

---

NATA

---

Client:

LumCAT: 3-2116-N

Luminaire: 92.70.131.00

Report No: nata-0100

Test No: GC2018111308

LampCAT: OSRAM S15

Lamp flux(lm): 2619.0

Number of Lamps: 1

Length(mm): 80

Phm Type: C

Voltage(V): 36.2000

Current(A): 0.5500

Power (W): 19.9100

PF: 0.0000

Ballast type: DC

Width(mm): 80

Height(mm): 0

---

Photometric Results

---

Lumens(lm): 2207.71, Efficiency(%): 84.30% , Luminous Efficacy(lm/W): 110.88

Central intensity(cd): 8594.438, Maximum intensity(cd): 8594.438

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

Beam Angle(50%Imax): [C0/180]Total=24.8

[C90/270]Total=24.8

Field angle(10%Imax): [C0/180]Total=53.4

[C90/270]Total=53.4

Maximum s/h(1/2): C0\_180=0.42 C90\_270=0.42

Maximum s/h(1/4): C0\_180=0.43 C90\_270=0.43

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.18%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 95.981%

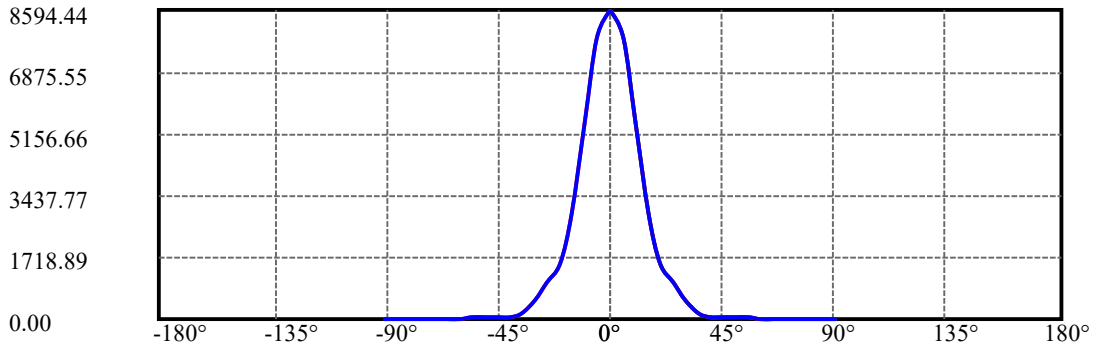
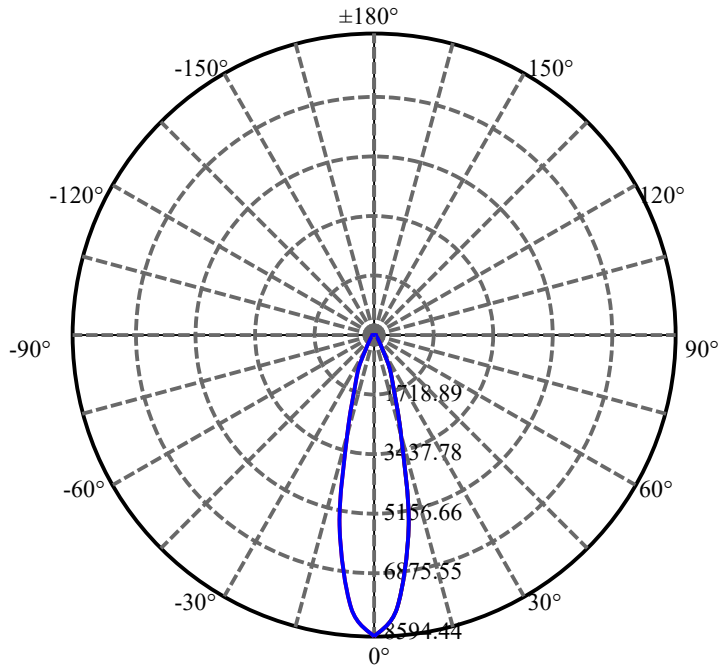
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8594.438	51.396	51.396	1.962%	2.328%
5.0	7805.602	372.900	424.296	14.238%	19.219%
10.0	5527.898	526.162	950.458	20.090%	43.052%
15.0	2920.008	414.257	1364.715	15.817%	61.816%
20.0	1545.666	289.772	1654.487	11.064%	74.941%
25.0	1020.157	236.322	1890.81	9.023%	85.646%
30.0	539.979	147.991	2038.801	5.651%	92.349%
35.0	143.339	45.066	2083.866	1.721%	94.390%
40.0	62.585	22.051	2105.917	.842%	95.389%
45.0	49.282	19.101	2125.019	.729%	96.254%
50.0	38.721	16.259	2141.278	.621%	96.991%
55.0	29.588	13.285	2154.563	.507%	97.592%
60.0	24.722	11.735	2166.298	.448%	98.124%
65.0	20.145	10.007	2176.306	.382%	98.577%
70.0	15.834	8.156	2184.462	.311%	98.947%
75.0	14.238	7.539	2192	.288%	99.288%
80.0	12.825	6.923	2198.923	.264%	99.602%
85.0	11.320	6.181	2205.105	.236%	99.882%
90.0	9.520	2.609	2207.714	.100%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2038.80	77.85%	92.35%
0-40	2105.92	80.41%	95.39%
0-60	2166.30	82.71%	98.12%
0-90	2205.10	84.20%	99.88%
0-120	2205.10	84.20%	99.88%
0-180	2207.71	84.30%	100.00%
60-90	50.54	1.93%	2.29%
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%
0-22.36	1766.17	67.44%	80.00%

ZONAL LUMEN SUMMARY

0-10	950.46
10-20	704.03
20-30	384.31
30-40	67.12
40-50	35.36
50-60	25.02
60-70	18.16
70-80	14.46
80-90	6.18
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: —————

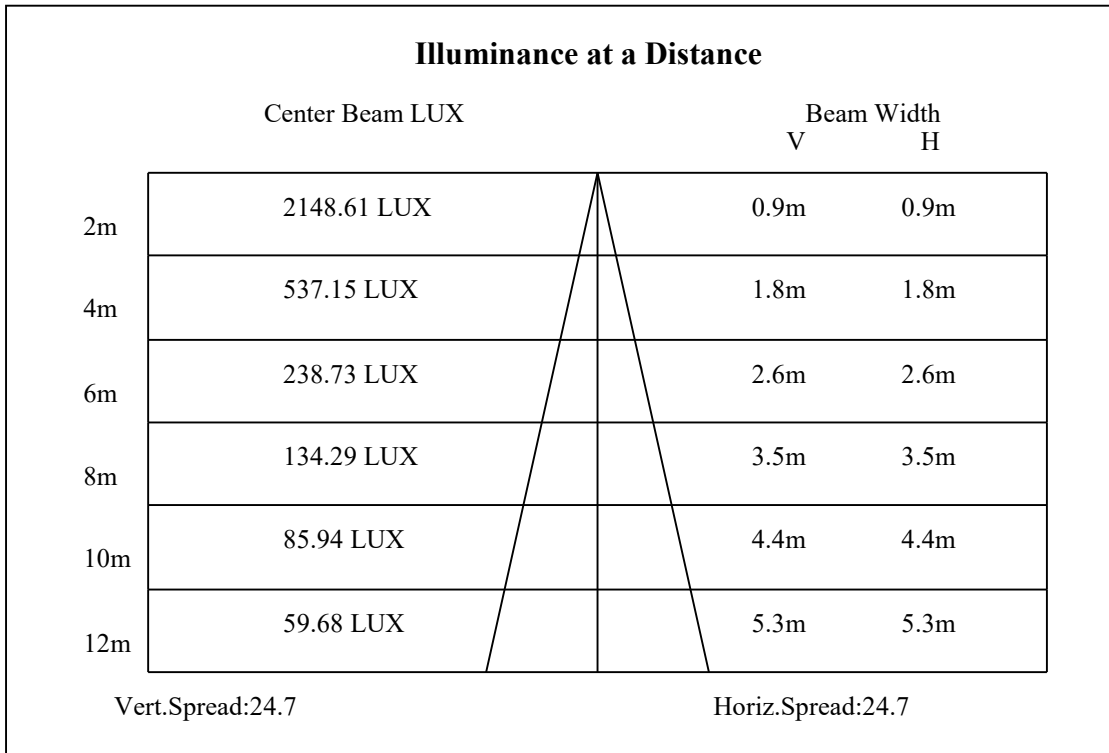
C90/C270: —————

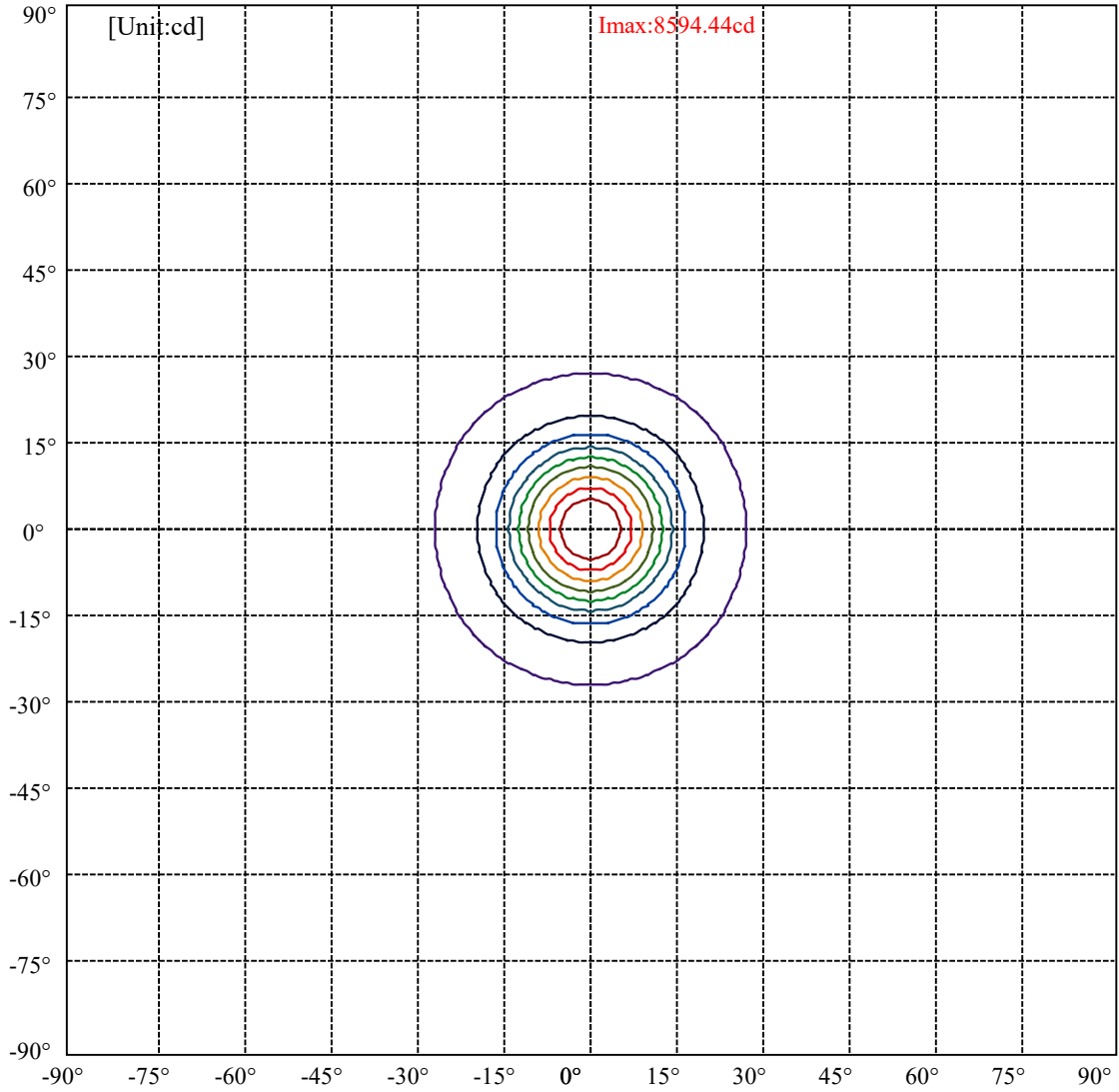
Field angle(10%Imax):C0/180Left:26.7 Right:26.7

:C90/270Left:26.7 Right:26.7

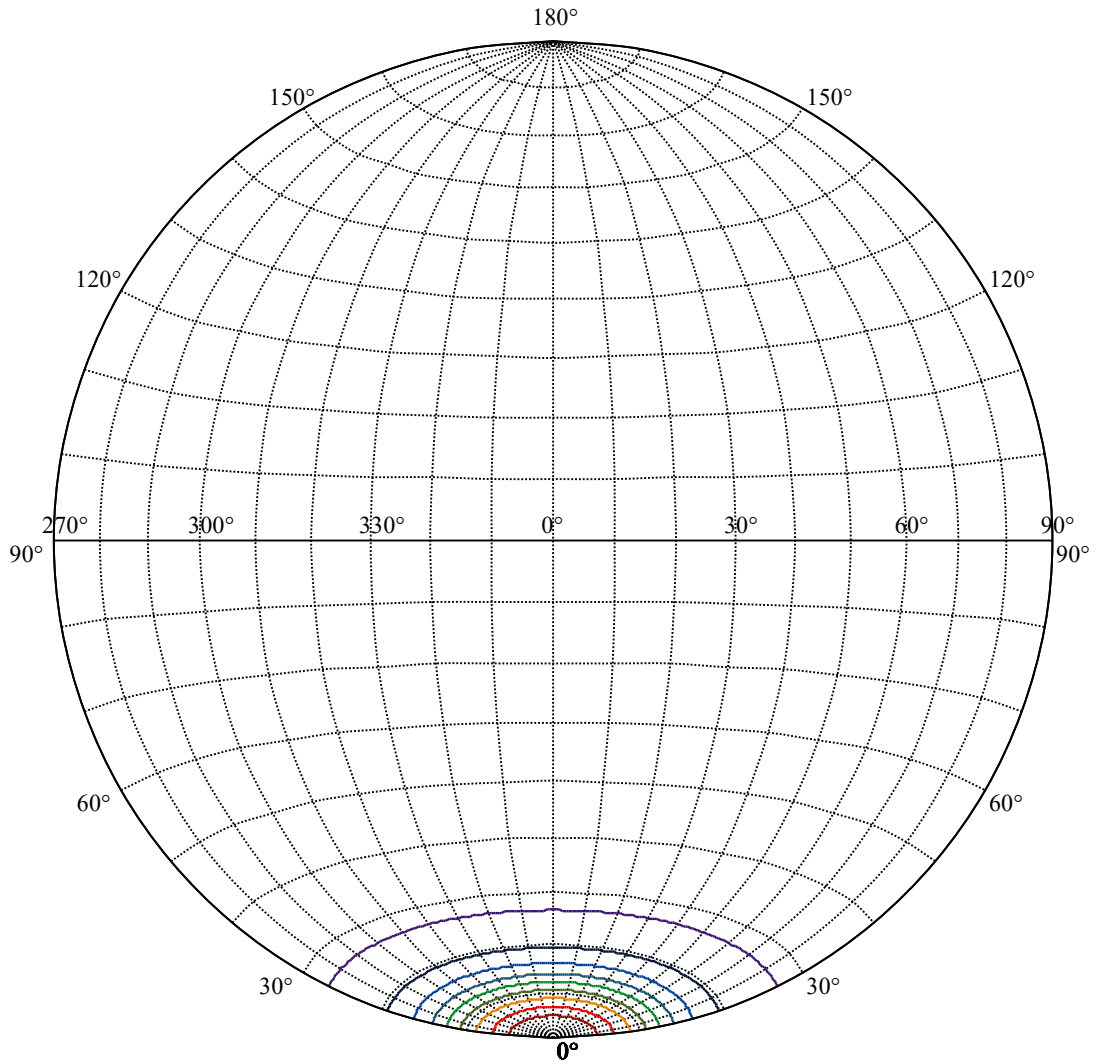
Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4

:C90/270Left:12.4 Right:12.4





(10%Imax) 859.444	—
(20%Imax) 1718.89	—
(30%Imax) 2578.33	—
(40%Imax) 3437.77	—
(50%Imax) 4297.22	—
(60%Imax) 5156.66	—
(70%Imax) 6016.11	—
(80%Imax) 6875.55	—
(90%Imax) 7734.99	—



House

[Unit:cd]

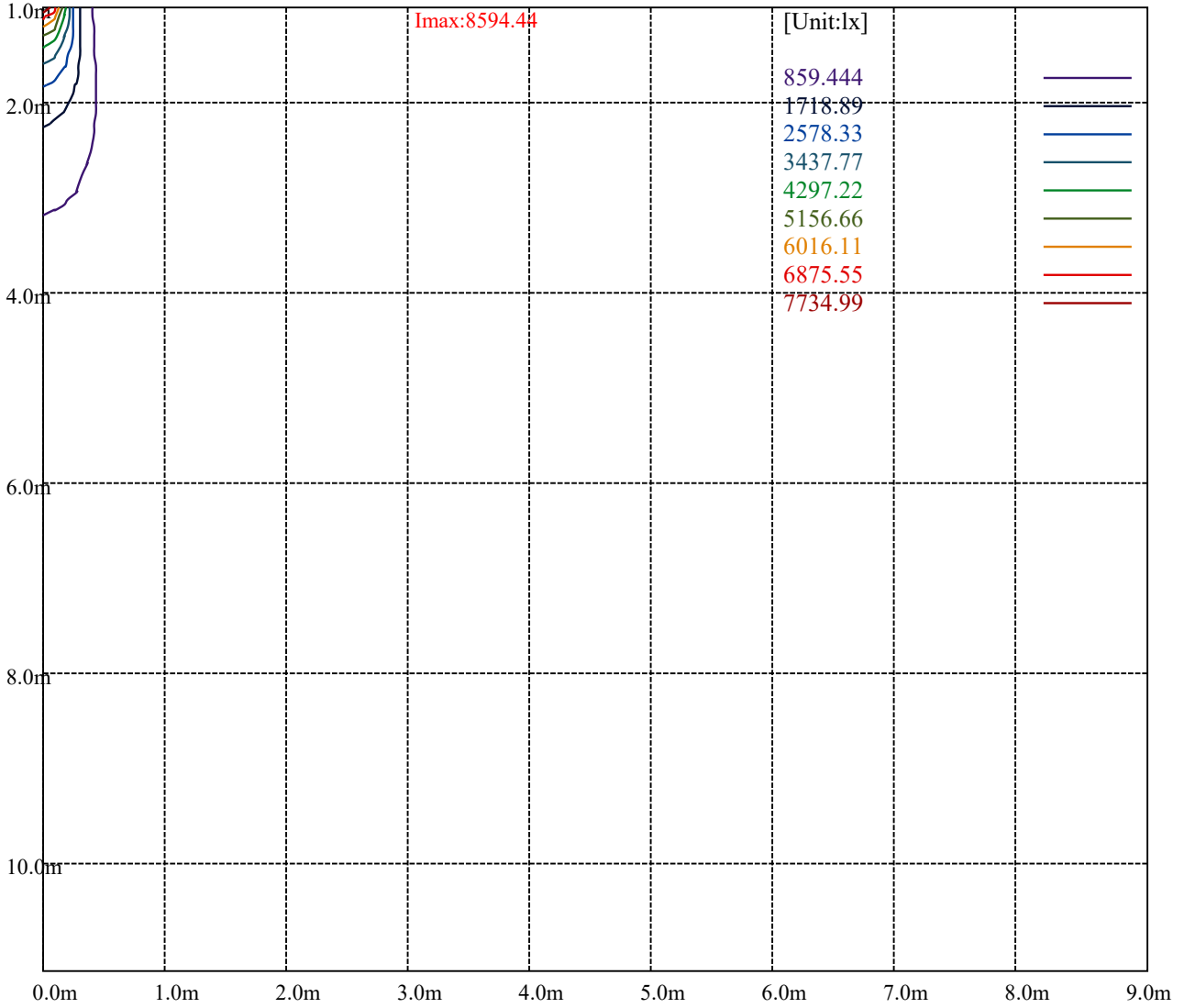
Road

**Imax:8594.44**

(10%Imax) 859.444	—
(20%Imax) 1718.89	—
(30%Imax) 2578.33	—
(40%Imax) 3437.77	—
(50%Imax) 4297.22	—
(60%Imax) 5156.66	—
(70%Imax) 6016.11	—
(80%Imax) 6875.55	—
(90%Imax) 7734.99	—







Luminance Table

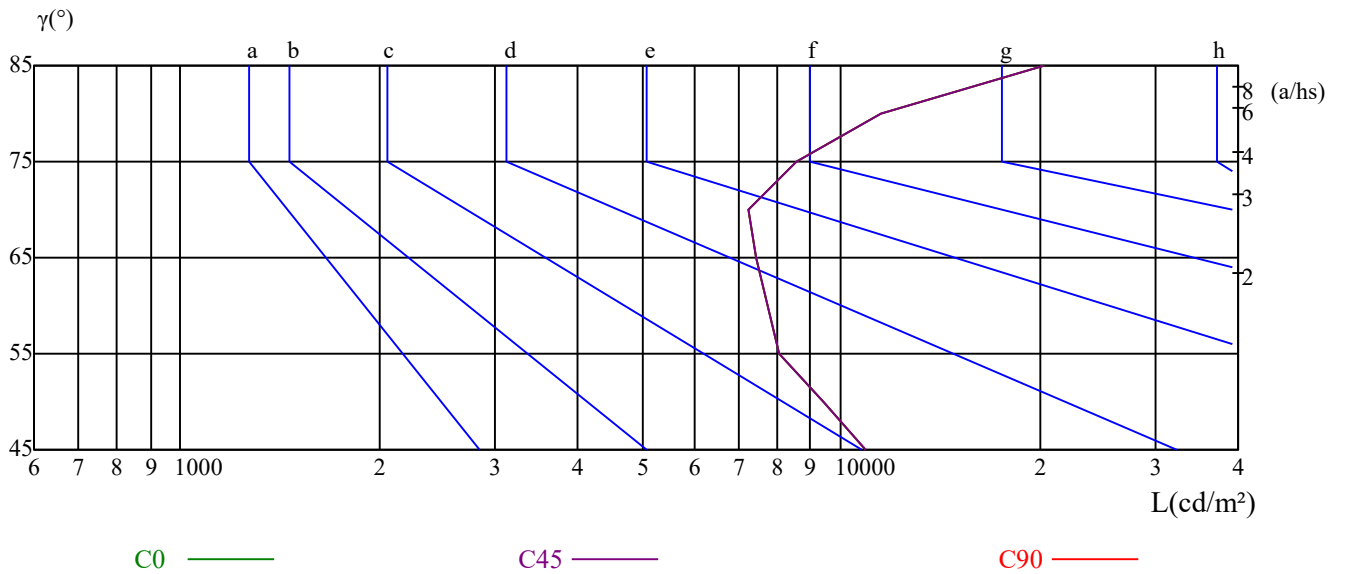
$\gamma$	45	50	55	60	65	70	75	80	85
C0	10890	9412	8060	7726	7448	7234	8596	11540	20295
C45	10890	9412	8060	7726	7448	7234	8596	11540	20295
C90	10890	9412	8060	7726	7448	7234	8596	11540	20295

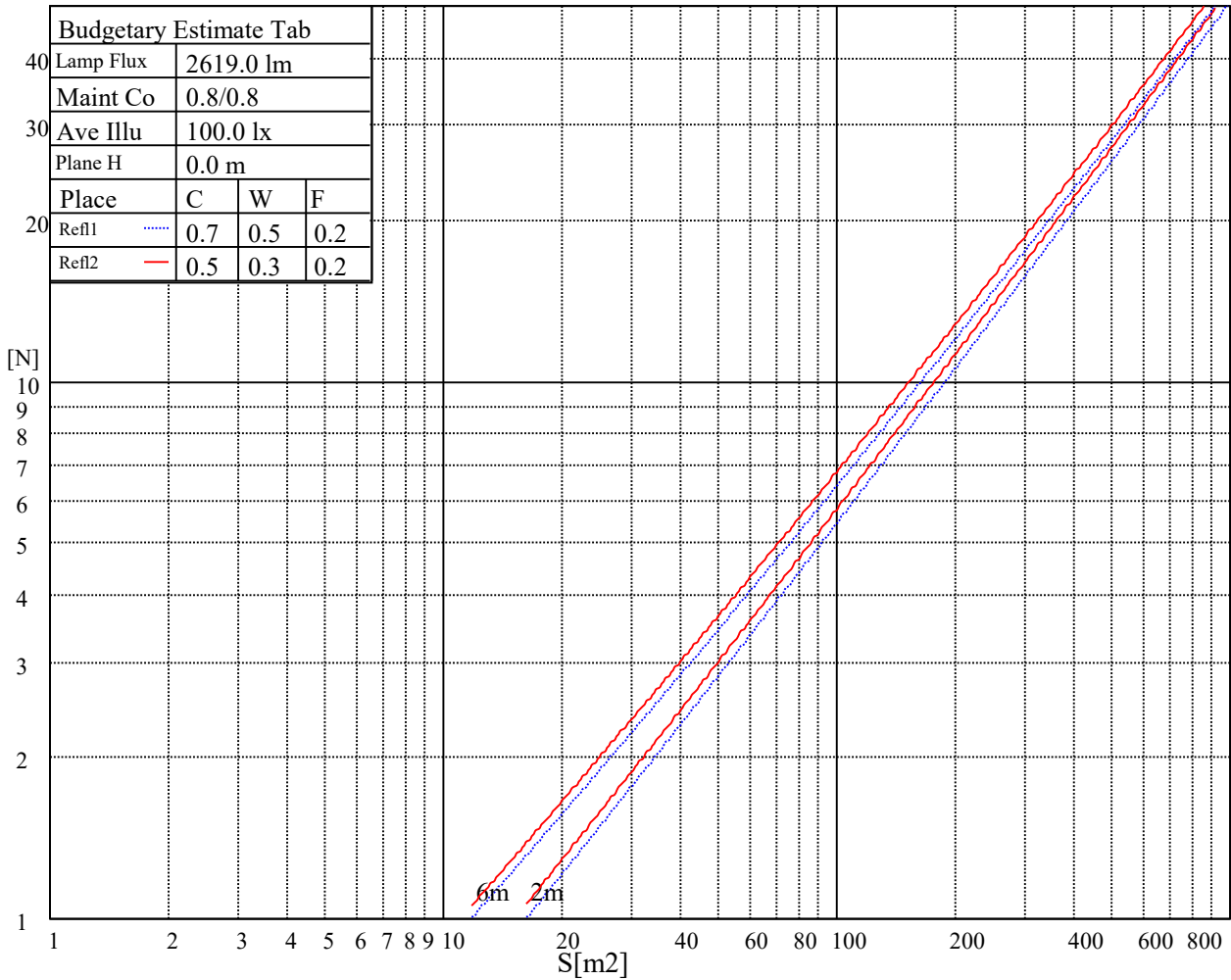
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7448	7448	7448	8596	8596	8596	20295	20295	20295

Glare Table

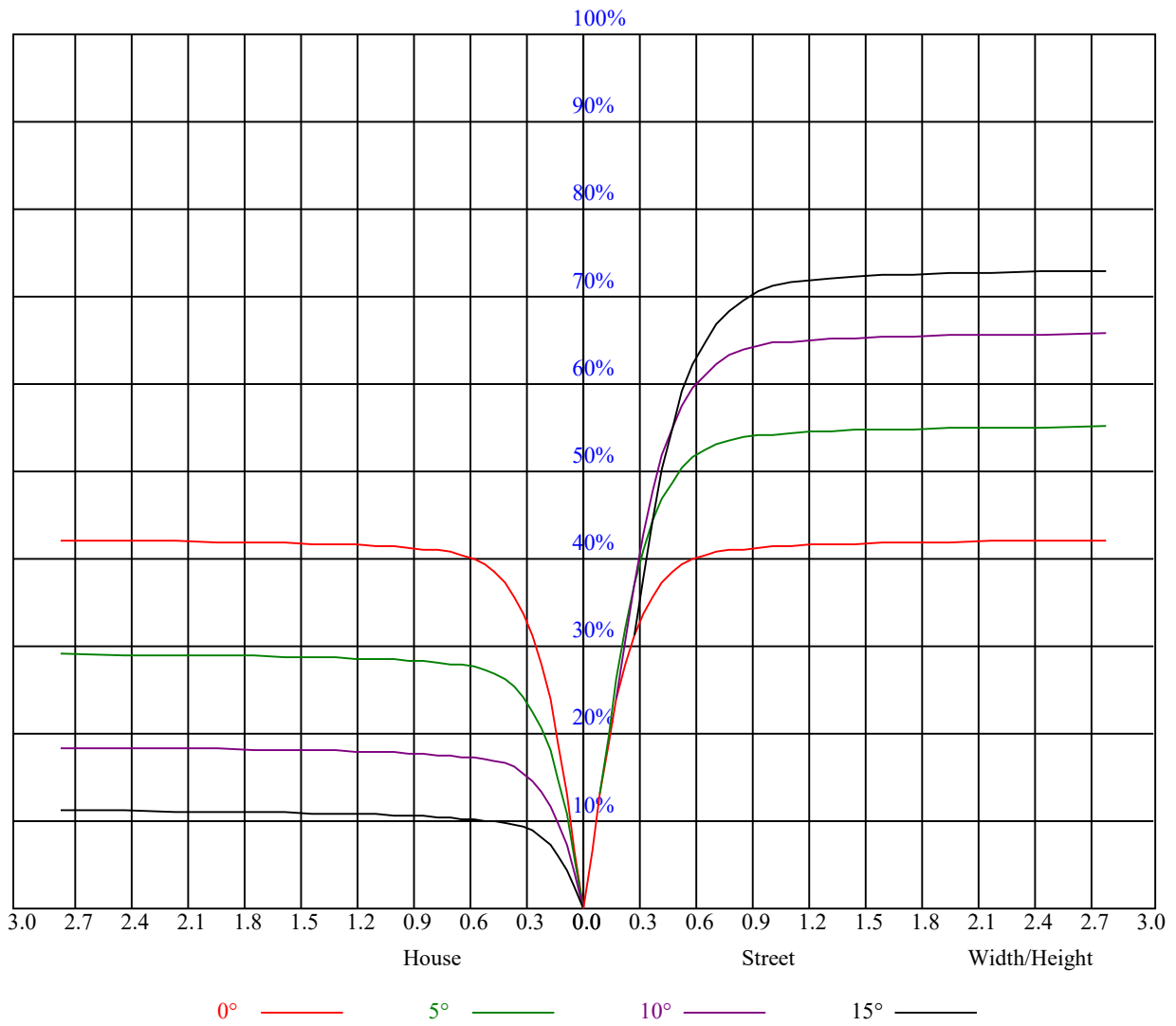
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

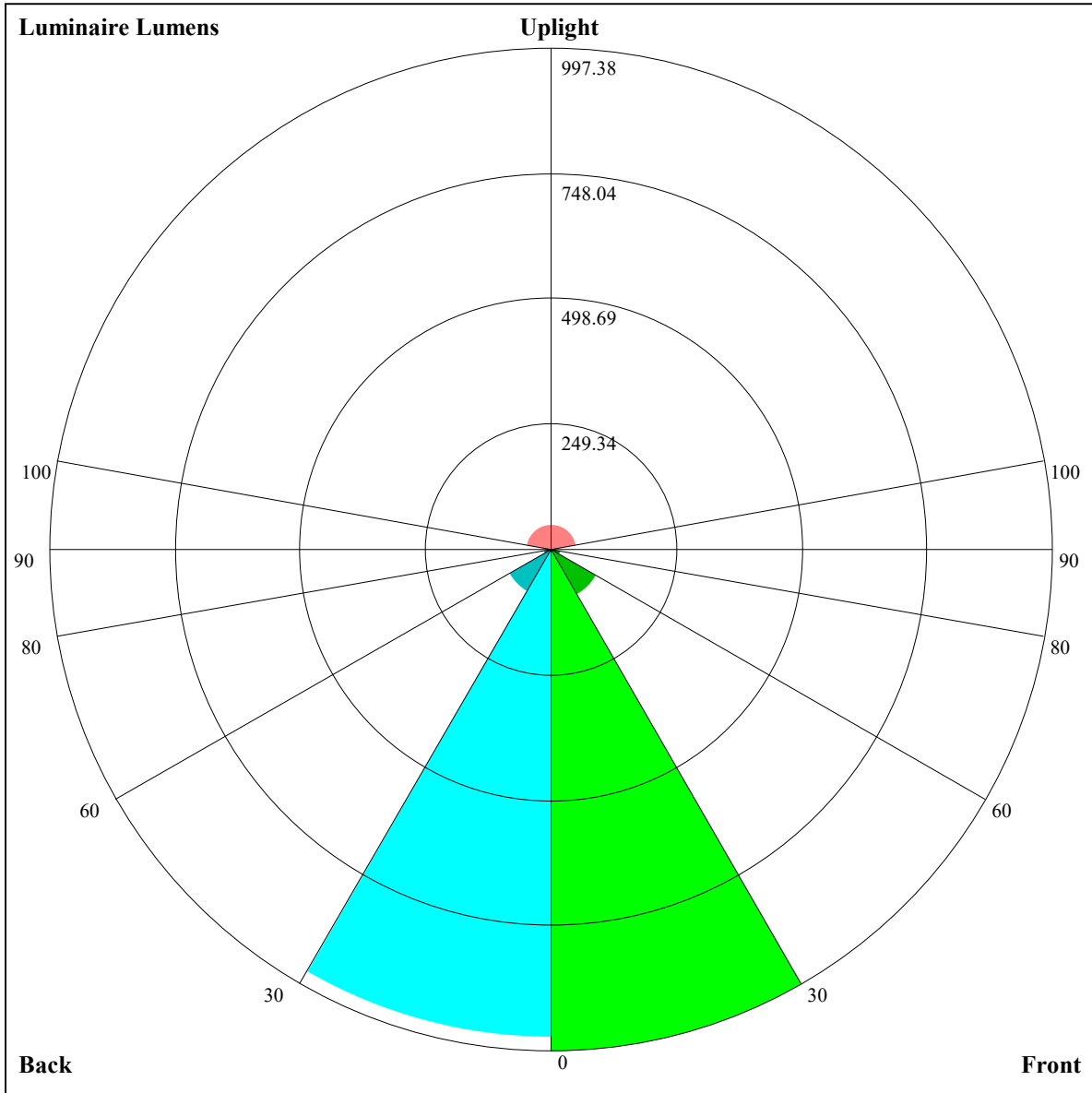
Luminance Limiting Curve





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	1.03	1.03	1.03	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.86
1	0.94	0.92	0.90	0.92	0.90	0.88	0.89	0.87	0.85	0.86	0.84	0.83	0.83	0.82	0.81	0.79
2	0.90	0.86	0.83	0.88	0.85	0.82	0.85	0.83	0.81	0.83	0.81	0.79	0.80	0.79	0.77	0.76
3	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.78	0.76	0.75	0.73
4	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.71
5	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.73	0.71	0.75	0.73	0.70	0.74	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.67
7	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
8	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.69	0.66	0.64	0.63
9	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.62
10	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.60





Luminaire Lumens:

FL=997.38,FM=104.98,FH=17.75,FVH=6.13

BL=972.64,BM=96.79,BH=17.52,BVH=6.15

UL=10.39,UH=49.43

BUG Rating:B2-U2-G0

Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	8592.19	8156.81	6103.13	3429.00	1757.81	1104.75	646.88	299.81	65.36
45.0	8612.44	7590.38	4948.88	2613.38	1396.69	950.06	436.50	79.88	57.77
90.0	8539.88	7088.63	4497.75	2126.25	1107.45	817.93	311.06	79.76	58.56
135.0	8633.25	7735.50	5302.13	2661.75	1466.44	1003.50	479.81	85.89	62.27
180.0	8592.19	7463.25	4907.25	2467.69	1438.31	970.48	409.11	83.03	59.51
225.0	8612.44	8118.00	6040.13	3237.19	1693.69	1098.90	661.84	119.03	66.66
270.0	8539.88	8326.69	6701.06	3709.69	1864.13	1157.06	753.75	297.00	68.63
315.0	8633.25	7965.56	5722.88	3115.13	1640.81	1058.57	620.89	102.32	61.93
360.0	8592.19	8156.81	6103.13	3429.00	1757.81	1104.75	646.88	299.81	65.36
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	51.24	39.71	30.94	25.48	21.49	16.03	14.40	13.11	11.76
45.0	46.35	36.73	28.07	24.24	18.56	15.19	13.61	12.43	10.46
90.0	45.62	36.17	27.23	23.79	17.78	15.81	14.23	12.71	10.41
135.0	48.60	38.70	28.91	24.13	19.91	15.58	13.89	12.60	11.08
180.0	47.64	38.19	27.34	23.79	17.83	15.30	13.61	12.43	11.14
225.0	52.14	39.83	31.05	24.75	21.60	15.81	14.18	12.77	12.04
270.0	53.33	42.02	32.68	26.61	22.67	16.99	15.58	13.61	12.21
315.0	49.33	38.42	30.49	24.98	21.32	15.98	14.40	12.94	11.48
360.0	51.24	39.71	30.94	25.48	21.49	16.03	14.40	13.11	11.76
C/ $\gamma$ (°)	90.0								
0.0	9.62								
45.0	9.28								
90.0	9.34								
135.0	9.45								
180.0	9.34								
225.0	9.90								
270.0	9.56								
315.0	9.68								
360.0	9.62								