



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.cn
Tel:+86 750 3770000 Fax:+86 750 3771111
Address:380Jinou Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

Client:

LumCAT: 2-1777-L

Luminaire: 92.70.129.00

Report No: NT2018011010

Test No: GC2018011010

LampCAT: CREE CXA1820

Lamp flux(lm): 2182.0

Number of Lamps: 1

Length(mm): 64

Phm Type: C

Voltage(V): 37.1000

Current(A): 0.6500

Power (W): 24.1150

PF: 0.0000

Ballast type: DC

Width(mm): 64

Height(mm): 0

Photometric Results

Lumens(lm): 2144.83, Efficiency(%): 98.30% , Luminous Efficacy(lm/W): 88.94

Central intensity(cd): 17189.980, Maximum intensity(cd): 17189.980

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=14.8

[C90/270]Total=14.8

Field angle(10%Imax): [C0/180]Total=30.6

[C90/270]Total=30.6

Maximum s/h(1/2): C0_180=0.26 C90_270=0.26

Maximum s/h(1/4): C0_180=0.25 C90_270=0.25

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 98.48%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.322%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17189.984	4.113	4.113	.188%	.192%
1.0	17095.012	32.717	36.83	1.499%	1.717%
2.0	16686.219	63.860	100.69	2.927%	4.695%
3.0	16002.831	91.844	192.533	4.209%	8.977%
4.0	14774.867	113.021	305.555	5.180%	14.246%
5.0	13163.159	125.808	431.362	5.766%	20.112%
6.0	11429.846	131.017	562.379	6.004%	26.220%
7.0	9362.272	125.120	687.499	5.734%	32.054%
8.0	7567.296	115.491	802.99	5.293%	37.438%
9.0	5986.971	102.705	905.695	4.707%	42.227%
10.0	4729.620	90.063	995.759	4.128%	46.426%
11.0	3724.841	77.940	1073.698	3.572%	50.060%
12.0	3057.282	69.705	1143.404	3.195%	53.310%
13.0	2489.582	61.414	1204.817	2.815%	56.173%
14.0	2099.232	55.691	1260.509	2.552%	58.770%
15.0	1774.950	50.377	1310.886	2.309%	61.118%
16.0	1551.627	46.900	1357.786	2.149%	63.305%
17.0	1358.978	43.571	1401.357	1.997%	65.336%
18.0	1215.817	41.200	1442.558	1.888%	67.257%
19.0	1125.380	40.178	1482.736	1.841%	69.131%
20.0	1022.583	38.353	1521.09	1.758%	70.919%
21.0	962.441	37.823	1558.913	1.733%	72.682%
22.0	910.426	37.400	1596.313	1.714%	74.426%
23.0	864.379	37.037	1633.349	1.697%	76.153%
24.0	825.812	36.834	1670.183	1.688%	77.870%
25.0	794.698	36.830	1707.013	1.688%	79.587%
26.0	768.395	36.938	1743.952	1.693%	81.309%
27.0	741.403	36.911	1780.862	1.692%	83.030%
28.0	721.961	37.168	1818.031	1.703%	84.763%
29.0	701.398	37.290	1855.32	1.709%	86.502%
30.0	669.727	36.721	1892.042	1.683%	88.214%
31.0	631.813	35.685	1927.726	1.635%	89.878%
32.0	575.917	33.467	1961.194	1.534%	91.438%
33.0	505.349	30.182	1991.376	1.383%	92.845%
34.0	430.575	26.404	2017.78	1.210%	94.076%
35.0	360.771	22.692	2040.472	1.040%	95.134%
36.0	270.616	17.443	2057.915	.799%	95.948%
37.0	195.629	12.911	2070.825	.592%	96.550%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	143.188	9.667	2080.493	.443%	97.000%
39.0	74.429	5.137	2085.629	.235%	97.240%
40.0	44.706	3.151	2088.78	.144%	97.387%
41.0	27.026	1.944	2090.725	.089%	97.477%
42.0	19.428	1.426	2092.15	.065%	97.544%
43.0	17.914	1.340	2093.49	.061%	97.606%
44.0	16.868	1.285	2094.775	.059%	97.666%
45.0	15.712	1.218	2095.993	.056%	97.723%
46.0	15.079	1.189	2097.183	.055%	97.778%
47.0	14.562	1.168	2098.351	.054%	97.833%
48.0	14.101	1.149	2099.5	.053%	97.886%
49.0	13.750	1.138	2100.638	.052%	97.940%
50.0	13.448	1.130	2101.768	.052%	97.992%
51.0	13.200	1.125	2102.892	.052%	98.045%
52.0	13.000	1.123	2104.016	.051%	98.097%
53.0	12.794	1.120	2105.136	.051%	98.149%
54.0	12.512	1.110	2106.246	.051%	98.201%
55.0	12.305	1.105	2107.352	.051%	98.253%
56.0	12.085	1.099	2108.45	.050%	98.304%
57.0	11.892	1.094	2109.544	.050%	98.355%
58.0	11.727	1.091	2110.635	.050%	98.406%
59.0	11.603	1.091	2111.725	.050%	98.456%
60.0	11.438	1.086	2112.812	.050%	98.507%
61.0	11.342	1.088	2113.899	.050%	98.558%
62.0	11.245	1.089	2114.988	.050%	98.609%
63.0	11.156	1.090	2116.078	.050%	98.659%
64.0	11.087	1.093	2117.171	.050%	98.710%
65.0	10.998	1.093	2118.264	.050%	98.761%
66.0	10.874	1.089	2119.353	.050%	98.812%
67.0	10.791	1.089	2120.443	.050%	98.863%
68.0	10.715	1.089	2121.532	.050%	98.914%
69.0	10.591	1.084	2122.616	.050%	98.964%
70.0	10.530	1.085	2123.701	.050%	99.015%
71.0	10.447	1.083	2124.785	.050%	99.065%
72.0	10.385	1.083	2125.868	.050%	99.116%
73.0	10.309	1.081	2126.949	.050%	99.166%
74.0	10.247	1.080	2128.029	.050%	99.217%
75.0	10.192	1.080	2129.109	.049%	99.267%

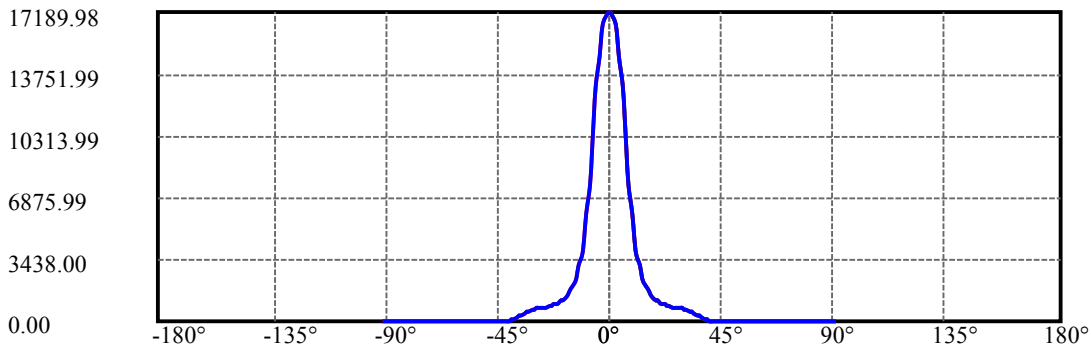
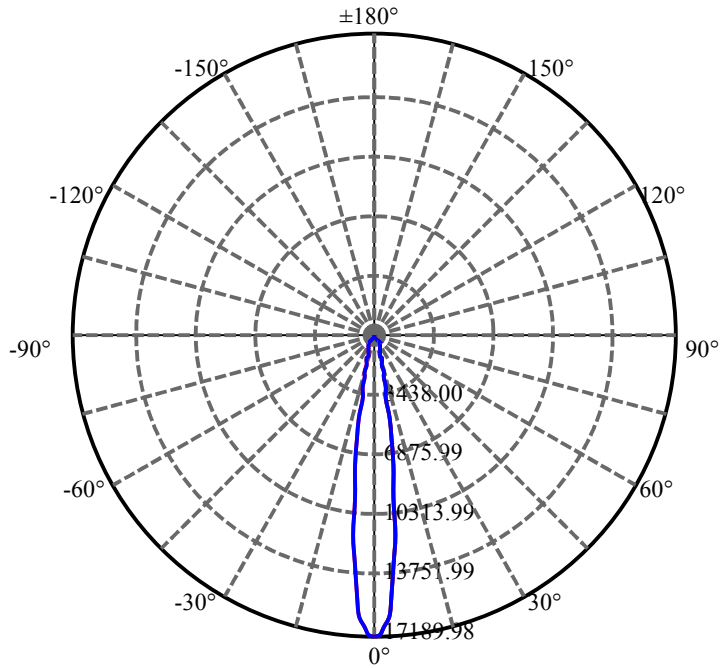
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.144	1.079	2130.188	.049%	99.317%
77.0	10.117	1.081	2131.269	.050%	99.368%
78.0	10.089	1.082	2132.351	.050%	99.418%
79.0	10.055	1.082	2133.434	.050%	99.469%
80.0	10.034	1.084	2134.517	.050%	99.519%
81.0	10.027	1.086	2135.603	.050%	99.570%
82.0	10.007	1.087	2136.69	.050%	99.620%
83.0	9.986	1.087	2137.777	.050%	99.671%
84.0	9.958	1.086	2138.863	.050%	99.722%
85.0	9.958	1.088	2139.951	.050%	99.772%
86.0	9.951	1.089	2141.039	.050%	99.823%
87.0	9.917	1.086	2142.125	.050%	99.874%
88.0	9.883	1.083	2143.208	.050%	99.924%
89.0	9.883	1.084	2144.292	.050%	99.975%
90.0	9.848	0.540	2144.832	.025%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1892.04	86.71%	88.21%
0-40	2088.78	95.73%	97.39%
0-60	2112.81	96.83%	98.51%
0-90	2144.29	98.27%	99.97%
0-120	2144.29	98.27%	99.97%
0-180	2144.83	98.30%	100.00%
60-90	32.57	1.49%	1.52%
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%
0-25.24	1715.87	78.64%	80.00%

ZONAL LUMEN SUMMARY

0-10	995.76
10-20	525.33
20-30	370.95
30-40	196.74
40-50	12.99
50-60	11.04
60-70	10.89
70-80	10.82
80-90	9.77
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



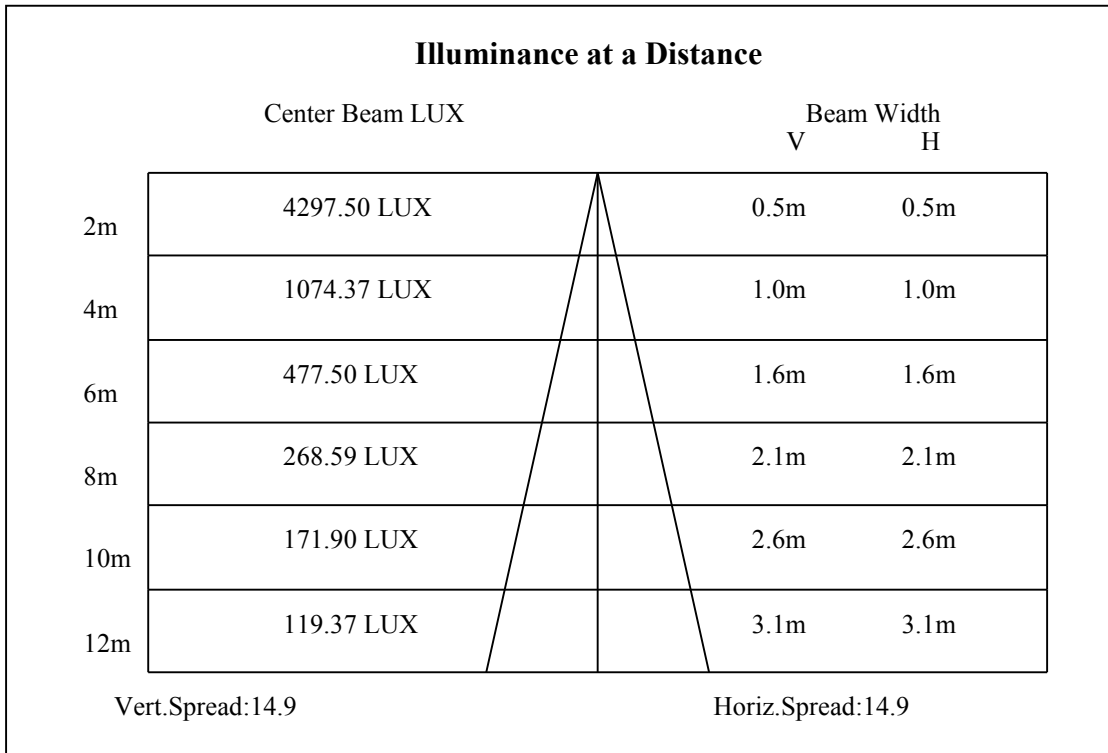
C0(Max): —————

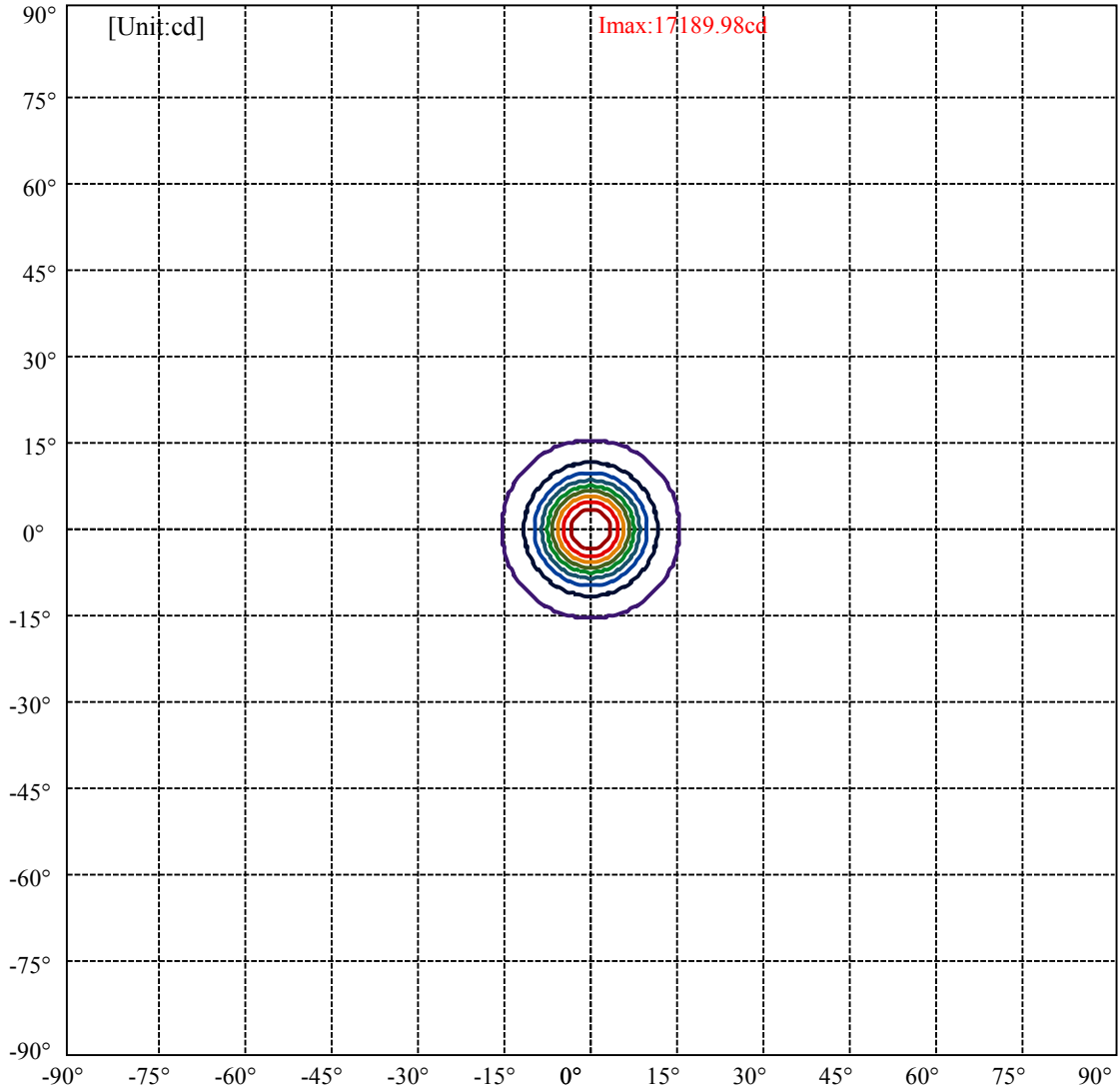
C0/C180: —————

C90/C270: —————

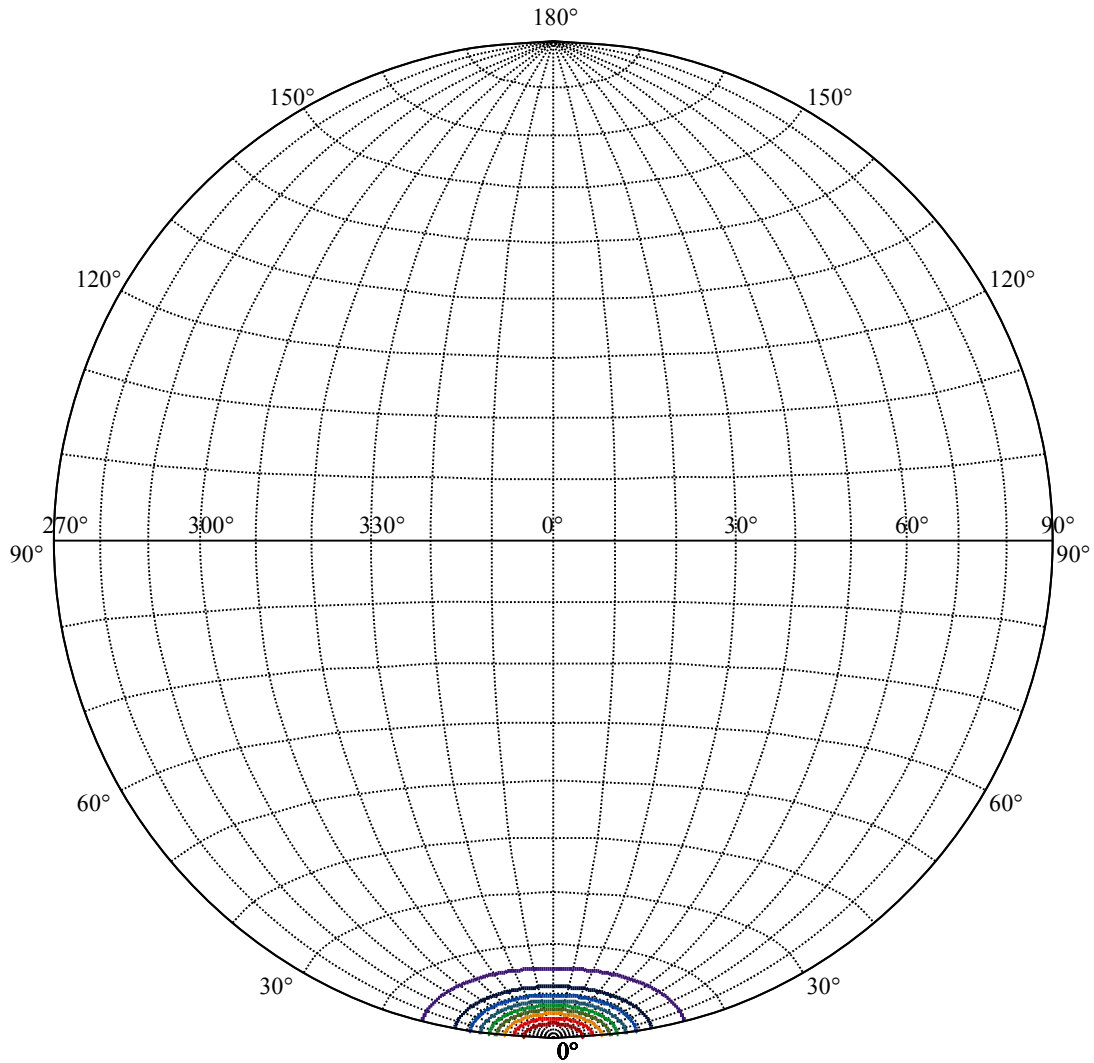
Field angle(10%Imax):C0/180Left:15.3 Right:15.3
:C90/270Left:15.3 Right:15.3

Beam Angle(50%Imax):C0/180Left:7.4 Right:7.4
:C90/270Left:7.4 Right:7.4





(10%Imax) 1719	—
(20%Imax) 3438	—
(30%Imax) 5157	—
(40%Imax) 6875.99	—
(50%Imax) 8594.99	—
(60%Imax) 10314	—
(70%Imax) 12033	—
(80%Imax) 13752	—
(90%Imax) 15471	—



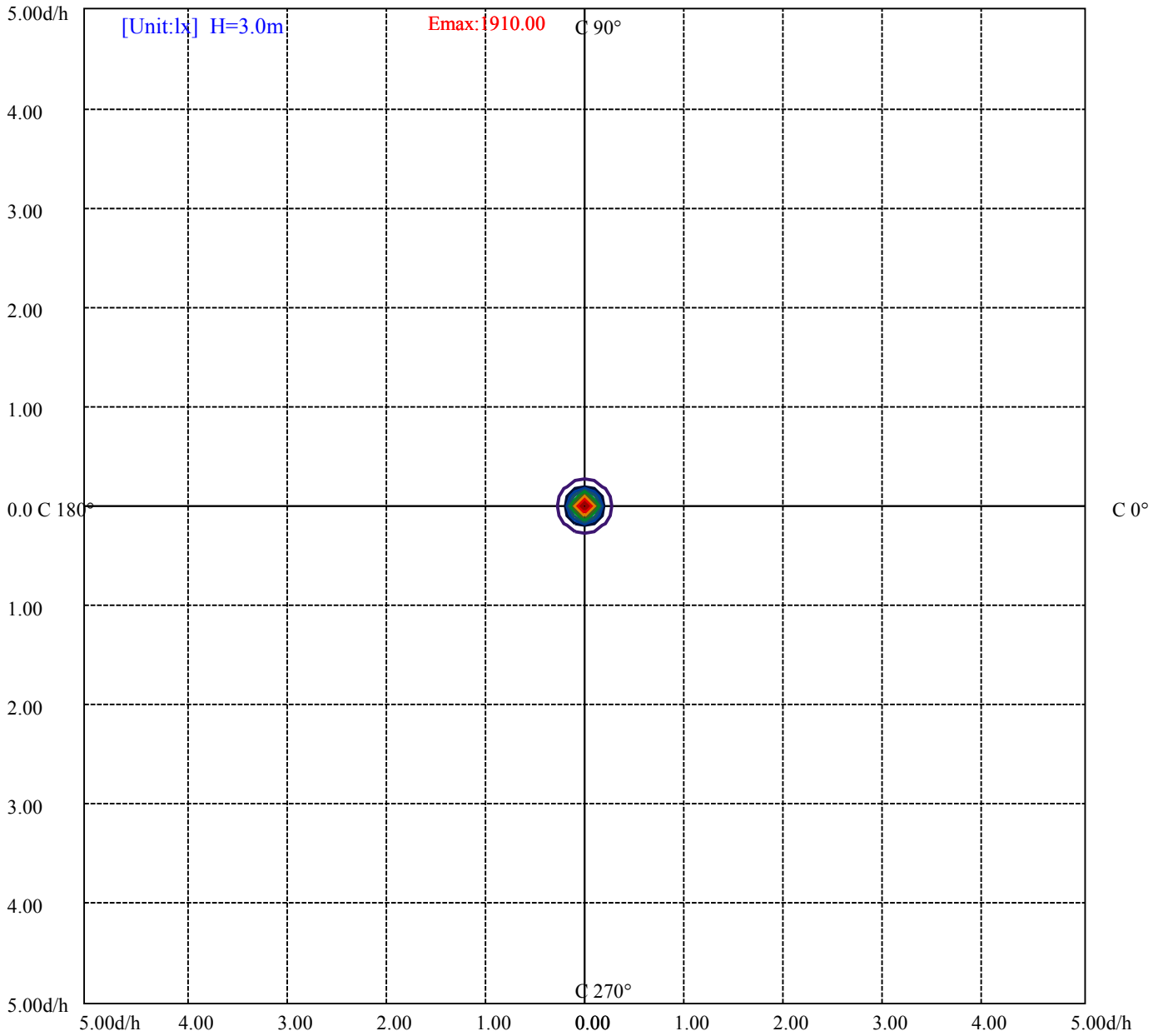
House

[Unit:cd]

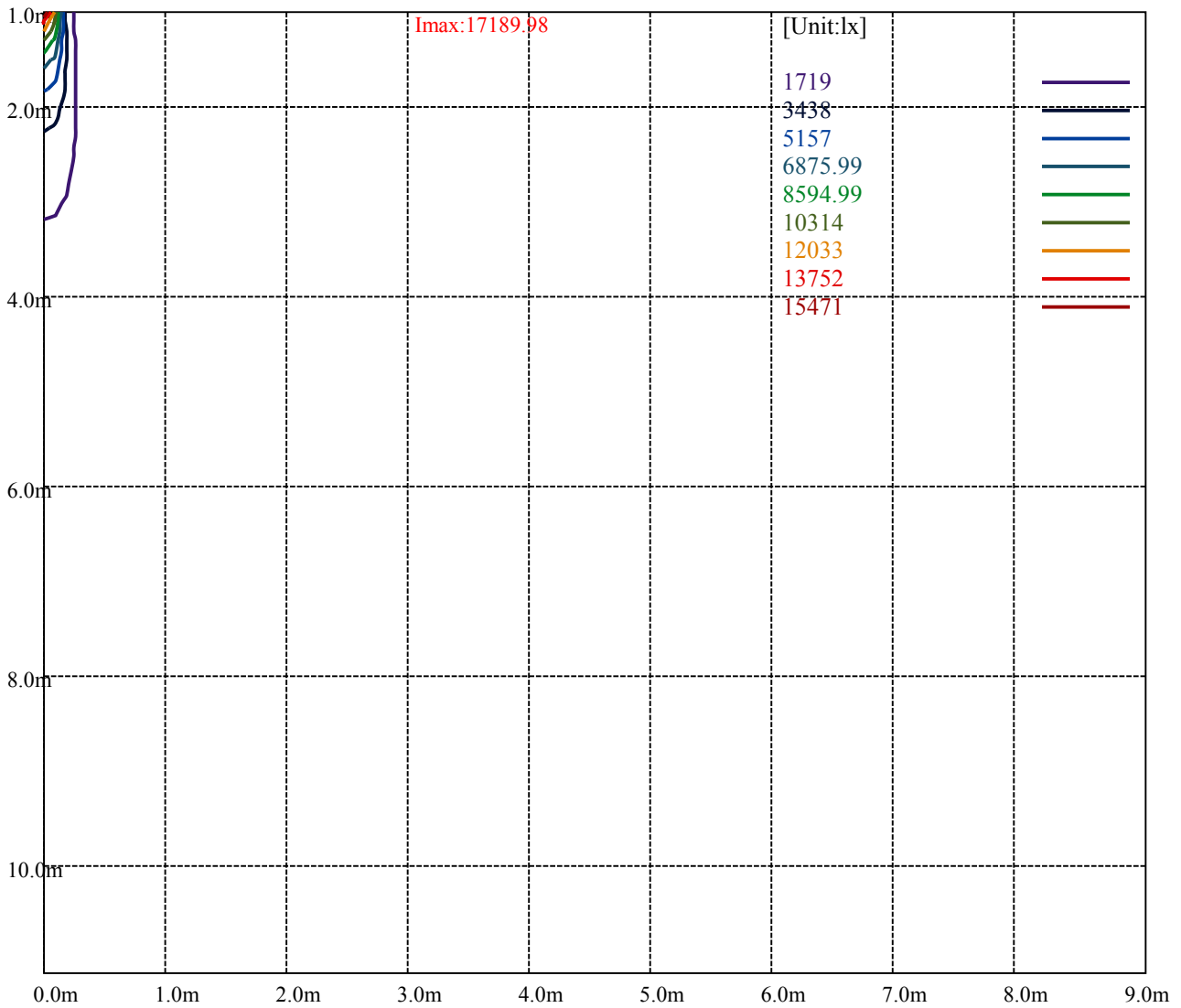
Road

Imax:17189.98

(10%Imax) 1719	—
(20%Imax) 3438	—
(30%Imax) 5157	—
(40%Imax) 6875.99	—
(50%Imax) 8594.99	—
(60%Imax) 10314	—
(70%Imax) 12033	—
(80%Imax) 13752	—
(90%Imax) 15471	—



(10%Emax) 191	—
(20%Emax) 381.9989	—
(30%Emax) 572.9989	—
(40%Emax) 763.9989	—
(50%Emax) 954.9989	—
(60%Emax) 1146	—
(70%Emax) 1337	—
(80%Emax) 1528	—
(90%Emax) 1719	—



Luminance Table

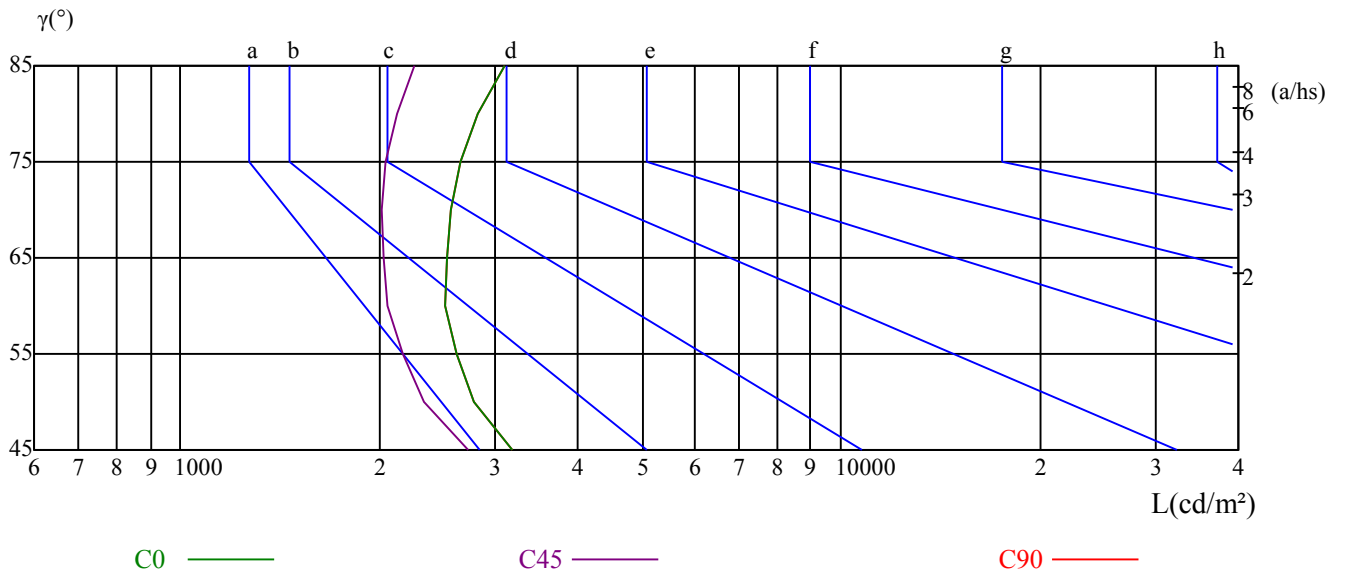
γ	45	50	55	60	65	70	75	80	85
C0	3185	2779	2613	2518	2533	2564	2653	2828	3087
C45	2720	2338	2164	2052	2028	2014	2041	2125	2256
C90	3185	2779	2613	2518	2533	2564	2653	2828	3087

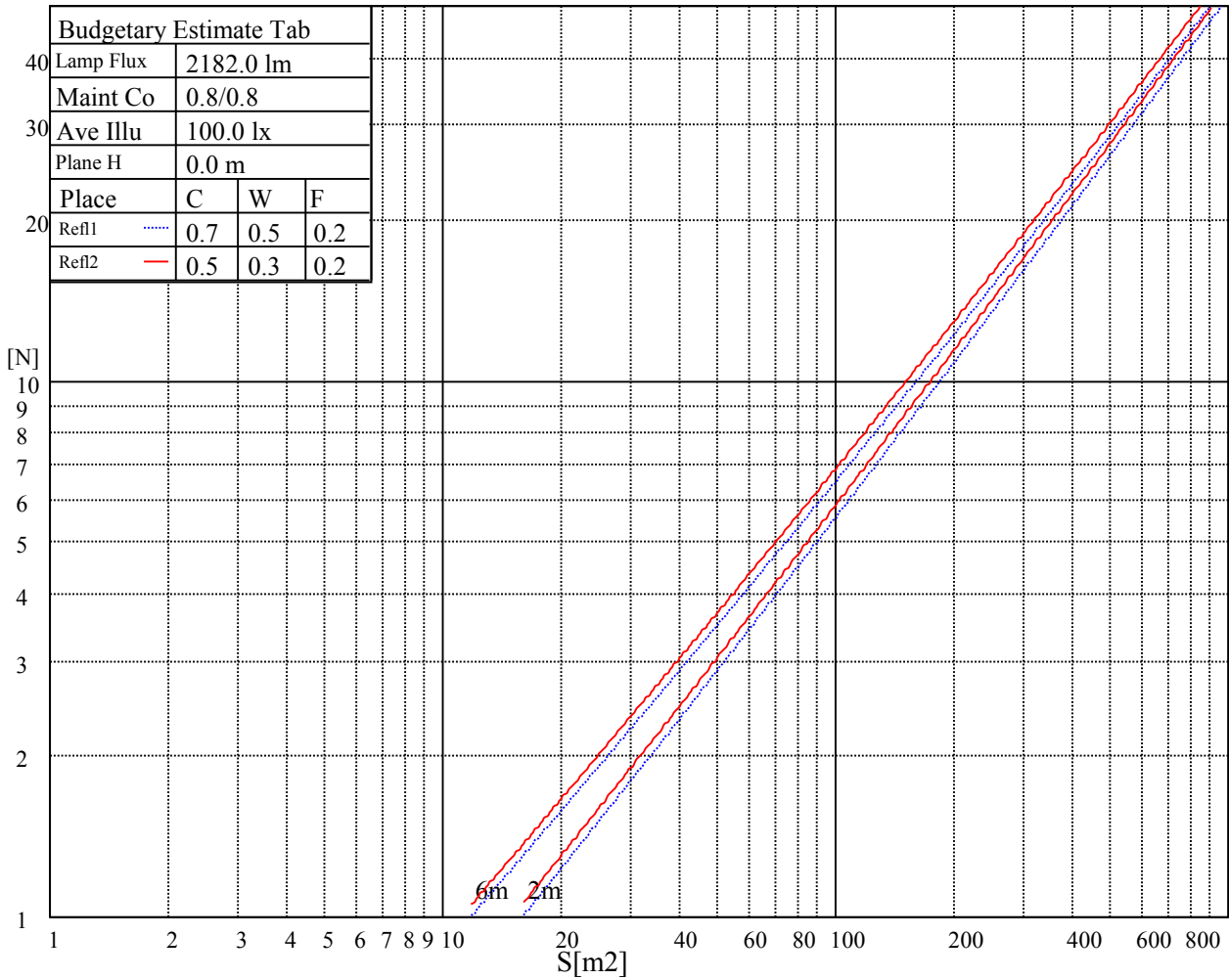
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6353	6353	6353	9614	9614	9614	27895	27895	27895

Glare Table

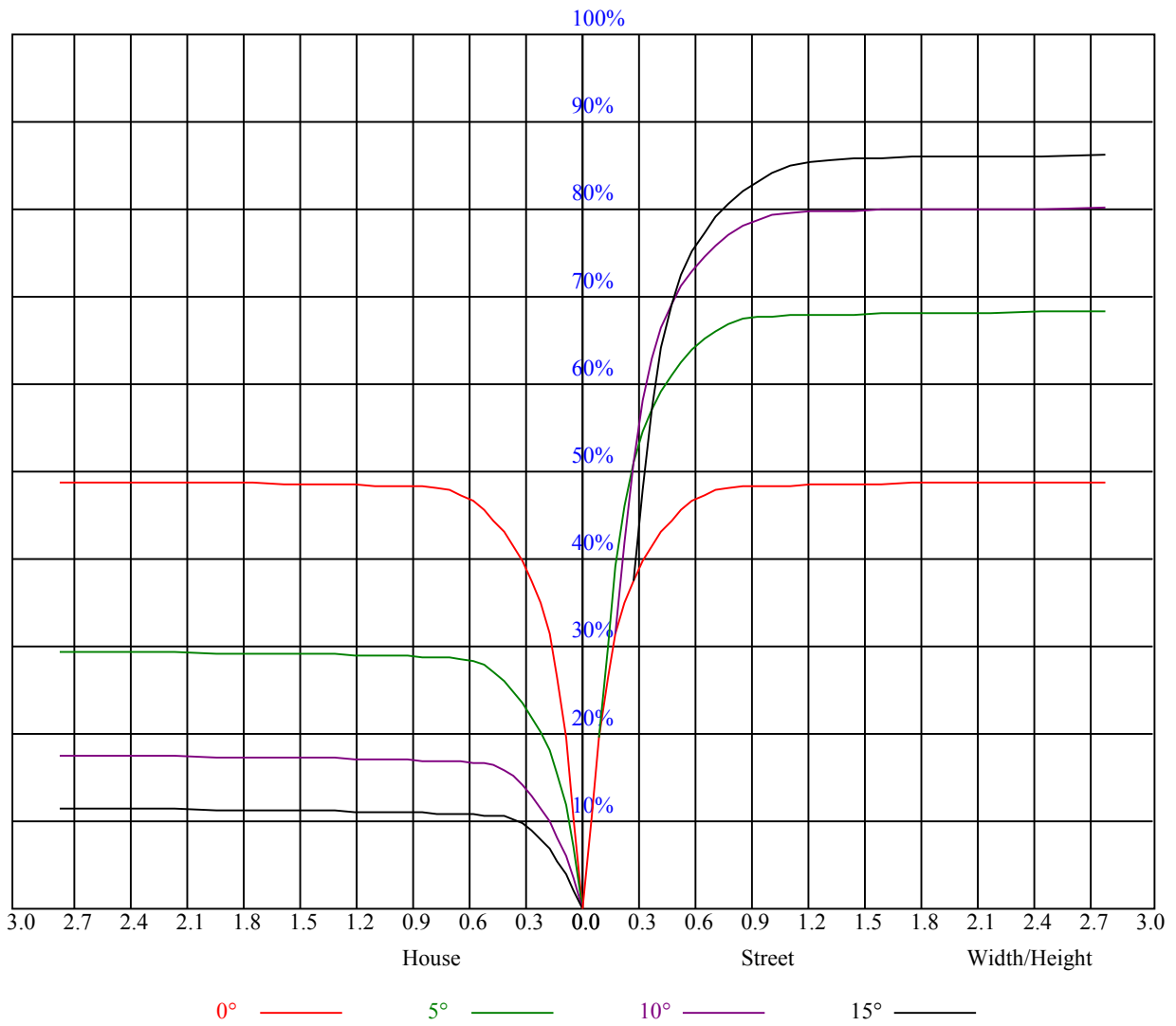
Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

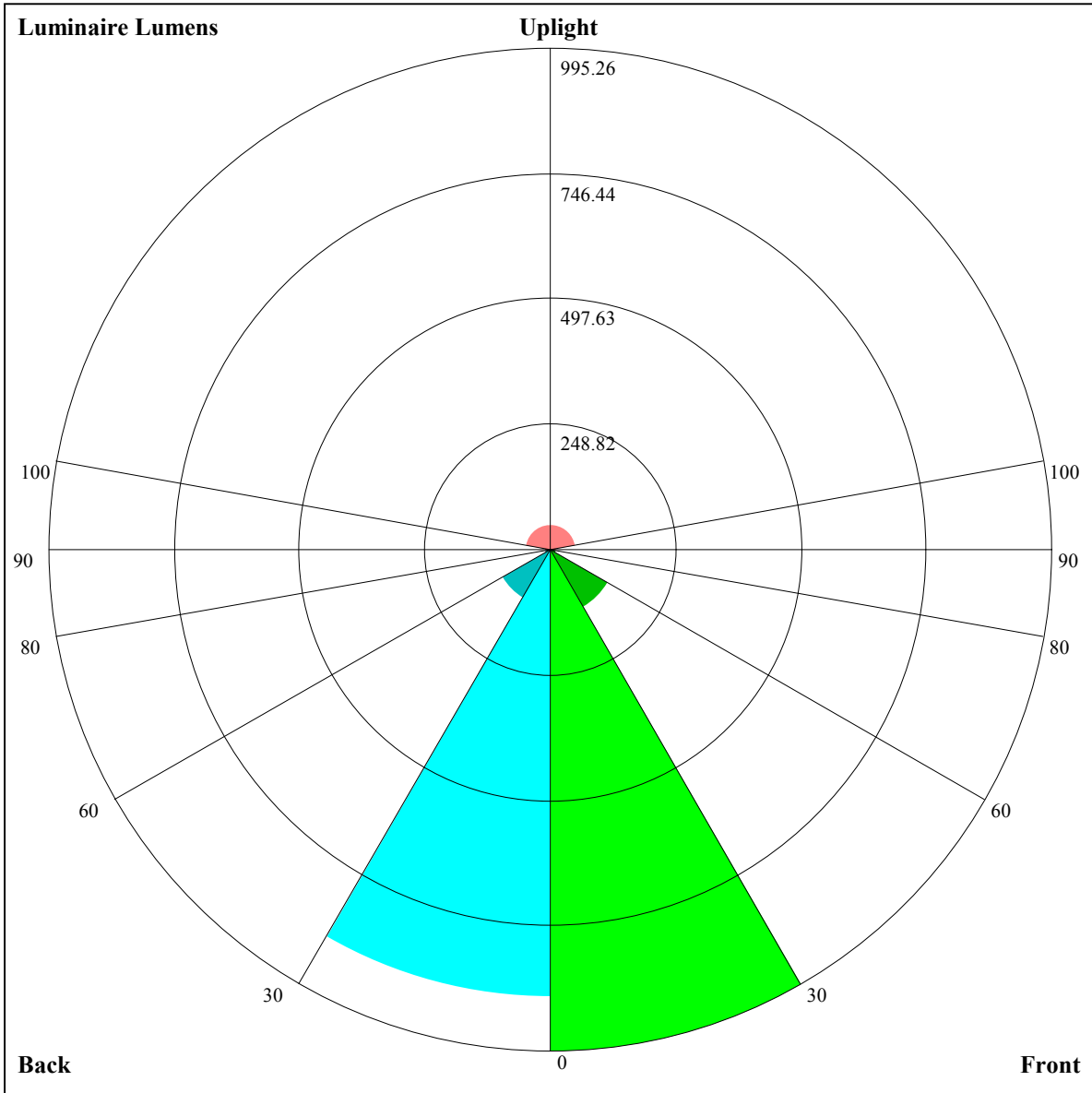
Luminance Limiting Curve





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	1.17	1.17	1.17	1.15	1.15	1.15	1.09	1.09	1.09	1.05	1.05	1.05	1.00	1.00	1.00	0.98
1	1.11	1.08	1.07	1.08	1.07	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.94
2	1.05	1.02	0.99	1.03	1.01	0.98	1.00	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.92	0.91
3	1.01	0.97	0.94	0.99	0.96	0.93	0.97	0.94	0.92	0.95	0.92	0.90	0.92	0.91	0.89	0.88
4	0.97	0.92	0.89	0.95	0.92	0.89	0.94	0.90	0.88	0.92	0.89	0.87	0.90	0.88	0.86	0.85
5	0.93	0.89	0.86	0.92	0.88	0.85	0.91	0.87	0.85	0.89	0.86	0.84	0.88	0.85	0.83	0.82
6	0.90	0.86	0.83	0.89	0.85	0.82	0.88	0.84	0.82	0.87	0.84	0.81	0.85	0.83	0.81	0.80
7	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.83	0.81	0.79	0.78
8	0.84	0.80	0.78	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.79	0.77	0.76
9	0.82	0.78	0.75	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.75	0.80	0.77	0.75	0.74
10	0.80	0.76	0.73	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.73	0.78	0.75	0.73	0.72





Luminaire Lumens:

FL=995.26,FM=132.16,FH=10.81,FVH=5.42

BL=889.25,BM=109.41,BH=10.88,BVH=5.42

UL=10.75,UH=51.13

BUG Rating:B2-U2-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	17161.08	17276.70	17210.63	16984.90	16434.34	15168.04	13587.92	11666.45	9420.15
45.0	17238.16	17117.03	16638.04	15806.69	14518.37	12288.59	10240.49	8285.99	6469.13
90.0	17111.53	16715.12	15905.79	14386.24	10811.43	10287.29	8250.20	6261.01	4782.20
135.0	17249.17	16973.89	16214.11	15190.06	13653.99	11176.45	9078.80	7179.35	5500.13
180.0	17161.08	16841.75	16181.08	15173.54	13720.05	10743.16	9424.00	7200.28	5466.00
225.0	17238.16	17205.13	16891.30	16472.87	15801.19	14287.14	12167.46	10547.15	8285.99
270.0	17111.53	17287.71	17221.64	17006.92	16665.57	15779.16	14573.43	12982.30	10851.62
315.0	17249.17	17342.77	17227.15	17001.42	16594.00	15575.46	14116.46	10775.64	9763.15
360.0	17161.08	17276.70	17210.63	16984.90	16434.34	15168.04	13587.92	11666.45	9420.15
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7410.59	5951.60	4641.25	3760.35	3022.60	2824.39	2143.90	1845.49	1640.68
45.0	5021.14	4002.60	3176.75	2829.90	2224.83	1891.19	1664.91	1463.40	1304.29
90.0	3814.86	3044.07	2503.41	2139.49	1856.50	1586.17	1417.70	1282.26	1095.62
135.0	4222.83	3369.45	2802.37	2231.44	1861.46	1593.33	1412.20	1259.14	1152.33
180.0	4314.22	3354.59	2664.73	2220.42	1886.23	1592.78	1417.70	1276.21	1088.85
225.0	6551.16	5052.53	4036.18	3166.29	2570.58	2043.69	1750.24	1530.02	1349.43
270.0	8654.87	6893.06	5307.44	4244.85	3341.92	2802.37	2243.00	1885.13	1619.76
315.0	7906.10	6169.07	4666.58	3865.51	3152.53	2459.92	2149.95	1871.37	1620.86
360.0	7410.59	5951.60	4641.25	3760.35	3022.60	2824.39	2143.90	1845.49	1640.68
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1445.23	1310.34	1176.56	1090.67	1019.64	954.68	902.37	863.83	834.66
45.0	1181.51	1091.77	994.32	933.76	885.86	836.86	804.92	776.30	750.42
90.0	1054.11	984.13	927.65	871.38	834.71	804.43	772.94	747.34	726.47
135.0	1048.82	984.96	915.04	870.44	833.55	804.37	769.69	746.56	726.74
180.0	1048.22	978.30	918.56	870.61	837.57	806.80	780.75	755.10	732.80
225.0	1098.38	1087.91	1013.15	938.71	888.89	849.91	814.34	785.60	758.57
270.0	1430.37	1280.61	1140.22	1058.73	989.36	922.19	878.70	841.81	808.78
315.0	1419.90	1285.02	1095.18	1065.23	993.82	935.79	882.77	841.04	808.72
360.0	1445.23	1310.34	1176.56	1090.67	1019.64	954.68	902.37	863.83	834.66
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	792.26	767.49	748.22	726.19	709.68	687.65	626.54	554.42	491.10
45.0	728.40	711.88	694.26	678.29	642.51	572.59	501.01	423.93	324.83
90.0	706.65	691.23	670.37	621.81	561.63	483.12	395.86	314.54	240.54
135.0	705.82	692.06	675.54	624.34	558.82	486.15	400.26	309.97	280.79
180.0	711.44	696.13	667.39	608.54	541.87	453.11	378.29	303.14	229.64
225.0	734.01	714.52	696.13	679.67	652.47	588.94	515.16	443.09	366.79
270.0	775.74	752.07	729.50	708.58	692.06	668.38	616.08	549.46	479.54
315.0	776.90	750.31	729.77	710.39	695.47	667.39	609.58	546.05	472.93
360.0	792.26	767.49	748.22	726.19	709.68	687.65	626.54	554.42	491.10
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	393.10	312.72	282.44	137.75	78.79	39.70	24.45	22.79	21.09
45.0	282.99	175.02	100.70	46.74	23.84	18.94	17.18	15.64	14.59
90.0	151.13	88.64	43.16	20.81	18.77	17.34	15.58	14.42	13.93
135.0	151.24	92.49	41.79	22.52	20.10	18.83	16.90	15.64	15.09
180.0	144.58	85.12	43.99	25.49	23.84	22.41	20.65	19.16	18.44
225.0	270.93	198.97	132.25	62.27	30.78	19.88	18.55	17.34	16.19
270.0	395.30	316.02	279.69	146.62	85.28	41.90	20.92	19.10	17.95
315.0	375.65	296.04	221.49	133.24	76.25	37.22	21.20	19.21	17.67
360.0	393.10	312.72	282.44	137.75	78.79	39.70	24.45	22.79	21.09

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	19.05	18.06	17.40	16.79	16.13	15.53	14.98	14.59	14.20
45.0	13.93	13.71	13.32	12.94	12.66	12.61	12.44	12.33	12.11
90.0	13.38	13.10	12.72	12.50	12.39	12.22	12.11	11.95	11.84
135.0	14.48	14.04	13.60	13.16	12.99	12.83	12.66	12.44	12.22
180.0	17.67	16.96	16.24	15.69	15.31	15.03	14.65	14.42	14.15
225.0	15.03	14.53	13.93	13.49	13.10	12.77	12.61	12.44	12.22
270.0	16.19	15.20	14.76	14.20	13.82	13.54	13.32	13.21	13.10
315.0	15.97	15.03	14.53	14.04	13.60	13.05	12.83	12.61	12.50
360.0	19.05	18.06	17.40	16.79	16.13	15.53	14.98	14.59	14.20
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	13.87	13.54	13.16	12.83	12.55	12.28	12.00	11.84	11.67
45.0	11.89	11.67	11.51	11.29	11.18	11.12	10.96	10.90	10.85
90.0	11.56	11.45	11.29	11.18	11.12	11.07	11.01	10.96	10.85
135.0	11.95	11.78	11.62	11.51	11.40	11.34	11.18	11.18	11.12
180.0	13.76	13.54	13.27	13.05	12.83	12.61	12.39	12.22	12.11
225.0	11.95	11.73	11.56	11.34	11.18	11.07	10.96	10.90	10.85
270.0	12.88	12.66	12.44	12.28	12.11	12.00	11.84	11.73	11.62
315.0	12.22	12.06	11.84	11.67	11.45	11.34	11.18	11.01	10.90
360.0	13.87	13.54	13.16	12.83	12.55	12.28	12.00	11.84	11.67
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.45	11.34	11.29	11.12	11.01	10.96	10.85	10.85	10.79
45.0	10.79	10.74	10.63	10.52	10.46	10.41	10.30	10.19	10.19
90.0	10.85	10.79	10.68	10.52	10.46	10.41	10.30	10.24	10.19
135.0	11.07	11.01	10.90	10.79	10.68	10.63	10.52	10.46	10.41
180.0	12.00	11.84	11.67	11.51	11.40	11.23	11.07	11.01	10.85
225.0	10.79	10.79	10.74	10.68	10.57	10.57	10.41	10.35	10.30
270.0	11.45	11.40	11.29	11.18	11.12	11.01	10.85	10.74	10.57
315.0	10.85	10.79	10.79	10.68	10.63	10.52	10.46	10.41	10.30
360.0	11.45	11.34	11.29	11.12	11.01	10.96	10.85	10.85	10.79
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.74	10.57	10.46	10.46	10.41	10.30	10.30	10.24	10.19
45.0	10.13	10.08	10.08	10.02	10.02	10.02	9.97	9.97	9.91
90.0	10.13	10.08	10.08	9.97	9.97	10.02	9.97	9.91	9.91
135.0	10.35	10.30	10.24	10.19	10.13	10.13	10.13	10.08	10.08
180.0	10.74	10.68	10.52	10.46	10.41	10.30	10.30	10.24	10.24
225.0	10.30	10.19	10.19	10.08	10.02	10.02	9.97	9.97	9.97
270.0	10.46	10.35	10.24	10.19	10.08	10.02	10.02	9.97	9.97
315.0	10.24	10.24	10.19	10.19	10.13	10.13	10.08	10.08	10.02
360.0	10.74	10.57	10.46	10.46	10.41	10.30	10.30	10.24	10.19
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.13	10.13	10.13	10.02	10.08	10.02	10.02	9.97	9.91
45.0	9.91	9.91	9.91	9.86	9.86	9.86	9.80	9.80	9.80
90.0	9.91	9.91	9.86	9.91	9.86	9.86	9.86	9.80	9.86
135.0	10.08	10.02	10.02	9.97	9.97	9.97	9.91	9.91	9.91
180.0	10.19	10.13	10.13	10.08	10.08	10.02	9.97	9.91	9.91
225.0	9.97	9.97	9.91	9.91	9.91	9.91	9.91	9.86	9.80
270.0	9.97	9.97	9.91	9.91	9.91	9.97	9.91	9.91	9.91
315.0	10.08	10.02	10.02	10.02	10.02	10.02	9.97	9.91	9.97
360.0	10.13	10.13	10.13	10.02	10.08	10.02	10.02	9.97	9.91

Intensity data(cd)

C/γ(°)	90.0
0.0	9.91
45.0	9.74
90.0	9.80
135.0	9.86
180.0	9.91
225.0	9.80
270.0	9.86
315.0	9.91
360.0	9.91