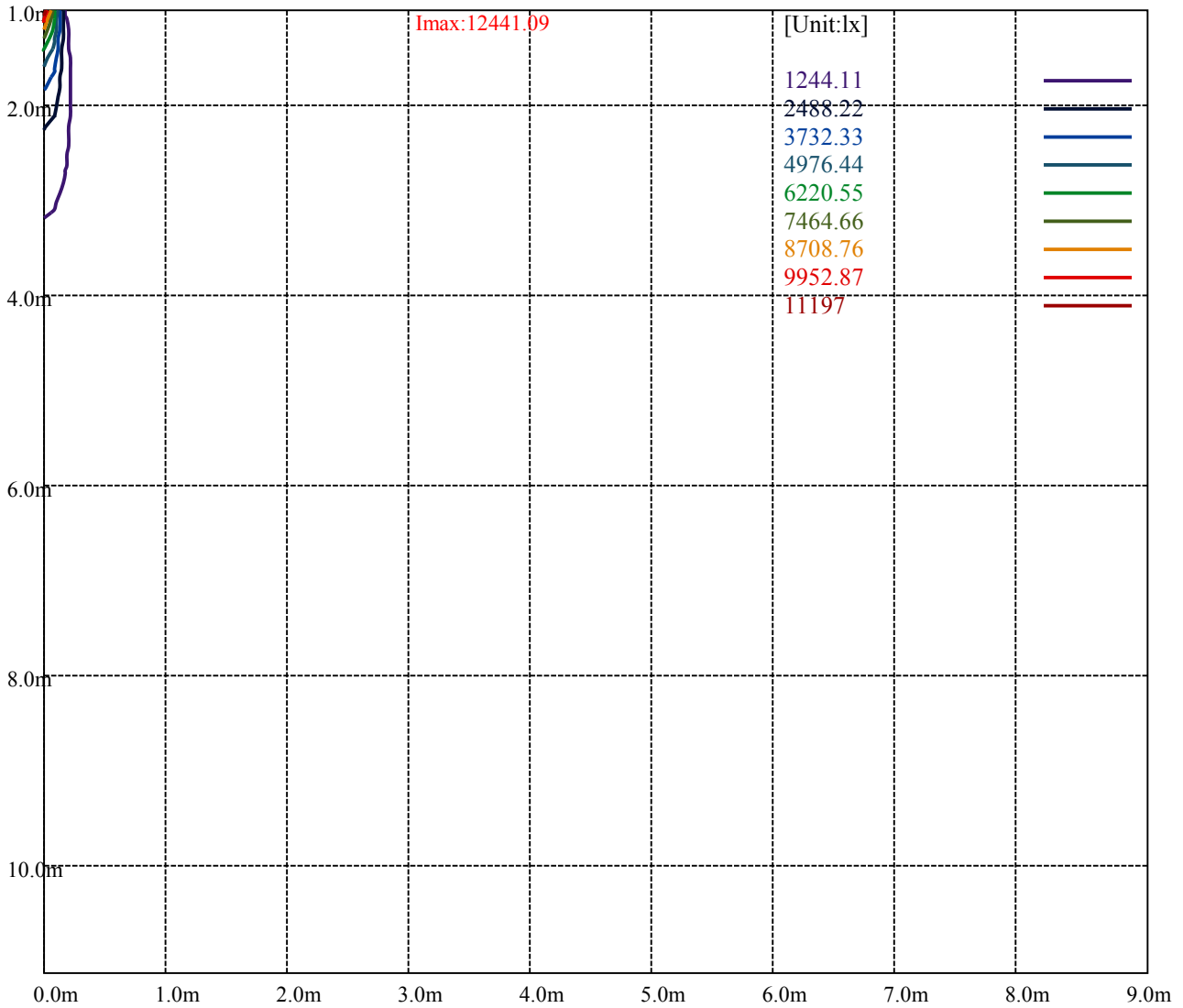
Road

**Imax:12441.09**

(10%Imax)	1244.11	—
(20%Imax)	2488.22	—
(30%Imax)	3732.33	—
(40%Imax)	4976.44	—
(50%Imax)	6220.55	—
(60%Imax)	7464.66	—
(70%Imax)	8708.76	—
(80%Imax)	9952.87	—
(90%Imax)	11197	—



- (10%Emax) 138.2333
- (20%Emax) 276.4678
- (30%Emax) 414.7011
- (40%Emax) 552.9355
- (50%Emax) 691.1689
- (60%Emax) 829.4033
- (70%Emax) 967.6367
- (80%Emax) 1105.871
- (90%Emax) 1244.1



Luminance Table

$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

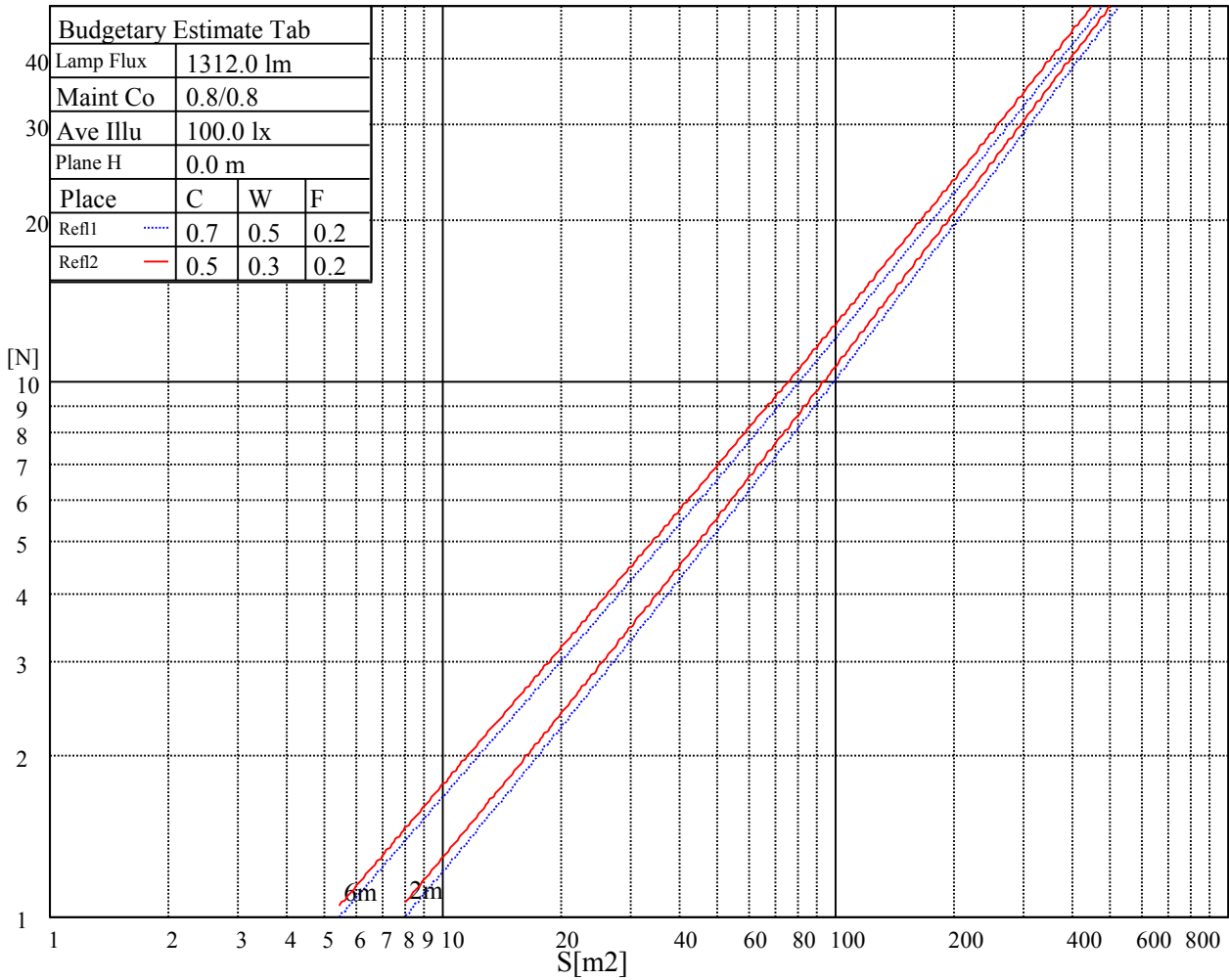
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

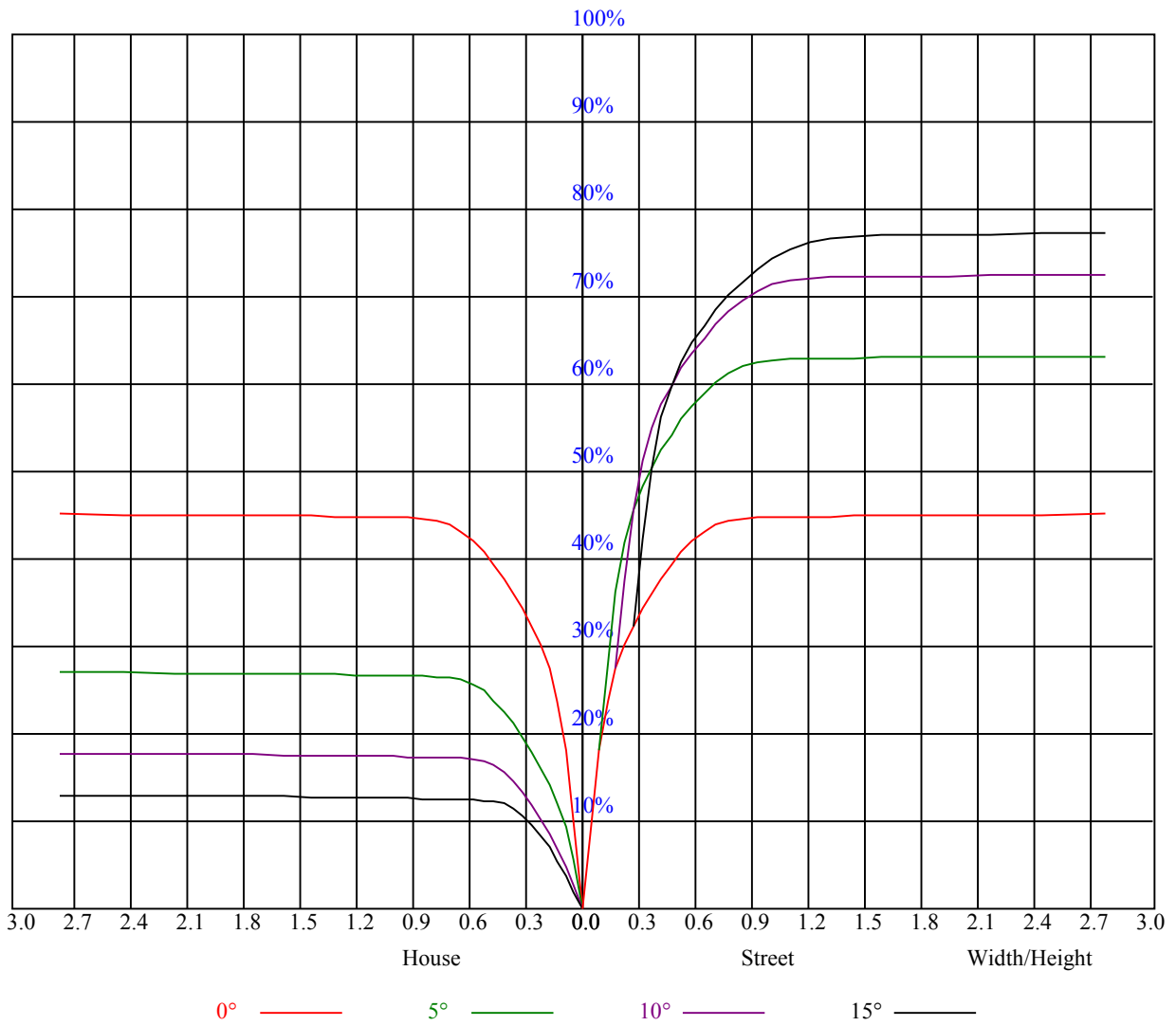
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

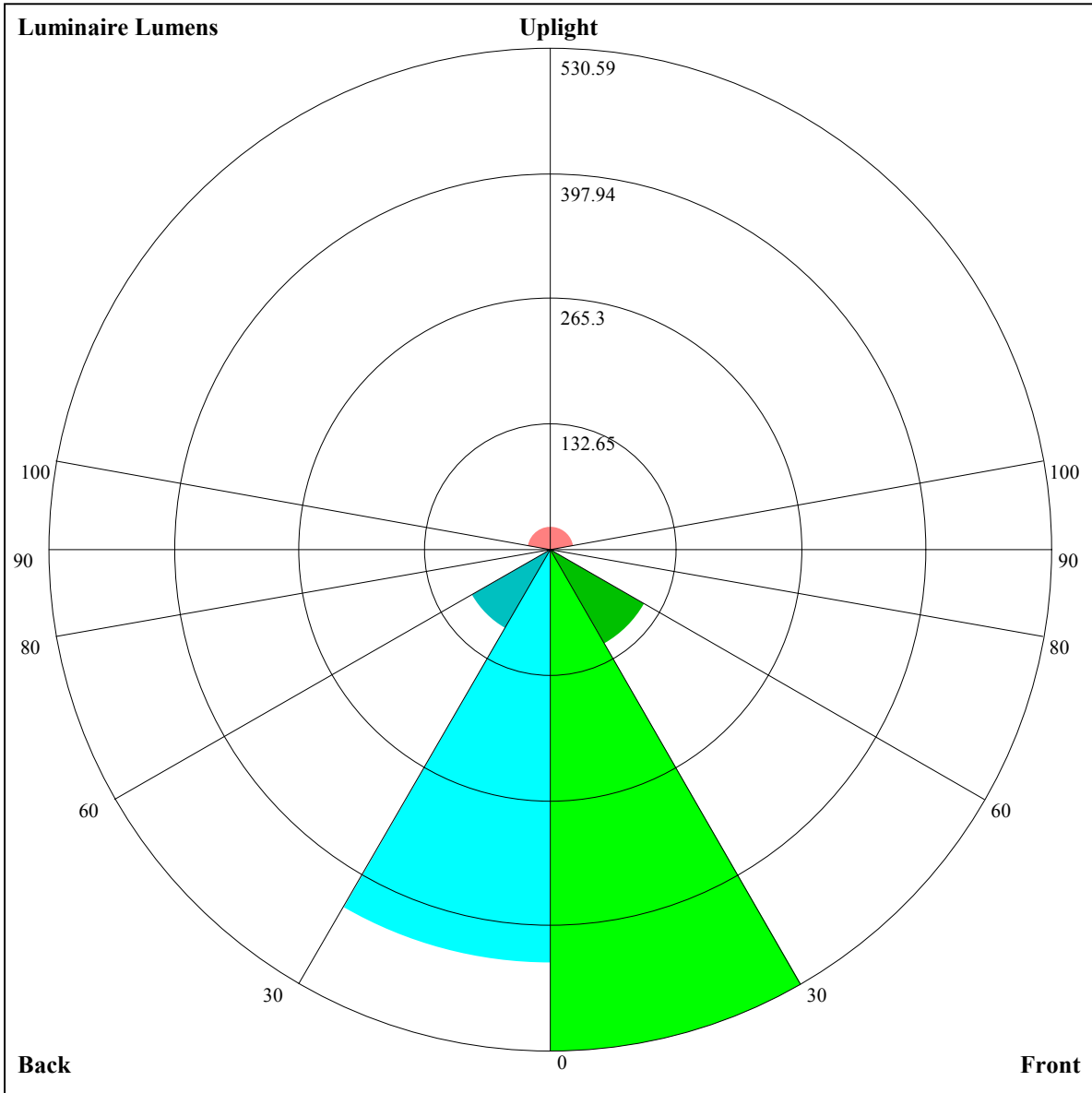
Luminance Limiting Curve





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	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.02	1.00	0.98	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87
2	0.97	0.94	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.85	0.83
3	0.92	0.88	0.85	0.91	0.87	0.85	0.88	0.86	0.83	0.86	0.84	0.82	0.84	0.83	0.81	0.80
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
5	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.74
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	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.69
8	0.75	0.71	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.67
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63





Luminaire Lumens:

FL=530.59,FM=115.67,FH=5.46,FVH=2.77

BL=438.62,BM=96.23,BH=5.4,BVH=2.77

UL=5.51,UH=26.21

BUG Rating:B1-U2-G0



Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	12341.25	12622.50	12571.88	12206.25	11610.00	10136.25	8381.25	6930.00	4978.13
45.0	12386.25	12673.13	12555.00	12127.50	11176.88	9939.38	8195.63	6294.38	4736.25
90.0	12515.63	12369.38	11193.75	10789.31	9442.13	7854.75	5973.75	4274.44	3109.50
135.0	12521.25	12324.38	11548.13	10440.00	8960.63	6885.00	5248.13	3847.50	2902.50
180.0	12341.25	11136.94	10530.56	8830.13	7134.19	5500.13	3753.56	2708.44	1974.94
225.0	12386.25	11217.94	10798.31	9057.94	7447.50	5826.38	4088.25	3025.69	2221.31
270.0	12515.63	12296.25	11677.50	10681.88	9180.00	7408.13	5850.00	4325.63	3251.25
315.0	12521.25	12470.63	12054.38	11084.63	9898.31	8401.50	6582.38	4915.13	3689.44
360.0	12341.25	12622.50	12571.88	12206.25	11610.00	10136.25	8381.25	6930.00	4978.13
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3549.38	2919.38	1869.19	1435.50	1116.56	917.44	798.75	719.44	650.81
45.0	3363.75	2981.25	1730.25	1342.69	1038.38	883.13	776.25	705.38	643.50
90.0	2148.19	1560.38	1109.08	969.41	852.64	746.61	671.51	634.61	604.07
135.0	1895.06	1444.50	1118.25	933.19	798.75	711.00	657.56	613.13	581.63
180.0	1446.19	1116.39	931.16	798.64	710.55	657.79	613.74	586.46	563.79
225.0	1564.31	1114.76	1015.31	867.83	746.44	684.39	633.94	602.61	577.07
270.0	2908.13	1819.13	1330.88	1084.50	915.75	776.81	704.25	653.06	606.94
315.0	2616.75	1869.75	1435.50	1118.87	937.18	803.36	715.44	660.99	621.00
360.0	3549.38	2919.38	1869.19	1435.50	1116.56	917.44	798.75	719.44	650.81
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	614.25	587.81	563.06	547.31	533.81	520.88	509.06	500.06	490.50
45.0	609.75	584.44	561.38	547.31	534.38	521.44	509.63	500.63	491.06
90.0	573.13	557.61	542.81	525.83	516.71	507.49	497.93	489.04	481.39
135.0	559.69	540.56	522.00	510.75	501.19	491.06	482.63	475.31	467.44
180.0	545.51	531.96	519.92	506.08	495.79	486.39	475.65	467.78	460.13
225.0	560.19	544.61	533.03	521.16	510.30	501.24	491.68	482.85	475.09
270.0	581.06	563.06	543.38	531.56	521.44	510.19	502.31	494.44	486.00
315.0	588.32	569.53	554.34	538.43	527.34	517.28	506.81	497.19	489.38
360.0	614.25	587.81	563.06	547.31	533.81	520.88	509.06	500.06	490.50
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	482.63	474.19	466.31	459.56	450.00	442.13	435.38	428.06	414.56
45.0	483.19	474.75	466.31	459.00	448.31	439.88	432.56	425.81	406.69
90.0	472.95	465.30	455.46	444.77	436.73	428.23	419.01	400.39	360.23
135.0	459.56	452.25	442.69	434.81	426.38	418.50	410.06	378.00	325.69
180.0	451.80	441.11	433.07	424.46	417.21	407.87	377.38	333.06	273.38
225.0	467.49	455.63	447.47	439.88	431.72	422.83	402.30	353.87	293.29
270.0	478.13	470.81	461.25	453.38	444.38	436.50	428.06	408.38	363.38
315.0	481.05	473.96	465.69	454.73	448.03	439.82	429.69	419.63	386.72
360.0	482.63	474.19	466.31	459.56	450.00	442.13	435.38	428.06	414.56
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	383.63	336.38	288.00	199.41	139.22	88.37	39.60	19.35	14.57
45.0	369.00	325.13	285.19	191.76	137.42	77.79	33.58	18.73	13.22
90.0	298.63	244.29	186.81	118.69	72.06	34.26	18.06	12.66	9.34
135.0	285.19	211.67	140.85	90.06	47.36	20.48	13.84	9.68	7.54
180.0	207.11	150.69	98.66	47.14	22.44	15.08	9.90	8.16	7.54
225.0	238.05	175.28	120.83	64.24	27.51	16.76	11.81	8.55	7.76
270.0	313.88	286.88	182.59	126.73	78.75	35.21	17.16	11.87	8.16
315.0	319.73	269.94	212.34	146.36	89.44	45.28	19.58	13.61	9.84
360.0	383.63	336.38	288.00	199.41	139.22	88.37	39.60	19.35	14.57

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	10.07	8.16	7.59	7.37	7.20	6.98	6.81	6.69	6.53
45.0	9.67	8.10	7.59	7.37	7.20	6.98	6.86	6.75	6.58
90.0	8.38	7.59	7.20	7.03	6.86	6.69	6.58	6.47	6.36
135.0	7.20	7.03	6.81	6.69	6.58	6.41	6.30	6.24	6.13
180.0	6.92	6.75	6.64	6.47	6.36	6.24	6.13	6.08	5.96
225.0	7.14	6.92	6.75	6.58	6.47	6.36	6.24	6.13	5.96
270.0	7.43	7.14	6.98	6.81	6.64	6.47	6.36	6.24	6.13
315.0	8.49	8.10	7.14	6.98	6.81	6.64	6.47	6.36	6.24
360.0	10.07	8.16	7.59	7.37	7.20	6.98	6.81	6.69	6.53
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.41	6.30	6.19	6.08	5.96	5.91	5.79	5.74	5.68
45.0	6.47	6.36	6.24	6.13	6.02	5.96	5.85	5.74	5.74
90.0	6.24	6.13	6.02	5.91	5.85	5.79	5.74	5.63	5.63
135.0	6.02	5.91	5.85	5.74	5.68	5.63	5.57	5.51	5.51
180.0	5.85	5.79	5.74	5.63	5.57	5.51	5.51	5.40	5.40
225.0	5.91	5.79	5.74	5.68	5.63	5.57	5.51	5.46	5.46
270.0	6.08	5.96	5.85	5.74	5.68	5.63	5.57	5.51	5.46
315.0	6.13	6.02	5.96	5.85	5.74	5.68	5.63	5.57	5.46
360.0	6.41	6.30	6.19	6.08	5.96	5.91	5.79	5.74	5.68
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.57	5.57	5.51	5.46	5.40	5.34	5.34	5.29	5.23
45.0	5.63	5.57	5.57	5.51	5.46	5.40	5.40	5.34	5.29
90.0	5.51	5.51	5.46	5.40	5.34	5.34	5.34	5.29	5.29
135.0	5.40	5.40	5.34	5.34	5.29	5.29	5.23	5.23	5.23
180.0	5.34	5.34	5.29	5.29	5.23	5.23	5.18	5.18	5.18
225.0	5.34	5.34	5.34	5.29	5.29	5.29	5.23	5.23	5.23
270.0	5.46	5.40	5.40	5.34	5.34	5.29	5.29	5.23	5.23
315.0	5.46	5.40	5.40	5.34	5.29	5.29	5.23	5.23	5.23
360.0	5.57	5.57	5.51	5.46	5.40	5.34	5.34	5.29	5.23
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.29	5.23	5.23	5.18	5.18	5.18	5.12	5.12	5.12
45.0	5.29	5.29	5.23	5.23	5.23	5.18	5.18	5.18	5.12
90.0	5.23	5.23	5.23	5.18	5.18	5.18	5.18	5.18	5.18
135.0	5.18	5.18	5.18	5.12	5.18	5.12	5.12	5.06	5.12
180.0	5.18	5.18	5.12	5.12	5.12	5.12	5.06	5.12	5.06
225.0	5.18	5.18	5.12	5.12	5.12	5.12	5.12	5.12	5.12
270.0	5.23	5.23	5.18	5.18	5.18	5.18	5.12	5.12	5.06
315.0	5.18	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.06
360.0	5.29	5.23	5.23	5.18	5.18	5.18	5.12	5.12	5.12
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.12	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
45.0	5.12	5.12	5.12	5.12	5.12	5.12	5.06	5.06	5.06
90.0	5.12	5.12	5.12	5.18	5.12	5.12	5.06	5.06	5.06
135.0	5.06	5.06	5.06	5.06	5.06	5.06	5.01	5.01	5.06
180.0	5.06	5.12	5.06	5.06	5.01	5.01	5.01	5.01	5.06
225.0	5.06	5.06	5.06	5.06	5.12	5.06	5.06	5.06	5.06
270.0	5.12	5.12	5.12	5.12	5.06	5.06	5.06	5.01	5.06
315.0	5.06	5.06	5.06	5.06	5.06	5.06	5.01	5.06	5.01
360.0	5.12	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	5.06
45.0	5.01
90.0	5.06
135.0	5.06
180.0	5.01
225.0	5.06
270.0	5.06
315.0	5.06
360.0	5.06