



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: 4-2200-L

Luminaire: 92.70.129.00

Report No: NT2018011016

Test No: GC2018011016

LampCAT: CXA1820

Lamp flux(lm): 2182.0

Number of Lamps: 1

Length(mm): 102

Phm Type: C

Voltage(V): 37.1000

Current(A): 0.6500

Power (W): 24.1150

PF: 0.0000

Ballast type: DC

Width(mm): 102

Height(mm): 0

Photometric Results

Lumens(lm): 2130.11, Efficiency(%): 97.62% , Luminous Efficacy(lm/W): 88.33

Central intensity(cd): 17176.220, Maximum intensity(cd): 17176.220

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=14.0

[C90/270]Total=14.0

Field angle(10%Imax): [C0/180]Total=31.4

[C90/270]Total=31.4

Maximum s/h(1/2): C0_180=0.24 C90_270=0.24

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(%): 97.81%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.313%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17176.221	4.109	4.109	.188%	.193%
1.0	16944.295	32.429	36.538	1.486%	1.715%
2.0	16107.438	61.645	98.183	2.825%	4.609%
3.0	14960.200	85.860	184.043	3.935%	8.640%
4.0	13542.223	103.592	287.635	4.748%	13.503%
5.0	11796.109	112.742	400.377	5.167%	18.796%
6.0	9975.944	114.351	514.728	5.241%	24.164%
7.0	8663.400	115.780	630.508	5.306%	29.600%
8.0	7121.477	108.687	739.195	4.981%	34.702%
9.0	5868.530	100.673	839.868	4.614%	39.428%
10.0	4822.321	91.829	931.697	4.208%	43.739%
11.0	3921.254	82.049	1013.746	3.760%	47.591%
12.0	3225.204	73.534	1087.28	3.370%	51.043%
13.0	2737.267	67.524	1154.804	3.095%	54.213%
14.0	2201.086	58.393	1213.197	2.676%	56.955%
15.0	1896.899	53.838	1267.036	2.467%	59.482%
16.0	1654.397	50.007	1317.043	2.292%	61.830%
17.0	1446.407	46.374	1363.417	2.125%	64.007%
18.0	1286.331	43.590	1407.007	1.998%	66.053%
19.0	1174.064	41.917	1448.924	1.921%	68.021%
20.0	1083.310	40.631	1489.554	1.862%	69.929%
21.0	1003.871	39.451	1529.006	1.808%	71.781%
22.0	945.945	38.859	1567.865	1.781%	73.605%
23.0	892.444	38.239	1606.104	1.752%	75.400%
24.0	848.598	37.850	1643.954	1.735%	77.177%
25.0	814.628	37.754	1681.708	1.730%	78.949%
26.0	785.614	37.766	1719.474	1.731%	80.722%
27.0	759.572	37.815	1757.289	1.733%	82.498%
28.0	737.363	37.961	1795.251	1.740%	84.280%
29.0	718.775	38.213	1833.464	1.751%	86.074%
30.0	700.717	38.421	1871.885	1.761%	87.878%
31.0	678.309	38.311	1910.195	1.756%	89.676%
32.0	633.279	36.801	1946.996	1.687%	91.404%
33.0	568.340	33.944	1980.94	1.556%	92.997%
34.0	488.412	29.950	2010.891	1.373%	94.403%
35.0	396.110	24.915	2035.806	1.142%	95.573%
36.0	269.825	17.392	2053.198	.797%	96.389%
37.0	175.231	11.564	2064.762	.530%	96.932%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	113.451	7.660	2072.422	.351%	97.292%
39.0	46.123	3.183	2075.605	.146%	97.441%
40.0	24.239	1.709	2077.313	.078%	97.522%
41.0	19.173	1.379	2078.693	.063%	97.586%
42.0	16.166	1.186	2079.879	.054%	97.642%
43.0	14.445	1.080	2080.959	.050%	97.693%
44.0	13.647	1.040	2081.999	.048%	97.742%
45.0	13.035	1.011	2083.01	.046%	97.789%
46.0	12.594	0.993	2084.003	.046%	97.836%
47.0	12.229	0.981	2084.984	.045%	97.882%
48.0	12.002	0.978	2085.962	.045%	97.928%
49.0	11.830	0.979	2086.941	.045%	97.974%
50.0	11.638	0.978	2087.919	.045%	98.019%
51.0	11.514	0.981	2088.9	.045%	98.066%
52.0	11.404	0.985	2089.885	.045%	98.112%
53.0	11.300	0.990	2090.875	.045%	98.158%
54.0	11.225	0.996	2091.871	.046%	98.205%
55.0	11.218	1.008	2092.878	.046%	98.252%
56.0	11.211	1.019	2093.898	.047%	98.300%
57.0	11.252	1.035	2094.933	.047%	98.349%
58.0	11.307	1.052	2095.984	.048%	98.398%
59.0	11.369	1.069	2097.053	.049%	98.448%
60.0	11.465	1.089	2098.142	.050%	98.499%
61.0	11.521	1.105	2099.247	.051%	98.551%
62.0	11.541	1.117	2100.364	.051%	98.604%
63.0	11.521	1.126	2101.49	.052%	98.657%
64.0	11.459	1.129	2102.619	.052%	98.710%
65.0	11.369	1.130	2103.749	.052%	98.763%
66.0	11.245	1.127	2104.876	.052%	98.816%
67.0	11.163	1.127	2106.002	.052%	98.868%
68.0	11.004	1.119	2107.121	.051%	98.921%
69.0	10.846	1.110	2108.232	.051%	98.973%
70.0	10.653	1.098	2109.329	.050%	99.025%
71.0	10.461	1.085	2110.414	.050%	99.076%
72.0	10.282	1.072	2111.486	.049%	99.126%
73.0	10.172	1.067	2112.553	.049%	99.176%
74.0	10.048	1.059	2113.612	.049%	99.226%
75.0	9.965	1.056	2114.668	.048%	99.275%

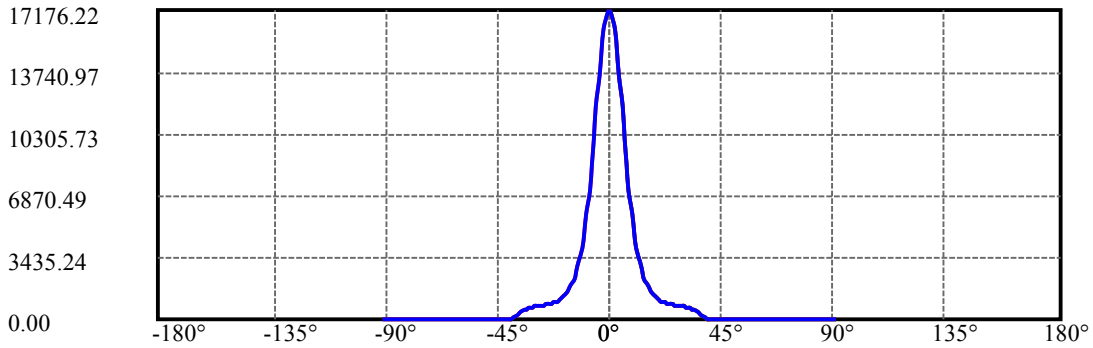
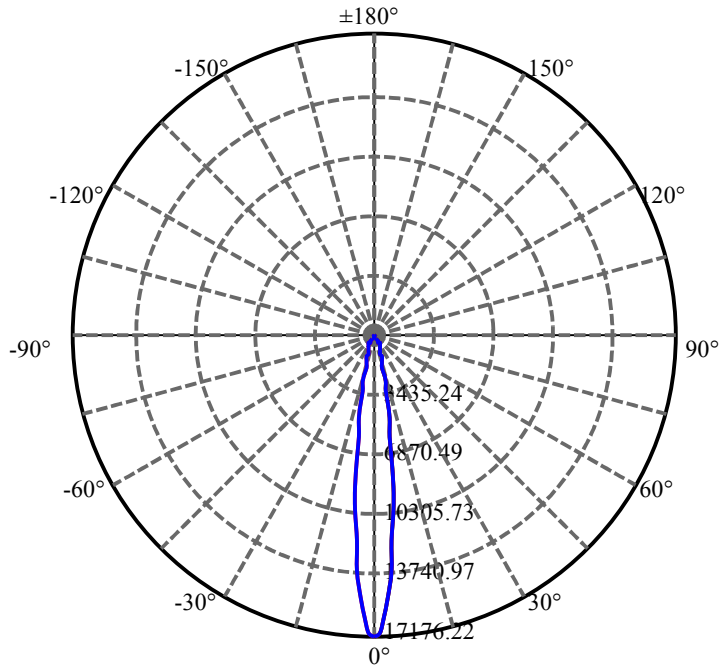
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.903	1.054	2115.722	.048%	99.325%
77.0	9.903	1.058	2116.78	.048%	99.374%
78.0	9.883	1.060	2117.84	.049%	99.424%
79.0	9.855	1.061	2118.901	.049%	99.474%
80.0	9.848	1.064	2119.964	.049%	99.524%
81.0	9.828	1.064	2121.029	.049%	99.574%
82.0	9.834	1.068	2122.097	.049%	99.624%
83.0	9.814	1.068	2123.165	.049%	99.674%
84.0	9.786	1.067	2124.232	.049%	99.724%
85.0	9.786	1.069	2125.301	.049%	99.774%
86.0	9.766	1.068	2126.369	.049%	99.825%
87.0	9.745	1.067	2127.437	.049%	99.875%
88.0	9.759	1.070	2128.506	.049%	99.925%
89.0	9.731	1.067	2129.573	.049%	99.975%
90.0	9.717	0.533	2130.106	.024%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1871.88	85.79%	87.88%
0-40	2077.31	95.20%	97.52%
0-60	2098.14	96.16%	98.50%
0-90	2129.57	97.60%	99.97%
0-120	2129.57	97.60%	99.97%
0-180	2130.11	97.62%	100.00%
60-90	32.52	1.49%	1.53%
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%
0-25.59	1704.09	78.10%	80.00%

ZONAL LUMEN SUMMARY

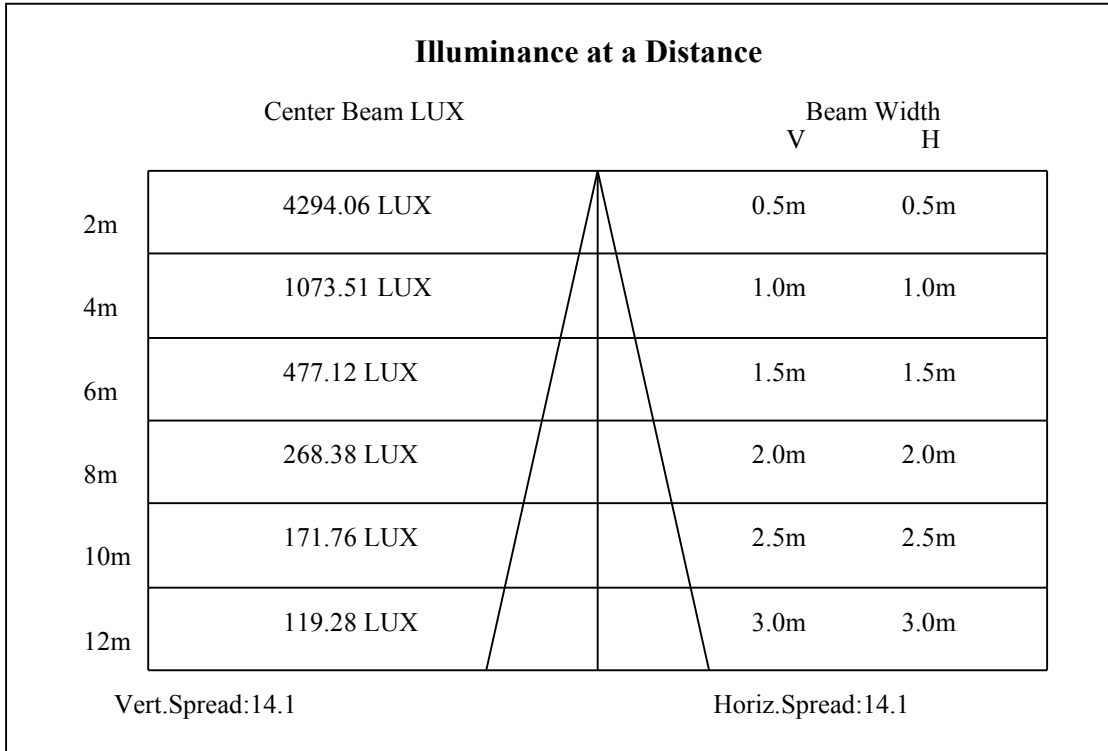
0-10	931.70
10-20	557.86
20-30	382.33
30-40	205.43
40-50	10.61
50-60	10.22
60-70	11.19
70-80	10.63
80-90	9.61
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

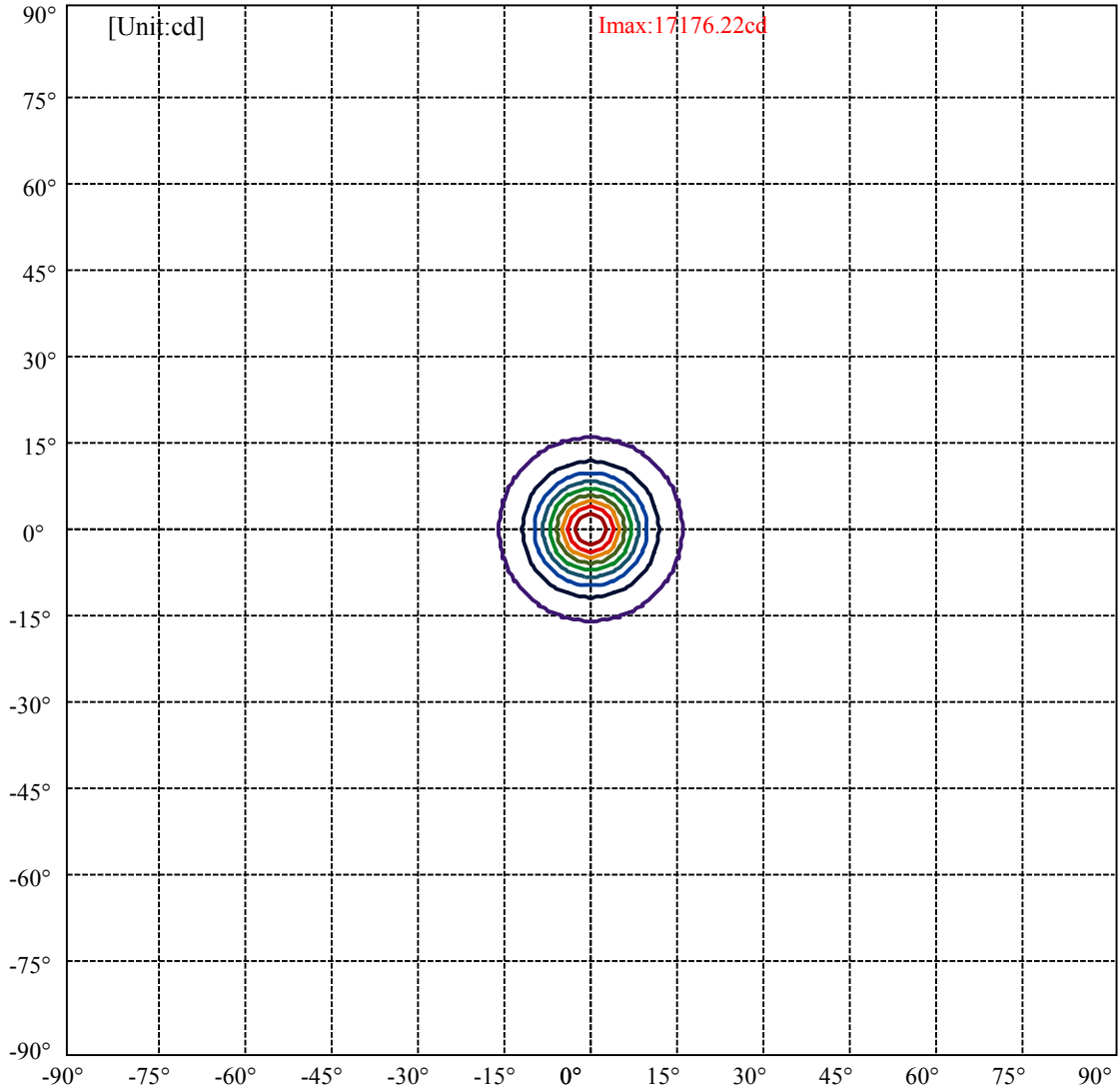


C0(Max): —————
C0/C180: —————
C90/C270: —————

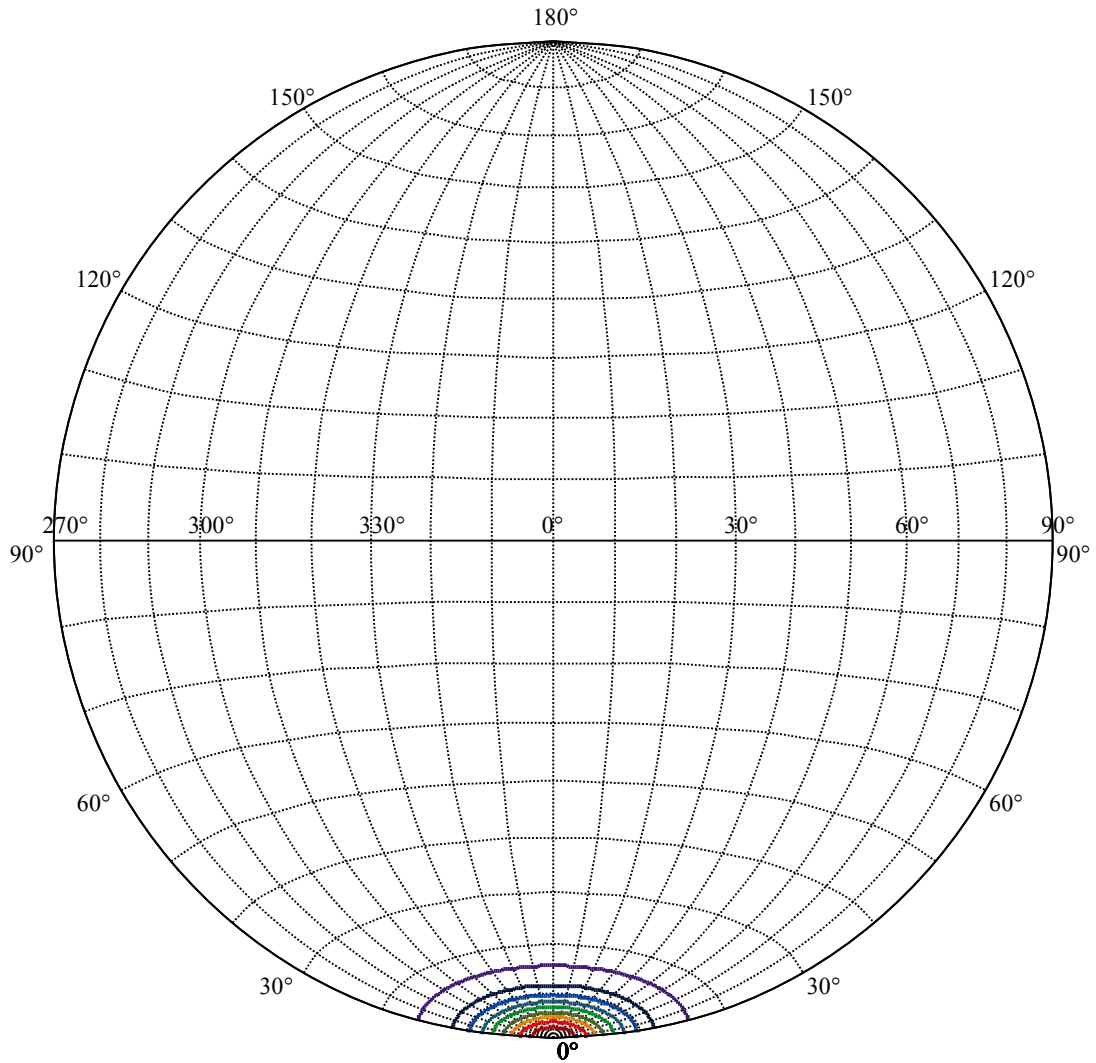
Field angle(10%Imax):C0/180Left:15.7 Right:15.7
:C90/270Left:15.7 Right:15.7

Beam Angle(50%Imax):C0/180Left:7.0 Right:7.0
:C90/270Left:7.0 Right:7.0





(10%Imax) 1717.62	—
(20%Imax) 3435.24	—
(30%Imax) 5152.87	—
(40%Imax) 6870.49	—
(50%Imax) 8588.11	—
(60%Imax) 10305.7	—
(70%Imax) 12023.4	—
(80%Imax) 13741	—
(90%Imax) 15458.6	—



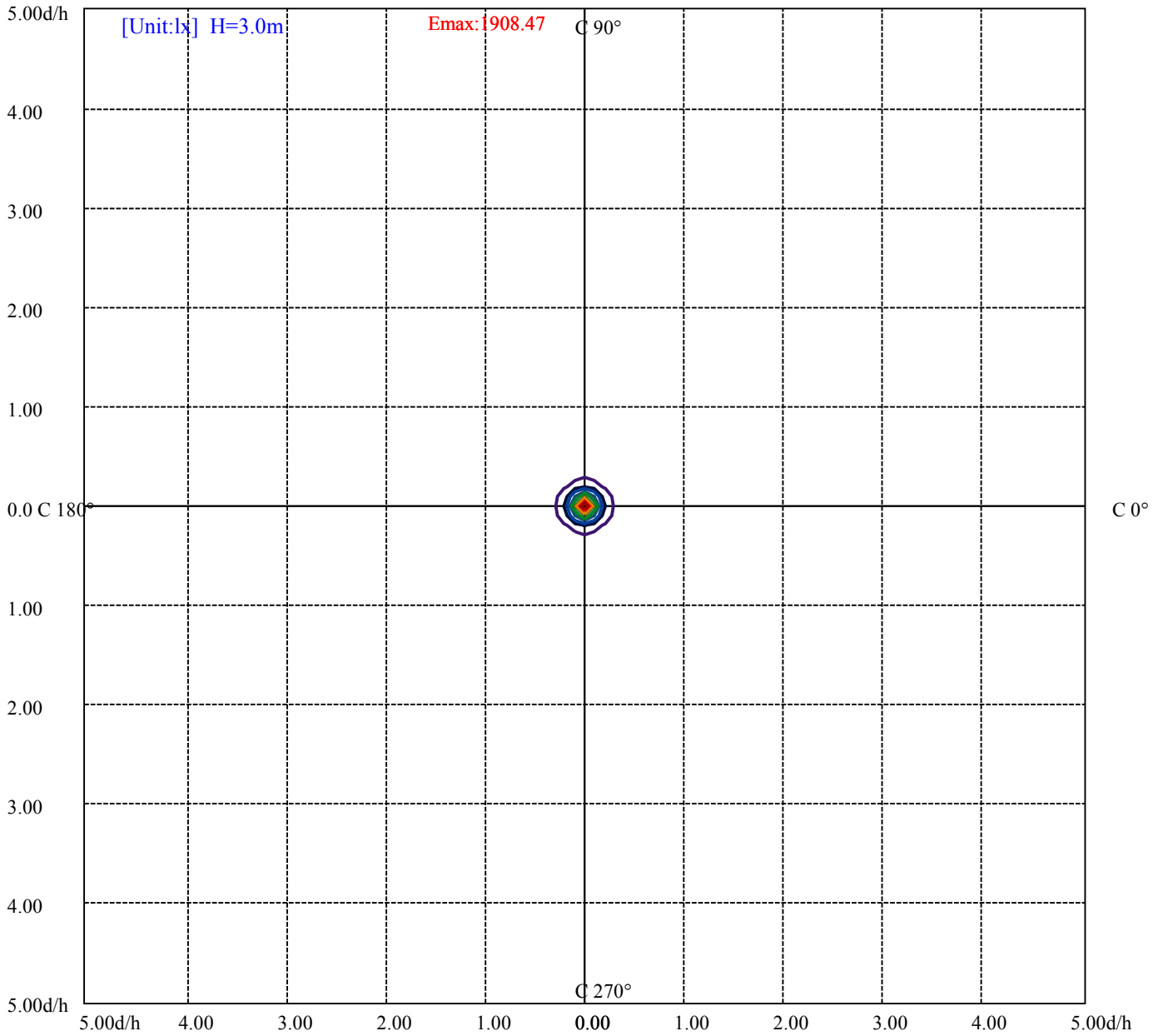
House

[Unit:cd]

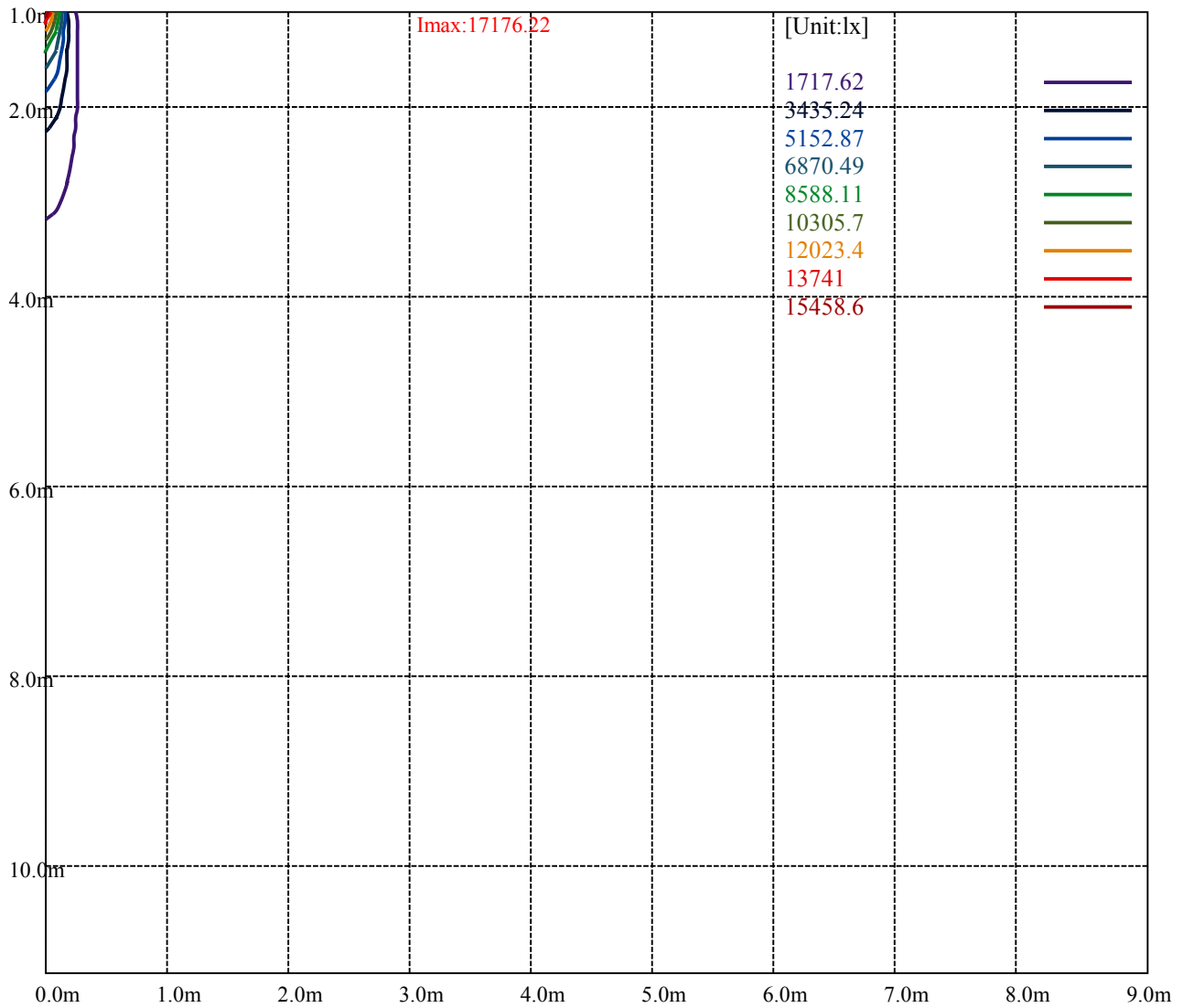
Road

Imax:17176.22

(10%Imax) 1717.62	—
(20%Imax) 3435.24	—
(30%Imax) 5152.87	—
(40%Imax) 6870.49	—
(50%Imax) 8588.11	—
(60%Imax) 10305.7	—
(70%Imax) 12023.4	—
(80%Imax) 13741	—
(90%Imax) 15458.6	—



(10%Emax) 190.8467	—
(20%Emax) 381.6933	—
(30%Emax) 572.5389	—
(40%Emax) 763.3856	—
(50%Emax) 954.2322	—
(60%Emax) 1145.078	—
(70%Emax) 1335.922	—
(80%Emax) 1526.767	—
(90%Emax) 1717.622	—



Luminance Table

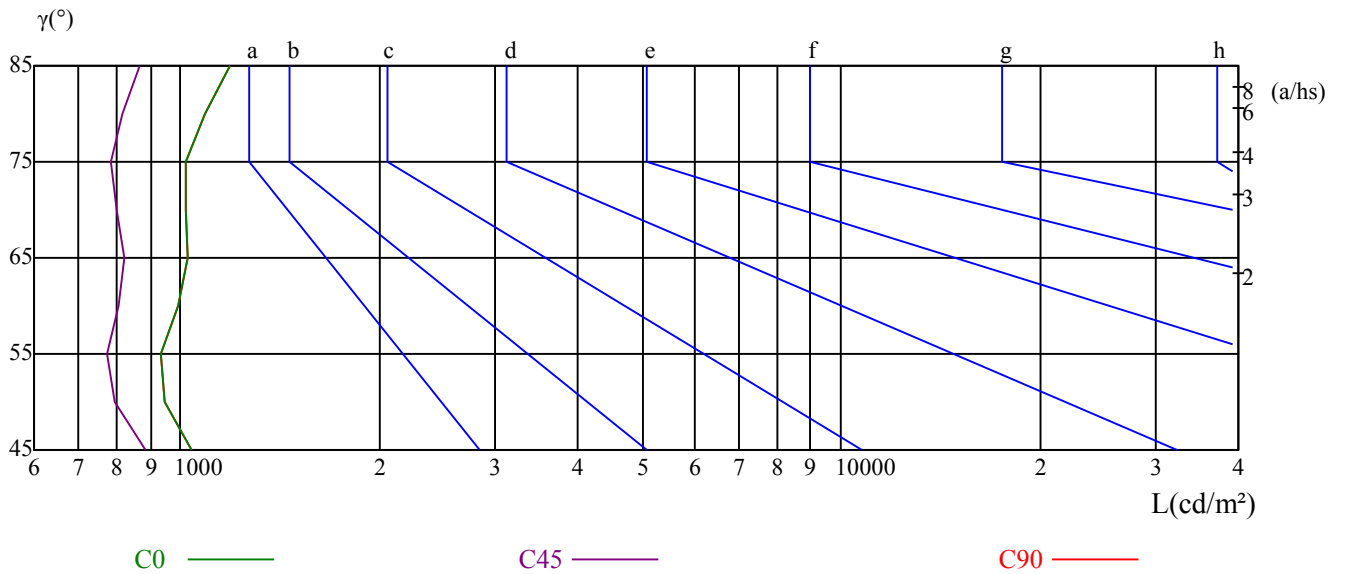
γ	45	50	55	60	65	70	75	80	85
C0	1039	945	936	992	1029	1019	1018	1090	1190
C45	887	795	775	808	823	800	783	818	870
C90	1039	945	936	992	1029	1019	1018	1090	1190

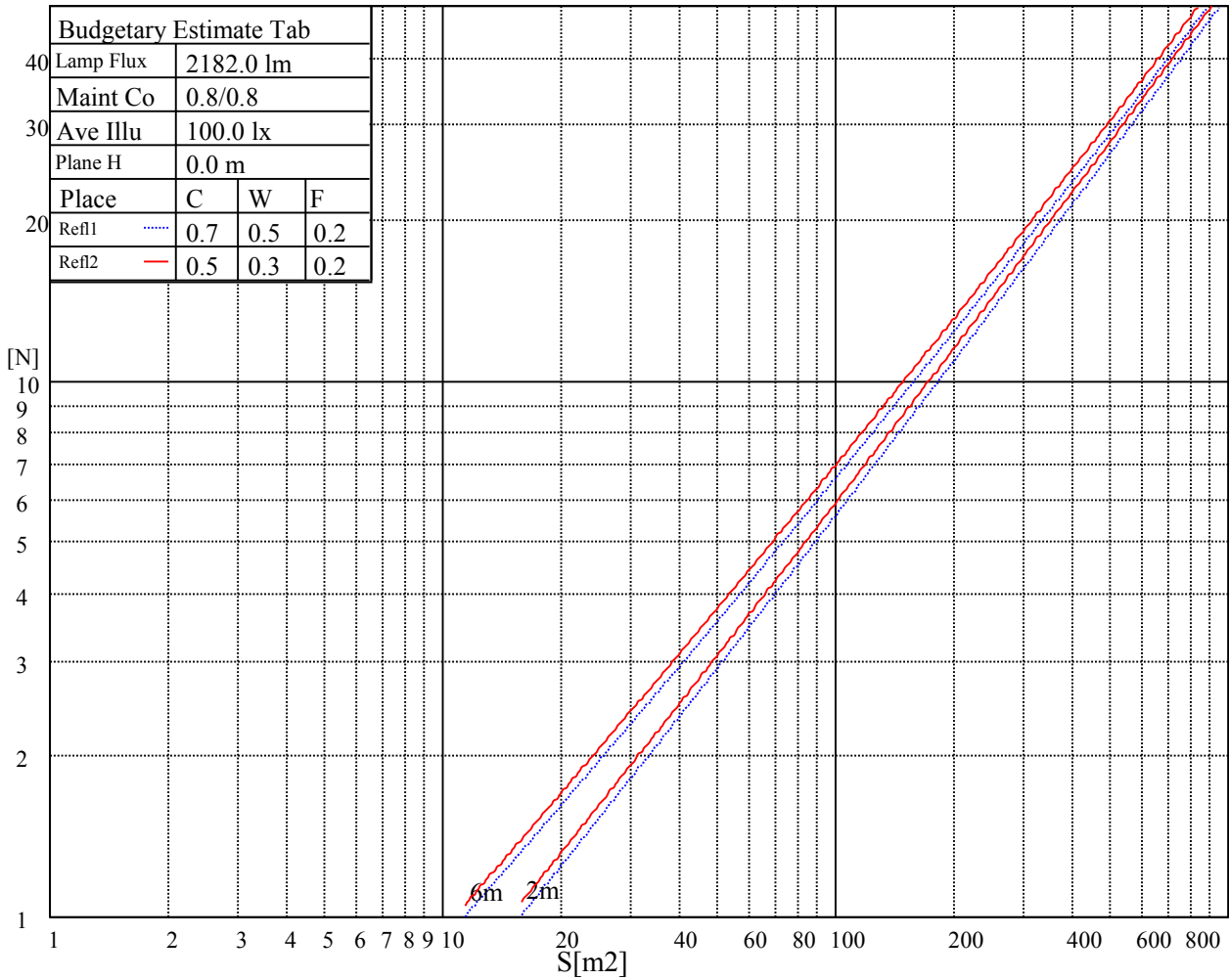
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2586	2586	2586	3701	3701	3701	10792	10792	10792

Glare Table

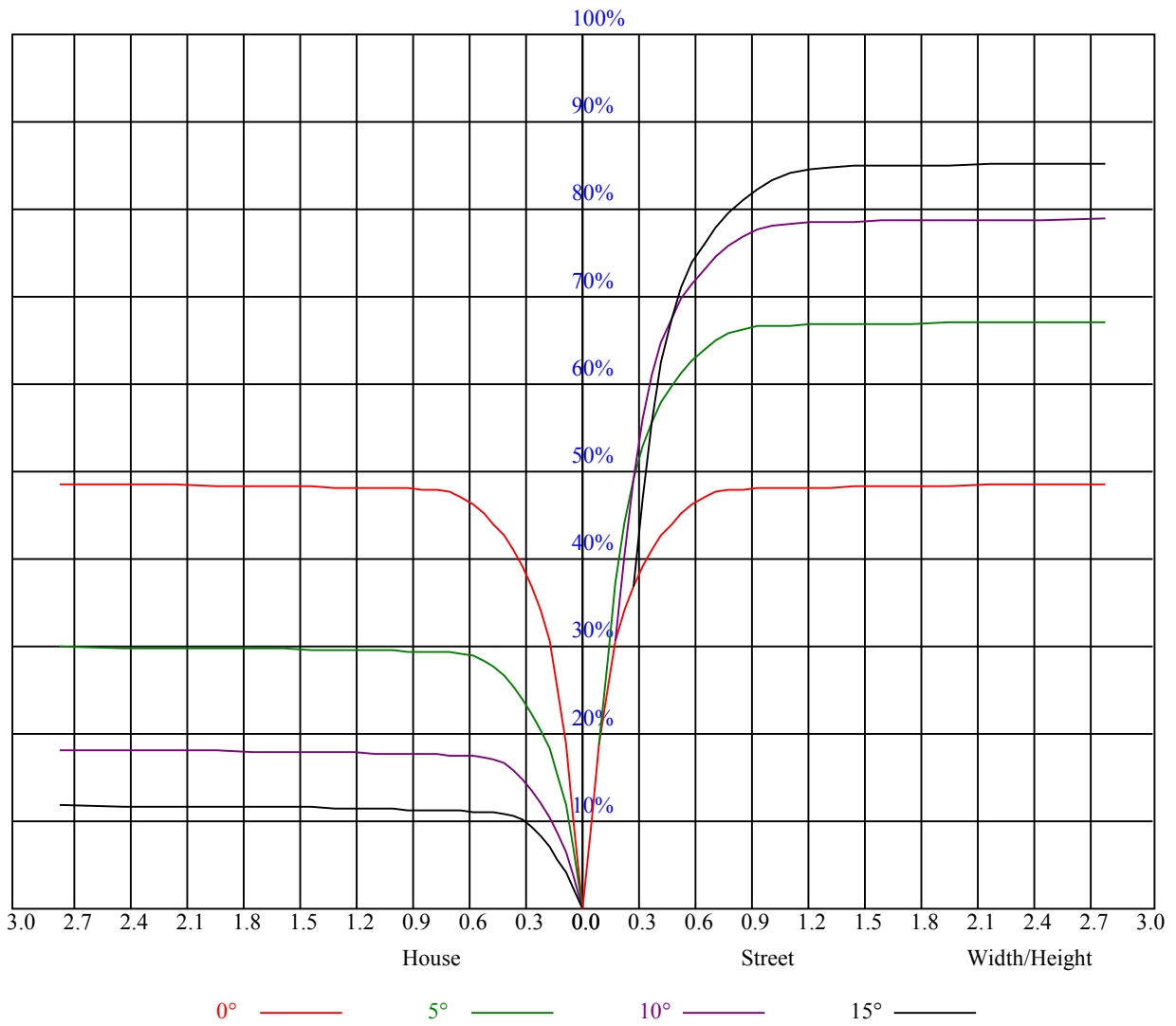
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

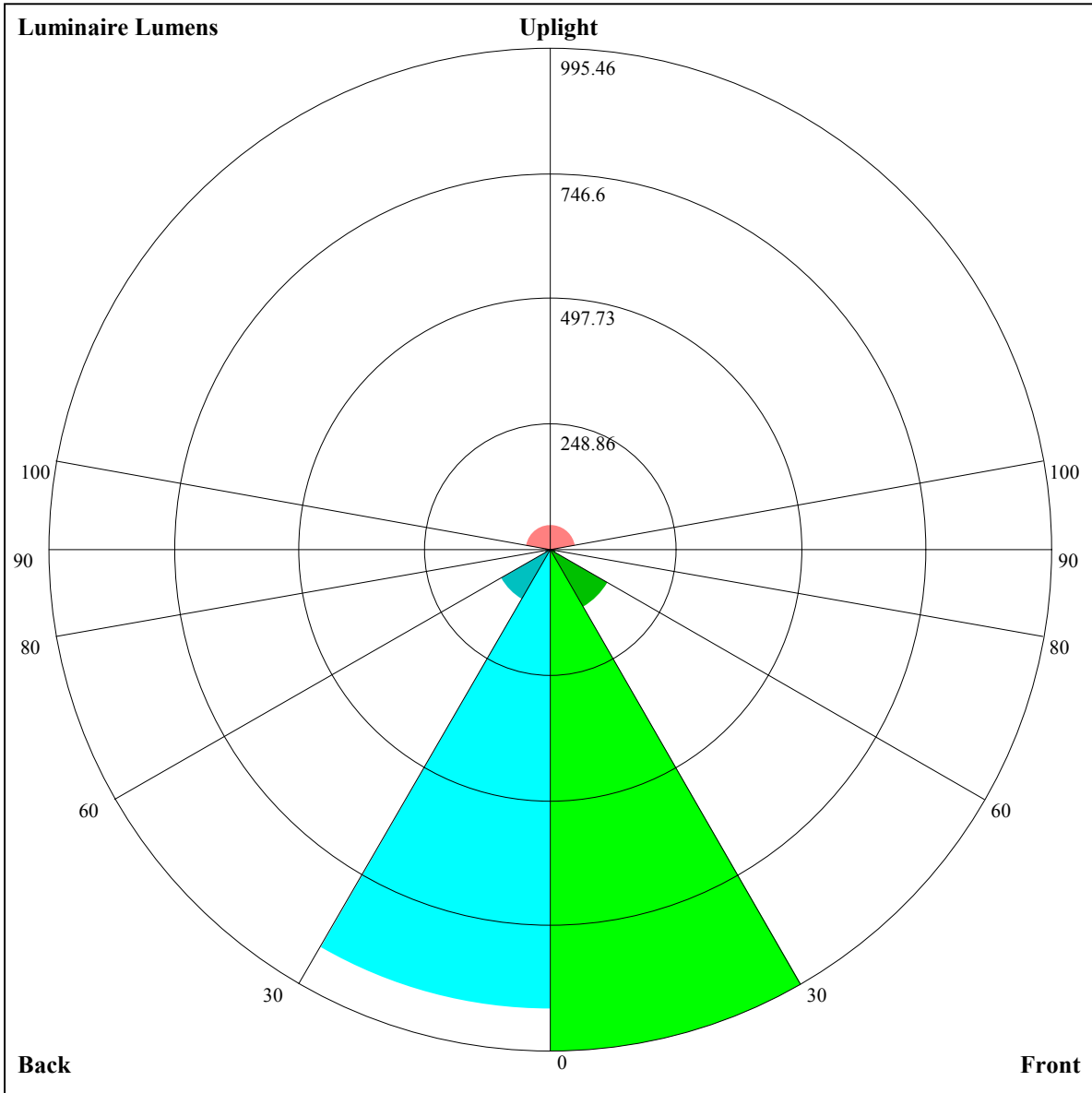
Luminance Limiting Curve





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	1.16	1.16	1.16	1.14	1.14	1.14	1.09	1.09	1.09	1.04	1.04	1.04	1.00	1.00	1.00	0.98
1	1.10	1.08	1.06	1.08	1.06	1.04	1.04	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.93
2	1.04	1.01	0.98	1.03	1.00	0.97	1.00	0.97	0.95	0.97	0.95	0.93	0.94	0.93	0.91	0.90
3	1.00	0.96	0.93	0.98	0.95	0.92	0.96	0.93	0.91	0.94	0.91	0.89	0.91	0.90	0.88	0.87
4	0.95	0.91	0.88	0.94	0.91	0.88	0.92	0.89	0.87	0.91	0.88	0.86	0.89	0.87	0.85	0.84
5	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.86	0.83	0.88	0.85	0.83	0.87	0.84	0.82	0.81
6	0.89	0.84	0.81	0.88	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.80	0.84	0.82	0.80	0.78
7	0.86	0.82	0.79	0.85	0.81	0.78	0.84	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.76
8	0.83	0.79	0.76	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.74
9	0.81	0.77	0.74	0.80	0.76	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
10	0.79	0.75	0.72	0.78	0.74	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.70





Luminaire Lumens:

FL=995.46,FM=132.23,FH=11.03,FVH=5.34

BL=914.5,BM=115,BH=10.81,BVH=5.34

UL=10.6,UH=50.45

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	17106.02	17496.92	17227.15	16406.81	15129.50	13103.42	11341.62	9623.86	7840.03
45.0	17364.79	16874.79	15691.07	14397.25	12938.25	11033.30	9519.25	8087.79	6672.84
90.0	16891.30	15856.24	14171.52	12662.97	10928.14	9617.80	7852.69	6593.00	5502.89
135.0	17342.77	16406.81	14672.53	13037.36	11336.11	9254.98	7680.37	6265.42	4944.06
180.0	17106.02	16225.12	14744.10	12949.27	10805.92	9131.10	7748.64	6156.96	4708.97
225.0	17364.79	17403.33	16896.81	15894.78	14667.02	12839.15	10916.58	9797.84	8221.57
270.0	16891.30	17502.43	17810.75	17480.41	16852.76	15454.33	13874.21	12552.86	10680.94
315.0	17342.77	17788.72	17645.58	16852.76	15680.06	13934.77	10874.19	10229.48	8400.51
360.0	17106.02	17496.92	17227.15	16406.81	15129.50	13103.42	11341.62	9623.86	7840.03
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6281.94	5103.73	4013.61	3248.33	2785.85	2097.10	1772.82	1506.34	1316.40
45.0	5467.10	4542.15	3688.78	3083.16	2824.39	2131.78	1847.69	1602.14	1406.14
90.0	4462.32	3622.71	3031.41	2512.77	2110.86	1834.48	1594.98	1429.81	1280.61
135.0	3875.97	3116.19	2807.88	2061.86	1718.86	1475.51	1320.25	1191.42	1092.32
180.0	3885.33	3052.33	2381.74	2037.64	1733.73	1439.72	1304.84	1098.54	1087.97
225.0	6952.52	5696.69	4640.15	3871.02	3242.27	2629.49	2251.26	1948.45	1705.65
270.0	9084.31	7928.12	6458.12	5461.59	4602.72	3721.81	3154.73	2796.87	2243.55
315.0	6938.76	5516.65	4348.35	3525.26	2879.45	2278.78	1928.63	1661.60	1438.62
360.0	6281.94	5103.73	4013.61	3248.33	2785.85	2097.10	1772.82	1506.34	1316.40
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1193.62	1101.68	1014.14	958.53	912.28	865.49	834.66	808.23	786.21
45.0	1274.01	1166.09	1060.94	993.22	940.36	882.55	845.12	814.28	784.00
90.0	1094.08	1074.65	1005.33	935.52	890.65	852.38	813.02	785.71	760.27
135.0	1021.85	965.69	905.13	866.59	835.21	798.32	773.54	753.17	732.80
180.0	997.02	940.03	893.18	845.23	813.51	787.47	762.48	741.28	725.04
225.0	1473.86	1327.41	1209.04	1085.82	1007.75	943.12	884.21	838.78	806.36
270.0	1957.26	1726.57	1498.08	1349.98	1226.66	1114.34	1021.85	955.78	895.77
315.0	1278.96	1090.39	1080.65	996.08	941.13	895.88	853.92	819.79	794.46
360.0	1193.62	1101.68	1014.14	958.53	912.28	865.49	834.66	808.23	786.21
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	761.98	745.46	731.70	714.63	700.87	688.76	676.09	641.41	552.77
45.0	758.13	737.21	716.83	700.32	683.25	647.46	559.37	426.69	287.39
90.0	735.06	714.63	697.12	678.35	623.57	509.88	357.54	251.39	127.79
135.0	714.08	697.56	682.70	668.94	645.81	563.23	464.13	319.88	291.80
180.0	709.02	689.97	676.92	662.33	649.11	587.40	473.26	358.09	244.07
225.0	775.69	749.98	731.04	708.14	692.00	674.39	652.86	582.00	476.02
270.0	852.27	812.63	781.25	757.03	731.70	709.68	692.06	676.09	608.92
315.0	770.35	751.46	732.64	716.01	700.15	685.45	671.41	651.76	580.13
360.0	761.98	745.46	731.70	714.63	700.87	688.76	676.09	641.41	552.77
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	422.83	300.61	209.82	54.34	24.22	20.65	16.41	14.81	14.04
45.0	207.73	69.87	29.12	24.61	20.98	18.61	15.91	14.09	12.88
90.0	40.80	28.57	25.44	21.20	19.77	17.45	14.31	12.39	12.06
135.0	93.38	34.25	25.11	21.31	17.84	16.13	13.49	12.72	12.22
180.0	112.54	41.35	22.46	19.16	16.63	15.03	14.09	13.16	12.61
225.0	327.48	211.80	109.01	31.22	23.01	20.04	16.85	15.47	14.48
270.0	508.17	390.35	284.09	120.24	44.76	25.00	21.09	17.89	16.41
315.0	445.68	325.05	202.55	76.91	26.70	20.48	17.18	15.03	14.48
360.0	422.83	300.61	209.82	54.34	24.22	20.65	16.41	14.81	14.04

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	13.32	12.77	12.33	12.11	11.89	11.67	11.56	11.45	11.29
45.0	12.17	11.95	11.73	11.56	11.34	11.23	11.12	11.07	11.01
90.0	11.78	11.56	11.40	11.23	11.12	10.96	10.85	10.74	10.63
135.0	12.00	11.84	11.67	11.51	11.45	11.29	11.18	11.07	10.96
180.0	12.17	11.89	11.73	11.56	11.40	11.23	11.12	11.01	10.96
225.0	13.60	12.88	12.33	12.06	11.84	11.56	11.45	11.29	11.12
270.0	15.31	14.31	13.49	12.94	12.61	12.28	12.06	11.89	11.73
315.0	13.93	13.54	13.16	13.05	12.99	12.88	12.77	12.72	12.72
360.0	13.32	12.77	12.33	12.11	11.89	11.67	11.56	11.45	11.29
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.23	11.18	11.18	11.29	11.34	11.40	11.56	11.73	11.78
45.0	11.01	11.01	11.07	11.12	11.18	11.29	11.40	11.51	11.45
90.0	10.52	10.52	10.41	10.41	10.41	10.41	10.46	10.46	10.52
135.0	10.90	10.85	10.74	10.74	10.68	10.68	10.68	10.74	10.74
180.0	10.90	10.96	10.90	10.96	11.07	11.12	11.18	11.23	11.23
225.0	11.01	11.01	11.01	10.96	11.07	11.18	11.34	11.51	11.56
270.0	11.62	11.56	11.67	11.78	11.95	12.06	12.28	12.33	12.39
315.0	12.61	12.66	12.72	12.77	12.77	12.83	12.83	12.66	12.66
360.0	11.23	11.18	11.18	11.29	11.34	11.40	11.56	11.73	11.78
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.78	11.67	11.67	11.56	11.40	11.23	11.07	10.90	10.79
45.0	11.45	11.34	11.18	10.96	10.79	10.63	10.52	10.35	10.13
90.0	10.63	10.63	10.57	10.57	10.57	10.46	10.35	10.13	9.97
135.0	10.74	10.74	10.74	10.57	10.57	10.46	10.41	10.24	10.08
180.0	11.18	11.12	11.01	10.96	10.85	10.74	10.57	10.35	10.19
225.0	11.62	11.62	11.56	11.51	11.40	11.18	10.96	10.79	10.57
270.0	12.33	12.28	12.11	11.95	11.89	11.67	11.51	11.23	10.96
315.0	12.44	12.28	12.11	11.89	11.84	11.67	11.40	11.23	11.01
360.0	11.78	11.67	11.67	11.56	11.40	11.23	11.07	10.90	10.79
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.52	10.35	10.13	10.02	9.91	9.97	9.91	9.86	9.86
45.0	9.97	9.91	9.86	9.86	9.80	9.80	9.80	9.74	9.74
90.0	9.91	9.91	9.86	9.86	9.86	9.86	9.86	9.80	9.86
135.0	10.02	10.02	9.97	9.97	9.91	9.91	9.91	9.91	9.91
180.0	10.02	10.02	10.02	9.97	9.91	9.91	9.86	9.86	9.86
225.0	10.30	10.08	9.97	9.91	9.86	9.80	9.80	9.80	9.74
270.0	10.79	10.57	10.30	10.08	9.97	9.97	9.97	9.91	9.86
315.0	10.74	10.52	10.30	10.08	10.02	10.02	9.97	9.97	9.97
360.0	10.52	10.35	10.13	10.02	9.91	9.97	9.91	9.86	9.86
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.86	9.86	9.86	9.80	9.80	9.80	9.80	9.80	9.74
45.0	9.74	9.74	9.69	9.69	9.69	9.69	9.63	9.63	9.63
90.0	9.80	9.80	9.80	9.74	9.80	9.74	9.69	9.74	9.69
135.0	9.86	9.86	9.86	9.86	9.80	9.74	9.74	9.74	9.74
180.0	9.86	9.86	9.80	9.80	9.80	9.74	9.74	9.80	9.74
225.0	9.74	9.80	9.74	9.69	9.74	9.69	9.69	9.69	9.69
270.0	9.86	9.86	9.86	9.86	9.80	9.86	9.80	9.80	9.80
315.0	9.91	9.91	9.91	9.86	9.86	9.86	9.86	9.86	9.80
360.0	9.86	9.86	9.86	9.80	9.80	9.80	9.80	9.80	9.74

Intensity data(cd)

C/ γ (°)	90.0
0.0	9.74
45.0	9.58
90.0	9.69
135.0	9.74
180.0	9.74
225.0	9.69
270.0	9.74
315.0	9.80
360.0	9.74