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Nata

Client:

LumCAT: 1687-M

Luminaire: 92.70.124.00

Report No:

Voltage(V): 33.5600

Test No: GC20190603

Current(A): 0.2970

LampCAT: XICATOXOB LES 9.8MM

Power (W): 9.9700

Lamp flux(lm): 1025.0

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): 913.76, Efficiency(%): 89.15% , Luminous Efficacy(lm/W): 91.65

Central intensity(cd): 2590.313, Maximum intensity(cd): 2590.313

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=24.4

[C90/270]Total=24.4

Field angle(10%Imax): [C0/180]Total=78.6

[C90/270]Total=78.6

Maximum s/h(1/2): C0_180=0.41 C90_270=0.41

Maximum s/h(1/4): C0_180=0.42 C90_270=0.42

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.15%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.669%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2590.313	0.000	0	.000%	.000%
1.0	2577.516	2.473	2.473	.241%	.271%
2.0	2540.531	7.346	9.819	.717%	1.075%
3.0	2476.477	11.999	21.818	1.171%	2.388%
4.0	2395.617	16.308	38.126	1.591%	4.172%
5.0	2295.914	20.183	58.309	1.969%	6.381%
6.0	2182.570	23.536	81.844	2.296%	8.957%
7.0	2049.750	26.270	108.114	2.563%	11.832%
8.0	1924.945	28.446	136.561	2.775%	14.945%
9.0	1777.922	30.010	166.57	2.928%	18.229%
10.0	1623.938	30.786	197.356	3.003%	21.598%
11.0	1481.977	31.034	228.39	3.028%	24.995%
12.0	1323.239	30.665	259.055	2.992%	28.350%
13.0	1165.444	29.534	288.59	2.881%	31.583%
14.0	1028.257	28.079	316.669	2.739%	34.656%
15.0	910.322	26.614	343.283	2.596%	37.568%
16.0	786.284	24.860	368.143	2.425%	40.289%
17.0	696.368	23.089	391.231	2.253%	42.815%
18.0	613.406	21.595	412.827	2.107%	45.179%
19.0	543.691	20.131	432.958	1.964%	47.382%
20.0	494.916	19.009	451.967	1.855%	49.462%
21.0	456.405	18.267	470.235	1.782%	51.461%
22.0	428.773	17.788	488.023	1.735%	53.408%
23.0	408.635	17.571	505.594	1.714%	55.331%
24.0	392.864	17.524	523.117	1.710%	57.249%
25.0	378.401	17.537	540.654	1.711%	59.168%
26.0	367.854	17.615	558.27	1.719%	61.096%
27.0	357.082	17.736	576.005	1.730%	63.037%
28.0	347.773	17.845	593.851	1.741%	64.990%
29.0	339.469	17.980	611.831	1.754%	66.957%
30.0	332.128	18.133	629.964	1.769%	68.942%
31.0	325.132	18.291	648.255	1.784%	70.944%
32.0	319.148	18.458	666.712	1.801%	72.963%
33.0	313.833	18.648	685.36	1.819%	75.004%
34.0	308.215	18.825	704.185	1.837%	77.064%
35.0	303.202	18.988	723.174	1.853%	79.142%
36.0	297.605	19.130	742.303	1.866%	81.236%
37.0	291.206	19.204	761.507	1.874%	83.338%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	283.022	19.167	780.674	1.870%	85.435%
39.0	265.043	18.707	799.381	1.825%	87.482%
40.0	241.608	17.670	817.051	1.724%	89.416%
41.0	217.195	16.338	833.389	1.594%	91.204%
42.0	187.692	14.710	848.099	1.435%	92.814%
43.0	153.809	12.650	860.749	1.234%	94.198%
44.0	124.706	10.512	871.261	1.026%	95.349%
45.0	94.015	8.406	879.667	.820%	96.269%
46.0	65.827	6.251	885.918	.610%	96.953%
47.0	42.771	4.319	890.237	.421%	97.426%
48.0	26.880	2.816	893.053	.275%	97.734%
49.0	16.481	1.781	894.834	.174%	97.929%
50.0	12.087	1.191	896.025	.116%	98.059%
51.0	10.034	0.936	896.961	.091%	98.161%
52.0	8.170	0.781	897.742	.076%	98.247%
53.0	6.645	0.644	898.386	.063%	98.317%
54.0	5.660	0.542	898.929	.053%	98.377%
55.0	5.189	0.484	899.413	.047%	98.430%
56.0	4.957	0.458	899.871	.045%	98.480%
57.0	4.739	0.443	900.315	.043%	98.528%
58.0	4.620	0.433	900.747	.042%	98.576%
59.0	4.535	0.428	901.175	.042%	98.623%
60.0	4.451	0.425	901.6	.041%	98.669%
61.0	4.359	0.420	902.02	.041%	98.715%
62.0	4.310	0.418	902.438	.041%	98.761%
63.0	4.233	0.415	902.854	.041%	98.806%
64.0	4.205	0.414	903.268	.040%	98.852%
65.0	4.134	0.413	903.68	.040%	98.897%
66.0	4.092	0.410	904.091	.040%	98.942%
67.0	4.043	0.409	904.5	.040%	98.986%
68.0	3.994	0.407	904.907	.040%	99.031%
69.0	3.959	0.406	905.313	.040%	99.075%
70.0	3.930	0.405	905.718	.040%	99.120%
71.0	3.902	0.405	906.123	.039%	99.164%
72.0	3.881	0.405	906.527	.039%	99.208%
73.0	3.846	0.404	906.931	.039%	99.253%
74.0	3.832	0.404	907.335	.039%	99.297%
75.0	3.825	0.405	907.74	.039%	99.341%

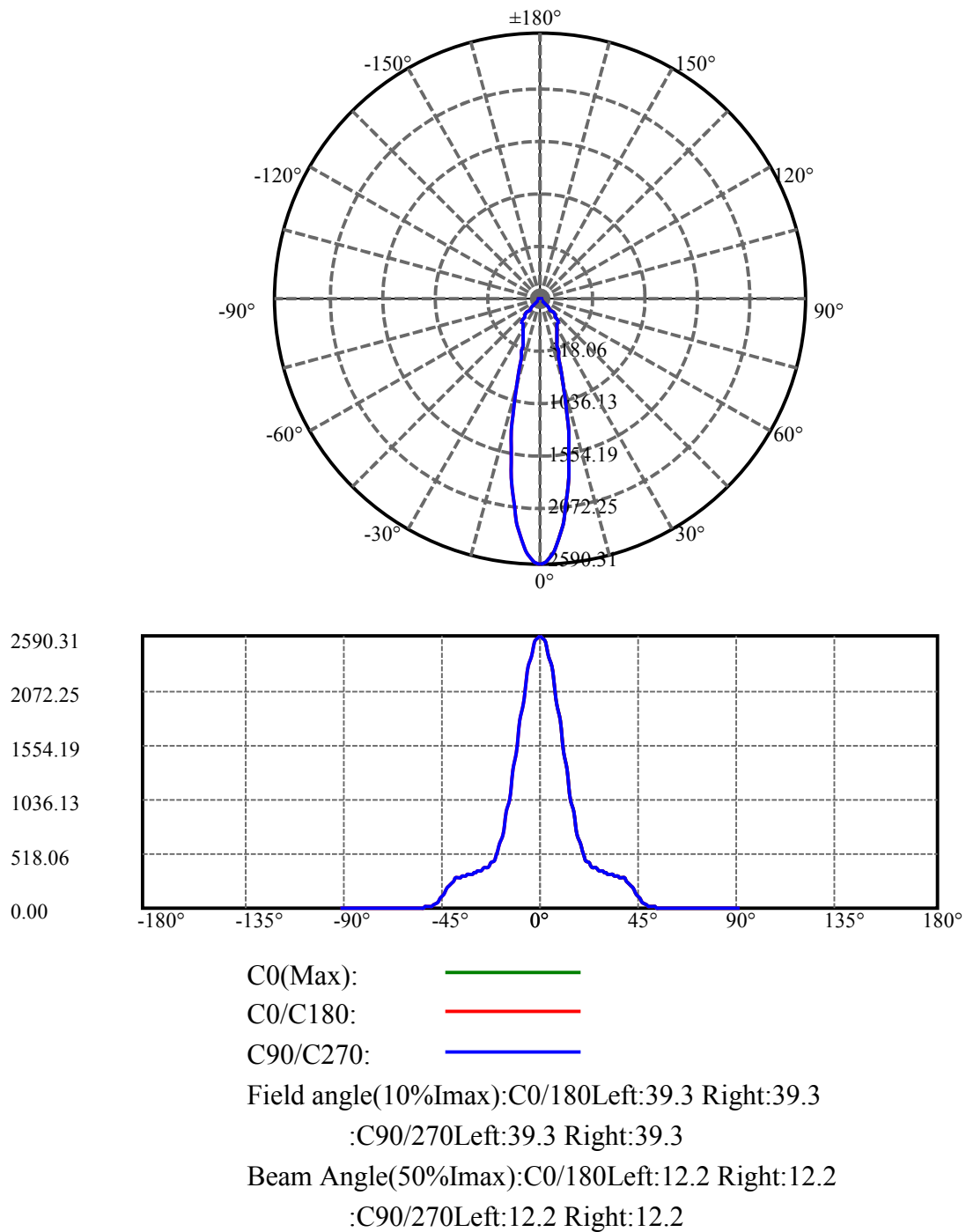
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.783	0.404	908.144	.039%	99.385%
77.0	3.783	0.403	908.547	.039%	99.429%
78.0	3.755	0.403	908.95	.039%	99.473%
79.0	3.734	0.402	909.353	.039%	99.518%
80.0	3.727	0.402	909.755	.039%	99.562%
81.0	3.720	0.403	910.158	.039%	99.606%
82.0	3.698	0.402	910.56	.039%	99.650%
83.0	3.698	0.402	910.962	.039%	99.694%
84.0	3.698	0.403	911.365	.039%	99.738%
85.0	3.670	0.402	911.767	.039%	99.782%
86.0	3.663	0.401	912.168	.039%	99.826%
87.0	3.642	0.400	912.568	.039%	99.869%
88.0	3.635	0.399	912.966	.039%	99.913%
89.0	3.628	0.398	913.365	.039%	99.957%
90.0	3.614	0.397	913.762	.039%	100.000%

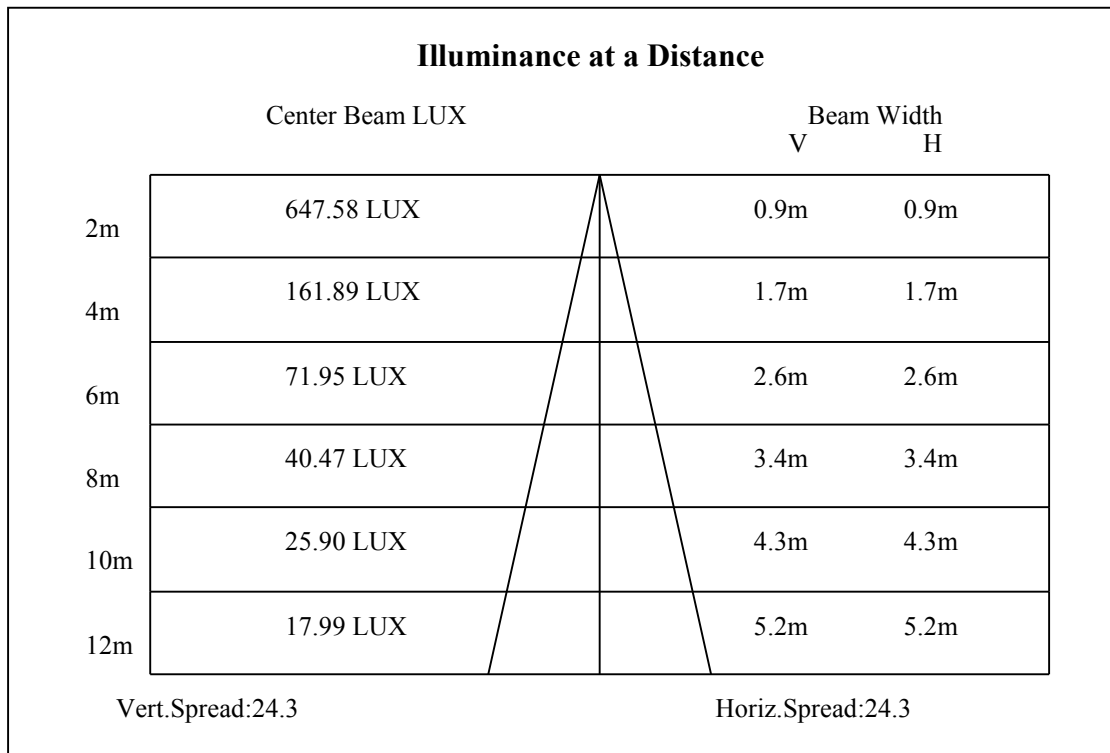
ZONAL LUMEN SUMMARY

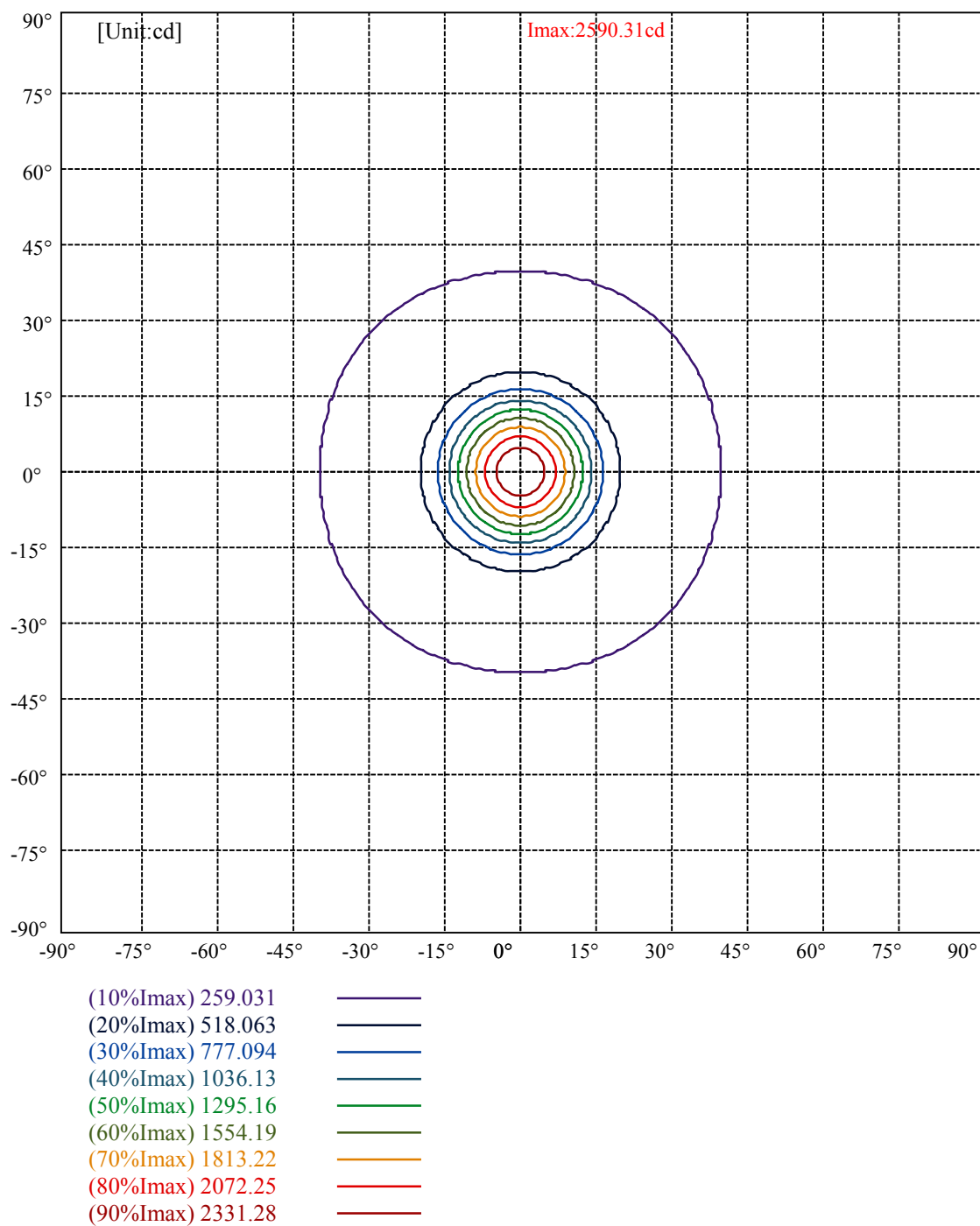
Zone	Lumens	%Lamp	%Fixt
0-30	629.96	61.46%	68.94%
0-40	817.05	79.71%	89.42%
0-60	901.60	87.96%	98.67%
0-90	913.36	89.11%	99.96%
0-120	913.36	89.11%	99.96%
0-180	913.76	89.15%	100.00%
60-90	12.19	1.19%	1.33%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-35.41	731.01	71.32%	80.00%

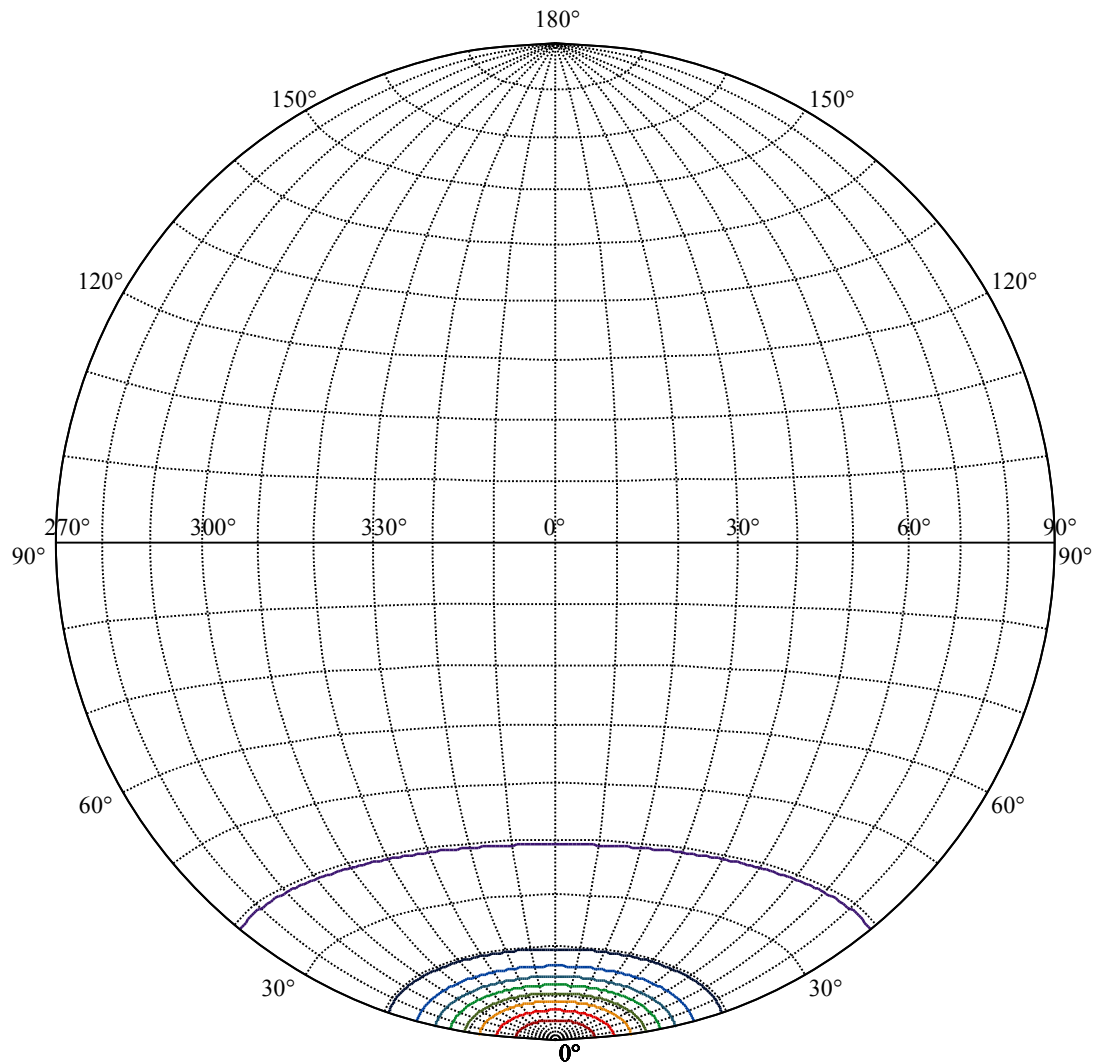
ZONAL LUMEN SUMMARY

0-10	197.36
10-20	254.61
20-30	178.00
30-40	187.09
40-50	78.97
50-60	5.58
60-70	4.12
70-80	4.04
80-90	3.61
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









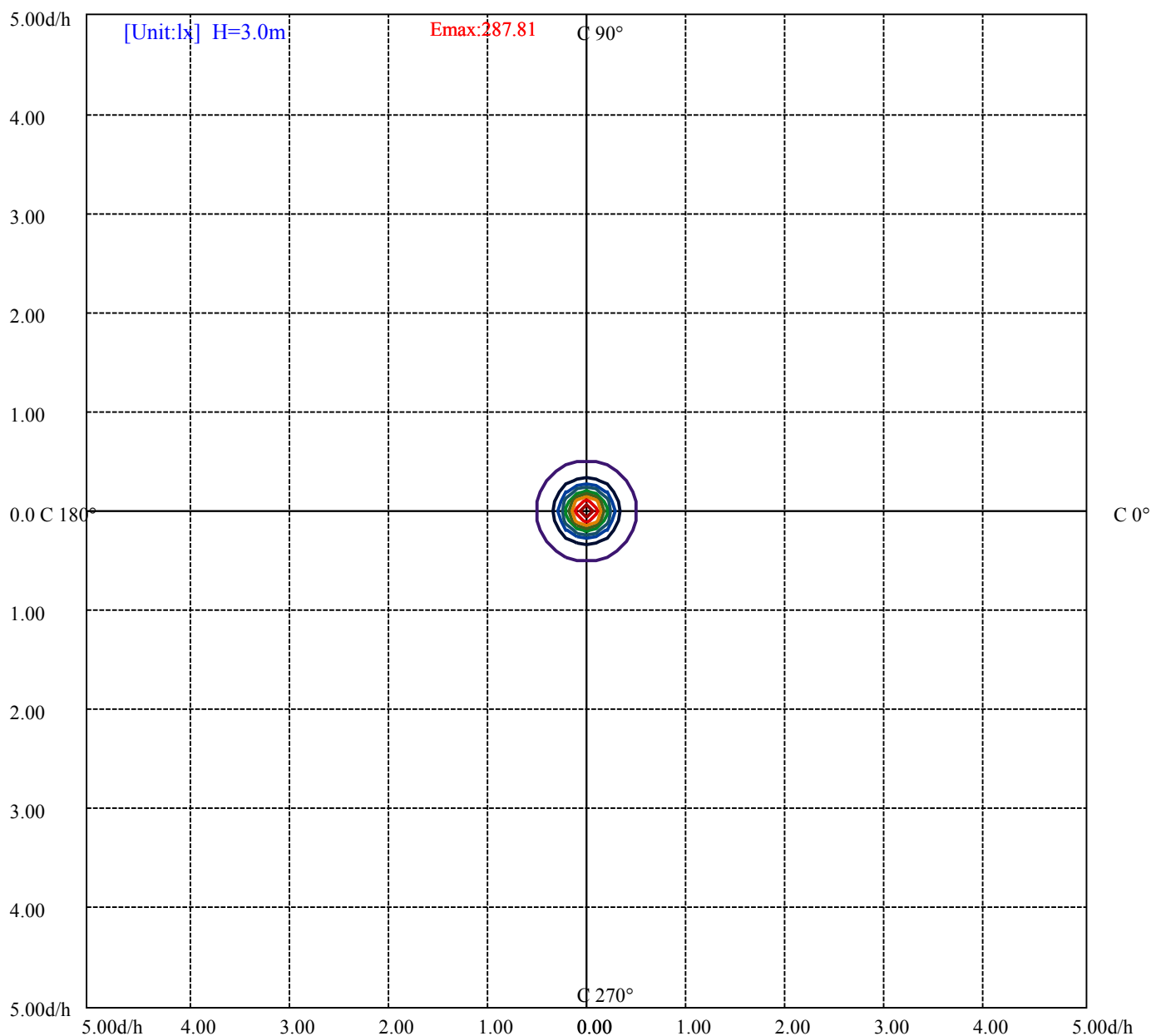
House

[Unit:cd]

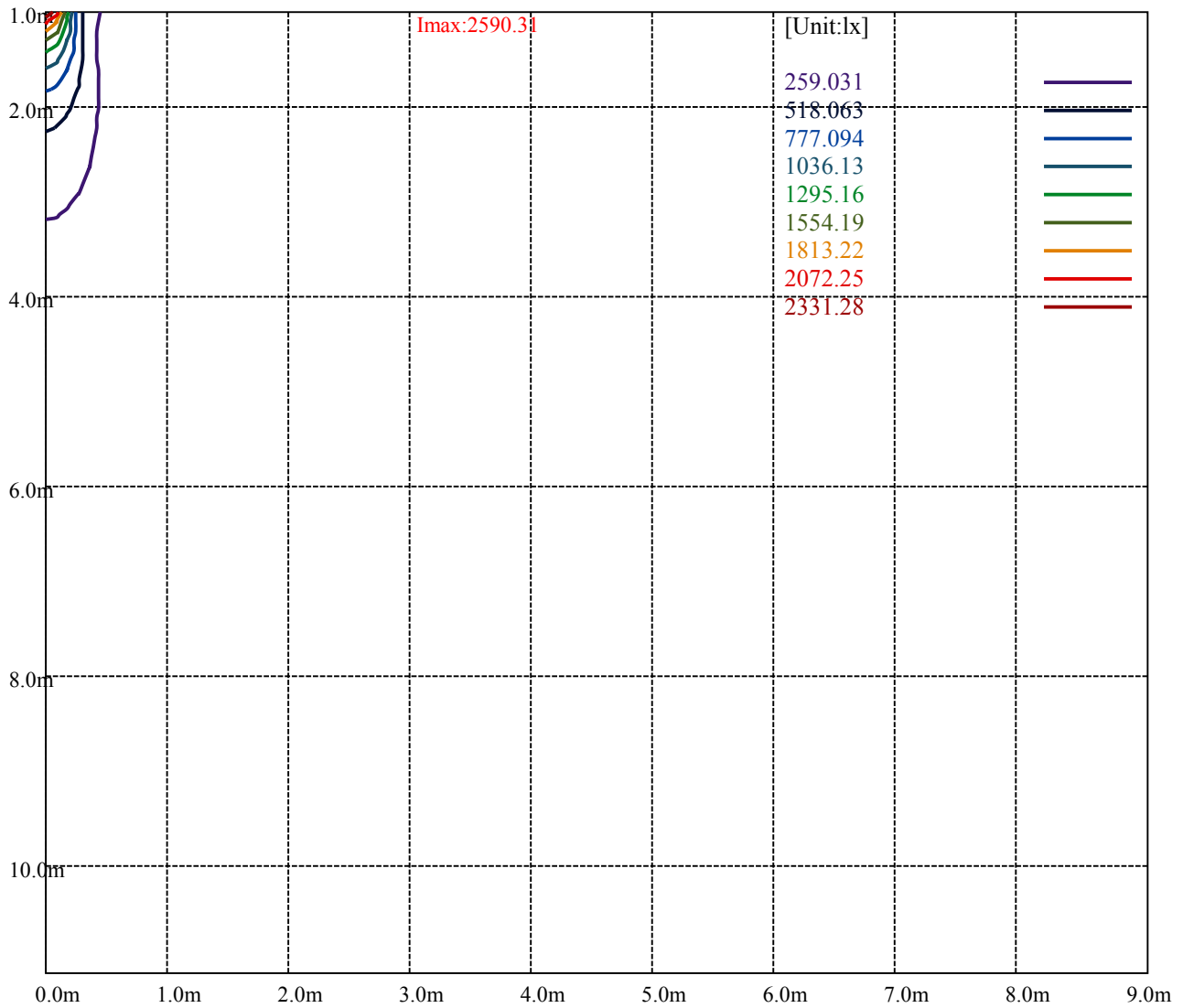
Road

Imax:2590.31

(10%Imax)	259.031	—
(20%Imax)	518.063	—
(30%Imax)	777.094	—
(40%Imax)	1036.13	—
(50%Imax)	1295.16	—
(60%Imax)	1554.19	—
(70%Imax)	1813.22	—
(80%Imax)	2072.25	—
(90%Imax)	2331.28	—



(10%Emax)	28.78122	—
(20%Emax)	57.56245	—
(30%Emax)	86.34367	—
(40%Emax)	115.1244	—
(50%Emax)	143.9067	—
(60%Emax)	172.6878	—
(70%Emax)	201.4689	—
(80%Emax)	230.25	—
(90%Emax)	259.0311	—



Luminance Table

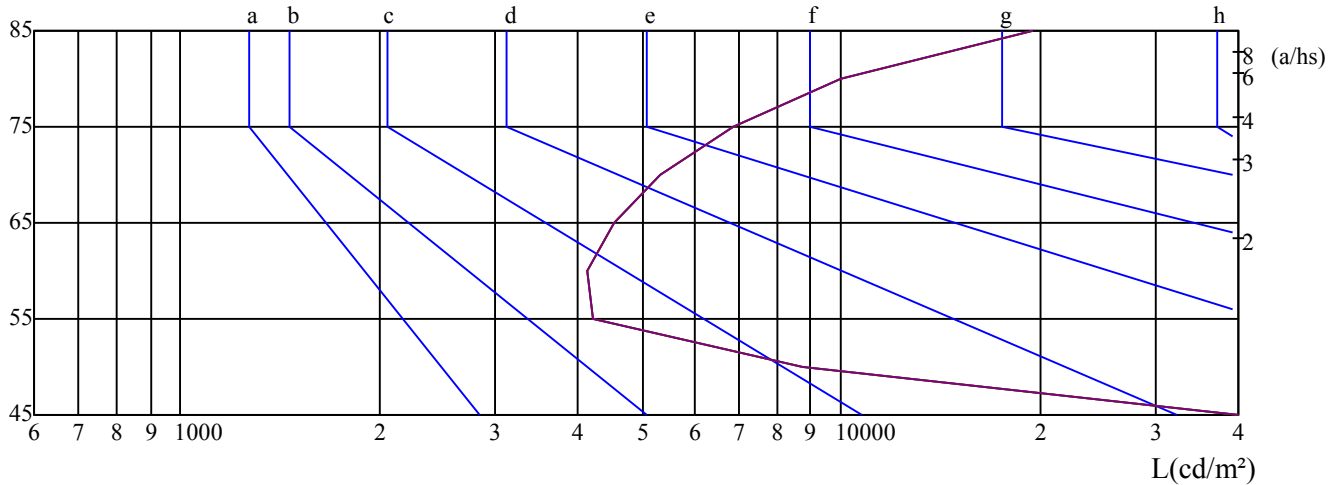
γ	45	50	55	60	65	70	75	80	85
C0	61755	8734	4202	4135	4544	5338	6864	9968	19560
C45	61755	8734	4202	4135	4544	5338	6864	9968	19560
C90	61755	8734	4202	4135	4544	5338	6864	9968	19560

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4544	4544	4544	6864	6864	6864	19560	19560	19560

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

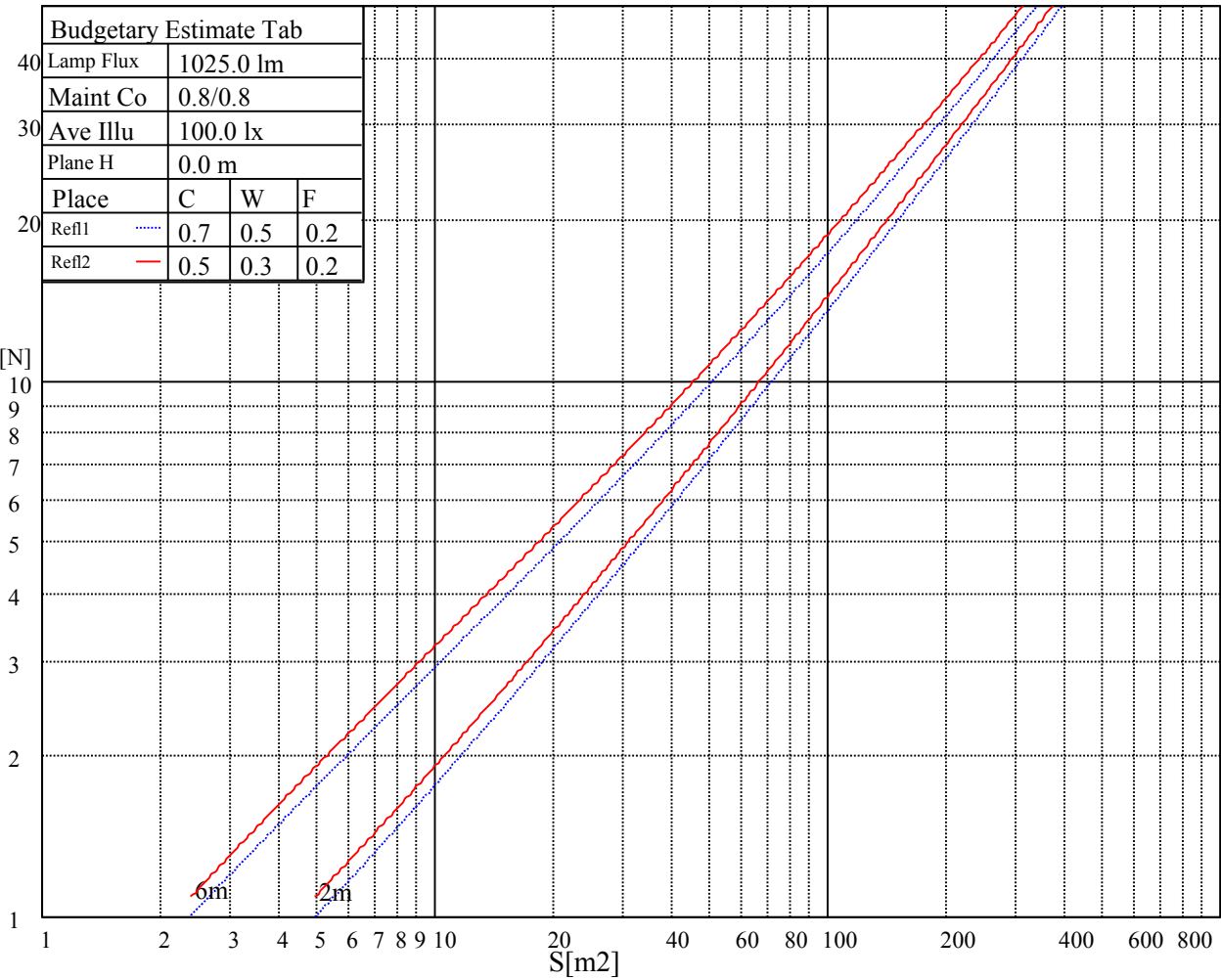
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

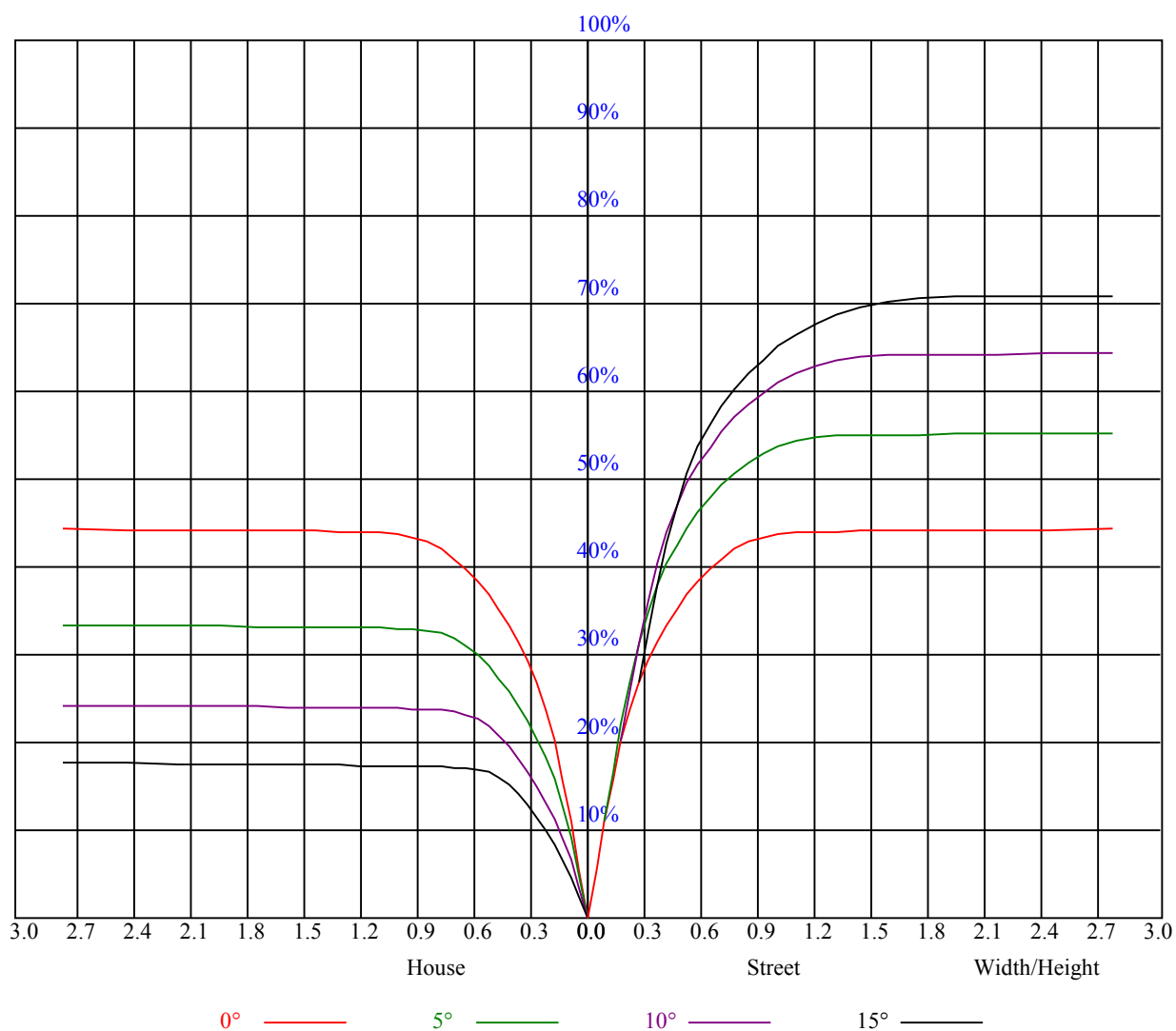
C0 ———

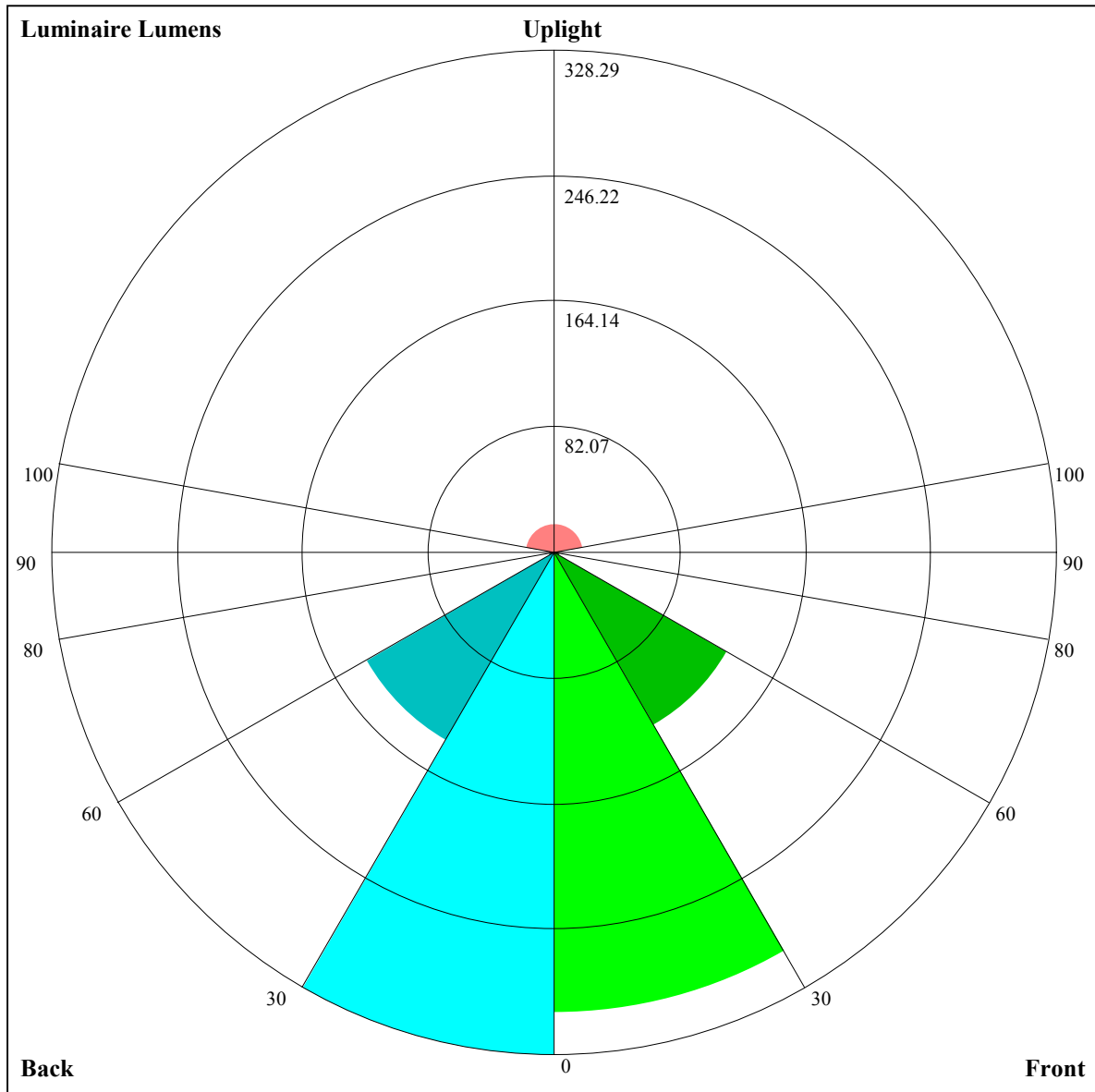
C45 ———

C90 ———



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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.95	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.92	0.89	0.86	0.91	0.88	0.85	0.88	0.85	0.83	0.85	0.83	0.81	0.83	0.81	0.80	0.78
3	0.87	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.73
4	0.81	0.77	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.71	0.75	0.72	0.70	0.69
5	0.77	0.72	0.68	0.76	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.71	0.68	0.66	0.65
6	0.73	0.68	0.64	0.72	0.67	0.64	0.71	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.62	0.61
7	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.58
8	0.65	0.60	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.62	0.59	0.56	0.55
9	0.62	0.57	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.60	0.56	0.53	0.52
10	0.59	0.55	0.52	0.59	0.55	0.51	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.54	0.51	0.50





Luminaire Lumens:

FL=301.58,FM=130.05,FH=4.08,FVH=2

BL=328.29,BM=141.81,BH=4.09,BVH=2.01

UL=3.94,UH=18.76

BUG Rating:B1-U2-G0

Nata 1687-M

Intensity data(cd)									
Appendix Page: 17 Total:19									
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	2587.50	2561.06	2502.56	2421.00	2331.56	2214.00	2079.56	1954.13	1821.94
45.0	2597.06	2573.44	2517.19	2450.25	2351.25	2234.25	2116.69	1969.88	1836.00
90.0	2591.44	2574.00	2535.75	2457.00	2378.81	2282.06	2158.31	2022.19	1891.13
135.0	2586.94	2594.25	2580.19	2546.44	2487.38	2405.25	2305.13	2204.44	2091.38
180.0	2587.50	2592.00	2577.38	2539.69	2473.88	2399.06	2305.13	2165.63	2047.50
225.0	2597.06	2591.44	2570.63	2509.88	2439.56	2345.06	2231.44	2106.00	1987.88
270.0	2591.44	2585.81	2550.94	2494.69	2406.38	2298.38	2191.50	2060.44	1939.50
315.0	2583.56	2548.13	2489.63	2392.88	2296.13	2189.25	2072.81	1915.31	1784.25
360.0	2587.50	2561.06	2502.56	2421.00	2331.56	2214.00	2079.56	1954.13	1821.94
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1646.44	1501.88	1355.06	1194.75	1045.13	918.56	790.31	680.06	602.44
45.0	1680.19	1518.19	1370.25	1230.19	1057.50	934.31	820.13	698.06	618.75
90.0	1743.19	1590.19	1451.81	1293.75	1120.50	1005.30	870.64	765.34	675.56
135.0	1958.63	1816.31	1679.63	1540.69	1357.88	1226.25	1092.38	936.00	824.06
180.0	1924.88	1758.38	1621.69	1484.44	1330.31	1107.00	1044.62	896.74	804.32
225.0	1845.56	1696.50	1555.88	1397.25	1209.94	1101.38	960.58	849.26	749.08
270.0	1793.81	1640.81	1500.19	1337.63	1178.44	1044.56	923.06	788.63	695.81
315.0	1630.69	1469.25	1321.31	1107.23	1023.86	888.69	780.86	676.18	600.92
360.0	1646.44	1501.88	1355.06	1194.75	1045.13	918.56	790.31	680.06	602.44
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	534.38	488.81	451.69	426.38	410.06	397.13	381.38	371.25	361.69
45.0	553.50	493.31	454.50	428.06	406.69	390.38	378.00	367.88	358.88
90.0	591.08	525.09	480.15	440.78	418.73	402.86	389.76	375.58	366.53
135.0	735.75	626.06	556.31	506.25	464.06	431.44	414.56	394.31	381.94
180.0	696.49	606.04	542.98	489.38	448.48	422.44	403.54	384.53	372.54
225.0	643.44	575.10	522.06	470.98	440.72	419.57	398.59	384.75	372.66
270.0	617.63	549.00	497.25	461.25	433.69	411.75	396.56	381.94	370.69
315.0	534.99	486.11	454.39	428.18	407.76	393.53	380.53	366.98	357.92
360.0	534.38	488.81	451.69	426.38	410.06	397.13	381.38	371.25	361.69
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	350.44	342.56	335.25	329.06	322.31	316.13	310.50	304.31	299.25
45.0	350.44	341.44	334.13	327.38	320.06	315.00	309.94	304.31	298.69
90.0	357.69	347.68	337.89	330.98	323.83	317.53	312.41	306.39	301.39
135.0	368.44	357.19	349.31	340.88	331.88	325.13	319.50	313.31	308.81
180.0	361.86	350.94	342.96	334.97	327.54	322.14	317.93	311.34	307.74
225.0	360.11	352.69	344.14	335.48	330.47	324.23	317.19	313.20	307.86
270.0	358.88	350.44	340.88	333.56	326.25	320.63	315.56	310.50	304.31
315.0	348.81	339.24	331.20	324.73	318.71	312.41	307.63	302.34	297.56
360.0	350.44	342.56	335.25	329.06	322.31	316.13	310.50	304.31	299.25
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	294.19	286.31	274.89	247.56	220.89	193.56	161.27	128.64	99.39
45.0	293.06	287.44	284.06	253.18	230.68	201.77	170.10	140.51	108.00
90.0	295.71	289.86	280.74	263.70	240.36	215.38	187.26	150.30	121.11
135.0	303.75	298.69	293.63	284.63	264.83	244.35	214.99	183.43	154.24
180.0	303.30	297.51	291.88	280.74	258.19	238.44	213.02	174.21	149.18
225.0	300.99	296.66	291.66	276.36	261.00	238.56	208.97	176.79	146.93
270.0	298.69	293.06	284.06	275.57	247.11	223.59	193.33	160.09	130.50
315.0	291.15	280.13	263.25	238.61	209.81	181.91	152.61	116.49	88.31
360.0	294.19	286.31	274.89	247.56	220.89	193.56	161.27	128.64	99.39

Intensity data(cd)										Appendix Page: 18 Total:19	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	68.91	43.43	26.38	16.65	12.88	10.58	8.44	6.64	5.85		
45.0	76.78	52.31	30.54	18.17	13.11	11.08	9.00	7.26	5.74		
90.0	92.25	63.00	38.59	22.78	14.01	11.59	9.90	7.88	6.36		
135.0	121.89	90.00	64.29	42.24	21.88	13.78	11.42	9.62	7.54		
180.0	120.32	89.33	61.37	40.11	22.67	13.50	11.42	9.68	7.88		
225.0	112.89	84.15	55.74	33.36	19.46	13.44	11.53	9.56	7.71		
270.0	97.14	66.88	44.16	26.55	15.36	12.88	10.69	8.44	6.19		
315.0	61.93	37.52	21.09	15.19	12.49	9.84	7.88	6.30	5.91		
360.0	68.91	43.43	26.38	16.65	12.88	10.58	8.44	6.64	5.85		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	5.23	5.01	4.89	4.73	4.67	4.61	4.50	4.39	4.39		
45.0	5.29	4.95	4.78	4.67	4.61	4.50	4.44	4.39	4.33		
90.0	5.51	5.29	5.01	4.67	4.56	4.44	4.39	4.28	4.28		
135.0	6.08	5.18	4.89	4.73	4.61	4.56	4.44	4.39	4.33		
180.0	6.24	5.46	5.18	4.84	4.61	4.56	4.44	4.39	4.28		
225.0	5.96	5.51	5.23	4.84	4.67	4.56	4.50	4.39	4.33		
270.0	5.29	5.06	4.89	4.78	4.67	4.56	4.50	4.39	4.33		
315.0	5.68	5.06	4.78	4.67	4.56	4.50	4.39	4.28	4.22		
360.0	5.23	5.01	4.89	4.73	4.67	4.61	4.50	4.39	4.39		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	4.28	4.28	4.16	4.11	4.05	3.99	3.94	3.94	3.88		
45.0	4.28	4.16	4.16	4.11	4.05	3.99	3.94	3.94	3.94		
90.0	4.22	4.16	4.11	4.11	4.05	3.99	3.99	3.94	3.94		
135.0	4.28	4.22	4.16	4.11	4.05	3.99	3.99	3.94	3.94		
180.0	4.22	4.22	4.11	4.05	4.05	3.99	3.99	3.94	3.88		
225.0	4.22	4.22	4.16	4.11	4.05	3.99	3.94	3.94	3.88		
270.0	4.22	4.22	4.16	4.11	4.05	3.99	3.94	3.94	3.88		
315.0	4.16	4.16	4.05	4.05	3.99	3.99	3.94	3.88	3.88		
360.0	4.28	4.28	4.16	4.11	4.05	3.99	3.94	3.94	3.88		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	3.88	3.83	3.83	3.83	3.77	3.77	3.71	3.71	3.71		
45.0	3.88	3.83	3.83	3.77	3.77	3.77	3.77	3.71	3.71		
90.0	3.88	3.88	3.88	3.88	3.83	3.83	3.83	3.77	3.77		
135.0	3.88	3.88	3.83	3.83	3.77	3.77	3.77	3.71	3.71		
180.0	3.88	3.83	3.83	3.83	3.77	3.77	3.71	3.71	3.71		
225.0	3.88	3.83	3.83	3.83	3.77	3.77	3.77	3.77	3.71		
270.0	3.94	3.88	3.83	3.88	3.83	3.83	3.77	3.77	3.77		
315.0	3.83	3.83	3.83	3.77	3.77	3.77	3.71	3.71	3.71		
360.0	3.88	3.83	3.83	3.83	3.77	3.77	3.71	3.71	3.71		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	3.71	3.66	3.71	3.66	3.66	3.66	3.60	3.60	3.60		
45.0	3.71	3.66	3.71	3.66	3.66	3.66	3.66	3.66	3.66		
90.0	3.77	3.77	3.77	3.77	3.71	3.66	3.66	3.66	3.66		
135.0	3.71	3.71	3.71	3.71	3.66	3.66	3.66	3.66	3.66		
180.0	3.71	3.71	3.66	3.66	3.66	3.66	3.66	3.60	3.60		
225.0	3.71	3.71	3.66	3.71	3.66	3.66	3.66	3.66	3.60		
270.0	3.77	3.71	3.71	3.71	3.71	3.71	3.66	3.66	3.66		
315.0	3.66	3.66	3.66	3.71	3.66	3.66	3.60	3.60	3.60		
360.0	3.71	3.66	3.71	3.66	3.66	3.66	3.60	3.60	3.60		

Intensity data(cd)

Appendix Page: 19 Total:19

C/ γ (°)	90.0
0.0	3.60
45.0	3.60
90.0	3.60
135.0	3.60
180.0	3.60
225.0	3.66
270.0	3.66
315.0	3.60
360.0	3.60