

---

NATA

---

Client:

LumCAT: 4-2267-M

Luminaire: 92.70.131.000

Report No: nata-0100

Test No: GC2018120706

LampCAT: OSRAM SOLERIQ S13

Lamp flux(lm): 1777.0

Number of Lamps: 1

Length(mm): 100

Phm Type: C

Voltage(V): 36.8000

Current(A): 0.5000

Power (W): 18.4000

PF: 0.0000

Ballast type: DC

Width(mm): 100

Height(mm): 0

---

Photometric Results

---

Lumens(lm): 1548.06, Efficiency(%): 87.12% , Luminous Efficacy(lm/W): 84.13

Central intensity(cd): 4044.234, Maximum intensity(cd): 4044.234

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

Beam Angle(50%Imax): [C0/180]Total=30.4

[C90/270]Total=30.4

Field angle(10%Imax): [C0/180]Total=68.4

[C90/270]Total=68.4

Maximum s/h(1/2): C0\_180=0.50 C90\_270=0.50

Maximum s/h(1/4): C0\_180=0.53 C90\_270=0.53

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.39%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.184%

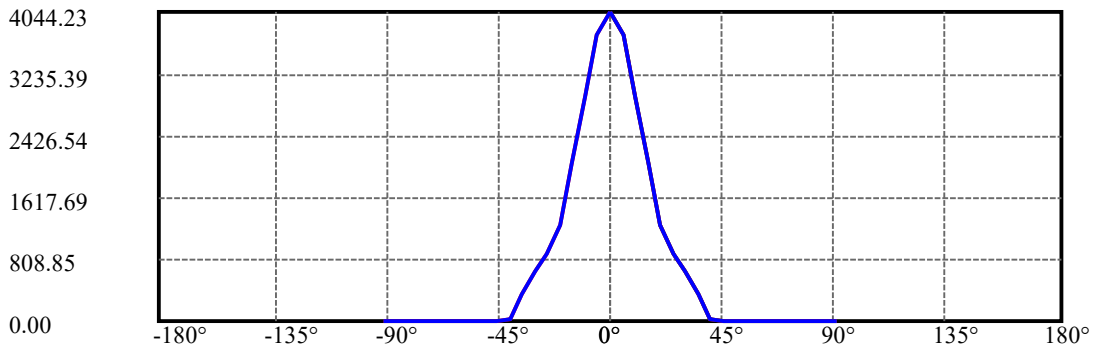
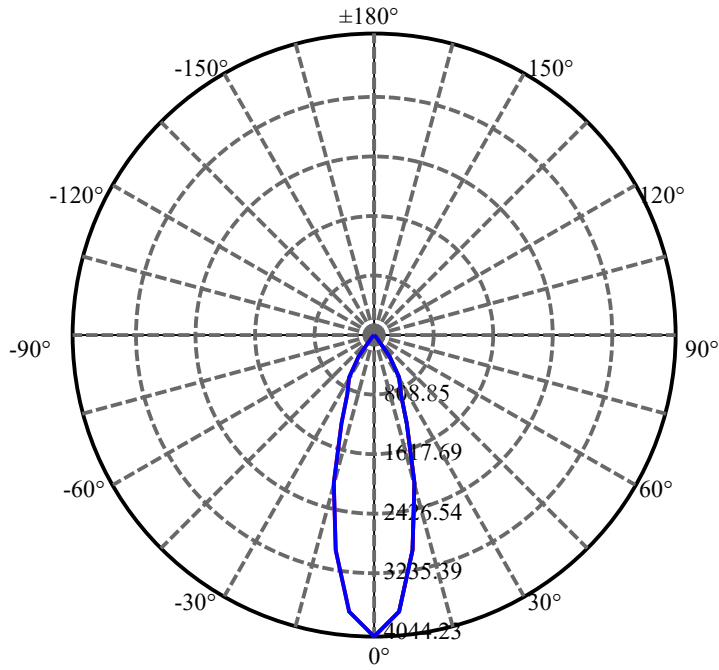
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4044.234	24.185	24.185	1.361%	1.562%
5.0	3732.188	178.299	202.484	10.034%	13.080%
10.0	2933.578	279.227	481.711	15.713%	31.117%
15.0	2060.578	292.331	774.042	16.451%	50.001%
20.0	1266.553	237.446	1011.488	13.362%	65.339%
25.0	870.159	201.575	1213.063	11.344%	78.360%
30.0	647.613	177.491	1390.553	9.988%	89.826%
35.0	360.485	113.336	1503.889	6.378%	97.147%
40.0	25.404	8.951	1512.84	.504%	97.725%
45.0	9.429	3.655	1516.495	.206%	97.961%
50.0	8.156	3.425	1519.92	.193%	98.182%
55.0	7.397	3.321	1523.241	.187%	98.397%
60.0	6.947	3.298	1526.538	.186%	98.610%
65.0	6.792	3.374	1529.913	.190%	98.828%
70.0	6.813	3.509	1533.422	.197%	99.055%
75.0	9.471	5.015	1538.437	.282%	99.379%
80.0	7.706	4.160	1542.597	.234%	99.647%
85.0	6.708	3.663	1546.259	.206%	99.884%
90.0	6.560	1.798	1548.057	.101%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1390.55	78.25%	89.83%
0-40	1512.84	85.13%	97.73%
0-60	1526.54	85.91%	98.61%
0-90	1546.26	87.02%	99.88%
0-120	1546.26	87.02%	99.88%
0-180	1548.06	87.12%	100.00%
60-90	23.02	1.30%	1.49%
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%
0-25.72	1238.45	69.69%	80.00%

ZONAL LUMEN SUMMARY

0-10	481.71
10-20	529.78
20-30	379.07
30-40	122.29
40-50	7.08
50-60	6.62
60-70	6.88
70-80	9.17
80-90	3.66
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

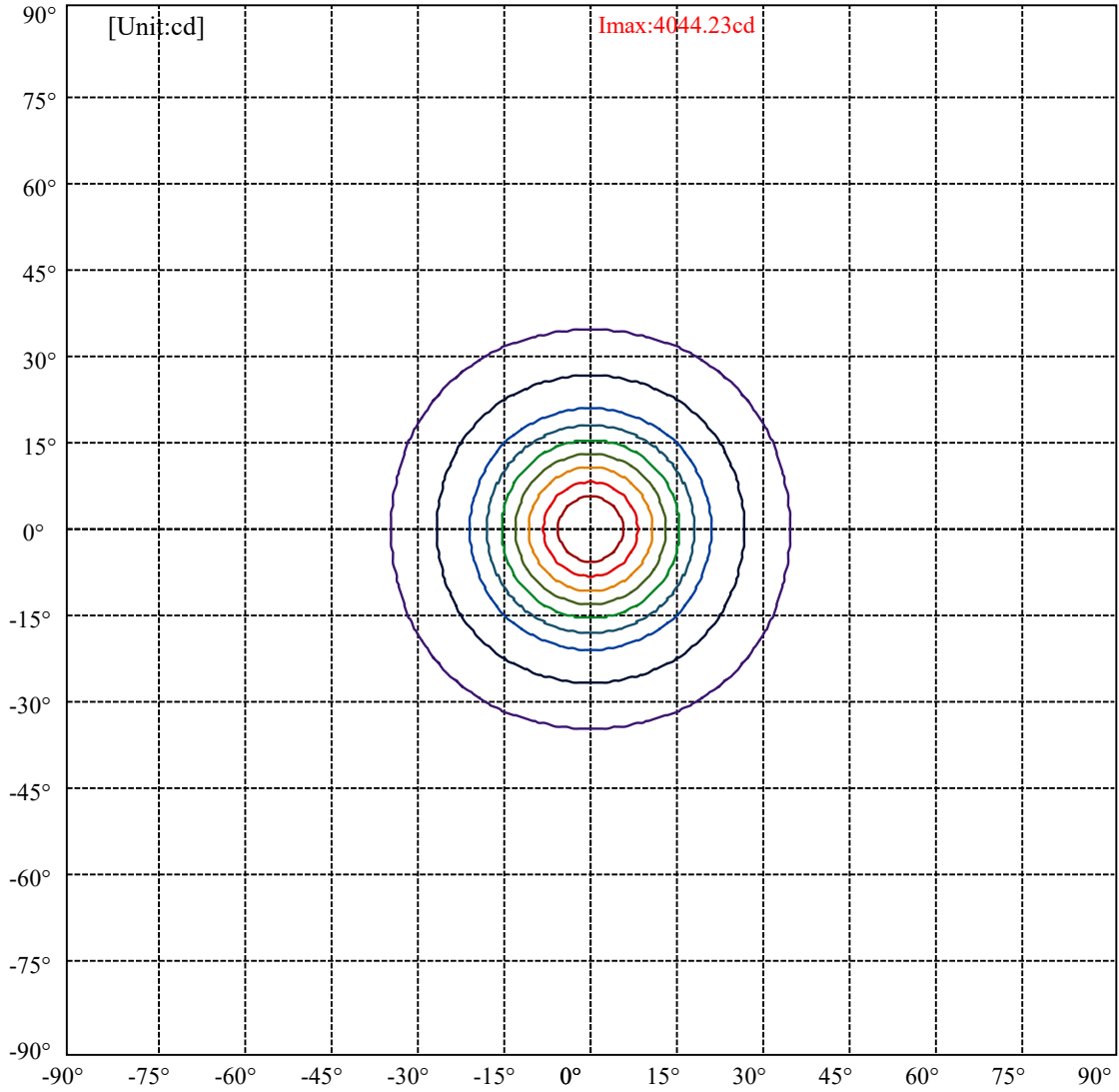


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

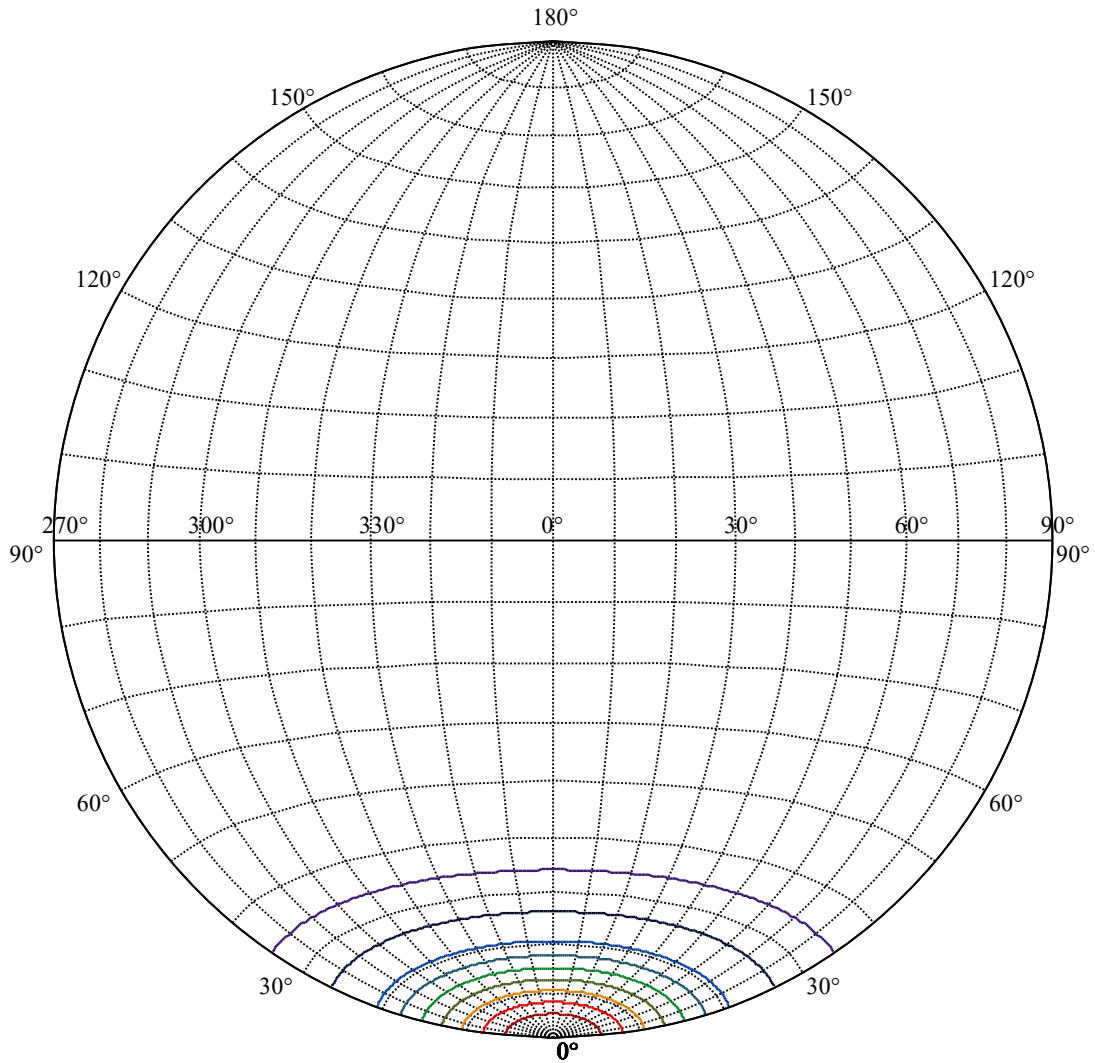
Field angle(10%Imax):C0/180Left:34.2 Right:34.2  
:C90/270Left:34.2 Right:34.2

Beam Angle(50%Imax):C0/180Left:15.2 Right:15.2  
:C90/270Left:15.2 Right:15.2





(10%Imax) 404.423	—
(20%Imax) 808.847	—
(30%Imax) 1213.27	—
(40%Imax) 1617.69	—
(50%Imax) 2022.12	—
(60%Imax) 2426.54	—
(70%Imax) 2830.96	—
(80%Imax) 3235.39	—
(90%Imax) 3639.81	—



House

[Unit:cd]

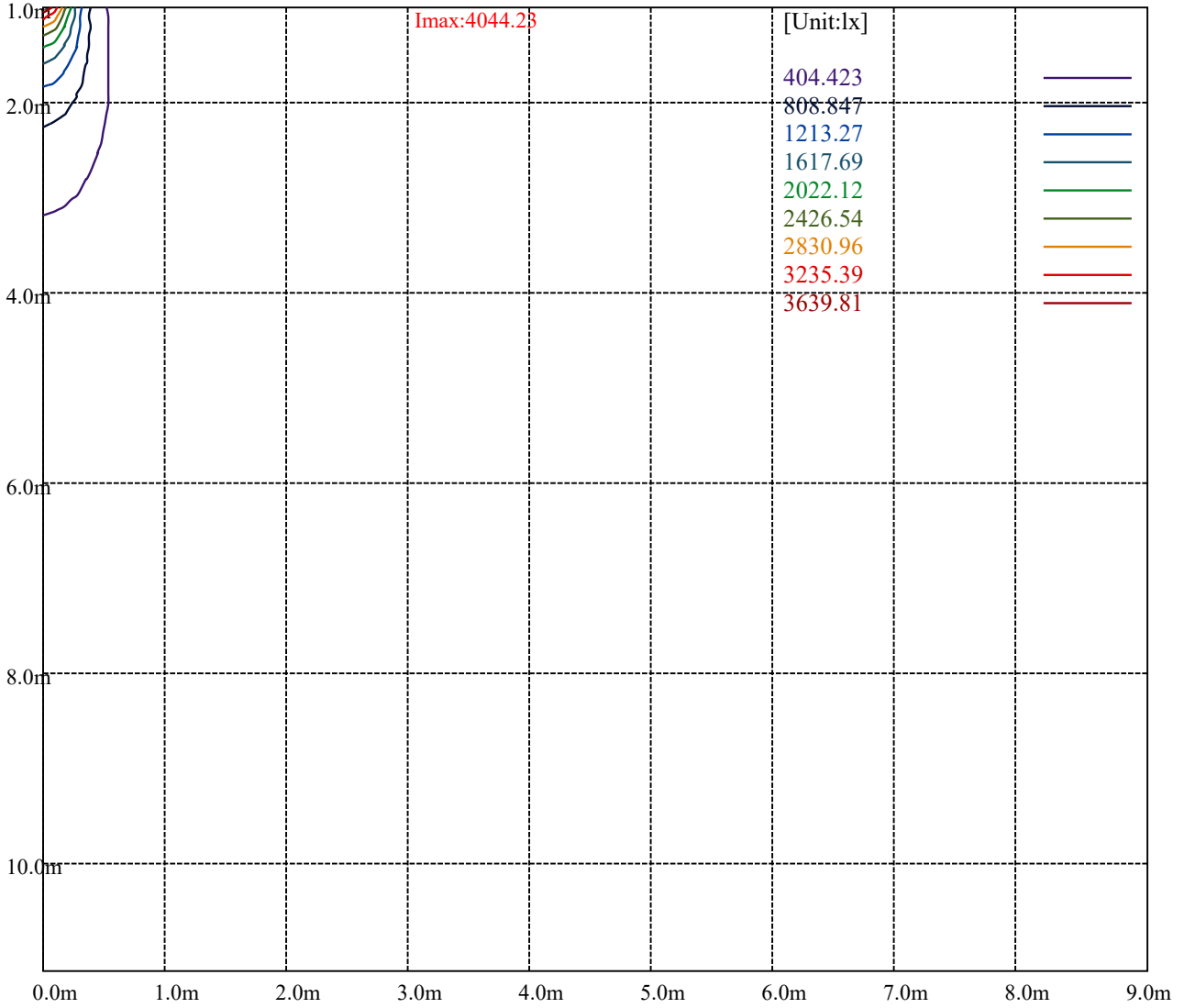
Road

Imax:4044.23

(10%Imax)	404.423	—
(20%Imax)	808.847	—
(30%Imax)	1213.27	—
(40%Imax)	1617.69	—
(50%Imax)	2022.12	—
(60%Imax)	2426.54	—
(70%Imax)	2830.96	—
(80%Imax)	3235.39	—
(90%Imax)	3639.81	—







Luminance Table

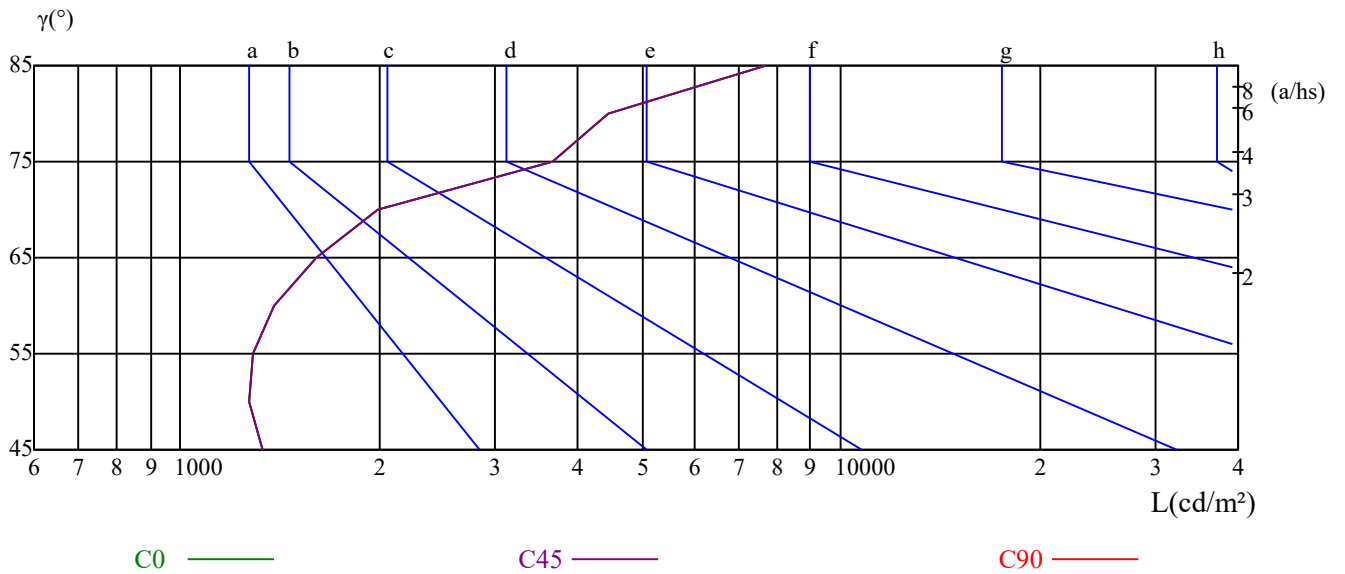
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1333	1269	1290	1389	1607	1992	3659	4438	7696
C45	1333	1269	1290	1389	1607	1992	3659	4438	7696
C90	1333	1269	1290	1389	1607	1992	3659	4438	7696

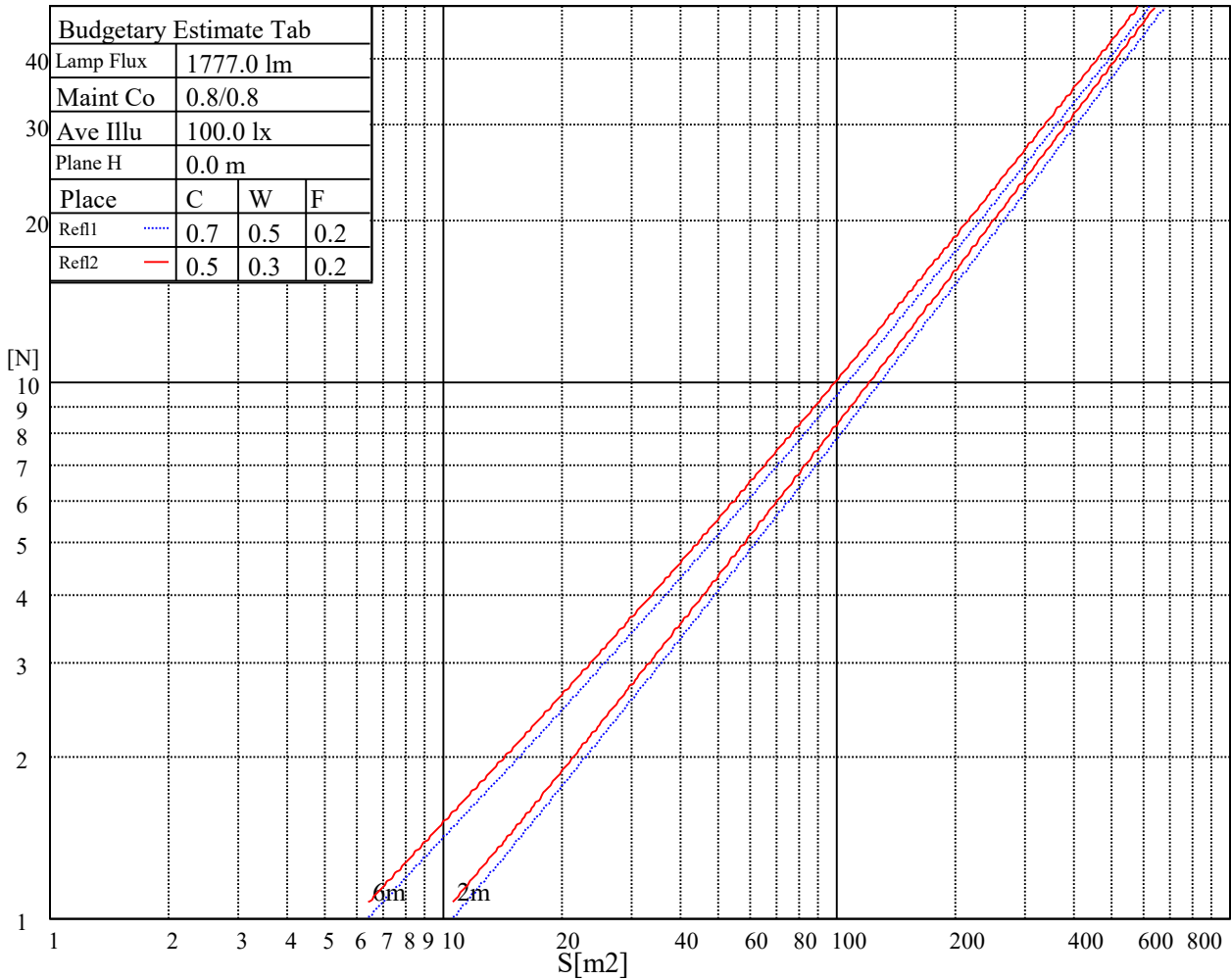
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1607	1607	1607	3659	3659	3659	7696	7696	7696

Glare Table

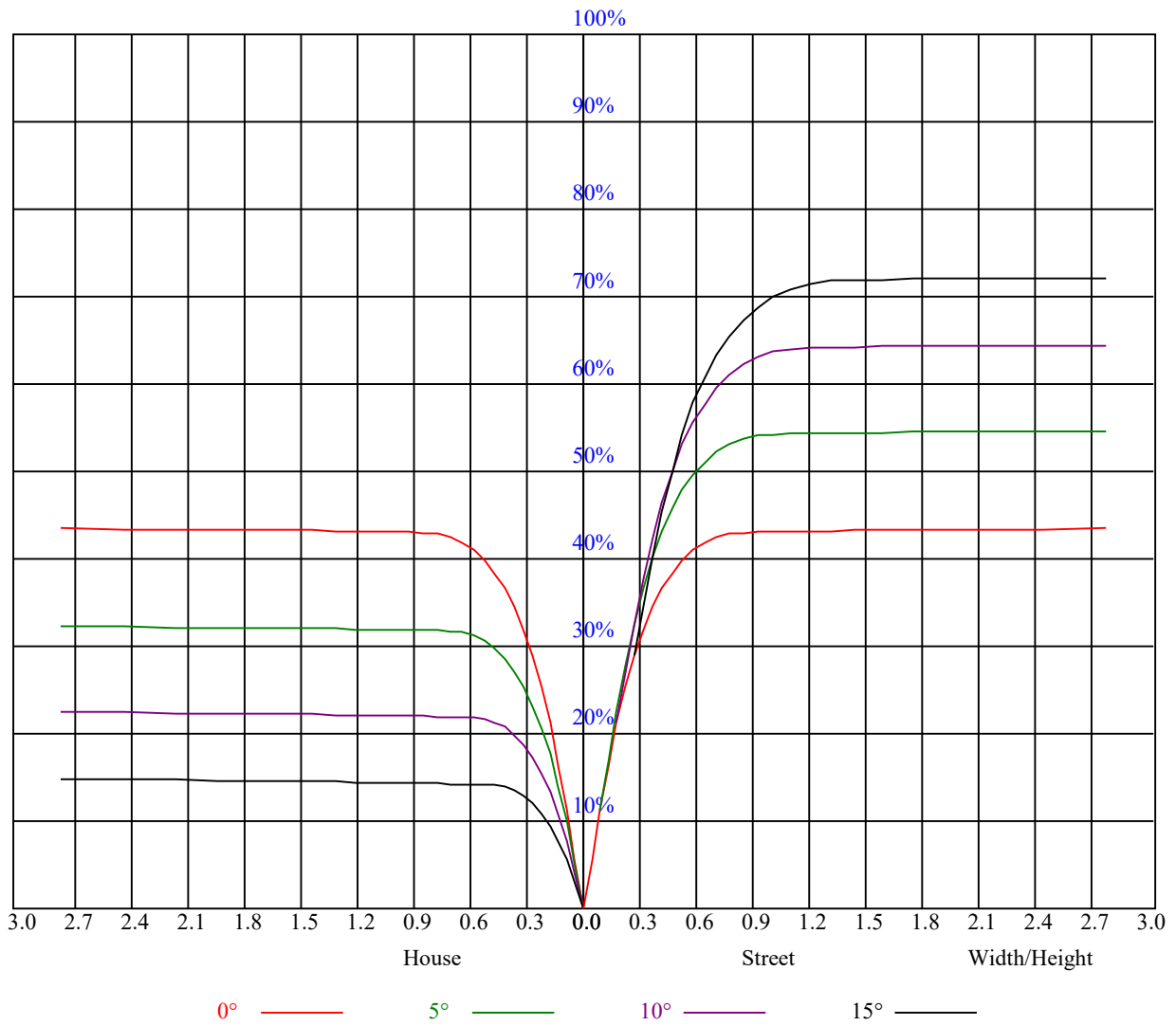
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

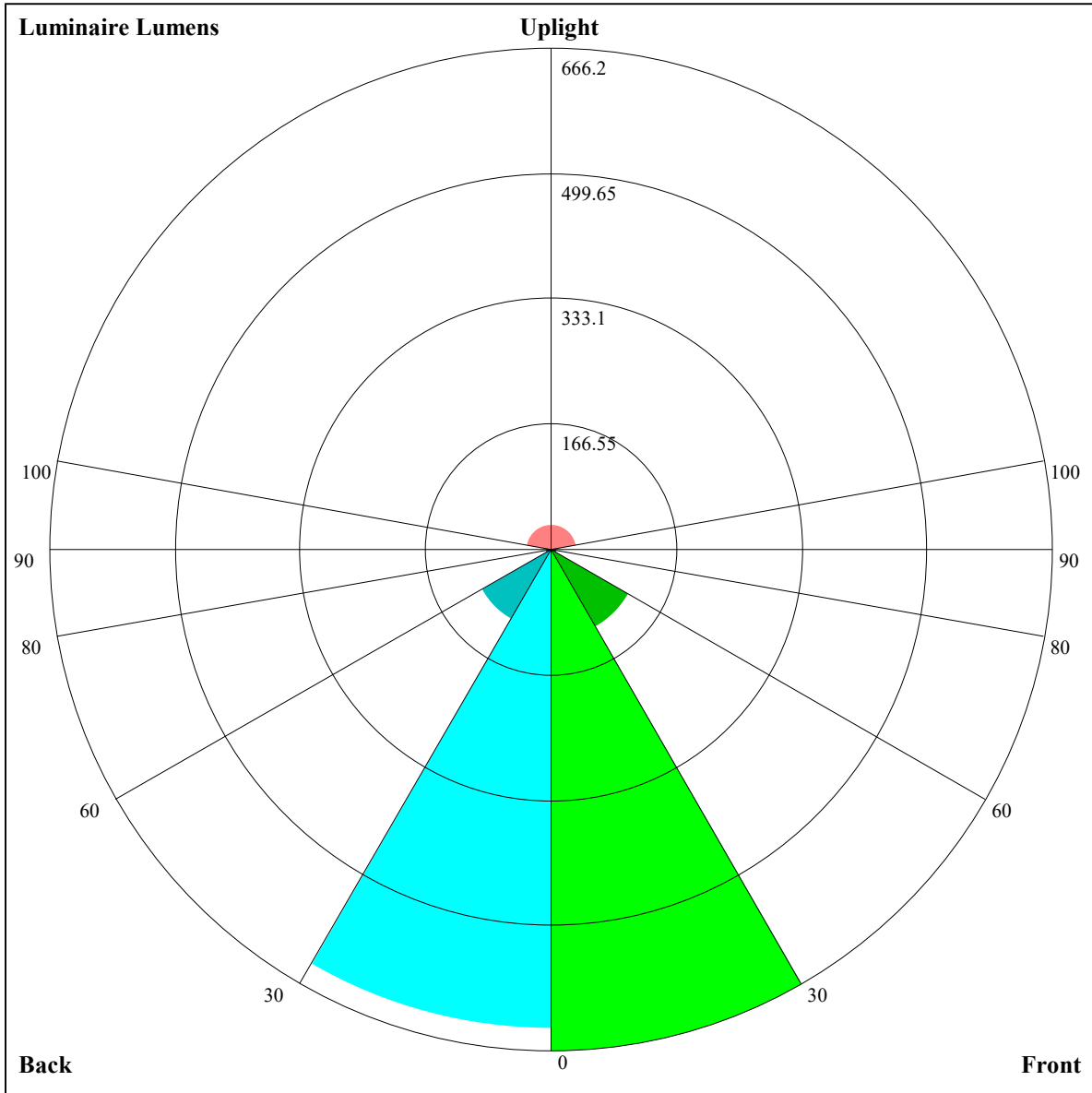
Luminance Limiting Curve





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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.97	0.95	0.93	0.95	0.93	0.91	0.92	0.90	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.82
2	0.92	0.89	0.86	0.90	0.87	0.85	0.88	0.85	0.83	0.85	0.83	0.81	0.83	0.81	0.79	0.78
3	0.87	0.83	0.80	0.86	0.83	0.80	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
4	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.72
5	0.80	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.64
8	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
9	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.60	0.59
10	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.58	0.58





Luminaire Lumens:

FL=666.2,FM=119.03,FH=7.47,FVH=3.8

BL=635.67,BM=107.95,BH=8.09,BVH=3.76

UL=7.16,UH=34.06

BUG Rating:B2-U2-G0

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	4038.75	3866.06	3146.06	2244.94	1501.31	945.56	689.63	442.13	42.97
45.0	4033.69	3848.63	3115.13	2224.13	1483.88	931.50	676.69	439.31	43.20
90.0	4055.06	3696.19	2925.56	2053.13	1109.14	867.88	638.38	349.99	18.73
135.0	4049.44	3758.63	3021.75	2127.94	1386.00	900.00	662.63	389.81	25.48
180.0	4038.75	3606.19	2716.88	1899.00	1103.74	802.69	601.65	275.79	16.76
225.0	4033.69	3638.25	2757.94	1877.06	1101.83	820.01	615.09	290.93	18.00
270.0	4055.06	3740.06	2940.75	2073.94	1347.75	871.31	658.13	376.88	20.31
315.0	4049.44	3703.50	2844.56	1984.50	1098.79	822.32	638.72	319.05	17.78
360.0	4038.75	3866.06	3146.06	2244.94	1501.31	945.56	689.63	442.13	42.97
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	9.90	8.33	7.48	6.98	6.75	6.69	9.00	7.71	6.69
45.0	9.68	8.44	7.54	7.03	6.81	6.75	6.69	9.34	6.69
90.0	9.28	8.10	7.37	6.92	6.75	6.75	8.04	7.82	6.69
135.0	9.51	8.27	7.54	7.03	6.81	6.86	9.73	7.26	6.69
180.0	9.06	8.04	7.31	6.92	6.86	6.98	12.38	7.37	6.69
225.0	9.06	7.99	7.31	6.92	6.86	6.98	12.88	7.48	6.69
270.0	9.62	8.10	7.37	6.98	6.81	6.86	9.39	7.82	6.81
315.0	9.34	7.99	7.26	6.81	6.69	6.64	7.65	6.86	6.69
360.0	9.90	8.33	7.48	6.98	6.75	6.69	9.00	7.71	6.69
C/γ(°)	90.0								
0.0	6.53								
45.0	6.58								
90.0	6.58								
135.0	6.58								
180.0	6.53								
225.0	6.58								
270.0	6.58								
315.0	6.53								
360.0	6.53								