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## Nata

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### Client:

LumCAT: 3-2322-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): 220.4000

Current(A): 0.0690

Power (W): 14.0200

PF: 0.9160

Ballast type: AC

Width(mm): 78

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1547.80, Efficiency(%): 87.94% , Luminous Efficacy(lm/W): 110.40

Central intensity(cd): 11581.720, Maximum intensity(cd): 11581.720

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

Beam Angle(50%Imax): [C0/180]Total=15.2

[C90/270]Total=15.2

Field angle(10%Imax): [C0/180]Total=31.2

[C90/270]Total=31.2

Maximum s/h(1/2): C0\_180=0.26 C90\_270=0.26

Maximum s/h(1/4): C0\_180=0.26 C90\_270=0.26

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.94%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.711%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11581.718	0.000	0	.000%	.000%
1.0	11484.271	11.037	11.037	.627%	.713%
2.0	11176.849	32.525	43.562	1.848%	2.814%
3.0	10046.939	50.760	94.322	2.884%	6.094%
4.0	9671.768	66.005	160.327	3.750%	10.358%
5.0	8938.537	80.061	240.388	4.549%	15.531%
6.0	7777.989	87.850	328.237	4.991%	21.207%
7.0	6450.912	88.319	416.556	5.018%	26.913%
8.0	5263.972	83.841	500.397	4.764%	32.330%
9.0	4207.252	76.759	577.156	4.361%	37.289%
10.0	3323.500	68.151	645.307	3.872%	41.692%
11.0	2689.863	60.086	705.393	3.414%	45.574%
12.0	2176.352	53.195	758.587	3.022%	49.011%
13.0	1981.516	49.343	807.931	2.804%	52.199%
14.0	1639.442	46.348	854.279	2.633%	55.193%
15.0	1309.549	40.485	894.764	2.300%	57.809%
16.0	1069.672	34.862	929.626	1.981%	60.061%
17.0	989.052	32.060	961.686	1.822%	62.132%
18.0	912.139	31.347	993.032	1.781%	64.158%
19.0	827.093	30.259	1023.291	1.719%	66.113%
20.0	765.777	29.154	1052.445	1.656%	67.996%
21.0	715.412	28.442	1080.887	1.616%	69.834%
22.0	677.721	27.996	1108.883	1.591%	71.643%
23.0	647.292	27.802	1136.685	1.580%	73.439%
24.0	623.794	27.790	1164.476	1.579%	75.234%
25.0	604.357	27.925	1192.401	1.587%	77.038%
26.0	590.558	28.206	1220.607	1.603%	78.861%
27.0	579.520	28.626	1249.233	1.626%	80.710%
28.0	569.369	29.087	1278.321	1.653%	82.590%
29.0	559.781	29.542	1307.863	1.679%	84.498%
30.0	550.030	29.965	1337.827	1.703%	86.434%
31.0	535.669	30.213	1368.041	1.717%	88.386%
32.0	510.767	29.979	1398.02	1.703%	90.323%
33.0	464.764	28.740	1426.759	1.633%	92.180%
34.0	400.275	26.179	1452.938	1.487%	93.871%
35.0	337.845	22.923	1475.861	1.302%	95.352%
36.0	268.890	19.319	1495.18	1.098%	96.600%
37.0	197.301	15.205	1510.384	.864%	97.583%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	167.661	12.182	1522.566	.692%	98.370%
39.0	79.031	8.420	1530.987	.478%	98.914%
40.0	34.948	3.975	1534.962	.226%	99.171%
41.0	16.137	1.819	1536.781	.103%	99.288%
42.0	10.574	0.970	1537.751	.055%	99.351%
43.0	8.411	0.703	1538.455	.040%	99.396%
44.0	6.444	0.561	1539.015	.032%	99.432%
45.0	5.104	0.444	1539.459	.025%	99.461%
46.0	4.397	0.372	1539.831	.021%	99.485%
47.0	4.020	0.335	1540.165	.019%	99.507%
48.0	3.741	0.314	1540.479	.018%	99.527%
49.0	3.515	0.298	1540.777	.017%	99.546%
50.0	3.324	0.285	1541.062	.016%	99.565%
51.0	3.121	0.273	1541.335	.015%	99.582%
52.0	2.912	0.259	1541.594	.015%	99.599%
53.0	2.738	0.246	1541.84	.014%	99.615%
54.0	2.616	0.236	1542.076	.013%	99.630%
55.0	2.483	0.228	1542.303	.013%	99.645%
56.0	2.361	0.219	1542.522	.012%	99.659%
57.0	2.233	0.210	1542.732	.012%	99.673%
58.0	2.135	0.202	1542.934	.011%	99.686%
59.0	2.053	0.196	1543.13	.011%	99.698%
60.0	1.972	0.190	1543.32	.011%	99.711%
61.0	1.879	0.184	1543.504	.010%	99.722%
62.0	1.833	0.179	1543.683	.010%	99.734%
63.0	1.758	0.175	1543.857	.010%	99.745%
64.0	1.671	0.168	1544.025	.010%	99.756%
65.0	1.659	0.165	1544.19	.009%	99.767%
66.0	1.607	0.163	1544.353	.009%	99.777%
67.0	1.555	0.159	1544.512	.009%	99.788%
68.0	1.514	0.155	1544.668	.009%	99.798%
69.0	1.473	0.152	1544.82	.009%	99.807%
70.0	1.468	0.151	1544.971	.009%	99.817%
71.0	1.427	0.150	1545.121	.008%	99.827%
72.0	1.404	0.147	1545.268	.008%	99.836%
73.0	1.375	0.145	1545.413	.008%	99.846%
74.0	1.363	0.144	1545.557	.008%	99.855%
75.0	1.369	0.144	1545.701	.008%	99.864%

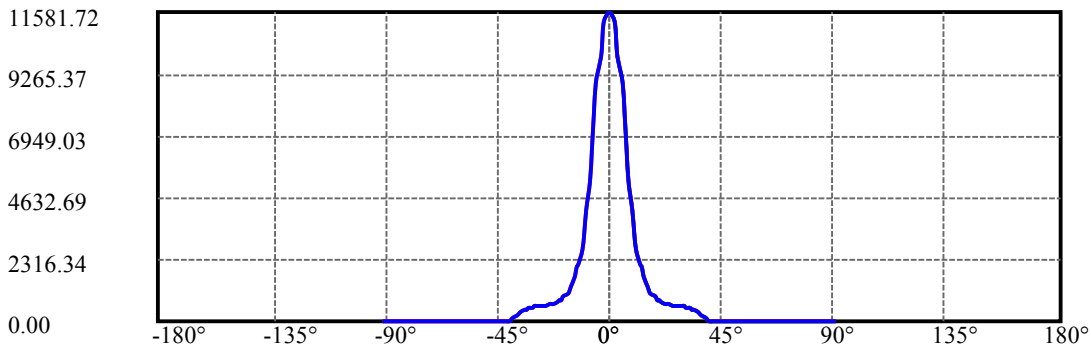
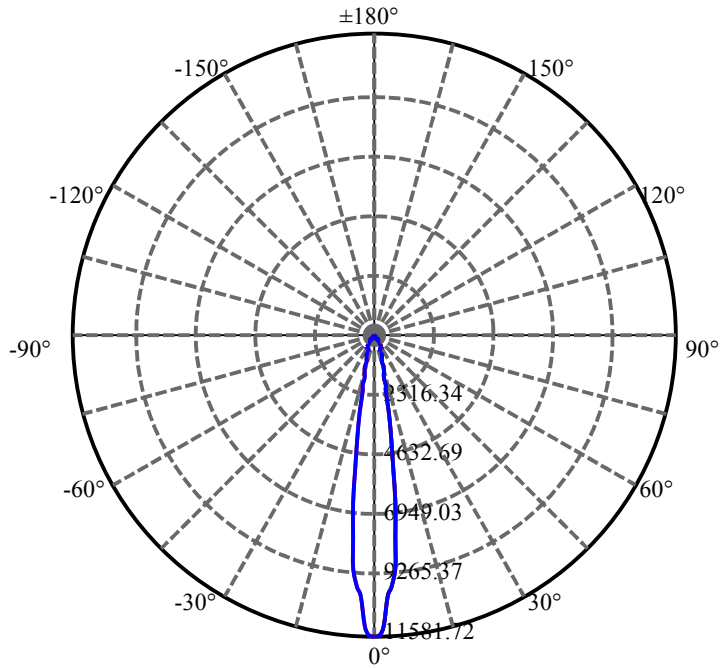
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.328	0.143	1545.845	.008%	99.874%
77.0	1.322	0.141	1545.986	.008%	99.883%
78.0	1.305	0.141	1546.127	.008%	99.892%
79.0	1.311	0.141	1546.267	.008%	99.901%
80.0	1.282	0.140	1546.407	.008%	99.910%
81.0	1.259	0.137	1546.544	.008%	99.919%
82.0	1.282	0.138	1546.682	.008%	99.928%
83.0	1.253	0.138	1546.82	.008%	99.937%
84.0	1.282	0.138	1546.958	.008%	99.946%
85.0	1.270	0.139	1547.097	.008%	99.955%
86.0	1.253	0.138	1547.235	.008%	99.964%
87.0	1.264	0.138	1547.373	.008%	99.972%
88.0	1.288	0.140	1547.513	.008%	99.981%
89.0	1.305	0.142	1547.655	.008%	99.991%
90.0	1.334	0.145	1547.799	.008%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1337.83	76.01%	86.43%
0-40	1534.96	87.21%	99.17%
0-60	1543.32	87.69%	99.71%
0-90	1547.65	87.93%	99.99%
0-120	1547.65	87.93%	99.99%
0-180	1547.80	87.94%	100.00%
60-90	4.53	0.26%	0.29%
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%
0-26.62	1238.24	70.35%	80.00%

ZONAL LUMEN SUMMARY

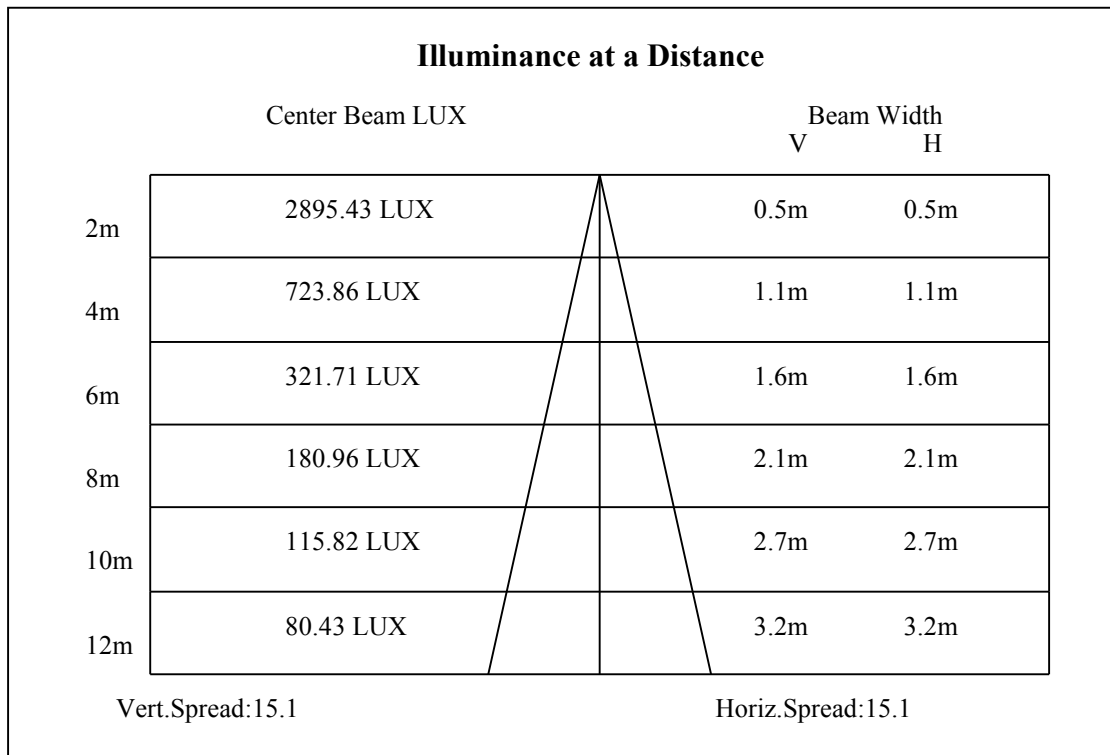
0-10	645.31
10-20	407.14
20-30	285.38
30-40	197.13
40-50	6.10
50-60	2.26
60-70	1.65
70-80	1.44
80-90	1.25
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

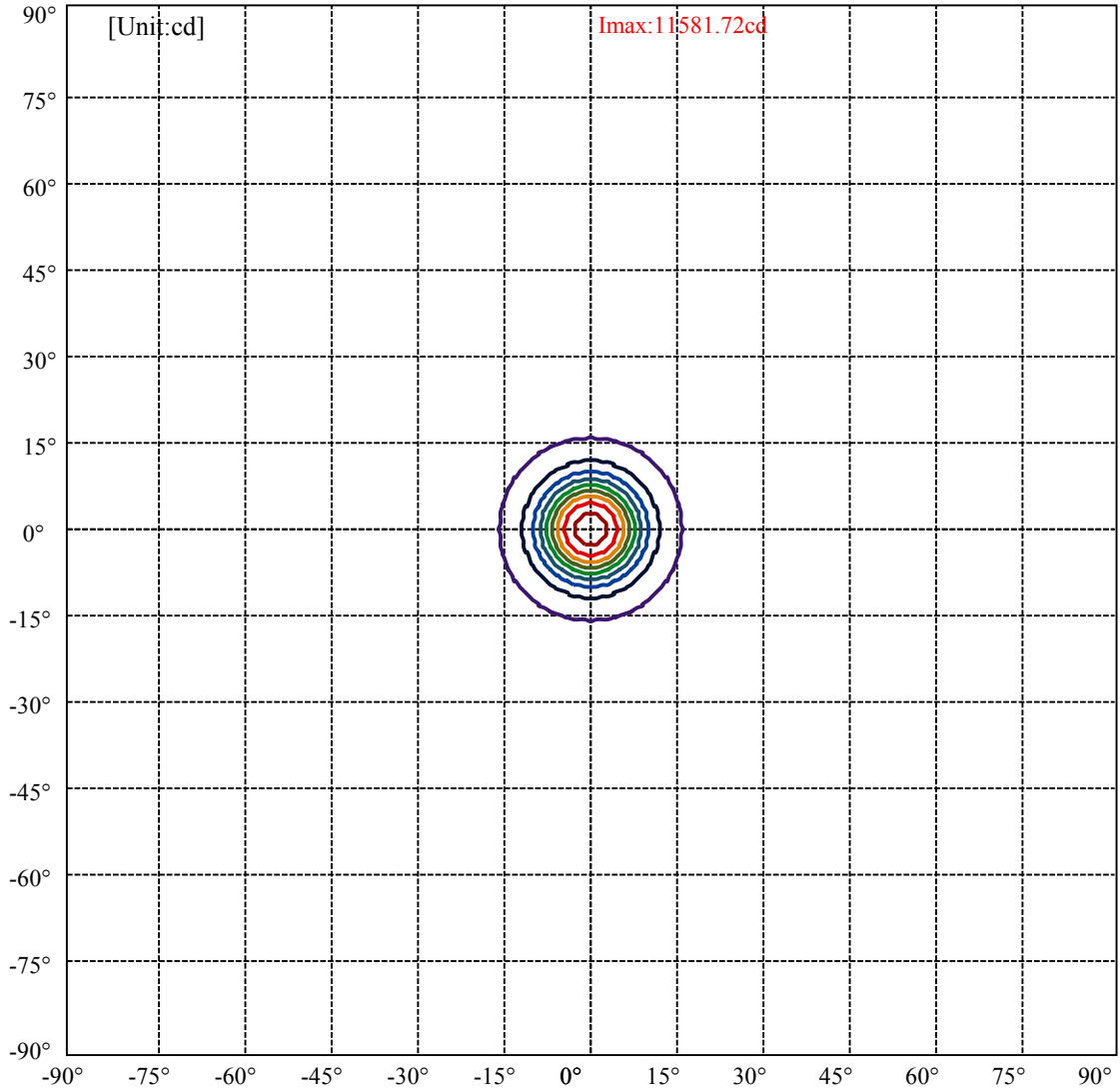


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:15.6 Right:15.6  
:C90/270Left:15.6 Right:15.6

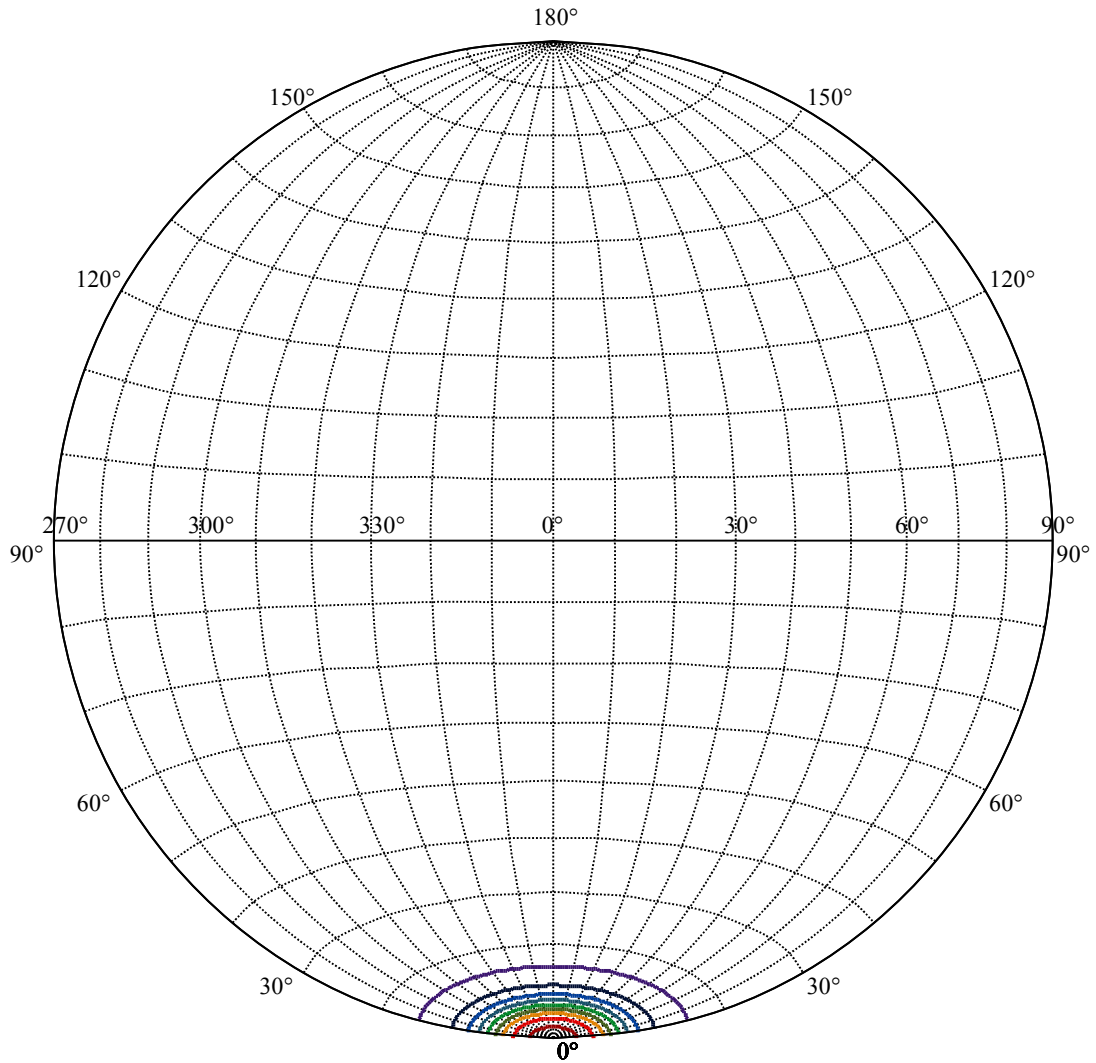
Beam Angle(50%Imax):C0/180Left:7.6 Right:7.6  
:C90/270Left:7.6 Right:7.6





(10%I <sub>max</sub> ) 1158.17	—
(20%I <sub>max</sub> ) 2316.34	—
(30%I <sub>max</sub> ) 3474.51	—
(40%I <sub>max</sub> ) 4632.69	—
(50%I <sub>max</sub> ) 5790.86	—
(60%I <sub>max</sub> ) 6949.03	—
(70%I <sub>max</sub> ) 8107.2	—
(80%I <sub>max</sub> ) 9265.37	—
(90%I <sub>max</sub> ) 10423.5	—





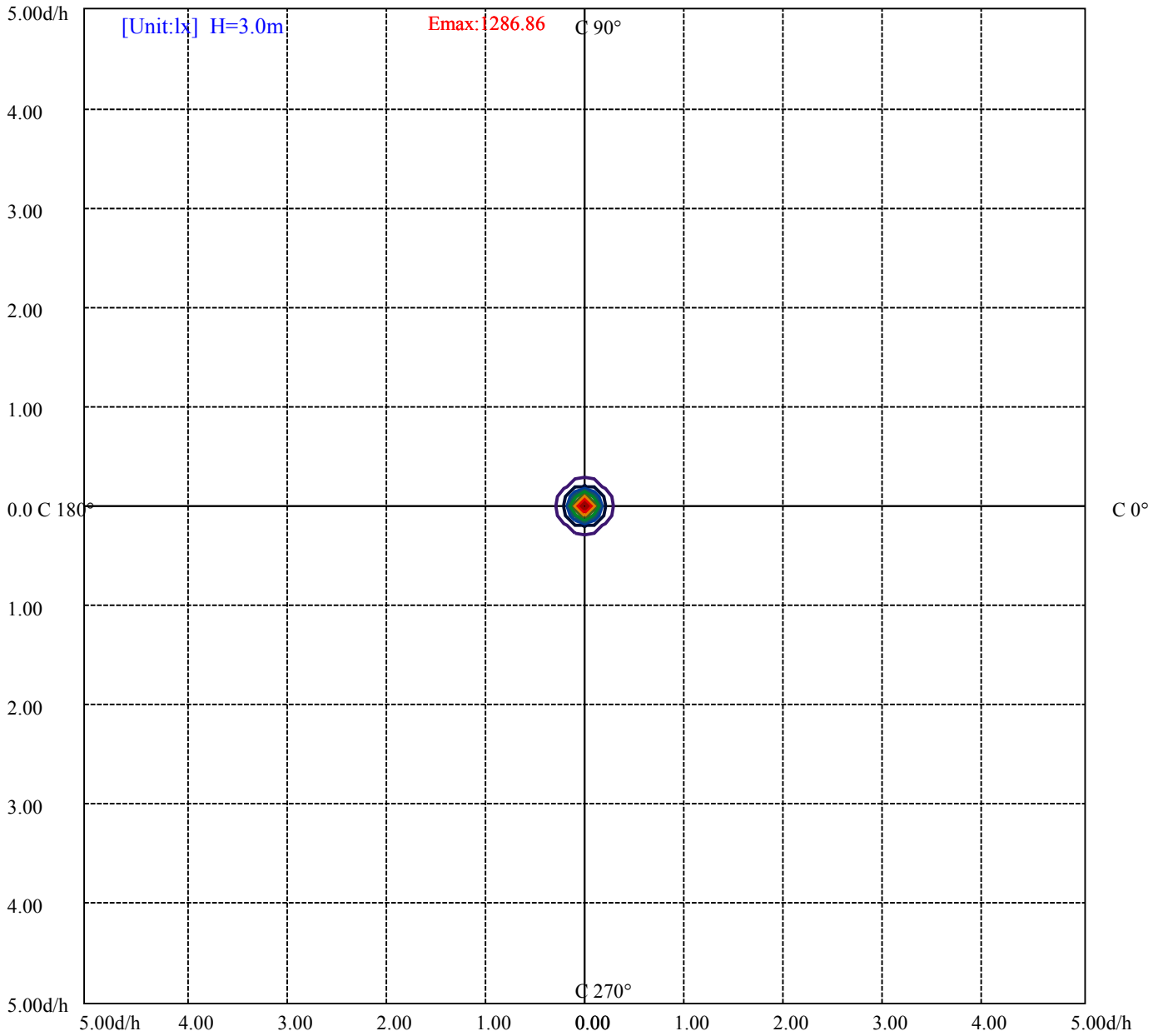
House

[Unit:cd]

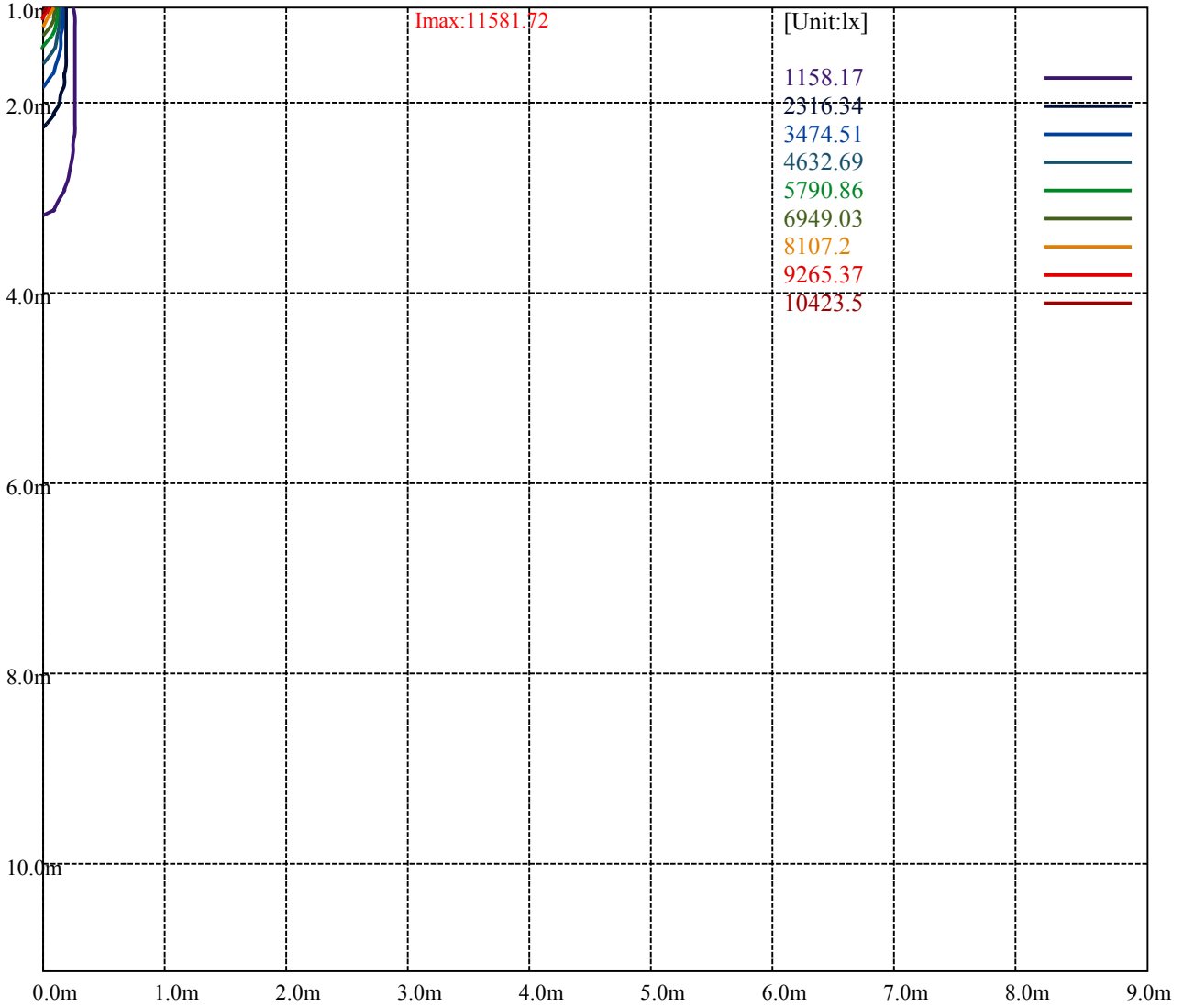
Road

**Imax:11581.72**

(10%Imax)	1158.17	—
(20%Imax)	2316.34	—
(30%Imax)	3474.51	—
(40%Imax)	4632.69	—
(50%Imax)	5790.86	—
(60%Imax)	6949.03	—
(70%Imax)	8107.2	—
(80%Imax)	9265.37	—
(90%Imax)	10423.5	—



(10%Emax) 128.6856	—
(20%Emax) 257.3711	—
(30%Emax) 386.0567	—
(40%Emax) 514.7422	—
(50%Emax) 643.4278	—
(60%Emax) 772.1133	—
(70%Emax) 900.7989	—
(80%Emax) 1029.484	—
(90%Emax) 1158.167	—



Luminance Table

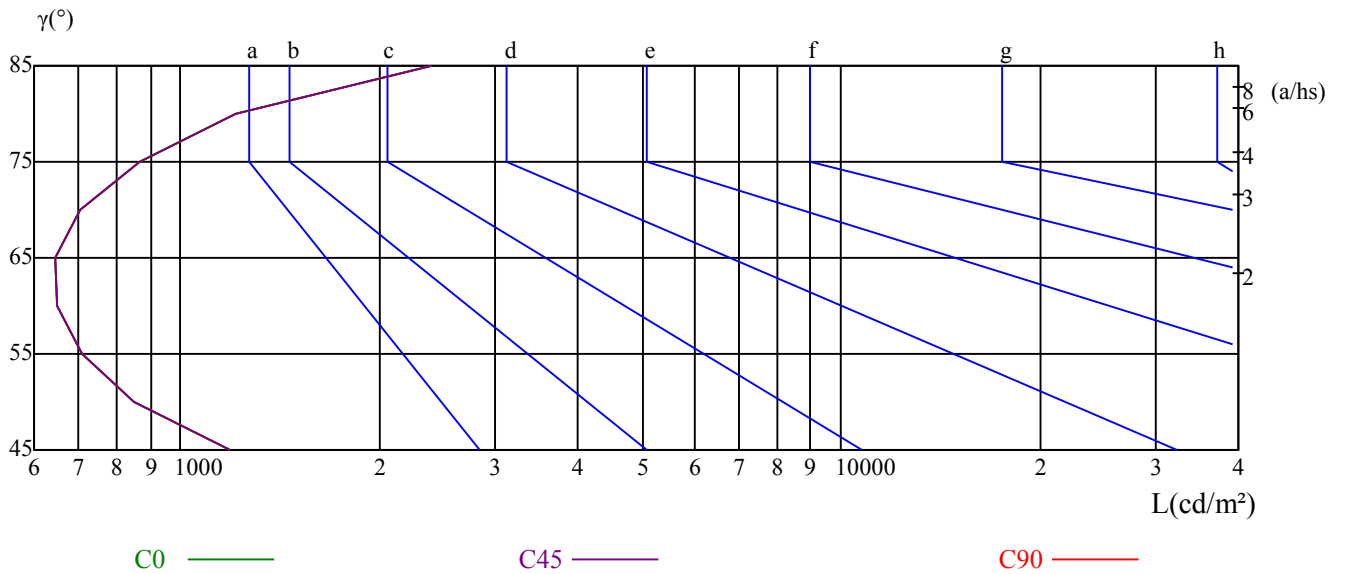
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1187	850	711	648	645	705	869	1213	2396
C45	1187	850	711	648	645	705	869	1213	2396
C90	1187	850	711	648	645	705	869	1213	2396

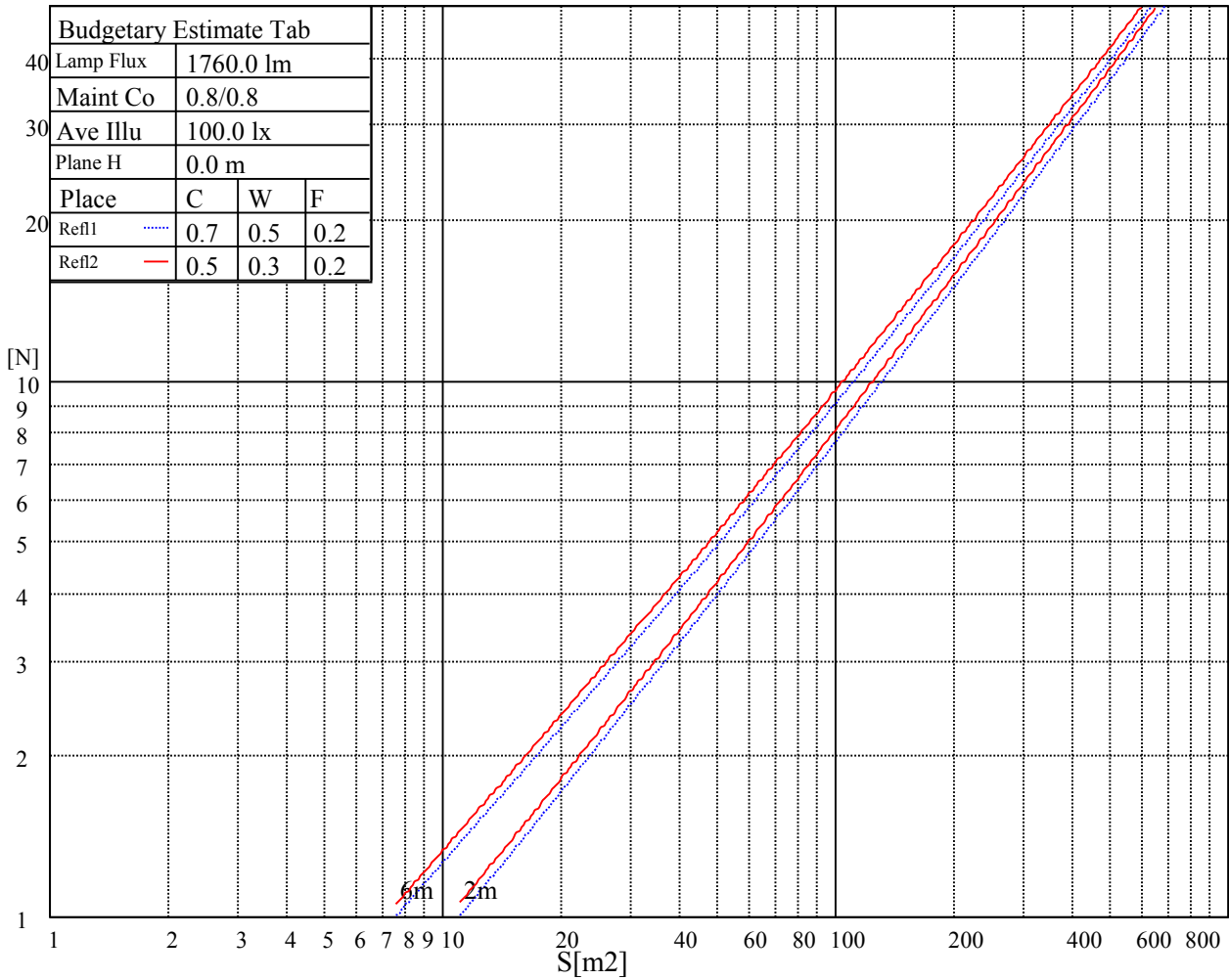
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
645	645	645	869	869	869	2396	2396	2396

Glare Table

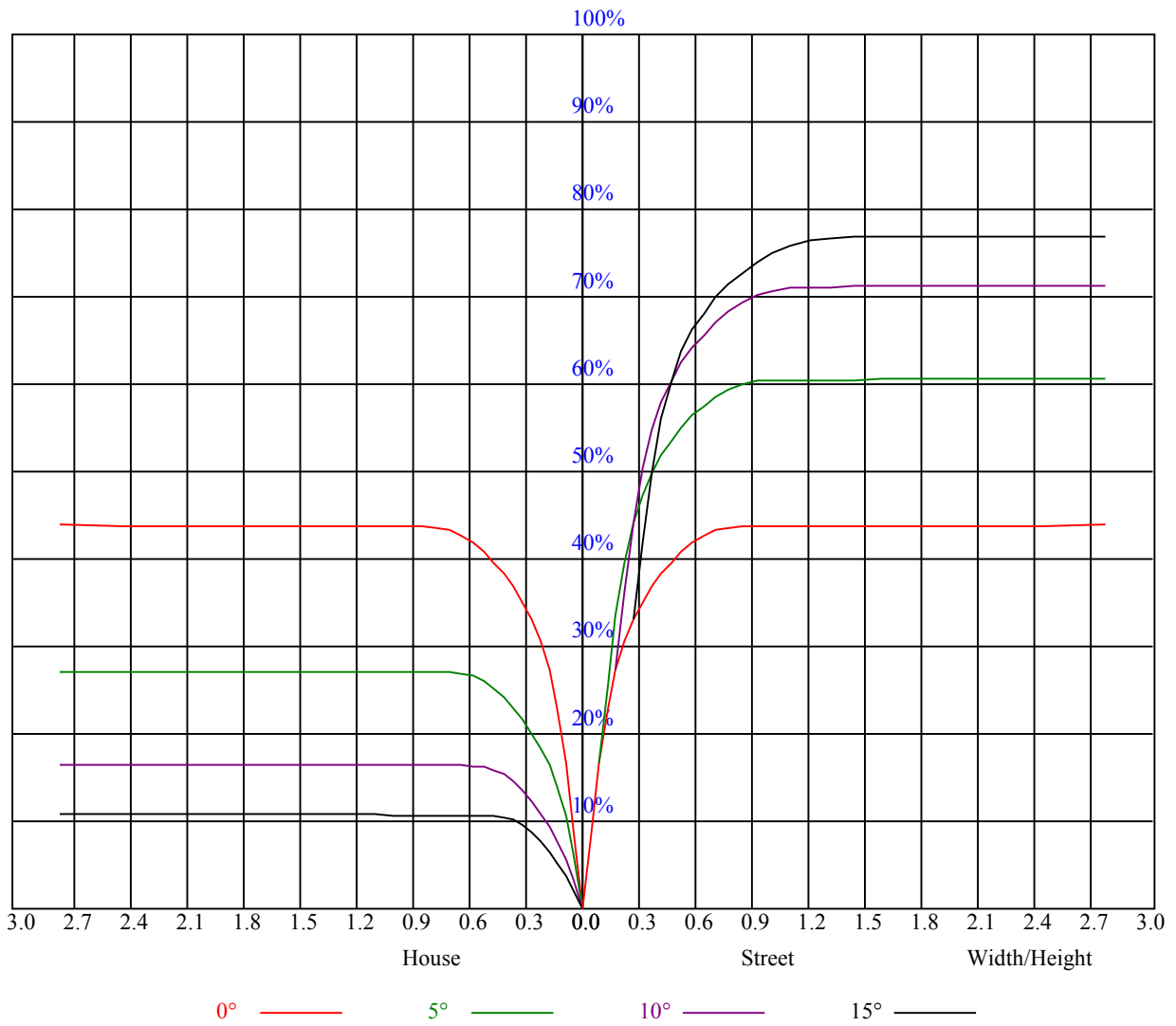
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

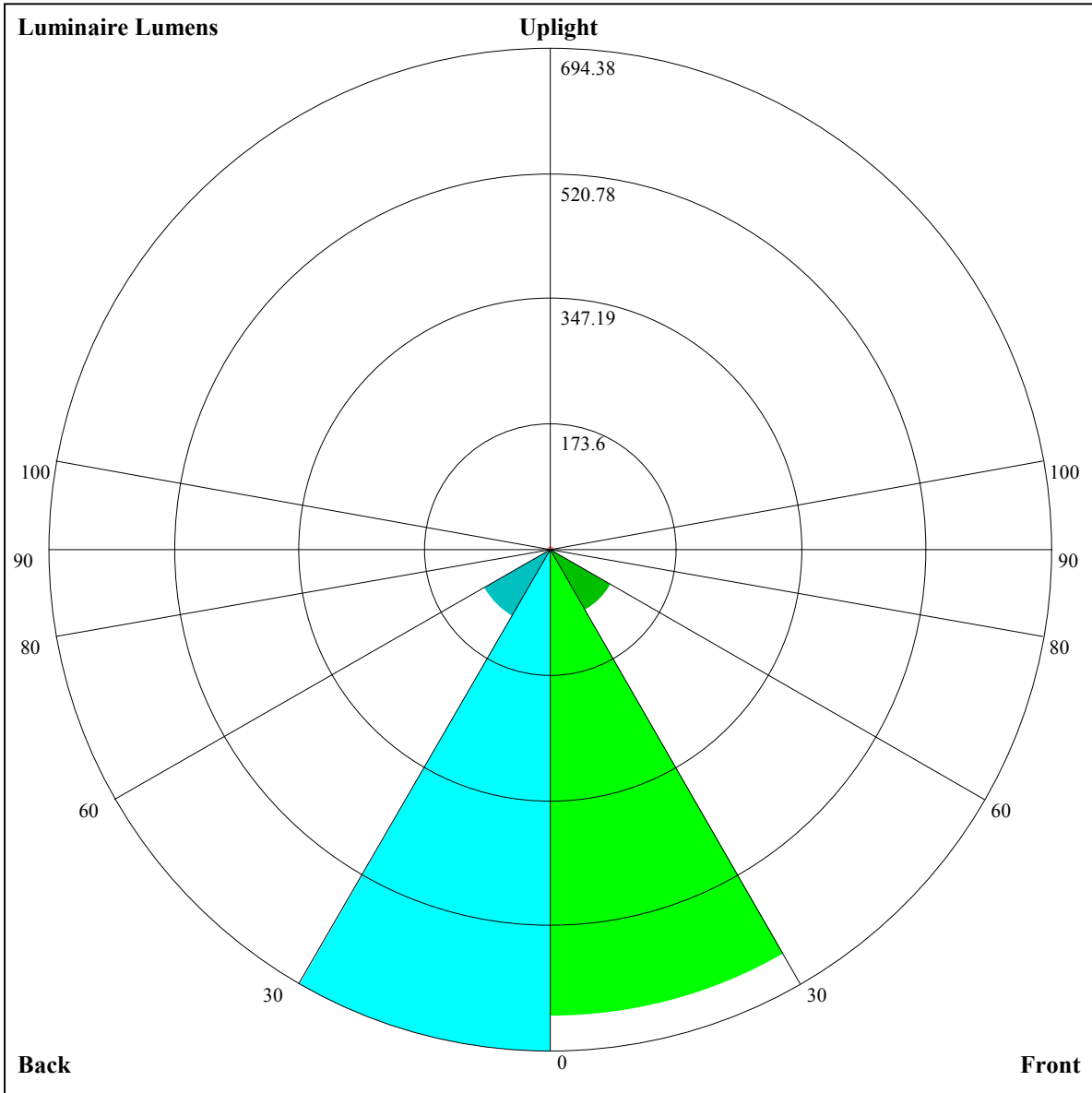
Luminance Limiting Curve





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	1.02	1.02	1.02	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	0.92	0.91	0.90	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	0.83	0.81
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	0.83	0.81	0.78	0.82	0.79	0.78	0.80	0.78	0.77	0.76
5	0.83	0.79	0.76	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.72	0.69	0.67	0.66
9	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
10	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.64	0.63





Luminaire Lumens:

FL=645.93,FM=98.09,FH=1.54,FVH=0.7

BL=694.38,BM=107.84,BH=1.55,BVH=0.69

UL=1.46,UH=6.93

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	11564.32	11220.93	10691.93	8594.41	8594.41	7827.36	6496.05	5244.09	4176.35
45.0	11620.00	11592.16	11374.06	10942.51	10274.30	9346.24	8640.91	6794.05	6009.84
90.0	11587.52	11425.11	10947.15	9066.80	8824.57	8322.49	6962.87	5641.76	4499.78
135.0	11555.04	11633.92	11517.91	11216.29	10701.21	9903.08	8807.96	7504.02	6167.61
180.0	11564.32	11643.20	11559.68	11295.18	10794.02	10060.85	9049.26	7782.44	6436.75
225.0	11620.00	11448.31	11081.72	9154.96	8678.86	8427.36	7100.69	6047.79	4634.35
270.0	11587.52	11629.28	11448.31	11086.36	10487.76	9610.74	8487.77	7169.92	5847.42
315.0	11555.04	11281.26	10794.02	9019.00	9019.00	8010.19	6678.42	5423.21	4339.69
360.0	11564.32	11220.93	10691.93	8594.41	8594.41	7827.36	6496.05	5244.09	4176.35
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3320.21	2656.17	2150.38	1769.87	1484.03	1270.57	1110.01	894.10	894.10
45.0	4817.27	3480.85	3030.74	2427.50	2427.50	1586.11	1344.82	1163.38	1024.63
90.0	3568.93	2839.00	2283.55	1860.82	1549.92	1321.61	1148.07	912.38	912.38
135.0	4961.12	3940.25	3118.91	2497.10	2288.29	2288.29	1469.64	1258.04	1096.56
180.0	5174.58	4121.22	3267.40	2613.11	2501.74	2297.57	1576.37	1343.89	1108.16
225.0	3678.90	3060.35	2457.57	2007.46	1664.07	1405.60	1207.46	909.69	891.18
270.0	4682.70	3731.43	2975.06	2395.02	2395.02	1627.41	1471.96	1193.08	1102.59
315.0	3454.31	2758.73	2235.30	1839.94	1541.57	1318.37	1148.07	882.82	882.82
360.0	3320.21	2656.17	2150.38	1769.87	1484.03	1270.57	1110.01	894.10	894.10
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	830.39	767.98	719.25	679.44	649.46	625.10	606.96	593.55	582.18
45.0	918.83	834.84	770.34	718.37	678.46	659.90	633.45	604.22	597.26
90.0	845.84	776.84	725.15	683.15	652.38	627.70	607.61	593.41	582.78
135.0	972.66	877.07	801.43	743.43	697.95	663.61	635.77	612.57	595.87
180.0	1027.42	919.30	833.45	768.02	714.66	673.82	643.20	620.00	600.97
225.0	857.95	787.60	731.46	688.21	667.14	629.65	615.91	599.16	581.57
270.0	977.76	881.71	806.54	748.07	701.20	665.01	634.84	614.43	597.72
315.0	866.26	771.41	738.60	694.61	660.51	633.54	612.62	597.54	586.12
360.0	830.39	767.98	719.25	679.44	649.46	625.10	606.96	593.55	582.18
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	572.57	562.83	552.34	542.83	513.50	483.62	393.18	321.58	277.58
45.0	584.26	574.06	564.31	553.64	544.82	530.90	490.07	432.06	362.92
90.0	572.20	563.52	552.90	542.83	523.20	475.82	440.65	342.87	298.74
135.0	584.73	572.66	563.85	558.28	547.61	538.79	512.34	462.22	396.79
180.0	587.05	576.38	567.56	557.81	547.61	537.86	512.80	463.15	399.12
225.0	574.80	566.12	556.79	546.03	536.33	502.08	449.69	385.29	311.88
270.0	584.73	574.06	565.70	554.57	544.36	534.15	498.42	445.05	379.63
315.0	575.82	565.33	554.80	544.26	527.93	482.92	420.97	349.97	276.10
360.0	572.57	562.83	552.34	542.83	513.50	483.62	393.18	321.58	277.58
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	204.82	135.45	74.66	30.86	13.41	11.51	9.05	6.77	5.71
45.0	287.75	244.13	244.13	81.95	43.16	15.59	11.18	9.47	6.96
90.0	224.96	127.56	91.60	43.25	16.01	12.16	9.74	7.15	5.43
135.0	325.33	252.48	252.48	112.06	56.94	22.46	13.36	11.18	8.58
180.0	329.05	270.58	255.73	174.06	67.75	26.59	12.39	10.49	8.17
225.0	238.37	165.47	100.93	47.61	16.89	10.44	8.63	6.82	5.01
270.0	322.55	248.30	248.30	105.66	52.02	18.89	11.60	9.14	6.54
315.0	218.28	134.43	73.46	36.80	13.41	11.46	8.63	6.26	5.15
360.0	204.82	135.45	74.66	30.86	13.41	11.51	9.05	6.77	5.71

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	4.64	4.32	4.04	3.76	3.57	3.34	3.06	2.92	2.78
45.0	5.24	4.18	3.94	3.67	3.43	3.25	3.06	2.88	2.69
90.0	4.08	3.90	3.71	3.39	3.20	3.02	2.88	2.69	2.51
135.0	6.96	5.57	4.55	4.22	3.99	3.81	3.57	3.25	3.06
180.0	6.08	5.01	4.55	4.18	3.94	3.71	3.53	3.25	3.02
225.0	4.04	3.85	3.57	3.39	3.11	2.97	2.83	2.60	2.46
270.0	5.29	4.13	3.81	3.57	3.39	3.20	2.97	2.78	2.69
315.0	4.50	4.22	3.99	3.76	3.48	3.29	3.06	2.92	2.69
360.0	4.64	4.32	4.04	3.76	3.57	3.34	3.06	2.92	2.78
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.64	2.46	2.41	2.27	2.13	2.09	2.00	1.86	1.81
45.0	2.55	2.46	2.37	2.13	2.09	2.04	2.00	1.86	1.86
90.0	2.46	2.32	2.23	2.18	2.00	1.90	1.90	1.86	1.76
135.0	2.92	2.74	2.55	2.41	2.37	2.23	2.09	2.00	1.95
180.0	2.92	2.74	2.60	2.51	2.32	2.18	2.13	2.04	1.95
225.0	2.37	2.27	2.13	2.00	2.00	1.90	1.76	1.72	1.72
270.0	2.55	2.46	2.32	2.18	2.09	2.09	1.95	1.86	1.81
315.0	2.51	2.41	2.27	2.18	2.09	2.00	1.95	1.86	1.81
360.0	2.64	2.46	2.41	2.27	2.13	2.09	2.00	1.86	1.81
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.81	1.72	1.62	1.58	1.58	1.53	1.44	1.44	1.44
45.0	1.76	1.67	1.67	1.62	1.58	1.48	1.48	1.48	1.44
90.0	1.67	1.62	1.67	1.58	1.48	1.48	1.48	1.44	1.39
135.0	1.86	1.76	1.76	1.67	1.58	1.62	1.53	1.53	1.48
180.0	1.86	1.76	1.76	1.72	1.62	1.53	1.58	1.53	1.44
225.0	1.62	1.53	1.53	1.53	1.44	1.48	1.39	1.39	1.35
270.0	1.76	1.67	1.62	1.58	1.62	1.48	1.44	1.48	1.48
315.0	1.72	1.62	1.62	1.58	1.53	1.48	1.44	1.44	1.39
360.0	1.81	1.72	1.62	1.58	1.58	1.53	1.44	1.44	1.44
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.44	1.35	1.35	1.39	1.35	1.35	1.30	1.35	1.35
45.0	1.39	1.39	1.44	1.35	1.30	1.35	1.35	1.30	1.25
90.0	1.39	1.39	1.35	1.39	1.30	1.35	1.35	1.25	1.25
135.0	1.44	1.39	1.39	1.39	1.39	1.30	1.30	1.35	1.30
180.0	1.39	1.44	1.39	1.35	1.30	1.35	1.35	1.35	1.25
225.0	1.39	1.35	1.30	1.35	1.35	1.30	1.25	1.30	1.30
270.0	1.39	1.35	1.35	1.39	1.30	1.30	1.30	1.35	1.30
315.0	1.39	1.35	1.35	1.35	1.35	1.30	1.25	1.25	1.25
360.0	1.44	1.35	1.35	1.39	1.35	1.35	1.30	1.35	1.35
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.25	1.25	1.25	1.25	1.25	1.25	1.30	1.35	1.35
45.0	1.35	1.35	1.30	1.30	1.30	1.30	1.30	1.48	1.35
90.0	1.25	1.30	1.25	1.30	1.30	1.30	1.25	1.25	1.30
135.0	1.25	1.30	1.25	1.35	1.25	1.25	1.30	1.30	1.30
180.0	1.25	1.25	1.25	1.25	1.30	1.25	1.25	1.25	1.30
225.0	1.21	1.25	1.21	1.25	1.21	1.16	1.21	1.16	1.25
270.0	1.25	1.30	1.25	1.30	1.30	1.25	1.25	1.25	1.25
315.0	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.35
360.0	1.25	1.25	1.25	1.25	1.25	1.25	1.30	1.35	1.35

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>1.30</b>
<b>45.0</b>	<b>1.35</b>
<b>90.0</b>	<b>1.35</b>
<b>135.0</b>	<b>1.25</b>
<b>180.0</b>	<b>1.58</b>
<b>225.0</b>	<b>1.25</b>
<b>270.0</b>	<b>1.25</b>
<b>315.0</b>	<b>1.35</b>
<b>360.0</b>	<b>1.30</b>