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NATA

Client:

LumCAT: 2-1122-A4

Luminaire: 92.76.365.00

Report No: NT2017122303

Test No: GC2017122303

LampCAT: PrevaLED Core G7 L15-H1

Lamp flux(lm): 3636.0

Number of Lamps: 1

Length(mm): 70

Phm Type: C

Voltage(V): 220.3000

Current(A): 0.1490

Power (W): 31.8100

PF: 0.9670

Ballast type: DC

Width(mm): 70

Height(mm): 0

Photometric Results

Lumens(lm): 3257.12, Efficiency(%): 89.58% , Luminous Efficacy(lm/W): 102.39

Central intensity(cd): 6886.417, Maximum intensity(cd): 6886.417

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=37.0

[C90/270]Total=37.0

Field angle(10%Imax): [C0/180]Total=72.6

[C90/270]Total=72.6

Maximum s/h(1/2): C0_180=0.61 C90_270=0.61

Maximum s/h(1/4): C0_180=0.60 C90_270=0.60

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.62%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.688%

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2017/12/22
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6886.419	1.648	1.648	.045%	.051%
1.0	6868.205	13.145	14.792	.362%	.454%
2.0	6811.245	26.067	40.86	.717%	1.254%
3.0	6728.241	38.615	79.474	1.062%	2.440%
4.0	6621.572	50.652	130.126	1.393%	3.995%
5.0	6507.303	62.194	192.321	1.711%	5.905%
6.0	6363.279	72.940	265.261	2.006%	8.144%
7.0	6224.997	83.193	348.453	2.288%	10.698%
8.0	6036.599	92.130	440.583	2.534%	13.527%
9.0	5878.016	100.836	541.419	2.773%	16.623%
10.0	5689.154	108.335	649.754	2.980%	19.949%
11.0	5467.984	114.414	764.168	3.147%	23.461%
12.0	5252.963	119.766	883.934	3.294%	27.138%
13.0	4994.670	123.210	1007.144	3.389%	30.921%
14.0	4725.067	125.353	1132.497	3.448%	34.770%
15.0	4459.292	126.565	1259.063	3.481%	38.656%
16.0	4179.654	126.337	1385.399	3.475%	42.534%
17.0	3889.691	124.710	1510.11	3.430%	46.363%
18.0	3600.598	122.014	1632.123	3.356%	50.109%
19.0	3308.373	118.116	1750.239	3.249%	53.736%
20.0	3020.150	113.274	1863.514	3.115%	57.213%
21.0	2742.368	107.772	1971.286	2.964%	60.522%
22.0	2481.581	101.943	2073.228	2.804%	63.652%
23.0	2244.982	96.193	2169.421	2.646%	66.605%
24.0	2040.401	91.008	2260.429	2.503%	69.400%
25.0	1871.841	86.750	2347.179	2.386%	72.063%
26.0	1734.835	83.397	2430.577	2.294%	74.623%
27.0	1621.669	80.735	2511.311	2.220%	77.102%
28.0	1526.774	78.602	2589.914	2.162%	79.515%
29.0	1440.696	76.594	2666.508	2.107%	81.867%
30.0	1358.330	74.478	2740.986	2.048%	84.154%
31.0	1284.433	72.544	2813.53	1.995%	86.381%
32.0	1170.403	68.014	2881.544	1.871%	88.469%
33.0	1030.601	61.553	2943.097	1.693%	90.359%
34.0	948.687	58.175	3001.272	1.600%	92.145%
35.0	847.615	53.314	3054.586	1.466%	93.782%
36.0	721.990	46.537	3101.123	1.280%	95.211%
37.0	601.399	39.690	3140.813	1.092%	96.429%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	471.006	31.799	3172.612	.875%	97.405%
39.0	363.791	25.106	3197.718	.690%	98.176%
40.0	256.837	18.104	3215.822	.498%	98.732%
41.0	188.728	13.578	3229.4	.373%	99.149%
42.0	109.738	8.052	3237.453	.221%	99.396%
43.0	41.821	3.128	3240.58	.086%	99.492%
44.0	16.624	1.266	3241.847	.035%	99.531%
45.0	11.514	0.893	3242.739	.025%	99.558%
46.0	9.049	0.714	3243.453	.020%	99.580%
47.0	7.030	0.564	3244.017	.016%	99.598%
48.0	5.760	0.469	3244.486	.013%	99.612%
49.0	4.942	0.409	3244.895	.011%	99.625%
50.0	4.484	0.377	3245.272	.010%	99.636%
51.0	4.217	0.359	3245.631	.010%	99.647%
52.0	4.049	0.350	3245.981	.010%	99.658%
53.0	3.863	0.338	3246.32	.009%	99.668%
54.0	3.735	0.331	3246.651	.009%	99.678%
55.0	3.590	0.323	3246.974	.009%	99.688%
56.0	3.486	0.317	3247.291	.009%	99.698%
57.0	3.364	0.309	3247.6	.009%	99.708%
58.0	3.266	0.304	3247.904	.008%	99.717%
59.0	3.150	0.296	3248.2	.008%	99.726%
60.0	3.057	0.290	3248.49	.008%	99.735%
61.0	2.970	0.285	3248.775	.008%	99.744%
62.0	2.883	0.279	3249.054	.008%	99.752%
63.0	2.813	0.275	3249.329	.008%	99.761%
64.0	2.738	0.270	3249.599	.007%	99.769%
65.0	2.674	0.266	3249.864	.007%	99.777%
66.0	2.622	0.263	3250.127	.007%	99.785%
67.0	2.575	0.260	3250.387	.007%	99.793%
68.0	2.506	0.255	3250.642	.007%	99.801%
69.0	2.465	0.252	3250.894	.007%	99.809%
70.0	2.425	0.250	3251.144	.007%	99.816%
71.0	2.390	0.248	3251.392	.007%	99.824%
72.0	2.355	0.246	3251.637	.007%	99.832%
73.0	2.320	0.243	3251.881	.007%	99.839%
74.0	2.268	0.239	3252.12	.007%	99.846%
75.0	2.280	0.241	3252.361	.007%	99.854%

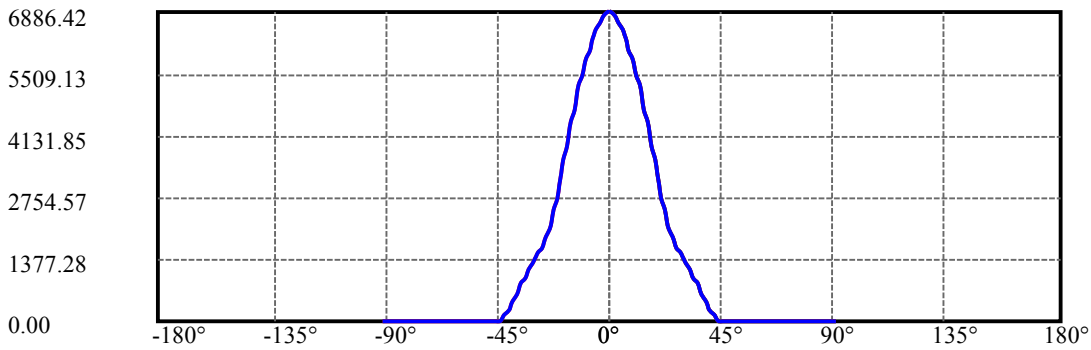
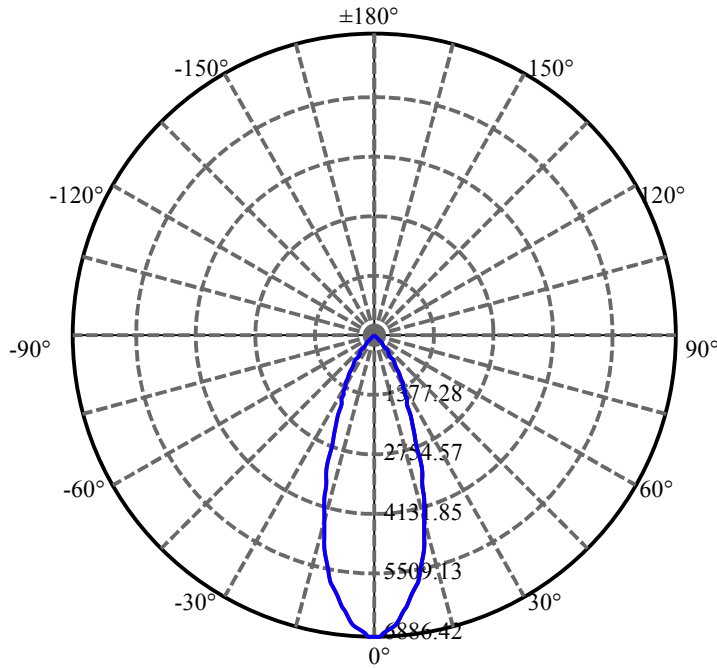
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.477	0.264	3252.625	.007%	99.862%
77.0	2.842	0.304	3252.929	.008%	99.871%
78.0	3.254	0.349	3253.278	.010%	99.882%
79.0	3.677	0.396	3253.673	.011%	99.894%
80.0	4.229	0.457	3254.13	.013%	99.908%
81.0	4.635	0.502	3254.632	.014%	99.924%
82.0	4.884	0.530	3255.162	.015%	99.940%
83.0	4.246	0.462	3255.625	.013%	99.954%
84.0	2.668	0.291	3255.916	.008%	99.963%
85.0	2.216	0.242	3256.158	.007%	99.970%
86.0	2.123	0.232	3256.39	.006%	99.977%
87.0	2.042	0.224	3256.613	.006%	99.984%
88.0	1.937	0.212	3256.826	.006%	99.991%
89.0	1.821	0.200	3257.025	.005%	99.997%
90.0	1.781	0.098	3257.123	.003%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2740.99	75.38%	84.15%
0-40	3215.82	88.44%	98.73%
0-60	3248.49	89.34%	99.73%
0-90	3257.03	89.58%	100.00%
0-120	3257.03	89.58%	100.00%
0-180	3257.12	89.58%	100.00%
60-90	8.83	0.24%	0.27%
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%
0-28.21	2605.70	71.66%	80.00%

ZONAL LUMEN SUMMARY

0-10	649.75
10-20	1213.76
20-30	877.47
30-40	474.84
40-50	29.45
50-60	3.22
60-70	2.65
70-80	2.99
80-90	2.90
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: —————

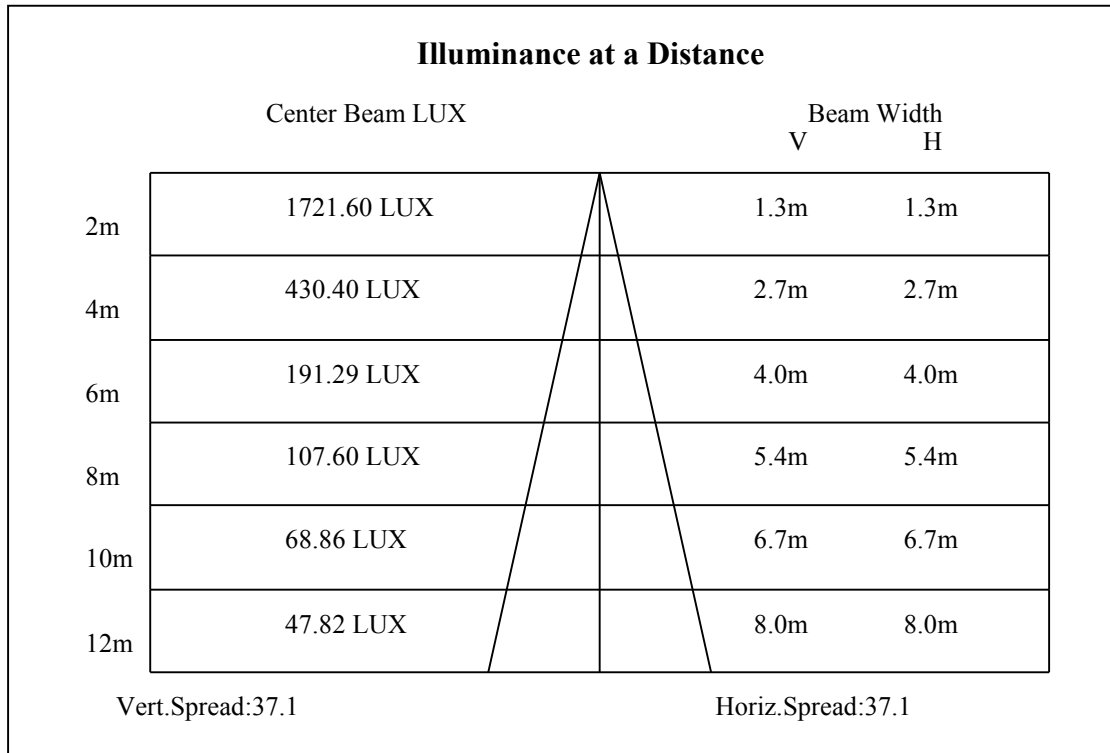
C90/C270: —————

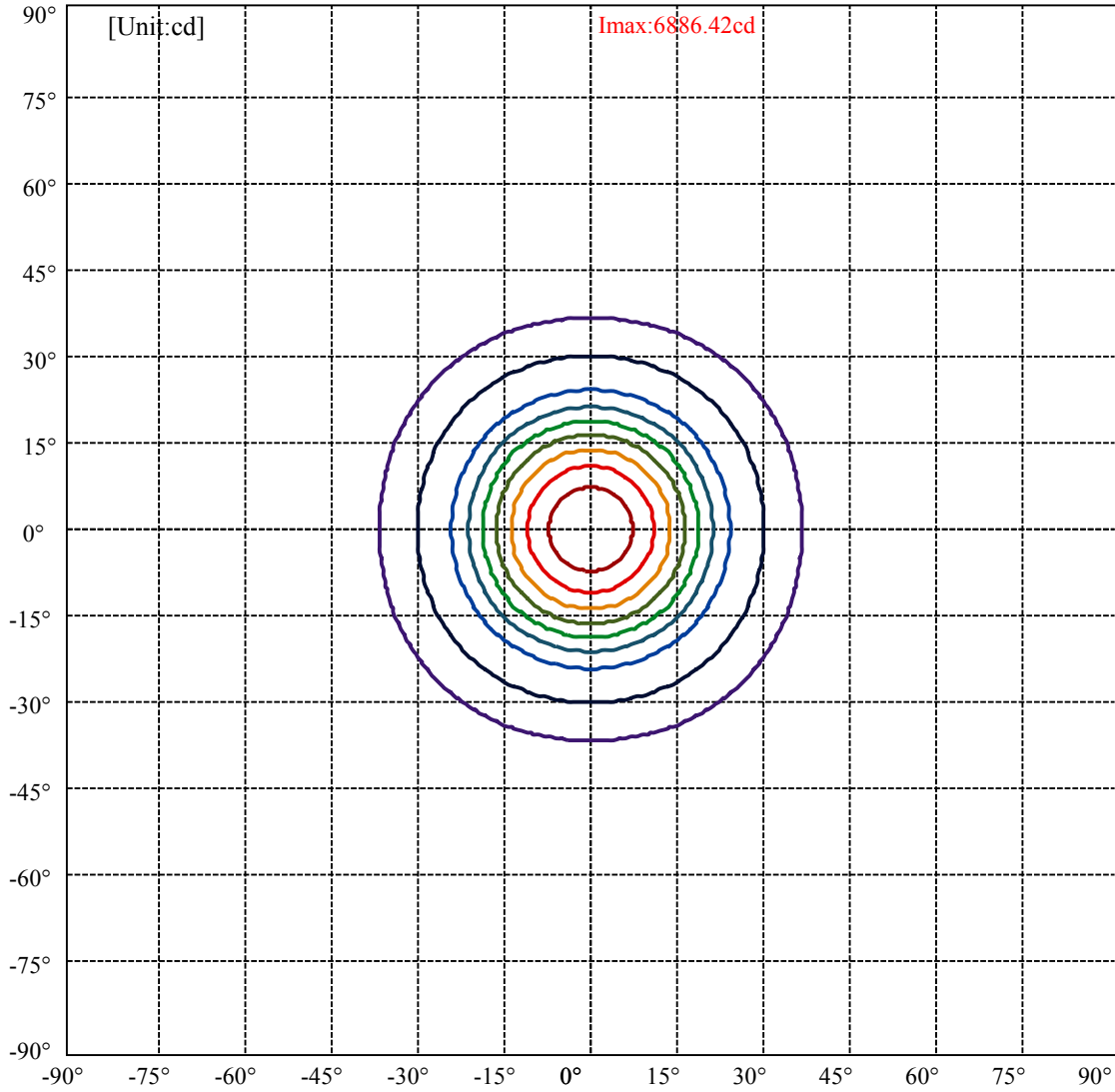
Field angle(10%Imax):C0/180Left:36.3 Right:36.3

:C90/270Left:36.3 Right:36.3

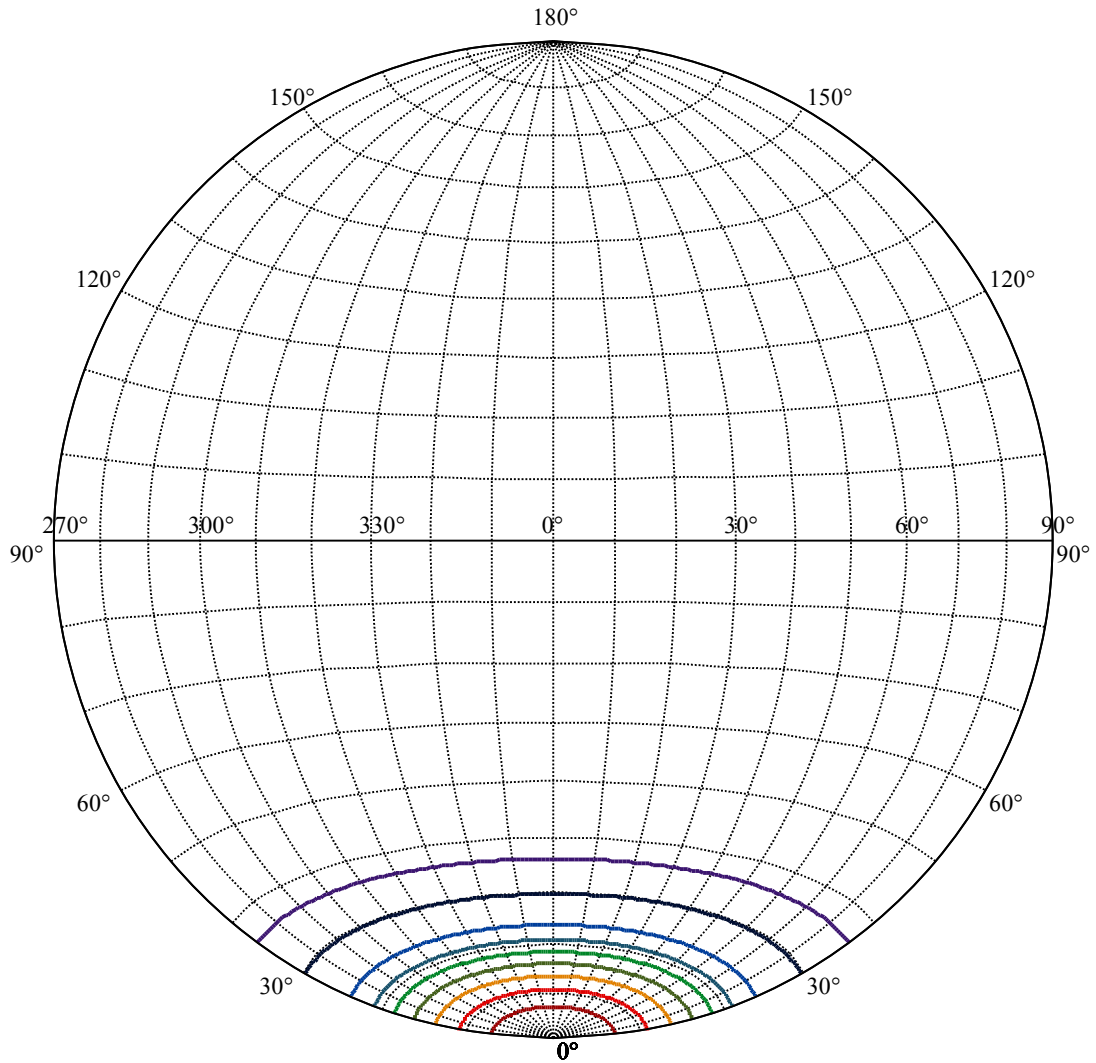
Beam Angle(50%Imax):C0/180Left:18.5 Right:18.5

:C90/270Left:18.5 Right:18.5





(10%Imax) 688.642	—
(20%Imax) 1377.28	—
(30%Imax) 2065.93	—
(40%Imax) 2754.57	—
(50%Imax) 3443.21	—
(60%Imax) 4131.85	—
(70%Imax) 4820.49	—
(80%Imax) 5509.13	—
(90%Imax) 6197.78	—



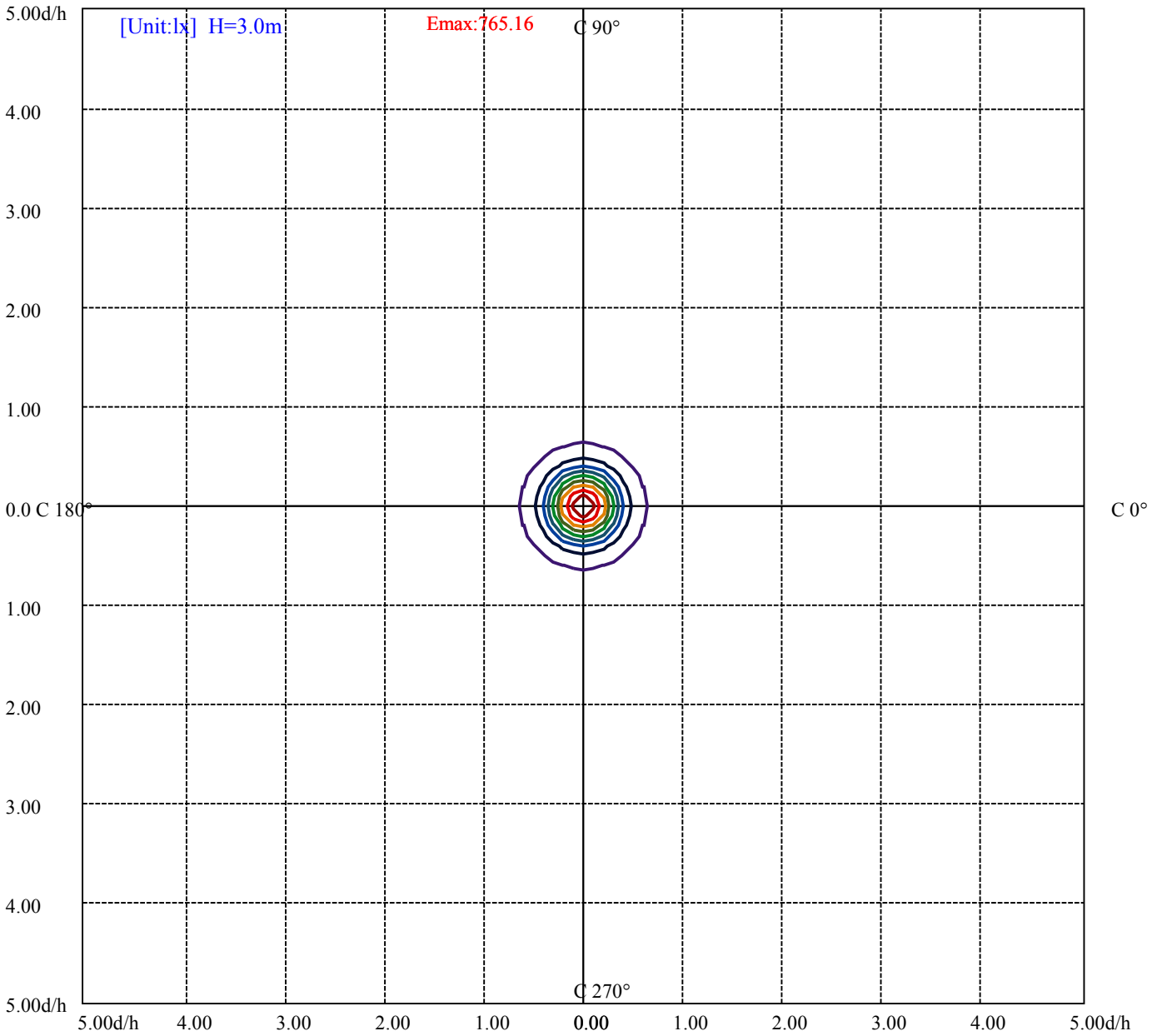
House

[Unit:cd]

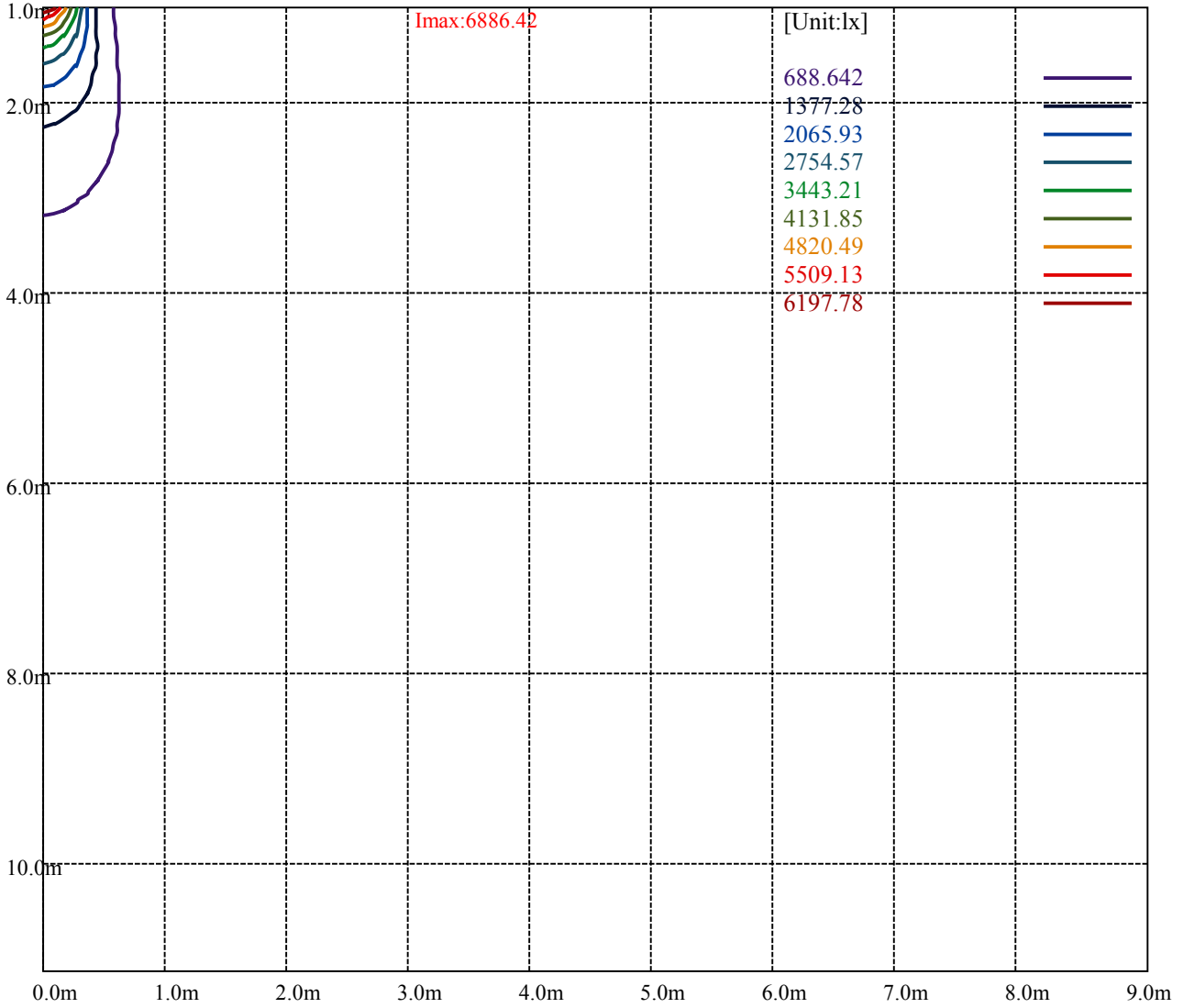
Road

Imax:6886.42

(10%Imax) 688.642	—
(20%Imax) 1377.28	—
(30%Imax) 2065.93	—
(40%Imax) 2754.57	—
(50%Imax) 3443.21	—
(60%Imax) 4131.85	—
(70%Imax) 4820.49	—
(80%Imax) 5509.13	—
(90%Imax) 6197.78	—



(10%Emax) 76.51566	—
(20%Emax) 153.0311	—
(30%Emax) 229.5467	—
(40%Emax) 306.0634	—
(50%Emax) 382.5789	—
(60%Emax) 459.0945	—
(70%Emax) 535.61	—
(80%Emax) 612.1255	—
(90%Emax) 688.6411	—



Luminance Limiting Curve(no luminous side)

Luminance Table

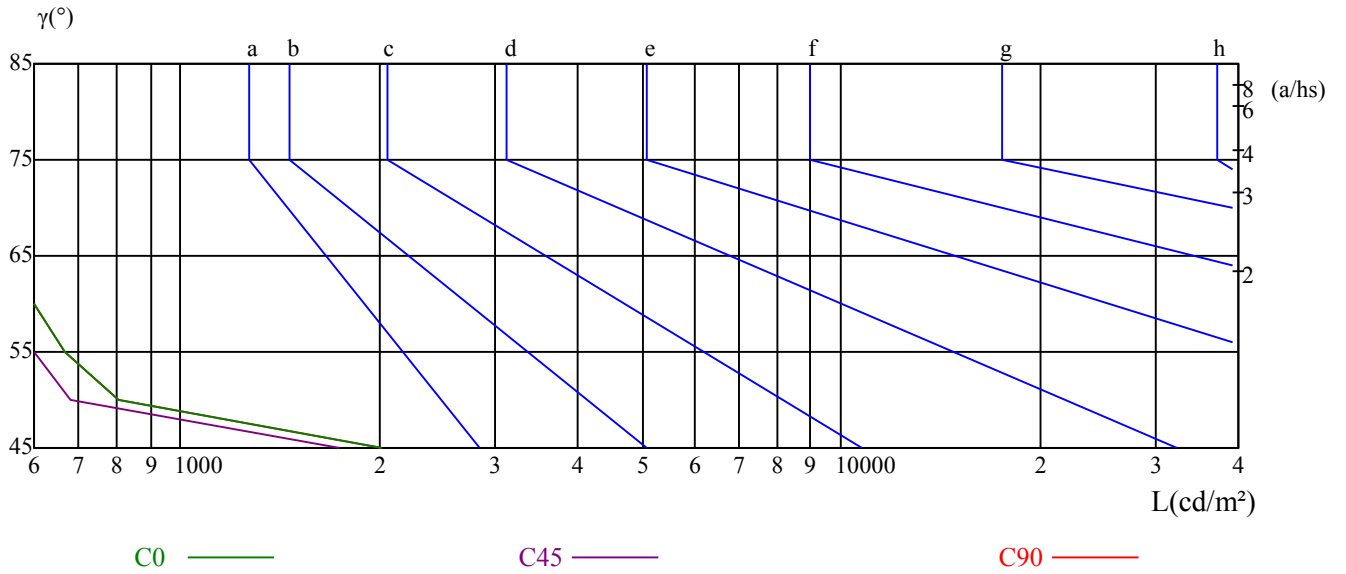
γ	45	50	55	60	65	70	75	80	85
C0	2023	806	666	590	543	523	529	1070	622
C45	1741	683	556	485	438	414	409	807	455
C90	2023	806	666	590	543	523	529	1070	622

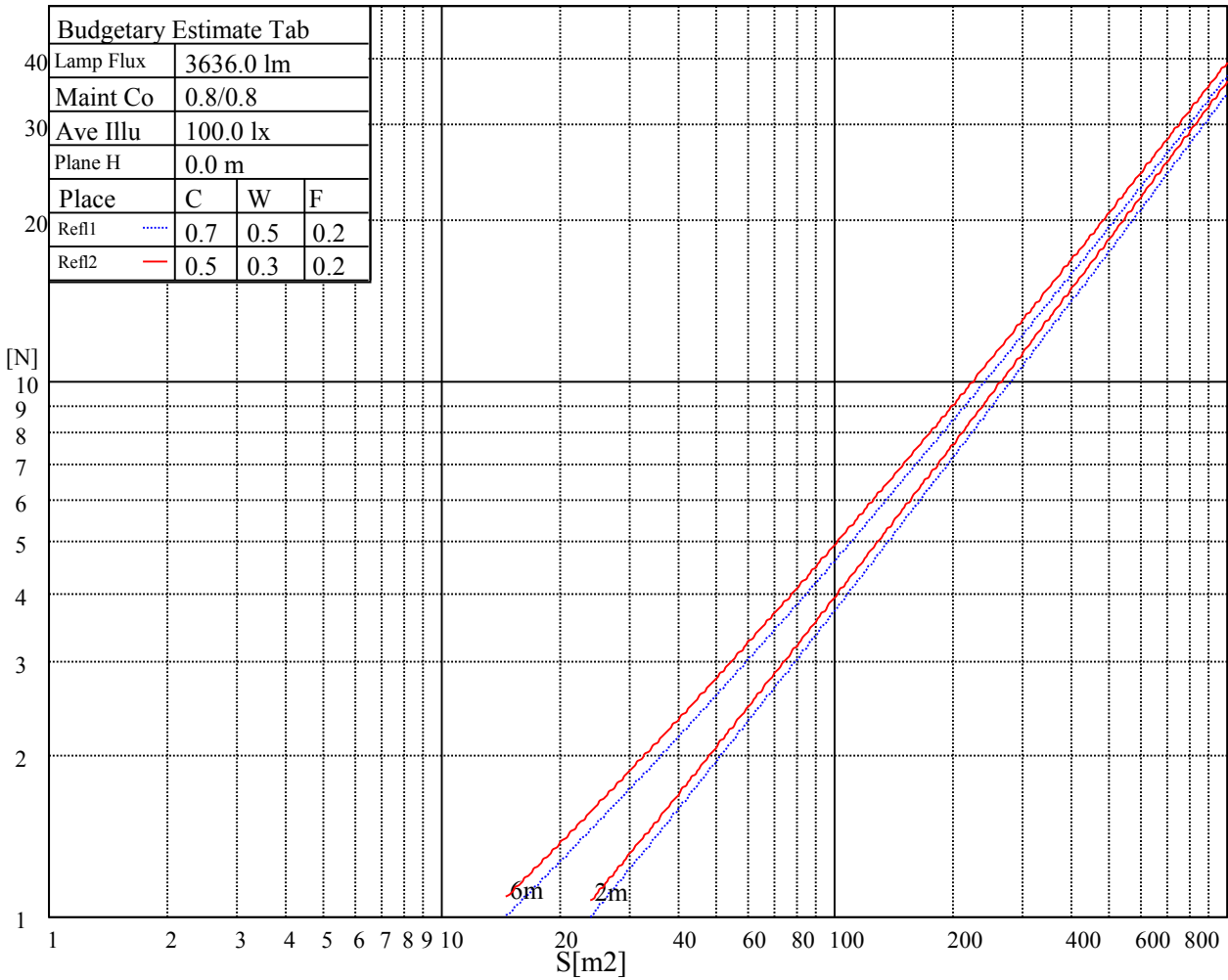
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1291	1291	1291	1797	1797	1797	5188	5188	5188

Glare Table

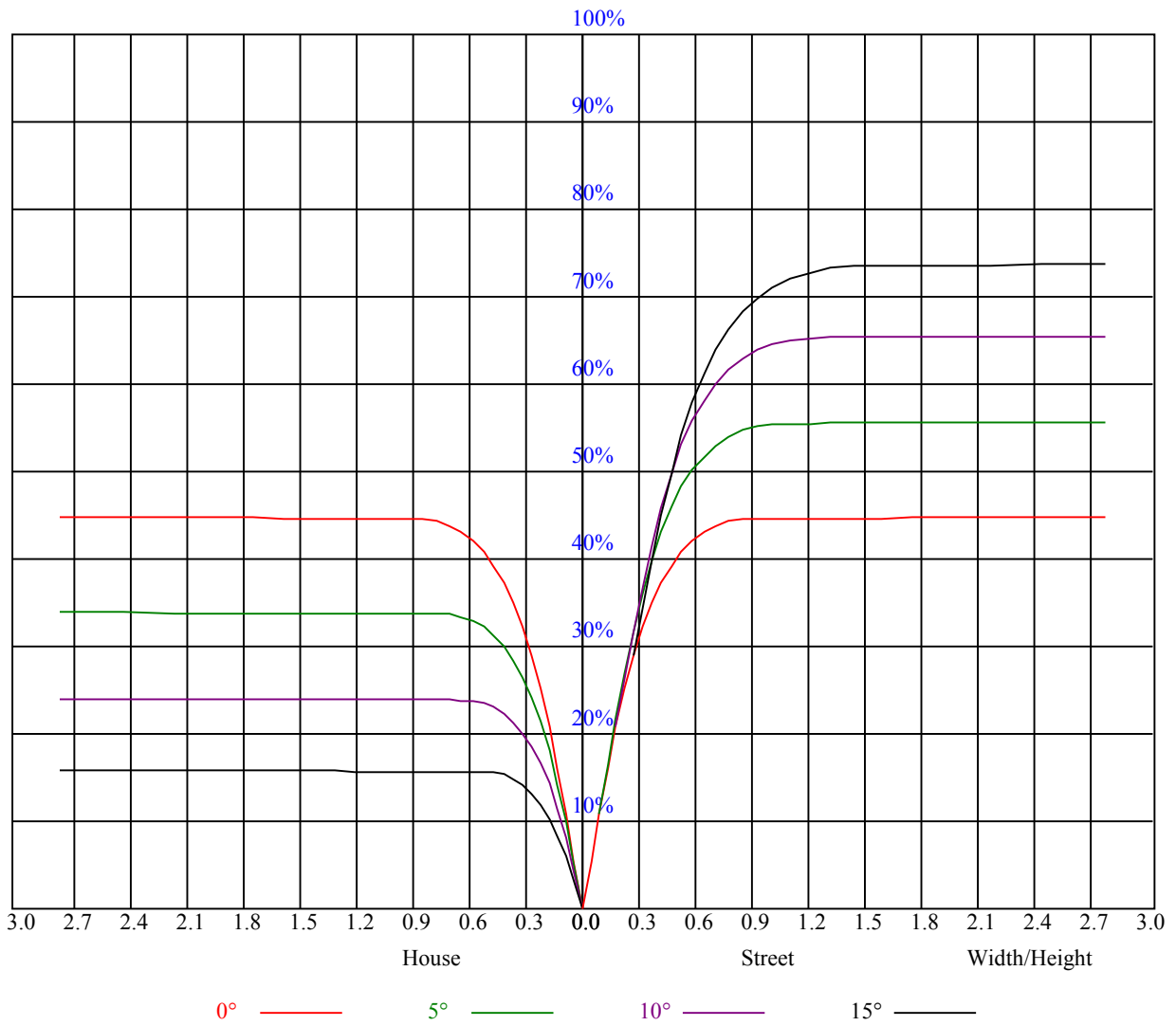
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

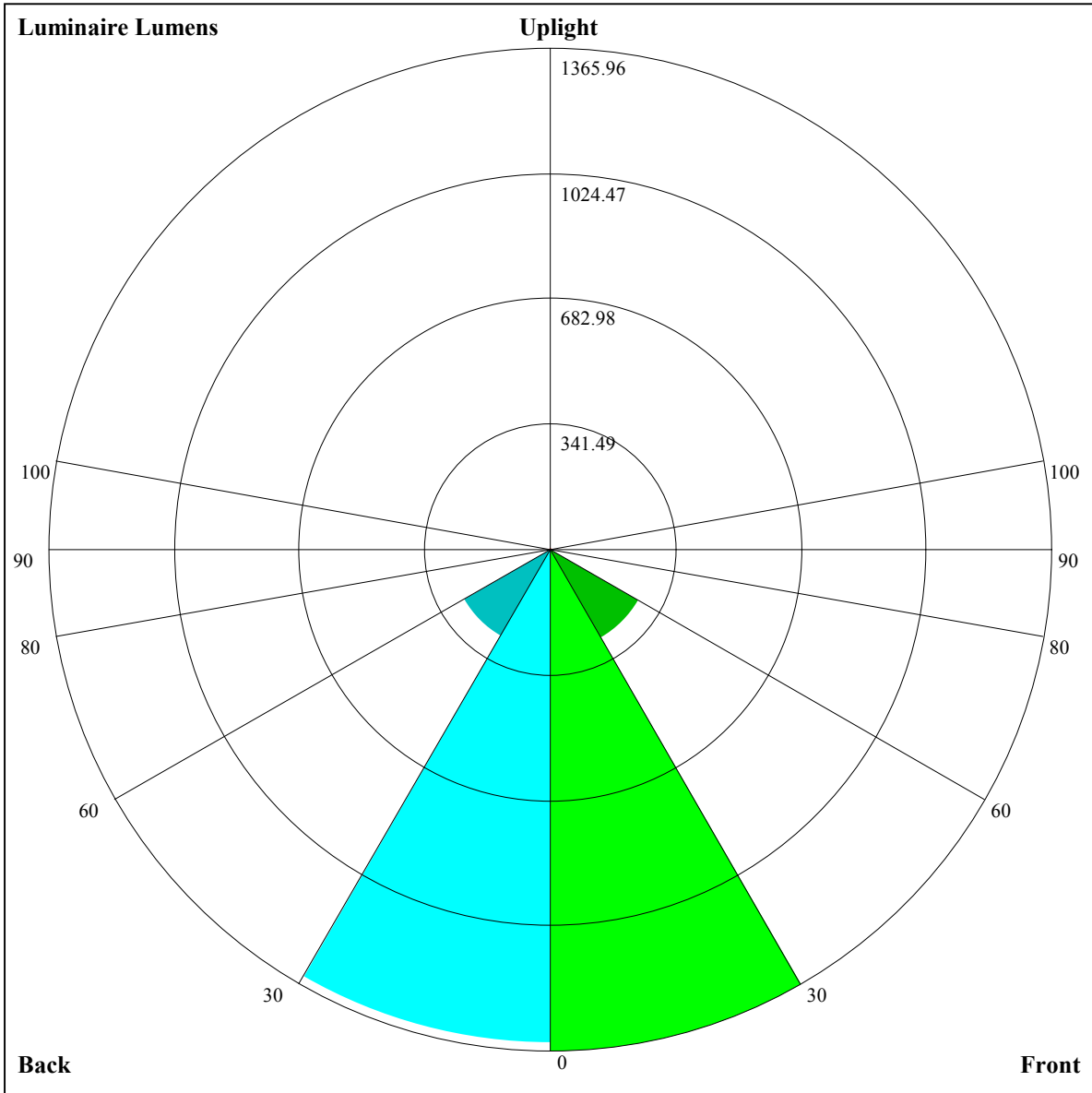
Luminance Limiting Curve





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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	1.00	0.98	0.96	0.98	0.96	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.89	0.85	0.82	0.88	0.84	0.82	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
4	0.84	0.80	0.77	0.84	0.80	0.77	0.82	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.73	0.71	0.75	0.73	0.70	0.69
6	0.76	0.72	0.69	0.76	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.67	0.63	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57
10	0.64	0.59	0.57	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.55





Luminaire Lumens:

FL=1365.96,FM=276.22,FH=2.77,FVH=1.46

BL=1344.4,BM=270.7,BH=2.9,BVH=1.71

UL=1.94,UH=9.25

BUG Rating:B3-U1-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	6897.44	6894.66	6846.40	6773.54	6668.67	6554.52	6444.54	6262.18	6092.81
45.0	6870.99	6887.23	6862.64	6799.99	6703.01	6595.35	6467.28	6324.82	6170.30
90.0	6868.67	6799.06	6696.98	6587.00	6458.93	6376.79	6163.80	6063.57	5805.57
135.0	6908.58	6887.23	6820.41	6727.14	6618.56	6495.59	6351.74	6198.61	6032.48
180.0	6897.44	6858.46	6786.07	6692.80	6580.97	6451.50	6304.87	6152.67	5978.65
225.0	6870.99	6816.70	6736.88	6634.80	6513.22	6378.19	6227.38	6132.71	5879.81
270.0	6868.67	6904.40	6890.94	6848.72	6772.15	6676.56	6561.48	6430.62	6272.85
315.0	6908.58	6897.90	6849.64	6761.94	6657.07	6529.92	6385.15	6234.80	6060.32
360.0	6897.44	6894.66	6846.40	6773.54	6668.67	6554.52	6444.54	6262.18	6092.81
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5947.56	5709.51	5539.21	5305.80	5048.73	4767.53	4482.61	4189.34	3885.40
45.0	5996.29	5810.21	5604.64	5382.83	5136.43	4874.72	4585.62	4353.61	4000.94
90.0	5686.78	5473.78	5240.38	4991.65	4720.66	4438.99	4150.36	3848.74	3547.12
135.0	5850.58	5695.59	5480.28	5200.93	5001.86	4738.76	4460.80	4173.10	3876.12
180.0	5794.90	5589.79	5366.59	5129.47	4866.37	4708.13	4322.98	4155.00	3857.09
225.0	5762.41	5557.77	5336.89	5099.77	4843.16	4570.78	4295.14	4009.76	3709.99
270.0	6113.69	5924.36	5729.00	5608.35	5289.10	5041.31	4886.32	4505.35	4338.76
315.0	5871.93	5752.20	5446.87	5304.88	5051.05	4660.33	4490.50	4202.33	3976.10
360.0	5947.56	5709.51	5539.21	5305.80	5048.73	4767.53	4482.61	4189.34	3885.40
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	3580.99	3285.40	2996.31	2717.89	2455.25	2219.98	2013.95	1845.51	1711.40
45.0	3761.50	3463.59	3168.47	2875.66	2601.88	2348.52	2124.86	1935.07	1780.54
90.0	3252.92	2962.90	2684.48	2425.55	2193.07	1990.29	1829.73	1703.51	1597.25
135.0	3579.60	3291.44	3002.81	2724.85	2463.60	2228.80	2028.34	1865.00	1733.68
180.0	3561.97	3273.80	2992.60	2720.67	2463.60	2230.19	2028.34	1864.53	1732.75
225.0	3420.44	3135.52	2854.32	2587.50	2340.63	2119.29	1933.21	1783.79	1664.53
270.0	4046.88	3748.04	3450.14	3158.26	2869.17	2596.78	2347.13	2125.78	1940.63
315.0	3600.48	3306.28	3012.09	2728.56	2465.46	2226.01	2017.66	1851.54	1717.90
360.0	3580.99	3285.40	2996.31	2717.89	2455.25	2219.98	2013.95	1845.51	1711.40
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1600.03	1501.66	1446.44	1364.30	1290.52	1208.39	1043.66	890.53	863.66
45.0	1658.50	1556.88	1462.22	1378.69	1302.12	1221.85	1111.41	1043.66	876.14
90.0	1498.87	1412.10	1334.14	1260.83	1176.84	894.29	894.29	818.09	695.59
135.0	1627.41	1531.36	1443.65	1363.38	1319.29	1235.30	1078.00	1001.43	878.46
180.0	1624.63	1528.11	1437.62	1355.95	1282.17	1185.65	1116.51	948.53	877.07
225.0	1565.23	1507.23	1417.20	1335.07	1259.43	1153.17	899.71	899.71	772.01
270.0	1791.22	1671.03	1568.02	1473.35	1386.11	1305.84	1218.13	1104.45	983.80
315.0	1607.46	1505.83	1416.28	1335.07	1258.97	1158.74	883.10	883.10	834.19
360.0	1600.03	1501.66	1446.44	1364.30	1290.52	1208.39	1043.66	890.53	863.66
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	739.16	613.27	485.94	365.98	257.35	162.23	80.65	27.61	13.97
45.0	752.24	676.61	503.99	435.31	321.16	253.87	253.87	48.63	17.68
90.0	569.93	447.89	334.43	227.84	133.22	60.83	21.58	15.96	10.72
135.0	749.00	615.82	489.60	369.88	263.15	263.15	85.85	31.83	16.29
180.0	749.92	623.24	494.24	376.84	270.11	270.11	73.41	25.85	14.85
225.0	645.10	519.62	399.35	290.48	190.58	103.43	39.91	16.98	12.99
270.0	860.83	734.15	607.00	510.48	392.62	261.76	261.76	147.47	33.27
315.0	709.74	580.60	453.50	333.50	226.49	134.43	60.88	20.23	13.22
360.0	739.16	613.27	485.94	365.98	257.35	162.23	80.65	27.61	13.97

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	11.00	8.35	6.54	5.61	4.92	4.45	4.18	3.99	3.85
45.0	12.62	9.23	7.10	6.03	5.20	4.78	4.55	4.27	3.99
90.0	9.05	7.15	5.94	5.01	4.69	4.41	4.18	4.04	3.85
135.0	12.39	9.88	7.75	5.94	5.06	4.55	4.22	4.08	3.94
180.0	11.18	8.63	6.91	5.43	4.64	4.22	3.99	3.90	3.71
225.0	9.65	8.12	6.13	5.06	4.45	4.13	3.94	3.76	3.67
270.0	16.24	12.48	9.61	7.47	5.75	4.92	4.50	4.27	4.08
315.0	9.98	8.54	6.26	5.52	4.83	4.41	4.18	4.08	3.81
360.0	11.00	8.35	6.54	5.61	4.92	4.45	4.18	3.99	3.85
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.76	3.57	3.48	3.39	3.29	3.16	3.06	3.02	2.92
45.0	3.85	3.71	3.62	3.48	3.39	3.25	3.16	3.06	3.02
90.0	3.76	3.62	3.48	3.39	3.29	3.16	3.06	3.02	2.88
135.0	3.81	3.71	3.57	3.43	3.34	3.25	3.16	3.02	2.97
180.0	3.57	3.43	3.39	3.25	3.20	3.11	3.02	2.92	2.83
225.0	3.53	3.39	3.29	3.16	3.06	2.92	2.88	2.78	2.69
270.0	3.94	3.76	3.67	3.53	3.39	3.29	3.16	3.06	2.97
315.0	3.67	3.53	3.39	3.29	3.16	3.06	2.97	2.88	2.78
360.0	3.76	3.57	3.48	3.39	3.29	3.16	3.06	3.02	2.92
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.83	2.78	2.74	2.74	2.64	2.60	2.60	2.55	2.51
45.0	2.92	2.88	2.83	2.74	2.69	2.64	2.64	2.55	2.51
90.0	2.83	2.78	2.64	2.60	2.60	2.51	2.46	2.46	2.41
135.0	2.88	2.78	2.74	2.64	2.60	2.55	2.46	2.46	2.41
180.0	2.78	2.69	2.64	2.60	2.60	2.51	2.46	2.41	2.37
225.0	2.64	2.60	2.46	2.46	2.41	2.37	2.32	2.27	2.27
270.0	2.88	2.74	2.74	2.64	2.55	2.46	2.41	2.37	2.32
315.0	2.74	2.64	2.60	2.55	2.51	2.41	2.37	2.32	2.32
360.0	2.83	2.78	2.74	2.74	2.64	2.60	2.60	2.55	2.51
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.46	2.46	2.41	2.32	2.32	2.27	2.23	2.23	2.69
45.0	2.51	2.51	2.46	2.46	2.37	2.37	2.37	2.60	3.53
90.0	2.37	2.32	2.27	2.51	3.53	5.20	6.77	7.66	8.31
135.0	2.37	2.32	2.27	2.32	2.69	3.20	4.41	4.97	5.61
180.0	2.37	2.37	2.32	2.27	2.64	3.48	4.13	5.85	7.05
225.0	2.23	2.18	2.13	2.09	2.09	2.09	2.04	2.13	2.74
270.0	2.27	2.18	2.13	2.13	2.09	2.09	2.04	2.00	1.95
315.0	2.27	2.23	2.13	2.13	2.09	2.04	2.04	2.00	1.95
360.0	2.46	2.46	2.41	2.32	2.32	2.27	2.23	2.23	2.69
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.62	4.22	4.22	2.46	2.23	2.13	2.04	1.95	1.86
45.0	4.55	5.66	5.61	3.99	2.60	2.46	2.27	2.09	1.86
90.0	8.31	7.42	3.76	2.46	2.18	2.04	1.86	1.76	1.72
135.0	6.03	5.80	6.08	3.90	2.27	2.27	2.18	2.04	2.00
180.0	7.38	8.35	7.05	2.60	2.51	2.37	2.46	2.27	2.09
225.0	3.29	3.57	3.02	2.13	2.04	1.90	1.81	1.76	1.67
270.0	1.95	1.95	1.90	1.90	1.95	1.90	1.86	1.81	1.72
315.0	1.95	2.09	2.32	1.90	1.95	1.90	1.86	1.81	1.67
360.0	3.62	4.22	4.22	2.46	2.23	2.13	2.04	1.95	1.86

Intensity data(cd)

C/γ(°)	90.0
0.0	1.81
45.0	1.81
90.0	1.76
135.0	2.00
180.0	1.95
225.0	1.67
270.0	1.62
315.0	1.62
360.0	1.81