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NATA

Client:

LumCAT: 3-1698-N

Luminaire: 92.70.065.00+92.70.089.00

Report No: nt0100

Voltage(V): 33.9700

Test No: GC2020011018

Current(A): 0.6000

LampCAT: LUMINUS CXM-14-AC40

Power (W): 20.4000

Lamp flux(lm): 2436.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1867.33, Efficiency(%): 76.66% , Luminous Efficacy(lm/W): 91.54

Central intensity(cd): 10607.480, Maximum intensity(cd): 10607.480

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=18.4

[C90/270]Total=18.4

Field angle(10%Imax): [C0/180]Total=37.4

[C90/270]Total=37.4

Maximum s/h(1/2): C0_180=0.32 C90_270=0.32

Maximum s/h(1/4): C0_180=0.31 C90_270=0.31

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 76.66%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.610%

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/1/10
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10607.484	0.000	0	.000%	.000%
1.0	10541.602	10.119	10.119	.415%	.542%
2.0	10343.320	29.976	40.095	1.231%	2.147%
3.0	9987.961	48.626	88.721	1.996%	4.751%
4.0	9512.297	65.274	153.995	2.680%	8.247%
5.0	8926.453	79.323	233.317	3.256%	12.495%
6.0	8147.039	89.726	323.043	3.683%	17.300%
7.0	7287.117	95.800	418.843	3.933%	22.430%
8.0	6473.391	98.481	517.324	4.043%	27.704%
9.0	5524.945	97.240	614.564	3.992%	32.911%
10.0	4619.672	91.805	706.369	3.769%	37.828%
11.0	3877.594	84.905	791.274	3.485%	42.375%
12.0	3184.031	77.194	868.468	3.169%	46.509%
13.0	2568.375	68.267	936.734	2.802%	50.164%
14.0	2118.797	59.995	996.73	2.463%	53.377%
15.0	1759.008	53.236	1049.966	2.185%	56.228%
16.0	1495.723	47.691	1097.657	1.958%	58.782%
17.0	1299.382	43.527	1141.184	1.787%	61.113%
18.0	1133.803	40.118	1181.302	1.647%	63.262%
19.0	1031.513	37.672	1218.974	1.546%	65.279%
20.0	931.226	35.924	1254.898	1.475%	67.203%
21.0	851.513	34.232	1289.13	1.405%	69.036%
22.0	783.731	32.861	1321.991	1.349%	70.796%
23.0	718.995	31.531	1353.522	1.294%	72.484%
24.0	657.211	30.089	1383.611	1.235%	74.096%
25.0	604.329	28.685	1412.296	1.178%	75.632%
26.0	556.481	27.401	1439.697	1.125%	77.099%
27.0	510.328	26.100	1465.796	1.071%	78.497%
28.0	468.949	24.793	1490.59	1.018%	79.825%
29.0	430.791	23.540	1514.129	.966%	81.085%
30.0	396.443	22.335	1536.464	.917%	82.281%
31.0	363.234	21.141	1557.605	.868%	83.413%
32.0	331.601	19.906	1577.511	.817%	84.479%
33.0	303.940	18.723	1596.235	.769%	85.482%
34.0	280.659	17.692	1613.926	.726%	86.430%
35.0	255.220	16.642	1630.569	.683%	87.321%
36.0	234.879	15.605	1646.174	.641%	88.156%
37.0	219.002	14.803	1660.977	.608%	88.949%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	199.280	13.962	1674.938	.573%	89.697%
39.0	182.805	13.042	1687.98	.535%	90.395%
40.0	169.263	12.279	1700.259	.504%	91.053%
41.0	155.848	11.577	1711.836	.475%	91.673%
42.0	142.629	10.844	1722.68	.445%	92.254%
43.0	130.500	10.117	1732.798	.415%	92.795%
44.0	119.524	9.437	1742.234	.387%	93.301%
45.0	109.484	8.801	1751.035	.361%	93.772%
46.0	99.359	8.167	1759.203	.335%	94.209%
47.0	90.274	7.542	1766.745	.310%	94.613%
48.0	82.301	6.976	1773.721	.286%	94.987%
49.0	74.440	6.437	1780.158	.264%	95.332%
50.0	66.705	5.885	1786.043	.242%	95.647%
51.0	60.539	5.384	1791.426	.221%	95.935%
52.0	54.499	4.936	1796.363	.203%	96.199%
53.0	48.565	4.483	1800.846	.184%	96.440%
54.0	43.523	4.059	1804.905	.167%	96.657%
55.0	39.002	3.684	1808.589	.151%	96.854%
56.0	34.980	3.343	1811.932	.137%	97.033%
57.0	31.584	3.043	1814.975	.125%	97.196%
58.0	28.652	2.786	1817.761	.114%	97.345%
59.0	26.142	2.562	1820.322	.105%	97.483%
60.0	24.075	2.372	1822.695	.097%	97.610%
61.0	22.373	2.217	1824.911	.091%	97.728%
62.0	21.241	2.102	1827.013	.086%	97.841%
63.0	20.496	2.030	1829.043	.083%	97.950%
64.0	19.765	1.976	1831.018	.081%	98.055%
65.0	19.083	1.923	1832.941	.079%	98.158%
66.0	18.534	1.877	1834.818	.077%	98.259%
67.0	17.958	1.835	1836.653	.075%	98.357%
68.0	17.381	1.790	1838.443	.073%	98.453%
69.0	16.889	1.748	1840.191	.072%	98.547%
70.0	16.404	1.710	1841.901	.070%	98.638%
71.0	15.891	1.669	1843.57	.069%	98.728%
72.0	15.413	1.628	1845.198	.067%	98.815%
73.0	14.941	1.587	1846.785	.065%	98.900%
74.0	14.470	1.546	1848.332	.063%	98.983%
75.0	14.034	1.506	1849.838	.062%	99.063%

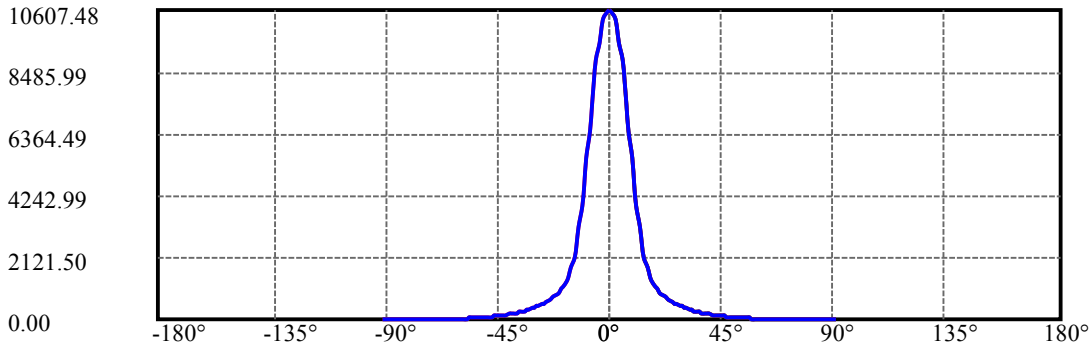
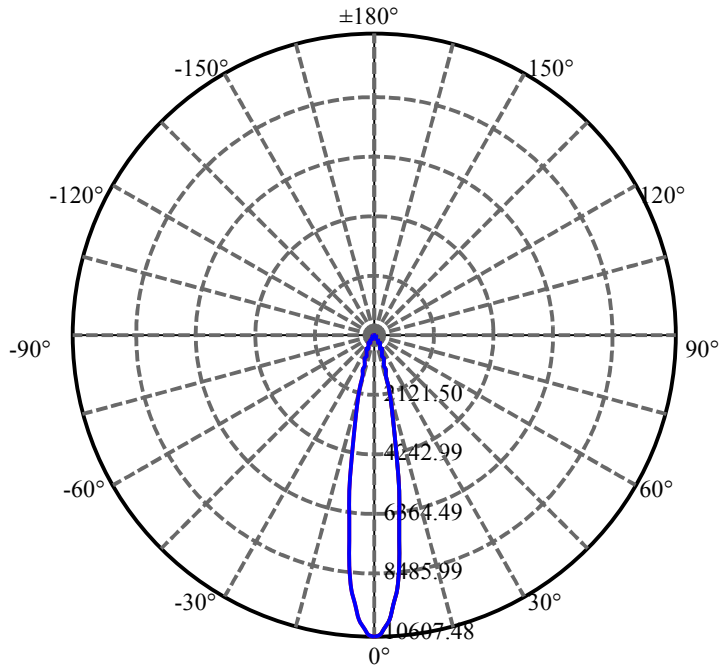
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.598	1.467	1851.304	.060%	99.142%
77.0	13.163	1.427	1852.731	.059%	99.218%
78.0	12.769	1.388	1854.119	.057%	99.292%
79.0	12.340	1.349	1855.468	.055%	99.365%
80.0	11.904	1.307	1856.775	.054%	99.435%
81.0	11.447	1.263	1858.038	.052%	99.502%
82.0	10.976	1.216	1859.254	.050%	99.567%
83.0	10.463	1.165	1860.42	.048%	99.630%
84.0	9.998	1.115	1861.534	.046%	99.690%
85.0	9.548	1.067	1862.601	.044%	99.747%
86.0	9.091	1.019	1863.62	.042%	99.801%
87.0	8.691	0.973	1864.593	.040%	99.853%
88.0	8.367	0.934	1865.528	.038%	99.903%
89.0	8.205	0.908	1866.436	.037%	99.952%
90.0	8.121	0.895	1867.331	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1536.46	63.07%	82.28%
0-40	1700.26	69.80%	91.05%
0-60	1822.69	74.82%	97.61%
0-90	1866.44	76.62%	99.95%
0-120	1866.44	76.62%	99.95%
0-180	1867.33	76.66%	100.00%
60-90	46.11	1.89%	2.47%
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%
0-28.14	1493.87	61.32%	80.00%

ZONAL LUMEN SUMMARY

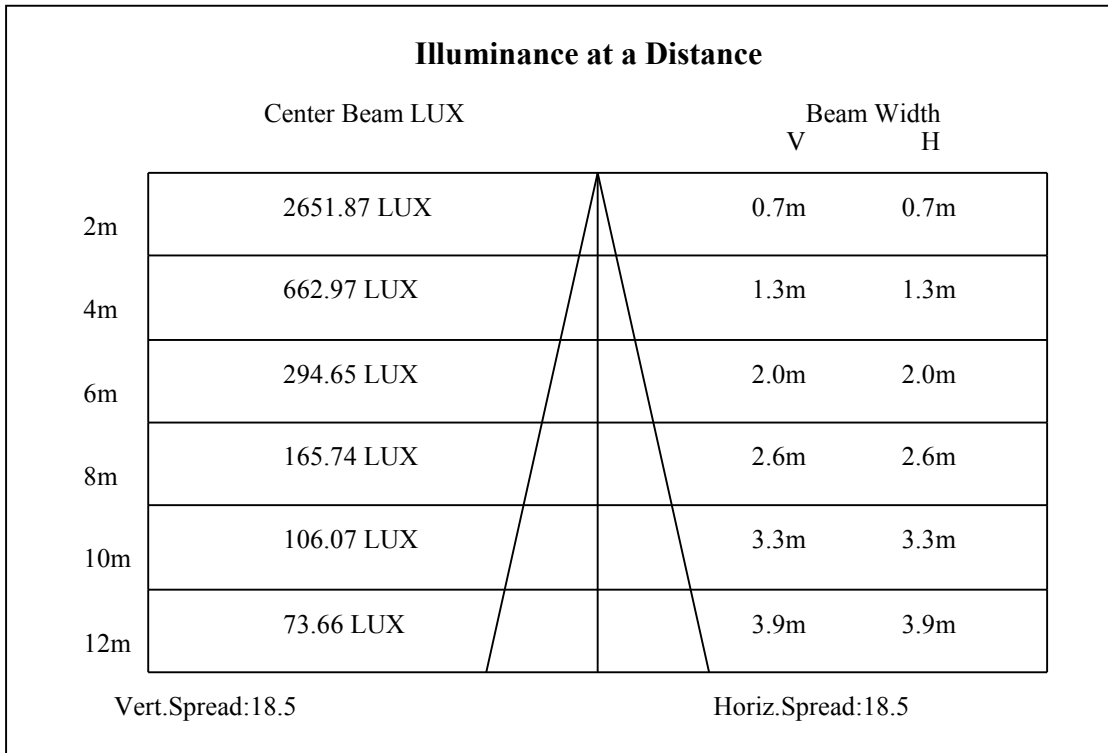
0-10	706.37
10-20	548.53
20-30	281.57
30-40	163.79
40-50	85.78
50-60	36.65
60-70	19.21
70-80	14.87
80-90	9.66
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

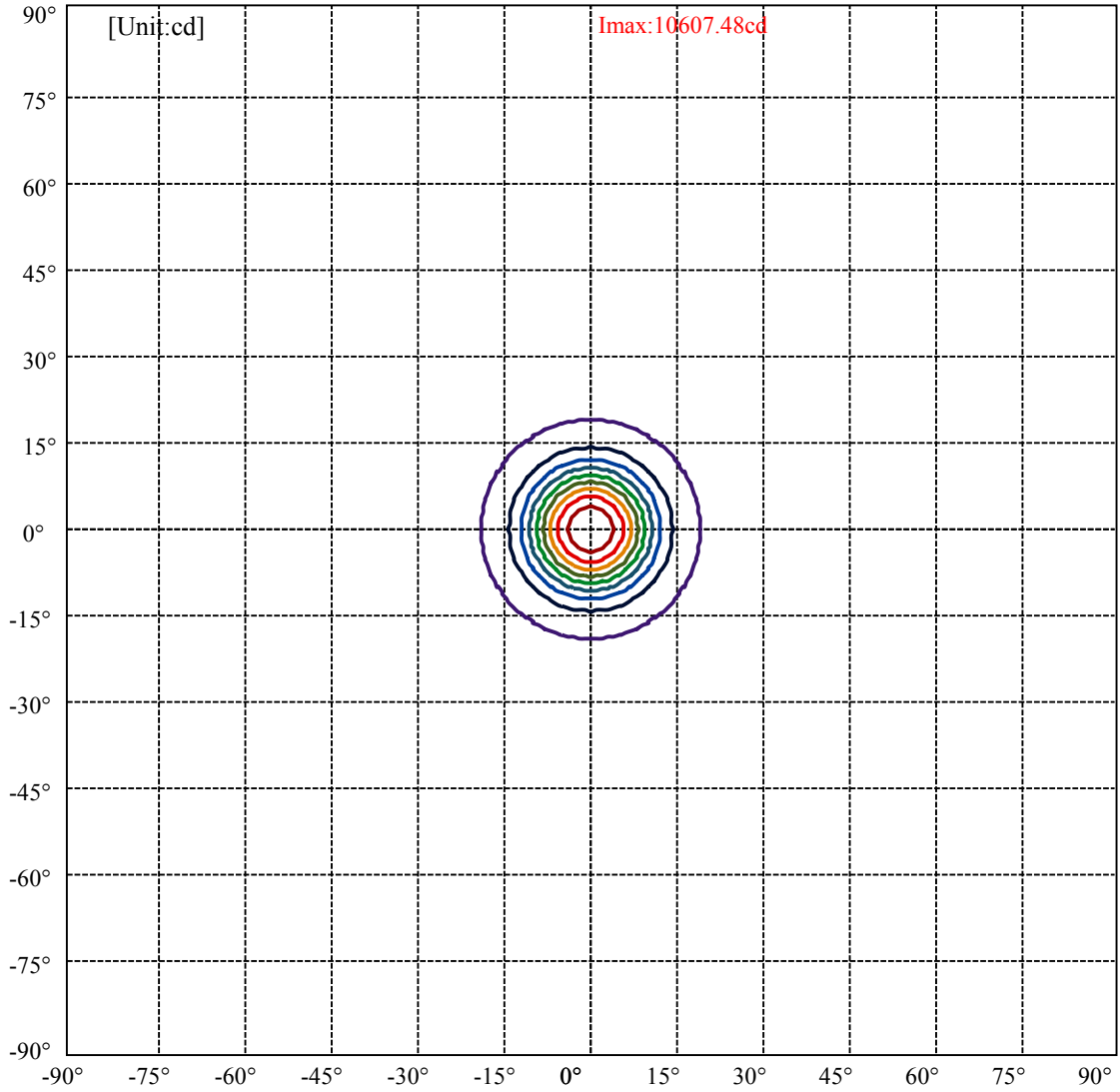


C0(Max): —————
C0/C180: —————
C90/C270: —————

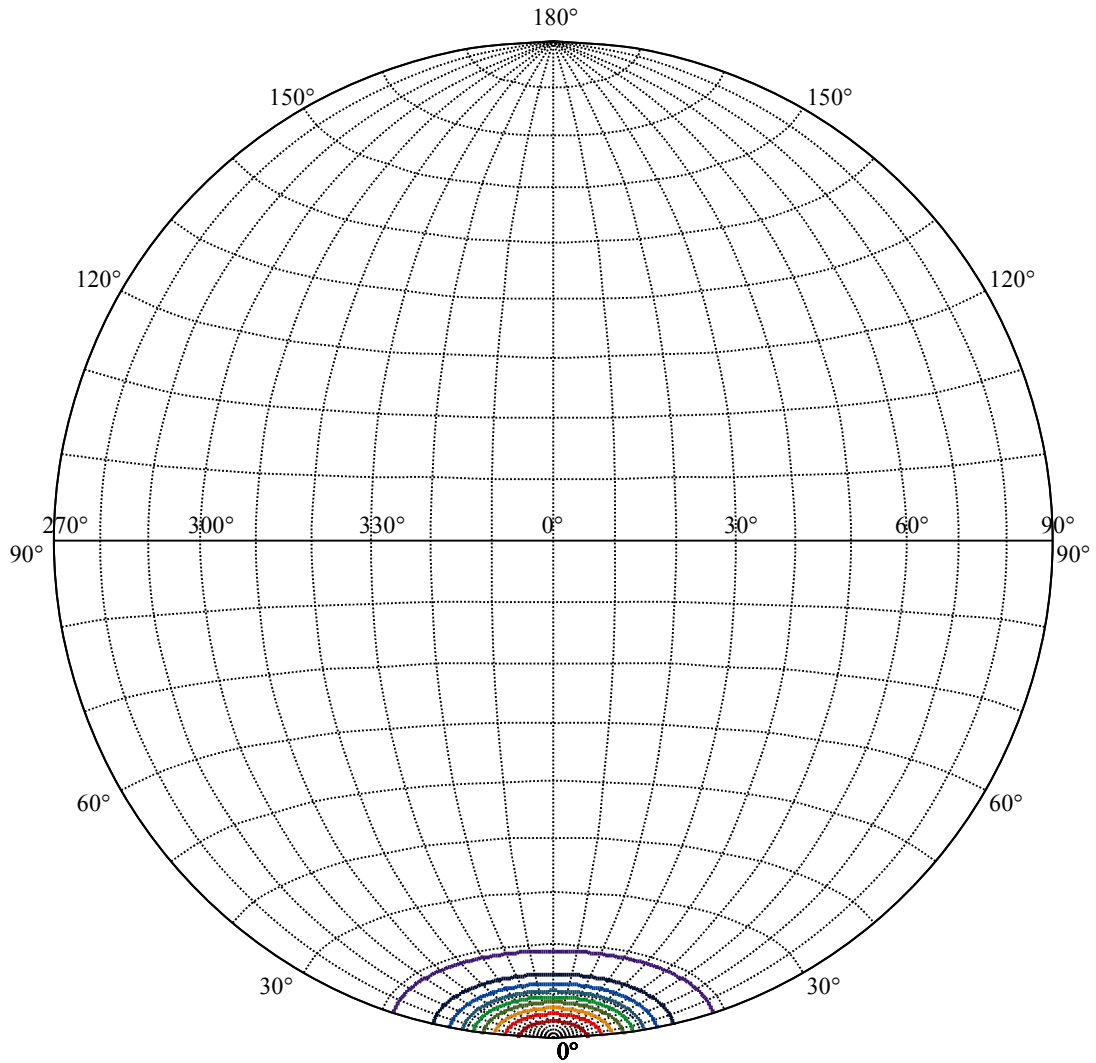
Field angle(10%Imax):C0/180Left:18.7 Right:18.7
:C90/270Left:18.7 Right:18.7

Beam Angle(50%Imax):C0/180Left:9.2 Right:9.2
:C90/270Left:9.2 Right:9.2





(10%Imax) 1060.75	—
(20%Imax) 2121.5	—
(30%Imax) 3182.25	—
(40%Imax) 4242.99	—
(50%Imax) 5303.74	—
(60%Imax) 6364.49	—
(70%Imax) 7425.24	—
(80%Imax) 8485.99	—
(90%Imax) 9546.74	—



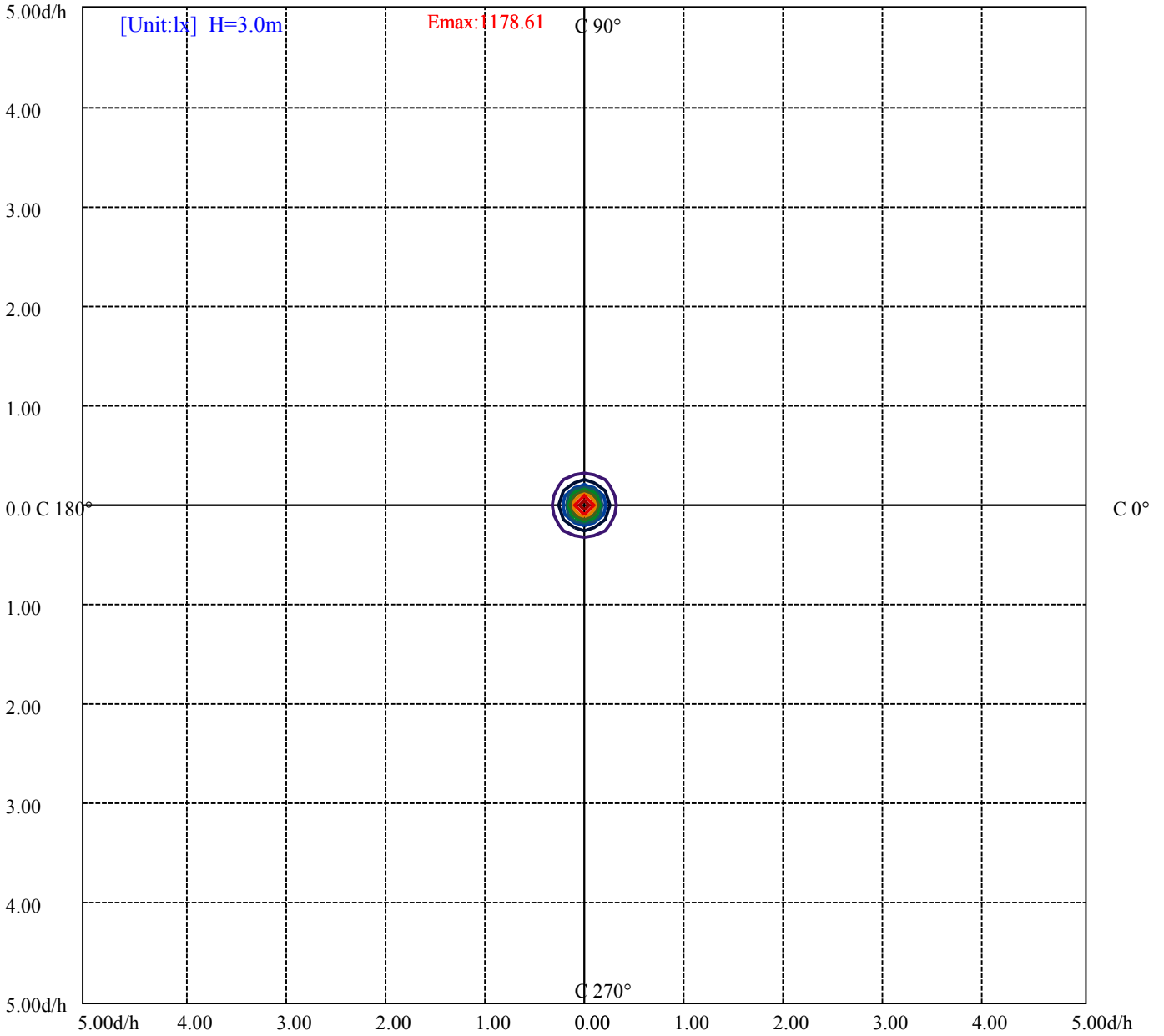
House

[Unit:cd]

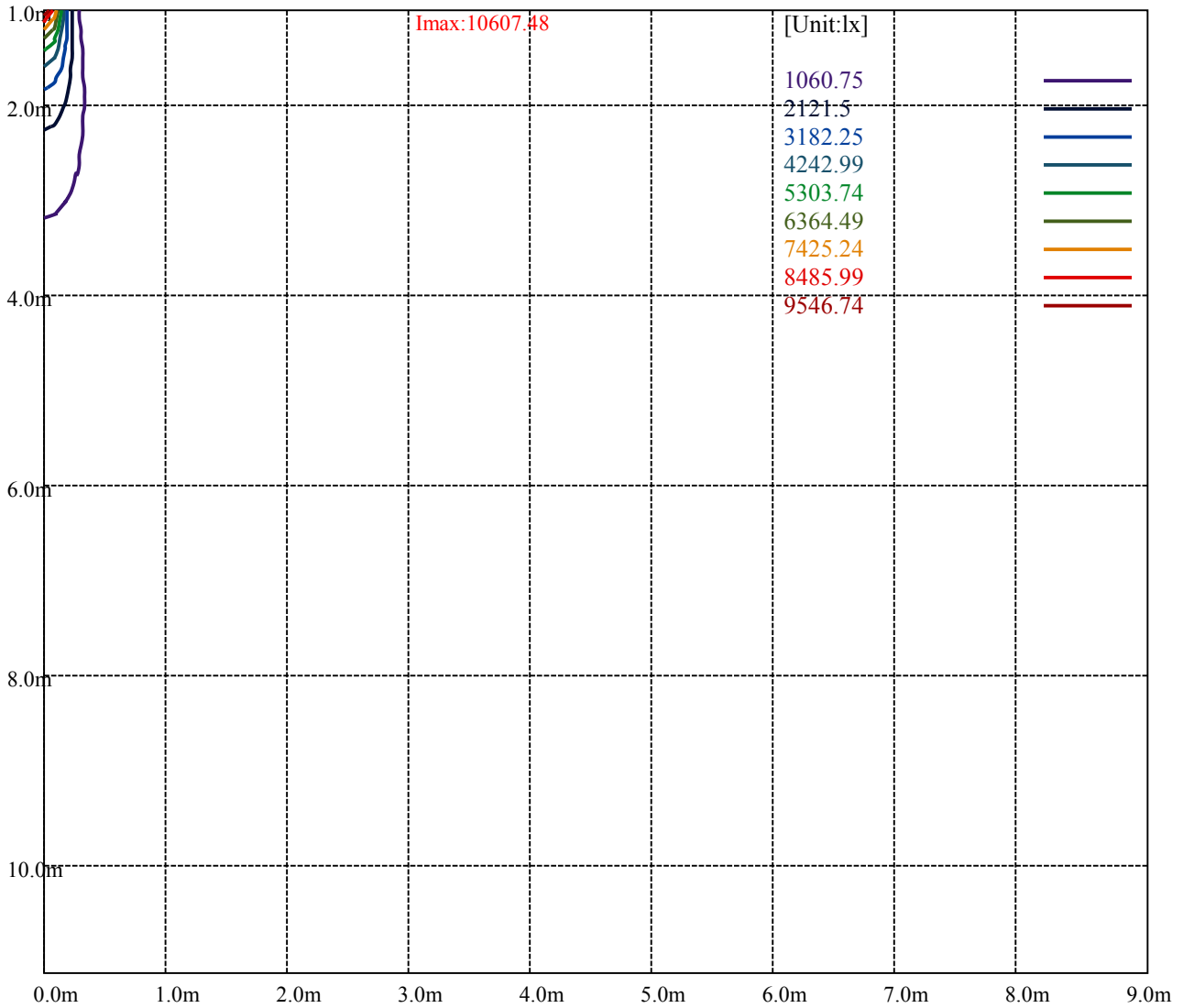
Road

Imax:10607.48

(10%Imax) 1060.75	—
(20%Imax) 2121.5	—
(30%Imax) 3182.25	—
(40%Imax) 4242.99	—
(50%Imax) 5303.74	—
(60%Imax) 6364.49	—
(70%Imax) 7425.24	—
(80%Imax) 8485.99	—
(90%Imax) 9546.74	—



(10%Emax) 117.8611	—
(20%Emax) 235.7211	—
(30%Emax) 353.5822	—
(40%Emax) 471.4434	—
(50%Emax) 589.3044	—
(60%Emax) 707.1644	—
(70%Emax) 825.0256	—
(80%Emax) 942.8867	—
(90%Emax) 1060.748	—



Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

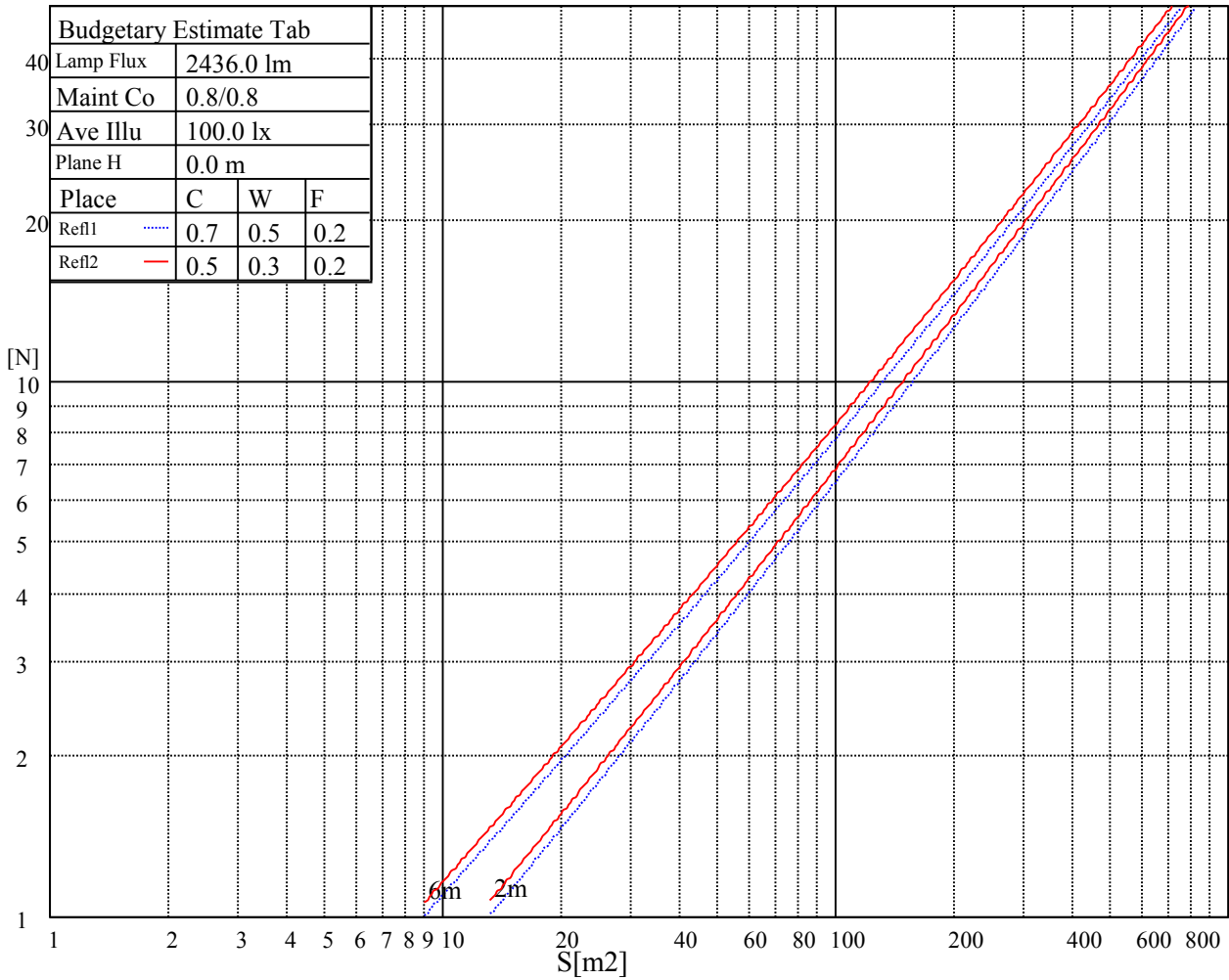
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

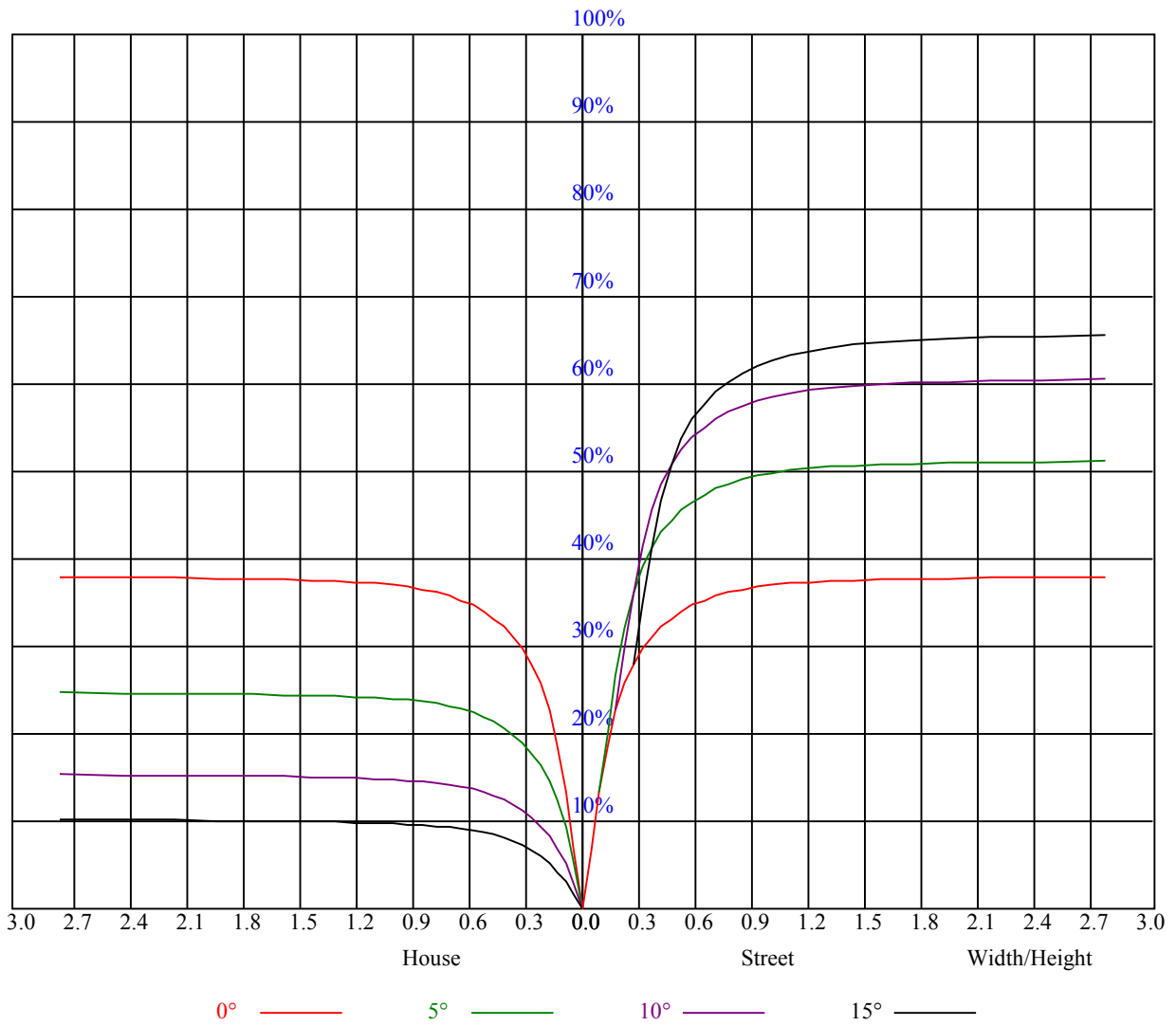
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

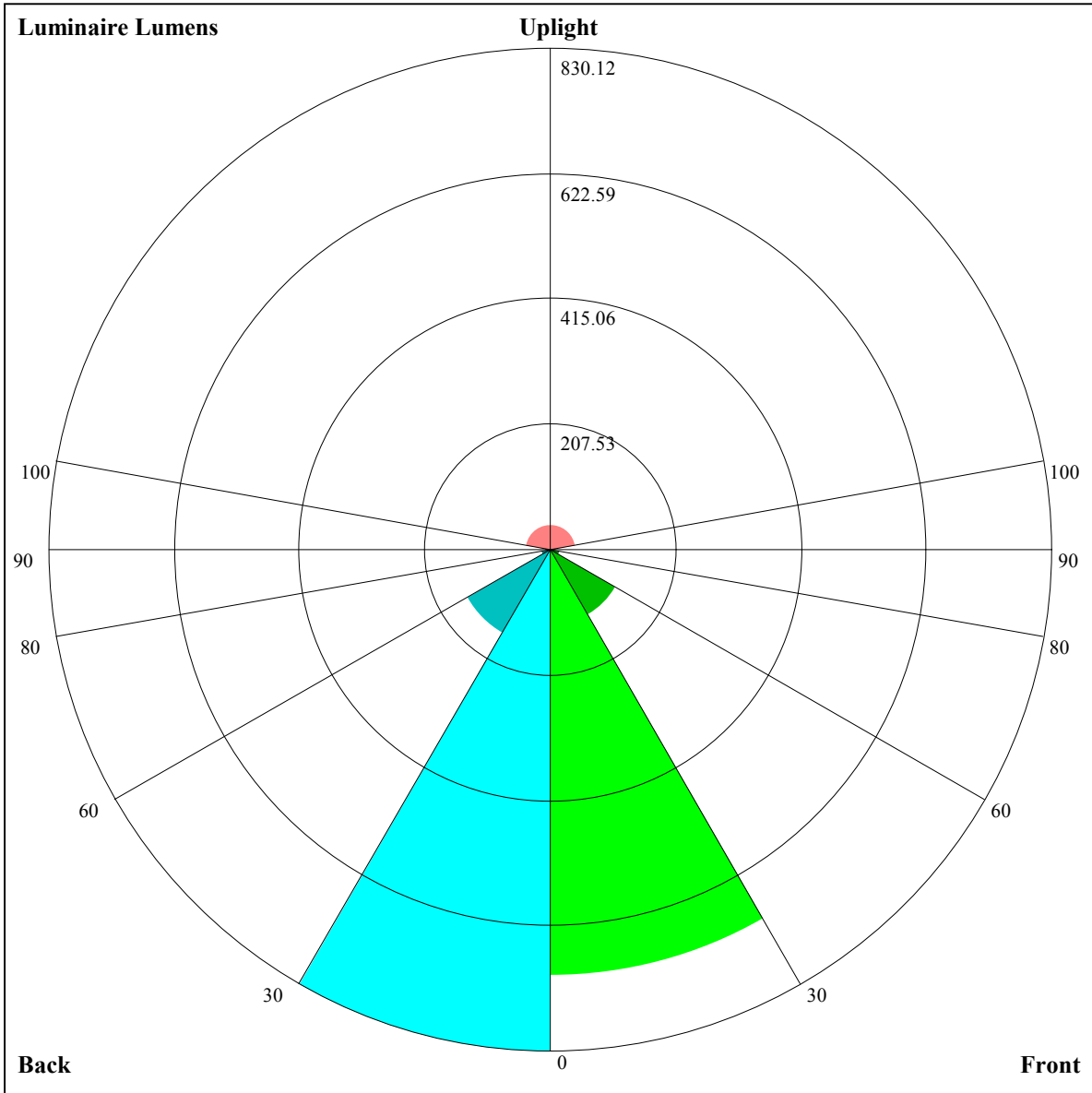
Luminance Limiting Curve





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	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.82	0.82	0.82	0.78	0.78	0.78	0.77
1	0.86	0.84	0.82	0.84	0.82	0.81	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73
2	0.81	0.78	0.76	0.80	0.77	0.75	0.77	0.75	0.73	0.75	0.73	0.72	0.73	0.72	0.70	0.69
3	0.77	0.74	0.71	0.76	0.73	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.66
4	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.64	0.63
5	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
6	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.61	0.60	0.59
7	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.58	0.57
8	0.63	0.59	0.57	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
9	0.61	0.57	0.55	0.60	0.57	0.55	0.60	0.57	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.53
10	0.59	0.55	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.57	0.54	0.53	0.52





Luminaire Lumens:

FL=705.94,FM=123.43,FH=16.6,FVH=5.17

BL=830.12,BM=160.55,BH=17.58,BVH=5.42

UL=8.86,UH=42.17

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	10620.00	10463.06	10152.00	9684.00	9145.13	8412.19	7535.25	6687.56	5932.69
45.0	10628.44	10573.31	10377.56	10040.06	9619.88	9101.81	8269.88	7482.38	6638.06
90.0	10634.06	10654.31	10547.44	10292.06	9889.31	9410.63	8718.19	7871.06	7057.13
135.0	10547.44	10693.69	10715.63	10585.69	10344.38	9939.38	9372.38	8730.56	7991.44
180.0	10620.00	10644.19	10541.25	10297.13	9885.38	9395.44	8775.00	7838.44	6999.19
225.0	10628.44	10544.06	10339.31	9954.00	9416.25	8795.25	7964.44	7043.63	6212.25
270.0	10634.06	10507.50	10219.50	9764.44	9227.25	8560.69	7578.00	6752.81	5925.94
315.0	10547.44	10252.69	9853.88	9286.31	8570.81	7796.25	6963.19	5890.50	5030.44
360.0	10620.00	10463.06	10152.00	9684.00	9145.13	8412.19	7535.25	6687.56	5932.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4782.38	3992.06	3277.69	2584.69	2031.75	1656.56	1355.06	1139.63	999.56
45.0	5590.69	4754.81	3952.13	3148.31	2479.50	1998.56	1596.94	1341.56	1136.25
90.0	6215.63	5157.56	4366.13	3638.81	2860.88	2350.69	1955.81	1589.63	1373.63
135.0	6989.06	6147.56	5317.31	4416.19	3616.31	3009.94	2443.50	2018.81	1731.94
180.0	6136.88	5185.69	4317.75	3659.06	3094.31	2506.50	2134.69	1846.13	1604.25
225.0	5375.81	4385.81	3687.19	3093.75	2491.31	2121.75	1832.63	1576.13	1383.75
270.0	4907.81	4132.69	3428.44	2749.50	2215.69	1850.06	1541.25	1336.50	1174.50
315.0	4201.31	3201.19	2674.13	2181.94	1757.25	1456.31	1212.19	1117.41	991.18
360.0	4782.38	3992.06	3277.69	2584.69	2031.75	1656.56	1355.06	1139.63	999.56
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	881.44	801.56	729.56	667.69	617.06	565.31	515.81	475.31	438.19
45.0	984.38	882.56	795.38	726.19	672.19	622.13	563.06	518.06	478.13
90.0	1107.96	1079.78	967.44	872.33	798.13	725.85	659.64	606.66	551.25
135.0	1478.81	1313.44	1172.25	1060.31	973.69	888.19	811.69	748.69	691.31
180.0	1413.56	1279.69	1115.16	1048.05	966.66	885.88	820.18	753.02	691.43
225.0	1255.50	1108.52	1041.41	951.64	872.78	807.75	742.28	681.75	632.87
270.0	1056.94	971.44	888.75	813.38	751.50	694.13	626.63	576.56	531.56
315.0	891.84	815.12	739.86	672.53	617.85	562.73	518.40	474.58	437.12
360.0	881.44	801.56	729.56	667.69	617.06	565.31	515.81	475.31	438.19
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	396.56	365.06	335.25	304.31	284.63	257.74	236.98	217.58	201.04
45.0	435.38	399.38	368.44	340.31	302.63	285.19	258.98	236.81	215.89
90.0	506.59	461.19	421.14	387.73	354.83	317.08	290.36	266.18	239.06
135.0	623.81	575.44	533.81	491.63	446.63	414.00	375.75	345.38	318.94
180.0	642.09	596.98	545.06	505.18	467.61	423.84	392.34	363.49	334.01
225.0	587.93	535.56	497.59	460.80	425.93	386.21	357.53	330.81	300.66
270.0	484.88	443.25	409.50	374.06	340.88	314.44	286.31	271.52	239.18
315.0	405.39	374.74	335.53	307.52	282.77	254.31	233.27	213.53	192.99
360.0	396.56	365.06	335.25	304.31	284.63	257.74	236.98	217.58	201.04
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	183.83	169.65	154.35	140.01	129.94	118.13	106.31	98.33	91.01
45.0	200.19	184.33	170.94	155.81	141.41	130.67	117.00	106.03	97.99
90.0	219.94	202.61	185.40	170.44	158.57	146.36	135.34	122.74	112.16
135.0	292.50	286.31	246.15	224.94	208.69	194.01	177.41	163.86	150.64
180.0	307.69	286.09	263.81	243.11	226.58	208.63	193.39	175.61	159.64
225.0	279.00	259.09	237.88	218.98	204.08	187.82	173.08	157.84	143.16
270.0	220.84	202.50	187.76	172.86	159.47	146.76	132.41	122.18	112.50
315.0	175.05	161.44	147.94	136.29	125.38	114.41	106.09	97.43	89.10
360.0	183.83	169.65	154.35	140.01	129.94	118.13	106.31	98.33	91.01

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	82.91	77.01	71.89	66.21	61.09	56.53	51.19	46.86	41.79
45.0	91.63	82.52	76.67	72.17	66.15	61.03	57.04	51.02	45.68
90.0	103.50	94.73	86.57	79.93	73.69	66.26	60.64	55.29	49.56
135.0	136.01	124.43	113.91	102.49	91.74	82.86	74.70	66.66	59.46
180.0	146.03	133.03	117.17	105.47	94.44	82.24	73.63	65.87	58.33
225.0	130.44	115.20	103.67	92.93	82.97	71.89	64.52	58.05	51.64
270.0	103.22	92.19	83.87	76.05	67.11	60.47	54.84	49.05	43.88
315.0	82.13	75.77	68.46	63.17	58.33	52.37	47.76	43.20	38.19
360.0	82.91	77.01	71.89	66.21	61.09	56.53	51.19	46.86	41.79
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	37.01	33.41	30.09	27.34	25.26	23.40	21.71	20.81	20.08
45.0	41.63	36.23	32.74	29.87	26.89	24.92	23.29	21.71	20.87
90.0	44.38	40.11	35.89	32.34	29.59	26.94	24.86	22.95	21.71
135.0	53.94	48.26	42.98	38.31	34.71	31.50	28.29	25.31	23.12
180.0	51.75	46.35	41.18	37.07	33.13	29.70	26.83	24.08	22.44
225.0	45.84	41.18	36.51	32.57	29.48	26.44	24.19	22.61	21.60
270.0	39.71	35.66	32.51	29.42	26.61	24.36	22.50	21.49	20.76
315.0	33.92	30.83	27.96	25.76	23.57	21.88	20.93	20.03	19.35
360.0	37.01	33.41	30.09	27.34	25.26	23.40	21.71	20.81	20.08
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	19.35	18.68	18.17	17.55	17.04	16.59	16.03	15.58	15.08
45.0	20.14	19.35	18.73	18.23	17.61	17.10	16.59	16.14	15.64
90.0	20.93	20.25	19.41	18.84	18.28	17.61	17.16	16.71	16.20
135.0	21.94	20.93	20.19	19.58	18.79	18.23	17.72	17.16	16.65
180.0	21.66	20.98	20.14	19.52	18.90	18.23	17.72	17.21	16.59
225.0	20.93	20.25	19.52	18.96	18.45	17.78	17.21	16.76	16.31
270.0	20.25	19.41	18.84	18.39	17.83	17.27	16.93	16.31	15.81
315.0	18.79	18.28	17.66	17.21	16.76	16.26	15.75	15.36	14.85
360.0	19.35	18.68	18.17	17.55	17.04	16.59	16.03	15.58	15.08
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	14.63	14.12	13.73	13.22	12.83	12.38	11.93	11.59	11.19
45.0	15.19	14.74	14.29	13.89	13.44	13.11	12.71	12.26	11.93
90.0	15.69	15.24	14.74	14.29	13.89	13.44	13.05	12.66	12.26
135.0	16.20	15.69	15.08	14.68	14.23	13.78	13.39	12.94	12.60
180.0	16.09	15.64	15.13	14.68	14.18	13.61	13.28	12.88	12.38
225.0	15.75	15.30	14.85	14.34	13.95	13.50	13.11	12.66	12.15
270.0	15.41	14.85	14.46	14.01	13.50	13.11	12.71	12.21	11.76
315.0	14.34	13.95	13.50	13.16	12.77	12.38	11.98	11.53	10.97
360.0	14.63	14.12	13.73	13.22	12.83	12.38	11.93	11.59	11.19
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.63	10.18	9.73	9.28	8.89	8.49	8.21	7.99	7.93
45.0	11.48	10.97	10.52	10.01	9.56	9.11	8.72	8.44	8.27
90.0	11.81	11.36	10.80	10.35	9.79	9.39	8.94	8.55	8.33
135.0	12.15	11.64	11.19	10.74	10.29	9.79	9.34	8.78	8.44
180.0	11.93	11.48	10.97	10.52	10.07	9.45	8.89	8.44	8.16
225.0	11.76	11.31	10.74	10.29	9.79	9.28	8.78	8.44	8.33
270.0	11.31	10.80	10.24	9.68	9.28	8.83	8.49	8.27	8.16
315.0	10.52	10.07	9.51	9.11	8.72	8.38	8.16	8.04	8.04
360.0	10.63	10.18	9.73	9.28	8.89	8.49	8.21	7.99	7.93

Intensity data(cd)

C/γ(°)	90.0
0.0	7.93
45.0	8.21
90.0	8.16
135.0	8.16
180.0	8.04
225.0	8.21
270.0	8.16
315.0	8.10
360.0	7.93