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NATA

Client:

LumCAT: 3-1548-A3

Luminaire: 92.76.365.00

Report No: NT2017122306

Test No: GC2017122306

LampCAT: PrevaLED Core G7 L15-H1

Lamp flux(lm): 3636.0

Number of Lamps: 1

Length(mm): 79

Phm Type: C

Voltage(V): 220.3000

Current(A): 0.1490

Power (W): 31.8000

PF: 0.9670

Ballast type: DC

Width(mm): 79

Height(mm): 0

Photometric Results

Lumens(lm): 3223.20, Efficiency(%): 88.65% , Luminous Efficacy(lm/W): 101.36

Central intensity(cd): 20344.990, Maximum intensity(cd): 20344.990

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=16.0

[C90/270]Total=16.0

Field angle(10%Imax): [C0/180]Total=35.2

[C90/270]Total=35.2

Maximum s/h(1/2): C0_180=0.28 C90_270=0.28

Maximum s/h(1/4): C0_180=0.28 C90_270=0.28

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.78%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.524%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	20344.988	4.867	4.867	.134%	.151%
1.0	20202.879	38.665	43.533	1.063%	1.351%
2.0	19710.424	75.434	118.967	2.075%	3.691%
3.0	18842.682	108.142	227.109	2.974%	7.046%
4.0	17746.982	135.757	362.865	3.734%	11.258%
5.0	16216.832	154.994	517.859	4.263%	16.067%
6.0	14109.818	161.736	679.595	4.448%	21.084%
7.0	12445.678	166.328	845.923	4.574%	26.245%
8.0	10111.033	154.313	1000.236	4.244%	31.032%
9.0	8836.856	151.594	1151.83	4.169%	35.736%
10.0	7250.963	138.076	1289.906	3.797%	40.019%
11.0	5820.580	121.791	1411.697	3.350%	43.798%
12.0	4677.782	106.652	1518.35	2.933%	47.107%
13.0	3646.758	89.959	1608.309	2.474%	49.898%
14.0	3087.075	81.898	1690.207	2.252%	52.439%
15.0	2660.223	75.503	1765.71	2.077%	54.781%
16.0	2350.248	71.040	1836.751	1.954%	56.985%
17.0	2191.839	70.274	1907.025	1.933%	59.166%
18.0	1947.606	65.999	1973.023	1.815%	61.213%
19.0	1819.823	64.971	2037.995	1.787%	63.229%
20.0	1685.358	63.211	2101.206	1.738%	65.190%
21.0	1619.871	63.659	2164.866	1.751%	67.165%
22.0	1562.157	64.173	2229.038	1.765%	69.156%
23.0	1515.406	64.932	2293.97	1.786%	71.171%
24.0	1480.719	66.045	2360.015	1.816%	73.220%
25.0	1447.889	67.102	2427.117	1.845%	75.301%
26.0	1418.481	68.189	2495.306	1.875%	77.417%
27.0	1387.564	69.080	2564.386	1.900%	79.560%
28.0	1355.024	69.760	2634.147	1.919%	81.724%
29.0	1317.901	70.066	2704.212	1.927%	83.898%
30.0	1274.050	69.857	2774.069	1.921%	86.066%
31.0	1220.570	68.937	2843.006	1.896%	88.204%
32.0	1105.304	64.231	2907.237	1.767%	90.197%
33.0	978.252	58.427	2965.664	1.607%	92.010%
34.0	898.137	55.075	3020.739	1.515%	93.719%
35.0	770.319	48.452	3069.191	1.333%	95.222%
36.0	628.052	40.482	3109.674	1.113%	96.478%
37.0	487.293	32.159	3141.833	.884%	97.475%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	359.968	24.303	3166.136	.668%	98.229%
39.0	250.062	17.257	3183.393	.475%	98.765%
40.0	187.394	13.209	3196.602	.363%	99.175%
41.0	74.483	5.359	3201.961	.147%	99.341%
42.0	49.692	3.646	3205.607	.100%	99.454%
43.0	15.951	1.193	3206.8	.033%	99.491%
44.0	10.081	0.768	3207.568	.021%	99.515%
45.0	7.471	0.579	3208.147	.016%	99.533%
46.0	5.574	0.440	3208.587	.012%	99.547%
47.0	4.635	0.372	3208.959	.010%	99.558%
48.0	4.066	0.331	3209.29	.009%	99.568%
49.0	3.776	0.313	3209.602	.009%	99.578%
50.0	3.567	0.300	3209.902	.008%	99.587%
51.0	3.440	0.293	3210.195	.008%	99.596%
52.0	3.300	0.285	3210.48	.008%	99.605%
53.0	3.190	0.279	3210.76	.008%	99.614%
54.0	3.086	0.274	3211.034	.008%	99.622%
55.0	2.987	0.268	3211.302	.007%	99.631%
56.0	2.883	0.262	3211.564	.007%	99.639%
57.0	2.802	0.258	3211.822	.007%	99.647%
58.0	2.726	0.254	3212.075	.007%	99.655%
59.0	2.668	0.251	3212.326	.007%	99.663%
60.0	2.616	0.248	3212.574	.007%	99.670%
61.0	2.575	0.247	3212.821	.007%	99.678%
62.0	2.546	0.247	3213.068	.007%	99.686%
63.0	2.552	0.249	3213.317	.007%	99.693%
64.0	2.541	0.250	3213.568	.007%	99.701%
65.0	2.529	0.251	3213.819	.007%	99.709%
66.0	2.535	0.254	3214.073	.007%	99.717%
67.0	2.523	0.255	3214.328	.007%	99.725%
68.0	2.517	0.256	3214.584	.007%	99.733%
69.0	2.506	0.257	3214.84	.007%	99.741%
70.0	2.483	0.256	3215.096	.007%	99.748%
71.0	2.471	0.256	3215.352	.007%	99.756%
72.0	2.500	0.261	3215.613	.007%	99.765%
73.0	2.697	0.283	3215.896	.008%	99.773%
74.0	3.045	0.321	3216.217	.009%	99.783%
75.0	3.521	0.373	3216.59	.010%	99.795%

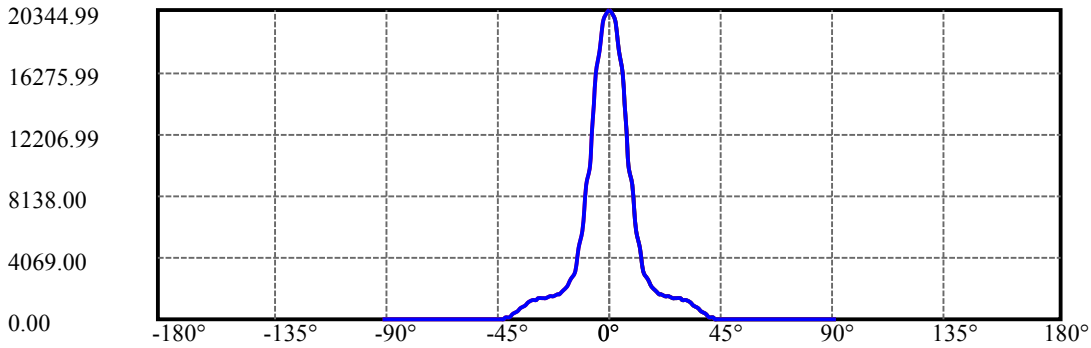
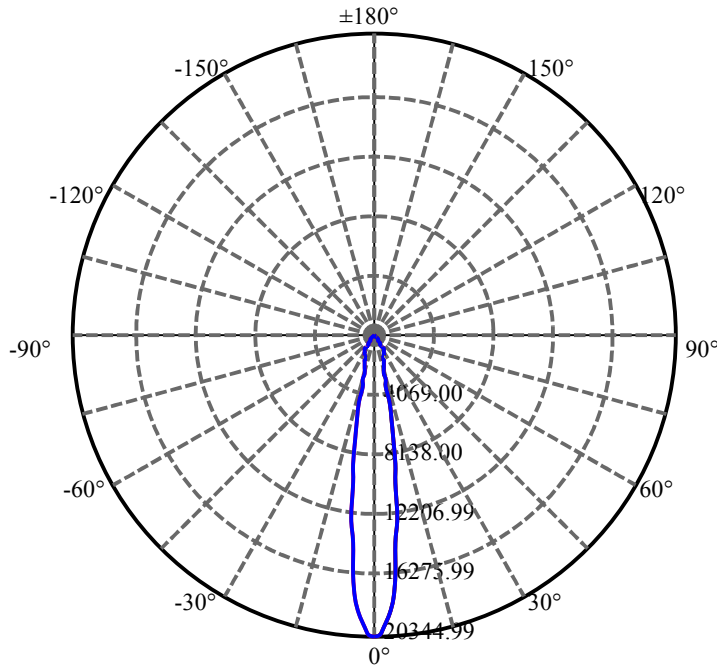
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.851	0.410	3217	.011%	99.808%
77.0	4.466	0.477	3217.477	.013%	99.822%
78.0	5.203	0.558	3218.035	.015%	99.840%
79.0	5.818	0.626	3218.661	.017%	99.859%
80.0	6.734	0.727	3219.389	.020%	99.882%
81.0	7.140	0.773	3220.162	.021%	99.906%
82.0	7.036	0.764	3220.926	.021%	99.929%
83.0	5.383	0.586	3221.512	.016%	99.948%
84.0	3.005	0.328	3221.839	.009%	99.958%
85.0	2.546	0.278	3222.118	.008%	99.966%
86.0	2.419	0.265	3222.382	.007%	99.975%
87.0	2.309	0.253	3222.635	.007%	99.982%
88.0	2.181	0.239	3222.874	.007%	99.990%
89.0	2.042	0.224	3223.098	.006%	99.997%
90.0	1.920	0.105	3223.203	.003%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2774.07	76.29%	86.07%
0-40	3196.60	87.92%	99.17%
0-60	3212.57	88.35%	99.67%
0-90	3223.10	88.64%	100.00%
0-120	3223.10	88.64%	100.00%
0-180	3223.20	88.65%	100.00%
60-90	10.77	0.30%	0.33%
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%
0-27.20	2578.56	70.92%	80.00%

ZONAL LUMEN SUMMARY

0-10	1289.91
10-20	811.30
20-30	672.86
30-40	422.53
40-50	13.30
50-60	2.67
60-70	2.52
70-80	4.29
80-90	3.71
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



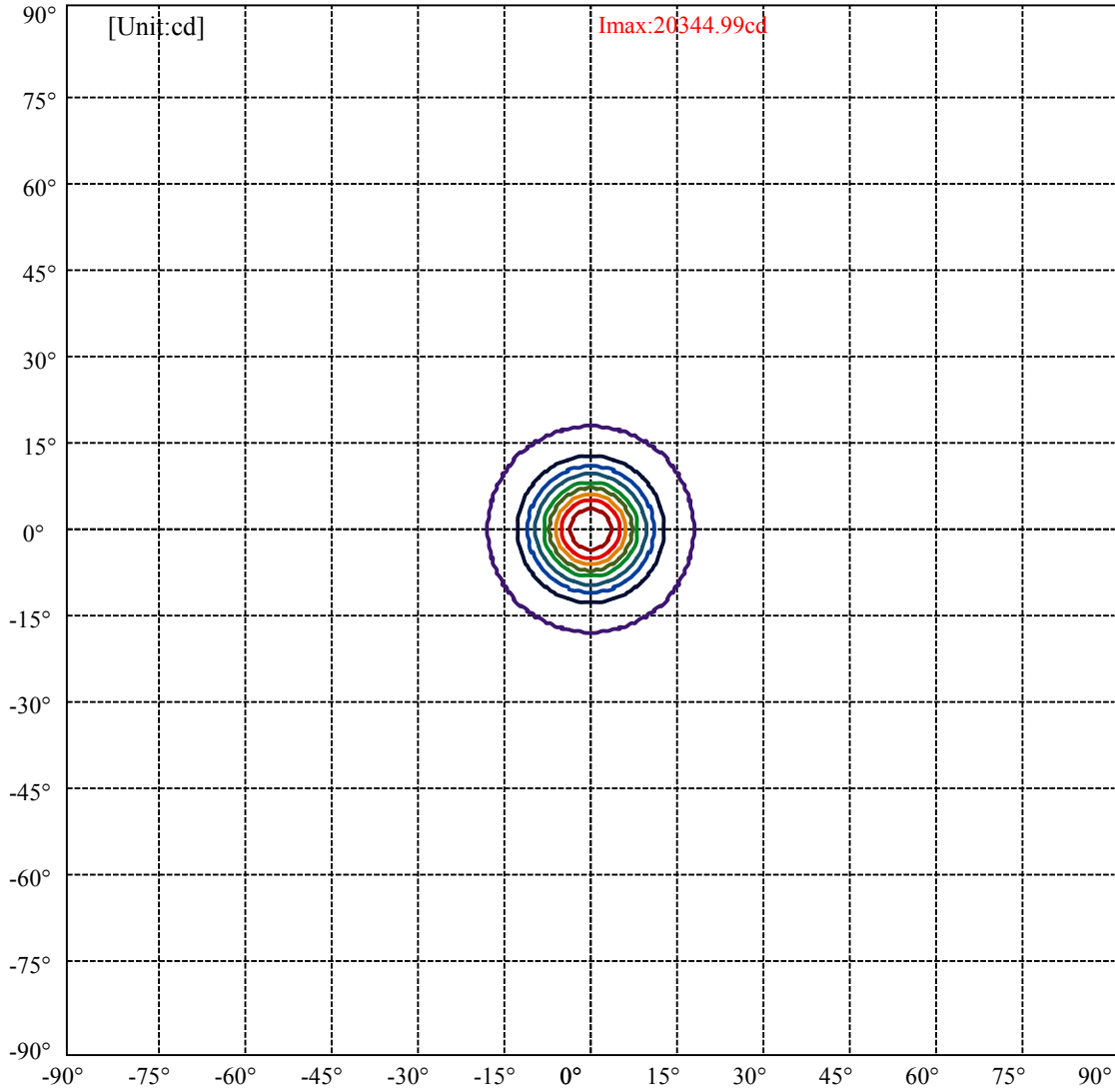
C0(Max): —————

C0/C180: —————

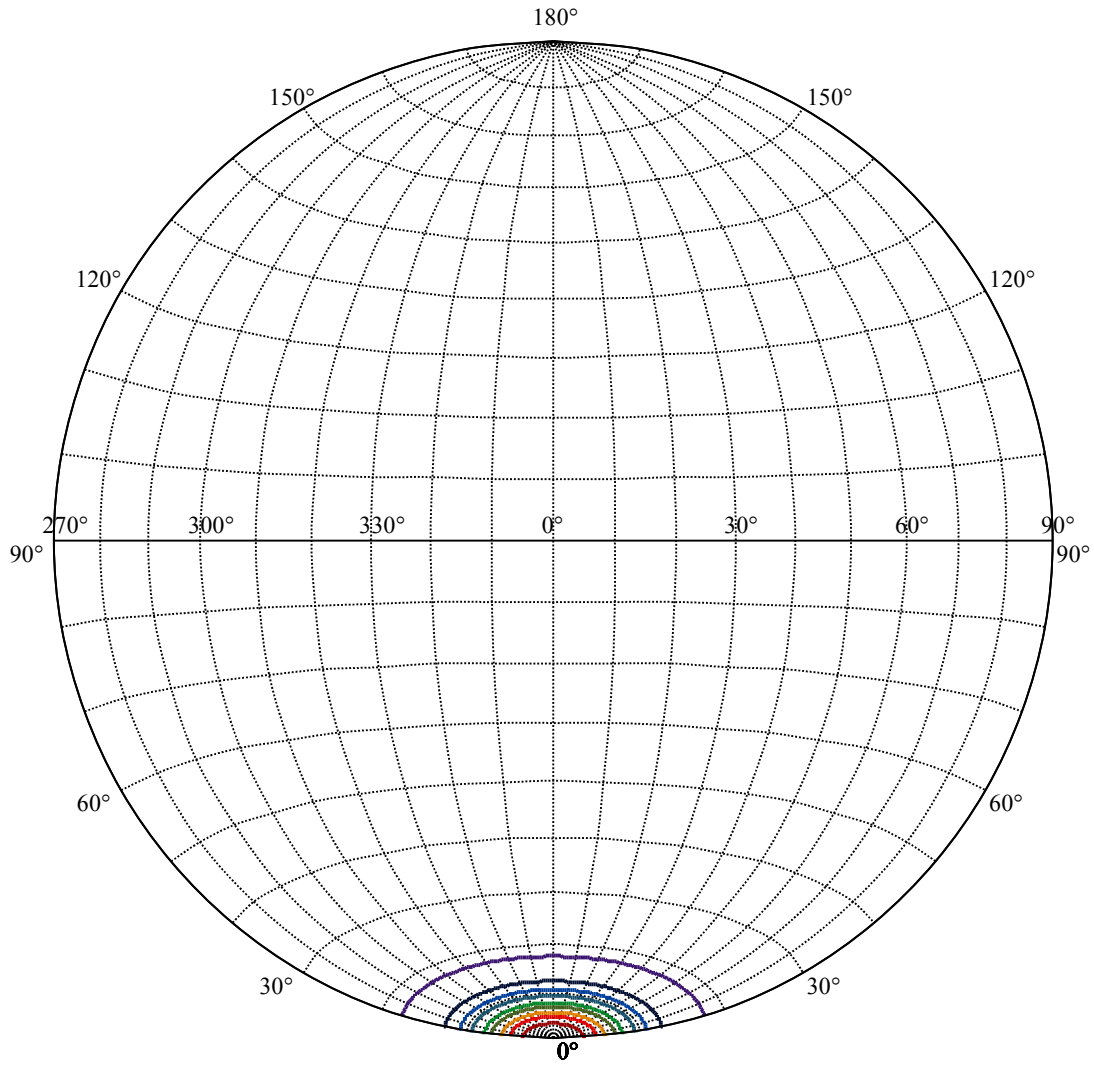
C90/C270: —————

Field angle(10%Imax):C0/180Left:17.6 Right:17.6
:C90/270Left:17.6 Right:17.6

Beam Angle(50%Imax):C0/180Left:8.0 Right:8.0
:C90/270Left:8.0 Right:8.0



- (10%Imax) 2034.5
- (20%Imax) 4069
- (30%Imax) 6103.5
- (40%Imax) 8138
- (50%Imax) 10172.5
- (60%Imax) 12207
- (70%Imax) 14241.5
- (80%Imax) 16276
- (90%Imax) 18310.5



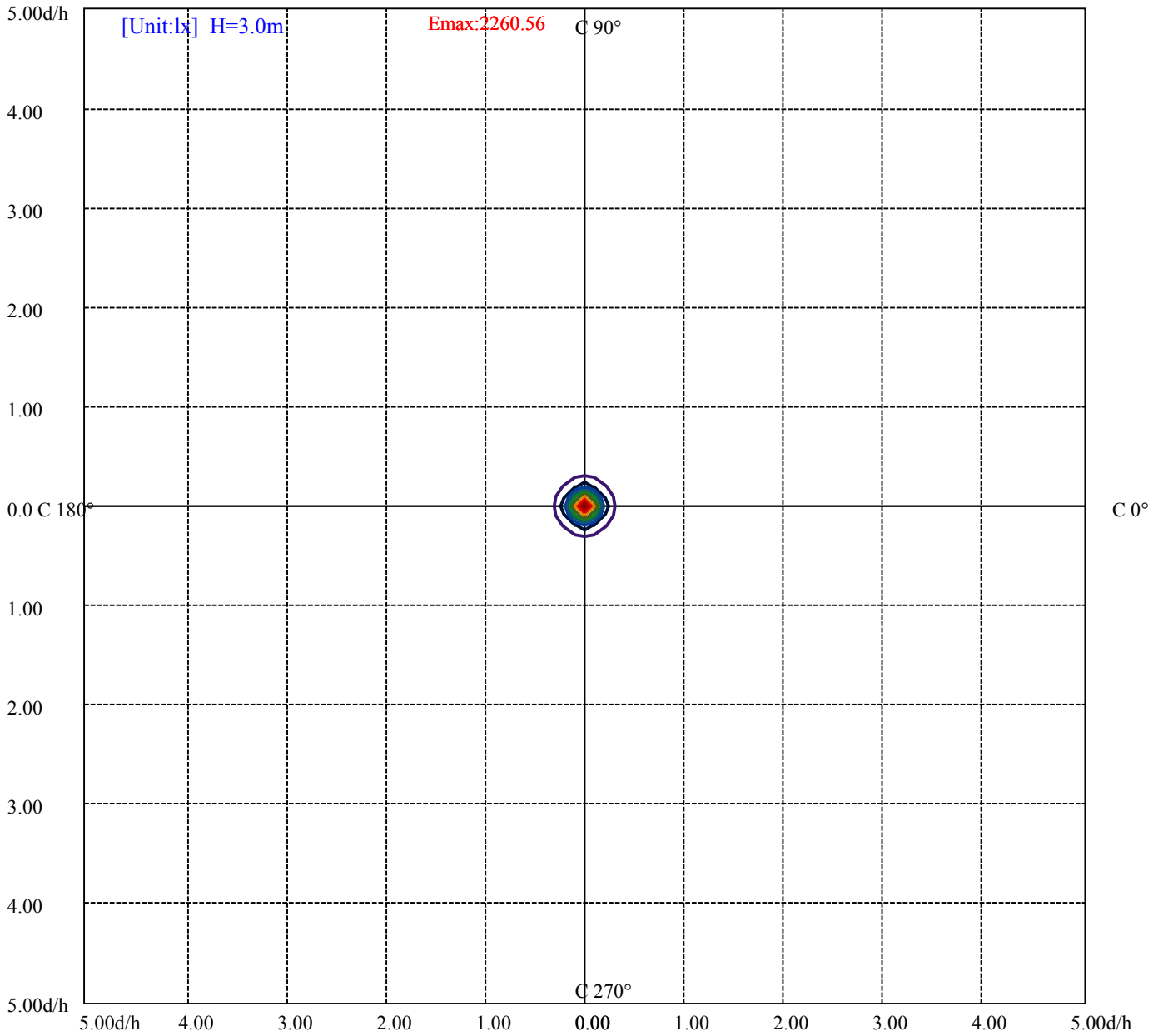
House

[Unit:cd]

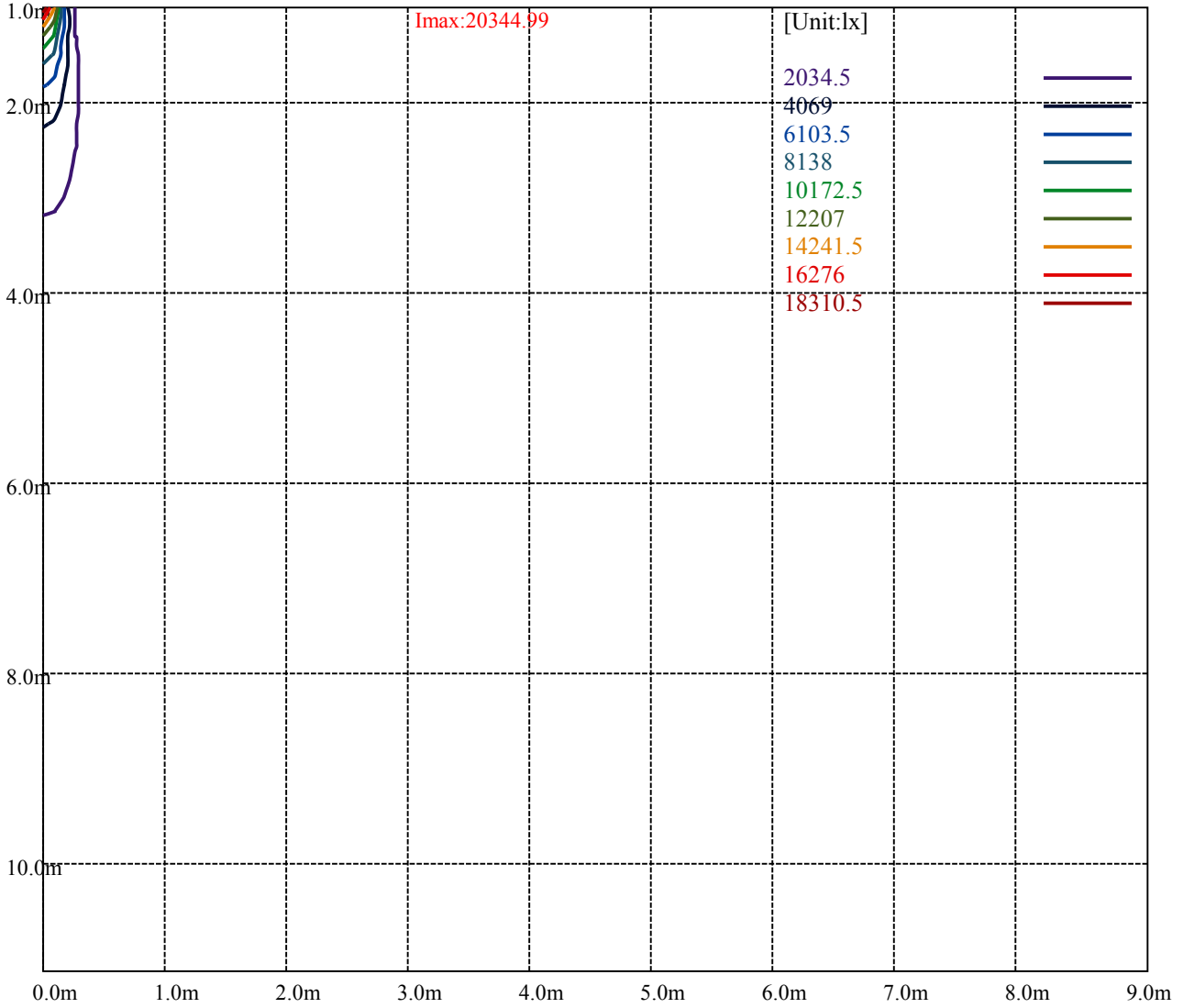
Road

Imax:20344.99

(10%Imax) 2034.5	—
(20%Imax) 4069	—
(30%Imax) 6103.5	—
(40%Imax) 8138	—
(50%Imax) 10172.5	—
(60%Imax) 12207	—
(70%Imax) 14241.5	—
(80%Imax) 16276	—
(90%Imax) 18310.5	—



(10%Emax) 226.0556	—
(20%Emax) 452.11	—
(30%Emax) 678.1656	—
(40%Emax) 904.2211	—
(50%Emax) 1130.278	—
(60%Emax) 1356.333	—
(70%Emax) 1582.389	—
(80%Emax) 1808.444	—
(90%Emax) 2034.5	—



Luminance Table

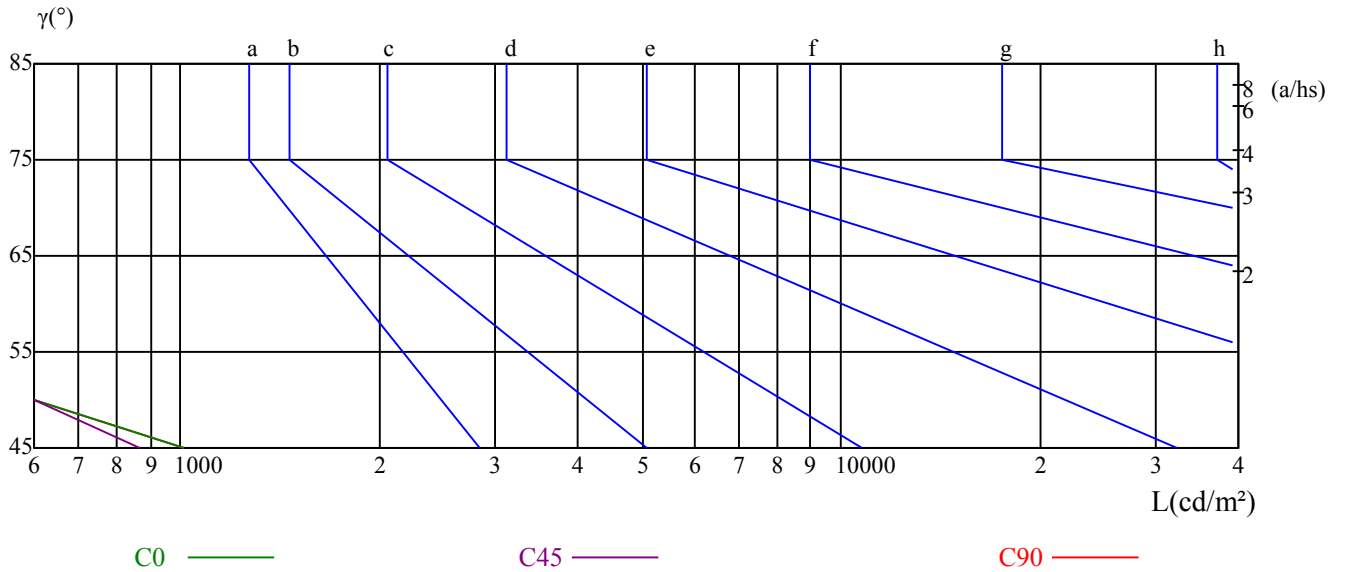
γ	45	50	55	60	65	70	75	80	85
C0	1013	494	426	388	393	409	622	1293	540
C45	869	417	354	317	316	322	480	974	395
C90	1013	494	426	388	393	409	622	1293	540

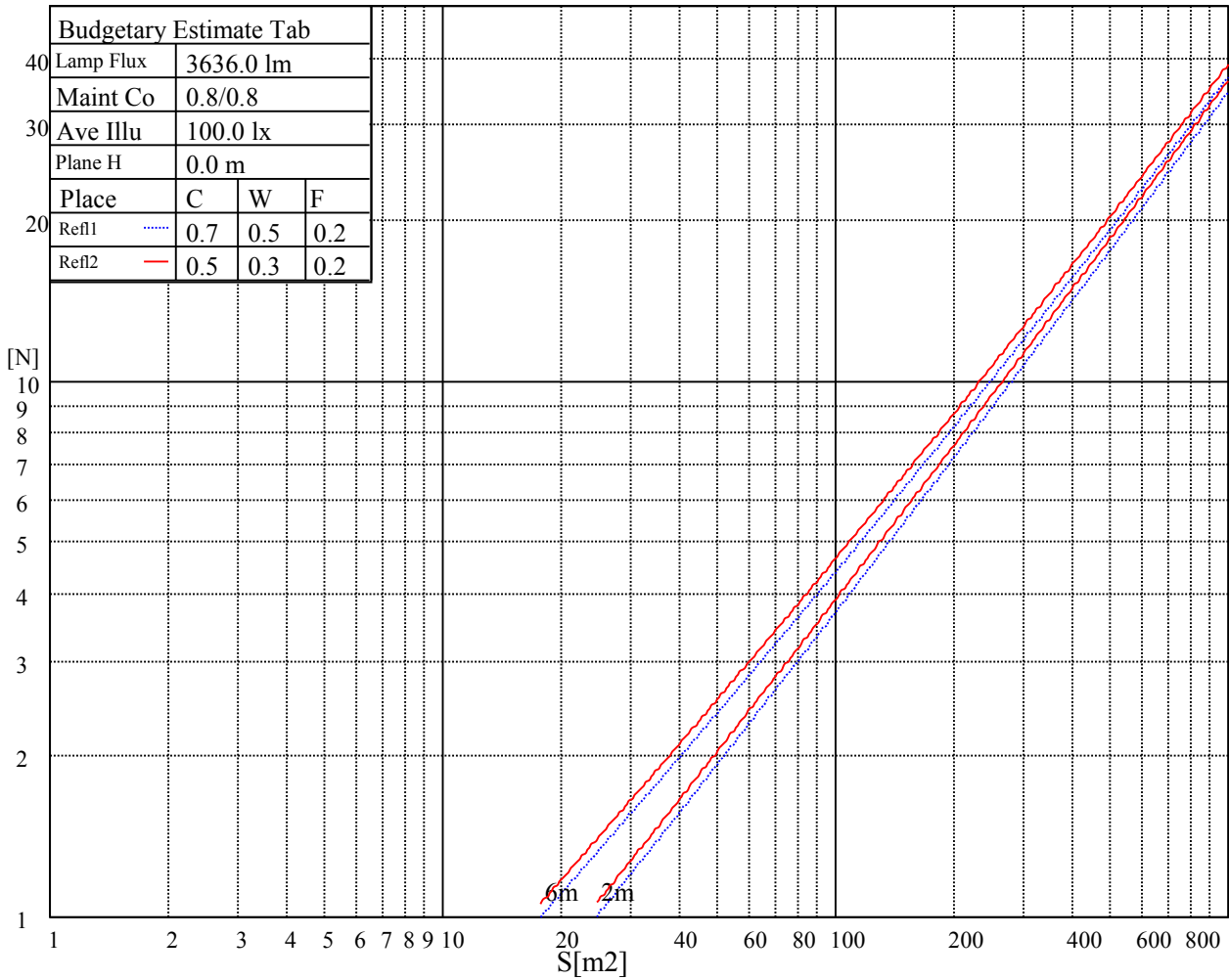
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
959	959	959	2180	2180	2180	4681	4681	4681

Glare Table

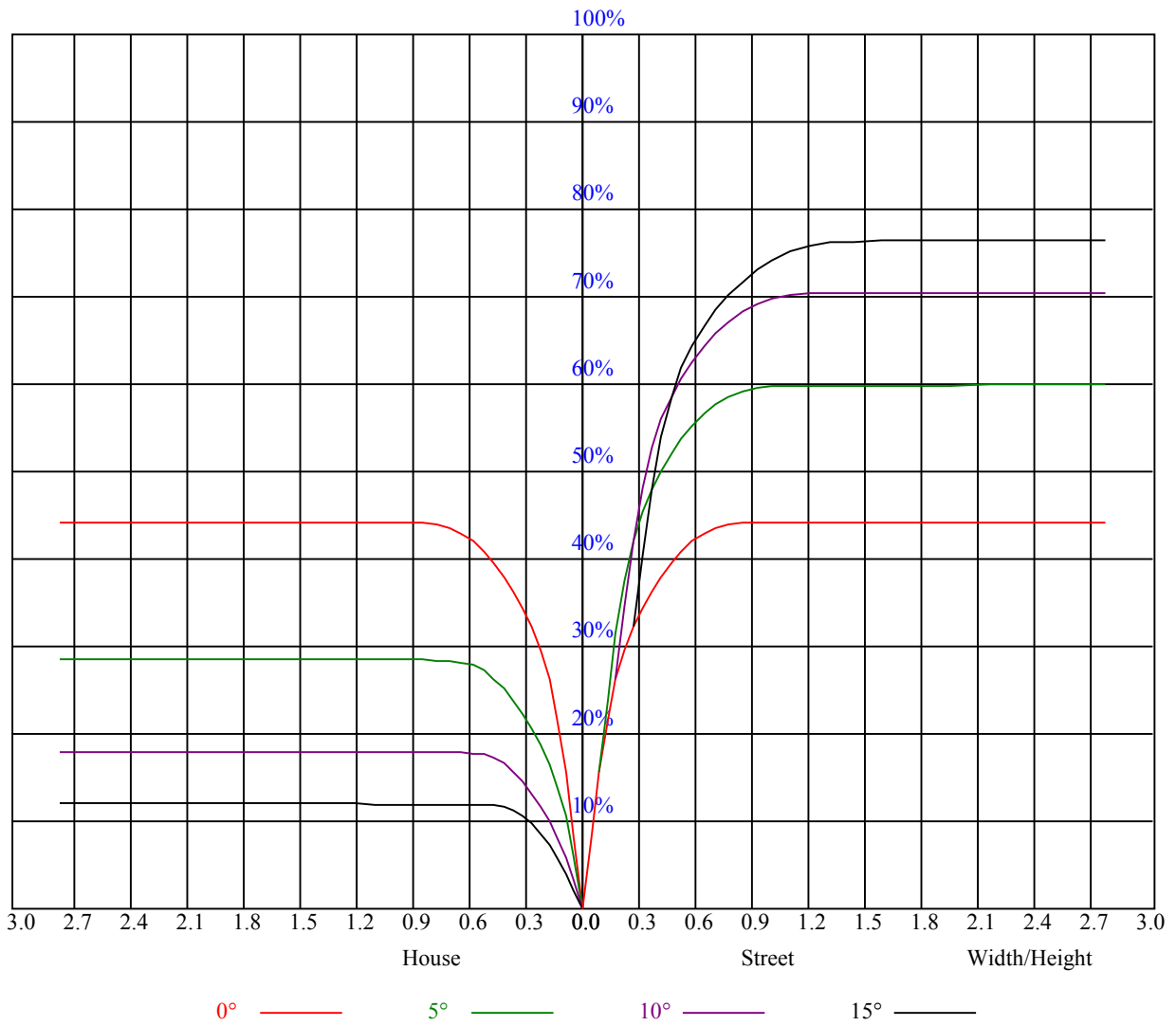
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

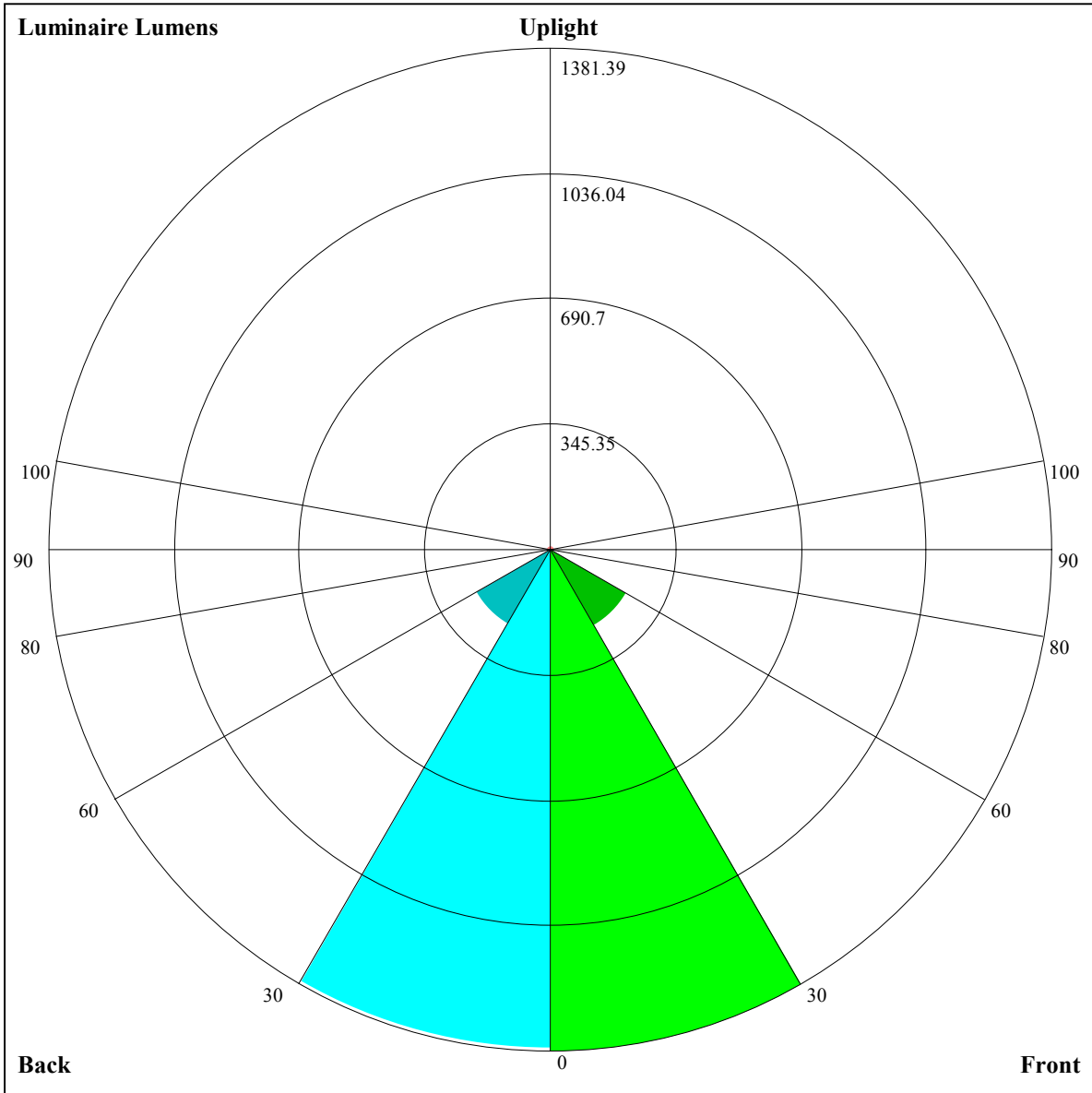
Luminance Limiting Curve





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	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.95	0.92	0.89	0.93	0.91	0.88	0.90	0.88	0.87	0.88	0.86	0.85	0.85	0.84	0.83	0.82
3	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.78
4	0.86	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.80	0.78	0.80	0.78	0.77	0.76
5	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.79	0.77	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.74	0.71	0.69	0.68
8	0.74	0.70	0.68	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.66
9	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
10	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62





Luminaire Lumens:

FL=1381.39,FM=241.78,FH=3.16,FVH=1.95

BL=1375.56,BM=238.95,BH=3.68,BVH=2.17

UL=2.09,UH=9.97

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	20325.27	20190.70	19712.74	18854.28	17629.23	16074.72	14316.03	12422.78	8301.14
45.0	20343.83	20343.83	20042.21	19304.39	18195.35	16747.57	15016.73	13160.59	11248.77
90.0	20306.71	19726.66	18733.63	17341.53	15647.81	13824.16	9186.05	9186.05	7773.53
135.0	20404.15	20325.27	19842.67	18919.25	18199.99	16000.48	14153.62	13007.46	11049.24
180.0	20325.27	20190.70	19670.98	18775.40	17527.15	16599.08	14845.03	12965.70	11049.24
225.0	20343.83	20116.45	19443.60	18404.17	17610.67	16000.48	14172.18	11304.46	8870.05
270.0	20306.71	20455.20	20339.19	20056.13	19295.11	18176.79	16682.61	14900.72	13768.48
315.0	20404.15	20274.22	19898.36	19086.30	17870.53	16311.38	14506.29	12617.67	8827.82
360.0	20325.27	20190.70	19712.74	18854.28	17629.23	16074.72	14316.03	12422.78	8301.14
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8301.14	6684.91	5279.35	4579.59	3408.84	2862.67	2613.02	2291.44	2059.89
45.0	9406.56	7675.72	6111.92	4789.43	3824.24	3165.31	2687.36	2399.66	2339.33
90.0	6189.79	4835.27	4194.44	3403.73	2852.92	2458.96	2178.22	1977.76	1829.27
135.0	9193.11	7425.14	5842.78	4534.21	3624.70	3007.54	2562.07	2306.85	2306.85
180.0	9193.11	7434.42	5870.63	4571.33	3652.55	3026.10	2585.27	2381.09	2381.09
225.0	8510.88	6837.58	5390.72	4263.12	3469.62	2912.32	2581.93	2231.12	2025.55
270.0	11072.44	9954.12	8181.51	6562.04	4691.98	4111.94	3388.05	2863.69	2487.82
315.0	8827.82	7160.55	5693.27	4718.80	3649.21	3151.76	2685.87	2350.38	2104.90
360.0	8301.14	6684.91	5279.35	4579.59	3408.84	2862.67	2613.02	2291.44	2059.89
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1890.05	1768.48	1680.78	1613.95	1561.05	1518.83	1481.71	1449.22	1417.20
45.0	2074.28	1802.82	1704.91	1633.44	1577.30	1531.36	1491.91	1458.50	1429.27
90.0	1719.75	1638.08	1574.98	1525.32	1487.27	1454.79	1425.09	1395.86	1364.77
135.0	1835.76	1721.61	1639.94	1601.43	1548.53	1491.45	1472.42	1443.65	1416.28
180.0	1869.17	1748.06	1661.29	1606.53	1542.96	1500.27	1471.50	1434.37	1411.17
225.0	1896.09	1771.26	1663.14	1607.46	1553.17	1510.48	1474.28	1443.19	1412.56
270.0	2371.81	2316.13	1863.60	1750.38	1666.39	1602.35	1552.24	1513.72	1481.71
315.0	1923.93	1792.14	1694.23	1620.45	1560.59	1513.72	1476.60	1444.58	1414.88
360.0	1890.05	1768.48	1680.78	1613.95	1561.05	1518.83	1481.71	1449.22	1417.20
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1386.58	1351.78	1311.40	1269.18	1219.99	1123.94	880.46	880.46	768.16
45.0	1400.96	1371.73	1334.14	1292.38	1246.90	1167.55	1057.58	978.23	785.19
90.0	1328.57	1290.06	1265.47	1218.60	1122.54	844.96	844.96	705.15	564.22
135.0	1387.51	1355.02	1316.05	1270.11	1220.92	1131.82	1015.35	883.10	742.04
180.0	1379.15	1346.21	1307.23	1261.75	1215.81	1130.43	1017.67	887.28	746.21
225.0	1381.94	1348.06	1303.98	1256.18	1204.68	1048.30	908.86	851.83	767.05
270.0	1452.01	1427.88	1397.25	1361.52	1318.83	1269.64	1214.89	1112.80	989.37
315.0	1383.79	1349.46	1307.69	1262.68	1214.89	1125.79	886.26	886.26	800.32
360.0	1386.58	1351.78	1311.40	1269.18	1219.99	1123.94	880.46	880.46	768.16
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	625.38	480.88	344.68	221.58	116.52	41.72	17.54	12.39	8.86
45.0	700.27	558.74	419.07	290.07	290.07	60.83	20.09	13.74	9.61
90.0	424.68	295.50	179.07	86.17	27.75	14.80	10.35	7.29	5.61
135.0	595.87	455.73	326.73	251.09	251.09	45.80	16.94	12.02	8.54
180.0	605.61	462.69	330.90	257.12	257.12	60.05	20.32	14.01	10.07
225.0	565.94	426.82	348.49	226.87	122.97	46.54	19.03	13.97	10.30
270.0	851.08	707.23	562.45	426.03	299.35	274.75	274.75	41.02	18.24
315.0	655.59	510.76	368.35	241.58	134.29	51.37	18.51	13.18	9.42
360.0	625.38	480.88	344.68	221.58	116.52	41.72	17.54	12.39	8.86

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	6.59	4.69	4.13	3.90	3.71	3.57	3.43	3.34	3.20
45.0	7.10	5.34	4.41	4.22	3.94	3.67	3.57	3.43	3.34
90.0	4.45	4.18	3.90	3.71	3.62	3.48	3.39	3.29	3.20
135.0	6.36	4.92	4.22	3.99	3.81	3.67	3.57	3.43	3.34
180.0	7.38	5.61	4.41	4.13	3.94	3.76	3.67	3.48	3.34
225.0	7.70	5.57	4.78	3.94	3.62	3.43	3.29	3.16	3.02
270.0	13.32	9.70	7.24	4.92	3.99	3.53	3.39	3.20	3.11
315.0	6.87	4.59	3.99	3.71	3.57	3.43	3.20	3.06	2.97
360.0	6.59	4.69	4.13	3.90	3.71	3.57	3.43	3.34	3.20
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.11	3.02	2.92	2.78	2.69	2.64	2.60	2.55	2.51
45.0	3.20	3.11	3.02	2.92	2.83	2.78	2.74	2.69	2.64
90.0	3.11	3.02	2.92	2.88	2.88	2.83	2.88	2.83	2.88
135.0	3.25	3.16	3.06	3.02	2.97	2.88	2.88	2.83	2.83
180.0	3.25	3.16	3.06	2.97	2.88	2.83	2.74	2.74	2.69
225.0	2.92	2.83	2.69	2.64	2.55	2.51	2.41	2.37	2.32
270.0	2.97	2.88	2.74	2.64	2.55	2.46	2.37	2.32	2.27
315.0	2.88	2.74	2.64	2.55	2.46	2.41	2.32	2.27	2.23
360.0	3.11	3.02	2.92	2.78	2.69	2.64	2.60	2.55	2.51
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.55	2.55	2.51	2.51	2.51	2.51	2.46	2.46	2.41
45.0	2.69	2.78	2.83	2.88	2.83	2.83	2.83	2.83	2.83
90.0	2.88	2.88	2.83	2.83	2.83	2.83	2.88	2.88	2.88
135.0	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.78	2.78
180.0	2.74	2.69	2.64	2.69	2.69	2.64	2.64	2.60	2.60
225.0	2.32	2.27	2.27	2.27	2.27	2.27	2.23	2.23	2.18
270.0	2.23	2.13	2.13	2.13	2.09	2.09	2.04	2.00	2.00
315.0	2.18	2.18	2.18	2.13	2.13	2.13	2.13	2.09	2.09
360.0	2.55	2.55	2.51	2.51	2.51	2.51	2.46	2.46	2.41
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.41	2.37	2.41	2.37	2.32	2.37	2.60	3.85	5.43
45.0	2.83	2.83	2.78	2.78	2.74	3.06	4.32	5.75	8.17
90.0	2.97	3.81	5.66	6.68	8.77	10.53	12.67	13.69	14.34
135.0	2.88	3.53	3.90	5.75	5.99	6.96	8.45	8.63	8.96
180.0	2.60	2.78	3.39	4.41	4.87	6.73	7.52	8.12	9.56
225.0	2.23	2.23	2.18	2.18	2.13	2.13	2.18	2.60	3.53
270.0	2.00	2.00	2.00	2.00	2.00	2.00	1.95	1.95	1.95
315.0	2.09	2.04	2.04	2.00	2.00	1.95	1.95	1.95	1.95
360.0	2.41	2.37	2.41	2.37	2.32	2.37	2.60	3.85	5.43
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.89	6.54	5.52	2.60	2.51	2.32	2.27	2.13	2.00
45.0	9.10	9.56	8.49	4.04	3.16	2.97	2.78	2.51	2.23
90.0	13.78	11.32	4.04	3.16	2.83	2.69	2.46	2.27	2.27
135.0	9.56	9.10	8.58	4.50	2.83	2.69	2.60	2.46	2.37
180.0	10.90	10.90	8.03	3.57	2.83	2.69	2.55	2.41	2.13
225.0	3.81	4.22	3.53	2.32	2.27	2.09	2.00	1.90	1.81
270.0	1.90	1.90	1.86	1.86	1.95	1.90	1.86	1.86	1.81
315.0	2.18	2.74	3.02	2.00	2.00	2.00	1.95	1.90	1.72
360.0	5.89	6.54	5.52	2.60	2.51	2.32	2.27	2.13	2.00

Intensity data(cd)

C/γ(°)	90.0
0.0	1.95
45.0	2.13
90.0	2.00
135.0	2.13
180.0	2.00
225.0	1.76
270.0	1.72
315.0	1.67
360.0	1.95