



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

Nata

Client:

LumCAT: 3-1545-A3

Luminaire: TE2213407-1+92.76.365.00

Report No: nata-0100

Test No: 2017050607

LampCAT: bridgelux V18B

Lamp flux(lm): 2960.0

Number of Lamps: 1

Length(mm): 85

Phm Type: C

Voltage(V): 34.0000

Current(A): 0.6000

Power (W): 20.4000

PF: 0.0000

Ballast type:

Width(mm): 85

Height(mm): 0

Photometric Results

Lumens(lm): 2702.12, Efficiency(%): 91.29% , Luminous Efficacy(lm/W): 132.46

Central intensity(cd): 15754.390, Maximum intensity(cd): 15754.390

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=17.8

[C90/270]Total=17.8

Field angle(10%Imax): [C0/180]Total=36.6

[C90/270]Total=36.6

Maximum s/h(1/2): C0_180=0.31 C90_270=0.31

Maximum s/h(1/4): C0_180=0.29 C90_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.41%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.597%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15754.389	3.769	3.769	.127%	.139%
1.0	15736.496	30.117	33.886	1.017%	1.254%
2.0	15569.950	59.588	93.474	2.013%	3.459%
3.0	15234.106	87.432	180.906	2.954%	6.695%
4.0	14698.682	112.438	293.344	3.799%	10.856%
5.0	13748.959	131.407	424.751	4.439%	15.719%
6.0	12356.033	141.633	566.384	4.785%	20.961%
7.0	10865.105	145.205	711.589	4.906%	26.334%
8.0	9328.068	142.364	853.952	4.810%	31.603%
9.0	7658.621	131.382	985.334	4.439%	36.465%
10.0	6080.016	115.778	1101.112	3.911%	40.750%
11.0	4845.651	101.392	1202.504	3.425%	44.502%
12.0	3926.898	89.532	1292.036	3.025%	47.816%
13.0	3205.659	79.078	1371.115	2.672%	50.742%
14.0	2737.817	72.633	1443.747	2.454%	53.430%
15.0	2291.860	65.048	1508.796	2.198%	55.837%
16.0	1987.674	60.081	1568.876	2.030%	58.061%
17.0	1775.707	56.932	1625.808	1.923%	60.168%
18.0	1617.419	54.810	1680.618	1.852%	62.196%
19.0	1496.020	53.411	1734.029	1.804%	64.173%
20.0	1397.056	52.398	1786.427	1.770%	66.112%
21.0	1318.188	51.803	1838.231	1.750%	68.029%
22.0	1258.865	51.714	1889.945	1.747%	69.943%
23.0	1213.856	52.011	1941.956	1.757%	71.868%
24.0	1176.418	52.472	1994.428	1.773%	73.810%
25.0	1145.035	53.066	2047.494	1.793%	75.774%
26.0	1119.710	53.827	2101.321	1.818%	77.766%
27.0	1092.002	54.365	2155.686	1.837%	79.778%
28.0	1068.961	55.033	2210.719	1.859%	81.814%
29.0	1043.305	55.467	2266.186	1.874%	83.867%
30.0	1014.648	55.634	2321.82	1.880%	85.926%
31.0	952.531	53.798	2375.618	1.818%	87.917%
32.0	871.433	50.640	2426.258	1.711%	89.791%
33.0	783.232	46.779	2473.037	1.580%	91.522%
34.0	678.722	41.620	2514.658	1.406%	93.062%
35.0	576.922	36.288	2550.945	1.226%	94.405%
36.0	466.052	30.040	2580.986	1.015%	95.517%
37.0	362.299	23.910	2604.896	.808%	96.402%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	278.544	18.806	2623.702	.635%	97.098%
39.0	171.666	11.847	2635.549	.400%	97.536%
40.0	100.065	7.053	2642.602	.238%	97.797%
41.0	50.913	3.663	2646.265	.124%	97.933%
42.0	29.951	2.198	2648.463	.074%	98.014%
43.0	23.839	1.783	2650.245	.060%	98.080%
44.0	18.485	1.408	2651.654	.048%	98.132%
45.0	13.530	1.049	2652.703	.035%	98.171%
46.0	12.622	0.996	2653.698	.034%	98.208%
47.0	12.388	0.994	2654.692	.034%	98.245%
48.0	12.195	0.994	2655.686	.034%	98.281%
49.0	11.892	0.984	2656.67	.033%	98.318%
50.0	11.755	0.987	2657.657	.033%	98.354%
51.0	11.644	0.992	2658.65	.034%	98.391%
52.0	11.562	0.999	2659.649	.034%	98.428%
53.0	11.424	1.001	2660.649	.034%	98.465%
54.0	11.342	1.006	2661.656	.034%	98.502%
55.0	11.273	1.013	2662.668	.034%	98.540%
56.0	11.218	1.020	2663.688	.034%	98.578%
57.0	11.121	1.023	2664.711	.035%	98.615%
58.0	11.080	1.030	2665.741	.035%	98.654%
59.0	11.025	1.036	2666.778	.035%	98.692%
60.0	10.970	1.042	2667.819	.035%	98.731%
61.0	10.915	1.047	2668.866	.035%	98.769%
62.0	10.874	1.053	2669.919	.036%	98.808%
63.0	10.832	1.058	2670.978	.036%	98.847%
64.0	10.791	1.064	2672.041	.036%	98.887%
65.0	10.956	1.089	2673.13	.037%	98.927%
66.0	11.273	1.129	2674.259	.038%	98.969%
67.0	11.452	1.156	2675.415	.039%	99.012%
68.0	11.548	1.174	2676.59	.040%	99.055%
69.0	11.658	1.194	2677.783	.040%	99.099%
70.0	11.699	1.206	2678.989	.041%	99.144%
71.0	11.644	1.207	2680.196	.041%	99.189%
72.0	11.658	1.216	2681.412	.041%	99.234%
73.0	11.658	1.223	2682.634	.041%	99.279%
74.0	11.672	1.230	2683.865	.042%	99.324%
75.0	11.548	1.223	2685.088	.041%	99.370%

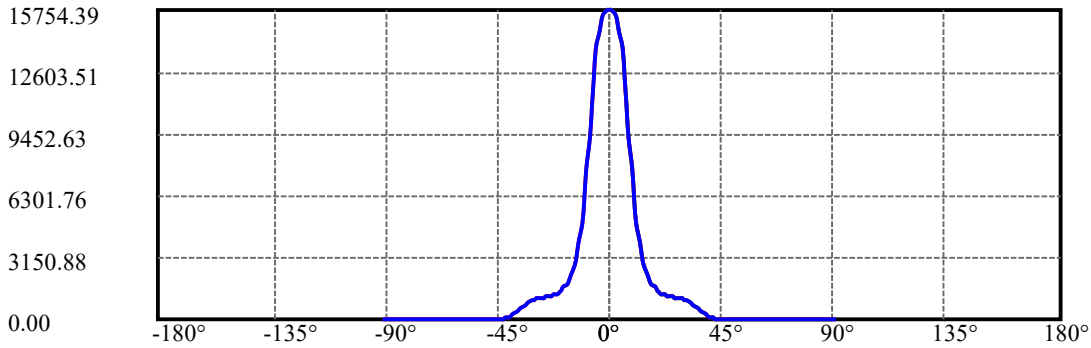
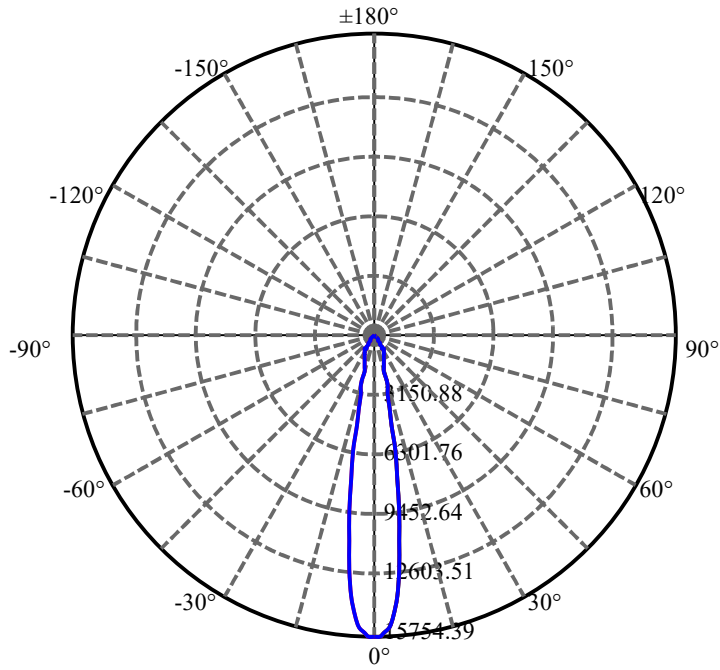
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.465	1.220	2686.308	.041%	99.415%
77.0	11.410	1.219	2687.527	.041%	99.460%
78.0	11.273	1.209	2688.736	.041%	99.505%
79.0	11.232	1.209	2689.945	.041%	99.549%
80.0	11.176	1.207	2691.152	.041%	99.594%
81.0	10.984	1.190	2692.342	.040%	99.638%
82.0	10.887	1.182	2693.524	.040%	99.682%
83.0	10.791	1.175	2694.699	.040%	99.725%
84.0	10.667	1.163	2695.862	.039%	99.768%
85.0	10.598	1.158	2697.02	.039%	99.811%
86.0	10.461	1.144	2698.164	.039%	99.854%
87.0	10.351	1.134	2699.298	.038%	99.895%
88.0	10.296	1.128	2700.426	.038%	99.937%
89.0	10.309	1.130	2701.557	.038%	99.979%
90.0	10.309	0.565	2702.122	.019%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2321.82	78.44%	85.93%
0-40	2642.60	89.28%	97.80%
0-60	2667.82	90.13%	98.73%
0-90	2701.56	91.27%	99.98%
0-120	2701.56	91.27%	99.98%
0-180	2702.12	91.29%	100.00%
60-90	34.78	1.17%	1.29%
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%
0-27.11	2161.70	73.03%	80.00%

ZONAL LUMEN SUMMARY

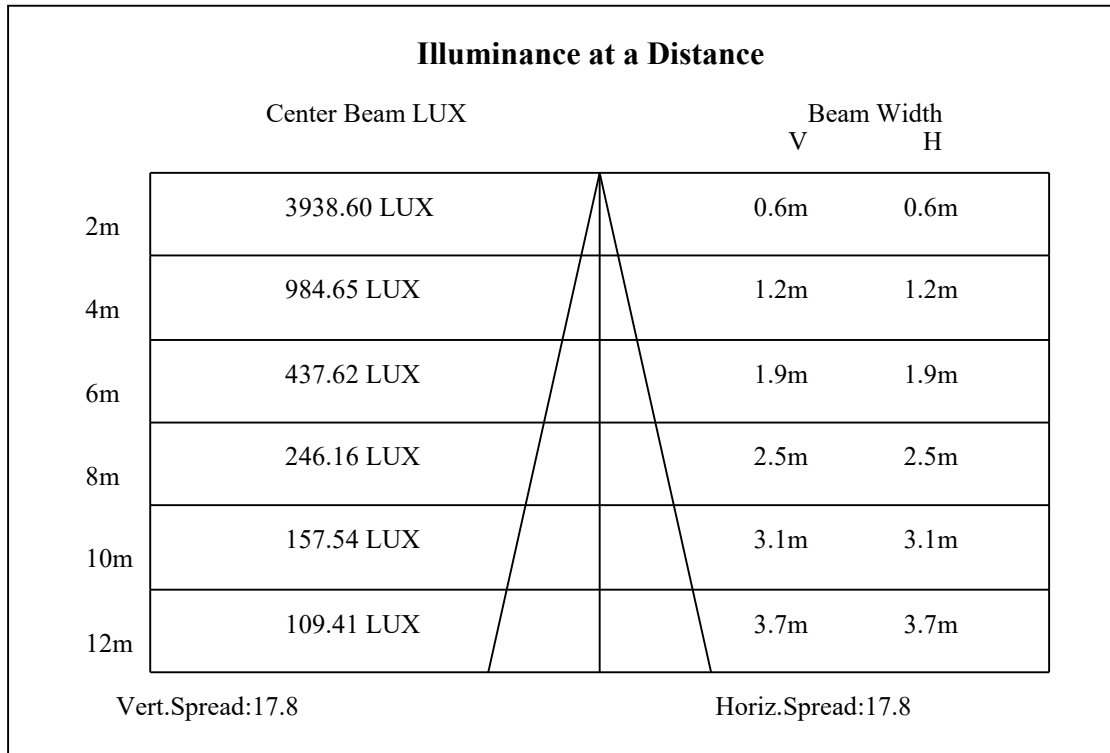
0-10	1101.11
10-20	685.32
20-30	535.39
30-40	320.78
40-50	15.06
50-60	10.16
60-70	11.17
70-80	12.16
80-90	10.40
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

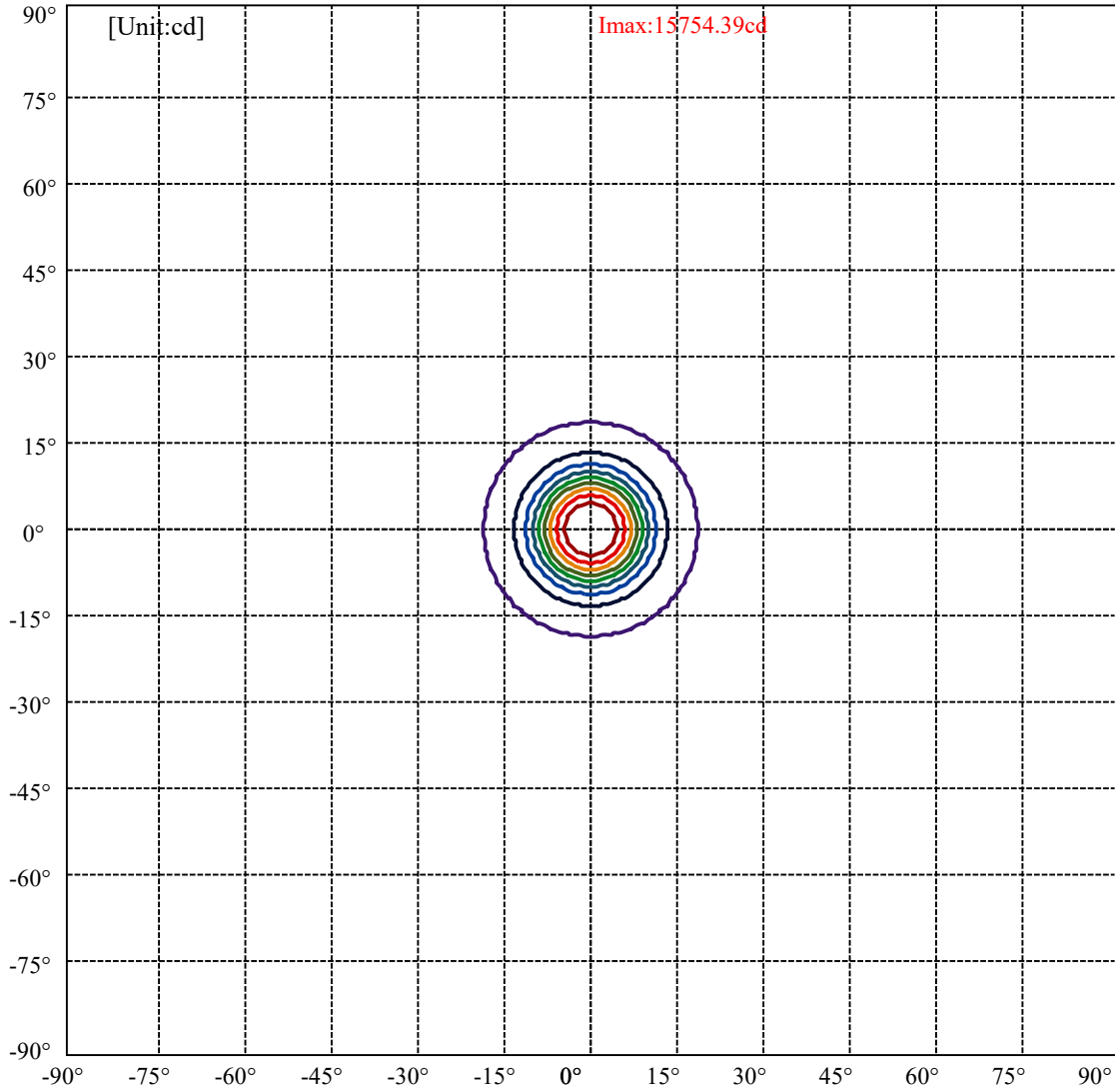


C0(Max): —————
 C0/C180: —————
 C90/C270: —————

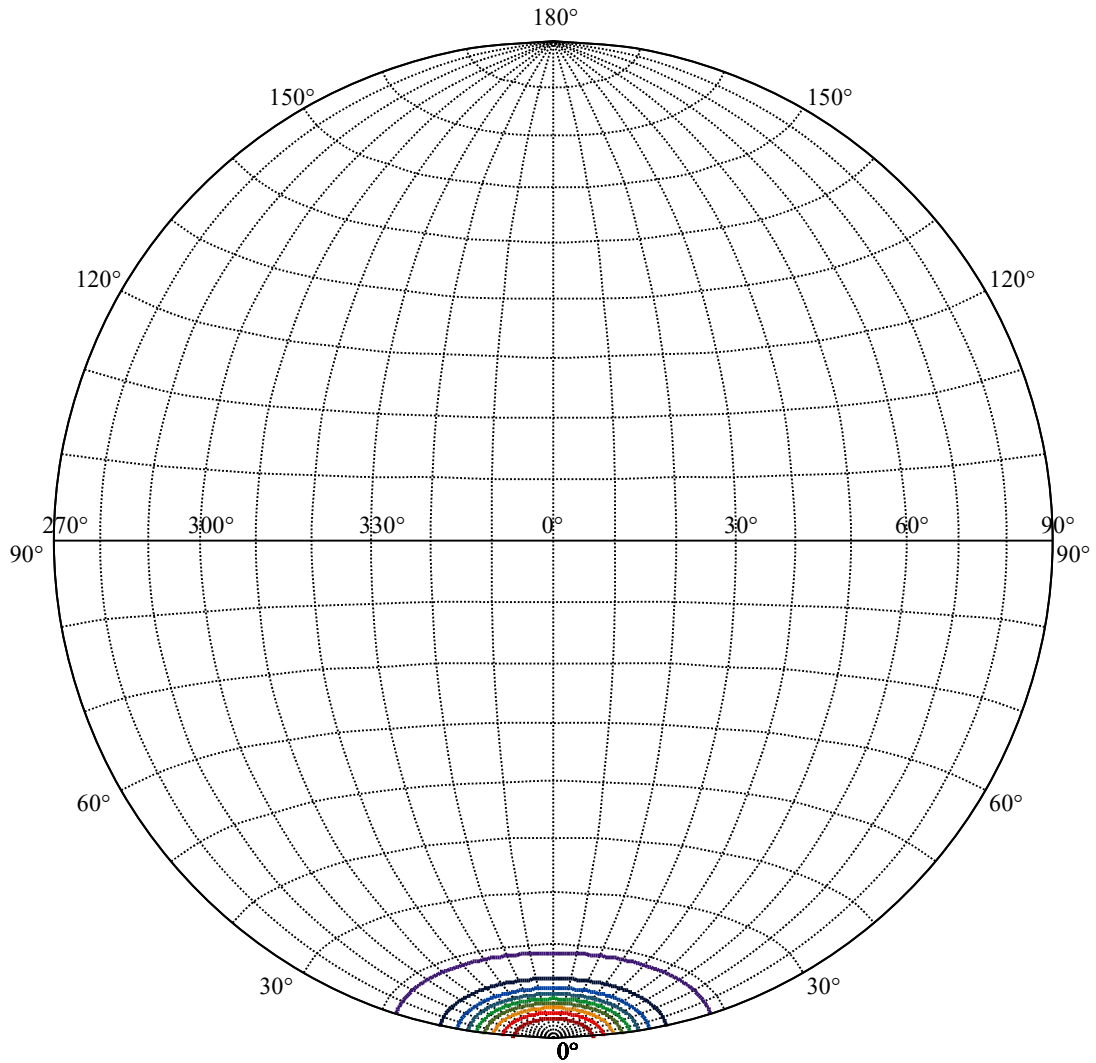
Field angle(10%Imax):C0/180Left:18.3 Right:18.3
 :C90/270Left:18.3 Right:18.3

Beam Angle(50%Imax):C0/180Left:8.9 Right:8.9
 :C90/270Left:8.9 Right:8.9





(10%Imax) 1575.44	—
(20%Imax) 3150.88	—
(30%Imax) 4726.32	—
(40%Imax) 6301.76	—
(50%Imax) 7877.2	—
(60%Imax) 9452.63	—
(70%Imax) 11028.1	—
(80%Imax) 12603.5	—
(90%Imax) 14179	—



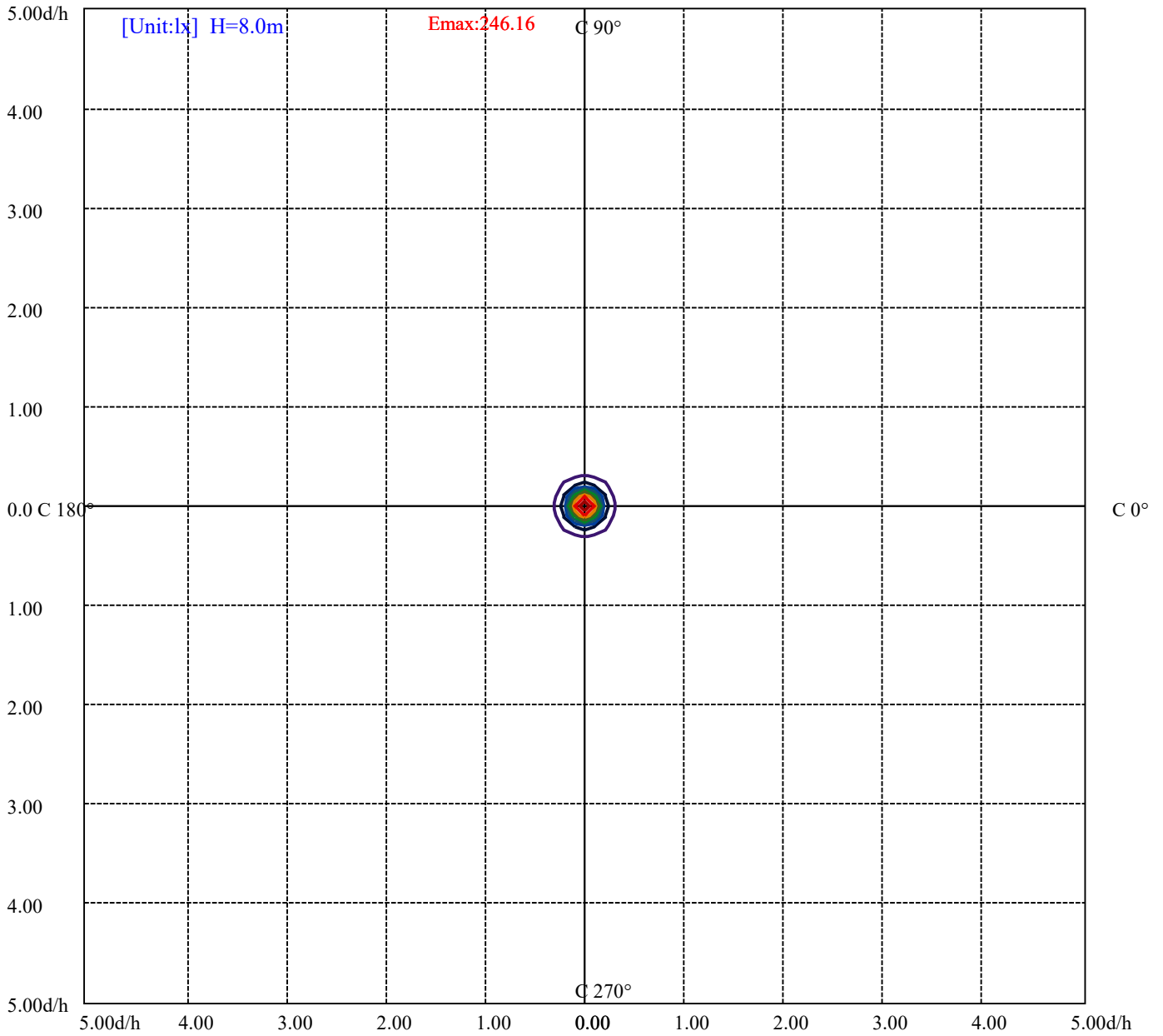
House

[Unit:cd]

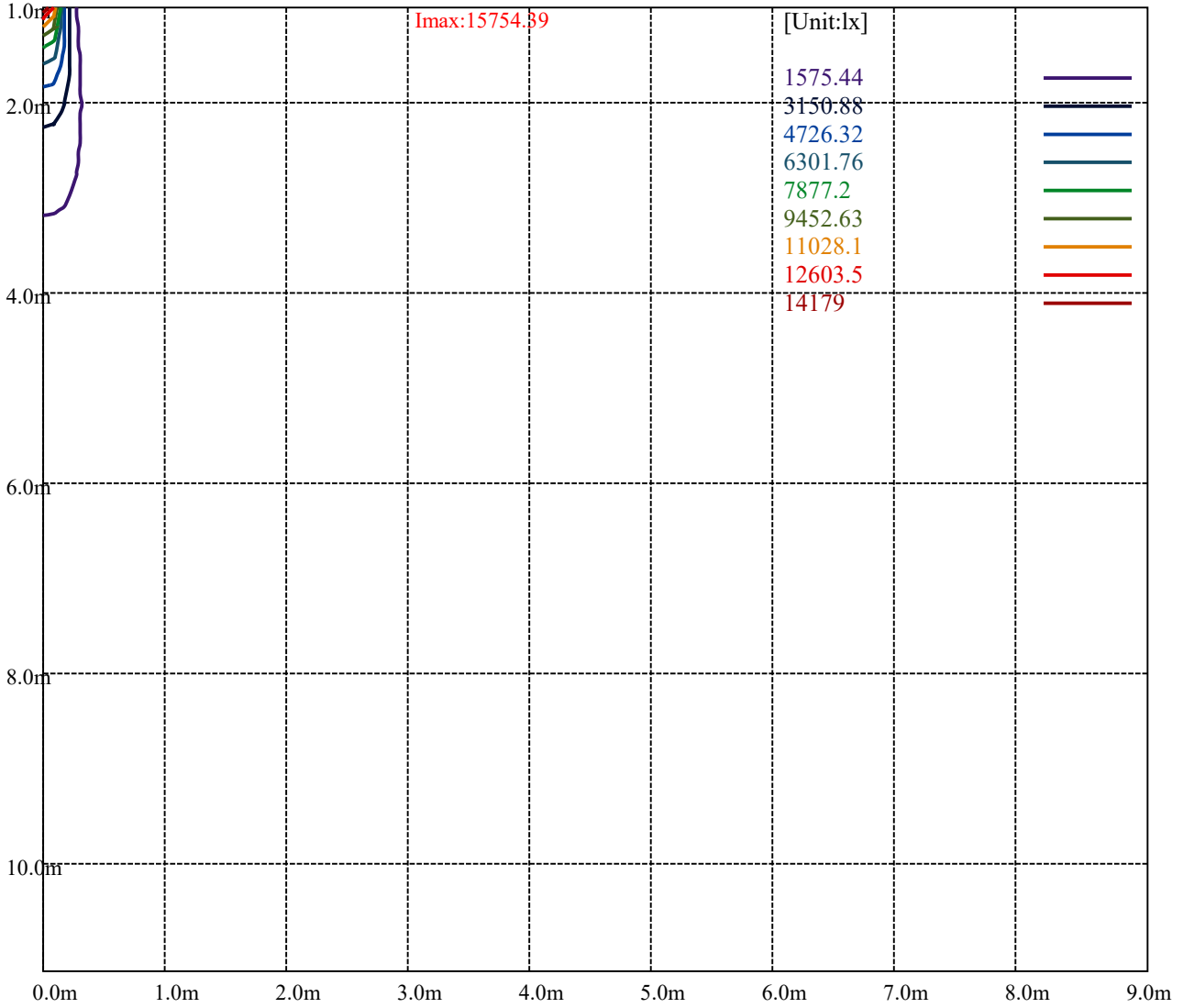
Road

Imax:15754.39

(10%Imax) 1575.44	—
(20%Imax) 3150.88	—
(30%Imax) 4726.32	—
(40%Imax) 6301.76	—
(50%Imax) 7877.2	—
(60%Imax) 9452.63	—
(70%Imax) 11028.1	—
(80%Imax) 12603.5	—
(90%Imax) 14179	—



- (10%Emax) 24.61625
- (20%Emax) 49.2325
- (30%Emax) 73.84875
- (40%Emax) 98.46484
- (50%Emax) 123.0811
- (60%Emax) 147.6973
- (70%Emax) 172.3141
- (80%Emax) 196.9297
- (90%Emax) 221.5453



Luminance Table

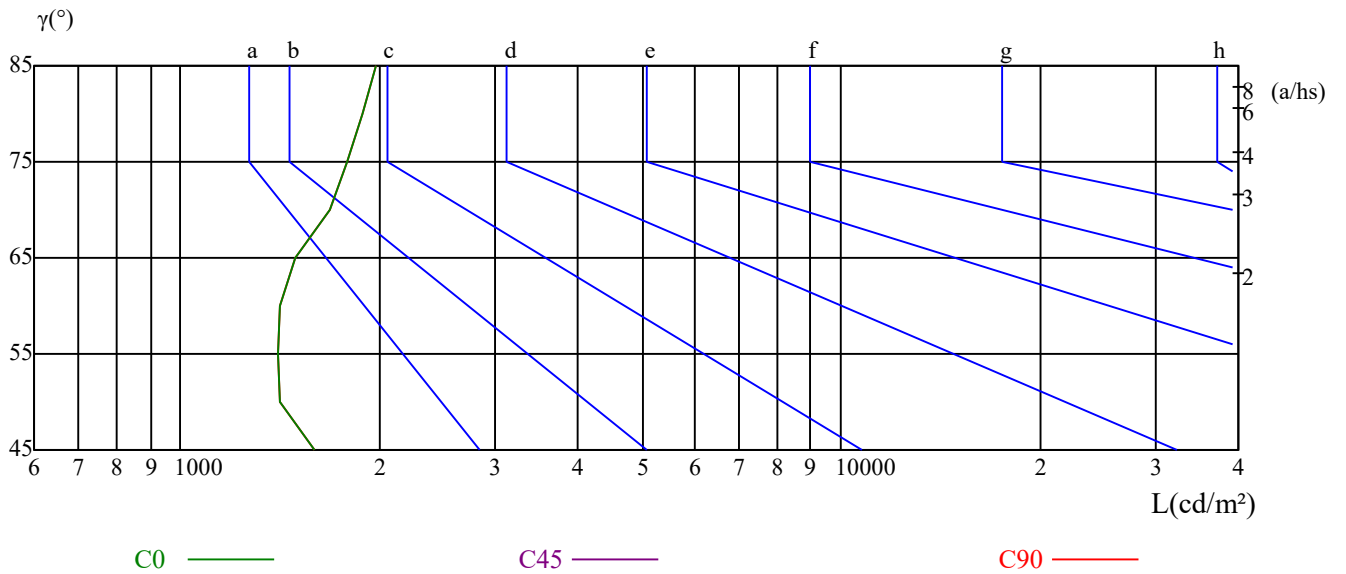
γ	45	50	55	60	65	70	75	80	85
C0	1597	1418	1402	1418	1487	1685	1785	1881	1973
C45	0	0	0	0	0	0	0	0	0
C90	1597	1418	1402	1418	1487	1685	1785	1881	1973

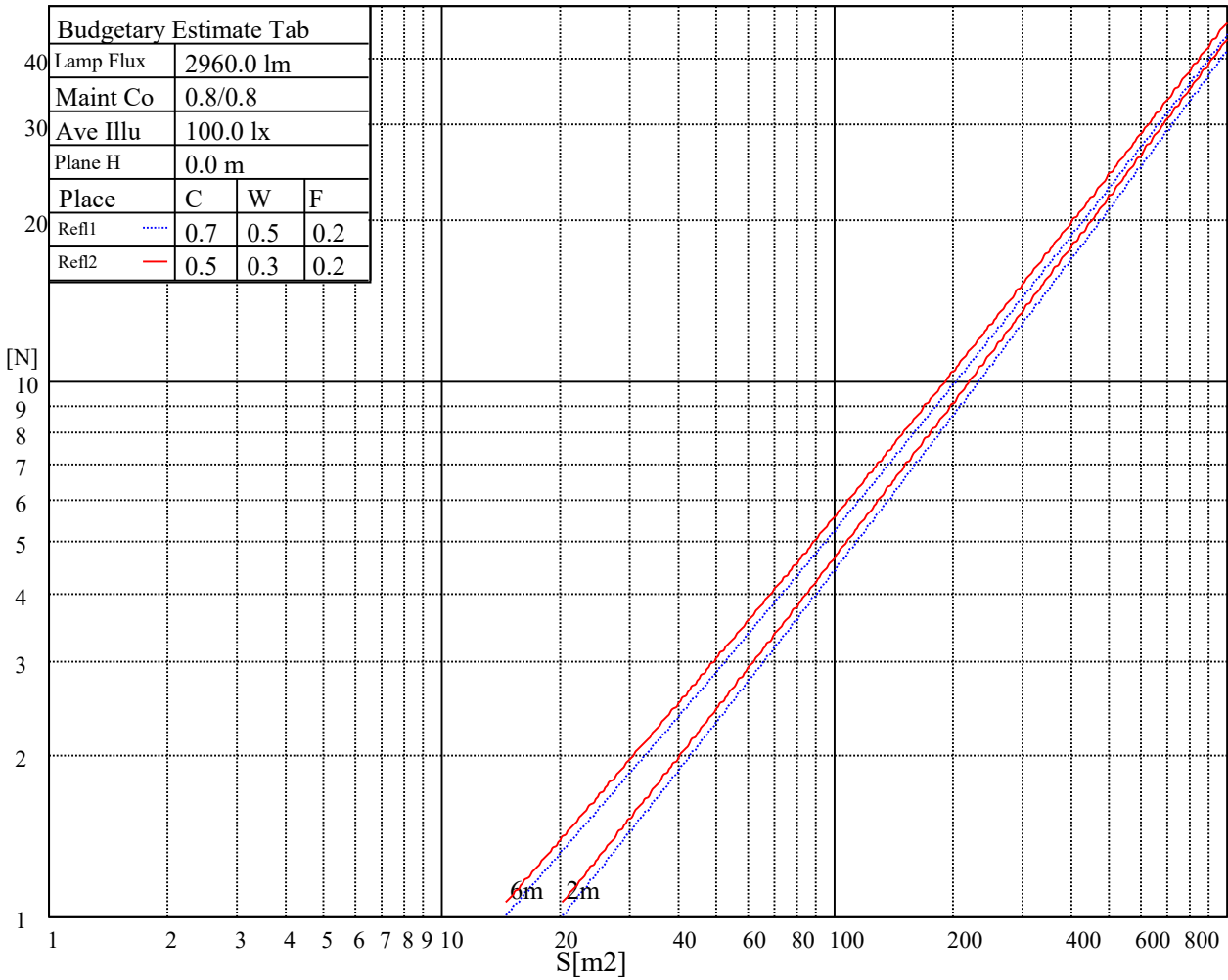
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3588	3588	0	6176	6176	0	16831	16831	0

Glare Table

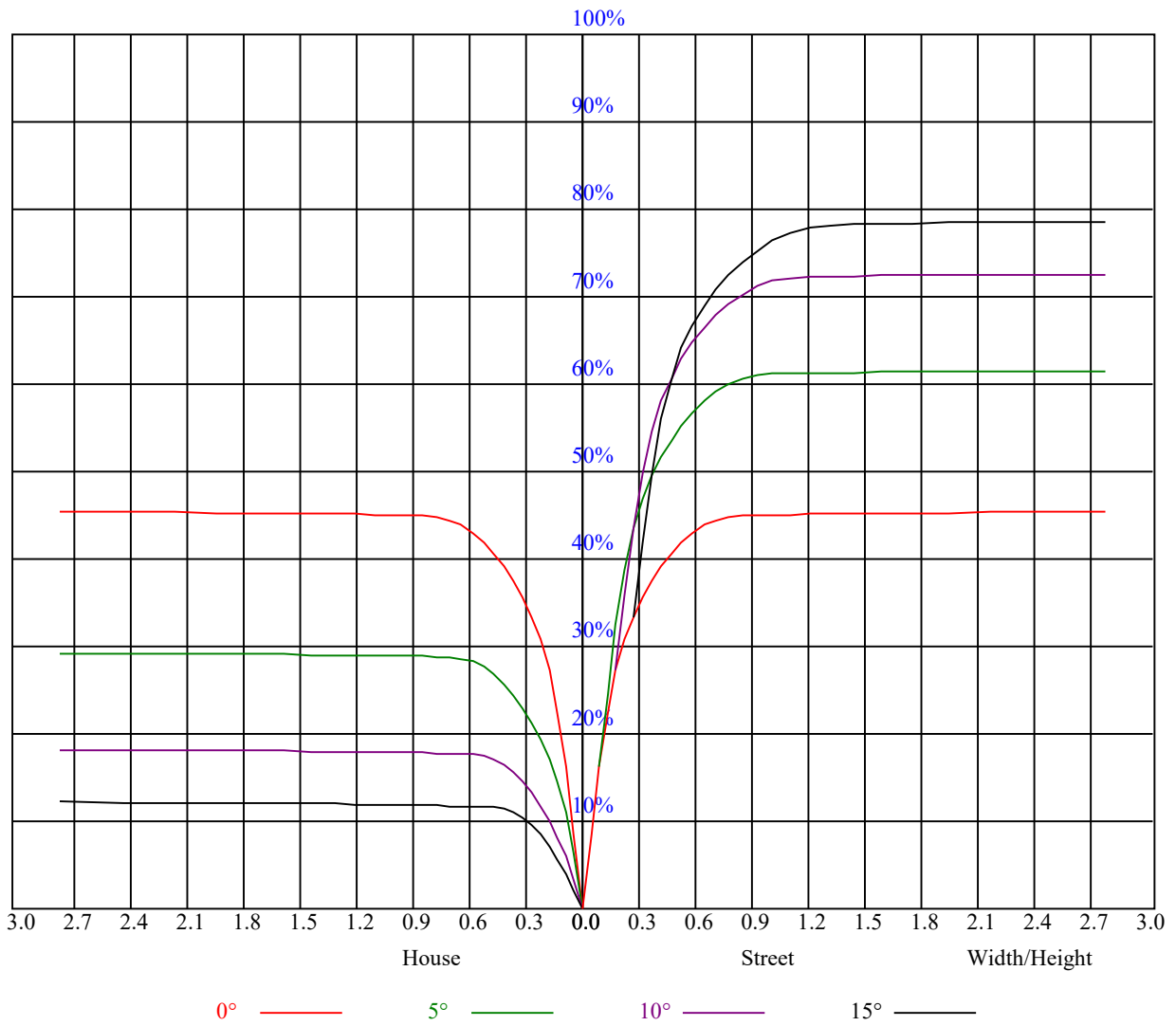
Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

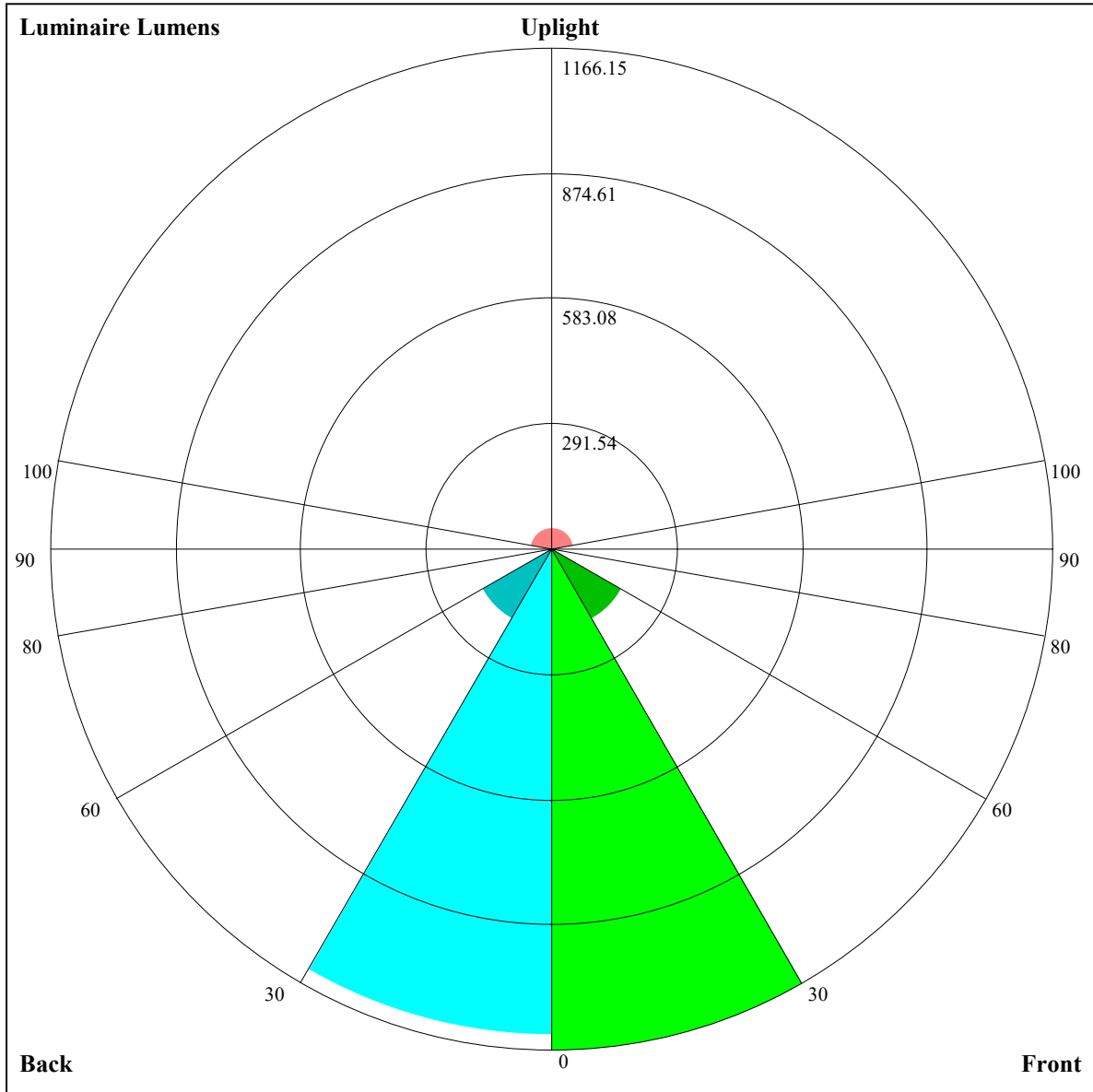
Luminance Limiting Curve





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	1.09	1.09	1.09	1.06	1.06	1.06	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.02	1.01	0.99	1.00	0.99	0.97	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.87
2	0.97	0.94	0.92	0.96	0.93	0.91	0.93	0.91	0.89	0.90	0.88	0.87	0.88	0.86	0.85	0.84
3	0.93	0.89	0.86	0.91	0.88	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.80
4	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.82	0.79	0.83	0.80	0.79	0.77
5	0.85	0.81	0.78	0.84	0.81	0.78	0.83	0.80	0.77	0.81	0.79	0.76	0.80	0.78	0.76	0.75
6	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.76	0.73	0.71	0.70
8	0.76	0.72	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.74	0.71	0.69	0.68
9	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66
10	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64





Luminaire Lumens:

FL=1166.15,FM=188.98,FH=11.76,FVH=5.82

BL=1131.71,BM=187.61,BH=11.5,BVH=5.78

UL=11.25,UH=53.53

BUG Rating:B3-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	15751.64	15801.19	15669.05	15487.37	15173.54	14270.62	13230.05	12068.36	10124.87
90.0	15757.14	15696.58	15487.37	15168.04	14413.77	13351.18	12250.05	10345.10	8720.93
180.0	15751.64	15674.56	15421.30	14931.30	14232.08	13114.43	10857.12	10072.57	8493.55
270.0	15757.14	15773.66	15702.09	15349.72	14975.34	14259.61	13086.91	10974.39	9972.92
360.0	15751.64	15801.19	15669.05	15487.37	15173.54	14270.62	13230.05	12068.36	10124.87
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8280.48	6920.59	5257.89	4211.81	3435.52	2802.37	2344.85	2005.15	1767.86
90.0	7190.37	5533.17	4487.10	3688.78	2956.53	2780.35	2211.62	1912.11	1736.48
180.0	6816.53	5414.80	4448.56	3615.00	3058.93	2583.25	2222.08	1974.32	1755.20
270.0	8347.10	6451.51	5189.07	4191.99	3371.65	2785.30	2388.90	2059.11	1843.29
360.0	8280.48	6920.59	5257.89	4211.81	3435.52	2802.37	2344.85	2005.15	1767.86
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1617.56	1505.24	1395.13	1320.80	1261.34	1209.04	1169.95	1140.77	1112.14
90.0	1599.94	1476.61	1375.31	1302.63	1239.32	1195.83	1158.39	1130.31	1108.84
180.0	1586.73	1471.11	1385.22	1304.84	1255.84	1216.75	1181.51	1151.78	1127.56
270.0	1665.46	1531.12	1432.57	1344.48	1278.96	1233.81	1195.83	1157.29	1130.31
360.0	1617.56	1505.24	1395.13	1320.80	1261.34	1209.04	1169.95	1140.77	1112.14
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1087.36	1066.44	1039.46	1012.49	953.03	869.89	785.10	683.80	573.14
90.0	1086.26	1060.94	1037.81	1006.43	929.35	855.03	772.44	655.72	555.52
180.0	1097.66	1074.04	1046.90	1015.02	959.47	871.93	770.24	674.88	576.39
270.0	1096.72	1074.43	1049.04	1024.65	968.28	888.89	805.14	700.48	602.65
360.0	1087.36	1066.44	1039.46	1012.49	953.03	869.89	785.10	683.80	573.14
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	472.93	374.93	283.54	174.69	104.44	51.70	30.23	25.33	20.15
90.0	451.46	342.45	285.19	162.47	89.36	45.37	31.38	24.56	17.95
180.0	449.87	350.10	256.78	156.47	92.05	46.69	27.91	22.57	17.12
270.0	489.95	381.71	288.66	193.03	114.41	59.90	30.28	22.90	18.72
360.0	472.93	374.93	283.54	174.69	104.44	51.70	30.23	25.33	20.15
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	14.31	13.32	13.05	12.88	12.17	12.00	11.89	11.84	11.73
90.0	12.66	12.33	12.11	12.00	11.84	11.73	11.62	11.51	11.29
180.0	12.39	12.17	12.00	11.78	11.67	11.56	11.45	11.40	11.29
270.0	14.76	12.66	12.39	12.11	11.89	11.73	11.62	11.51	11.40
360.0	14.31	13.32	13.05	12.88	12.17	12.00	11.89	11.84	11.73
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.67	11.62	11.51	11.40	11.34	11.29	11.23	11.18	11.12
90.0	11.23	11.12	11.07	11.01	10.96	10.90	10.85	10.79	10.79
180.0	11.18	11.12	11.12	11.01	11.01	10.96	10.90	10.85	10.79
270.0	11.29	11.23	11.18	11.07	11.01	10.96	10.90	10.85	10.79
360.0	11.67	11.62	11.51	11.40	11.34	11.29	11.23	11.18	11.12
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.01	10.96	11.12	11.84	12.11	12.22	12.44	12.44	12.22
90.0	10.79	10.74	11.12	11.40	11.67	11.73	11.78	11.78	11.73
180.0	10.79	10.74	10.79	10.85	10.90	10.90	10.90	10.96	11.07
270.0	10.74	10.74	10.79	11.01	11.12	11.34	11.51	11.62	11.56
360.0	11.01	10.96	11.12	11.84	12.11	12.22	12.44	12.44	12.22

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Intensity data(cd)

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.22	12.17	12.00	11.84	11.67	11.56	11.40	11.29	11.18
90.0	11.78	11.73	11.84	11.78	11.84	11.78	11.67	11.67	11.62
180.0	11.18	11.18	11.23	11.12	10.96	10.90	10.79	10.79	10.79
270.0	11.45	11.56	11.62	11.45	11.40	11.40	11.23	11.18	11.12
360.0	12.22	12.17	12.00	11.84	11.67	11.56	11.40	11.29	11.18

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.01	10.96	10.90	10.79	10.68	10.63	10.46	10.35	10.35
90.0	11.40	11.18	10.90	10.63	10.57	10.35	10.24	10.24	10.30
180.0	10.57	10.57	10.57	10.57	10.52	10.35	10.35	10.35	10.35
270.0	10.96	10.85	10.79	10.68	10.63	10.52	10.35	10.24	10.24
360.0	11.01	10.96	10.90	10.79	10.68	10.63	10.46	10.35	10.35

C/γ(°)	90.0
0.0	10.35
90.0	10.30
180.0	10.35
270.0	10.24
360.0	10.35