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NATA

Client:

LumCAT: 4-2267-M

Luminaire: 92.70.135.00

Report No: NT2018010518

Voltage(V): 220.4000

Test No: GC2018010518

Current(A): 0.0950

LampCAT: BXRV-DR-1830-H-3000-A-13

Power (W): 19.2600

Lamp flux(lm): 1355.0

PF: 0.9190

Number of Lamps: 1

Ballast type: AC

Length(mm): 100

Width(mm): 100

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1206.90, Efficiency(%): 89.07% , Luminous Efficacy(lm/W): 62.66

Central intensity(cd): 2748.168, Maximum intensity(cd): 2748.168

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=34.6

[C90/270]Total=34.6

Field angle(10%Imax): [C0/180]Total=71.0

[C90/270]Total=71.0

Maximum s/h(1/2): C0_180=0.56 C90_270=0.56

Maximum s/h(1/4): C0_180=0.59 C90_270=0.59

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.12%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.490%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2748.168	0.657	0.657	.049%	.054%
1.0	2740.860	5.246	5.903	.387%	.489%
2.0	2717.484	10.400	16.303	.768%	1.351%
3.0	2677.461	15.367	31.67	1.134%	2.624%
4.0	2634.712	20.154	51.824	1.487%	4.294%
5.0	2569.980	24.563	76.387	1.813%	6.329%
6.0	2499.911	28.656	105.043	2.115%	8.703%
7.0	2424.853	32.406	137.449	2.392%	11.389%
8.0	2342.313	35.748	173.197	2.638%	14.351%
9.0	2248.288	38.569	211.766	2.846%	17.546%
10.0	2150.029	40.942	252.708	3.022%	20.939%
11.0	2044.288	42.775	295.483	3.157%	24.483%
12.0	1930.135	44.007	339.489	3.248%	28.129%
13.0	1833.965	45.241	384.73	3.339%	31.877%
14.0	1718.304	45.586	430.316	3.364%	35.655%
15.0	1611.635	45.742	476.058	3.376%	39.445%
16.0	1511.693	45.693	521.751	3.372%	43.231%
17.0	1400.615	44.906	566.657	3.314%	46.951%
18.0	1304.966	44.221	610.879	3.264%	50.615%
19.0	1205.257	43.030	653.909	3.176%	54.181%
20.0	1086.488	40.750	694.659	3.007%	57.557%
21.0	996.077	39.145	733.804	2.889%	60.801%
22.0	928.090	38.126	771.93	2.814%	63.960%
23.0	856.171	36.685	808.615	2.707%	66.999%
24.0	790.846	35.274	843.889	2.603%	69.922%
25.0	732.042	33.926	877.815	2.504%	72.733%
26.0	676.625	32.527	910.342	2.401%	75.428%
27.0	633.365	31.532	941.874	2.327%	78.041%
28.0	594.143	30.588	972.462	2.257%	80.575%
29.0	559.421	29.741	1002.203	2.195%	83.039%
30.0	520.866	28.559	1030.763	2.108%	85.406%
31.0	483.587	27.313	1058.076	2.016%	87.669%
32.0	443.106	25.749	1083.825	1.900%	89.802%
33.0	397.827	23.760	1107.585	1.754%	91.771%
34.0	351.210	21.537	1129.122	1.589%	93.555%
35.0	297.573	18.717	1147.839	1.381%	95.106%
36.0	248.293	16.004	1163.843	1.181%	96.432%
37.0	203.287	13.416	1177.259	.990%	97.544%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	138.189	9.330	1186.589	.689%	98.317%
39.0	73.584	5.078	1191.667	.375%	98.738%
40.0	35.104	2.474	1194.142	.183%	98.943%
41.0	17.743	1.277	1195.418	.094%	99.048%
42.0	11.380	0.835	1196.253	.062%	99.118%
43.0	8.521	0.637	1196.891	.047%	99.170%
44.0	6.462	0.492	1197.383	.036%	99.211%
45.0	5.029	0.390	1197.773	.029%	99.243%
46.0	4.408	0.348	1198.121	.026%	99.272%
47.0	4.037	0.324	1198.444	.024%	99.299%
48.0	3.706	0.302	1198.746	.022%	99.324%
49.0	3.440	0.285	1199.031	.021%	99.348%
50.0	3.196	0.268	1199.3	.020%	99.370%
51.0	2.993	0.255	1199.555	.019%	99.391%
52.0	2.773	0.240	1199.794	.018%	99.411%
53.0	2.581	0.226	1200.02	.017%	99.430%
54.0	2.465	0.219	1200.239	.016%	99.448%
55.0	2.320	0.208	1200.447	.015%	99.465%
56.0	2.181	0.198	1200.646	.015%	99.481%
57.0	2.059	0.189	1200.835	.014%	99.497%
58.0	1.949	0.181	1201.016	.013%	99.512%
59.0	1.868	0.176	1201.192	.013%	99.527%
60.0	1.781	0.169	1201.361	.012%	99.541%
61.0	1.705	0.164	1201.525	.012%	99.554%
62.0	1.630	0.158	1201.682	.012%	99.567%
63.0	1.578	0.154	1201.837	.011%	99.580%
64.0	1.578	0.156	1201.992	.011%	99.593%
65.0	1.549	0.154	1202.146	.011%	99.606%
66.0	1.531	0.153	1202.299	.011%	99.619%
67.0	1.520	0.153	1202.453	.011%	99.631%
68.0	1.520	0.155	1202.607	.011%	99.644%
69.0	1.520	0.156	1202.763	.011%	99.657%
70.0	1.479	0.152	1202.915	.011%	99.670%
71.0	1.497	0.155	1203.07	.011%	99.682%
72.0	1.705	0.178	1203.248	.013%	99.697%
73.0	2.106	0.221	1203.469	.016%	99.715%
74.0	2.483	0.262	1203.731	.019%	99.737%
75.0	2.744	0.291	1204.021	.021%	99.761%

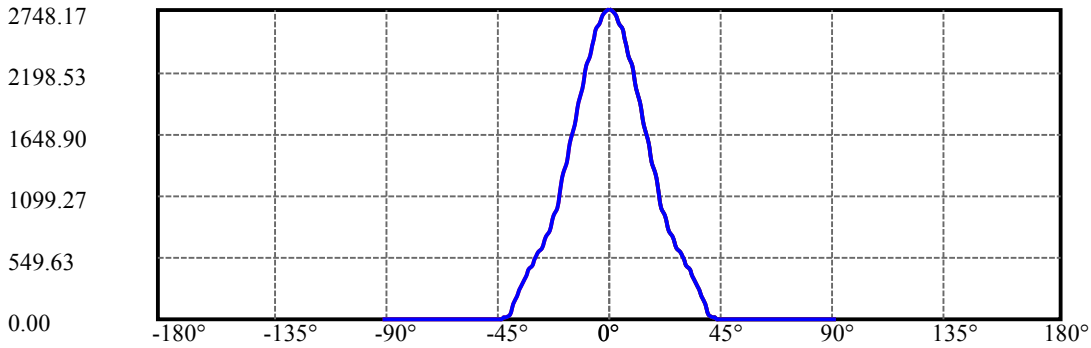
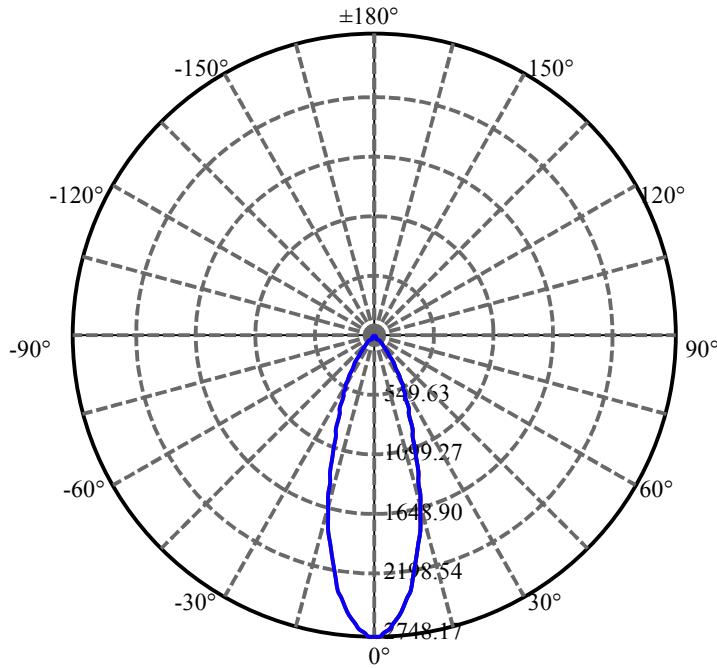
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.958	0.315	1204.336	.023%	99.787%
77.0	2.929	0.313	1204.649	.023%	99.813%
78.0	2.604	0.279	1204.929	.021%	99.836%
79.0	2.019	0.217	1205.146	.016%	99.854%
80.0	1.810	0.195	1205.341	.014%	99.871%
81.0	1.659	0.180	1205.521	.013%	99.885%
82.0	1.531	0.166	1205.687	.012%	99.899%
83.0	1.468	0.160	1205.847	.012%	99.912%
84.0	1.444	0.158	1206.004	.012%	99.926%
85.0	1.473	0.161	1206.165	.012%	99.939%
86.0	1.444	0.158	1206.323	.012%	99.952%
87.0	1.444	0.158	1206.482	.012%	99.965%
88.0	1.473	0.161	1206.643	.012%	99.978%
89.0	1.555	0.170	1206.814	.013%	99.993%
90.0	1.642	0.090	1206.904	.007%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1030.76	76.07%	85.41%
0-40	1194.14	88.13%	98.94%
0-60	1201.36	88.66%	99.54%
0-90	1206.81	89.06%	99.99%
0-120	1206.81	89.06%	99.99%
0-180	1206.90	89.07%	100.00%
60-90	5.62	0.41%	0.47%
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%
0-27.77	965.52	71.26%	80.00%

ZONAL LUMEN SUMMARY

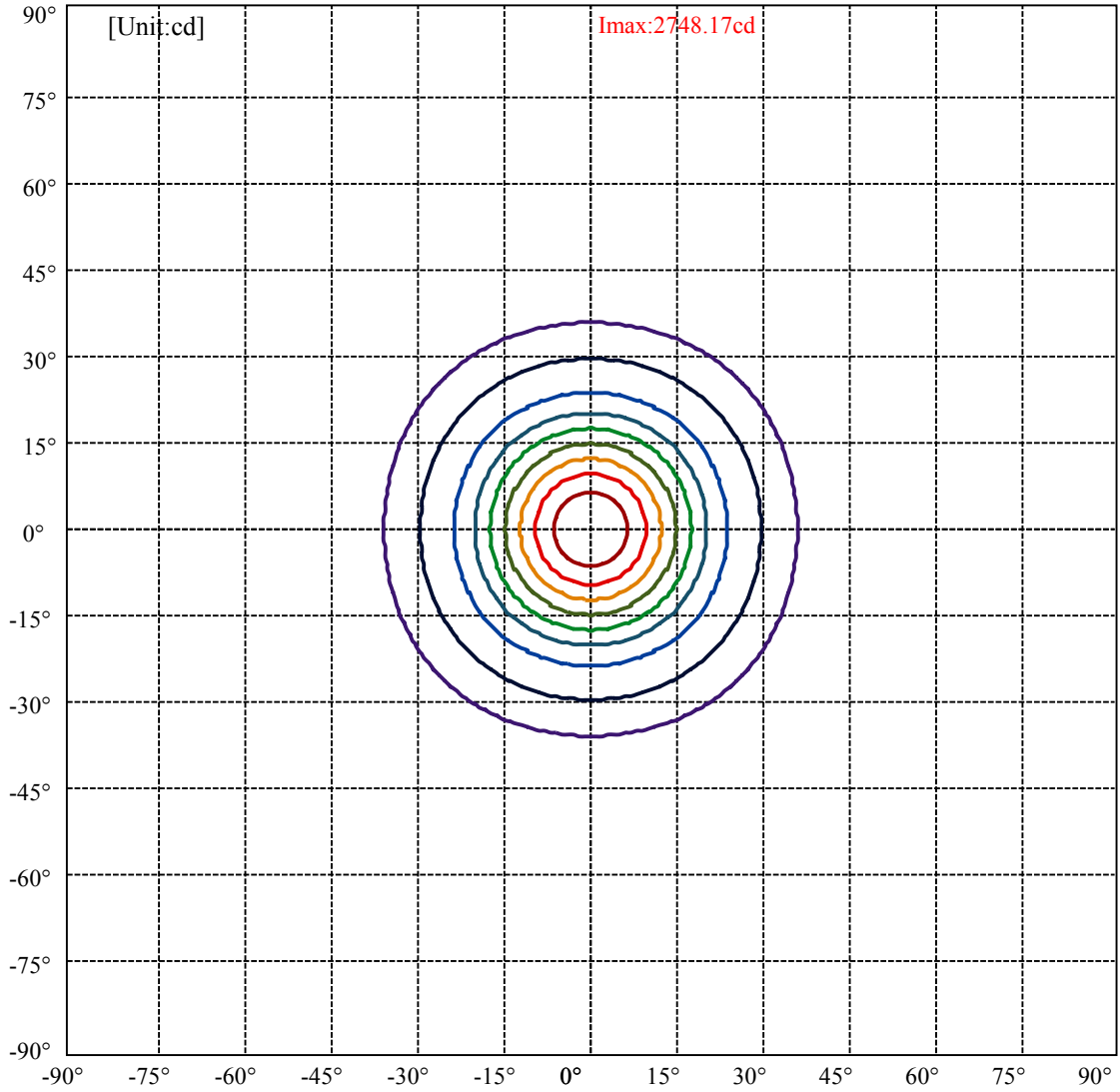
0-10	252.71
10-20	441.95
20-30	336.10
30-40	163.38
40-50	5.16
50-60	2.06
60-70	1.55
70-80	2.43
80-90	1.47
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



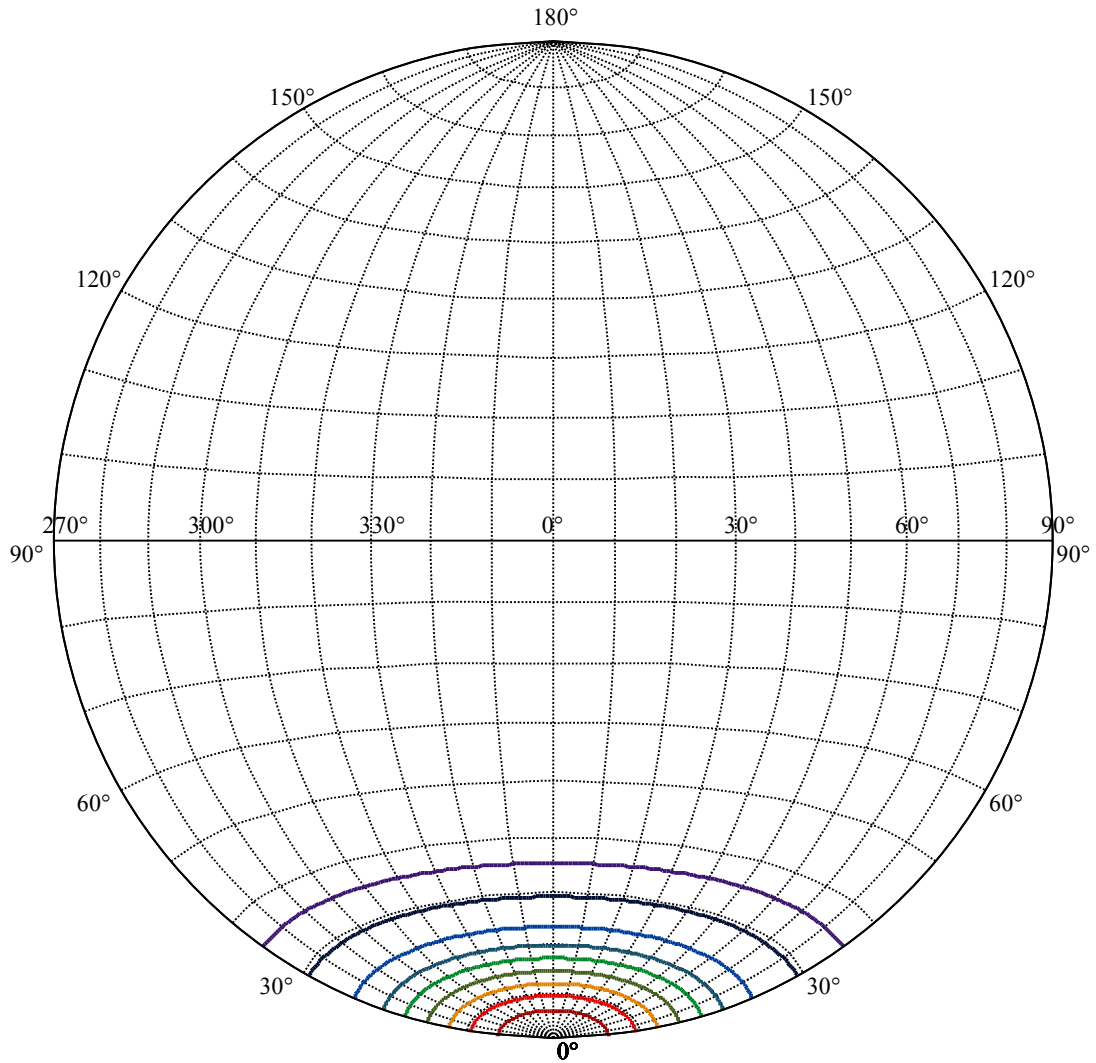
C0(Max): —————
C0/C180: —————
C90/C270: —————

Field angle(10%Imax):C0/180Left:35.5 Right:35.5
:C90/270Left:35.5 Right:35.5

Beam Angle(50%Imax):C0/180Left:17.3 Right:17.3
:C90/270Left:17.3 Right:17.3



(10%Imax) 274.817	—
(20%Imax) 549.634	—
(30%Imax) 824.451	—
(40%Imax) 1099.27	—
(50%Imax) 1374.08	—
(60%Imax) 1648.9	—
(70%Imax) 1923.72	—
(80%Imax) 2198.53	—
(90%Imax) 2473.35	—



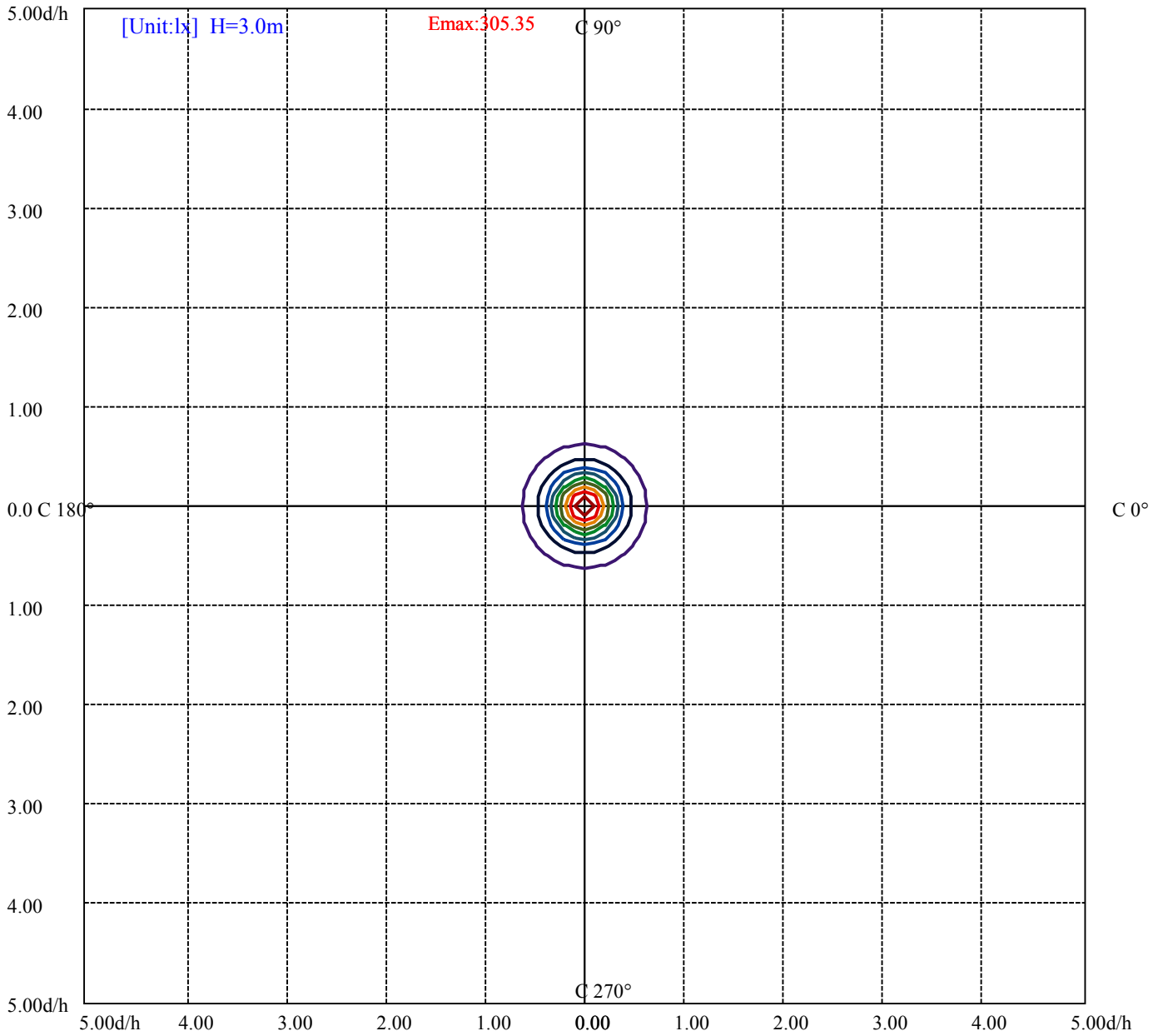
House

[Unit:cd]

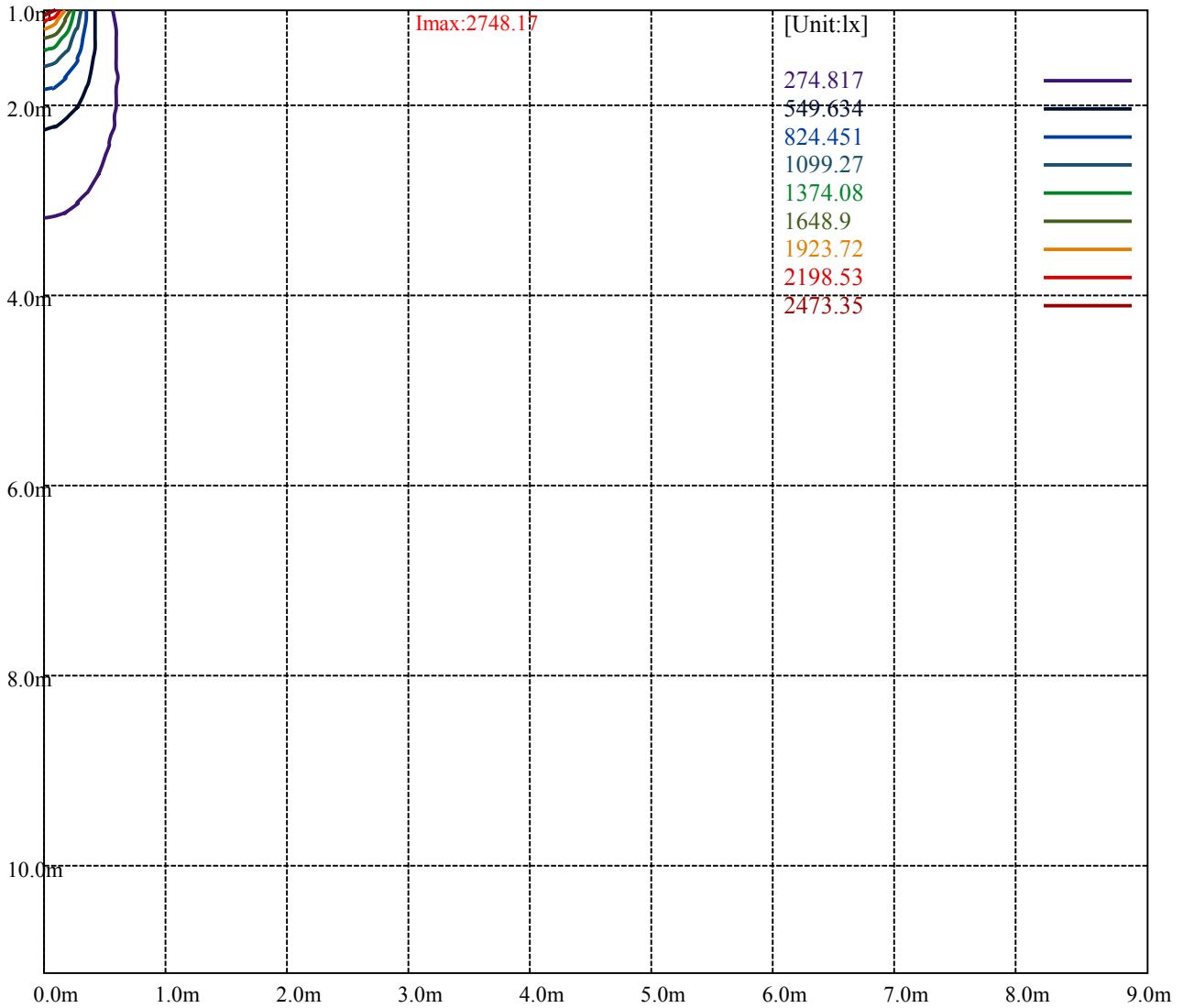
Road

Imax:2748.17

(10%Imax) 274.817	—
(20%Imax) 549.634	—
(30%Imax) 824.451	—
(40%Imax) 1099.27	—
(50%Imax) 1374.08	—
(60%Imax) 1648.9	—
(70%Imax) 1923.72	—
(80%Imax) 2198.53	—
(90%Imax) 2473.35	—



(10%Emax) 30.53522	—
(20%Emax) 61.07033	—
(30%Emax) 91.60556	—
(40%Emax) 122.1411	—
(50%Emax) 152.6756	—
(60%Emax) 183.2111	—
(70%Emax) 213.7467	—
(80%Emax) 244.2811	—
(90%Emax) 274.8167	—



Luminance Table

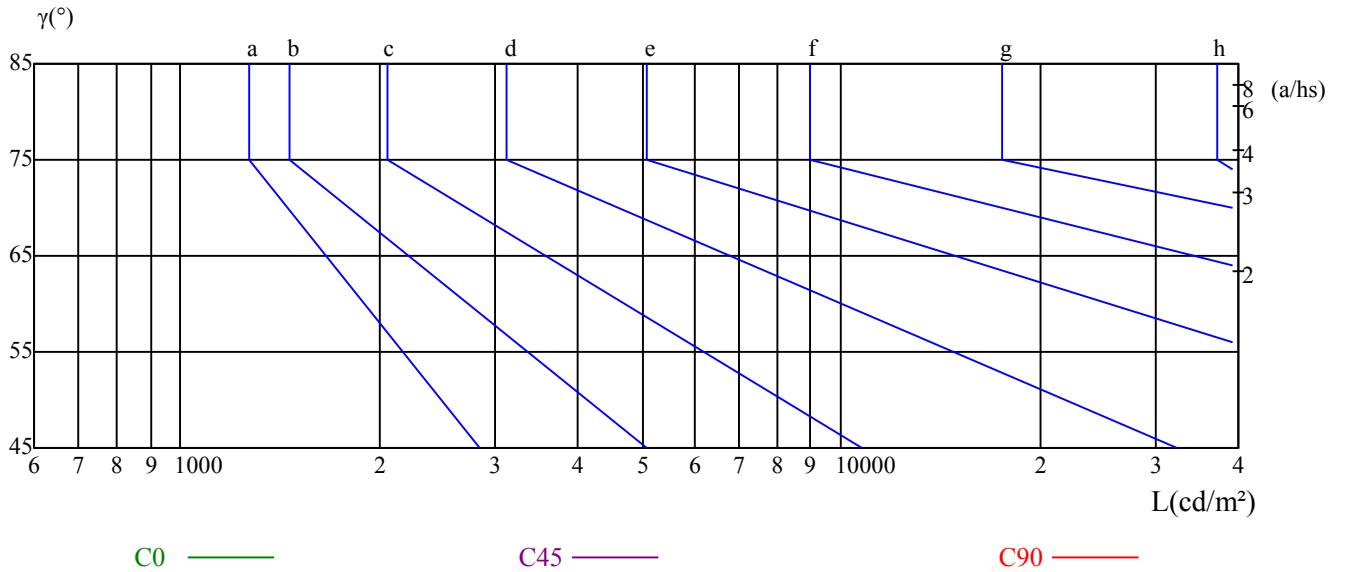
γ	45	50	55	60	65	70	75	80	85
C0	426	276	207	165	150	152	303	217	195
C45	365	234	172	135	121	120	234	164	143
C90	426	276	207	165	150	152	303	217	195

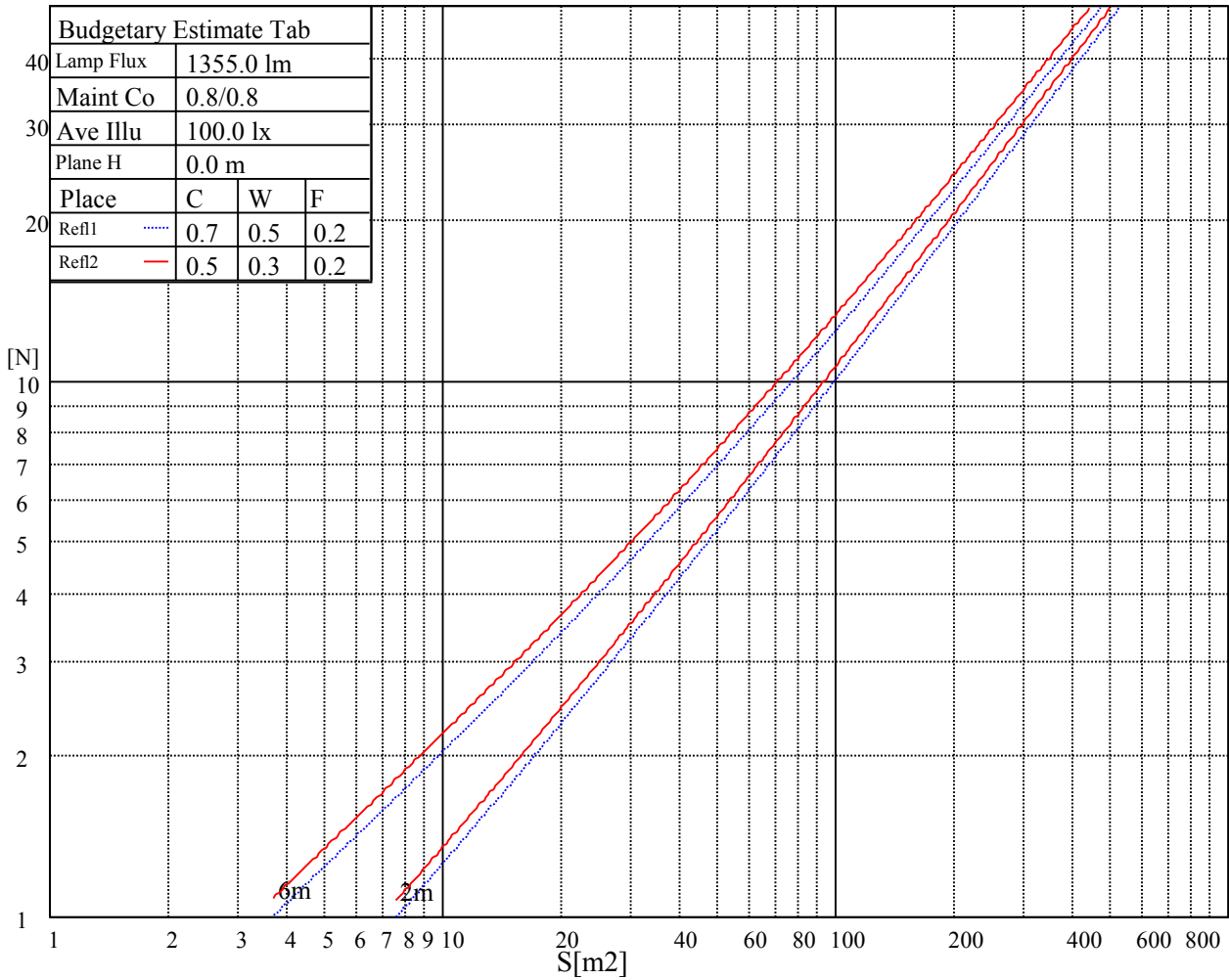
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
366	366	366	1060	1060	1060	1690	1690	1690

Glare Table

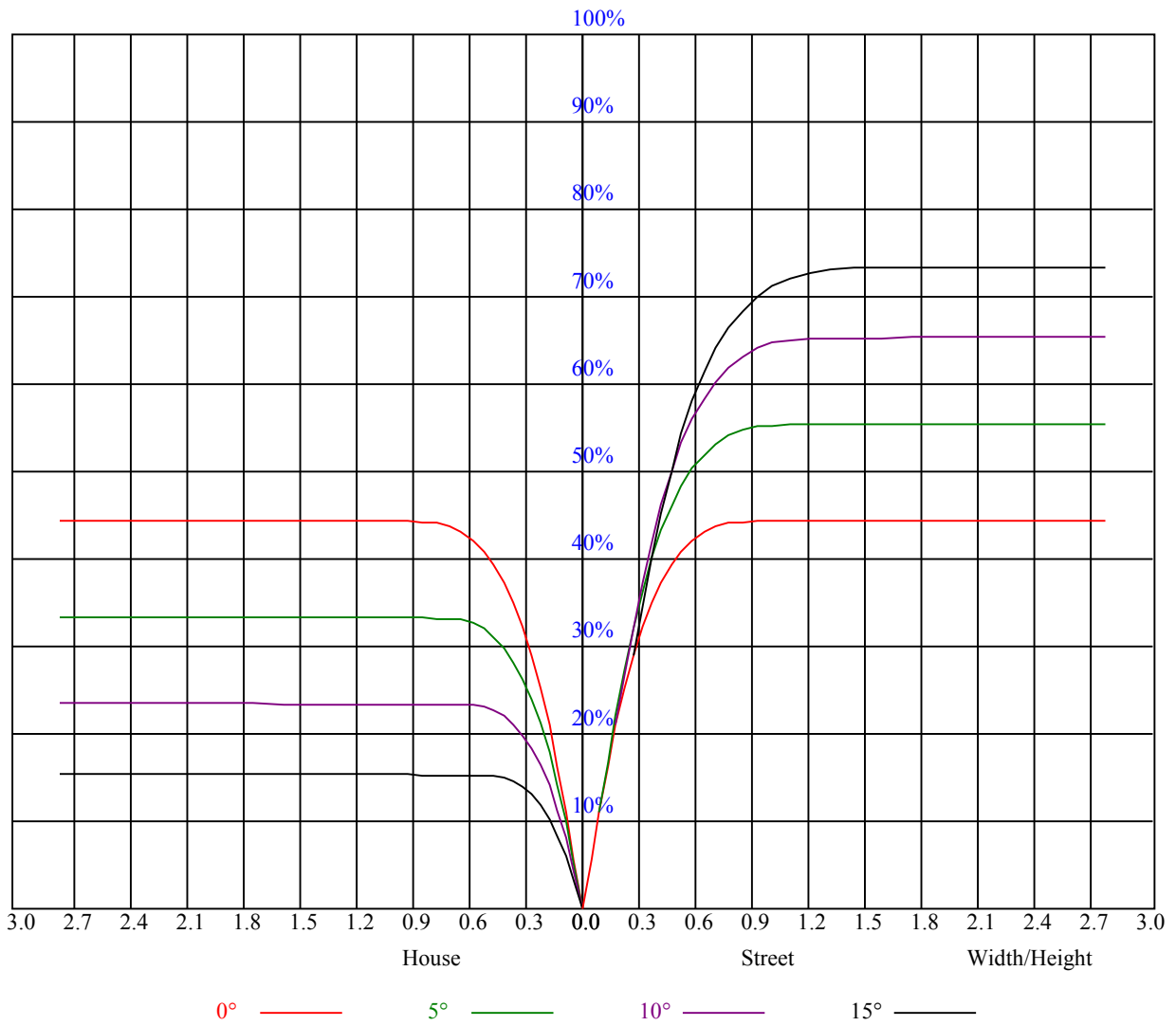
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

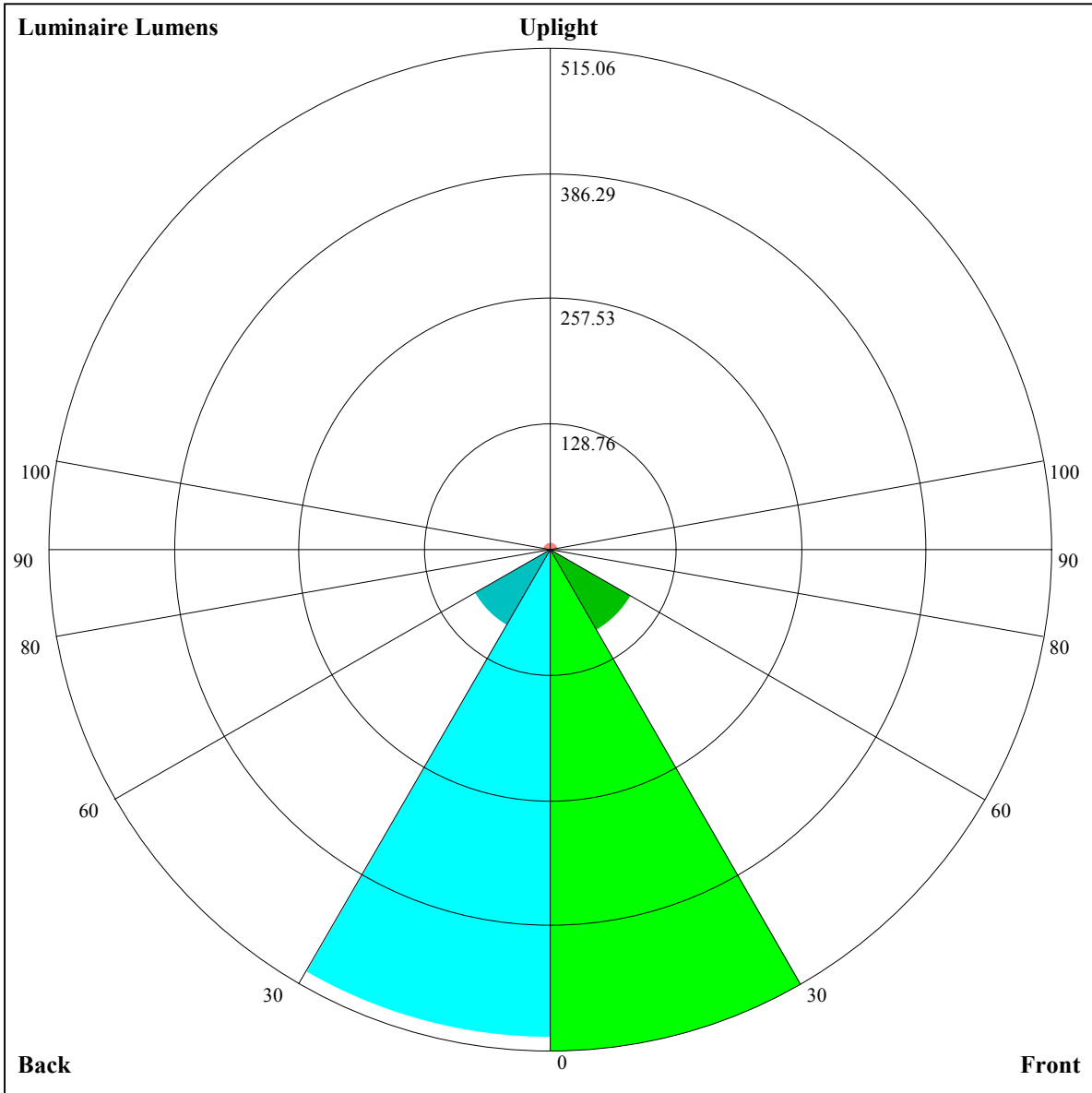
Luminance Limiting Curve





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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.88	0.92	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.72	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	0.64	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.62	0.59	0.56	0.55





Luminaire Lumens:

FL=515.06,FM=95.46,FH=2.03,FVH=0.83

BL=501.72,BM=90.2,BH=2.16,BVH=0.85

UL=1.79,UH=8.52

BUG Rating:B2-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	2755.48	2756.41	2740.63	2709.54	2663.13	2606.06	2537.85	2459.42	2370.33
45.0	2735.06	2752.23	2753.16	2735.99	2703.97	2659.42	2602.35	2534.60	2459.42
90.0	2749.91	2735.52	2705.83	2663.60	2632.51	2571.26	2469.63	2420.44	2331.81
135.0	2752.23	2750.37	2731.81	2697.94	2652.00	2594.92	2526.24	2447.36	2395.39
180.0	2755.48	2746.20	2718.82	2658.03	2625.08	2536.45	2492.37	2412.56	2324.39
225.0	2735.06	2701.65	2655.25	2600.03	2548.98	2463.14	2385.18	2300.72	2209.77
270.0	2749.91	2747.59	2728.56	2692.83	2645.97	2589.35	2523.92	2450.14	2368.94
315.0	2752.23	2736.92	2705.83	2661.74	2606.06	2539.24	2461.74	2373.58	2278.45
360.0	2755.48	2756.41	2740.63	2709.54	2663.13	2606.06	2537.85	2459.42	2370.33
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2272.88	2168.94	2059.43	1947.13	1835.30	1724.86	1616.74	1552.24	1405.14
45.0	2375.43	2283.55	2184.25	2079.84	2015.34	1863.14	1751.77	1684.49	1571.26
90.0	2236.22	2135.06	2029.26	1921.14	1809.31	1696.09	1583.33	1472.42	1364.30
135.0	2262.67	2200.49	2090.98	1931.35	1863.60	1751.31	1640.87	1531.36	1425.56
180.0	2228.80	2126.25	2017.20	1906.30	1793.54	1680.78	1571.26	1465.00	1362.91
225.0	2132.28	2031.58	1928.11	1823.70	1716.97	1608.85	1501.19	1395.86	1291.92
270.0	2281.70	2187.50	2087.27	1982.40	1875.21	1767.09	1681.24	1549.92	1442.73
315.0	2196.32	2066.85	1957.80	1849.22	1762.45	1654.33	1546.67	1442.26	1341.10
360.0	2272.88	2168.94	2059.43	1947.13	1835.30	1724.86	1616.74	1552.24	1405.14
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1342.96	1242.26	1145.74	1015.35	901.01	869.41	798.74	736.61	683.61
45.0	1460.82	1353.17	1247.83	1145.28	1046.91	953.64	870.11	798.18	734.15
90.0	1258.97	1159.20	1024.17	906.95	806.95	816.75	764.40	707.23	657.91
135.0	1323.47	1226.02	1131.36	1039.48	953.64	877.07	808.39	746.21	691.92
180.0	1263.15	1167.09	1074.75	987.05	905.38	832.99	768.49	723.01	665.01
225.0	1189.83	1091.92	885.61	885.61	842.31	801.43	739.76	687.19	625.29
270.0	1358.27	1255.72	1157.35	1063.61	974.05	876.14	819.07	755.96	701.20
315.0	1242.26	1146.67	1025.10	925.28	894.47	821.94	757.81	701.94	653.92
360.0	1342.96	1242.26	1145.74	1015.35	901.01	869.41	798.74	736.61	683.61
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	637.86	596.28	559.81	523.85	487.14	447.37	403.62	355.03	300.69
45.0	680.32	633.92	593.55	557.81	521.16	480.79	438.56	411.64	363.85
90.0	614.52	576.24	541.85	504.82	463.62	417.77	369.42	318.00	263.29
135.0	645.52	604.22	568.95	534.61	497.95	474.75	435.31	391.69	342.97
180.0	622.32	591.69	556.42	520.23	480.79	438.56	391.69	339.72	282.64
225.0	601.90	566.21	527.42	484.08	438.33	389.65	338.84	286.08	232.25
270.0	653.87	611.18	575.45	540.18	501.20	457.58	409.79	361.06	309.09
315.0	610.62	573.41	551.92	501.34	478.51	438.37	395.40	346.45	285.80
360.0	637.86	596.28	559.81	523.85	487.14	447.37	403.62	355.03	300.69
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	266.08	203.85	115.08	81.58	40.28	17.63	12.25	8.82	6.64
45.0	312.80	260.37	239.95	177.82	85.80	40.32	18.19	14.20	11.09
90.0	206.12	147.38	90.67	42.37	17.82	13.22	10.12	7.56	5.48
135.0	284.03	257.58	169.79	65.38	30.95	14.76	11.18	8.31	6.54
180.0	246.91	246.91	89.84	42.69	18.70	12.16	10.44	7.66	5.57
225.0	177.72	122.18	69.61	28.91	13.64	10.02	7.05	5.57	4.50
270.0	276.61	243.66	243.66	104.31	53.64	21.35	12.71	9.10	6.73
315.0	216.05	144.36	86.91	45.61	20.00	12.48	9.10	6.96	5.15
360.0	266.08	203.85	115.08	81.58	40.28	17.63	12.25	8.82	6.64

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	4.97	4.55	4.08	3.71	3.43	3.25	3.06	2.78	2.60
45.0	6.54	5.10	4.50	4.13	3.81	3.43	3.11	2.97	2.74
90.0	4.69	4.45	3.99	3.71	3.39	3.02	2.83	2.69	2.46
135.0	5.20	4.36	4.18	3.76	3.53	3.29	3.11	2.83	2.64
180.0	5.06	4.27	3.94	3.62	3.43	3.20	2.97	2.74	2.55
225.0	4.04	3.81	3.53	3.25	3.02	2.88	2.74	2.51	2.32
270.0	5.20	4.55	4.18	3.90	3.62	3.39	3.20	3.02	2.78
315.0	4.55	4.18	3.90	3.57	3.29	3.11	2.92	2.64	2.55
360.0	4.97	4.55	4.08	3.71	3.43	3.25	3.06	2.78	2.60
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.51	2.37	2.18	2.13	1.95	1.86	1.81	1.76	1.67
45.0	2.64	2.46	2.23	2.09	2.04	1.95	1.81	1.67	1.62
90.0	2.27	2.13	2.09	1.95	1.81	1.72	1.72	1.62	1.48
135.0	2.51	2.32	2.18	2.09	2.00	1.86	1.76	1.67	1.62
180.0	2.46	2.32	2.13	2.04	1.95	1.86	1.76	1.67	1.58
225.0	2.27	2.13	2.04	1.90	1.86	1.81	1.67	1.62	1.67
270.0	2.69	2.55	2.41	2.27	2.09	2.04	1.95	1.95	1.81
315.0	2.37	2.27	2.18	2.00	1.90	1.86	1.76	1.67	1.58
360.0	2.51	2.37	2.18	2.13	1.95	1.86	1.81	1.76	1.67
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.53	1.58	1.58	1.48	1.44	1.44	1.48	1.44	1.39
45.0	1.62	1.58	1.44	1.44	1.48	1.44	1.39	1.39	1.39
90.0	1.48	1.48	1.48	1.48	1.44	1.39	1.39	1.39	1.39
135.0	1.53	1.48	1.53	1.48	1.44	1.44	1.44	1.39	1.44
180.0	1.53	1.53	1.44	1.48	1.39	1.44	1.48	1.39	1.39
225.0	1.62	1.62	1.53	1.53	1.53	1.62	1.62	1.58	1.62
270.0	1.72	1.76	1.86	1.86	1.86	1.81	1.81	1.72	1.67
315.0	1.58	1.58	1.53	1.48	1.58	1.58	1.53	1.53	1.67
360.0	1.53	1.58	1.58	1.48	1.44	1.44	1.48	1.44	1.39
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.44	1.44	1.39	1.35	1.39	1.44	1.44	1.44	1.39
45.0	1.35	1.39	1.44	1.35	1.35	1.35	1.39	1.35	1.30
90.0	1.30	1.35	1.39	1.35	1.35	1.35	1.39	1.30	1.30
135.0	1.39	1.35	1.35	1.39	1.39	1.35	1.39	1.39	1.35
180.0	1.39	1.39	1.39	1.35	1.35	1.39	1.39	1.35	1.35
225.0	2.55	3.62	4.45	5.10	4.92	4.45	3.94	3.48	3.02
270.0	2.51	4.04	5.75	6.87	8.58	9.14	7.38	3.85	2.97
315.0	1.72	2.27	2.69	3.20	3.34	2.97	2.51	2.00	1.81
360.0	1.44	1.44	1.39	1.35	1.39	1.44	1.44	1.44	1.39
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.44	1.44	1.39	1.39	1.39	1.44	1.35	1.35	1.48
45.0	1.35	1.39	1.30	1.30	1.35	1.35	1.35	1.35	1.30
90.0	1.35	1.35	1.35	1.30	1.35	1.35	1.30	1.39	1.39
135.0	1.35	1.39	1.35	1.35	1.44	1.35	1.39	1.39	1.35
180.0	1.39	1.39	1.35	1.35	1.44	1.35	1.39	1.53	1.58
225.0	2.41	1.86	1.72	1.76	1.67	1.62	1.62	1.58	1.76
270.0	2.27	1.76	1.58	1.48	1.48	1.44	1.44	1.44	1.48
315.0	1.72	1.67	1.72	1.62	1.67	1.67	1.72	1.76	2.09
360.0	1.44	1.44	1.39	1.39	1.39	1.44	1.35	1.35	1.48

Intensity data(cd)

C/γ(°)	90.0
0.0	1.67
45.0	1.39
90.0	1.39
135.0	1.48
180.0	1.76
225.0	1.67
270.0	1.58
315.0	2.18
360.0	1.67