



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

---

## Nata

---

Client:

LumCAT: 1709-M

Luminaire: 92.70.124.00

Report No:

Voltage(V): 33.1900

Test No: GC2019082902

Current(A): 0.2970

LampCAT: XICATO XOB LES 9.8MM

Power (W): 9.8600

Lamp flux(lm): 902.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 46

Width(mm): 46

Phm Type: C

Height(mm): 0

---

## Photometric Results

---

Lumens(lm): 824.22, Efficiency(%): 91.38% , Luminous Efficacy(lm/W): 83.59

Central intensity(cd): 3215.813, Maximum intensity(cd): 3215.813

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

Beam Angle(50%Imax): [C0/180]Total=17.4

[C90/270]Total=17.4

Field angle(10%Imax): [C0/180]Total=56.0

[C90/270]Total=56.0

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

Maximum s/h(1/4): C0\_180=0.32 C90\_270=0.32

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.38%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.719%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3215.813	0.000	0	.000%	.000%
1.0	3178.266	3.059	3.059	.339%	.371%
2.0	3086.438	8.992	12.051	.997%	1.462%
3.0	2933.508	14.398	26.449	1.596%	3.209%
4.0	2744.930	19.008	45.456	2.107%	5.515%
5.0	2518.031	22.641	68.097	2.510%	8.262%
6.0	2284.383	25.238	93.335	2.798%	11.324%
7.0	1998.703	26.585	119.92	2.947%	14.550%
8.0	1790.276	27.117	147.037	3.006%	17.840%
9.0	1539.907	26.989	174.027	2.992%	21.114%
10.0	1321.460	25.894	199.921	2.871%	24.256%
11.0	1147.247	24.667	224.588	2.735%	27.249%
12.0	986.745	23.328	247.916	2.586%	30.079%
13.0	842.569	21.709	269.625	2.407%	32.713%
14.0	744.884	20.319	289.945	2.253%	35.178%
15.0	658.884	19.272	309.216	2.137%	37.516%
16.0	592.327	18.334	327.55	2.033%	39.741%
17.0	541.962	17.664	345.214	1.958%	41.884%
18.0	499.240	17.167	362.381	1.903%	43.967%
19.0	469.378	16.852	379.233	1.868%	46.011%
20.0	443.039	16.700	395.933	1.851%	48.037%
21.0	420.209	16.576	412.509	1.838%	50.048%
22.0	401.562	16.514	429.023	1.831%	52.052%
23.0	384.427	16.492	445.515	1.828%	54.053%
24.0	369.752	16.489	462.004	1.828%	56.053%
25.0	356.323	16.509	478.513	1.830%	58.056%
26.0	343.477	16.519	495.032	1.831%	60.061%
27.0	331.404	16.511	511.543	1.830%	62.064%
28.0	321.272	16.524	528.068	1.832%	64.069%
29.0	311.217	16.548	544.615	1.835%	66.076%
30.0	302.991	16.583	561.199	1.839%	68.088%
31.0	295.038	16.642	577.841	1.845%	70.108%
32.0	287.845	16.699	594.54	1.851%	72.134%
33.0	281.482	16.773	611.313	1.859%	74.169%
34.0	275.238	16.848	628.161	1.868%	76.213%
35.0	270.527	16.949	645.11	1.879%	78.269%
36.0	261.809	16.950	662.06	1.879%	80.326%
37.0	253.266	16.799	678.859	1.862%	82.364%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	241.397	16.511	695.37	1.831%	84.367%
39.0	227.130	15.992	711.362	1.773%	86.307%
40.0	211.226	15.288	726.65	1.695%	88.162%
41.0	192.832	14.388	741.038	1.595%	89.908%
42.0	171.745	13.246	754.284	1.468%	91.515%
43.0	148.451	11.861	766.145	1.315%	92.954%
44.0	124.559	10.304	776.449	1.142%	94.204%
45.0	100.484	8.649	785.098	.959%	95.253%
46.0	79.446	7.037	792.135	.780%	96.107%
47.0	60.349	5.560	797.695	.616%	96.782%
48.0	45.534	4.280	801.975	.475%	97.301%
49.0	31.922	3.181	805.156	.353%	97.687%
50.0	21.621	2.232	807.388	.247%	97.958%
51.0	14.091	1.511	808.899	.168%	98.141%
52.0	9.422	1.009	809.908	.112%	98.263%
53.0	7.144	0.721	810.629	.080%	98.351%
54.0	6.096	0.584	811.212	.065%	98.422%
55.0	5.316	0.509	811.722	.056%	98.484%
56.0	4.598	0.448	812.17	.050%	98.538%
57.0	4.106	0.398	812.568	.044%	98.586%
58.0	3.923	0.371	812.939	.041%	98.631%
59.0	3.832	0.363	813.301	.040%	98.675%
60.0	3.741	0.358	813.659	.040%	98.719%
61.0	3.670	0.354	814.013	.039%	98.762%
62.0	3.621	0.351	814.364	.039%	98.804%
63.0	3.586	0.351	814.715	.039%	98.847%
64.0	3.544	0.350	815.065	.039%	98.889%
65.0	3.516	0.349	815.414	.039%	98.932%
66.0	3.495	0.350	815.764	.039%	98.974%
67.0	3.452	0.349	816.113	.039%	99.016%
68.0	3.431	0.349	816.462	.039%	99.059%
69.0	3.410	0.349	816.811	.039%	99.101%
70.0	3.382	0.349	817.16	.039%	99.143%
71.0	3.361	0.349	817.508	.039%	99.186%
72.0	3.354	0.349	817.857	.039%	99.228%
73.0	3.340	0.350	818.207	.039%	99.270%
74.0	3.326	0.350	818.558	.039%	99.313%
75.0	3.319	0.351	818.909	.039%	99.356%

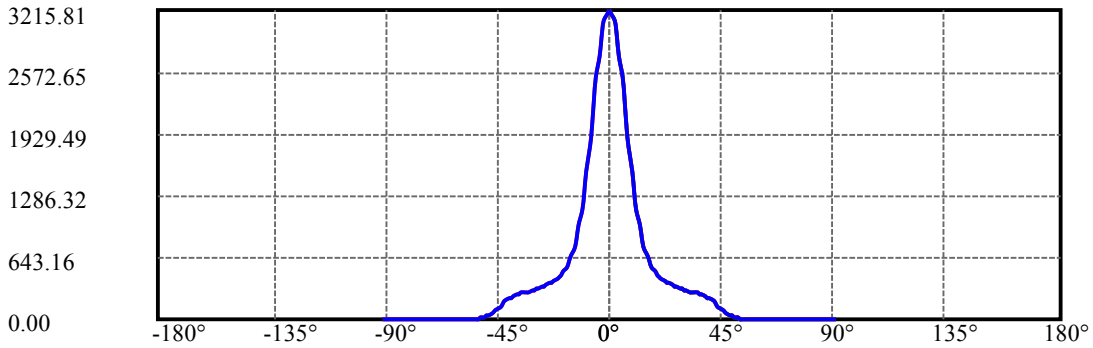
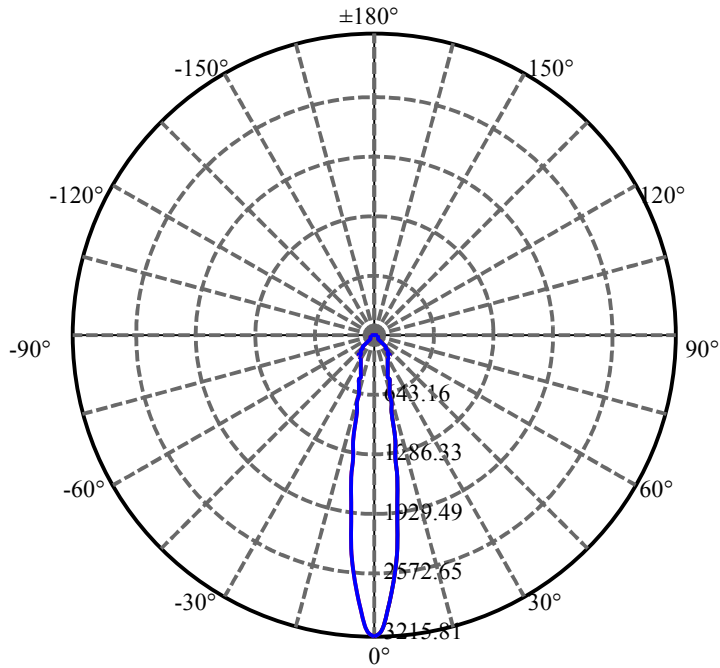
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.312	0.352	819.261	.039%	99.398%
77.0	3.298	0.352	819.613	.039%	99.441%
78.0	3.298	0.353	819.966	.039%	99.484%
79.0	3.291	0.354	820.32	.039%	99.527%
80.0	3.277	0.354	820.674	.039%	99.570%
81.0	3.270	0.354	821.028	.039%	99.613%
82.0	3.270	0.355	821.383	.039%	99.656%
83.0	3.277	0.356	821.739	.039%	99.699%
84.0	3.263	0.356	822.095	.039%	99.742%
85.0	3.241	0.355	822.45	.039%	99.785%
86.0	3.263	0.356	822.805	.039%	99.828%
87.0	3.248	0.356	823.162	.040%	99.872%
88.0	3.220	0.354	823.516	.039%	99.915%
89.0	3.213	0.353	823.869	.039%	99.957%
90.0	3.206	0.352	824.221	.039%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	561.20	62.22%	68.09%
0-40	726.65	80.56%	88.16%
0-60	813.66	90.21%	98.72%
0-90	823.87	91.34%	99.96%
0-120	823.87	91.34%	99.96%
0-180	824.22	91.38%	100.00%
60-90	10.57	1.17%	1.28%
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%
0-35.84	659.38	73.10%	80.00%

ZONAL LUMEN SUMMARY

0-10	199.92
10-20	196.01
20-30	165.27
30-40	165.45
40-50	80.74
50-60	6.27
60-70	3.50
70-80	3.51
80-90	3.19
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



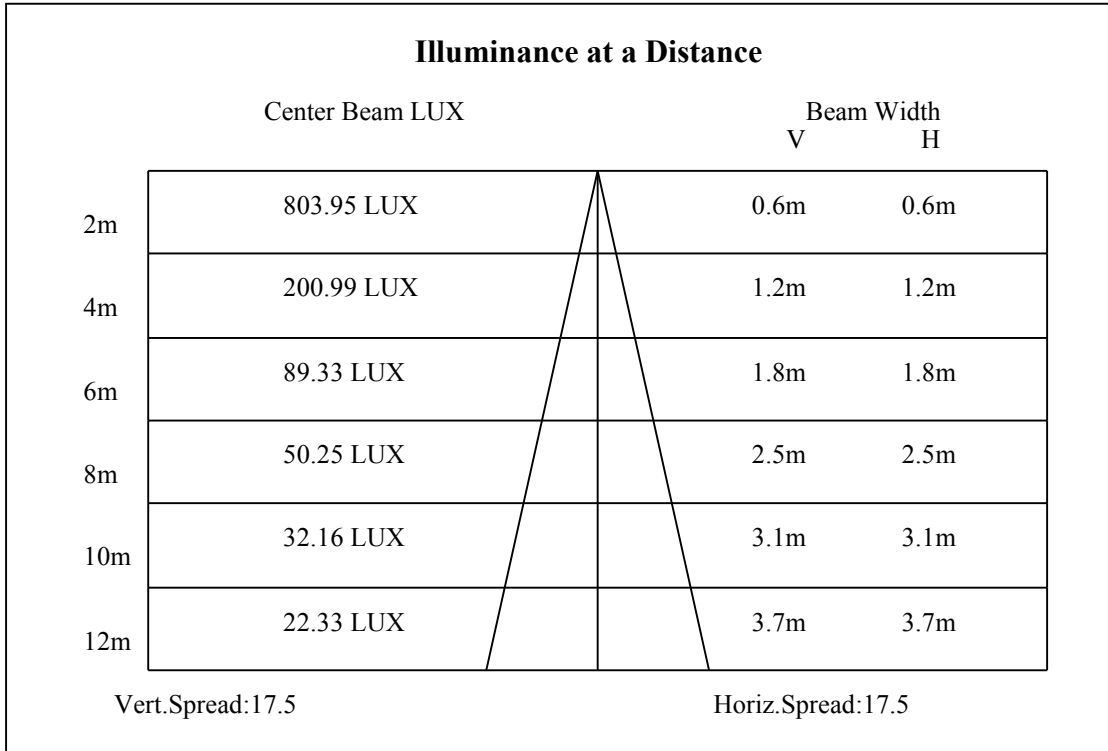
C0(Max): —————

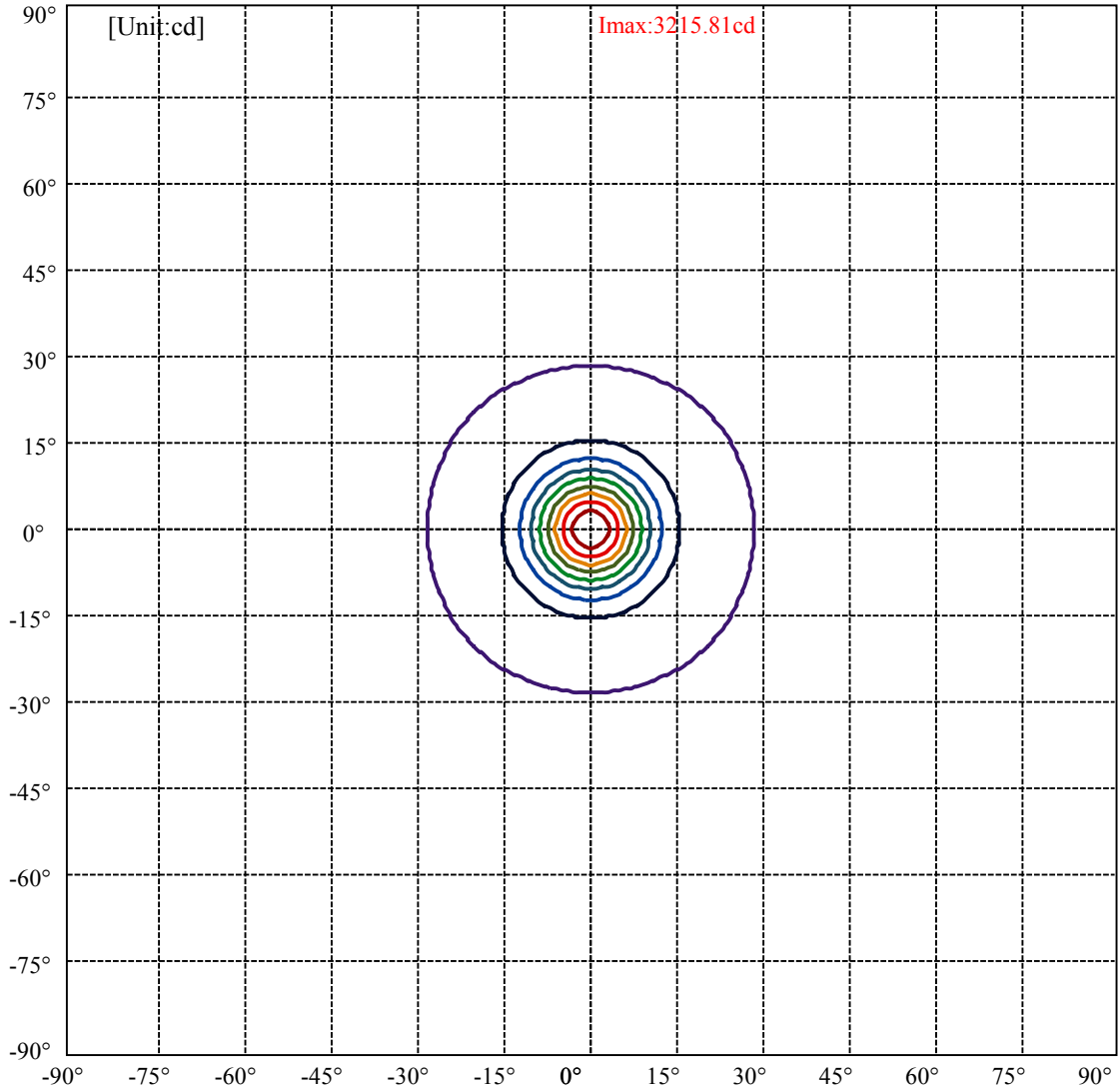
C0/C180: —————

C90/C270: —————

Field angle(10%Imax):C0/180Left:28.0 Right:28.0  
:C90/270Left:28.0 Right:28.0

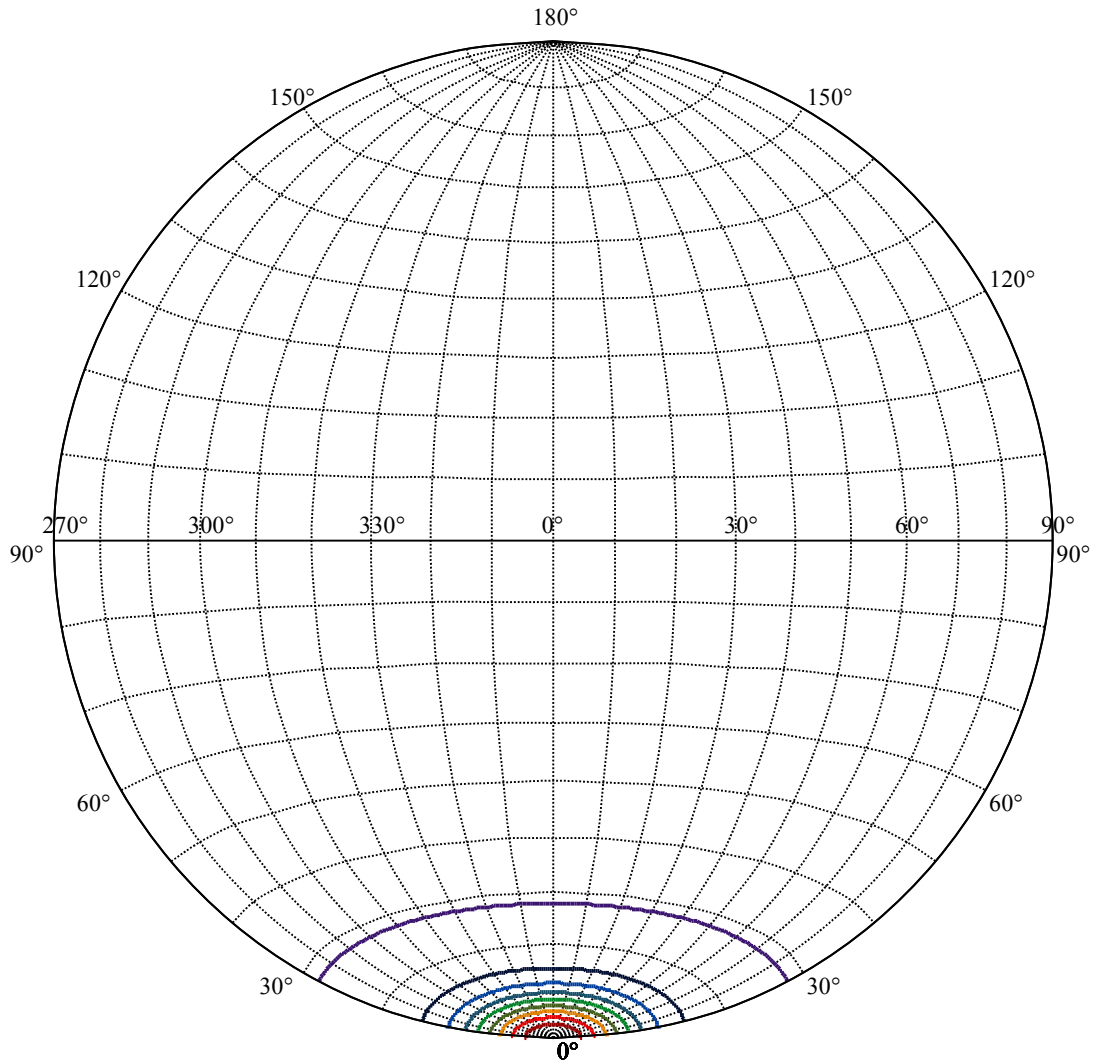
Beam Angle(50%Imax):C0/180Left:8.7 Right:8.7  
:C90/270Left:8.7 Right:8.7





(10%Imax) 321.581	—
(20%Imax) 643.162	—
(30%Imax) 964.744	—
(40%Imax) 1286.32	—
(50%Imax) 1607.91	—
(60%Imax) 1929.49	—
(70%Imax) 2251.07	—
(80%Imax) 2572.65	—
(90%Imax) 2894.23	—





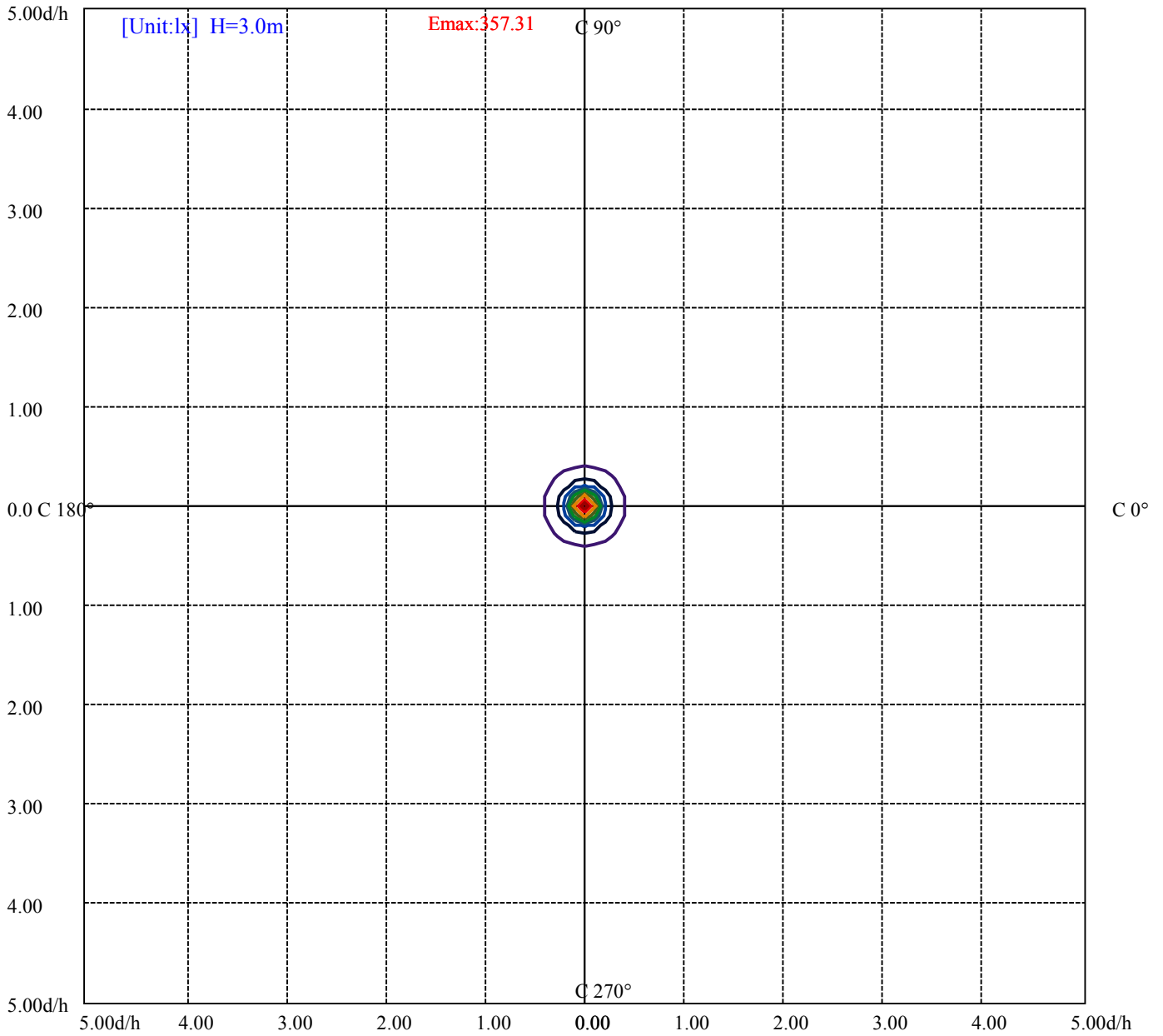
House

[Unit:cd]

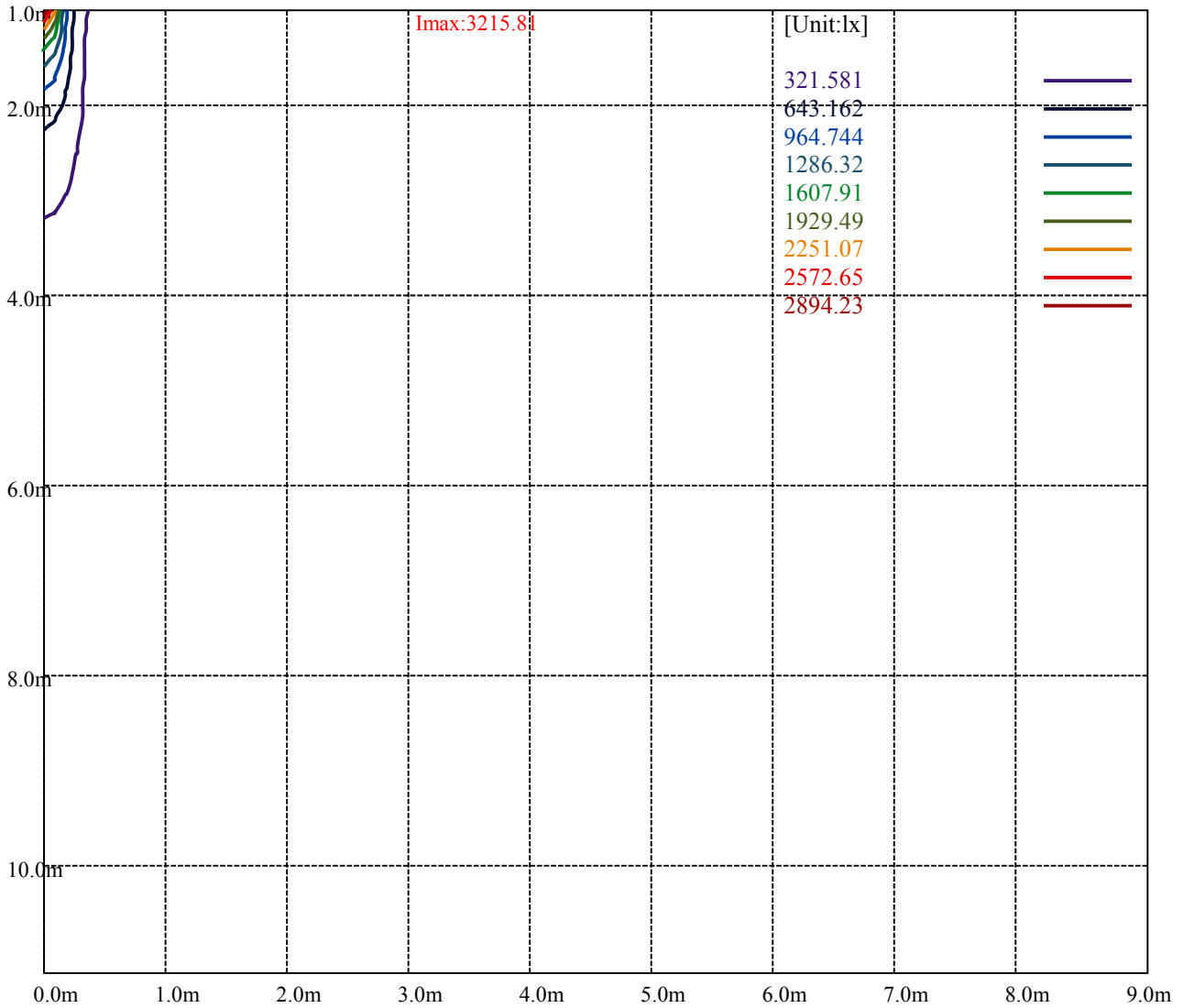
Road

**Imax:3215.81**

(10%Imax) 321.581	—
(20%Imax) 643.162	—
(30%Imax) 964.744	—
(40%Imax) 1286.32	—
(50%Imax) 1607.91	—
(60%Imax) 1929.49	—
(70%Imax) 2251.07	—
(80%Imax) 2572.65	—
(90%Imax) 2894.23	—



(10%Emax) 35.73122	—
(20%Emax) 71.46233	—
(30%Emax) 107.1936	—
(40%Emax) 142.9244	—
(50%Emax) 178.6556	—
(60%Emax) 214.3867	—
(70%Emax) 250.1178	—
(80%Emax) 285.85	—
(90%Emax) 321.5811	—



Luminance Table

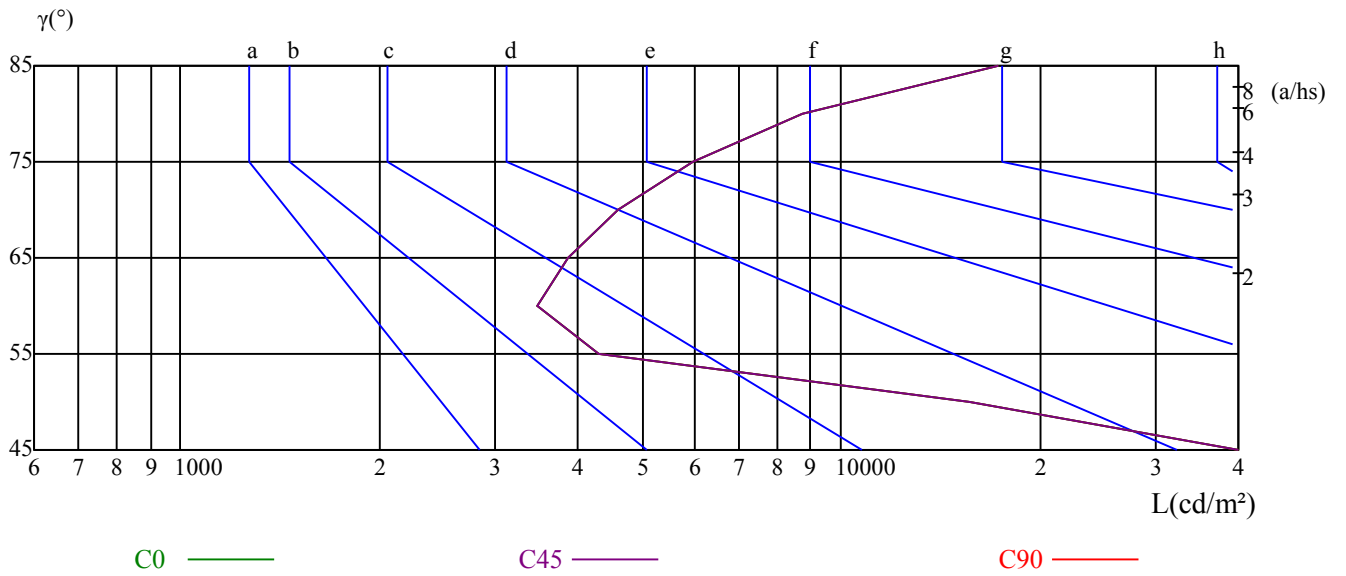
$\gamma$	45	50	55	60	65	70	75	80	85
C0	66005	15623	4305	3475	3864	4593	5956	8764	17274
C45	66005	15623	4305	3475	3864	4593	5956	8764	17274
C90	66005	15623	4305	3475	3864	4593	5956	8764	17274

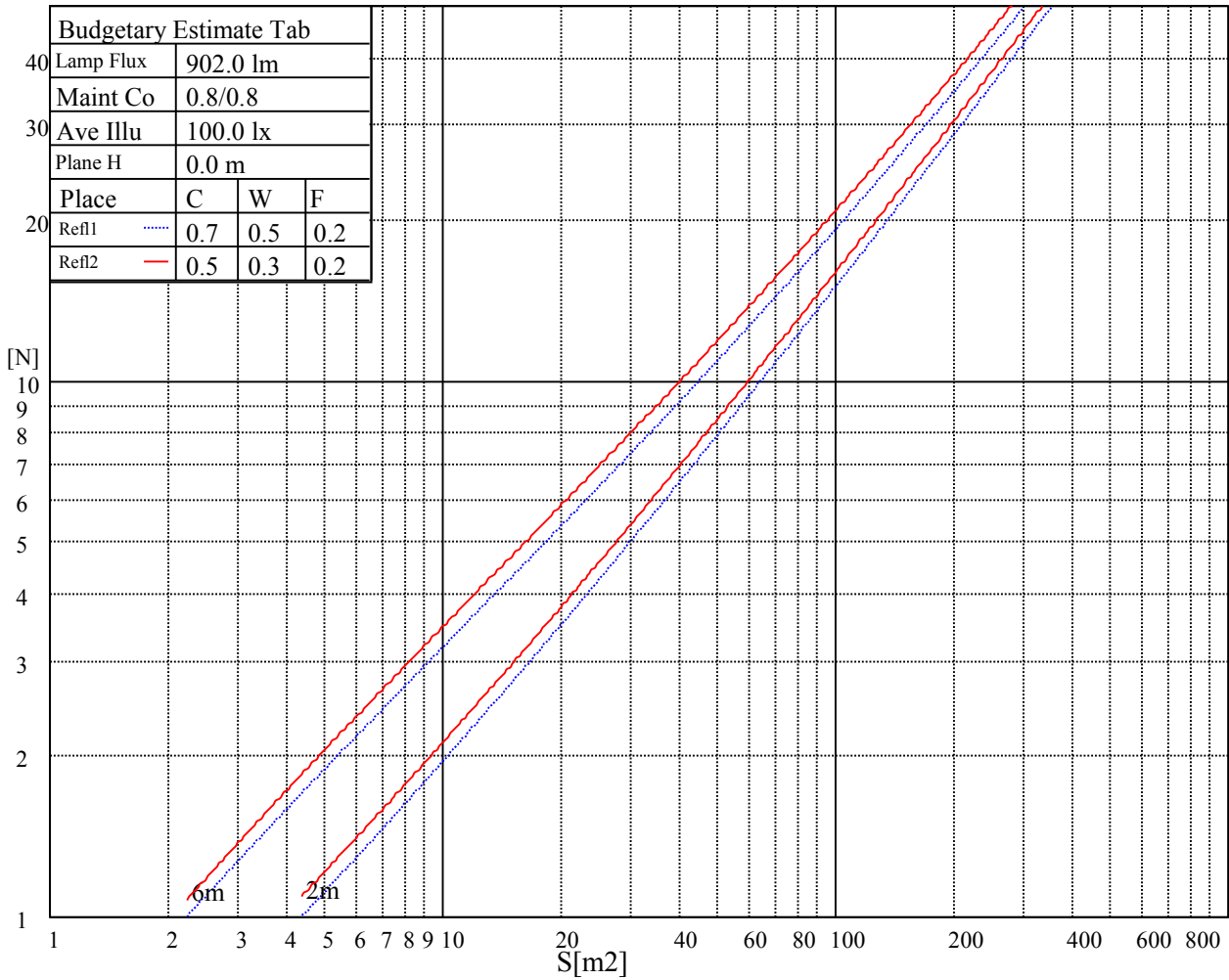
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3864	3864	3864	5956	5956	5956	17274	17274	17274

Glare Table

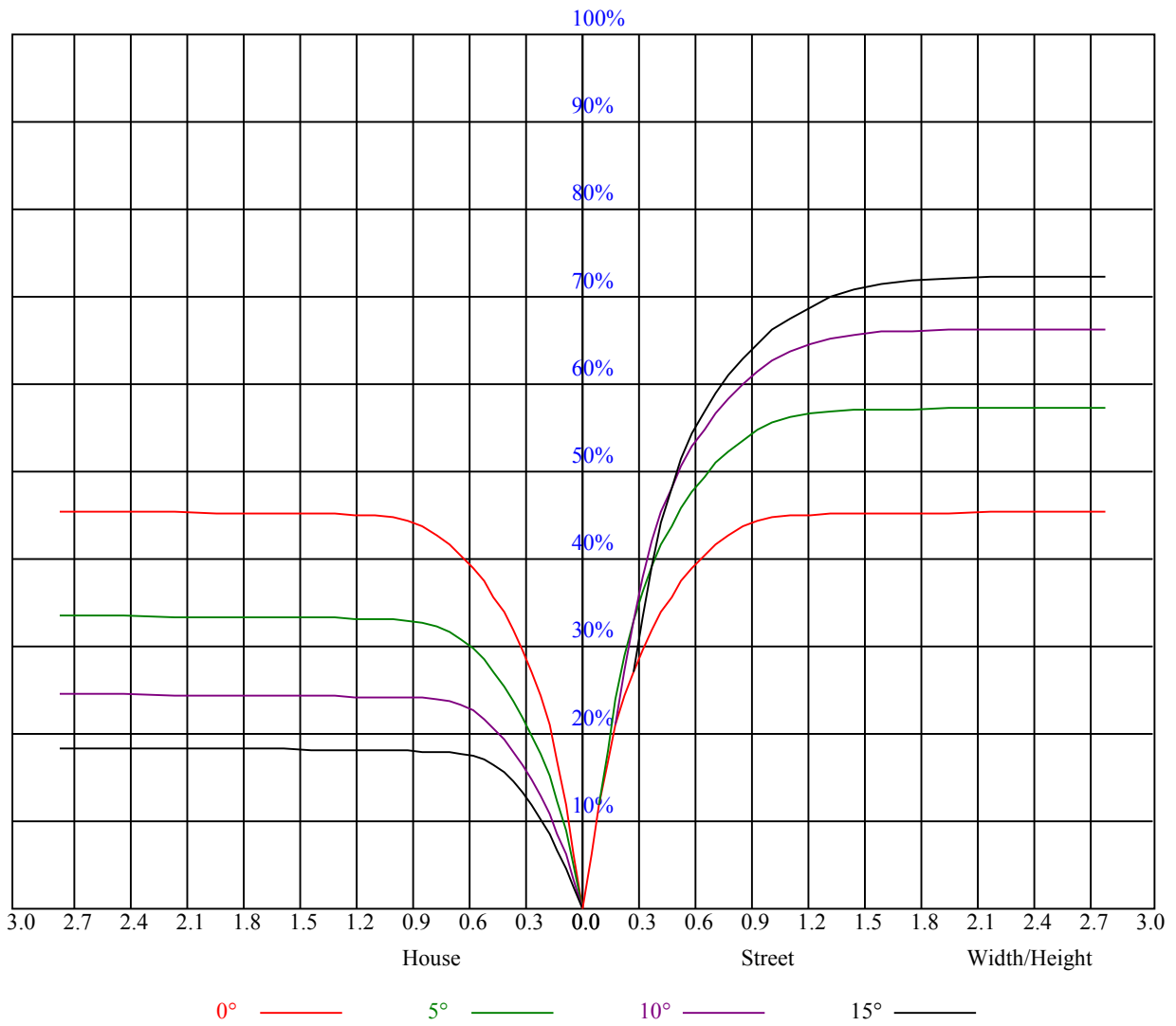
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

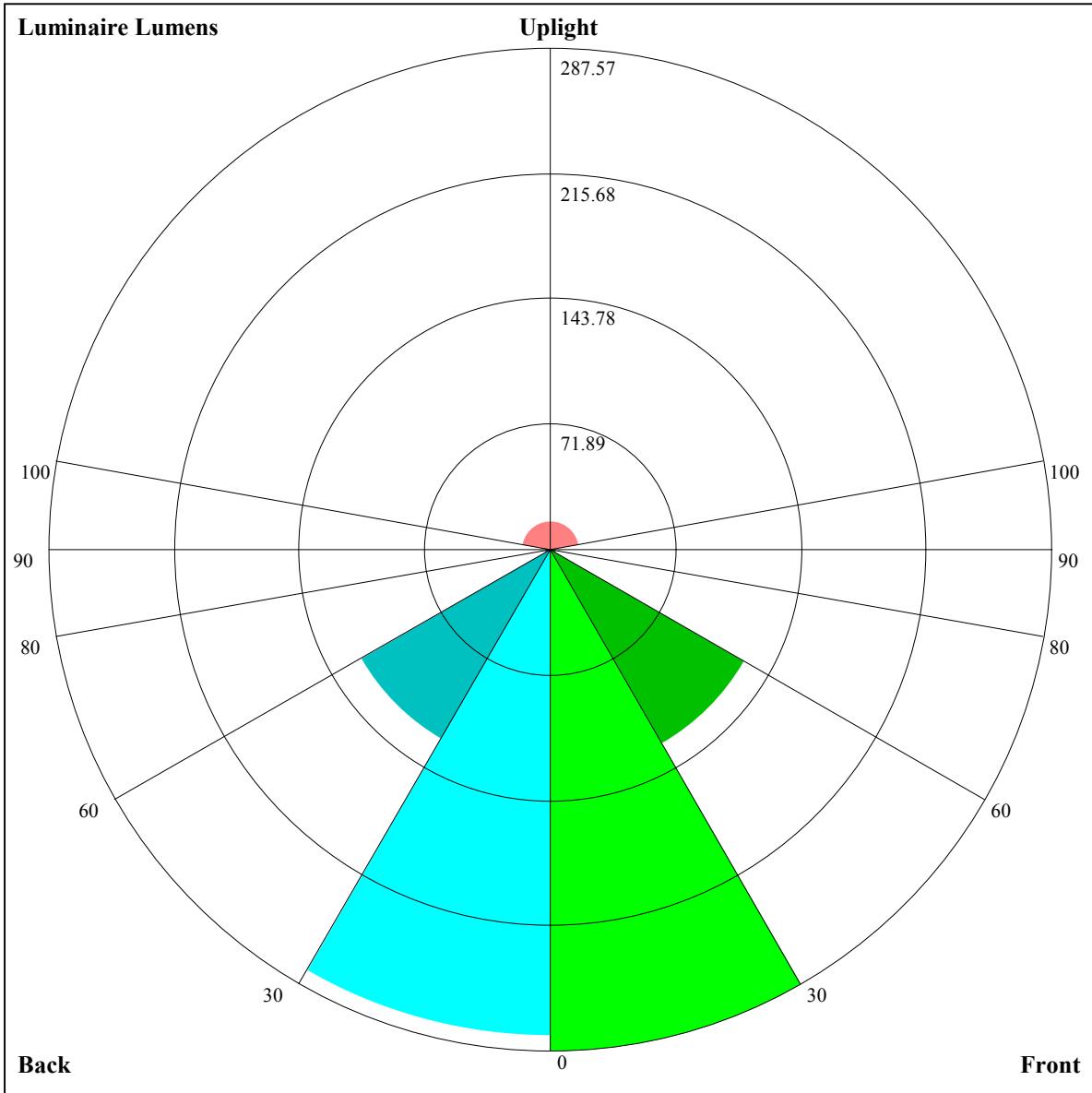
Luminance Limiting Curve





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	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.99	0.97	0.99	0.97	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.78	0.77	0.75
4	0.83	0.79	0.75	0.82	0.78	0.74	0.80	0.77	0.74	0.79	0.75	0.73	0.77	0.74	0.72	0.71
5	0.79	0.74	0.70	0.78	0.73	0.70	0.76	0.72	0.69	0.75	0.71	0.68	0.73	0.70	0.68	0.66
6	0.74	0.69	0.66	0.74	0.69	0.65	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.63
7	0.71	0.65	0.62	0.70	0.65	0.62	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.59
8	0.67	0.62	0.58	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.56
9	0.64	0.59	0.56	0.64	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.61	0.58	0.55	0.54
10	0.61	0.56	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.59	0.55	0.52	0.51





Luminaire Lumens:

FL=287.57,FM=128.15,FH=3.51,FVH=1.77

BL=278.43,BM=125.22,BH=3.5,BVH=1.78

UL=3.5,UH=16.65

BUG Rating:B1-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	3247.88	3246.19	3159.56	3025.13	2830.50	2536.31	2273.06	2013.19	1732.50
45.0	3175.31	3333.94	3436.31	3465.56	3421.13	3303.00	3114.56	2884.50	2616.75
90.0	3263.63	3444.19	3539.81	3575.25	3542.06	3442.50	3290.06	3011.06	2744.44
135.0	3176.44	3306.94	3371.06	3366.56	3294.56	3147.75	2934.00	2683.13	2443.50
180.0	3247.88	3190.50	3057.75	2862.00	2642.63	2356.31	2086.88	1796.63	1531.69
225.0	3175.31	2933.44	2671.88	2354.63	2031.19	1757.25	1513.69	1108.69	1067.74
270.0	3263.63	3002.63	2724.19	2380.50	2076.75	1756.13	1468.69	1251.00	1065.38
315.0	3176.44	2968.31	2730.94	2438.44	2120.63	1845.00	1594.13	1241.44	1120.22
360.0	3247.88	3246.19	3159.56	3025.13	2830.50	2536.31	2273.06	2013.19	1732.50
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1474.31	1266.19	1064.81	916.88	786.94	690.19	626.06	569.25	523.13
45.0	2259.56	1977.75	1715.06	1445.06	1211.63	1036.13	880.88	761.63	680.06
90.0	2446.31	2072.25	1796.06	1544.06	1225.13	1084.33	929.64	806.23	701.55
135.0	2063.81	1803.94	1589.06	1315.13	1103.63	964.13	808.88	707.06	646.31
180.0	1317.38	1105.65	932.51	812.25	717.98	628.82	573.53	531.00	493.43
225.0	918.73	761.96	687.71	618.98	558.62	512.27	478.86	449.10	427.84
270.0	880.88	768.94	684.56	604.69	556.31	516.38	480.94	451.13	428.63
315.0	958.28	815.01	708.19	636.92	580.33	526.84	492.30	463.22	434.76
360.0	1474.31	1266.19	1064.81	916.88	786.94	690.19	626.06	569.25	523.13
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	491.06	464.06	434.81	415.69	399.94	381.94	369.56	357.19	344.81
45.0	608.63	560.81	516.94	480.94	452.81	432.00	410.63	395.44	380.25
90.0	624.09	570.26	524.81	491.29	460.01	433.91	414.45	392.74	378.06
135.0	578.25	537.75	505.69	470.25	445.50	424.69	402.75	388.13	373.50
180.0	461.31	436.73	414.39	395.89	381.43	365.74	354.71	342.28	329.12
225.0	407.48	391.61	379.41	366.81	353.76	343.29	333.28	322.88	310.78
270.0	410.06	396.00	384.75	370.69	360.56	347.63	336.38	326.25	315.56
315.0	413.04	397.80	383.51	370.13	358.48	346.22	336.26	325.69	315.73
360.0	491.06	464.06	434.81	415.69	399.94	381.94	369.56	357.19	344.81
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	332.44	323.44	313.31	304.88	295.88	289.13	284.63	276.13	272.25
45.0	363.94	350.44	338.06	325.69	313.88	304.88	295.31	287.44	284.06
90.0	364.16	351.56	337.89	327.21	317.70	305.89	297.11	289.74	284.06
135.0	358.31	345.38	333.56	321.19	309.94	300.94	292.50	286.31	284.06
180.0	320.57	311.46	298.91	292.67	287.38	281.14	277.93	273.38	268.43
225.0	301.73	293.46	288.73	284.06	279.00	274.44	268.65	262.63	256.84
270.0	303.19	295.31	289.13	284.06	276.69	272.36	267.02	261.79	255.71
315.0	306.90	299.14	290.14	284.18	279.84	273.99	268.71	264.49	258.81
360.0	332.44	323.44	313.31	304.88	295.88	289.13	284.63	276.13	272.25
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	266.51	261.73	256.44	244.97	230.06	210.94	182.98	158.63	133.37
45.0	274.44	269.16	264.49	260.21	255.49	249.13	237.38	218.76	198.51
90.0	278.44	273.83	268.76	264.09	258.53	252.62	244.07	227.98	205.82
135.0	275.12	270.68	265.78	260.38	255.26	247.78	230.79	211.78	189.56
180.0	262.69	257.91	250.20	235.97	217.91	193.50	169.76	141.19	112.44
225.0	245.19	230.06	207.23	182.14	155.48	130.11	104.74	77.29	52.31
270.0	242.49	226.18	201.99	175.22	150.08	120.83	92.81	69.02	47.48
315.0	249.58	236.59	216.28	194.06	167.01	137.76	111.43	82.97	56.98
360.0	266.51	261.73	256.44	244.97	230.06	210.94	182.98	158.63	133.37

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	101.59	77.06	54.68	33.13	17.61	11.59	9.90	8.38	6.53
45.0	174.09	144.90	119.59	94.73	66.21	44.78	27.73	15.08	10.69
90.0	183.26	158.74	127.01	101.93	77.40	52.37	31.44	18.45	11.64
135.0	160.93	134.44	108.39	81.62	56.03	35.78	20.08	12.94	9.96
180.0	87.64	64.29	39.43	23.85	14.23	10.13	8.66	7.03	5.40
225.0	33.30	19.46	11.31	9.73	8.16	6.19	5.06	4.61	4.44
270.0	25.88	14.91	10.58	9.23	7.09	5.51	4.50	4.16	3.99
315.0	37.18	21.77	11.81	10.07	8.66	6.64	5.34	4.73	4.50
360.0	101.59	77.06	54.68	33.13	17.61	11.59	9.90	8.38	6.53
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.18	4.67	4.39	3.94	3.88	3.83	3.71	3.66	3.66
45.0	9.17	7.37	5.57	4.44	4.11	3.94	3.88	3.83	3.77
90.0	9.73	8.10	6.36	5.12	4.56	4.39	4.05	3.83	3.71
135.0	8.33	6.64	5.23	4.33	4.05	3.94	3.83	3.77	3.77
180.0	4.50	4.11	3.88	3.83	3.77	3.71	3.66	3.60	3.54
225.0	3.94	3.83	3.77	3.71	3.66	3.60	3.60	3.54	3.49
270.0	3.88	3.88	3.77	3.71	3.66	3.60	3.60	3.54	3.49
315.0	4.05	3.94	3.83	3.77	3.71	3.66	3.60	3.60	3.54
360.0	5.18	4.67	4.39	3.94	3.88	3.83	3.71	3.66	3.66
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.60	3.54	3.54	3.49	3.43	3.43	3.38	3.38	3.38
45.0	3.71	3.66	3.66	3.60	3.54	3.49	3.49	3.43	3.43
90.0	3.71	3.66	3.60	3.60	3.54	3.54	3.49	3.43	3.43
135.0	3.66	3.60	3.60	3.54	3.54	3.49	3.43	3.43	3.38
180.0	3.49	3.49	3.43	3.43	3.38	3.38	3.38	3.32	3.32
225.0	3.49	3.43	3.43	3.43	3.43	3.38	3.38	3.38	3.32
270.0	3.49	3.49	3.43	3.43	3.38	3.38	3.38	3.32	3.32
315.0	3.54	3.49	3.43	3.43	3.38	3.38	3.38	3.38	3.32
360.0	3.60	3.54	3.54	3.49	3.43	3.43	3.38	3.38	3.38
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.32	3.32	3.32	3.32	3.32	3.32	3.26	3.26	3.26
45.0	3.43	3.38	3.38	3.38	3.38	3.32	3.38	3.32	3.32
90.0	3.38	3.38	3.32	3.32	3.32	3.32	3.32	3.32	3.26
135.0	3.38	3.38	3.38	3.32	3.32	3.32	3.32	3.32	3.26
180.0	3.32	3.32	3.26	3.32	3.32	3.26	3.26	3.26	3.26
225.0	3.38	3.38	3.38	3.38	3.32	3.32	3.32	3.32	3.32
270.0	3.32	3.32	3.26	3.26	3.26	3.26	3.26	3.26	3.26
315.0	3.32	3.26	3.32	3.26	3.26	3.26	3.26	3.26	3.26
360.0	3.32	3.32	3.32	3.32	3.32	3.32	3.26	3.26	3.26
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.26	3.26	3.26	3.26	3.21	3.26	3.21	3.21	3.21
45.0	3.32	3.32	3.32	3.26	3.21	3.26	3.26	3.26	3.21
90.0	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.21	3.21
135.0	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.21	3.26
180.0	3.21	3.26	3.21	3.21	3.21	3.21	3.26	3.21	3.21
225.0	3.32	3.38	3.38	3.38	3.38	3.43	3.32	3.26	3.21
270.0	3.26	3.21	3.26	3.26	3.21	3.21	3.21	3.21	3.21
315.0	3.26	3.21	3.26	3.21	3.21	3.21	3.21	3.21	3.21
360.0	3.26	3.26	3.26	3.26	3.21	3.26	3.21	3.21	3.21

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>3.21</b>
<b>45.0</b>	<b>3.21</b>
<b>90.0</b>	<b>3.21</b>
<b>135.0</b>	<b>3.21</b>
<b>180.0</b>	<b>3.21</b>
<b>225.0</b>	<b>3.21</b>
<b>270.0</b>	<b>3.21</b>
<b>315.0</b>	<b>3.21</b>
<b>360.0</b>	<b>3.21</b>