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## Nata

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Client: NT

LumCAT: 2-3210-A

Luminaire: 92.70.121.00

Report No: 20260403-B007

Ballast type: DC

Test No: 20260403-C007

Voltage(V): 35.770

LampCAT: CITIZEN CLU038

Current(A): 0.711

Lamp flux(lm): 3670.0

Power (W): 25.410

Number of Lamps: 1

PF: 0.000

Length(mm): 65

Width(mm): 65

Phm Type: C

Height(mm): 34

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## Photometric Results

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Lumens(lm): 3377.54, Efficiency(%): 92.03% , Luminous Efficacy(lm/W): 132.92

Central intensity(cd): 17442.110, Maximum intensity(cd): 17442.110

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

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

[C90/270]Total=17.8

Field angle(10%Imax): [C0/180]Total=38.6

[C90/270]Total=38.6

Maximum s/h(1/2): C0\_180=0.31 C90\_270=0.31

Maximum s/h(1/4): C0\_180=0.31 C90\_270=0.31

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.03%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.340%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17442.107	0.000	0	0.00%	0.00%
1.0	17334.719	16.640	16.64	0.45%	0.49%
2.0	16998.373	49.278	65.918	1.34%	1.95%
3.0	16399.076	79.876	145.794	2.18%	4.32%
4.0	15555.196	106.961	252.755	2.91%	7.48%
5.0	14394.887	128.844	381.599	3.51%	11.30%
6.0	13035.196	144.152	525.751	3.93%	15.57%
7.0	11490.914	152.233	677.984	4.15%	20.07%
8.0	10019.734	153.948	831.932	4.19%	24.63%
9.0	8564.077	150.612	982.543	4.10%	29.09%
10.0	7155.512	142.257	1124.8	3.88%	33.30%
11.0	5911.506	130.566	1255.366	3.56%	37.17%
12.0	4874.433	117.906	1373.272	3.21%	40.66%
13.0	4130.715	106.868	1480.14	2.91%	43.82%
14.0	3562.579	98.473	1578.614	2.68%	46.74%
15.0	3146.733	92.108	1670.722	2.51%	49.47%
16.0	2564.239	83.682	1754.404	2.28%	51.94%
17.0	2190.209	74.040	1828.444	2.02%	54.14%
18.0	1921.134	67.787	1896.231	1.85%	56.14%
19.0	1784.767	64.475	1960.706	1.76%	58.05%
20.0	1666.953	63.176	2023.882	1.72%	59.92%
21.0	1564.326	62.047	2085.929	1.69%	61.76%
22.0	1483.042	61.238	2147.167	1.67%	63.57%
23.0	1416.358	60.837	2208.004	1.66%	65.37%
24.0	1358.767	60.674	2268.678	1.65%	67.17%
25.0	1316.101	60.821	2329.499	1.66%	68.97%
26.0	1279.927	61.280	2390.779	1.67%	70.78%
27.0	1250.907	61.917	2452.696	1.69%	72.62%
28.0	1223.511	62.647	2515.343	1.71%	74.47%
29.0	1201.119	63.435	2578.778	1.73%	76.35%
30.0	1181.548	64.332	2643.11	1.75%	78.26%
31.0	1160.184	65.167	2708.277	1.78%	80.18%
32.0	1139.889	65.894	2774.171	1.80%	82.14%
33.0	1112.829	66.366	2840.537	1.81%	84.10%
34.0	1069.188	66.034	2906.571	1.80%	86.06%
35.0	1004.119	64.389	2970.961	1.75%	87.96%
36.0	925.259	61.432	3032.392	1.67%	89.78%
37.0	828.106	57.185	3089.577	1.56%	91.47%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	723.182	51.780	3141.357	1.41%	93.01%
39.0	613.853	45.637	3186.994	1.24%	94.36%
40.0	501.902	38.914	3225.908	1.06%	95.51%
41.0	401.562	32.172	3258.079	0.88%	96.46%
42.0	328.837	26.537	3284.616	0.72%	97.25%
43.0	241.743	21.136	3305.752	0.58%	97.87%
44.0	124.935	13.839	3319.591	0.38%	98.28%
45.0	76.973	7.760	3327.351	0.21%	98.51%
46.0	49.620	4.951	3332.302	0.13%	98.66%
47.0	37.506	3.465	3335.767	0.09%	98.76%
48.0	31.286	2.781	3338.548	0.08%	98.85%
49.0	26.294	2.365	3340.913	0.06%	98.92%
50.0	22.130	2.019	3342.931	0.06%	98.98%
51.0	19.309	1.753	3344.685	0.05%	99.03%
52.0	17.431	1.577	3346.261	0.04%	99.07%
53.0	16.036	1.456	3347.717	0.04%	99.12%
54.0	14.725	1.356	3349.073	0.04%	99.16%
55.0	13.404	1.256	3350.329	0.03%	99.19%
56.0	12.124	1.154	3351.482	0.03%	99.23%
57.0	10.887	1.052	3352.534	0.03%	99.26%
58.0	10.016	0.967	3353.501	0.03%	99.29%
59.0	9.345	0.905	3354.406	0.02%	99.31%
60.0	8.768	0.856	3355.262	0.02%	99.34%
61.0	8.391	0.819	3356.081	0.02%	99.36%
62.0	8.107	0.795	3356.876	0.02%	99.39%
63.0	7.908	0.779	3357.654	0.02%	99.41%
64.0	7.772	0.769	3358.424	0.02%	99.43%
65.0	7.698	0.766	3359.189	0.02%	99.46%
66.0	7.593	0.763	3359.952	0.02%	99.48%
67.0	7.499	0.759	3360.711	0.02%	99.50%
68.0	7.447	0.757	3361.468	0.02%	99.52%
69.0	7.394	0.757	3362.226	0.02%	99.55%
70.0	7.331	0.756	3362.982	0.02%	99.57%
71.0	7.289	0.756	3363.737	0.02%	99.59%
72.0	7.237	0.755	3364.493	0.02%	99.61%
73.0	7.205	0.755	3365.248	0.02%	99.64%
74.0	7.132	0.754	3366.002	0.02%	99.66%
75.0	7.080	0.751	3366.753	0.02%	99.68%

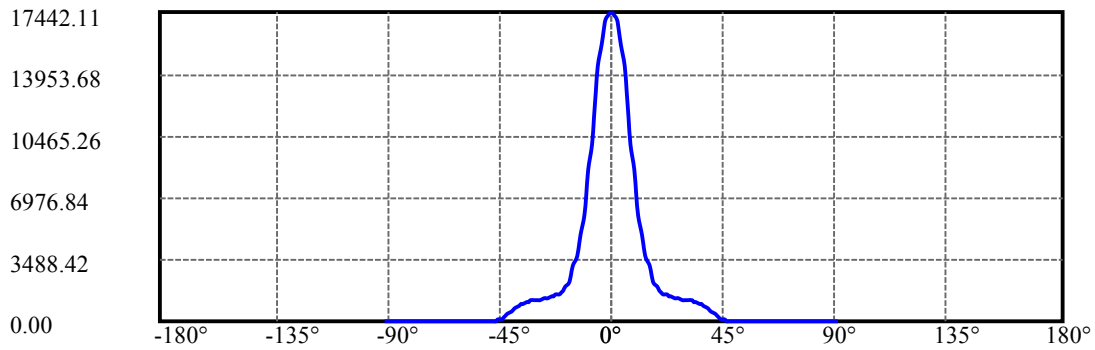
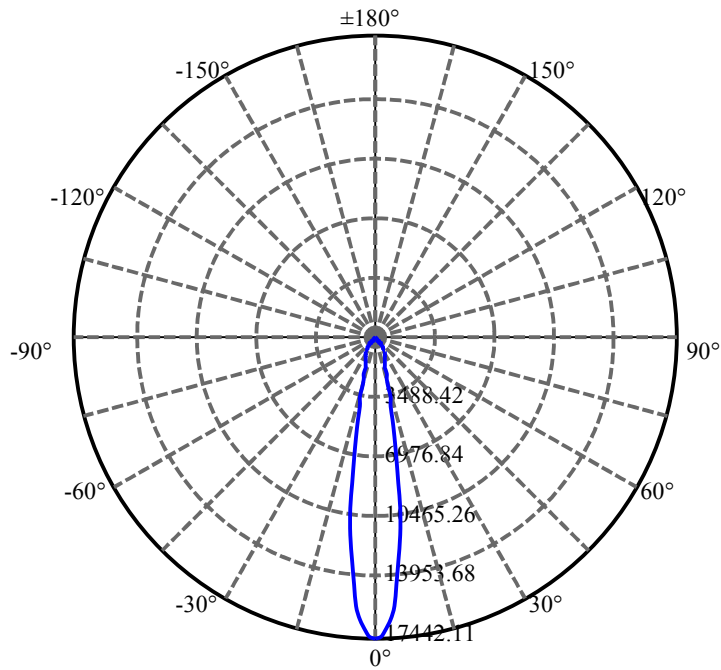
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.048	0.750	3367.503	0.02%	99.70%
77.0	6.954	0.747	3368.249	0.02%	99.72%
78.0	6.912	0.742	3368.991	0.02%	99.75%
79.0	6.849	0.739	3369.731	0.02%	99.77%
80.0	6.775	0.735	3370.465	0.02%	99.79%
81.0	6.733	0.731	3371.196	0.02%	99.81%
82.0	6.681	0.727	3371.923	0.02%	99.83%
83.0	6.650	0.725	3372.648	0.02%	99.86%
84.0	6.566	0.720	3373.368	0.02%	99.88%
85.0	6.482	0.712	3374.08	0.02%	99.90%
86.0	6.450	0.707	3374.787	0.02%	99.92%
87.0	6.461	0.707	3375.493	0.02%	99.94%
88.0	6.314	0.700	3376.193	0.02%	99.96%
89.0	6.136	0.682	3376.876	0.02%	99.98%
90.0	6.052	0.668	3377.544	0.02%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2643.11	72.02%	78.26%
0-40	3225.91	87.90%	95.51%
0-60	3355.26	91.42%	99.34%
0-90	3376.88	92.01%	99.98%
0-120	3376.88	92.01%	99.98%
0-180	3377.54	92.03%	100.00%
60-90	21.61	0.59%	0.64%
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%
0-30.90	2702.04	73.62%	80.00%

ZONAL LUMEN SUMMARY

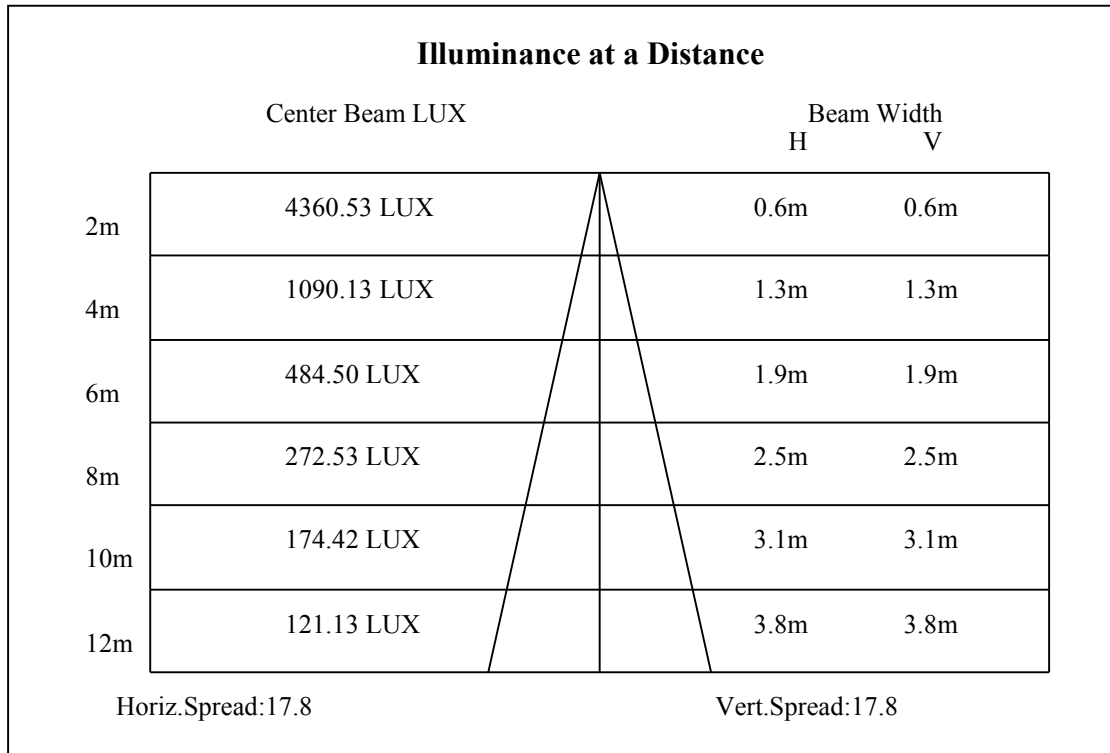
0-10	1124.80
10-20	899.08
20-30	619.23
30-40	582.80
40-50	117.02
50-60	12.33
60-70	7.72
70-80	7.48
80-90	6.41
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

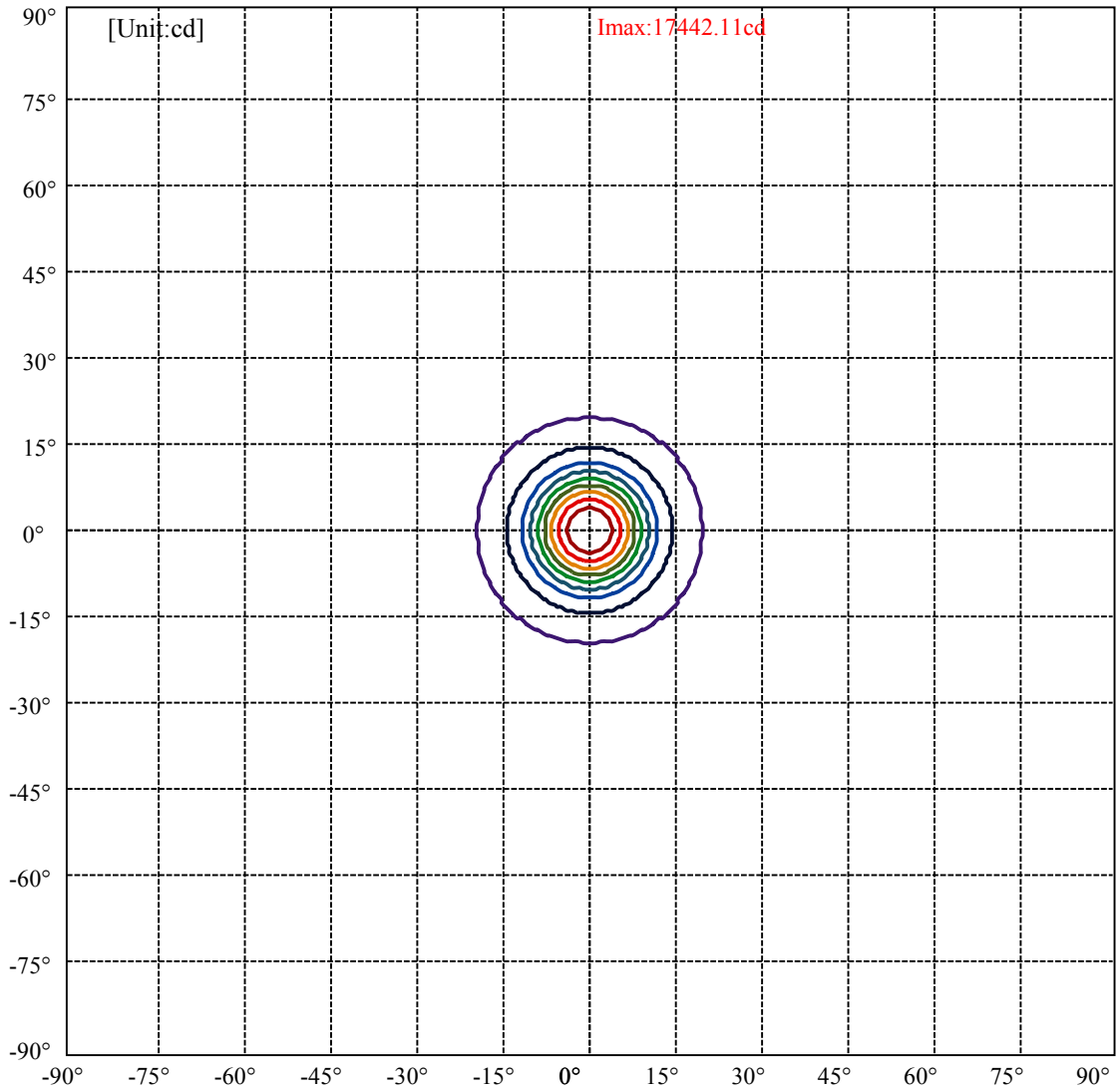


C90/C270: —————

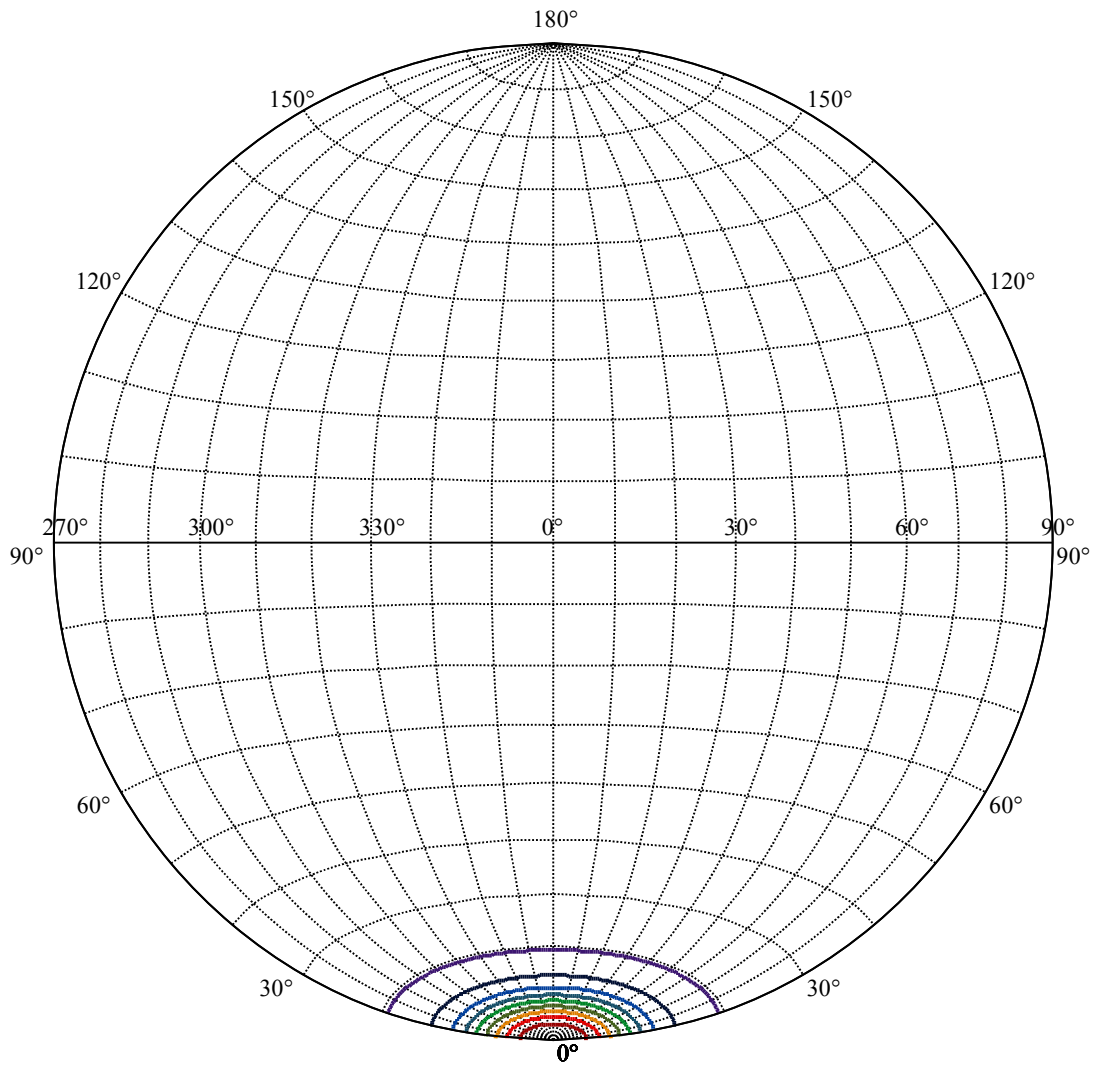
Field angle(10%Imax):C90/270Left:19.3 Right:19.3

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





(10%Imax) 1744.21	—
(20%Imax) 3488.42	—
(30%Imax) 5232.63	—
(40%Imax) 6976.84	—
(50%Imax) 8721.05	—
(60%Imax) 10465.3	—
(70%Imax) 12209.5	—
(80%Imax) 13953.7	—
(90%Imax) 15697.9	—



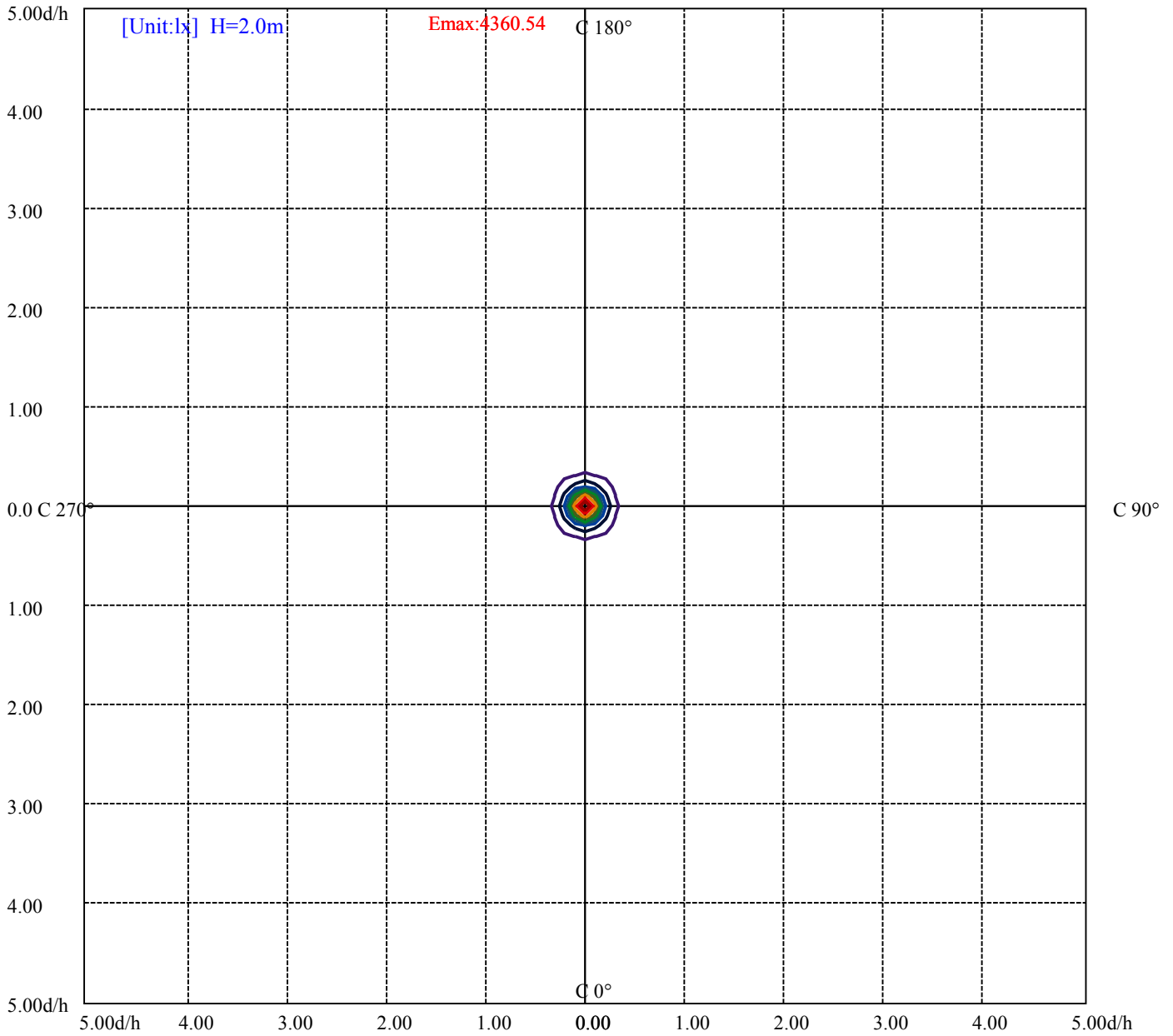
House

[Unit:cd]

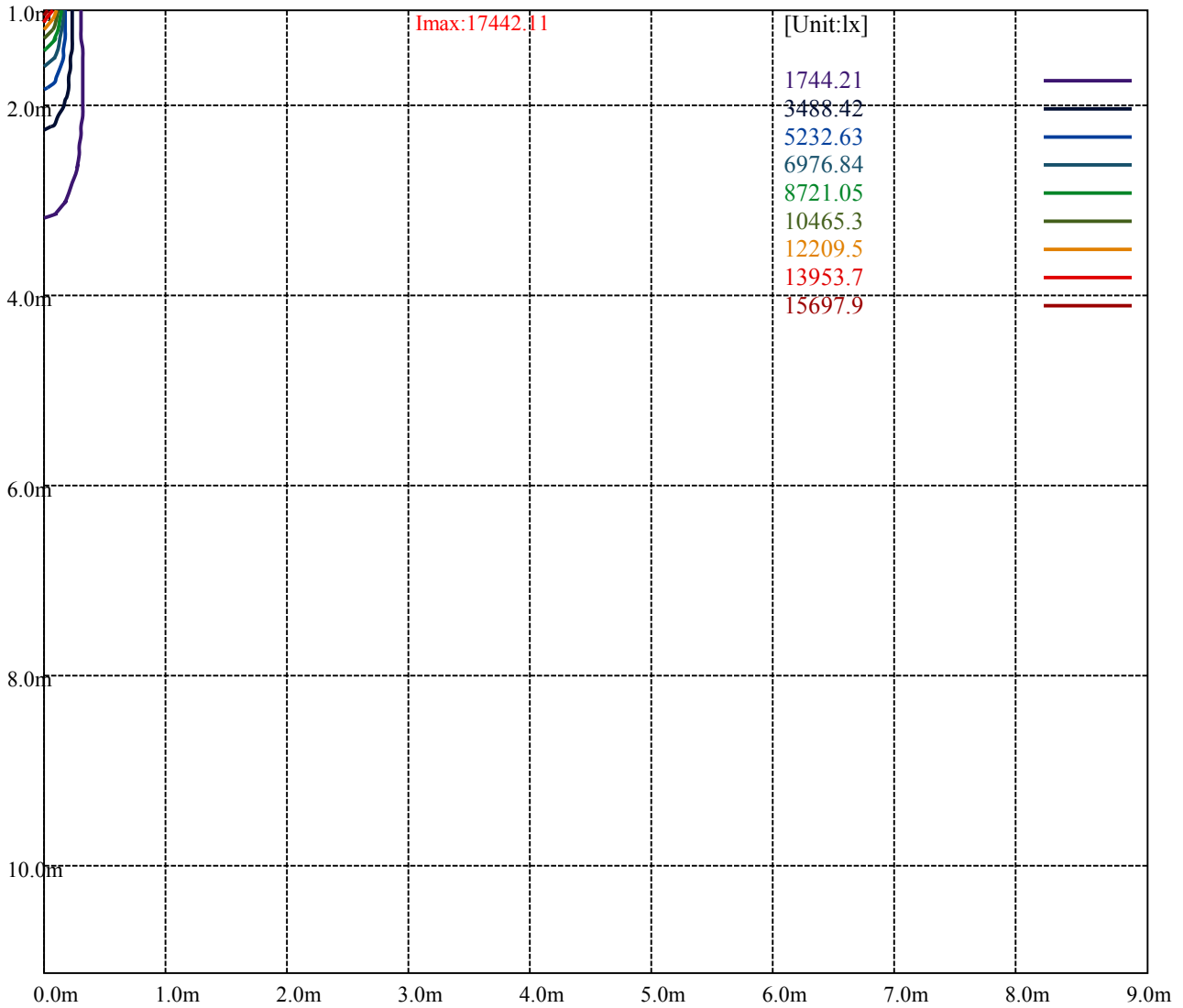
Road

**Imax:17442.11**

(10%Imax) 1744.21	—
(20%Imax) 3488.42	—
(30%Imax) 5232.63	—
(40%Imax) 6976.84	—
(50%Imax) 8721.05	—
(60%Imax) 10465.3	—
(70%Imax) 12209.5	—
(80%Imax) 13953.7	—
(90%Imax) 15697.9	—



- (10%Emax) 436.0525
- (20%Emax) 872.105
- (30%Emax) 1308.157
- (40%Emax) 1744.21
- (50%Emax) 2180.26
- (60%Emax) 2616.325
- (70%Emax) 3052.375
- (80%Emax) 3488.425
- (90%Emax) 3924.475



Luminance Table

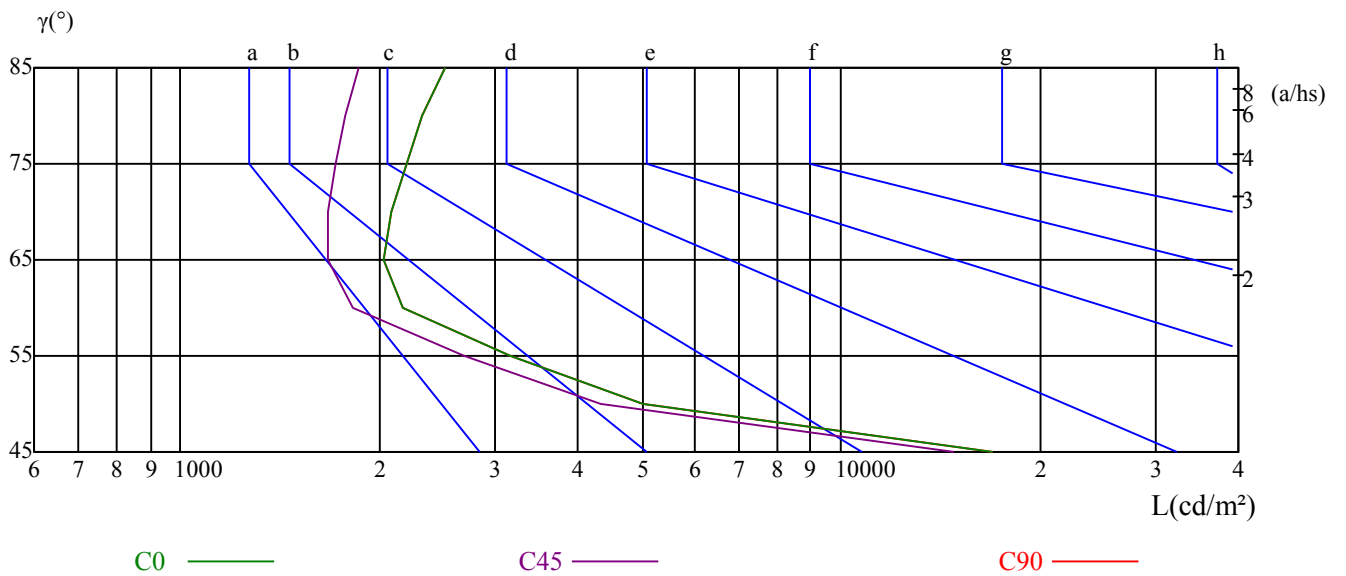
$\gamma$	45	50	55	60	65	70	75	80	85
C0	16916	5020	3166	2178	2032	2082	2193	2328	2522
C45	14810	4331	2690	1819	1667	1673	1721	1778	1862
C90	16916	5020	3166	2178	2032	2082	2193	2328	2522

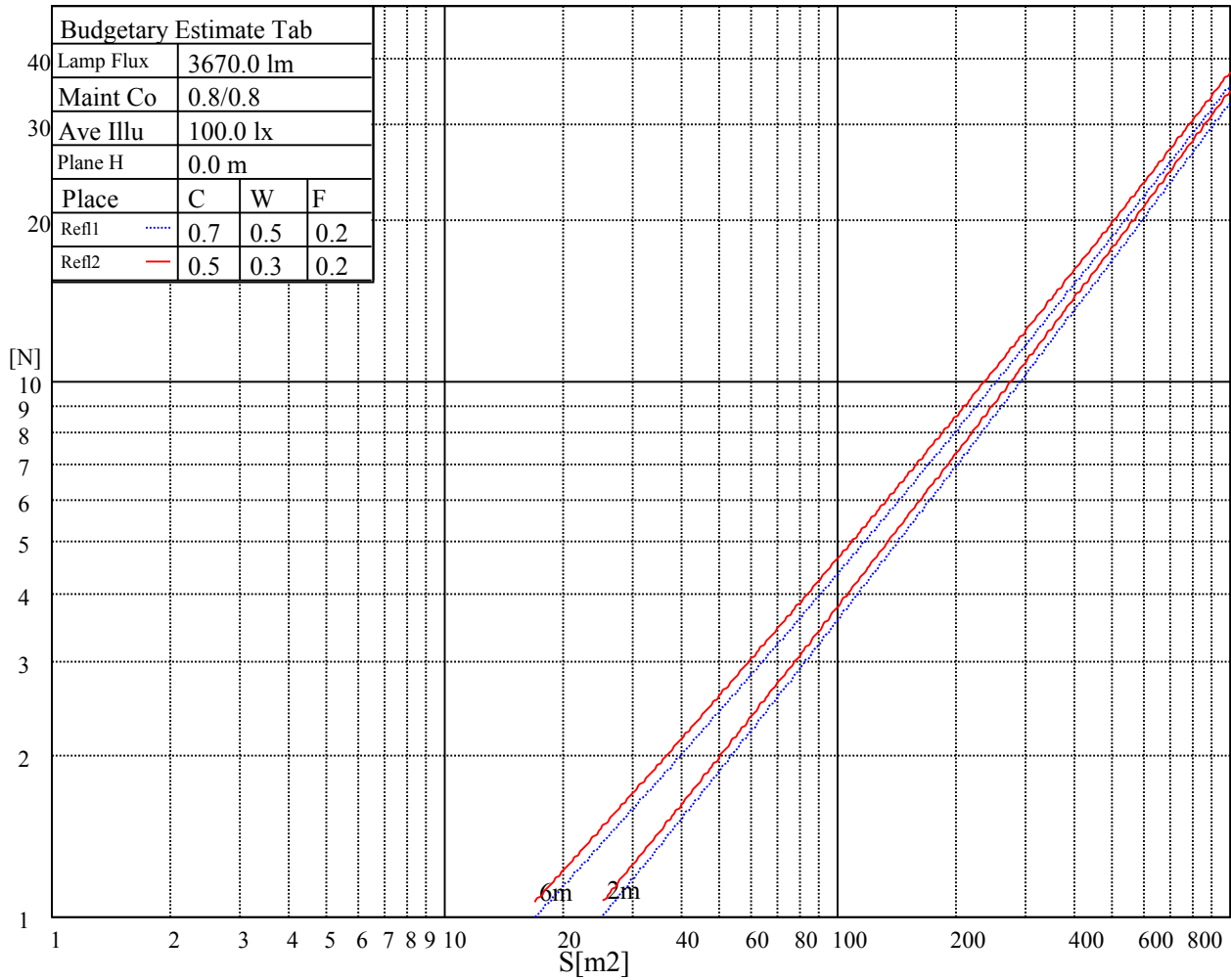
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4311	4311	4311	6474	6474	6474	17602	17602	17602

Glare Table

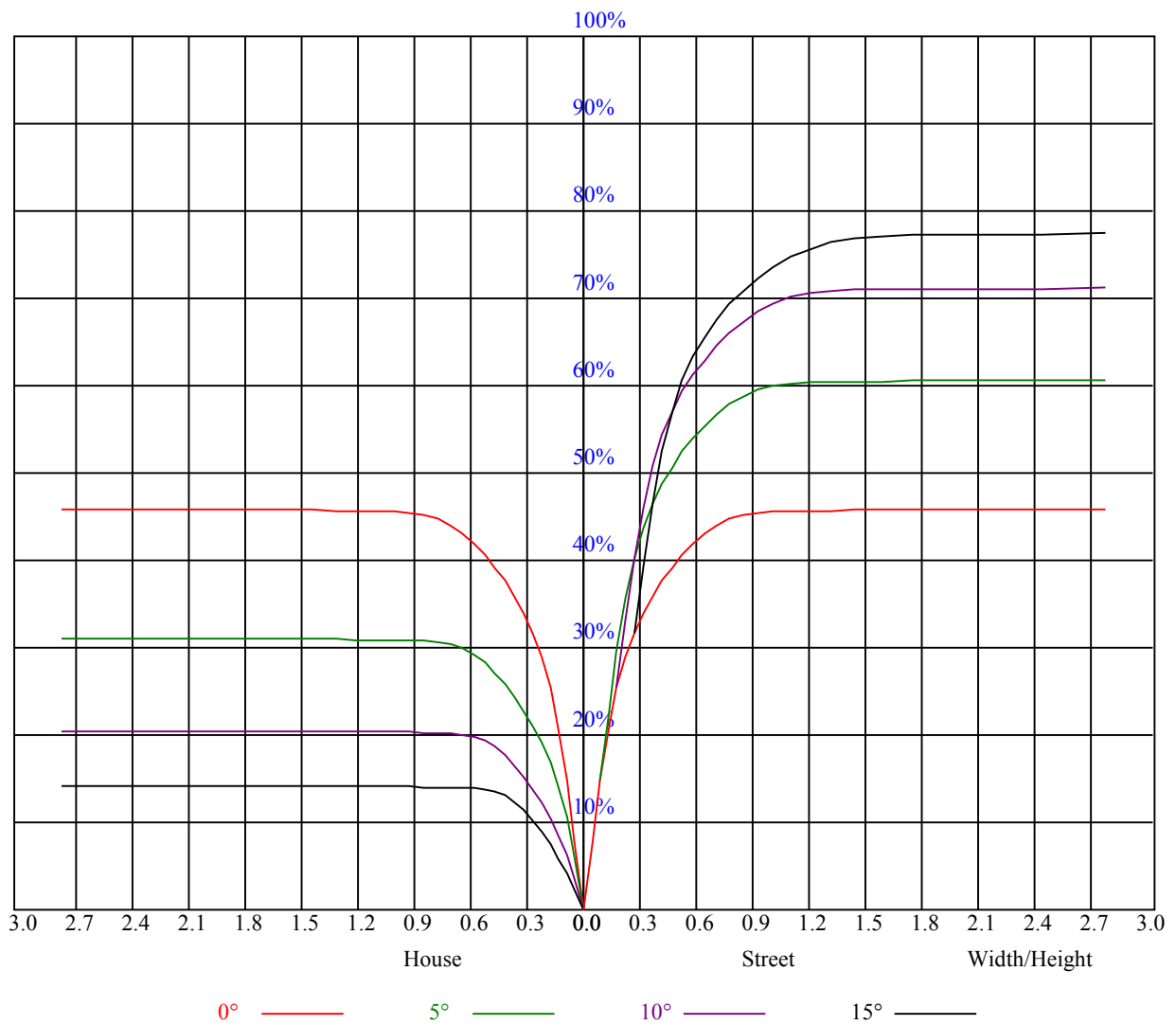
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

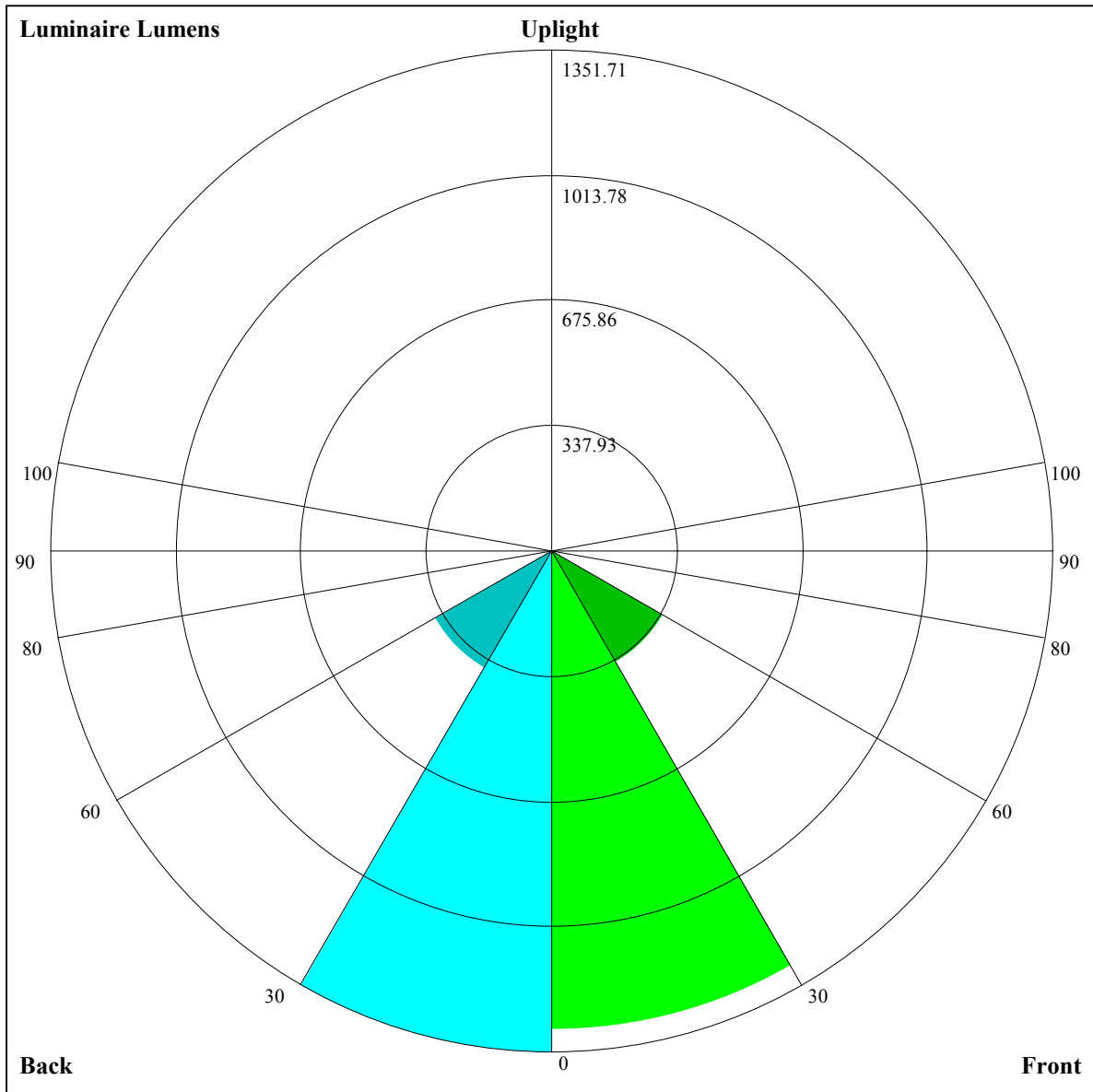
Luminance Limiting Curve





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	1.10	1.10	1.10	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.03	1.01	0.99	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88
2	0.97	0.94	0.91	0.96	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.87	0.88	0.86	0.85	0.83
3	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.79
4	0.88	0.83	0.80	0.87	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.72
6	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.69
7	0.76	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	0.68	0.67
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
9	0.71	0.66	0.63	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60





Luminaire Lumens:

FL=1290.12,FM=346.67,FH=7.68,FVH=3.57

BL=1351.71,BM=363.47,BH=7.74,BVH=3.56

UL=0,UH=0

BUG Rating:B3-U0-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	17742.68	16742.61	16742.61	16152.75	15155.11	13635.58	12272.12	10841.53	9387.44
45.0	17574.87	17793.02	17633.60	17188.90	16576.39	15686.99	14613.00	12976.84	11575.62
90.0	17776.24	17793.02	16619.27	16619.27	16234.14	14925.21	13689.28	11954.11	10487.44
135.0	16674.64	17759.46	17801.41	17558.09	17079.82	16366.63	15401.71	13941.75	12565.70
180.0	17742.68	17759.46	17423.84	16920.40	15938.71	14906.67	13673.26	12288.81	10476.45
225.0	17574.87	16605.84	16605.84	15491.57	14362.21	13041.53	11244.27	9773.41	8357.92
270.0	17776.24	17549.70	17105.00	16240.77	15267.46	14126.35	12775.47	10988.28	9536.71
315.0	16674.64	16674.64	16055.42	15020.86	13827.73	12470.13	10612.46	9162.58	7770.58
360.0	17742.68	16742.61	16742.61	16152.75	15155.11	13635.58	12272.12	10841.53	9387.44
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7682.48	6437.32	5354.94	4455.47	3582.85	3077.74	2690.10	2315.04	2076.75
45.0	10132.44	8706.05	7061.50	5895.21	4879.95	4250.66	4250.66	2842.81	2412.37
90.0	9038.40	7337.63	6118.48	5062.95	4206.27	3387.35	2915.80	2539.07	2247.08
135.0	11147.70	9343.73	7976.07	6415.42	5341.43	4426.86	4233.88	3520.76	2680.03
180.0	9066.84	7699.18	6465.77	5156.84	4309.39	4309.39	3598.80	2685.90	2390.55
225.0	7048.15	5637.70	4699.64	3965.46	3377.28	2821.83	2494.60	2230.29	1968.51
270.0	8169.05	6902.07	5475.68	4544.33	4342.95	3596.28	2725.34	2334.34	2084.30
315.0	6227.56	5180.42	4139.99	3499.79	3005.58	2630.52	2264.70	2045.70	1662.09
360.0	7682.48	6437.32	5354.94	4455.47	3582.85	3077.74	2690.10	2315.04	2076.75
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1670.56	1670.56	1620.72	1544.70	1457.86	1406.85	1360.78	1326.21	1286.36
45.0	2139.68	1933.27	1740.29	1622.82	1528.84	1455.01	1378.65	1335.86	1298.94
90.0	1842.65	1658.65	1658.65	1536.31	1454.59	1389.64	1325.62	1281.99	1252.29
135.0	2376.29	2134.64	1898.87	1759.58	1644.63	1549.82	1462.56	1405.50	1348.45
180.0	2138.84	1908.94	1765.46	1627.85	1545.63	1474.31	1414.73	1360.19	1320.76
225.0	1656.04	1656.04	1559.30	1488.40	1431.26	1369.09	1336.03	1304.90	1273.60
270.0	1882.93	1725.18	1582.54	1486.05	1404.66	1337.54	1274.61	1234.34	1203.29
315.0	1662.09	1590.85	1509.80	1448.88	1396.86	1348.61	1317.15	1279.81	1255.73
360.0	1670.56	1670.56	1620.72	1544.70	1457.86	1406.85	1360.78	1326.21	1286.36
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1262.19	1237.69	1217.39	1193.89	1175.01	1157.81	1123.16	1064.43	993.86
45.0	1274.61	1245.24	1225.94	1210.84	1189.87	1174.76	1163.02	1136.17	1096.73
90.0	1218.48	1194.65	1173.08	1159.74	1134.40	1118.13	1099.25	1065.27	994.87
135.0	1311.53	1277.97	1244.40	1221.75	1199.93	1177.28	1156.30	1141.20	1110.99
180.0	1290.55	1257.83	1232.66	1210.00	1193.22	1172.25	1152.11	1126.94	1059.81
225.0	1245.33	1221.33	1205.72	1185.92	1163.35	1142.46	1109.32	1030.44	955.43
270.0	1173.08	1144.56	1125.26	1103.44	1083.31	1069.04	1040.51	1002.76	940.67
315.0	1231.48	1208.83	1184.50	1166.79	1142.37	1107.39	1058.97	986.31	880.59
360.0	1262.19	1237.69	1217.39	1193.89	1175.01	1157.81	1123.16	1064.43	993.86
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	882.94	781.92	677.87	544.46	441.60	341.33	246.51	143.98	81.72
45.0	1036.32	933.95	839.98	736.78	633.57	496.81	422.13	422.13	209.43
90.0	918.35	836.20	716.97	617.80	493.70	395.45	301.64	216.64	128.04
135.0	1052.26	982.62	889.48	792.15	663.78	544.63	438.91	438.91	212.78
180.0	987.65	894.52	775.37	668.81	566.45	461.56	433.88	303.65	144.82
225.0	867.42	742.65	635.17	529.28	398.05	300.55	213.04	139.37	72.07
270.0	872.70	772.02	678.04	584.07	485.06	433.88	433.88	183.25	104.21
315.0	784.43	680.98	572.57	437.48	333.02	238.29	140.71	86.00	46.40
360.0	882.94	781.92	677.87	544.46	441.60	341.33	246.51	143.98	81.72

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	46.99	32.72	27.02	21.73	17.20	13.17	12.17	11.58	11.16
45.0	118.64	70.56	46.74	41.03	36.00	31.05	26.09	23.75	22.15
90.0	78.79	54.37	45.31	39.86	35.07	30.71	27.10	24.16	22.23
135.0	135.93	71.66	44.13	33.56	27.94	22.57	17.70	14.43	13.01
180.0	83.40	43.97	31.72	26.60	19.72	14.68	11.50	10.15	9.82
225.0	46.65	38.60	33.23	26.68	22.49	19.72	18.38	17.20	15.86
270.0	69.14	53.53	45.73	40.53	34.99	29.28	26.35	23.91	20.56
315.0	36.25	31.55	26.18	20.31	16.95	15.86	15.19	14.26	13.51
360.0	46.99	32.72	27.02	21.73	17.20	13.17	12.17	11.58	11.16
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.82	10.40	9.98	9.65	9.31	8.98	8.64	8.31	8.05
45.0	20.39	18.12	15.94	13.68	12.08	10.49	9.23	8.31	7.97
90.0	19.30	17.20	14.94	12.42	10.91	9.90	9.15	8.89	8.56
135.0	12.59	12.17	11.75	11.16	10.49	9.90	9.31	8.81	8.31
180.0	9.57	9.40	9.23	9.06	8.89	8.81	8.56	8.39	8.14
225.0	14.43	12.92	11.16	9.98	9.23	8.64	8.05	7.89	7.72
270.0	18.04	15.35	13.17	11.16	9.98	9.31	8.89	8.56	8.39
315.0	12.67	11.66	10.82	9.98	9.23	8.73	8.31	7.97	7.72
360.0	10.82	10.40	9.98	9.65	9.31	8.98	8.64	8.31	8.05
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.80	7.64	7.55	7.38	7.30	7.22	7.22	7.05	7.05
45.0	7.80	7.64	7.55	7.47	7.30	7.30	7.22	7.13	7.13
90.0	8.47	8.31	8.31	8.22	8.14	8.14	8.05	8.14	7.97
135.0	7.89	7.72	7.64	7.47	7.38	7.38	7.30	7.22	7.13
180.0	7.89	7.80	7.64	7.47	7.38	7.22	7.22	7.13	7.13
225.0	7.64	7.55	7.47	7.47	7.38	7.38	7.30	7.30	7.22
270.0	8.22	8.14	8.05	7.97	7.89	7.80	7.80	7.72	7.72
315.0	7.55	7.38	7.38	7.30	7.22	7.13	7.05	6.96	6.96
360.0	7.80	7.64	7.55	7.38	7.30	7.22	7.22	7.05	7.05
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.96	6.96	6.88	6.88	6.80	6.80	6.80	6.71	6.71
45.0	7.05	6.96	6.88	6.88	6.80	6.71	6.71	6.63	6.63
90.0	7.97	7.97	7.89	7.89	7.89	7.72	7.64	7.55	7.47
135.0	7.13	7.13	7.05	6.96	6.96	6.88	6.80	6.80	6.63
180.0	7.05	7.05	6.96	6.88	6.88	6.80	6.71	6.63	6.63
225.0	7.22	7.13	7.13	7.05	6.96	6.88	6.80	6.80	6.71
270.0	7.64	7.55	7.47	7.38	7.38	7.22	7.22	7.05	6.88
315.0	6.88	6.88	6.80	6.71	6.71	6.63	6.63	6.63	6.54
360.0	6.96	6.96	6.88	6.88	6.80	6.80	6.80	6.71	6.71
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.71	6.71	6.71	6.63	6.54	6.38	6.38	6.29	6.21
45.0	6.63	6.63	6.63	6.54	6.54	6.38	6.29	6.21	6.21
90.0	7.30	7.13	7.05	6.96	6.88	6.96	7.22	7.13	6.13
135.0	6.63	6.63	6.54	6.54	6.46	6.46	6.38	6.29	6.29
180.0	6.63	6.54	6.54	6.46	6.38	6.38	6.29	6.21	6.21
225.0	6.63	6.54	6.46	6.38	6.29	6.21	6.13	6.13	5.96
270.0	6.80	6.71	6.71	6.54	6.38	6.46	6.71	6.21	6.04
315.0	6.54	6.54	6.54	6.46	6.38	6.38	6.29	6.04	6.04
360.0	6.71	6.71	6.71	6.63	6.54	6.38	6.38	6.29	6.21

Intensity data(cd)

C/γ(°)	90.0
0.0	6.04
45.0	6.04
90.0	6.04
135.0	6.21
180.0	6.04
225.0	5.96
270.0	6.04
315.0	6.04
360.0	6.04