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## Nata

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Client: NT

LumCAT: 1-1901-A

Luminaire: 92.70.481.00

Report No: 20260331-B003

Ballast type: DC

Test No: 20260331-C003

Voltage(V): 35.240

LampCAT: CITIZEN CLU028

Current(A): 0.363

Lamp flux(lm): 1601.3

Power (W): 12.790

Number of Lamps: 1

PF: 0.000

Length(mm): 50

Width(mm): 50

Phm Type: C

Height(mm): 19

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## Photometric Results

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Lumens(lm): 1461.59, Efficiency(%): 91.27% , Luminous Efficacy(lm/W): 114.28

Central intensity(cd): 1589.319, Maximum intensity(cd): 1589.319

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

Beam Angle(50%Imax): [C0/180]Total=60.0

[C90/270]Total=60.0

Field angle(10%Imax): [C0/180]Total=88.0

[C90/270]Total=88.0

Maximum s/h(1/2): C0\_180=0.88 C90\_270=0.88

Maximum s/h(1/4): C0\_180=0.91 C90\_270=0.91

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.28%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.379%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1589.319	0.000	0	0.00%	0.00%
1.0	1588.228	1.520	1.52	0.09%	0.10%
2.0	1586.225	4.556	6.077	0.28%	0.42%
3.0	1581.652	7.577	13.653	0.47%	0.93%
4.0	1575.873	10.569	24.222	0.66%	1.66%
5.0	1566.161	13.517	37.739	0.84%	2.58%
6.0	1555.274	16.404	54.143	1.02%	3.70%
7.0	1540.926	19.218	73.361	1.20%	5.02%
8.0	1523.757	21.933	95.295	1.37%	6.52%
9.0	1504.249	24.540	119.835	1.53%	8.20%
10.0	1481.165	27.017	146.852	1.69%	10.05%
11.0	1455.940	29.348	176.2	1.83%	12.06%
12.0	1428.860	31.535	207.735	1.97%	14.21%
13.0	1402.556	33.602	241.336	2.10%	16.51%
14.0	1372.433	35.520	276.856	2.22%	18.94%
15.0	1340.916	37.250	314.106	2.33%	21.49%
16.0	1306.221	38.788	352.894	2.42%	24.14%
17.0	1272.365	40.156	393.05	2.51%	26.89%
18.0	1235.688	41.352	434.402	2.58%	29.72%
19.0	1201.864	42.408	476.81	2.65%	32.62%
20.0	1167.263	43.362	520.172	2.71%	35.59%
21.0	1135.977	44.227	564.399	2.76%	38.62%
22.0	1100.768	44.948	609.347	2.81%	41.69%
23.0	1068.716	45.522	654.869	2.84%	44.81%
24.0	1034.546	45.985	700.854	2.87%	47.95%
25.0	1000.711	46.277	747.131	2.89%	51.12%
26.0	964.631	46.392	793.523	2.90%	54.29%
27.0	924.849	46.227	839.75	2.89%	57.45%
28.0	884.533	45.810	885.559	2.86%	60.59%
29.0	840.902	45.142	930.702	2.82%	63.68%
30.0	796.516	44.210	974.911	2.76%	66.70%
31.0	750.494	43.051	1017.963	2.69%	69.65%
32.0	709.988	41.841	1059.804	2.61%	72.51%
33.0	667.029	40.567	1100.371	2.53%	75.29%
34.0	626.722	39.153	1139.524	2.45%	77.96%
35.0	589.867	37.783	1177.306	2.36%	80.55%
36.0	554.071	36.423	1213.73	2.27%	83.04%
37.0	511.017	34.737	1248.467	2.17%	85.42%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	464.512	32.562	1281.029	2.03%	87.65%
39.0	416.581	30.074	1311.103	1.88%	89.70%
40.0	365.241	27.267	1338.37	1.70%	91.57%
41.0	312.832	24.146	1362.516	1.51%	93.22%
42.0	259.216	20.783	1383.299	1.30%	94.64%
43.0	211.746	17.446	1400.745	1.09%	95.84%
44.0	160.658	14.056	1414.801	0.88%	96.80%
45.0	115.517	10.614	1425.414	0.66%	97.53%
46.0	77.655	7.555	1432.969	0.47%	98.04%
47.0	49.494	5.057	1438.026	0.32%	98.39%
48.0	31.412	3.271	1441.297	0.20%	98.61%
49.0	21.543	2.175	1443.471	0.14%	98.76%
50.0	17.526	1.629	1445.1	0.10%	98.87%
51.0	14.568	1.358	1446.458	0.08%	98.96%
52.0	11.936	1.137	1447.595	0.07%	99.04%
53.0	9.691	0.941	1448.536	0.06%	99.11%
54.0	7.982	0.779	1449.315	0.05%	99.16%
55.0	6.817	0.661	1449.976	0.04%	99.21%
56.0	6.052	0.582	1450.557	0.04%	99.25%
57.0	5.538	0.530	1451.087	0.03%	99.28%
58.0	5.160	0.495	1451.582	0.03%	99.32%
59.0	4.898	0.470	1452.052	0.03%	99.35%
60.0	4.688	0.453	1452.505	0.03%	99.38%
61.0	4.426	0.435	1452.94	0.03%	99.41%
62.0	4.195	0.415	1453.355	0.03%	99.44%
63.0	3.954	0.396	1453.751	0.02%	99.46%
64.0	3.807	0.381	1454.132	0.02%	99.49%
65.0	3.702	0.372	1454.504	0.02%	99.52%
66.0	3.545	0.362	1454.866	0.02%	99.54%
67.0	3.451	0.352	1455.217	0.02%	99.56%
68.0	3.377	0.346	1455.563	0.02%	99.59%
69.0	3.304	0.341	1455.904	0.02%	99.61%
70.0	3.220	0.335	1456.239	0.02%	99.63%
71.0	3.157	0.330	1456.569	0.02%	99.66%
72.0	3.073	0.324	1456.893	0.02%	99.68%
73.0	2.979	0.316	1457.209	0.02%	99.70%
74.0	2.916	0.310	1457.519	0.02%	99.72%
75.0	2.842	0.304	1457.823	0.02%	99.74%

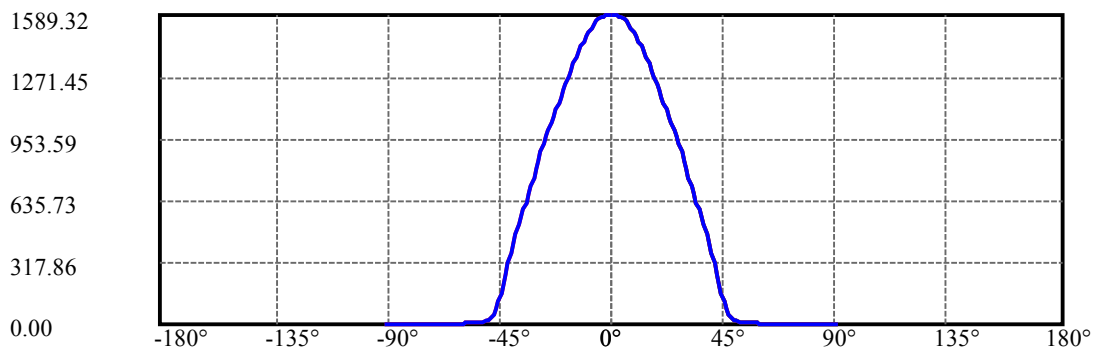
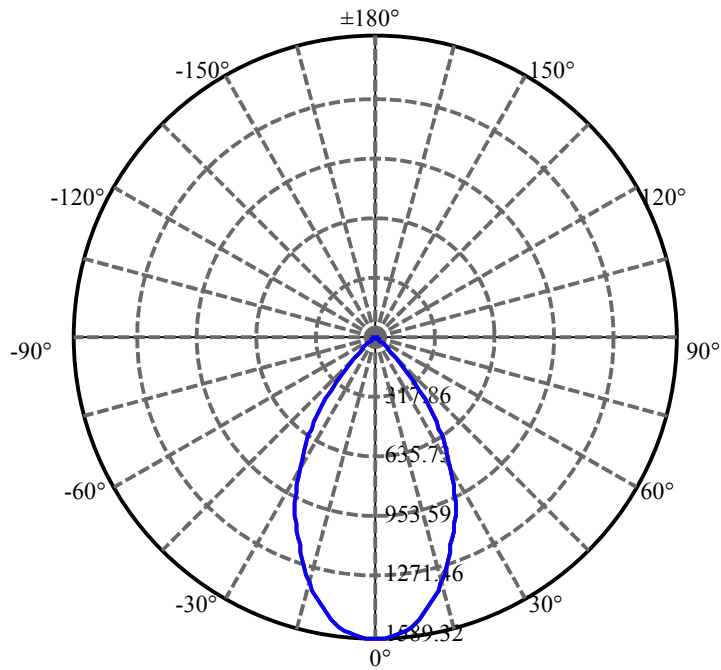
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.800	0.300	1458.123	0.02%	99.76%
77.0	2.748	0.296	1458.419	0.02%	99.78%
78.0	2.674	0.290	1458.709	0.02%	99.80%
79.0	2.601	0.283	1458.992	0.02%	99.82%
80.0	2.549	0.278	1459.27	0.02%	99.84%
81.0	2.486	0.272	1459.542	0.02%	99.86%
82.0	2.412	0.266	1459.808	0.02%	99.88%
83.0	2.307	0.257	1460.064	0.02%	99.90%
84.0	2.223	0.247	1460.311	0.02%	99.91%
85.0	2.119	0.237	1460.548	0.01%	99.93%
86.0	2.014	0.226	1460.774	0.01%	99.94%
87.0	1.909	0.215	1460.989	0.01%	99.96%
88.0	1.856	0.206	1461.195	0.01%	99.97%
89.0	1.793	0.200	1461.395	0.01%	99.99%
90.0	1.699	0.191	1461.586	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	974.91	60.88%	66.70%
0-40	1338.37	83.58%	91.57%
0-60	1452.50	90.71%	99.38%
0-90	1461.39	91.26%	99.99%
0-120	1461.39	91.26%	99.99%
0-180	1461.59	91.27%	100.00%
60-90	8.89	0.56%	0.61%
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%
0-34.79	1169.27	73.02%	80.00%

ZONAL LUMEN SUMMARY

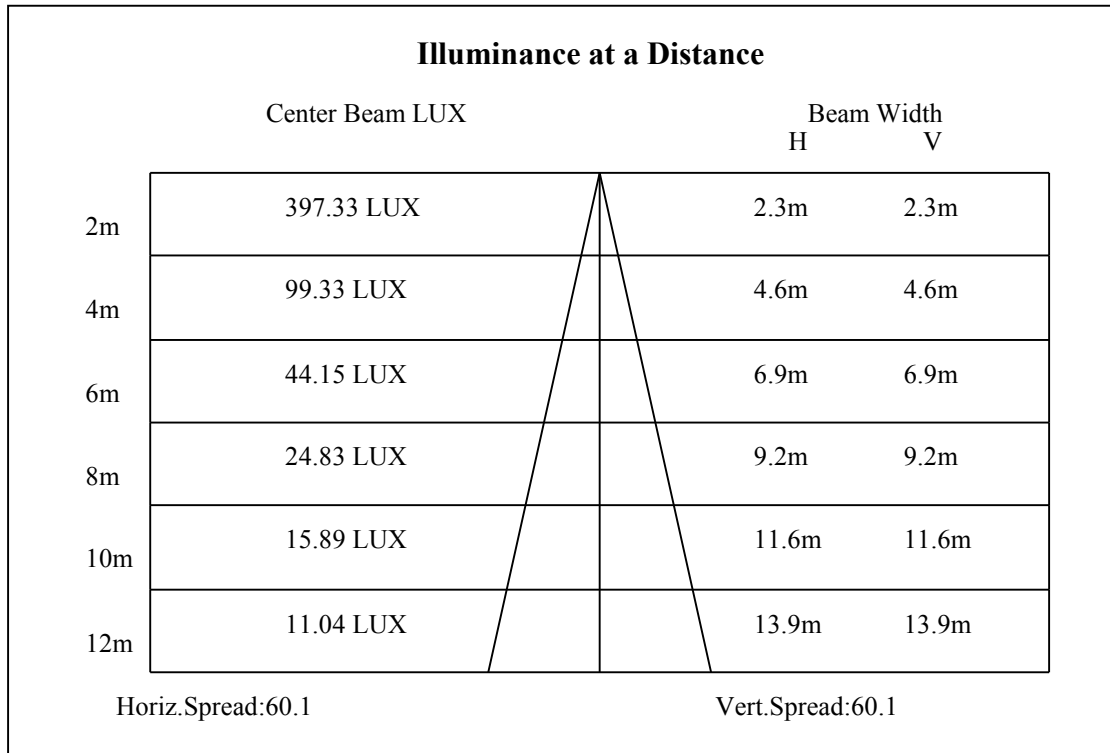
0-10	146.85
10-20	373.32
20-30	454.74
30-40	363.46
40-50	106.73
50-60	7.40
60-70	3.73
70-80	3.03
80-90	2.13
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

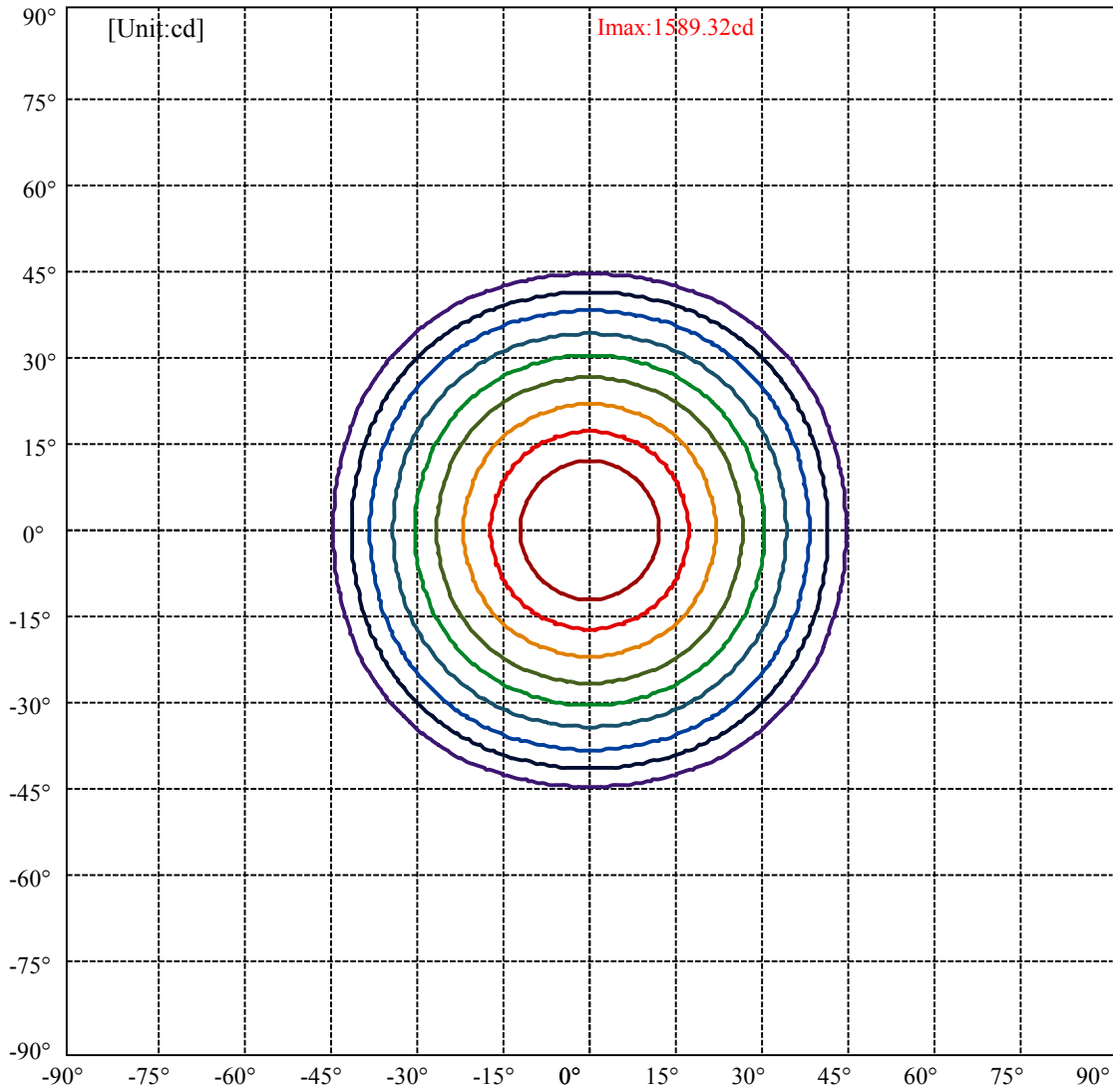


C0(Max): ———  
C0/C180: ———  
C90/C270: ———

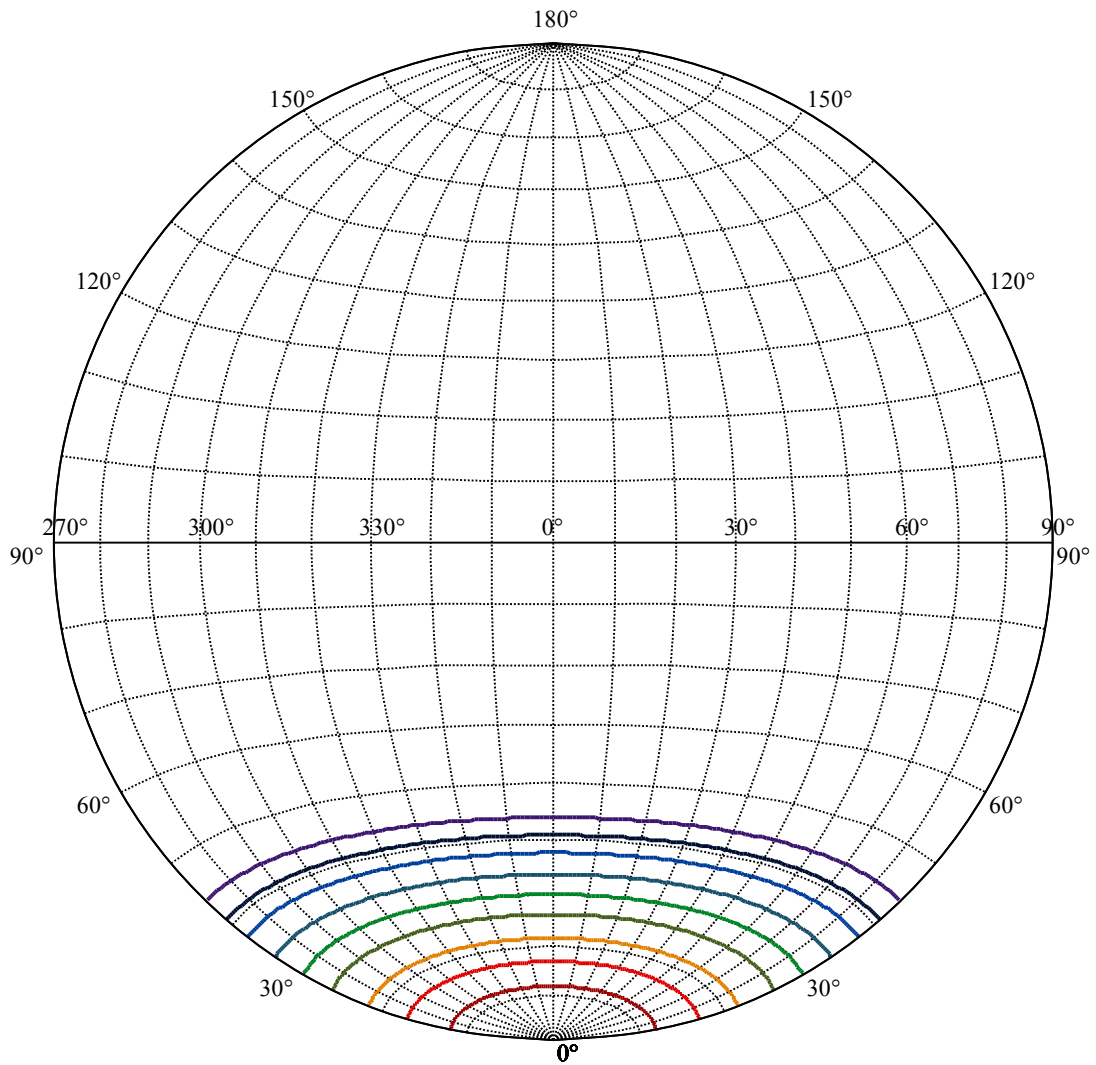
Field angle(10%Imax):C0/180Left:44.0 Right:44.0  
:C90/270Left:44.0 Right:44.0

Beam Angle(50%Imax):C0/180Left:30.0 Right:30.0  
:C90/270Left:30.0 Right:30.0





(10%Imax) 158.932	—
(20%Imax) 317.864	—
(30%Imax) 476.796	—
(40%Imax) 635.727	—
(50%Imax) 794.659	—
(60%Imax) 953.591	—
(70%Imax) 1112.52	—
(80%Imax) 1271.45	—
(90%Imax) 1430.39	—



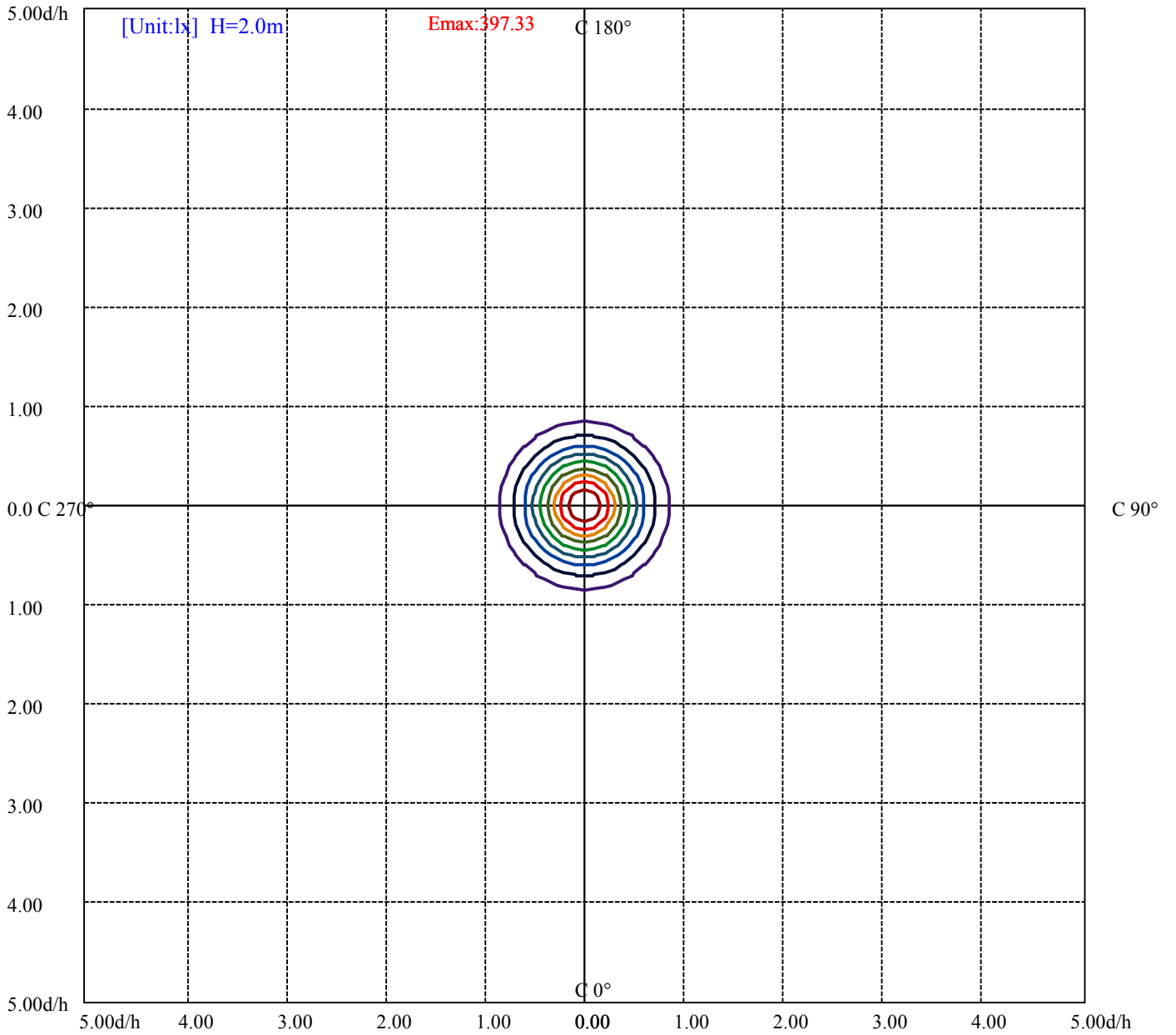
House

[Unit:cd]

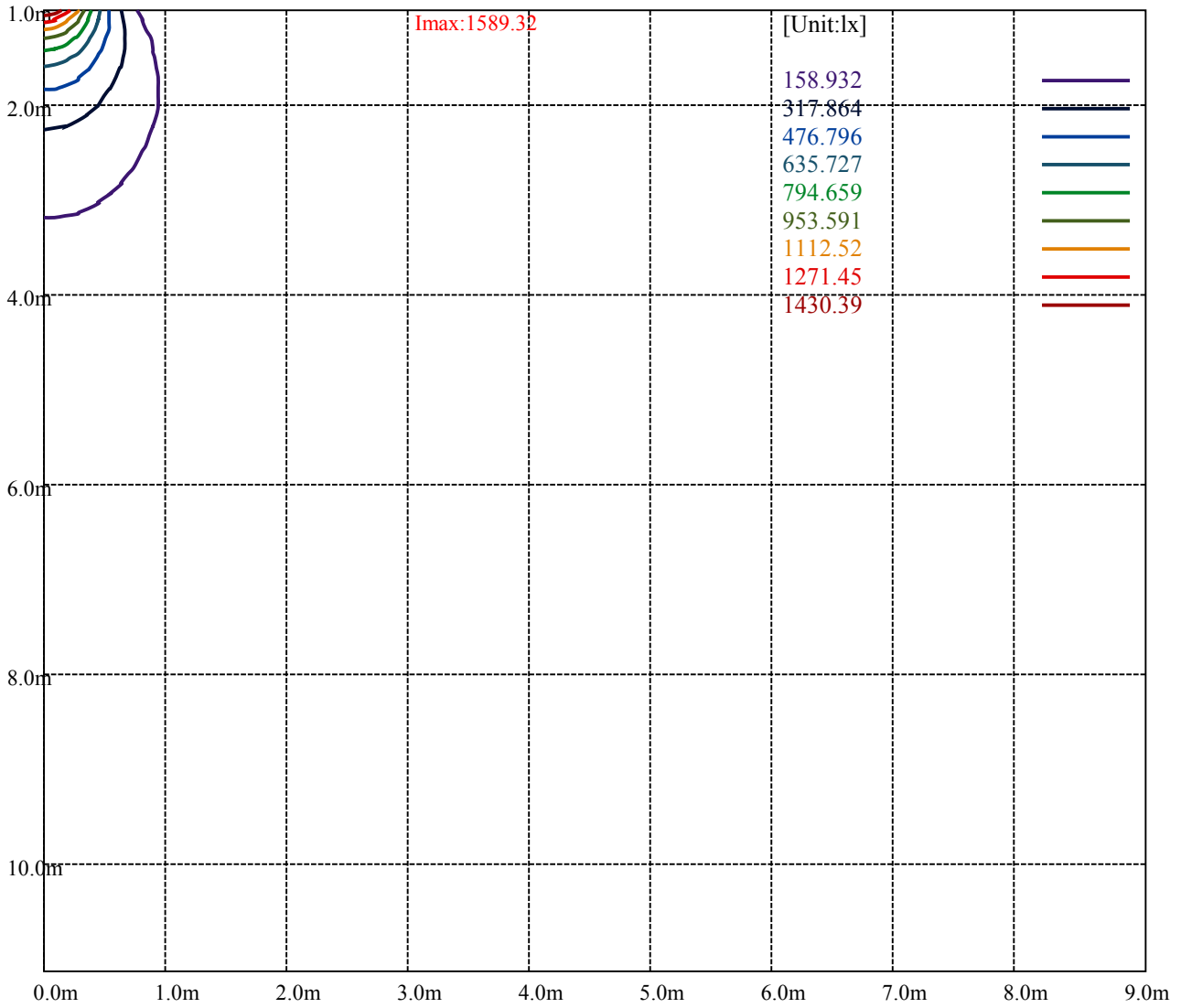
Road

**Imax:1589.32**

- (10%Imax) 158.932
- (20%Imax) 317.864
- (30%Imax) 476.796
- (40%Imax) 635.727
- (50%Imax) 794.659
- (60%Imax) 953.591
- (70%Imax) 1112.52
- (80%Imax) 1271.45
- (90%Imax) 1430.39



- (10%Emax) 39.733
- (20%Emax) 79.466
- (30%Emax) 119.199
- (40%Emax) 158.9317
- (50%Emax) 198.6647
- (60%Emax) 238.3978
- (70%Emax) 278.13
- (80%Emax) 317.8625
- (90%Emax) 357.5975



Luminance Table

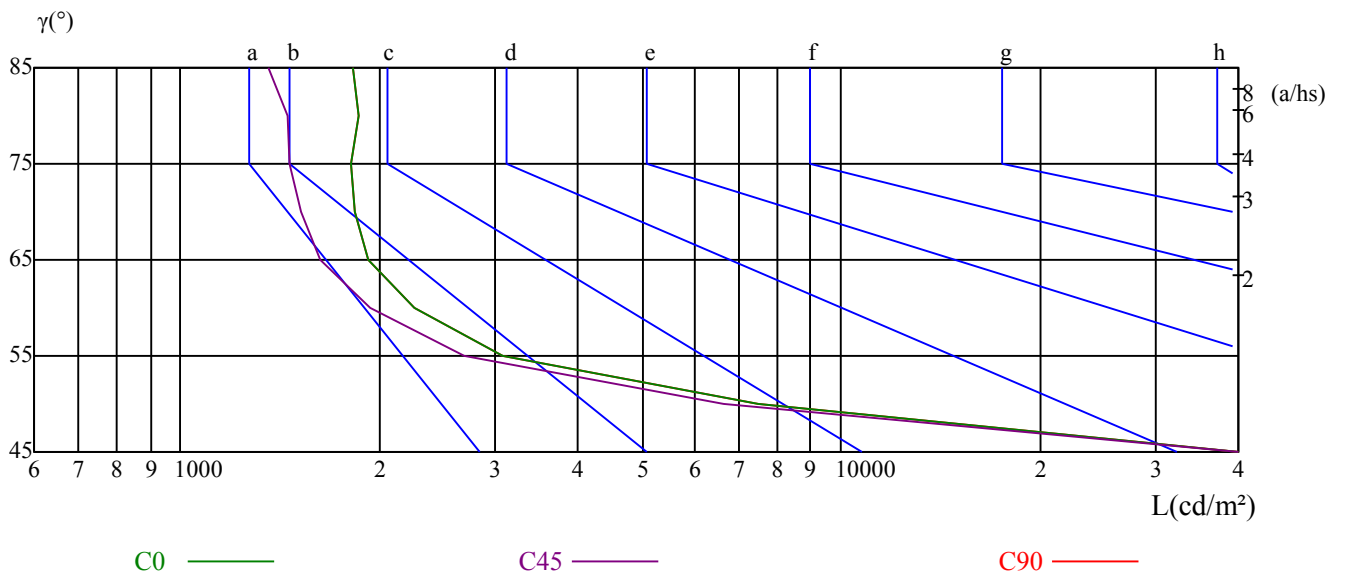
$\gamma$	45	50	55	60	65	70	75	80	85
C0	47352	7507	3082	2262	1931	1842	1817	1861	1820
C45	42504	6648	2690	1942	1628	1521	1462	1450	1361
C90	47352	7507	3082	2262	1931	1842	1817	1861	1820

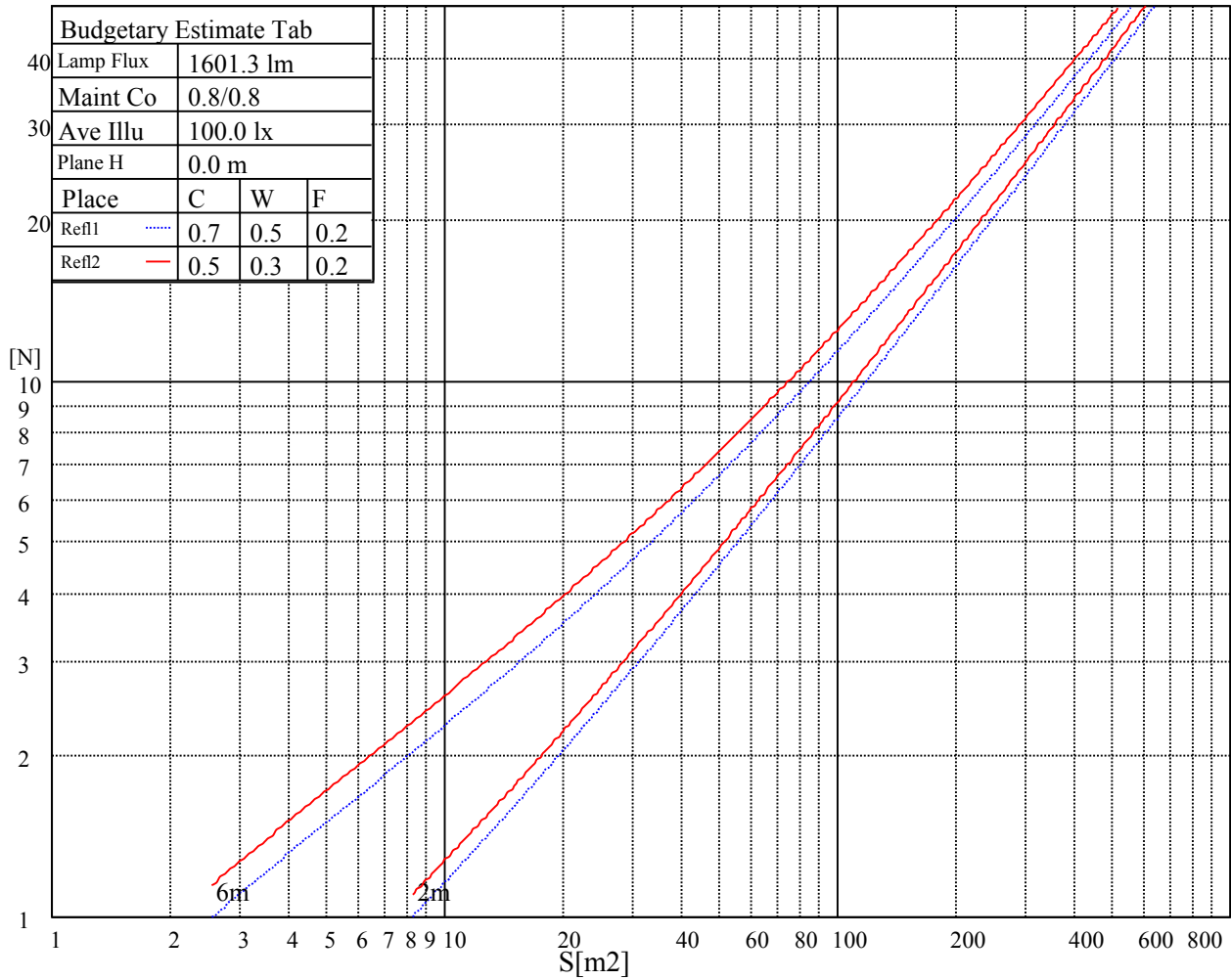
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3504	3504	3504	4393	4393	4393	9723	9723	9723

Glare Table

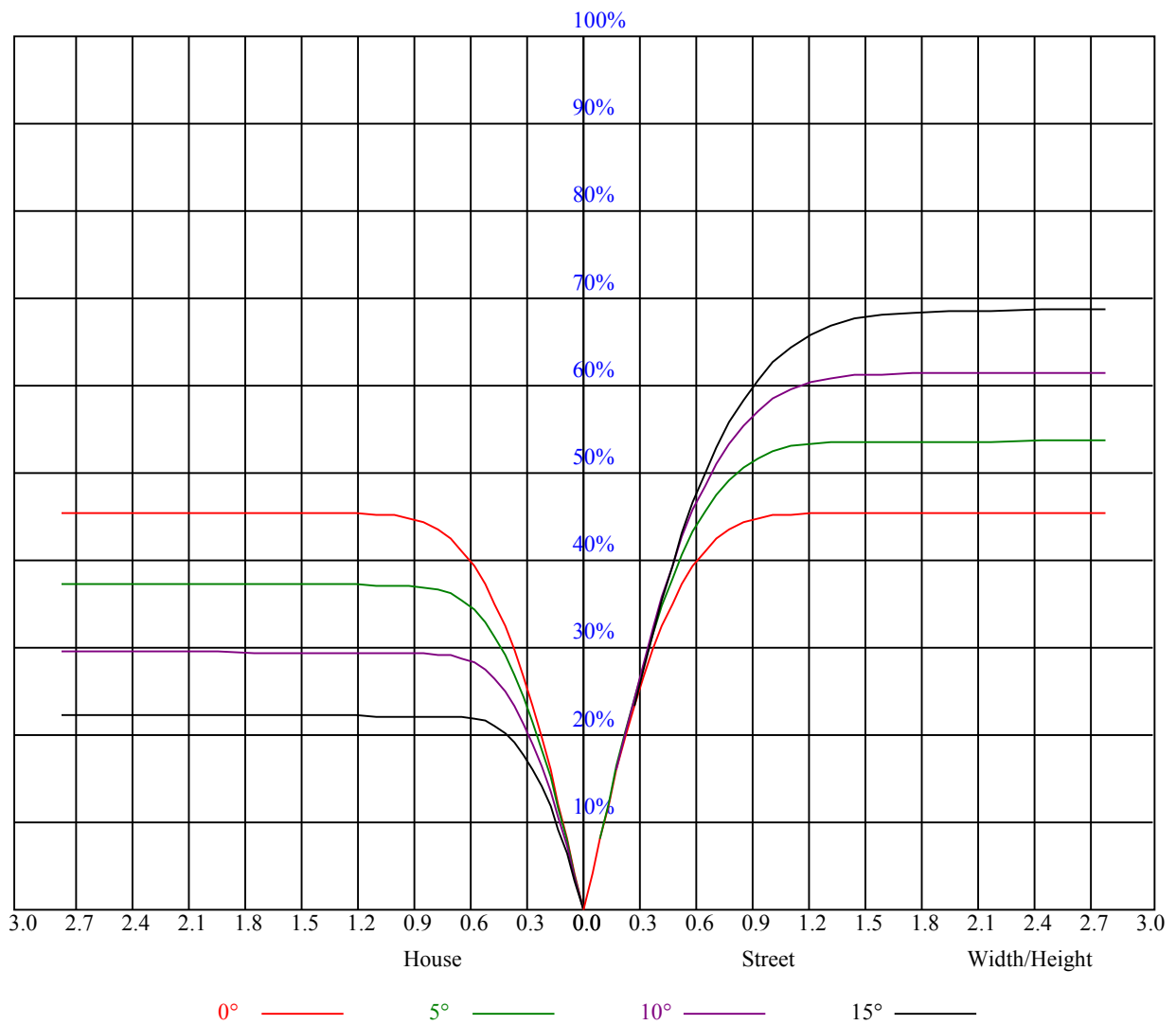
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

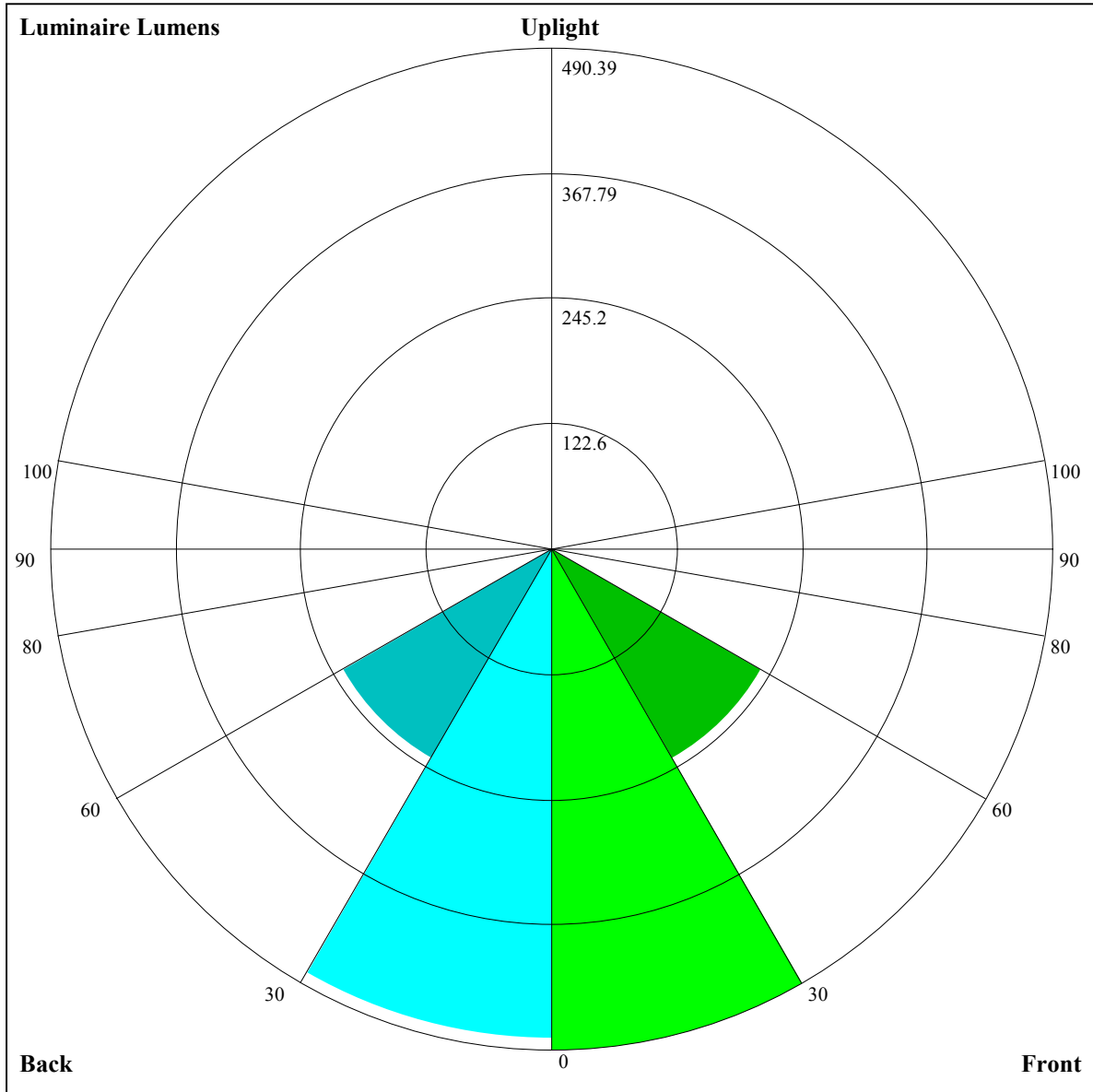
Luminance Limiting Curve





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	1.09	1.09	1.09	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.99	0.96	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.90	0.89	0.89	0.88	0.87	0.85
2	0.94	0.90	0.87	0.92	0.89	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.80	0.79
3	0.87	0.83	0.79	0.86	0.82	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.73
4	0.81	0.76	0.72	0.80	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.69	0.68
5	0.76	0.70	0.66	0.75	0.70	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.70	0.67	0.64	0.63
6	0.71	0.65	0.61	0.70	0.65	0.61	0.69	0.64	0.61	0.68	0.64	0.60	0.66	0.63	0.60	0.59
7	0.67	0.61	0.57	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.59	0.56	0.63	0.59	0.56	0.55
8	0.63	0.57	0.53	0.62	0.57	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.52	0.51
9	0.59	0.53	0.50	0.58	0.53	0.50	0.58	0.53	0.49	0.57	0.52	0.49	0.56	0.52	0.49	0.48
10	0.56	0.50	0.47	0.55	0.50	0.47	0.54	0.50	0.46	0.54	0.49	0.46	0.53	0.49	0.46	0.45





Luminaire Lumens:

FL=490.39,FM=236.87,FH=3.46,FVH=1.17

BL=479.92,BM=237.23,BH=3.47,BVH=1.15

UL=0,UH=0

BUG Rating:B1-U0-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	1590.10	1588.33	1588.92	1591.35	1593.37	1592.61	1586.82	1581.45	1570.96
45.0	1584.89	1589.17	1590.68	1590.85	1592.19	1587.75	1579.36	1570.88	1565.01
90.0	1592.28	1594.04	1591.02	1588.08	1577.01	1566.43	1556.62	1541.18	1520.37
135.0	1590.01	1595.05	1597.06	1589.51	1581.79	1572.64	1561.90	1539.25	1518.27
180.0	1590.10	1586.49	1579.61	1565.59	1555.53	1542.69	1528.59	1510.22	1487.73
225.0	1584.89	1577.17	1569.54	1560.39	1545.71	1529.26	1515.42	1499.31	1478.25
270.0	1592.28	1586.40	1583.38	1578.10	1572.89	1557.46	1548.48	1536.48	1520.29
315.0	1590.01	1589.17	1589.59	1589.34	1588.50	1580.45	1565.01	1548.65	1529.18
360.0	1590.10	1588.33	1588.92	1591.35	1593.37	1592.61	1586.82	1581.45	1570.96
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1550.07	1527.84	1503.25	1473.30	1449.80	1423.63	1393.34	1361.87	1328.65
45.0	1553.60	1533.96	1507.53	1485.30	1457.10	1422.37	1390.40	1359.02	1330.58
90.0	1500.90	1477.24	1447.88	1409.19	1387.38	1357.17	1318.32	1288.29	1253.97
135.0	1497.55	1478.08	1449.64	1425.98	1399.63	1367.16	1337.79	1302.63	1272.68
180.0	1468.52	1445.78	1425.98	1403.74	1376.89	1352.81	1326.55	1291.64	1255.90
225.0	1457.52	1429.75	1408.52	1381.00	1352.31	1316.81	1285.35	1248.60	1210.00
270.0	1497.88	1474.72	1451.48	1422.96	1395.01	1365.31	1339.05	1295.00	1255.73
315.0	1507.95	1481.94	1453.24	1429.42	1402.31	1374.21	1336.53	1302.72	1271.42
360.0	1550.07	1527.84	1503.25	1473.30	1449.80	1423.63	1393.34	1361.87	1328.65
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1292.31	1262.78	1225.86	1192.97	1152.02	1118.04	1081.29	1044.71	998.90
45.0	1298.36	1267.48	1231.23	1202.20	1170.06	1141.03	1099.50	1065.43	1030.28
90.0	1213.53	1183.91	1158.65	1123.41	1088.59	1053.77	1019.45	983.63	937.31
135.0	1237.61	1204.21	1165.20	1138.93	1108.98	1084.06	1054.19	1028.26	1001.67
180.0	1221.41	1181.39	1154.62	1123.33	1090.52	1066.52	1041.18	1009.22	982.53
225.0	1169.81	1136.67	1100.51	1071.89	1039.84	1005.19	974.56	941.42	908.19
270.0	1219.32	1180.30	1146.74	1114.10	1068.29	1033.47	991.51	956.69	921.20
315.0	1233.16	1198.17	1155.30	1120.98	1087.84	1047.65	1014.67	976.33	936.97
360.0	1292.31	1262.78	1225.86	1192.97	1152.02	1118.04	1081.29	1044.71	998.90
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	955.94	910.21	851.56	805.24	748.94	710.01	673.43	626.19	591.95
45.0	991.85	943.94	903.16	851.31	806.75	764.97	715.30	680.98	644.56
90.0	900.64	861.37	812.46	770.42	717.56	674.35	636.09	597.58	554.95
135.0	968.86	939.91	909.20	867.25	829.57	790.81	739.63	699.52	659.33
180.0	951.57	918.01	873.29	829.16	790.31	750.03	697.34	655.13	615.36
225.0	865.07	828.99	789.30	748.27	700.02	662.77	624.59	584.40	552.10
270.0	882.52	836.79	796.35	751.88	713.37	665.96	627.19	590.11	553.19
315.0	882.35	837.04	791.90	748.61	697.42	661.01	622.66	579.87	547.48
360.0	955.94	910.21	851.56	805.24	748.94	710.01	673.43	626.19	591.95
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	559.23	524.07	471.47	425.99	379.34	329.50	267.24	217.57	169.57
45.0	610.08	569.89	531.04	485.73	442.18	380.85	332.27	284.86	222.94
90.0	523.07	485.98	442.77	384.71	339.99	295.60	241.82	198.86	159.76
135.0	620.65	575.51	533.72	485.39	427.00	374.22	322.45	272.61	210.02
180.0	575.42	531.88	475.24	426.58	374.81	321.86	255.91	203.97	156.48
225.0	513.92	458.04	411.14	363.48	302.23	252.47	204.81	158.58	105.97
270.0	518.03	480.70	431.53	387.98	344.94	286.96	238.54	195.33	153.21
315.0	512.16	462.07	419.19	372.79	311.46	261.20	210.69	162.19	107.32
360.0	559.23	524.07	471.47	425.99	379.34	329.50	267.24	217.57	169.57

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	114.03	75.93	46.48	25.26	17.62	15.02	11.91	9.73	7.89
45.0	177.88	123.34	84.74	54.12	29.20	20.31	17.20	14.52	11.58
90.0	112.35	79.46	52.78	31.97	24.67	21.14	18.04	14.77	12.67
135.0	161.35	117.97	71.32	44.30	25.68	19.89	17.12	14.35	11.41
180.0	113.10	67.63	41.11	26.51	19.21	16.45	13.68	10.74	8.64
225.0	70.15	42.96	27.35	20.14	17.28	14.52	11.50	9.40	7.38
270.0	104.38	70.73	44.89	30.29	22.74	19.63	16.70	13.59	11.50
315.0	70.90	43.21	27.27	18.71	15.94	13.26	10.40	8.39	6.46
360.0	114.03	75.93	46.48	25.26	17.62	15.02	11.91	9.73	7.89
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.38	5.12	4.61	4.45	4.20	3.94	3.94	3.69	3.61
45.0	9.48	7.89	6.71	5.79	5.45	5.20	5.03	4.87	4.78
90.0	10.91	9.48	8.31	7.55	6.80	6.21	5.87	5.54	5.12
135.0	9.48	7.80	6.54	5.62	5.20	4.95	4.61	4.45	4.28
180.0	6.63	5.54	4.95	4.61	4.36	4.20	4.03	3.86	3.69
225.0	6.21	5.62	5.29	5.12	4.95	4.78	4.53	4.03	3.86
270.0	9.40	8.22	7.38	6.71	5.96	5.62	5.45	5.29	4.70
315.0	5.37	4.87	4.61	4.45	4.36	4.28	4.03	3.69	3.52
360.0	6.38	5.12	4.61	4.45	4.20	3.94	3.94	3.69	3.61
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.44	3.36	3.27	3.27	3.19	3.10	3.10	3.02	3.02
45.0	4.20	3.94	3.86	3.69	3.61	3.52	3.44	3.36	3.27
90.0	4.78	4.61	4.45	4.20	4.03	3.94	3.78	3.69	3.61
135.0	3.94	3.78	3.69	3.52	3.44	3.36	3.27	3.19	3.10
180.0	3.52	3.52	3.44	3.27	3.27	3.19	3.19	3.10	3.02
225.0	3.78	3.61	3.44	3.36	3.19	3.10	3.10	3.02	2.94
270.0	4.45	4.36	4.20	3.94	3.86	3.78	3.61	3.52	3.44
315.0	3.52	3.27	3.27	3.10	3.02	3.02	2.94	2.85	2.85
360.0	3.44	3.36	3.27	3.27	3.19	3.10	3.10	3.02	3.02
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.94	2.94	2.94	2.85	2.85	2.68	2.68	2.60	2.52
45.0	3.27	3.02	2.94	2.94	2.85	2.85	2.77	2.77	2.68
90.0	3.36	3.27	3.10	3.02	3.02	2.94	2.85	2.77	2.68
135.0	3.02	3.02	2.94	2.85	2.77	2.77	2.68	2.60	2.52
180.0	3.02	2.94	2.94	2.85	2.77	2.77	2.68	2.60	2.52
225.0	2.94	2.85	2.77	2.68	2.68	2.60	2.52	2.43	2.43
270.0	3.19	3.10	3.02	2.94	2.85	2.77	2.68	2.60	2.60
315.0	2.85	2.68	2.68	2.60	2.60	2.60	2.52	2.43	2.43
360.0	2.94	2.94	2.94	2.85	2.85	2.68	2.68	2.60	2.52
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.52	2.43	2.35	2.27	2.10	2.01	1.93	1.85	1.93
45.0	2.60	2.52	2.43	2.43	2.35	2.10	2.01	1.93	1.85
90.0	2.60	2.52	2.43	2.35	2.18	2.10	1.93	1.85	1.76
135.0	2.43	2.43	2.35	2.27	2.10	2.10	1.93	1.93	1.85
180.0	2.43	2.35	2.27	2.18	2.10	2.01	1.93	1.93	1.76
225.0	2.35	2.27	2.10	2.01	2.01	1.93	1.85	1.76	1.76
270.0	2.60	2.52	2.43	2.27	2.10	2.01	1.85	1.85	1.76
315.0	2.35	2.27	2.10	2.01	2.01	1.85	1.85	1.76	1.68
360.0	2.52	2.43	2.35	2.27	2.10	2.01	1.93	1.85	1.93

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	1.76
45.0	1.76
90.0	1.68
135.0	1.76
180.0	1.68
225.0	1.68
270.0	1.68
315.0	1.59
360.0	1.76