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Nata

Client:

LumCAT: 3-2324-M

Luminaire: 92.70.131.00

Report No: GC2019091909

Test No: NATA07

LampCAT: BRIDGELEX V13B

Lamp flux(lm): 1760.0

Number of Lamps: 1

Length(mm): 78

Phm Type: C

Voltage(V): 220.5000

Current(A): 0.0690

Power (W): 14.0200

PF: 0.9160

Ballast type: AC

Width(mm): 78

Height(mm): 0

Photometric Results

Lumens(lm): 1551.90, Efficiency(%): 88.18% , Luminous Efficacy(lm/W): 110.69

Central intensity(cd): 6868.552, Maximum intensity(cd): 6868.552

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=22.6

[C90/270]Total=22.6

Field angle(10%Imax): [C0/180]Total=44.6

[C90/270]Total=44.6

Maximum s/h(1/2): C0_180=0.39 C90_270=0.39

Maximum s/h(1/4): C0_180=0.37 C90_270=0.37

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.18%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.695%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6868.553	0.000	0	.000%	.000%
1.0	6843.902	6.561	6.561	.373%	.423%
2.0	6771.570	19.542	26.103	1.110%	1.682%
3.0	6674.239	32.158	58.261	1.827%	3.754%
4.0	6507.129	44.122	102.384	2.507%	6.597%
5.0	6318.152	55.174	157.557	3.135%	10.153%
6.0	6021.518	64.848	222.405	3.685%	14.331%
7.0	5684.050	72.656	295.062	4.128%	19.013%
8.0	5271.002	78.403	373.465	4.455%	24.065%
9.0	4776.053	81.426	454.891	4.626%	29.312%
10.0	4220.605	81.416	536.307	4.626%	34.558%
11.0	3630.296	78.447	614.754	4.457%	39.613%
12.0	3048.804	73.012	687.766	4.148%	44.318%
13.0	2518.878	66.074	753.84	3.754%	48.575%
14.0	2068.301	58.715	812.556	3.336%	52.359%
15.0	1729.963	52.144	864.7	2.963%	55.719%
16.0	1414.594	46.077	910.777	2.618%	58.688%
17.0	1128.831	39.608	950.385	2.250%	61.240%
18.0	1016.367	35.370	985.754	2.010%	63.519%
19.0	917.632	33.648	1019.402	1.912%	65.687%
20.0	820.005	31.804	1051.205	1.807%	67.737%
21.0	746.734	30.085	1081.29	1.709%	69.675%
22.0	698.939	29.051	1110.341	1.651%	71.547%
23.0	658.295	28.478	1138.82	1.618%	73.382%
24.0	632.901	28.230	1167.05	1.604%	75.201%
25.0	611.416	28.293	1195.343	1.608%	77.025%
26.0	596.242	28.507	1223.85	1.620%	78.861%
27.0	580.999	28.801	1252.652	1.636%	80.717%
28.0	568.250	29.097	1281.748	1.653%	82.592%
29.0	558.395	29.476	1311.224	1.675%	84.492%
30.0	548.140	29.876	1341.1	1.698%	86.417%
31.0	534.648	30.132	1371.233	1.712%	88.358%
32.0	511.672	29.976	1401.209	1.703%	90.290%
33.0	463.581	28.731	1429.94	1.632%	92.141%
34.0	402.787	26.219	1456.159	1.490%	93.831%
35.0	336.871	22.971	1479.13	1.305%	95.311%
36.0	271.726	19.378	1498.508	1.101%	96.560%
37.0	201.454	15.432	1513.94	.877%	97.554%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	167.220	12.306	1526.246	.699%	98.347%
39.0	77.320	8.347	1534.593	.474%	98.885%
40.0	36.119	3.956	1538.549	.225%	99.140%
41.0	17.790	1.920	1540.469	.109%	99.264%
42.0	10.493	1.028	1541.496	.058%	99.330%
43.0	8.306	0.696	1542.193	.040%	99.375%
44.0	6.508	0.559	1542.752	.032%	99.411%
45.0	4.971	0.441	1543.193	.025%	99.439%
46.0	4.269	0.361	1543.554	.021%	99.462%
47.0	3.892	0.325	1543.879	.018%	99.483%
48.0	3.718	0.308	1544.187	.017%	99.503%
49.0	3.521	0.297	1544.484	.017%	99.522%
50.0	3.341	0.286	1544.77	.016%	99.541%
51.0	3.184	0.276	1545.046	.016%	99.558%
52.0	3.045	0.267	1545.313	.015%	99.576%
53.0	2.923	0.260	1545.573	.015%	99.592%
54.0	2.749	0.250	1545.823	.014%	99.609%
55.0	2.628	0.240	1546.063	.014%	99.624%
56.0	2.552	0.234	1546.297	.013%	99.639%
57.0	2.436	0.228	1546.525	.013%	99.654%
58.0	2.320	0.220	1546.745	.012%	99.668%
59.0	2.239	0.213	1546.958	.012%	99.682%
60.0	2.158	0.208	1547.166	.012%	99.695%
61.0	2.094	0.203	1547.369	.012%	99.708%
62.0	2.007	0.198	1547.567	.011%	99.721%
63.0	1.937	0.192	1547.758	.011%	99.733%
64.0	1.850	0.186	1547.944	.011%	99.745%
65.0	1.816	0.181	1548.126	.010%	99.757%
66.0	1.752	0.178	1548.304	.010%	99.768%
67.0	1.705	0.174	1548.478	.010%	99.780%
68.0	1.665	0.171	1548.648	.010%	99.791%
69.0	1.613	0.167	1548.815	.009%	99.801%
70.0	1.560	0.163	1548.978	.009%	99.812%
71.0	1.520	0.159	1549.138	.009%	99.822%
72.0	1.508	0.157	1549.295	.009%	99.832%
73.0	1.468	0.156	1549.451	.009%	99.842%
74.0	1.444	0.153	1549.604	.009%	99.852%
75.0	1.398	0.150	1549.754	.009%	99.862%

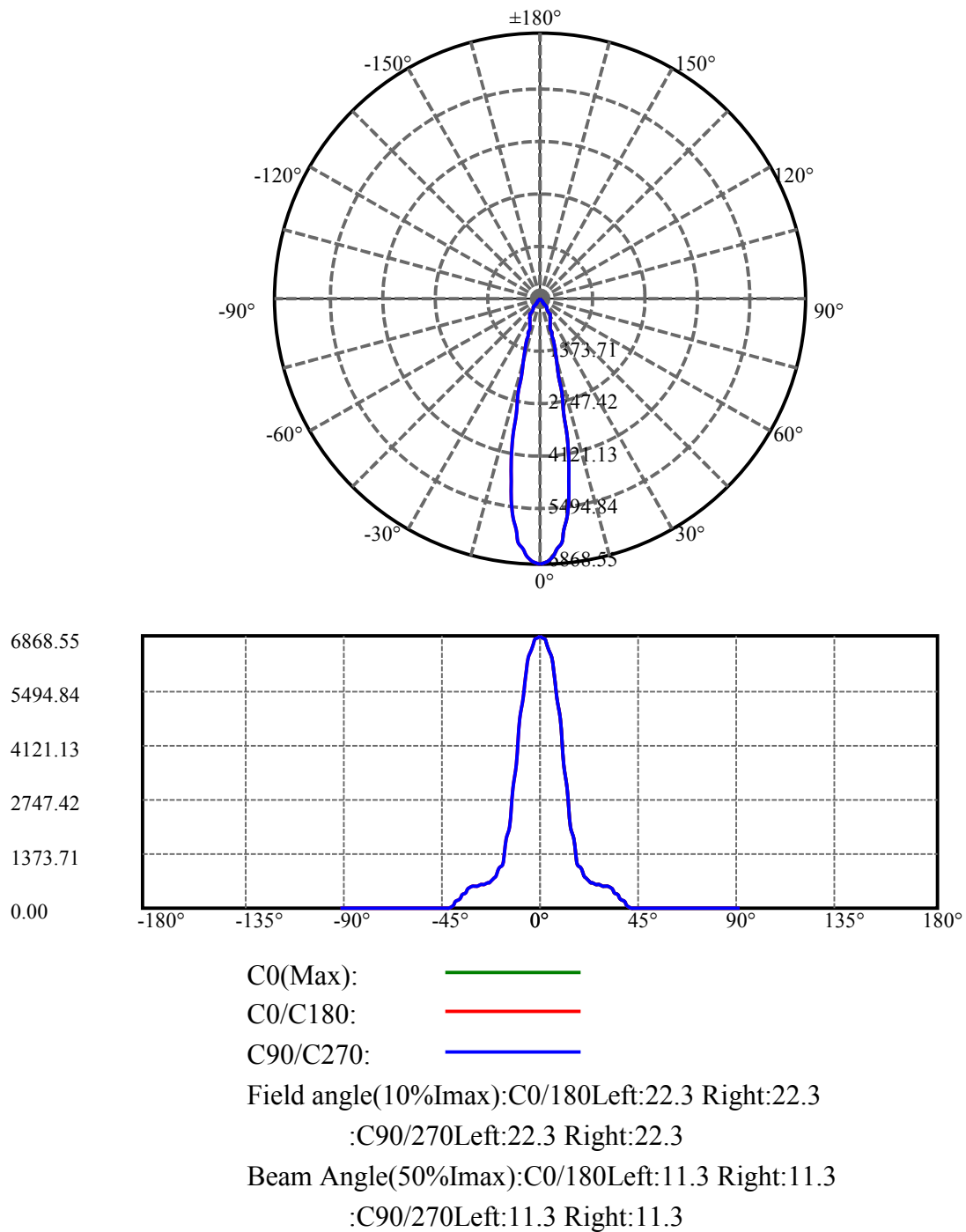
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.410	0.149	1549.903	.008%	99.871%
77.0	1.375	0.148	1550.051	.008%	99.881%
78.0	1.334	0.145	1550.196	.008%	99.890%
79.0	1.322	0.143	1550.339	.008%	99.900%
80.0	1.328	0.143	1550.482	.008%	99.909%
81.0	1.311	0.143	1550.625	.008%	99.918%
82.0	1.282	0.141	1550.765	.008%	99.927%
83.0	1.305	0.141	1550.906	.008%	99.936%
84.0	1.288	0.141	1551.047	.008%	99.945%
85.0	1.259	0.139	1551.186	.008%	99.954%
86.0	1.276	0.139	1551.325	.008%	99.963%
87.0	1.282	0.140	1551.465	.008%	99.972%
88.0	1.311	0.142	1551.607	.008%	99.981%
89.0	1.322	0.144	1551.751	.008%	99.991%
90.0	1.357	0.147	1551.898	.008%	100.000%

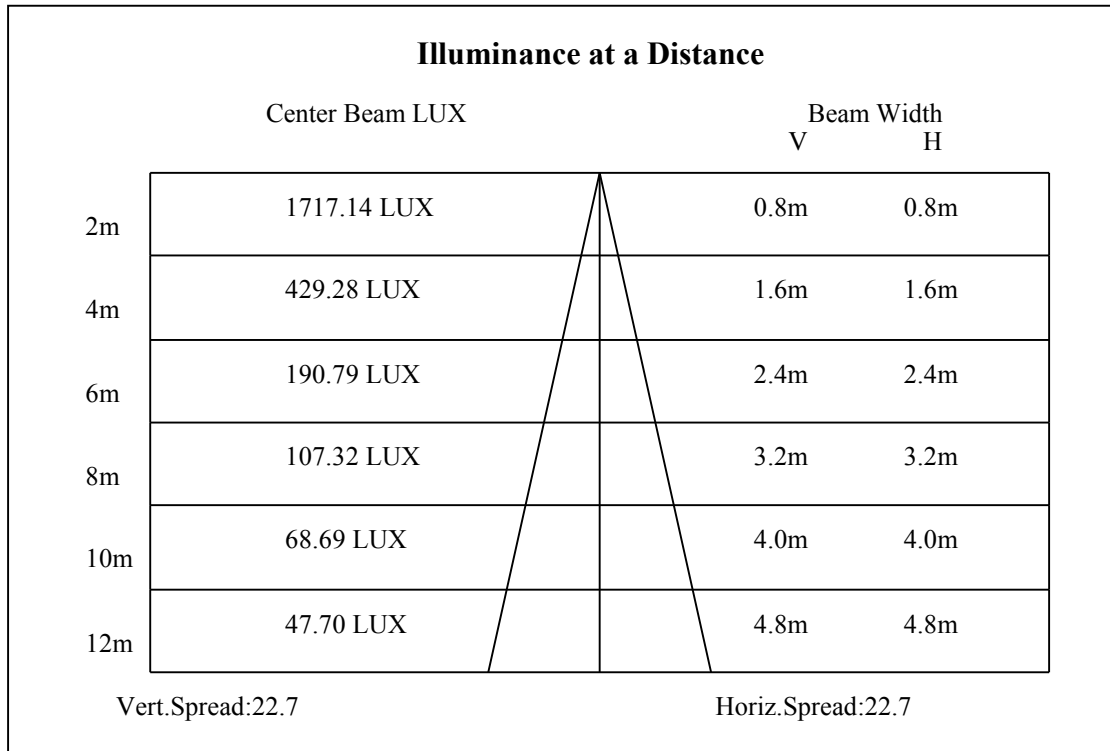
ZONAL LUMEN SUMMARY

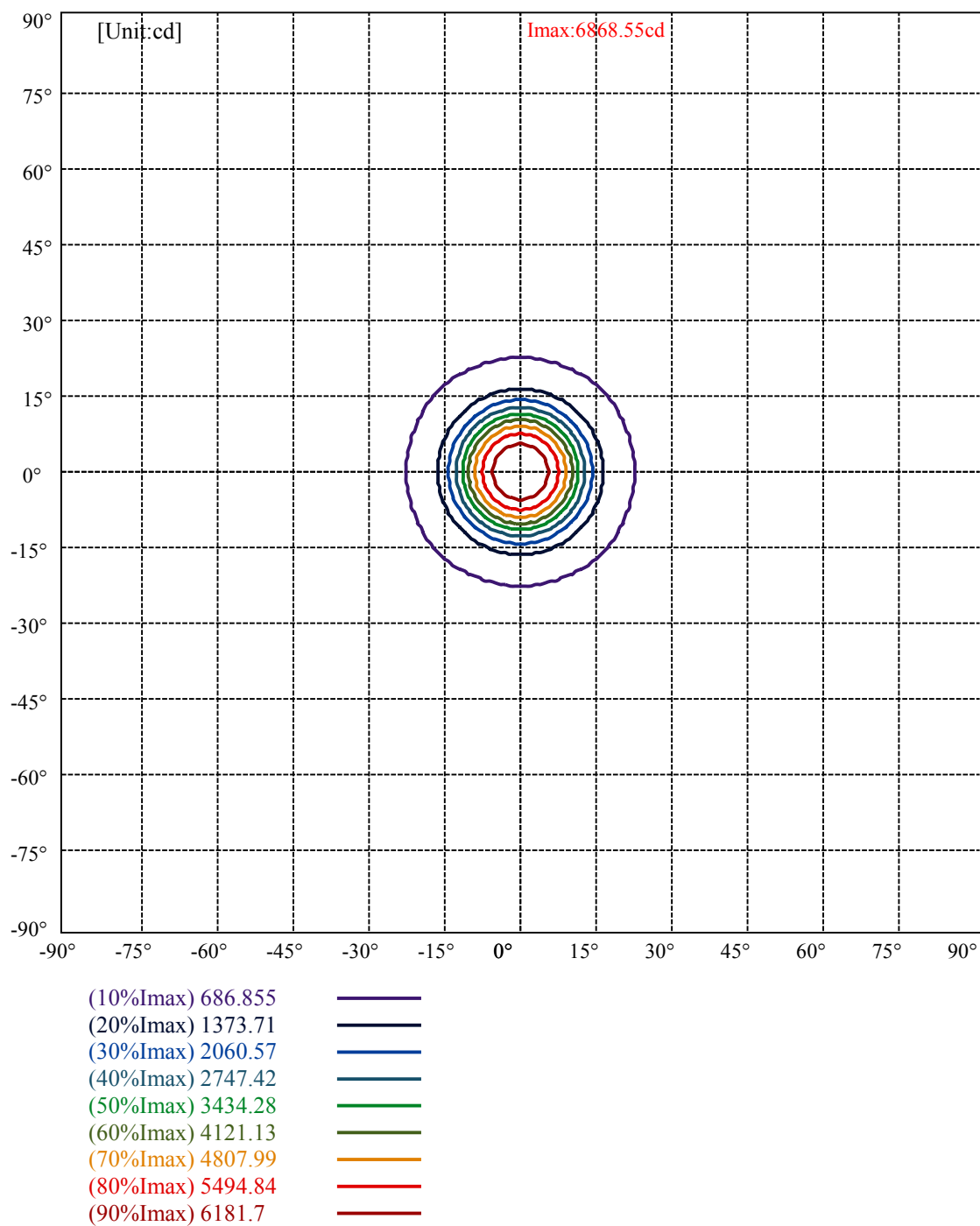
Zone	Lumens	%Lamp	%Fixt
0-30	1341.10	76.20%	86.42%
0-40	1538.55	87.42%	99.14%
0-60	1547.17	87.91%	99.70%
0-90	1551.75	88.17%	99.99%
0-120	1551.75	88.17%	99.99%
0-180	1551.90	88.18%	100.00%
60-90	4.79	0.27%	0.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.61	1241.52	70.54%	80.00%

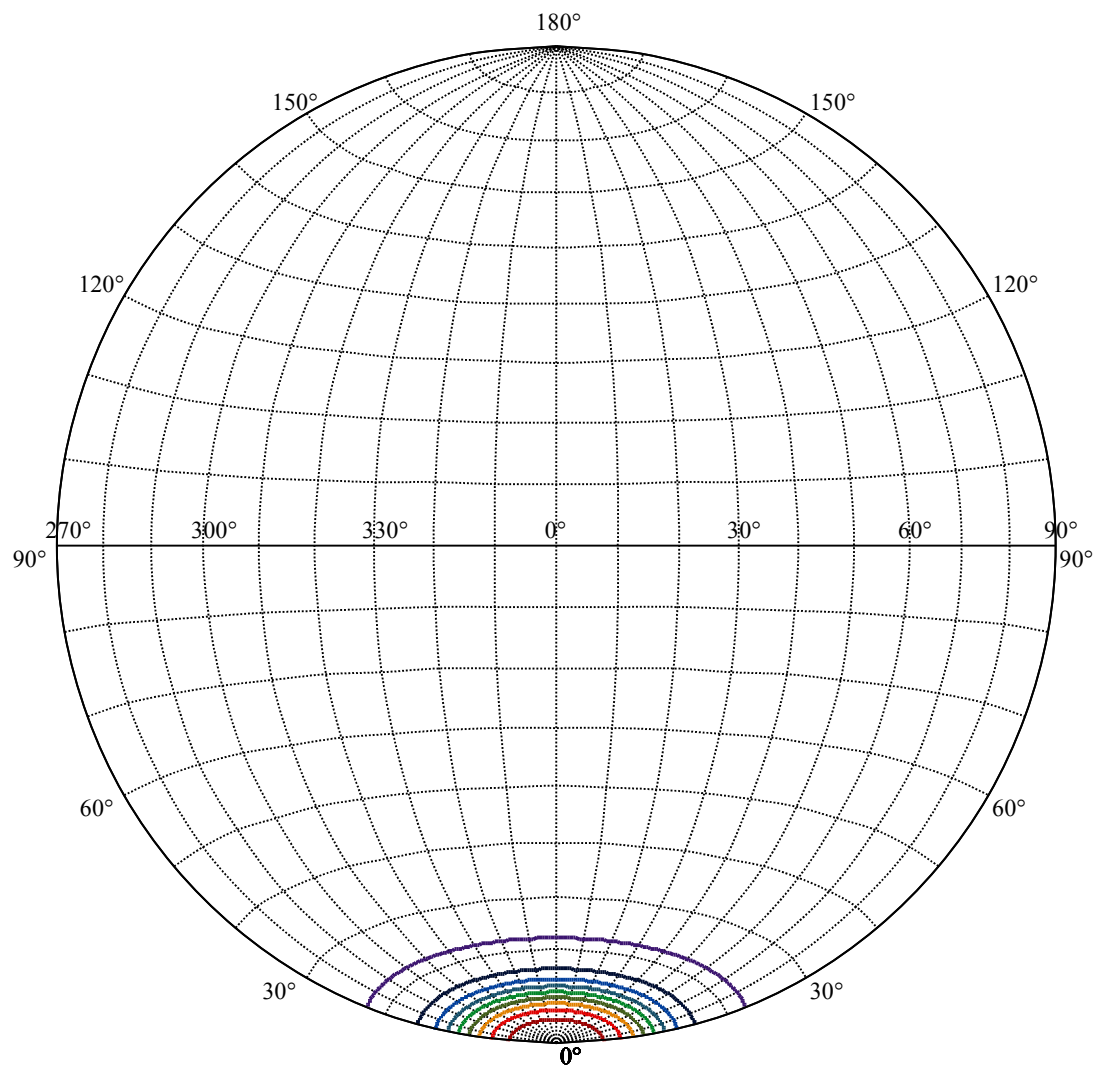
ZONAL LUMEN SUMMARY

0-10	536.31
10-20	514.90
20-30	289.89
30-40	197.45
40-50	6.22
50-60	2.40
60-70	1.81
70-80	1.50
80-90	1.27
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







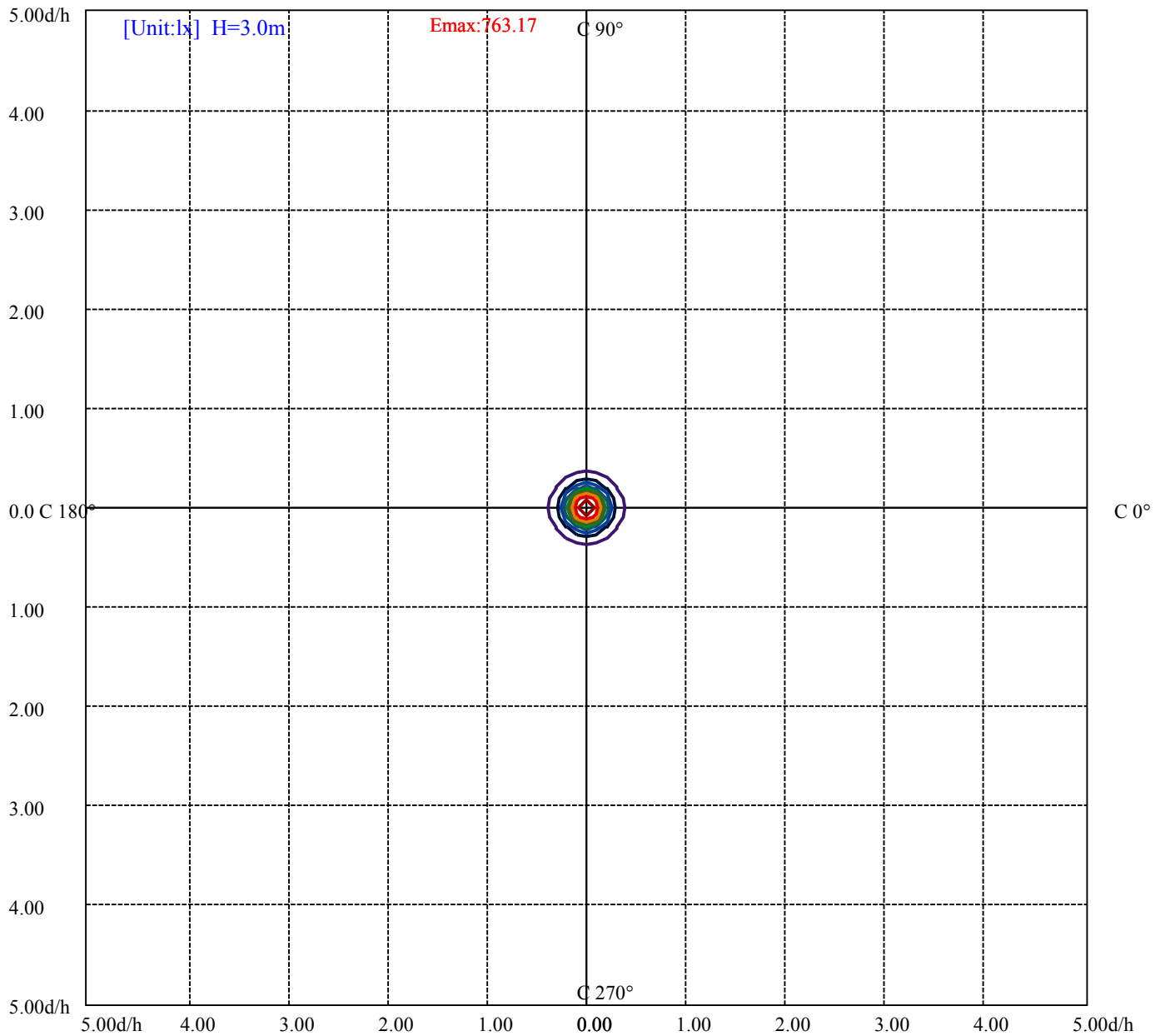


House

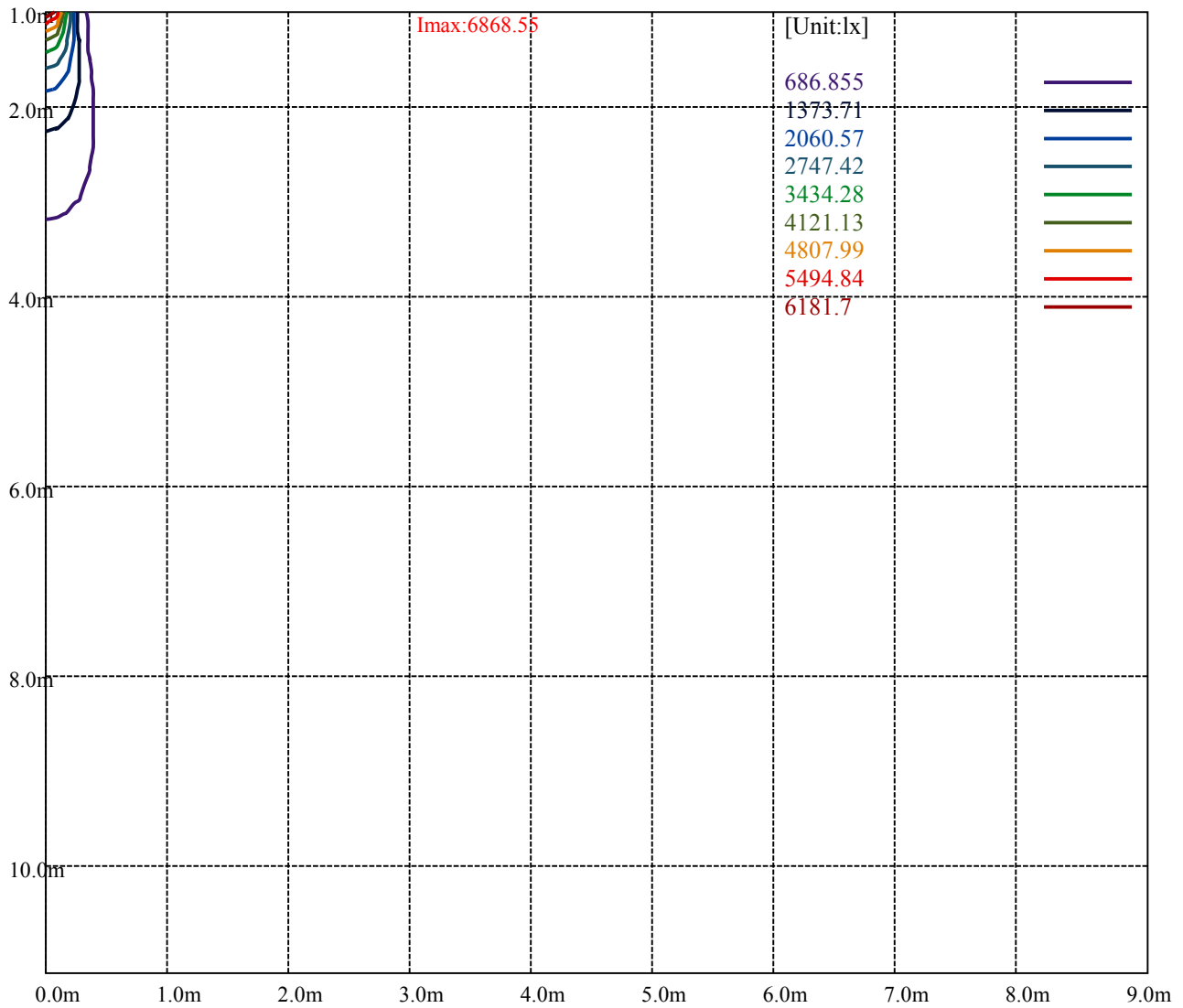
[Unit:cd]

Road

Imax:6868.55	
(10%Imax) 686.855	
(20%Imax) 1373.71	
(30%Imax) 2060.57	
(40%Imax) 2747.42	
(50%Imax) 3434.28	
(60%Imax) 4121.13	
(70%Imax) 4807.99	
(80%Imax) 5494.84	
(90%Imax) 6181.7	



(10%Emax) 76.31722	—
(20%Emax) 152.6344	—
(30%Emax) 228.9511	—
(40%Emax) 305.2689	—
(50%Emax) 381.5856	—
(60%Emax) 457.9033	—
(70%Emax) 534.22	—
(80%Emax) 610.5378	—
(90%Emax) 686.8544	—



Luminance Table

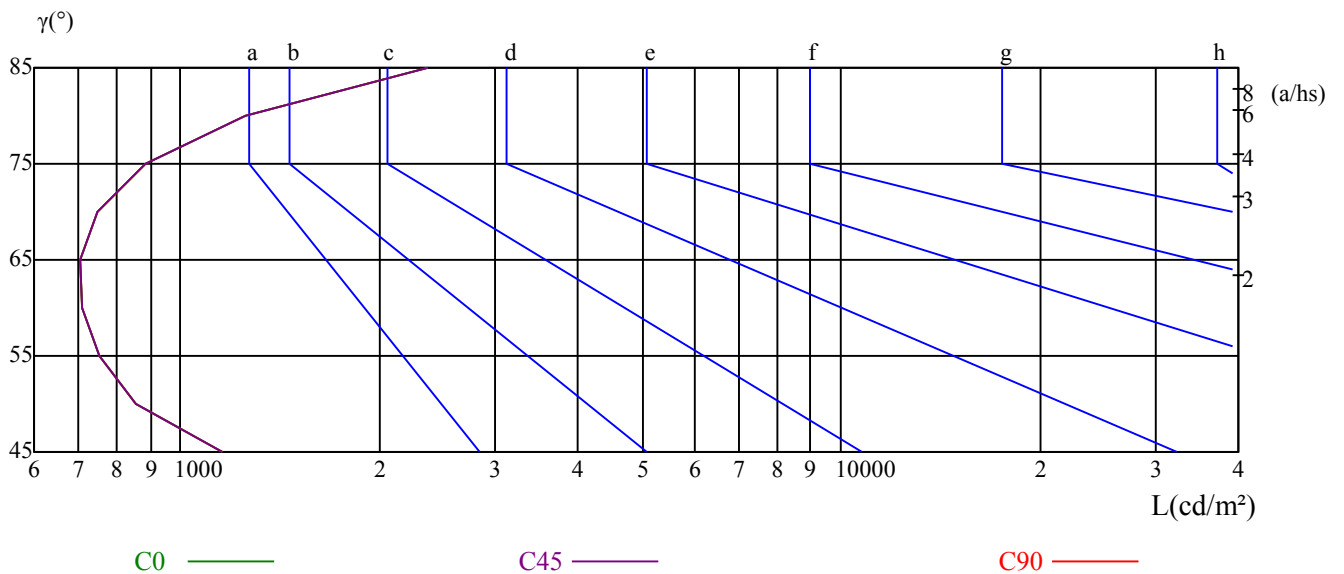
γ	45	50	55	60	65	70	75	80	85
C0	1155	854	753	709	706	750	888	1257	2374
C45	1155	854	753	709	706	750	888	1257	2374
C90	1155	854	753	709	706	750	888	1257	2374

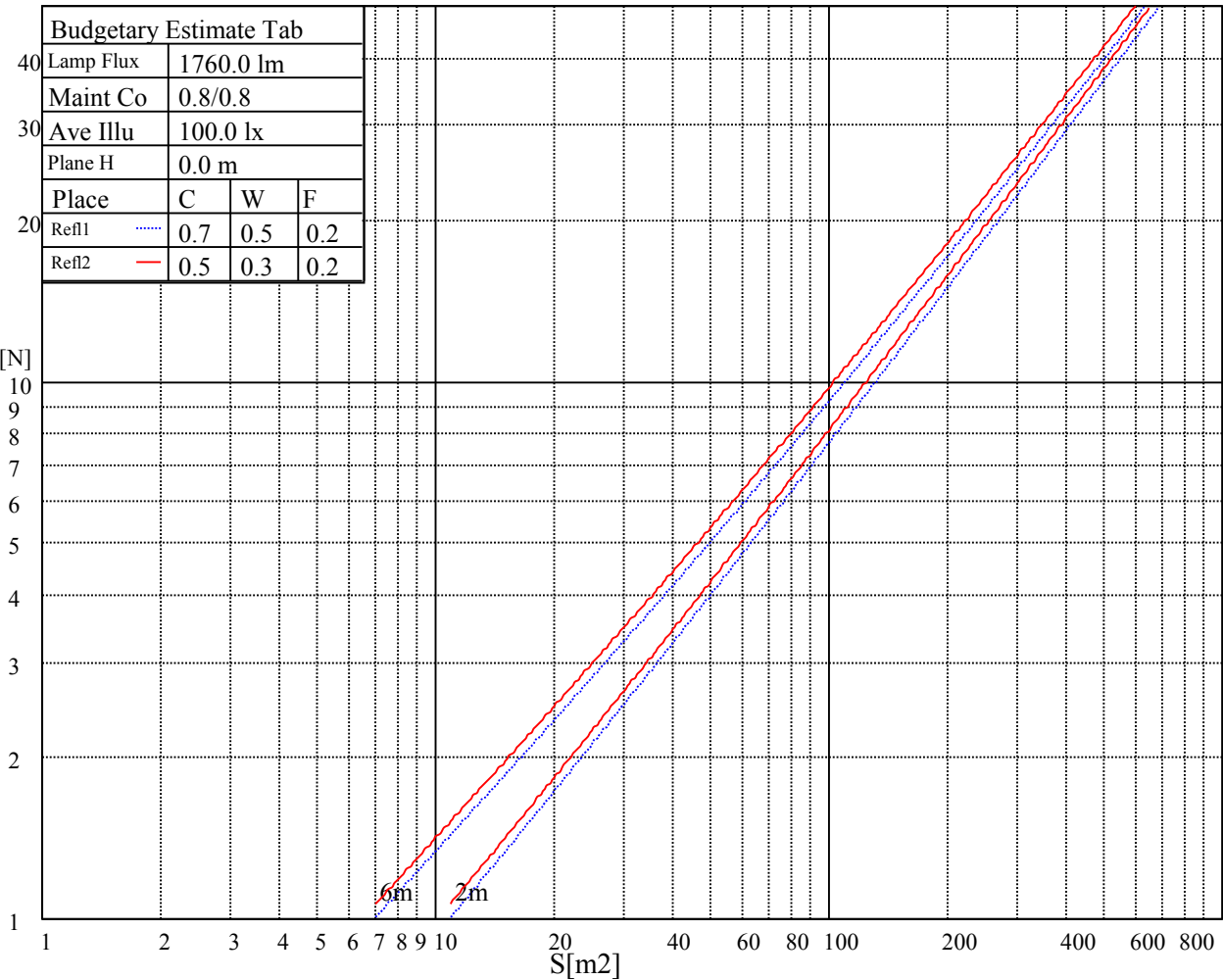
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
706	706	706	888	888	888	2374	2374	2374

Glare Table

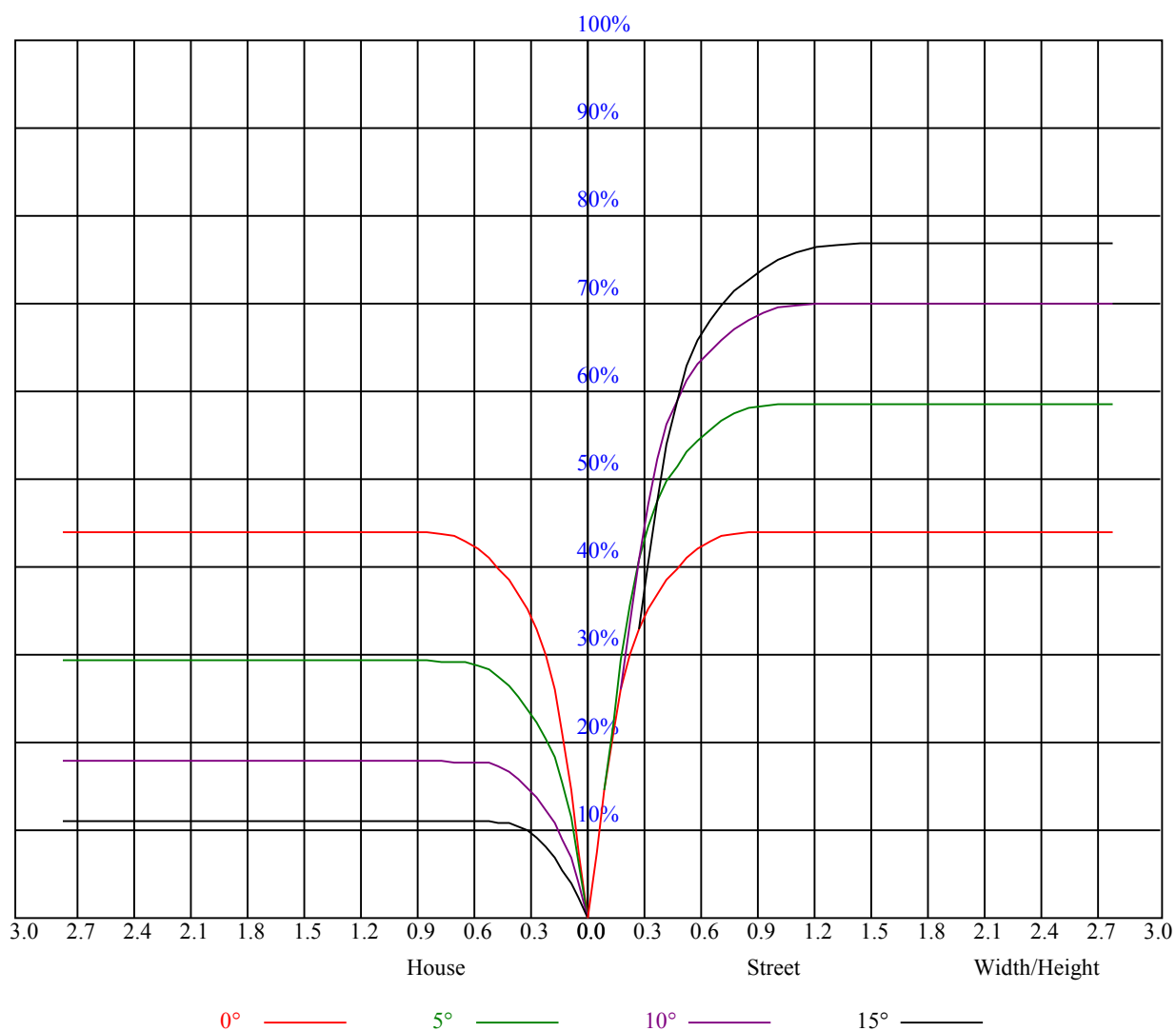
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

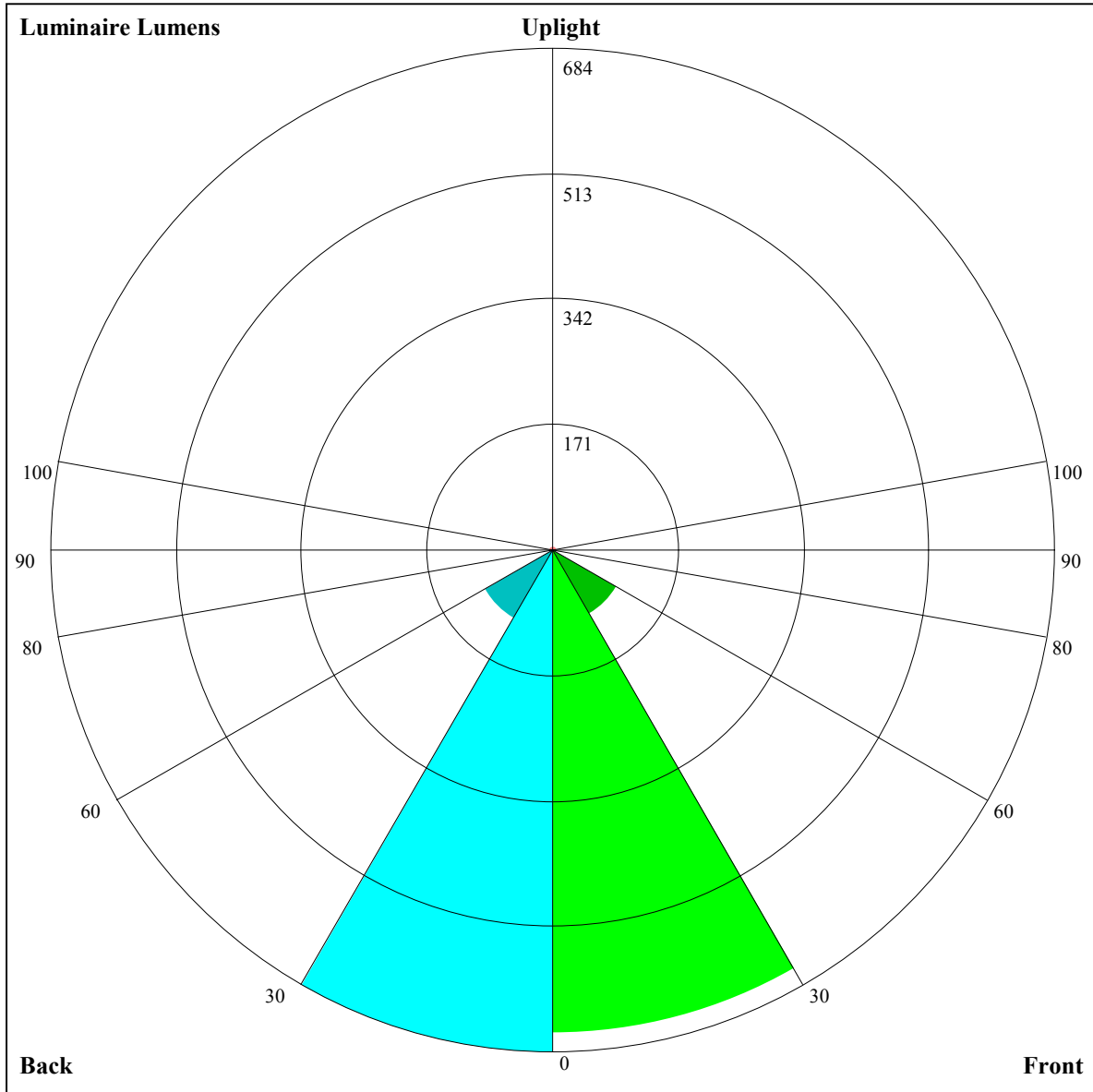
Luminance Limiting Curve





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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.97	0.96	0.97	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	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.82	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.68	0.73	0.70	0.68	0.67
8	0.73	0.69	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63
10	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.61





Luminaire Lumens:

FL=659.76,FM=100.39,FH=1.65,FVH=0.72

BL=684,BM=106.39,BH=1.68,BVH=0.7

UL=1.48,UH=7.05

BUG Rating:B2-U1-G0

Intensity data(cd)									Appendix Page: 17 Total:19
C/ γ (°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	6869.60	6824.12	6729.92	6582.36	6380.04	6124.82	5793.04	5388.40	4908.59
45.0	6870.99	6871.92	6834.79	6751.73	6632.94	6464.50	6243.62	5945.71	5574.94
90.0	6863.10	6800.92	6654.29	6566.58	6394.43	6154.06	5852.90	5477.03	5026.92
135.0	6870.53	6863.57	6812.99	6723.89	6600.92	6461.25	6177.26	5866.82	5568.45
180.0	6869.60	6870.99	6855.68	6761.94	6648.25	6551.27	6226.45	6039.44	5683.53
225.0	6870.99	6806.95	6707.65	6625.52	6340.60	6180.51	5849.19	5443.62	4962.42
270.0	6863.10	6878.41	6828.76	6779.11	6659.39	6482.13	6241.76	5929.93	5547.10
315.0	6870.53	6834.33	6748.48	6602.78	6400.46	6126.68	5787.94	5381.44	4896.06
360.0	6869.60	6824.12	6729.92	6582.36	6380.04	6124.82	5793.04	5388.40	4908.59
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4351.29	3745.26	3132.27	2565.69	2090.05	1708.62	1521.61	1185.19	892.20
45.0	5138.29	4638.06	4067.76	3469.62	2883.09	2361.98	1923.47	1572.19	1350.38
90.0	4516.02	3953.61	3370.79	2806.06	2311.86	1903.51	1573.12	1313.26	919.95
135.0	5128.54	4612.54	4035.75	3440.85	2871.02	2368.94	1956.41	1626.02	1370.80
180.0	5240.84	4722.05	4142.94	3535.52	2944.80	2417.20	1982.86	1636.23	1369.41
225.0	4411.61	3806.98	3193.99	2626.94	2147.13	1762.45	1456.65	1223.70	920.18
270.0	5084.46	4555.93	3968.46	3360.58	2781.00	2276.13	1865.46	1537.85	1284.49
315.0	4337.37	3730.41	3130.42	2585.18	2122.07	1747.60	1560.13	1222.31	923.24
360.0	4351.29	3745.26	3132.27	2565.69	2090.05	1708.62	1521.61	1185.19	892.20
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	892.20	817.12	745.79	692.43	656.24	629.97	611.27	592.62	580.23
45.0	1094.70	943.43	854.80	756.42	710.48	665.93	636.70	614.89	598.19
90.0	919.95	877.44	789.60	725.15	677.91	645.47	621.85	602.41	585.98
135.0	1172.19	1018.60	901.20	810.71	743.43	692.85	656.65	629.74	617.21
180.0	1159.67	1001.89	884.49	797.26	730.90	681.71	647.37	624.17	609.79
225.0	920.18	821.62	762.45	706.86	667.09	638.88	618.37	599.95	585.61
270.0	1090.99	999.11	843.20	766.63	730.44	668.25	650.62	626.96	607.47
315.0	881.06	861.85	778.51	718.42	675.03	643.29	620.37	600.60	585.47
360.0	892.20	817.12	745.79	692.43	656.24	629.97	611.27	592.62	580.23
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	568.16	559.86	548.72	539.07	519.35	491.27	407.14	337.45	292.43
45.0	582.41	570.34	559.67	550.39	540.65	530.44	495.63	441.34	374.06
90.0	573.13	563.10	551.74	542.18	530.11	491.83	435.03	366.26	292.67
135.0	596.33	575.45	568.49	557.81	547.14	536.93	508.63	456.66	391.23
180.0	591.23	575.45	566.63	556.42	545.29	536.93	508.63	457.12	393.08
225.0	573.22	562.69	552.71	542.55	526.72	482.87	425.15	356.05	282.64
270.0	589.83	576.38	565.70	555.03	543.89	534.15	498.42	445.98	380.55
315.0	573.68	562.73	553.50	541.67	524.03	488.95	430.02	361.44	288.30
360.0	568.16	559.86	548.72	539.07	519.35	491.27	407.14	337.45	292.43
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	219.53	149.23	86.73	38.19	13.78	10.63	8.35	6.13	5.10
45.0	299.81	255.26	255.26	115.03	59.16	22.41	11.65	9.65	7.29
90.0	248.49	175.40	87.38	56.70	21.86	12.58	10.21	7.52	5.66
135.0	320.23	247.38	247.38	107.93	54.06	25.29	12.85	10.58	8.49
180.0	323.01	250.16	250.16	109.70	54.99	30.16	11.65	10.58	8.40
225.0	238.79	139.58	78.93	48.77	17.73	10.30	8.96	6.64	5.29
270.0	309.09	249.23	249.23	107.10	53.60	20.05	12.25	9.61	6.96
315.0	214.85	145.38	82.69	35.13	13.78	10.90	8.03	5.75	4.87
360.0	219.53	149.23	86.73	38.19	13.78	10.63	8.35	6.13	5.10

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	3.94	3.71	3.57	3.39	3.20	3.06	2.97	2.83	2.74
45.0	5.34	4.18	3.85	3.67	3.43	3.34	3.20	2.97	2.83
90.0	4.55	4.18	3.94	3.81	3.57	3.39	3.25	3.11	2.92
135.0	6.50	5.38	4.41	4.18	3.99	3.76	3.53	3.39	3.29
180.0	5.57	4.55	3.94	3.71	3.57	3.39	3.20	3.06	2.97
225.0	3.94	3.71	3.53	3.43	3.20	3.02	2.88	2.83	2.69
270.0	5.71	4.41	4.04	3.90	3.71	3.48	3.29	3.20	3.06
315.0	4.22	4.04	3.85	3.67	3.48	3.29	3.16	2.97	2.88
360.0	3.94	3.71	3.57	3.39	3.20	3.06	2.97	2.83	2.74
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.51	2.46	2.37	2.32	2.23	2.13	2.00	2.00	1.95
45.0	2.78	2.64	2.55	2.37	2.32	2.23	2.13	2.09	2.00
90.0	2.78	2.69	2.60	2.41	2.32	2.27	2.23	2.13	2.04
135.0	3.06	2.88	2.78	2.69	2.60	2.41	2.32	2.27	2.18
180.0	2.78	2.64	2.55	2.51	2.32	2.23	2.18	2.09	1.95
225.0	2.51	2.41	2.37	2.27	2.13	2.09	2.00	1.95	1.95
270.0	2.83	2.74	2.64	2.51	2.37	2.32	2.23	2.18	2.04
315.0	2.74	2.55	2.55	2.41	2.27	2.23	2.18	2.04	1.95
360.0	2.51	2.46	2.37	2.32	2.23	2.13	2.00	2.00	1.95
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.86	1.72	1.72	1.72	1.67	1.58	1.53	1.53	1.48
45.0	1.95	1.90	1.81	1.72	1.72	1.72	1.62	1.53	1.48
90.0	1.95	1.90	1.86	1.72	1.72	1.72	1.62	1.58	1.58
135.0	2.04	1.95	1.90	1.86	1.81	1.76	1.72	1.62	1.62
180.0	1.90	1.90	1.86	1.72	1.67	1.67	1.58	1.58	1.48
225.0	1.86	1.72	1.72	1.72	1.62	1.53	1.53	1.53	1.48
270.0	2.04	1.90	1.90	1.86	1.76	1.72	1.72	1.62	1.53
315.0	1.90	1.81	1.76	1.72	1.67	1.62	1.58	1.48	1.48
360.0	1.86	1.72	1.72	1.72	1.67	1.58	1.53	1.53	1.48
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.44	1.39	1.39	1.44	1.35	1.35	1.30	1.35	1.39
45.0	1.53	1.53	1.44	1.39	1.44	1.35	1.30	1.30	1.30
90.0	1.53	1.44	1.44	1.44	1.44	1.35	1.35	1.39	1.35
135.0	1.62	1.53	1.48	1.48	1.44	1.39	1.35	1.35	1.39
180.0	1.48	1.48	1.44	1.35	1.44	1.39	1.35	1.30	1.35
225.0	1.44	1.44	1.44	1.35	1.35	1.39	1.35	1.30	1.25
270.0	1.53	1.53	1.48	1.39	1.44	1.44	1.35	1.30	1.35
315.0	1.48	1.39	1.44	1.35	1.39	1.35	1.35	1.30	1.25
360.0	1.44	1.39	1.39	1.44	1.35	1.35	1.30	1.35	1.39
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.25	1.30	1.35	1.30	1.25	1.30	1.30	1.35	1.44
45.0	1.35	1.30	1.30	1.35	1.25	1.30	1.39	1.58	1.35
90.0	1.30	1.30	1.30	1.35	1.30	1.25	1.30	1.30	1.30
135.0	1.30	1.30	1.30	1.30	1.25	1.30	1.30	1.25	1.25
180.0	1.30	1.25	1.30	1.25	1.21	1.30	1.25	1.21	1.30
225.0	1.30	1.25	1.25	1.25	1.30	1.21	1.21	1.25	1.25
270.0	1.39	1.30	1.35	1.30	1.25	1.25	1.21	1.21	1.30
315.0	1.30	1.25	1.30	1.21	1.25	1.30	1.30	1.35	1.39
360.0	1.25	1.30	1.35	1.30	1.25	1.30	1.30	1.35	1.44

Intensity data(cd)

Appendix Page: 19 Total:19

C/ γ (°)	90.0
0.0	1.62
45.0	1.39
90.0	1.39
135.0	1.30
180.0	1.35
225.0	1.16
270.0	1.21
315.0	1.44
360.0	1.62