

---

Nata

---

Client:

LumCAT: 3-1701-N

Luminaire: 92.70.045.00+92.70.061.00

Report No: nata-0100

Test No: GC2018060107

LampCAT: NICHIA NFCWD084B-V3

Lamp flux(lm): 2152.5

Number of Lamps: 1

Length(mm): 86

Phm Type: C

Voltage(V): 34.0000

Current(A): 0.5000

Power (W): 17.0000

PF: 0.0000

Ballast type: DC

Width(mm): 86

Height(mm): 0

---

Photometric Results

---

Lumens(lm): 1681.90, Efficiency(%): 78.14% , Luminous Efficacy(lm/W): 98.94

Central intensity(cd): 10897.180, Maximum intensity(cd): 10897.180

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

Beam Angle(50%Imax): [C0/180]Total=17.6

[C90/270]Total=17.6

Field angle(10%Imax): [C0/180]Total=34.0

[C90/270]Total=34.0

Maximum s/h(1/2): C0\_180=0.30 C90\_270=0.30

Maximum s/h(1/4): C0\_180=0.29 C90\_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 78.61%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.179%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10897.176	10.428	10.428	.484%	.620%
2.0	10540.892	80.679	91.107	3.748%	5.417%
4.0	9503.354	145.387	236.495	6.754%	14.061%
6.0	8048.970	184.519	421.013	8.572%	25.032%
8.0	6202.929	189.329	610.342	8.796%	36.289%
10.0	4206.309	160.190	770.533	7.442%	45.813%
12.0	2646.424	120.671	891.204	5.606%	52.988%
14.0	1647.184	87.394	978.598	4.060%	58.184%
16.0	1194.710	72.221	1050.82	3.355%	62.478%
18.0	986.349	66.846	1117.666	3.105%	66.452%
20.0	822.694	61.710	1179.376	2.867%	70.121%
22.0	689.692	56.662	1236.038	2.632%	73.490%
24.0	581.265	51.850	1287.889	2.409%	76.573%
26.0	483.457	46.480	1334.369	2.159%	79.337%
28.0	405.470	41.748	1376.116	1.939%	81.819%
30.0	344.330	37.758	1413.875	1.754%	84.064%
32.0	284.449	33.058	1446.933	1.536%	86.029%
34.0	237.376	29.111	1476.044	1.352%	87.760%
36.0	202.959	26.163	1502.207	1.215%	89.316%
38.0	171.631	23.174	1525.381	1.077%	90.694%
40.0	146.491	20.651	1546.033	.959%	91.922%
42.0	123.829	18.172	1564.204	.844%	93.002%
44.0	101.834	15.514	1579.719	.721%	93.924%
46.0	83.624	13.193	1592.911	.613%	94.709%
48.0	69.963	11.403	1604.314	.530%	95.387%
50.0	58.277	9.791	1614.105	.455%	95.969%
52.0	48.346	8.355	1622.46	.388%	96.466%
54.0	38.959	6.912	1629.372	.321%	96.877%
56.0	31.726	5.768	1635.141	.268%	97.220%
58.0	26.482	4.925	1640.066	.229%	97.512%
60.0	22.484	4.270	1644.337	.198%	97.766%
62.0	19.235	3.725	1648.061	.173%	97.988%
64.0	17.487	3.447	1651.508	.160%	98.193%
66.0	16.338	3.273	1654.782	.152%	98.387%
68.0	15.292	3.110	1657.891	.144%	98.572%
70.0	14.322	2.951	1660.843	.137%	98.748%
72.0	13.523	2.821	1663.663	.131%	98.915%
74.0	12.828	2.704	1666.368	.126%	99.076%

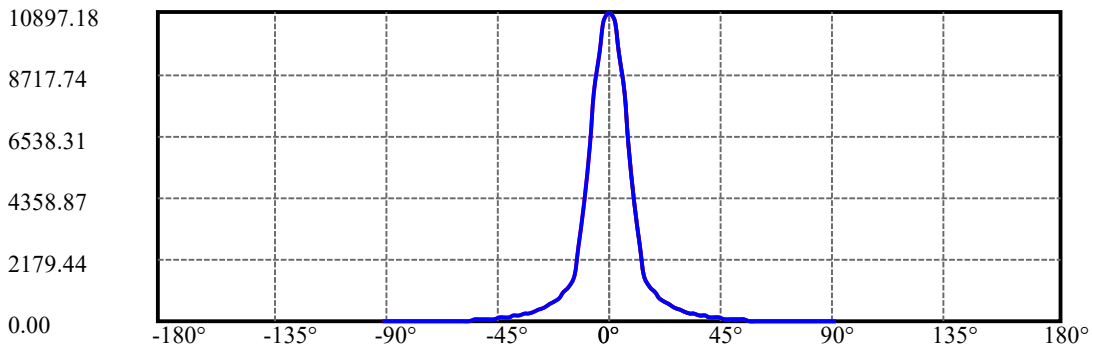
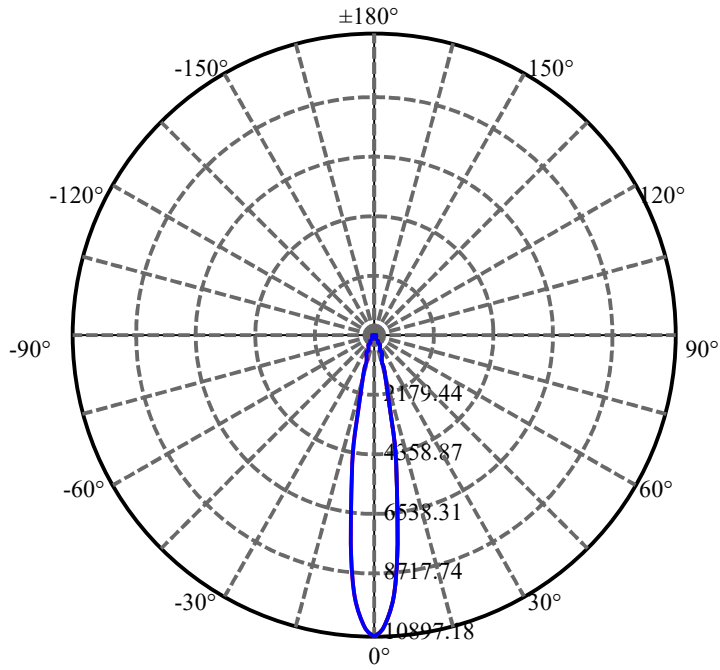
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.202	2.597	1668.964	.121%	99.231%
78.0	11.507	2.468	1671.433	.115%	99.377%
80.0	10.612	2.292	1673.725	.106%	99.514%
82.0	9.717	2.110	1675.835	.098%	99.639%
84.0	8.878	1.936	1677.772	.090%	99.754%
86.0	8.024	1.756	1679.527	.082%	99.859%
88.0	7.329	1.606	1681.134	.075%	99.954%
90.0	7.033	0.771	1681.905	.036%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1413.87	65.68%	84.06%
0-40	1546.03	71.82%	91.92%
0-60	1644.34	76.39%	97.77%
0-90	1681.13	78.10%	99.95%
0-120	1681.13	78.10%	99.95%
0-180	1681.90	78.14%	100.00%
60-90	41.07	1.91%	2.44%
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%
0-26.53	1345.52	62.51%	80.00%

ZONAL LUMEN SUMMARY

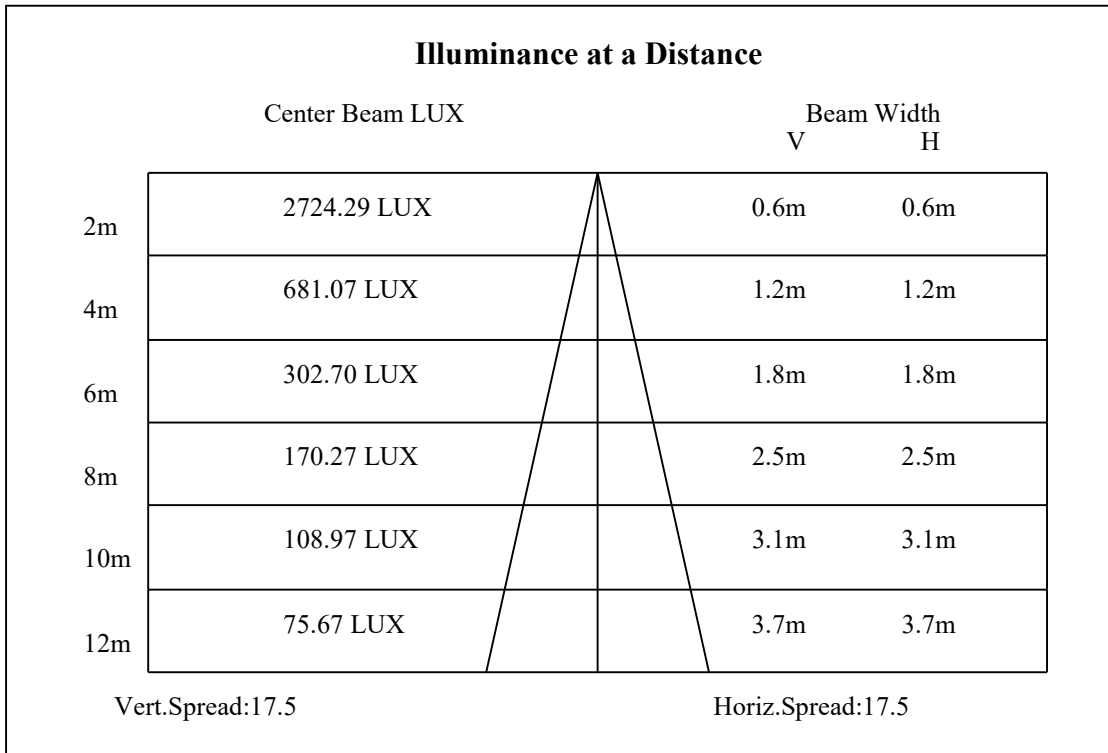
0-10	770.53
10-20	408.84
20-30	234.50
30-40	132.16
40-50	68.07
50-60	30.23
60-70	16.51
70-80	12.88
80-90	7.41
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

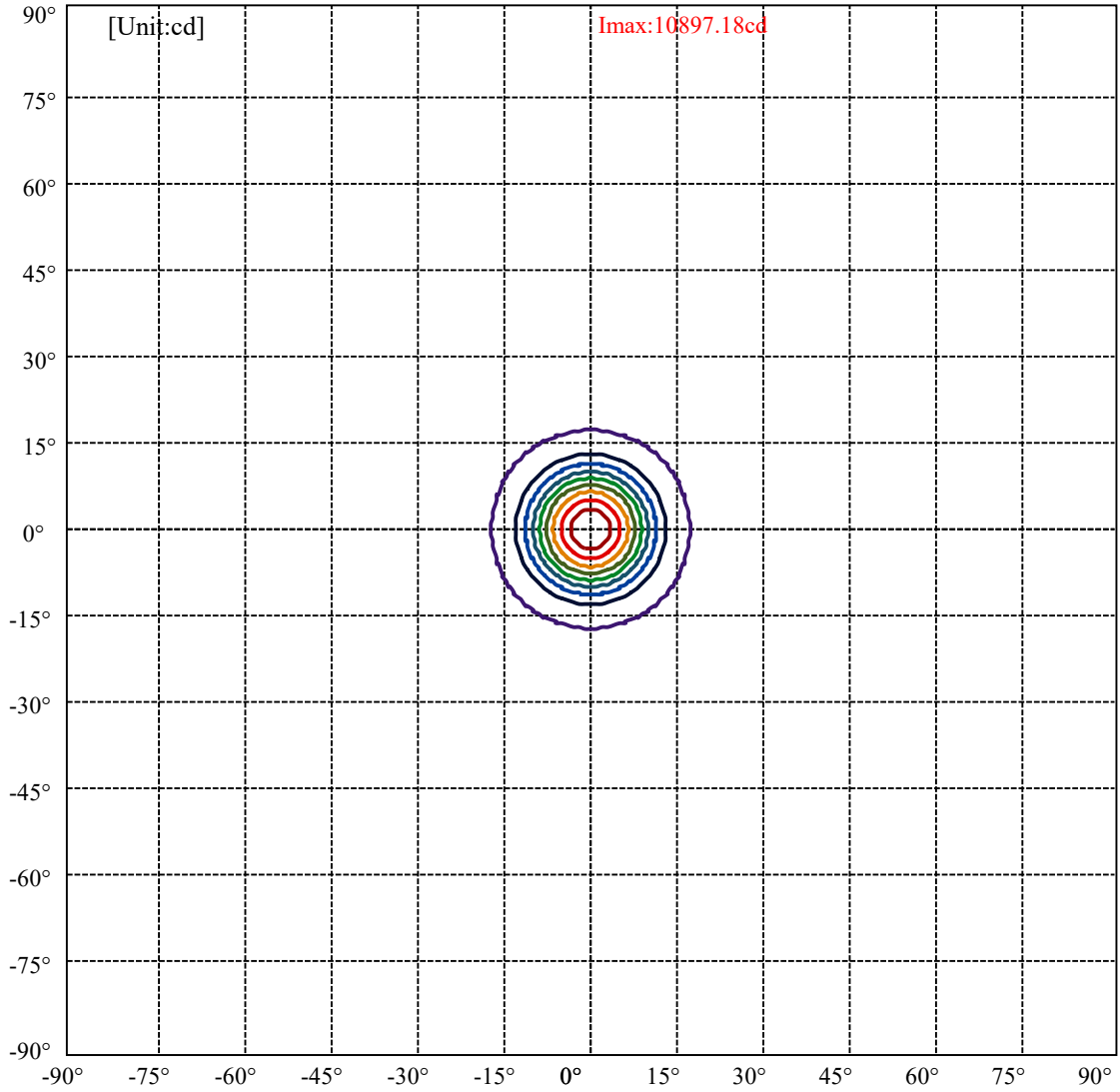


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

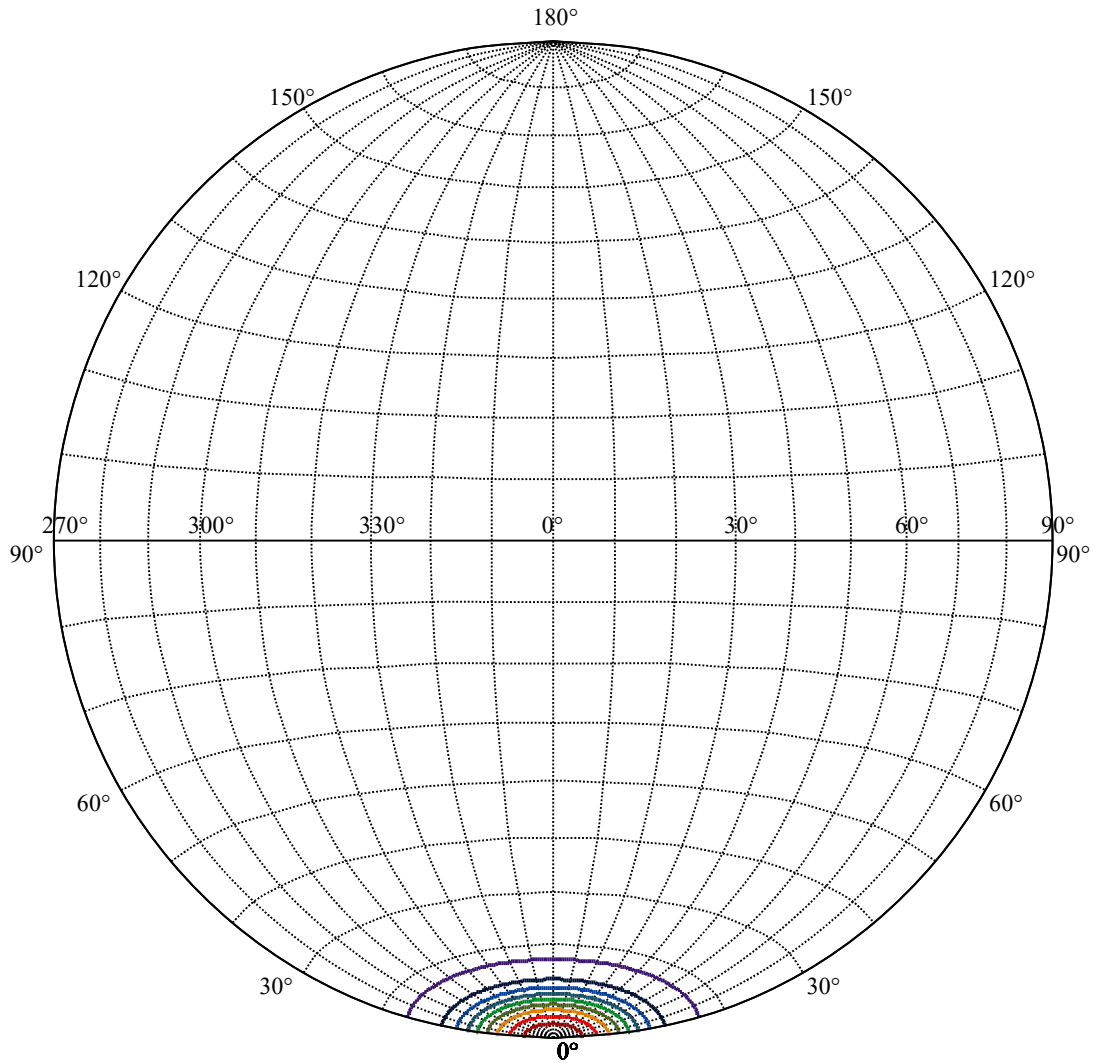
Field angle(10%Imax):C0/180Left:17.0 Right:17.0  
:C90/270Left:17.0 Right:17.0

Beam Angle(50%Imax):C0/180Left:8.8 Right:8.8  
:C90/270Left:8.8 Right:8.8





(10%Imax) 1089.72	—
(20%Imax) 2179.44	—
(30%Imax) 3269.15	—
(40%Imax) 4358.87	—
(50%Imax) 5448.59	—
(60%Imax) 6538.31	—
(70%Imax) 7628.02	—
(80%Imax) 8717.74	—
(90%Imax) 9807.46	—



House

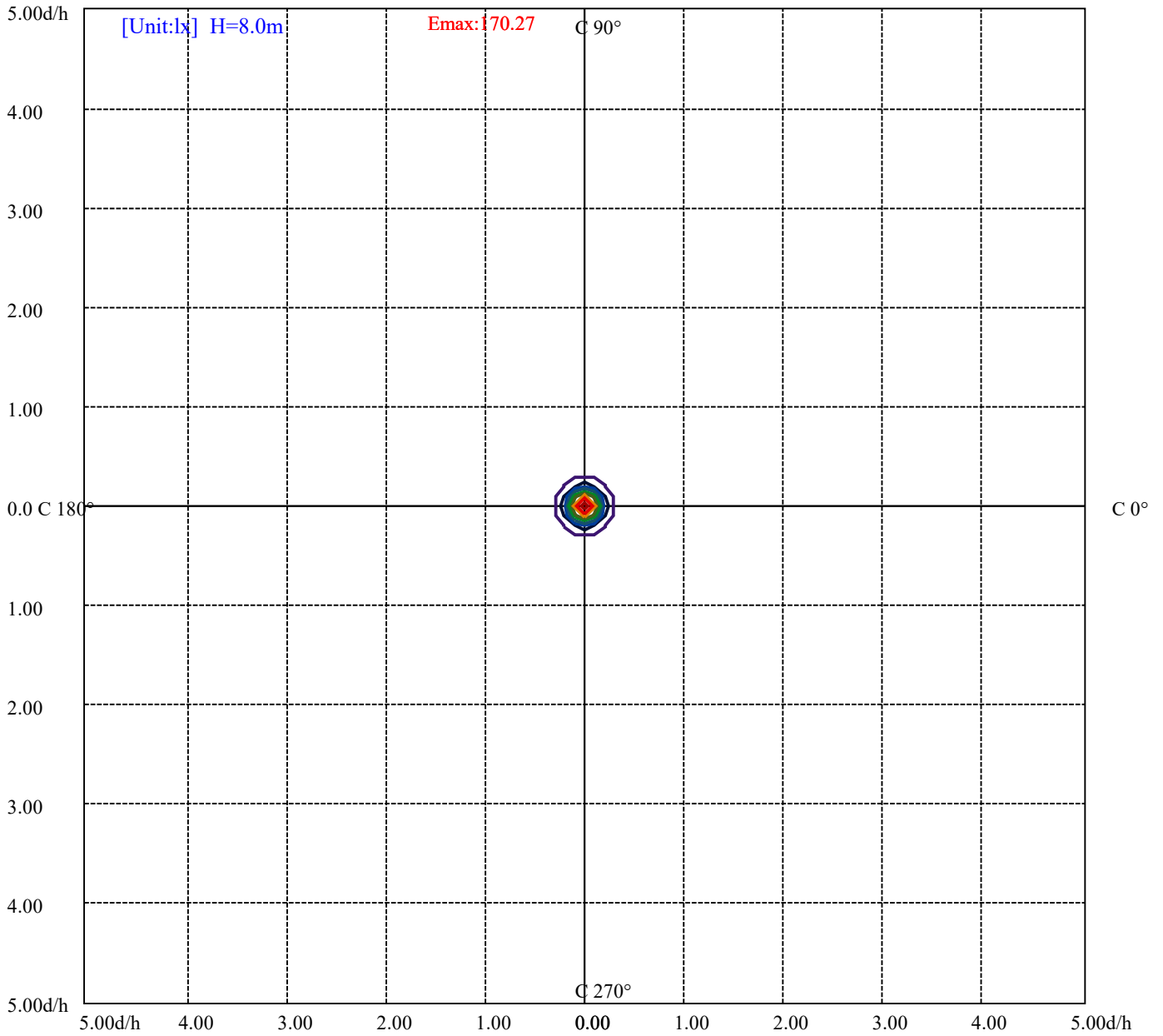
[Unit:cd]

Road

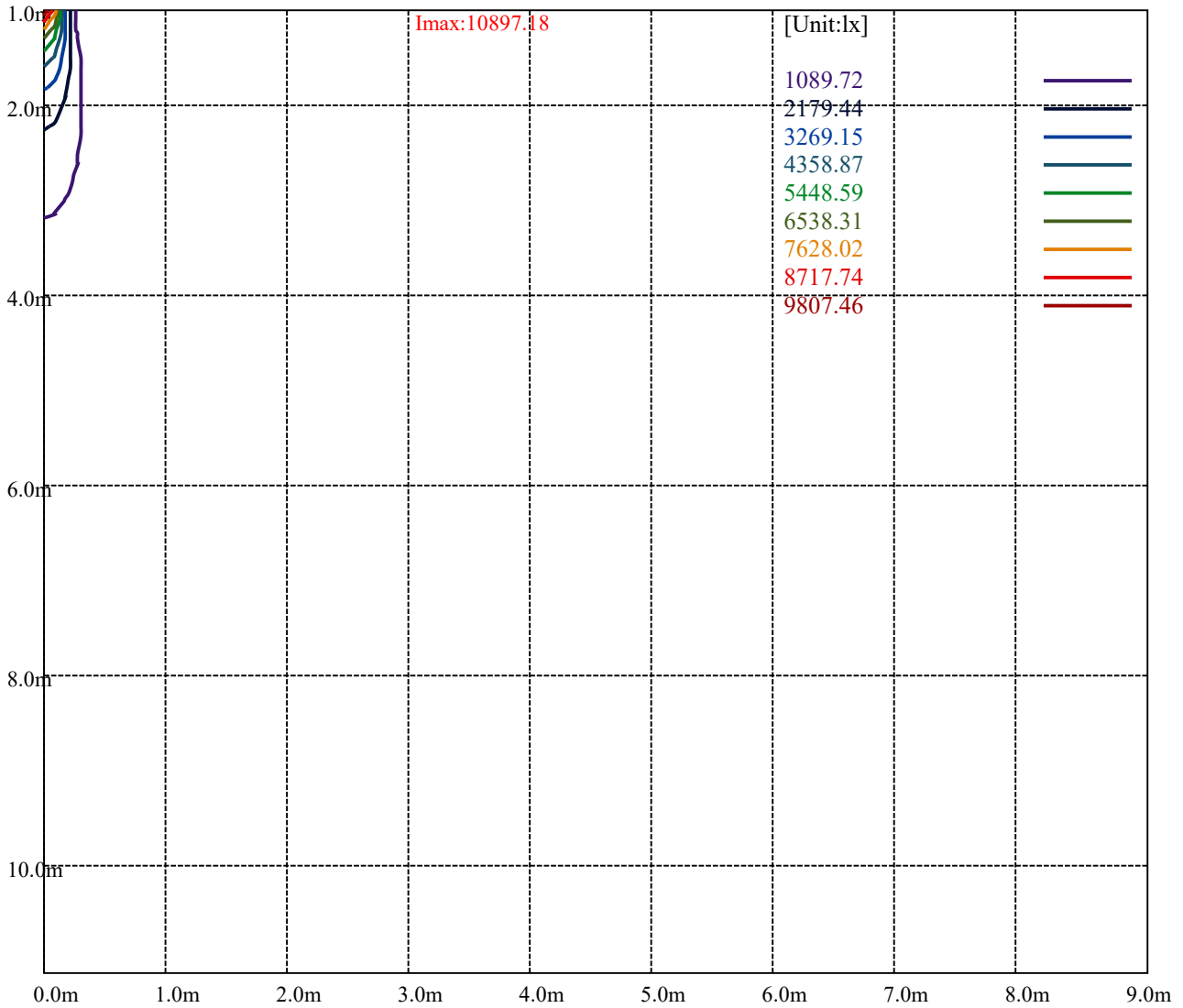
**Imax:10897.18**

(10%Imax) 1089.72	—
(20%Imax) 2179.44	—
(30%Imax) 3269.15	—
(40%Imax) 4358.87	—
(50%Imax) 5448.59	—
(60%Imax) 6538.31	—
(70%Imax) 7628.02	—
(80%Imax) 8717.74	—
(90%Imax) 9807.46	—





- (10%Emax) 17.02672
- (20%Emax) 34.05359
- (30%Emax) 51.08031
- (40%Emax) 68.10719
- (50%Emax) 85.1339
- (60%Emax) 102.1608
- (70%Emax) 119.1875
- (80%Emax) 136.2144
- (90%Emax) 153.2411



Luminance Table

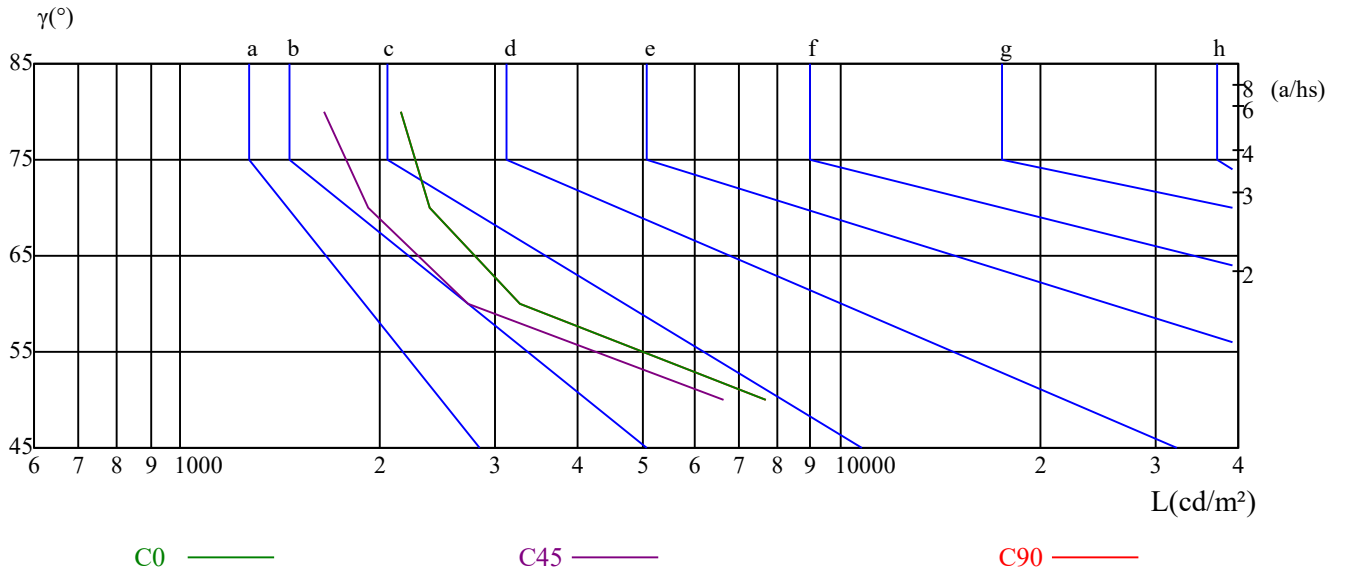
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	7681	0	3258	0	2385	0	2154	0
C45	0	6652	0	2733	0	1924	0	1649	0
C90	0	7681	0	3258	0	2385	0	2154	0

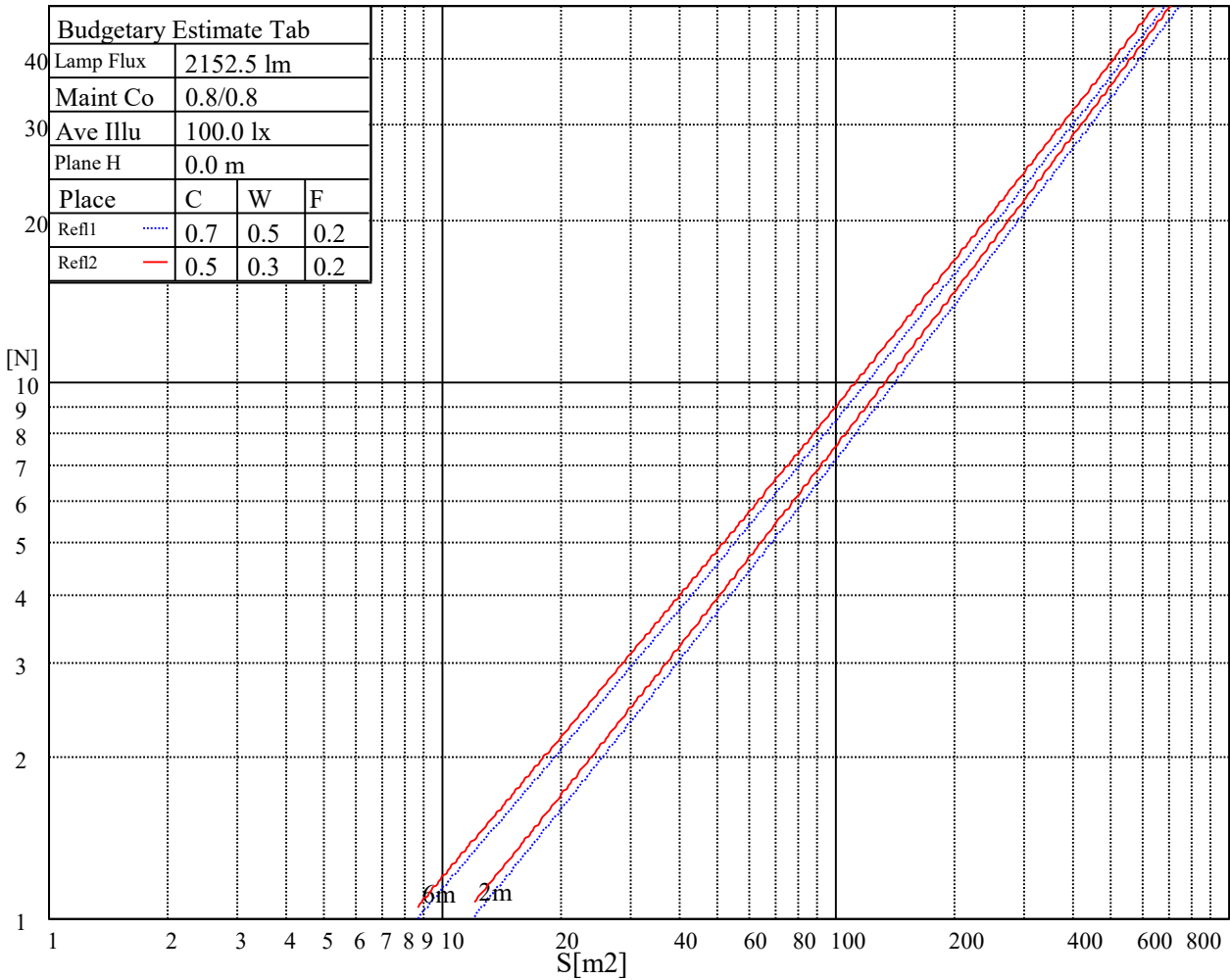
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5229	5229	5229	6040	6040	6040	12876	12876	12876

Glare Table

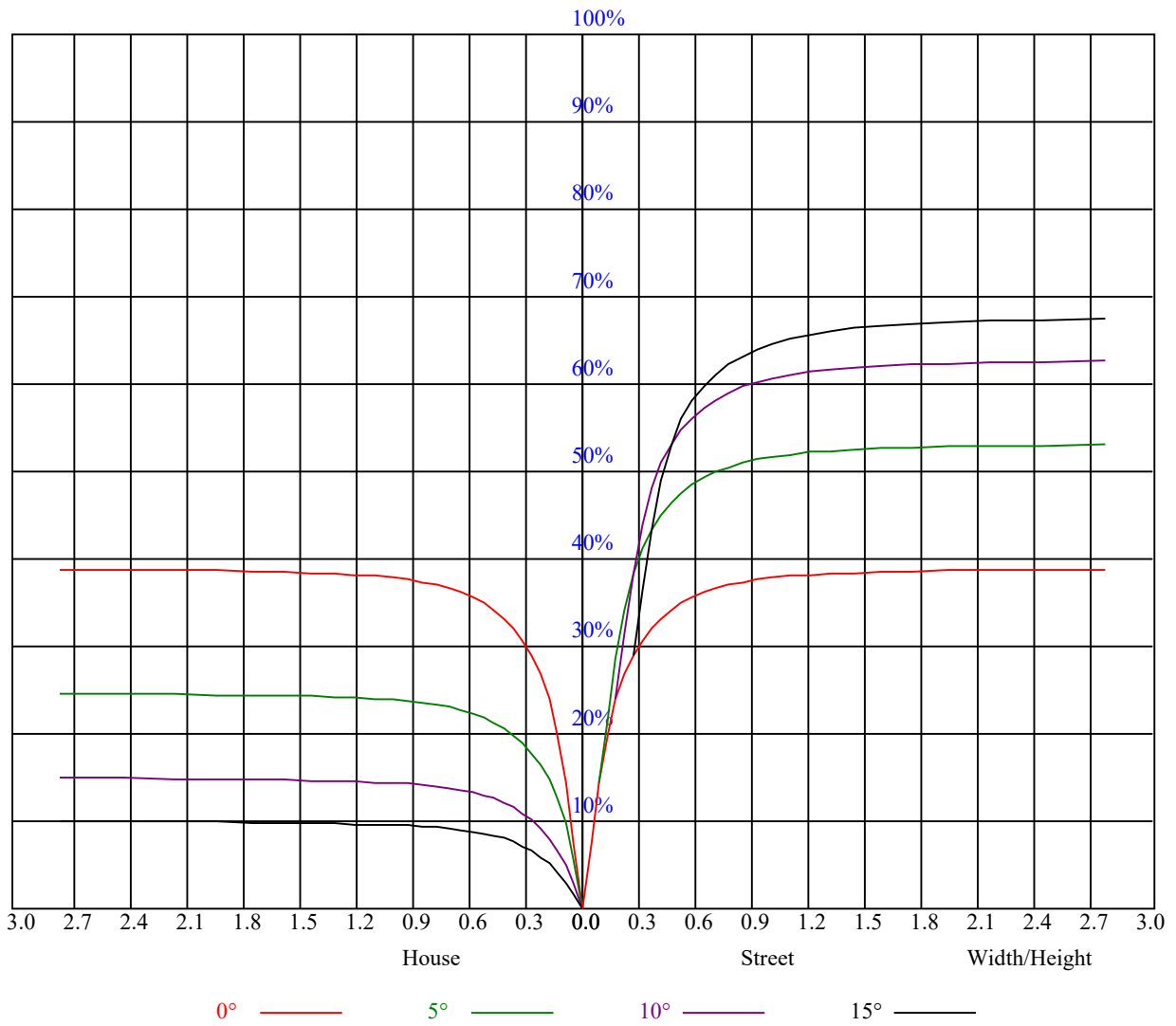
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

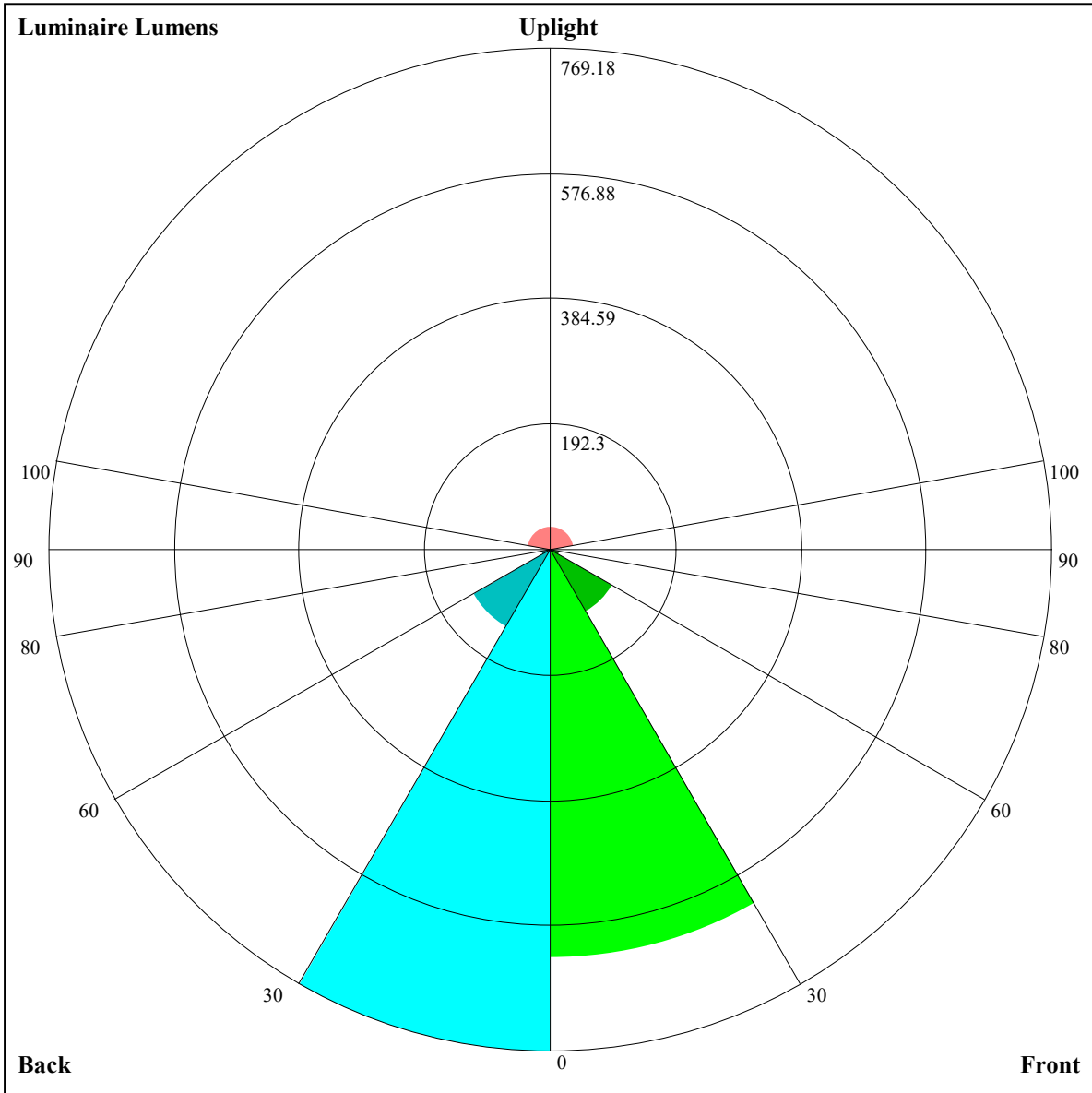
Luminance Limiting Curve





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	0.94	0.94	0.94	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.80	0.80	0.80	0.79
1	0.87	0.86	0.84	0.86	0.84	0.83	0.83	0.81	0.80	0.80	0.79	0.78	0.77	0.76	0.75	0.74
2	0.83	0.80	0.78	0.82	0.79	0.77	0.79	0.77	0.75	0.77	0.75	0.74	0.75	0.73	0.72	0.71
3	0.79	0.76	0.73	0.78	0.75	0.72	0.76	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.69	0.68
4	0.76	0.72	0.69	0.75	0.71	0.69	0.73	0.70	0.68	0.72	0.69	0.67	0.70	0.68	0.67	0.66
5	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.63
6	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.62	0.61
7	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.62	0.61	0.60
8	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
9	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.58	0.62	0.59	0.57	0.57
10	0.62	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55





Luminaire Lumens:

FL=625.3,FM=109.32,FH=14.82,FVH=4.6

BL=769.18,BM=137.75,BH=15.65,BVH=4.77

UL=7.67,UH=36.52

BUG Rating:B2-U2-G0

Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	10902.82	10291.14	8864.08	6992.16	5011.78	3145.37	1764.56	1173.80	923.85
45.0	10951.27	10373.73	9133.86	7412.79	5442.88	3492.78	2166.47	1397.88	1093.97
90.0	10861.53	10314.27	9175.70	7794.89	5830.47	3778.52	2344.30	1602.14	1264.09
135.0	10873.09	10674.33	9912.90	8930.70	7535.57	5582.72	3840.18	2316.77	1642.88
180.0	10902.82	10756.92	10047.24	9083.20	7493.73	5564.55	3649.69	2307.96	1572.96
225.0	10951.27	10812.53	9973.47	8577.79	6817.63	4778.34	3035.26	1834.48	1188.12
270.0	10861.53	10783.90	9932.17	8354.81	6374.43	4271.28	2643.81	1477.16	1011.39
315.0	10873.09	10320.32	8987.41	7245.42	5116.94	3036.91	1727.12	1067.27	860.42
360.0	10902.82	10291.14	8864.08	6992.16	5011.78	3145.37	1764.56	1173.80	923.85
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	780.70	665.63	556.07	461.92	384.84	320.98	279.14	213.07	178.11
45.0	925.50	778.50	654.62	546.71	459.72	385.39	327.59	279.69	224.52
90.0	1054.61	897.86	751.63	638.21	531.95	448.21	376.86	313.93	265.04
135.0	1335.67	1075.80	908.43	776.85	650.22	547.81	469.08	389.80	326.48
180.0	1240.97	1002.47	835.26	708.85	589.21	496.72	418.70	351.20	292.46
225.0	974.77	828.32	692.77	584.42	484.55	406.98	351.26	297.25	252.54
270.0	847.32	707.47	595.71	496.61	408.52	338.60	286.29	232.34	193.30
315.0	731.26	625.50	523.04	436.54	358.64	299.07	245.72	198.31	166.55
360.0	780.70	665.63	556.07	461.92	384.84	320.98	279.14	213.07	178.11
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	153.44	131.47	112.59	96.46	80.49	68.16	58.08	49.06	40.30
45.0	191.16	159.50	136.82	112.15	91.56	75.87	63.70	53.35	44.87
90.0	226.78	194.79	164.34	135.22	108.96	88.81	73.56	60.23	48.89
135.0	282.44	235.92	198.70	167.87	137.75	110.11	90.95	74.22	61.00
180.0	251.66	212.57	182.51	155.09	127.02	103.56	85.17	70.97	58.86
225.0	210.54	174.36	146.84	126.52	103.40	84.62	70.14	58.52	49.22
270.0	165.17	140.17	122.89	105.60	88.70	73.67	62.49	52.85	45.48
315.0	142.49	124.26	107.25	91.72	76.80	64.20	55.61	47.02	38.15
360.0	153.44	131.47	112.59	96.46	80.49	68.16	58.08	49.06	40.30
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	32.81	26.98	22.85	19.60	17.45	16.35	15.31	14.37	13.49
45.0	35.29	29.01	24.61	20.92	18.39	17.23	16.08	14.98	14.09
90.0	39.09	31.88	26.26	22.41	19.05	17.67	16.52	15.47	14.37
135.0	49.06	39.26	31.77	26.26	21.53	18.61	17.40	16.19	15.09
180.0	47.68	37.93	31.49	25.93	21.20	18.28	16.96	15.80	14.76
225.0	40.03	32.65	27.09	23.23	19.77	17.78	16.57	15.58	14.53
270.0	36.72	29.90	25.77	22.02	19.10	17.56	16.46	15.47	14.59
315.0	31.00	26.21	22.02	19.49	17.40	16.41	15.42	14.48	13.65
360.0	32.81	26.98	22.85	19.60	17.45	16.35	15.31	14.37	13.49
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	12.94	12.33	11.84	11.12	10.13	9.19	8.42	7.54	6.99
45.0	13.32	12.66	12.11	11.23	10.35	9.58	8.64	7.82	7.16
90.0	13.54	12.83	12.11	11.29	10.35	9.58	8.75	7.87	7.21
135.0	14.09	13.27	12.44	11.78	10.96	9.97	9.14	8.31	7.49
180.0	13.87	12.99	12.33	11.67	10.79	9.91	9.08	8.26	7.49
225.0	13.65	12.99	12.33	11.78	10.96	10.02	9.14	8.42	7.65
270.0	13.71	13.05	12.50	11.89	11.07	10.08	9.30	8.26	7.54
315.0	13.05	12.50	11.95	11.29	10.30	9.41	8.53	7.71	7.10
360.0	12.94	12.33	11.84	11.12	10.13	9.19	8.42	7.54	6.99



Intensity data(cd)

C/ $\gamma$ ( $^{\circ}$ )	90.0
0.0	6.88
45.0	7.10
90.0	7.05
135.0	6.99
180.0	6.99
225.0	7.16
270.0	7.10
315.0	6.99
360.0	6.88