
Nata

Client:

LumCAT: 3-2117-N

Luminaire: 92.70.131.00

Report No: nata0100

Test No: GC2018052101

LampCAT: LUMINUS CHM-9 XH20

Lamp flux(lm): 1521.7

Number of Lamps: 1

Length(mm): 74

Phm Type: C

Voltage(V): 35.0000

Current(A): 0.4000

Power (W): 14.0000

PF: 0.0000

Ballast type: DC

Width(mm): 74

Height(mm): 0

Photometric Results

Lumens(lm): 1259.62, Efficiency(%): 82.78% , Luminous Efficacy(lm/W): 89.97

Central intensity(cd): 3038.150, Maximum intensity(cd): 3038.150

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=36.8

[C90/270]Total=36.8

Field angle(10%Imax): [C0/180]Total=59.8

[C90/270]Total=59.8

Maximum s/h(1/2): C0_180=0.63 C90_270=0.63

Maximum s/h(1/4): C0_180=0.57 C90_270=0.57

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 83.89%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.026%

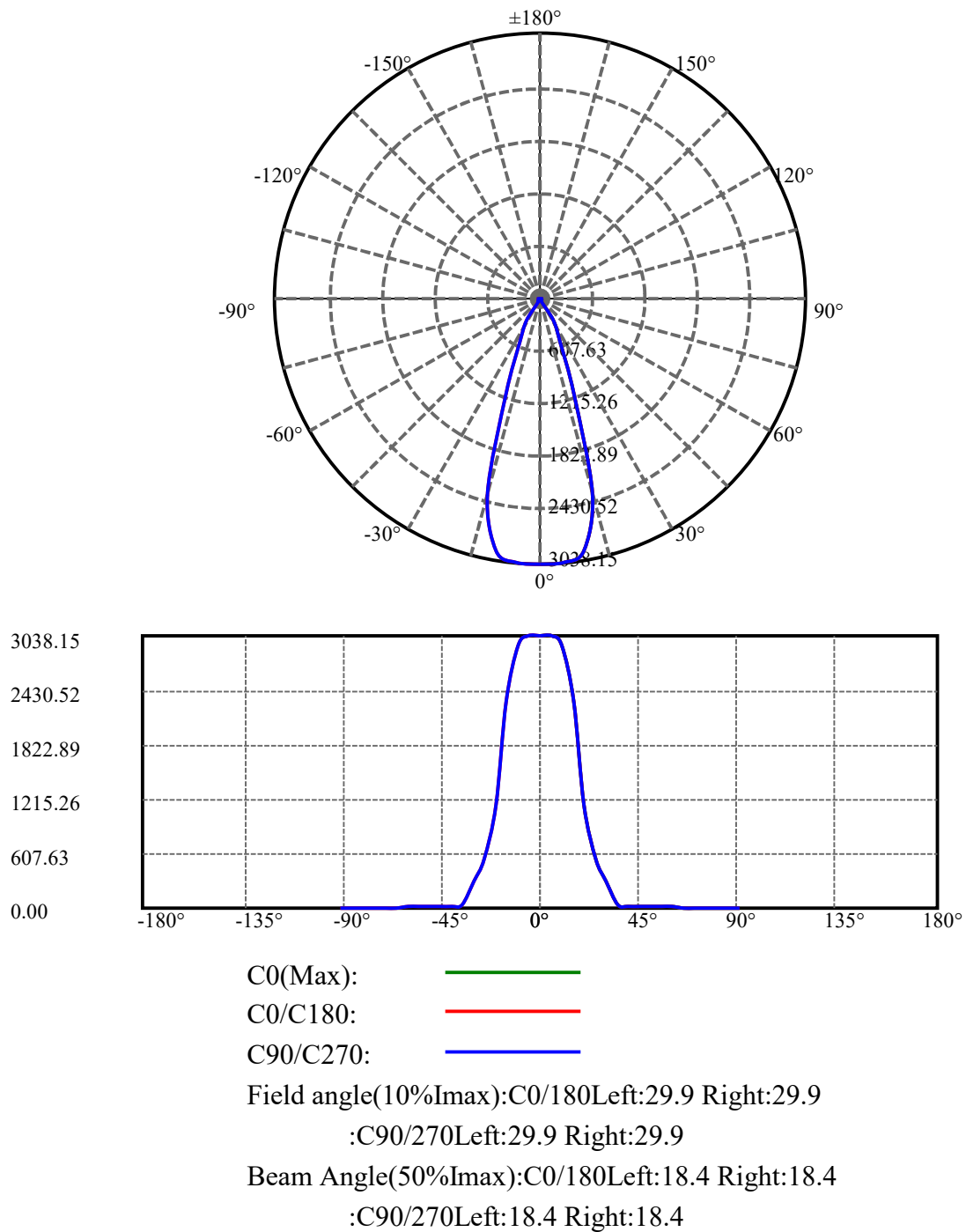
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3038.150	18.169	18.169	1.194%	1.442%
5.0	3036.705	145.073	163.242	9.534%	12.960%
10.0	2927.762	278.673	441.916	18.313%	35.083%
15.0	2306.726	327.251	769.167	21.506%	61.063%
20.0	1151.628	215.900	985.067	14.188%	78.204%
25.0	549.394	127.269	1112.336	8.364%	88.307%
30.0	298.206	81.729	1194.065	5.371%	94.796%
35.0	44.155	13.882	1207.947	.912%	95.898%
40.0	25.491	8.981	1216.929	.590%	96.611%
45.0	17.012	6.594	1223.523	.433%	97.134%
50.0	13.097	5.499	1229.022	.361%	97.571%
55.0	11.011	4.944	1233.966	.325%	97.963%
60.0	9.814	4.659	1238.625	.306%	98.333%
65.0	8.885	4.414	1243.038	.290%	98.684%
70.0	8.183	4.215	1247.253	.277%	99.018%
75.0	7.460	3.950	1251.203	.260%	99.332%
80.0	6.744	3.641	1254.844	.239%	99.621%
85.0	6.036	3.296	1258.14	.217%	99.883%
90.0	5.396	1.479	1259.618	.097%	100.000%

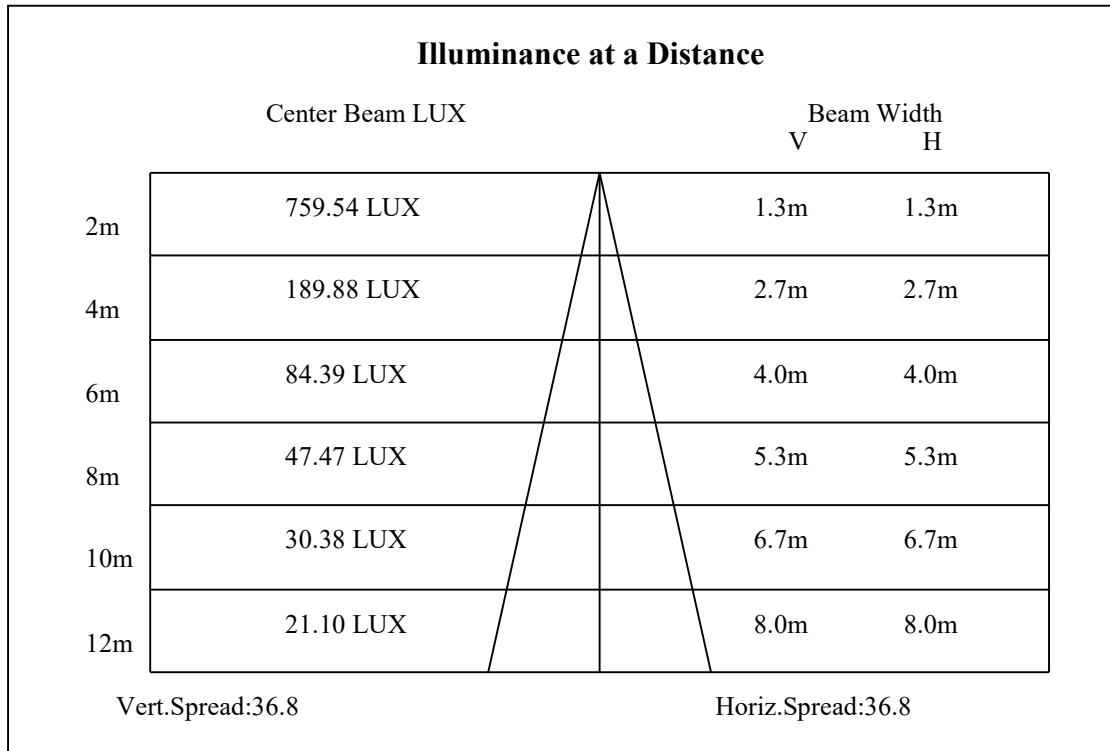
ZONAL LUMEN SUMMARY

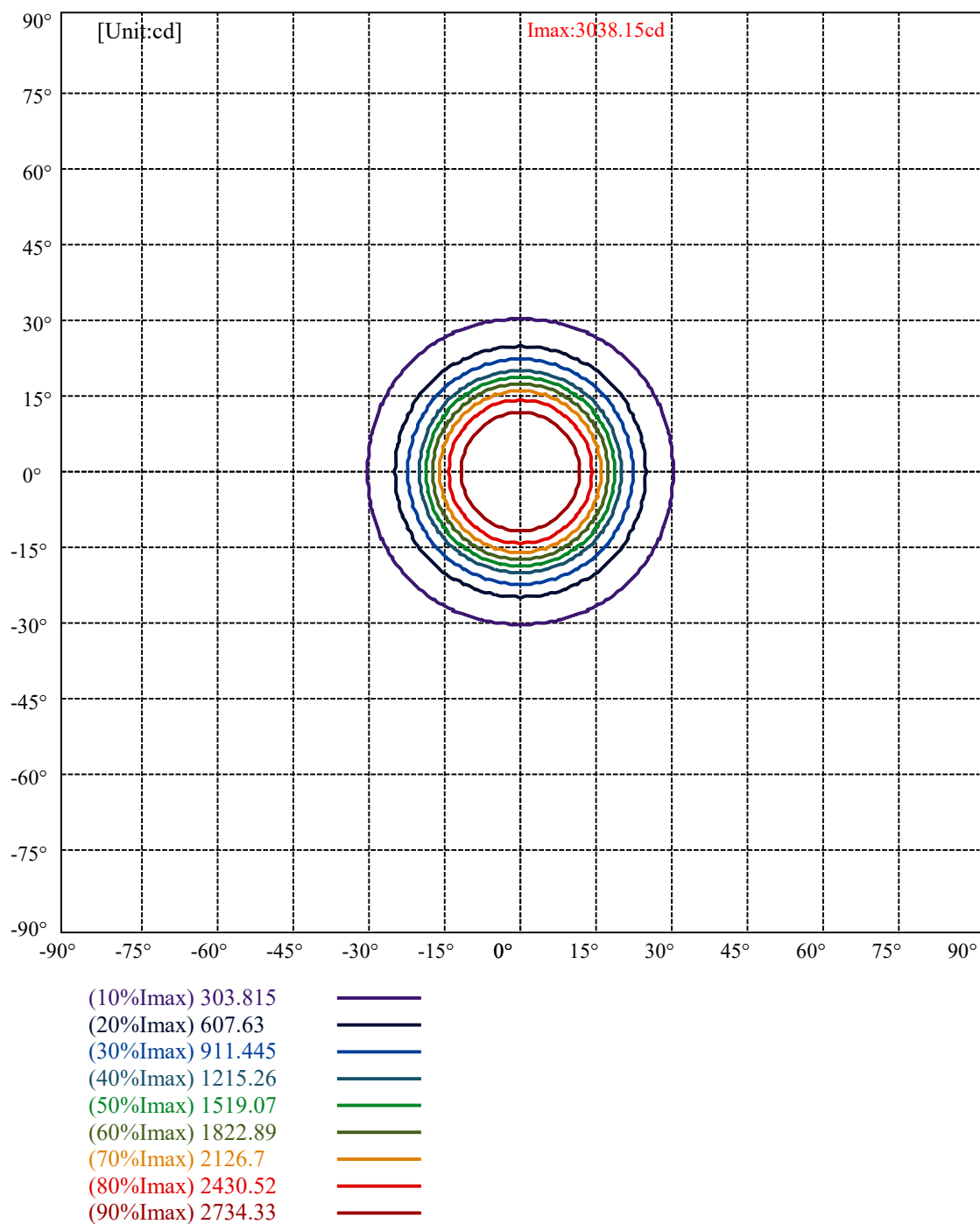
Zone	Lumens	%Lamp	%Fixt
0-30	1194.07	78.47%	94.80%
0-40	1216.93	79.97%	96.61%
0-60	1238.62	81.40%	98.33%
0-90	1258.14	82.68%	99.88%
0-120	1258.14	82.68%	99.88%
0-180	1259.62	82.78%	100.00%
60-90	24.17	1.59%	1.92%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-20.89	1007.70	66.22%	80.00%

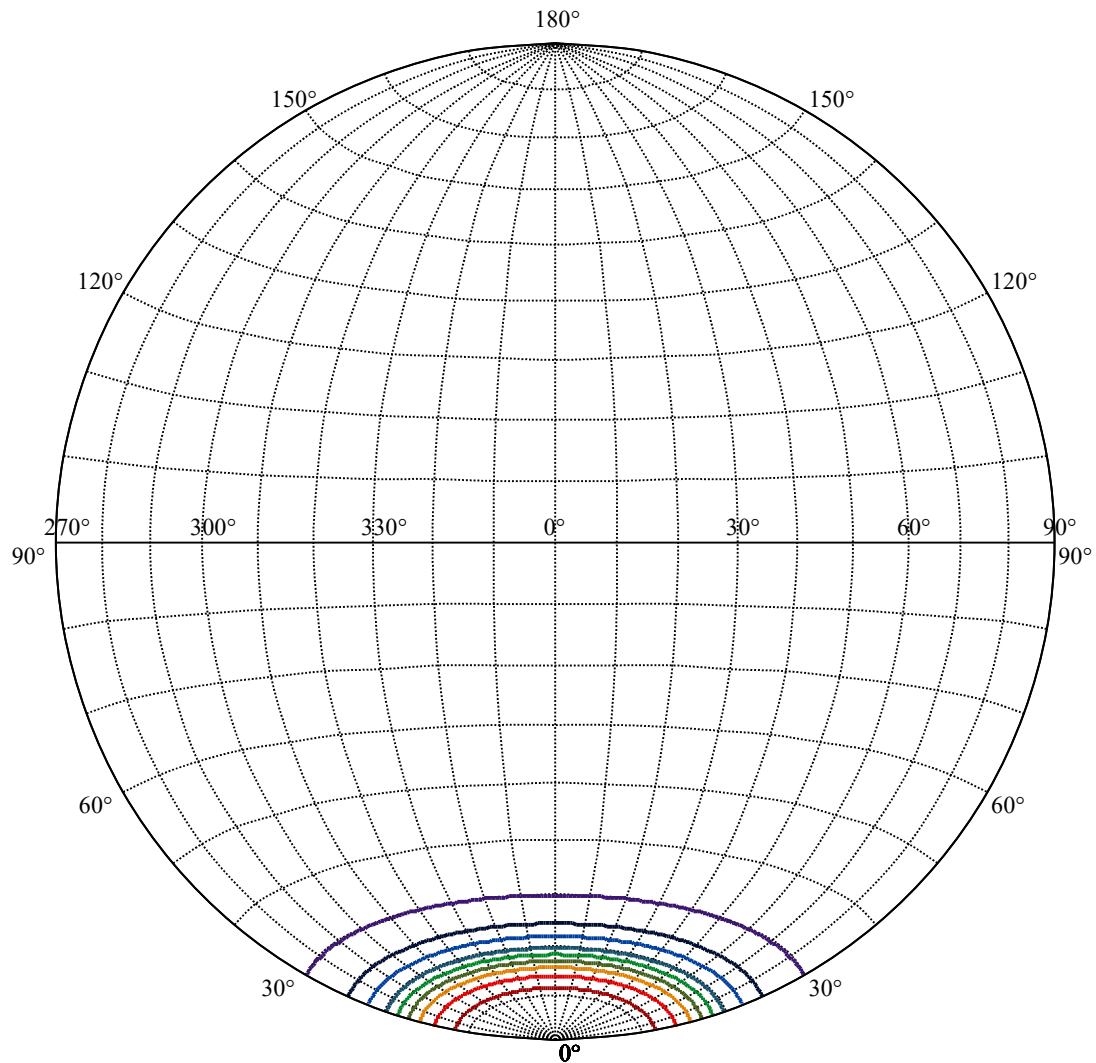
ZONAL LUMEN SUMMARY

0-10	441.92
10-20	543.15
20-30	209.00
30-40	22.86
40-50	12.09
50-60	9.60
60-70	8.63
70-80	7.59
80-90	3.30
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:3038.15

(10%Imax) 303.815

(20%Imax) 607.63

(30%Imax) 911.445

(40%Imax) 1215.26

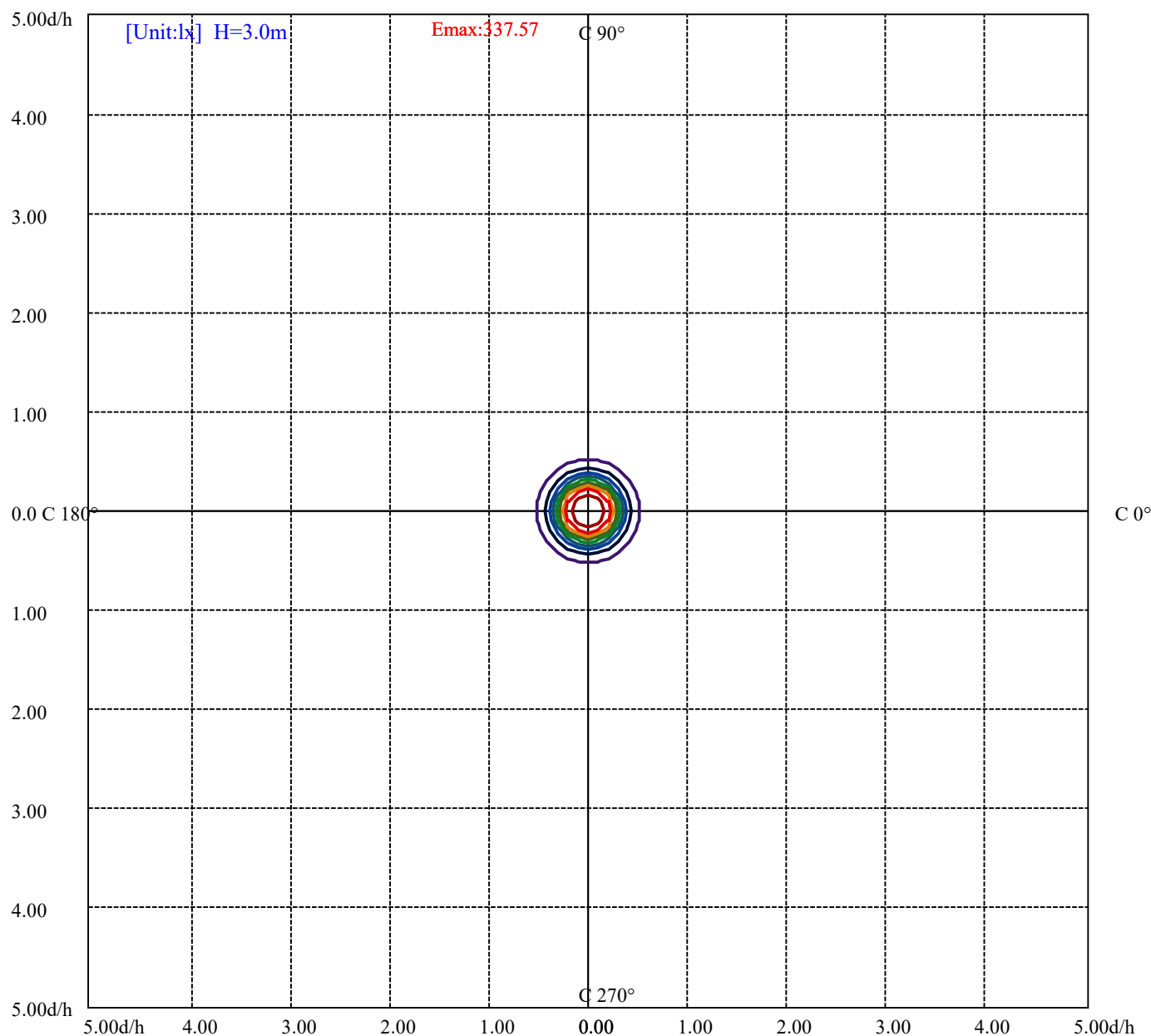
(50%Imax) 1519.07

(60%Imax) 1822.89

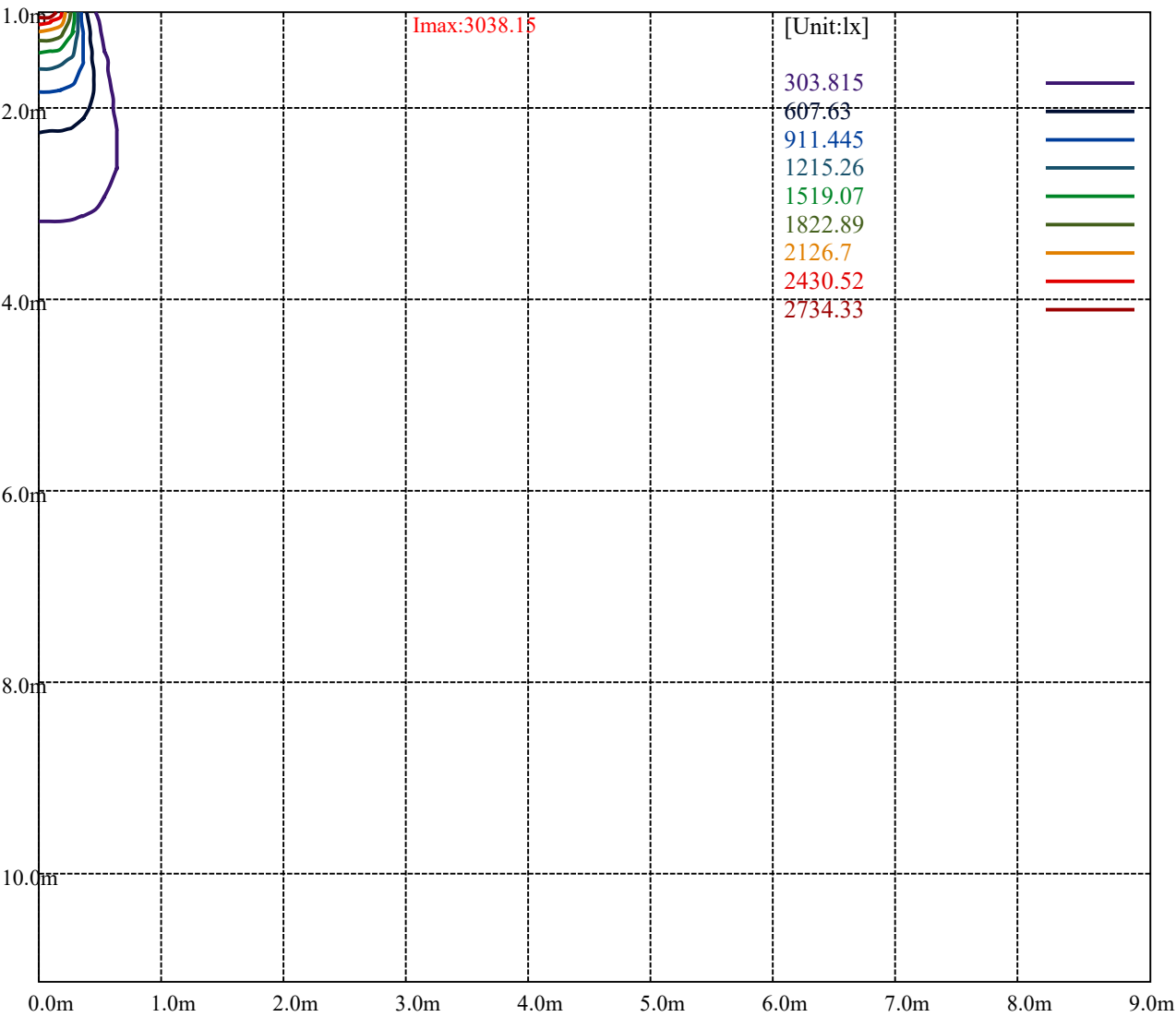
(70%Imax) 2126.7

(80%Imax) 2430.52

(90%Imax) 2734.33



(10%E _{max}) 33.75722	—
(20%E _{max}) 67.51444	—
(30%E _{max}) 101.2717	—
(40%E _{max}) 135.0289	—
(50%E _{max}) 168.7856	—
(60%E _{max}) 202.5433	—
(70%E _{max}) 236.3	—
(80%E _{max}) 270.0578	—
(90%E _{max}) 303.8145	—



Luminance Table

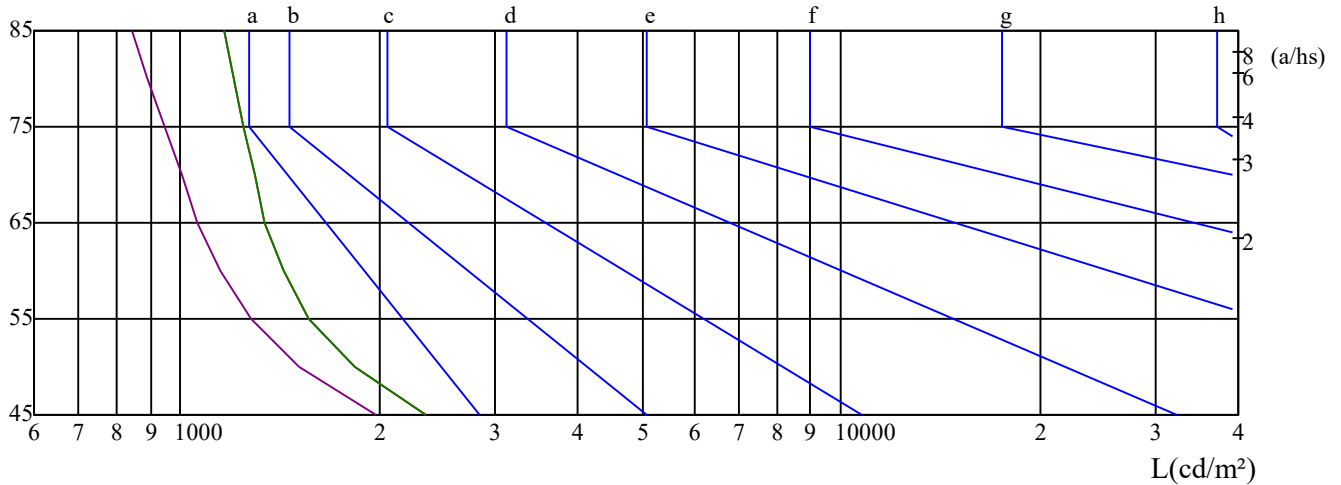
γ	45	50	55	60	65	70	75	80	85
C0	2356	1832	1568	1435	1345	1294	1245	1201	1162
C45	1976	1514	1276	1149	1060	1002	946	894	844
C90	2356	1832	1568	1435	1345	1294	1245	1201	1162

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3839	3839	3839	5264	5264	5264	12646	12646	12646

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

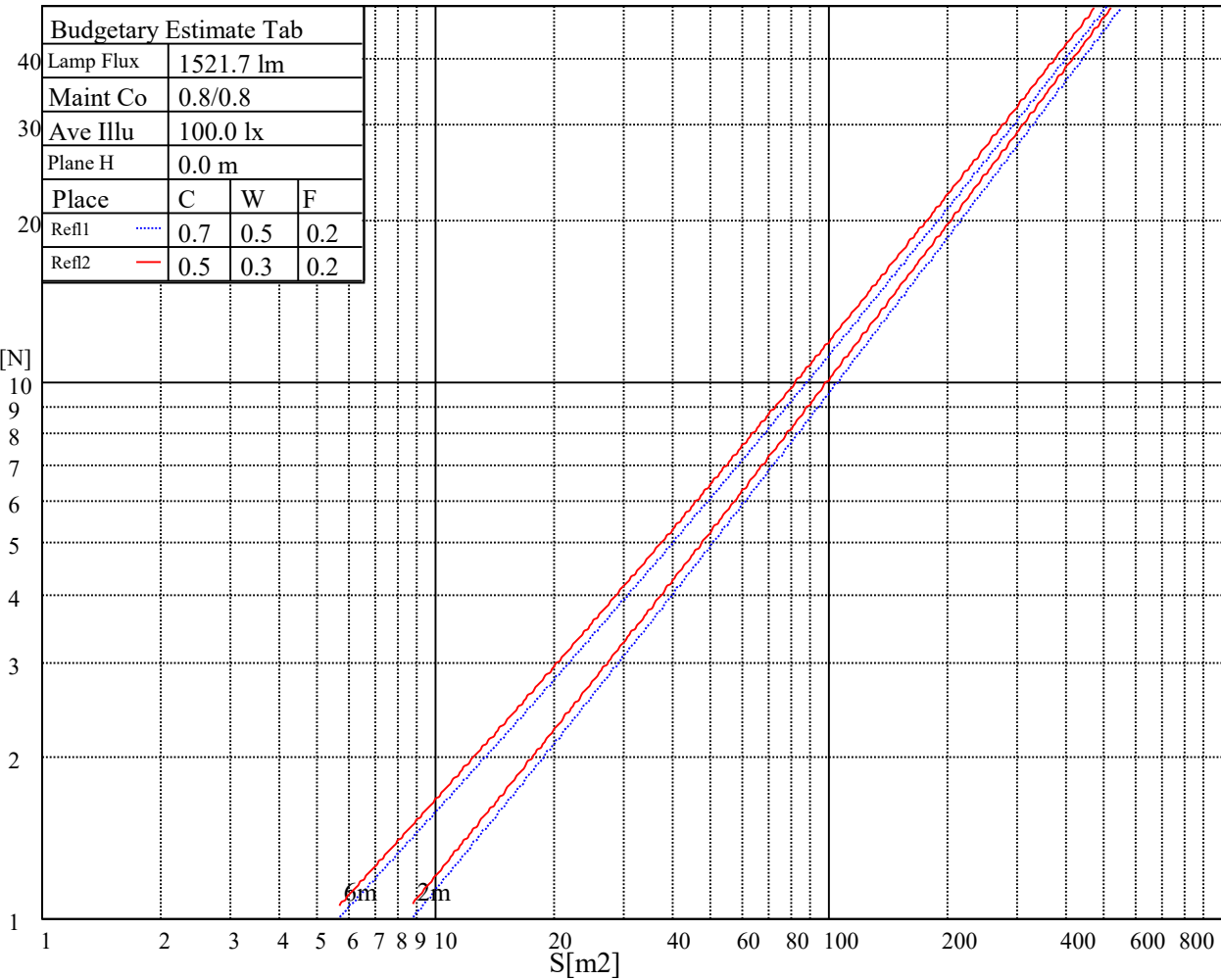
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

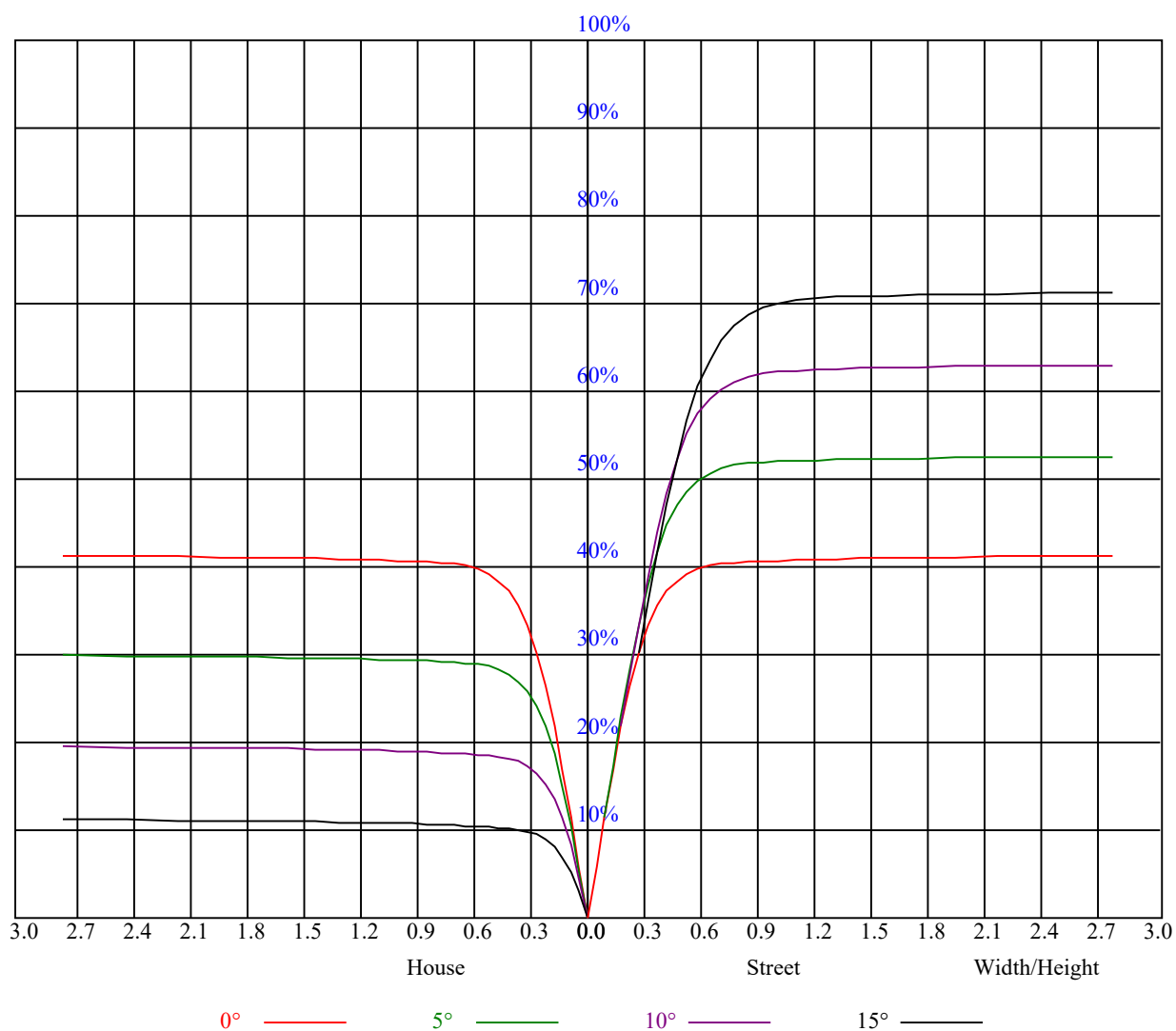
C0 ———

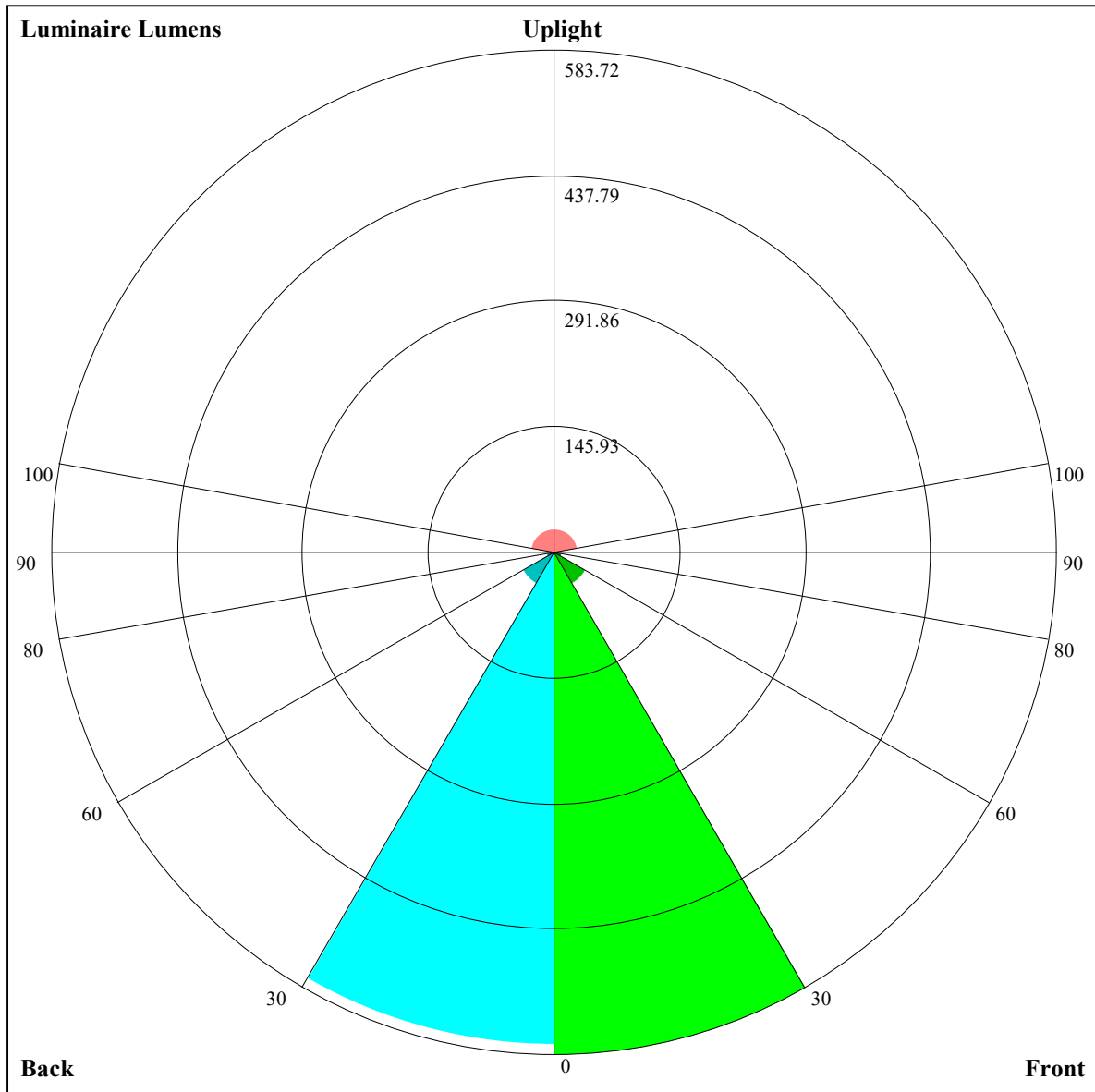
C45 ———

C90 ———



RHOC	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	1.00	1.00	1.00	0.98	0.98	0.98	0.93	0.93	0.93	0.89	0.89	0.89	0.86	0.86	0.86	0.84
1	0.93	0.91	0.89	0.91	0.89	0.87	0.88	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80	0.78
2	0.88	0.85	0.83	0.87	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.78	0.79	0.78	0.77	0.75
3	0.84	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.74	0.73
4	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.70
5	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.74	0.72	0.69	0.73	0.71	0.69	0.68
6	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.66
7	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
8	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
9	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.60	0.59





Luminaire Lumens:

FL=583.72,FM=43.04,FH=8.42,FVH=3.31

BL=572.22,BM=42.09,BH=8.38,BVH=3.3

UL=5.89,UH=28.01

BUG Rating:B2-U2-G0

Intensity data(cd)									Appendix Page: 15 Total:15	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	
0.0	3041.87	3074.90	3018.19	2437.90	1331.81	570.38	343.00	47.62	27.20	
45.0	3057.28	3020.94	2938.91	2347.60	1228.86	563.23	316.02	46.80	26.26	
90.0	3003.33	2973.60	2842.56	2211.62	1038.69	551.17	256.56	43.27	25.27	
135.0	3050.12	2944.42	2869.54	2425.23	1266.85	606.72	362.27	43.99	26.43	
180.0	3041.87	2987.91	2855.22	2218.22	1025.98	519.51	243.73	40.74	23.95	
225.0	3057.28	3067.19	2903.12	2148.30	1050.92	531.62	266.20	43.94	25.11	
270.0	3003.33	3120.05	2994.52	2441.75	1253.63	556.07	338.05	47.62	26.70	
315.0	3050.12	3104.63	3000.02	2223.18	1016.29	496.44	259.81	39.26	23.01	
360.0	3041.87	3074.90	3018.19	2437.90	1331.81	570.38	343.00	47.62	27.20	
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	
0.0	17.67	13.32	11.18	9.86	8.92	8.20	7.49	6.77	6.00	
45.0	17.23	13.38	11.18	9.91	8.97	8.31	7.54	6.83	6.11	
90.0	16.74	13.05	11.07	9.86	8.97	8.26	7.54	6.77	6.11	
135.0	17.34	13.27	11.07	9.91	8.92	8.20	7.49	6.77	6.06	
180.0	16.02	12.77	10.74	9.63	8.75	7.98	7.27	6.55	5.89	
225.0	16.63	12.83	10.90	9.69	8.75	8.15	7.43	6.72	6.06	
270.0	18.22	13.49	11.23	10.02	9.03	8.31	7.60	6.88	6.06	
315.0	16.24	12.66	10.74	9.63	8.75	8.04	7.32	6.66	6.00	
360.0	17.67	13.32	11.18	9.86	8.92	8.20	7.49	6.77	6.00	
C/ γ (°)	90.0									
0.0	5.34									
45.0	5.45									
90.0	5.40									
135.0	5.40									
180.0	5.34									
225.0	5.45									
270.0	5.40									
315.0	5.40									
360.0	5.34									