
NATA

Client:

LumCAT: 3-1549-A3

Luminaire: 99.02.73.172+92.76.365.00

Report No: nata-0100

Test No: GC2018111507

LampCAT: OSRAM SOLERIQ S15

Lamp flux(lm): 2616.0

Number of Lamps: 1

Length(mm): 79

Phm Type: C

Voltage(V): 36.3000

Current(A): 0.5500

Power (W): 20.3280

PF: 0.0000

Ballast type: DC

Width(mm): 79

Height(mm): 0

Photometric Results

Lumens(lm): 2423.42, Efficiency(%): 92.64% , Luminous Efficacy(lm/W): 119.22

Central intensity(cd): 9741.938, Maximum intensity(cd): 9741.938

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=22.8

[C90/270]Total=22.8

Field angle(10%Imax): [C0/180]Total=53.8

[C90/270]Total=53.8

Maximum s/h(1/2): C0_180=0.39 C90_270=0.39

Maximum s/h(1/4): C0_180=0.40 C90_270=0.40

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 94.78%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.558%

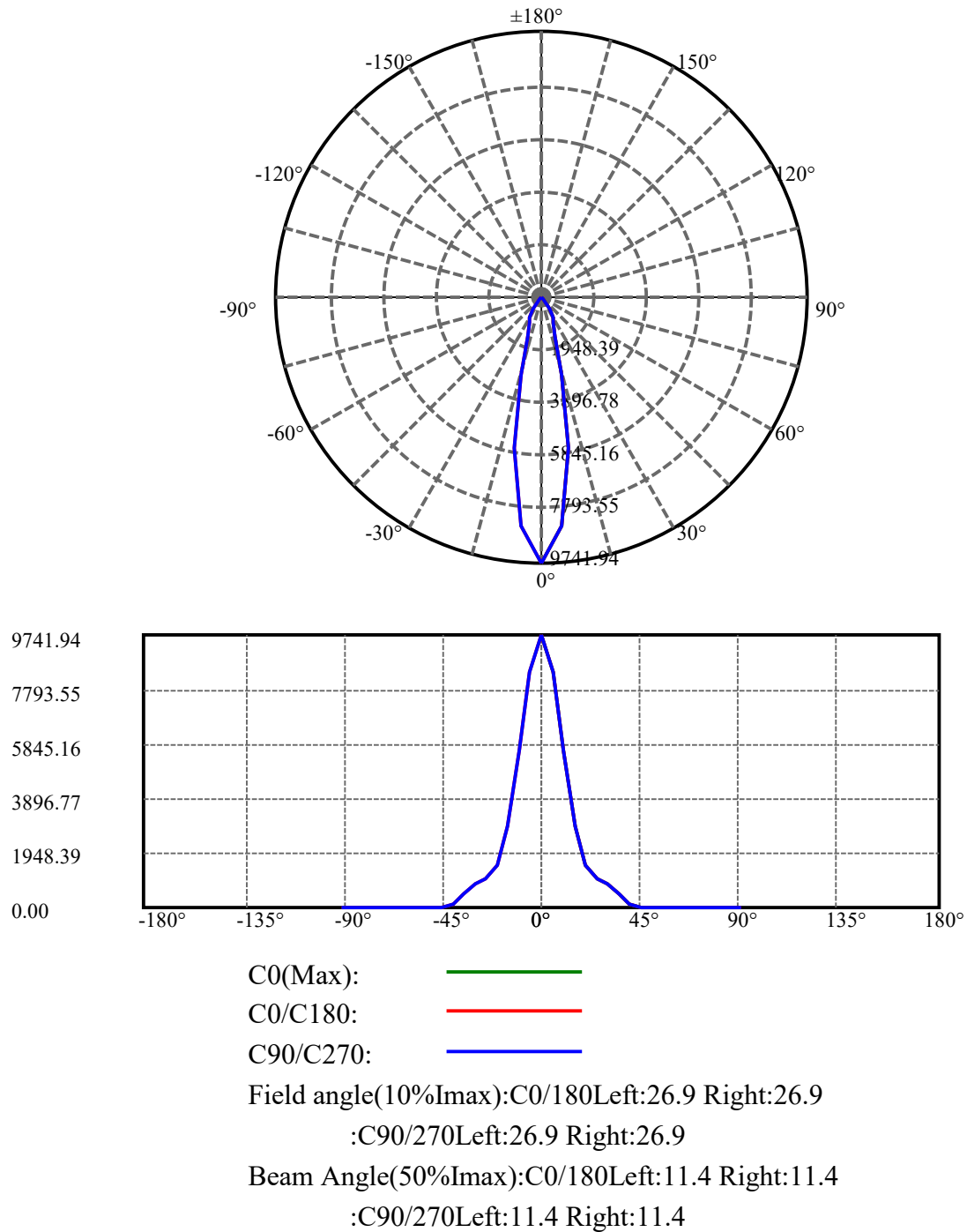
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9741.938	58.259	58.259	2.227%	2.404%
5.0	8397.633	401.183	459.442	15.336%	18.958%
10.0	5626.477	535.545	994.987	20.472%	41.057%
15.0	2932.523	416.032	1411.019	15.903%	58.224%
20.0	1518.863	284.747	1695.766	10.885%	69.974%
25.0	1044.401	241.938	1937.705	9.248%	79.958%
30.0	862.875	236.487	2174.192	9.040%	89.716%
35.0	500.330	157.303	2331.495	6.013%	96.207%
40.0	114.715	40.418	2371.913	1.545%	97.875%
45.0	17.663	6.846	2378.759	.262%	98.157%
50.0	12.030	5.052	2383.81	.193%	98.366%
55.0	11.292	5.070	2388.881	.194%	98.575%
60.0	10.821	5.137	2394.018	.196%	98.787%
65.0	10.470	5.201	2399.219	.199%	99.001%
70.0	10.287	5.298	2404.517	.203%	99.220%
75.0	10.139	5.368	2409.885	.205%	99.442%
80.0	10.005	5.401	2415.286	.206%	99.664%
85.0	9.963	5.440	2420.727	.208%	99.889%
90.0	9.816	2.690	2423.417	.103%	100.000%

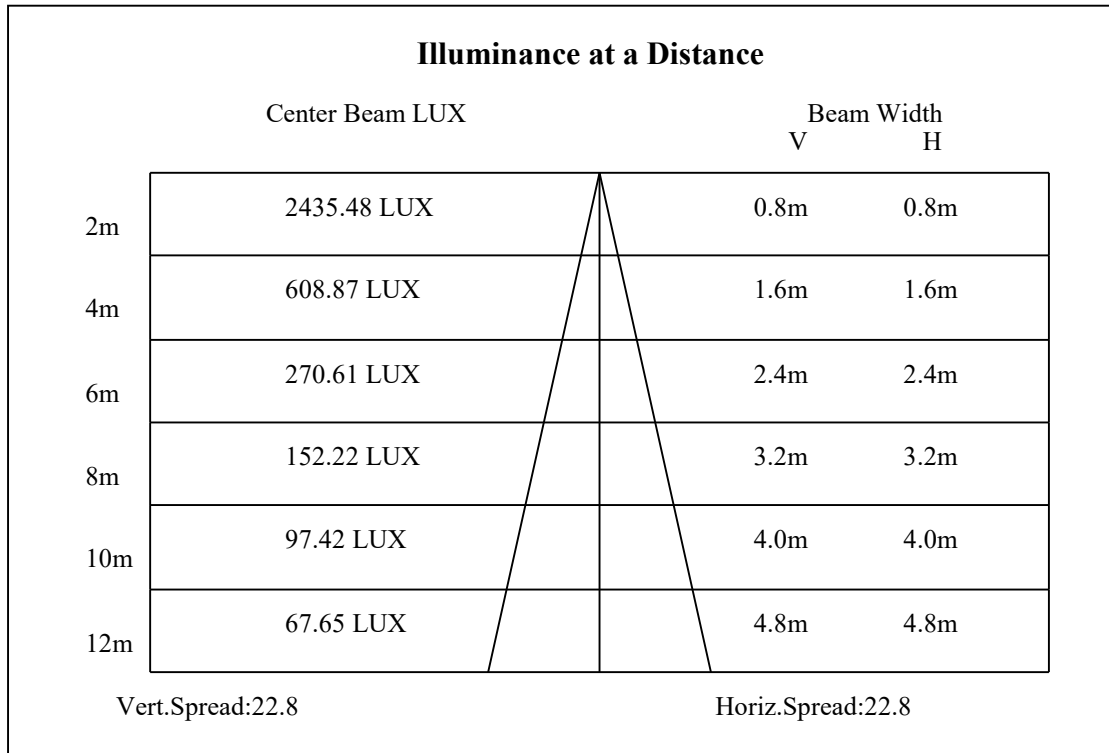
ZONAL LUMEN SUMMARY

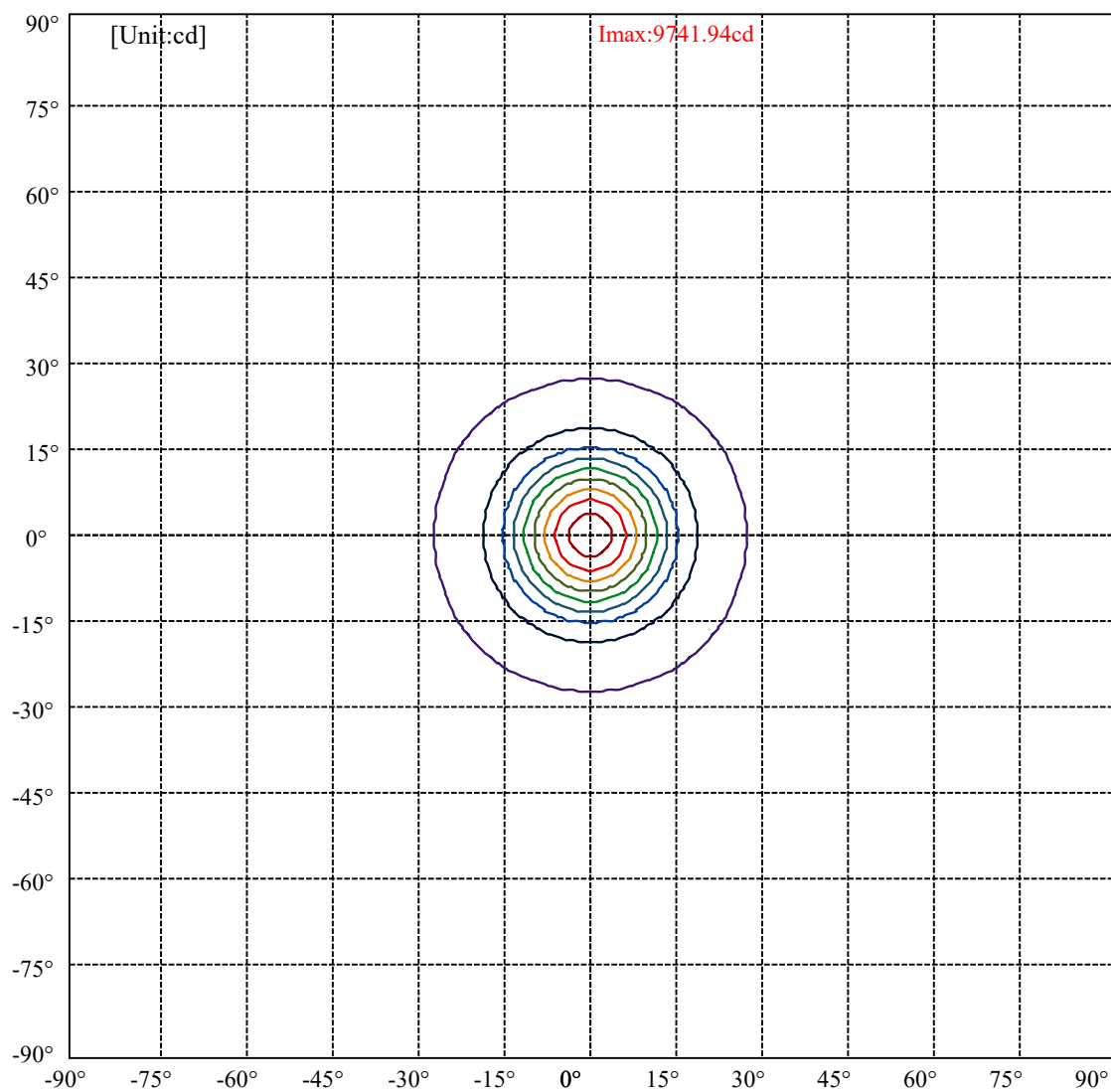
Zone	Lumens	%Lamp	%Fixt
0-30	2174.19	83.11%	89.72%
0-40	2371.91	90.67%	97.87%
0-60	2394.02	91.51%	98.79%
0-90	2420.73	92.54%	99.89%
0-120	2420.73	92.54%	99.89%
0-180	2423.42	92.64%	100.00%
60-90	31.85	1.22%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.02	1938.73	74.11%	80.00%

ZONAL LUMEN SUMMARY

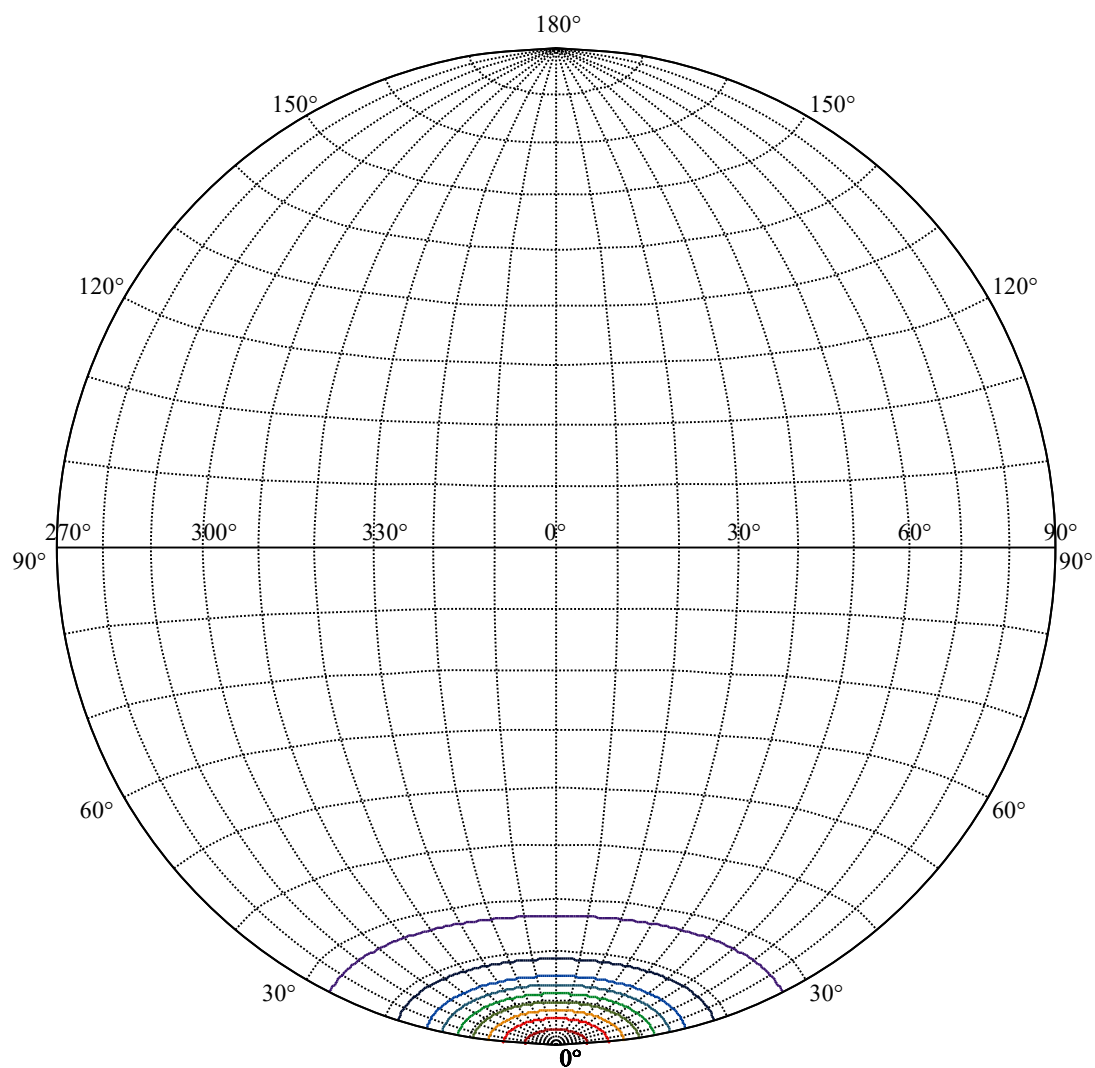
0-10	994.99
10-20	700.78
20-30	478.43
30-40	197.72
40-50	11.90
50-60	10.21
60-70	10.50
70-80	10.77
80-90	5.44
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax) 974.194	—————
(20%Imax) 1948.39	—————
(30%Imax) 2922.58	—————
(40%Imax) 3896.77	—————
(50%Imax) 4870.97	—————
(60%Imax) 5845.16	—————
(70%Imax) 6819.36	—————
(80%Imax) 7793.55	—————
(90%Imax) 8767.74	—————



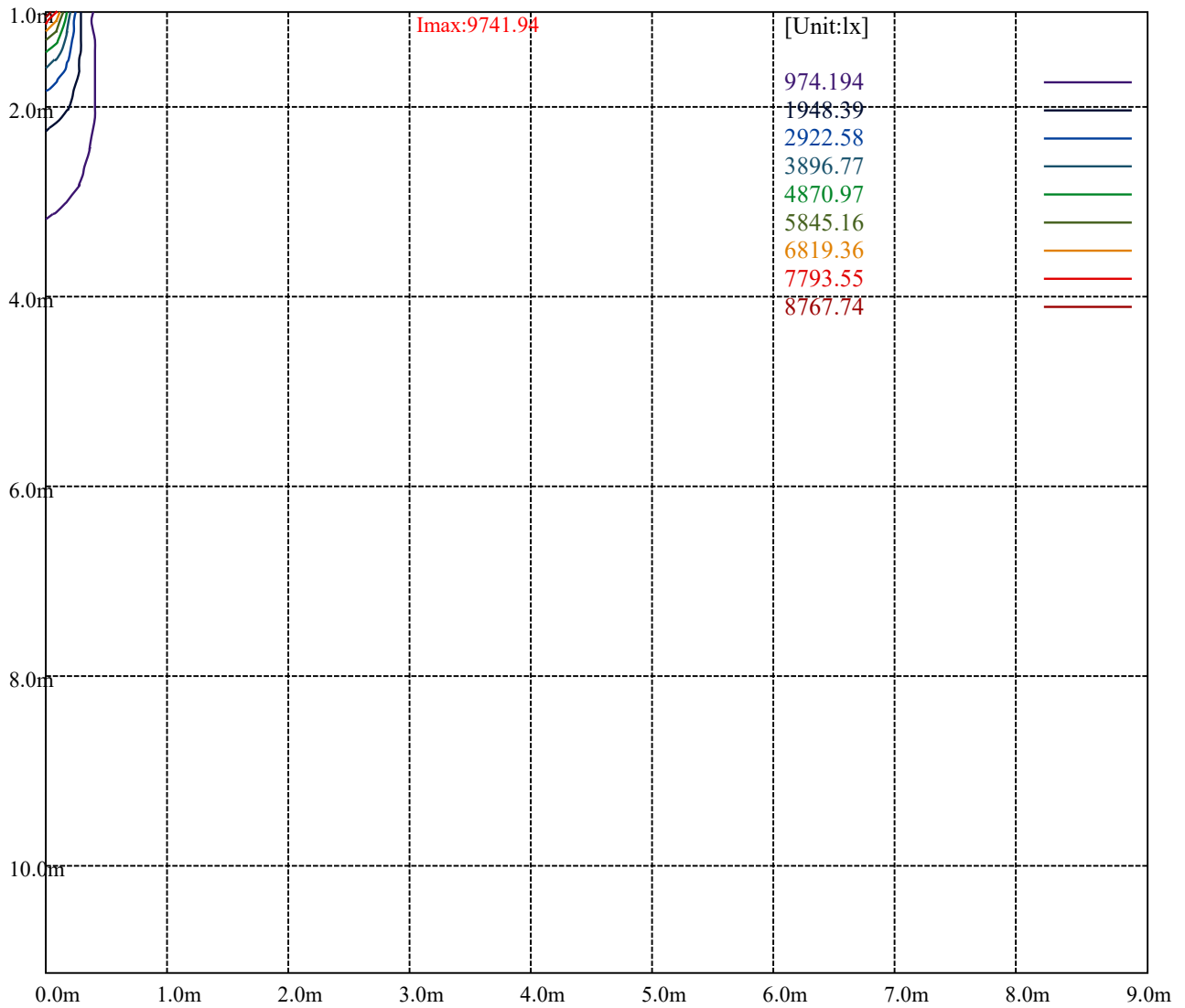
House

[Unit:cd]

Road

Imax:9741.94

(10%Imax)	974.194	—
(20%Imax)	1948.39	—
(30%Imax)	2922.58	—
(40%Imax)	3896.77	—
(50%Imax)	4870.97	—
(60%Imax)	5845.16	—
(70%Imax)	6819.36	—
(80%Imax)	7793.55	—
(90%Imax)	8767.74	—



Luminance Table

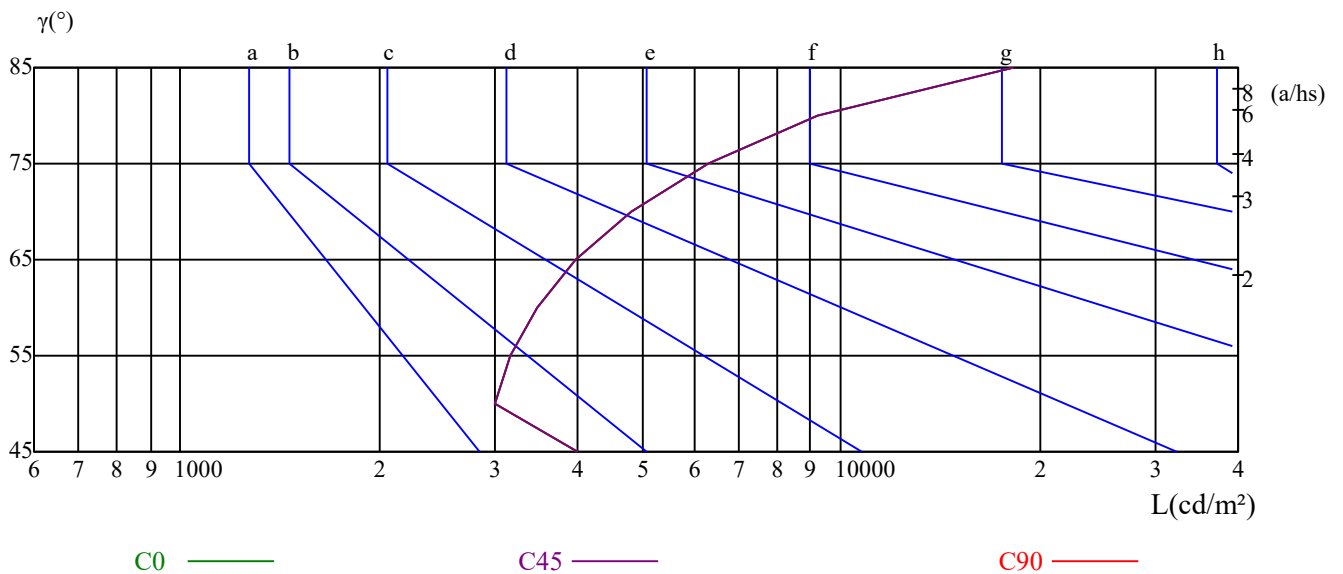
γ	45	50	55	60	65	70	75	80	85
C0	4002	2999	3155	3468	3969	4819	6277	9232	18317
C45	4002	2999	3155	3468	3969	4819	6277	9232	18317
C90	4002	2999	3155	3468	3969	4819	6277	9232	18317

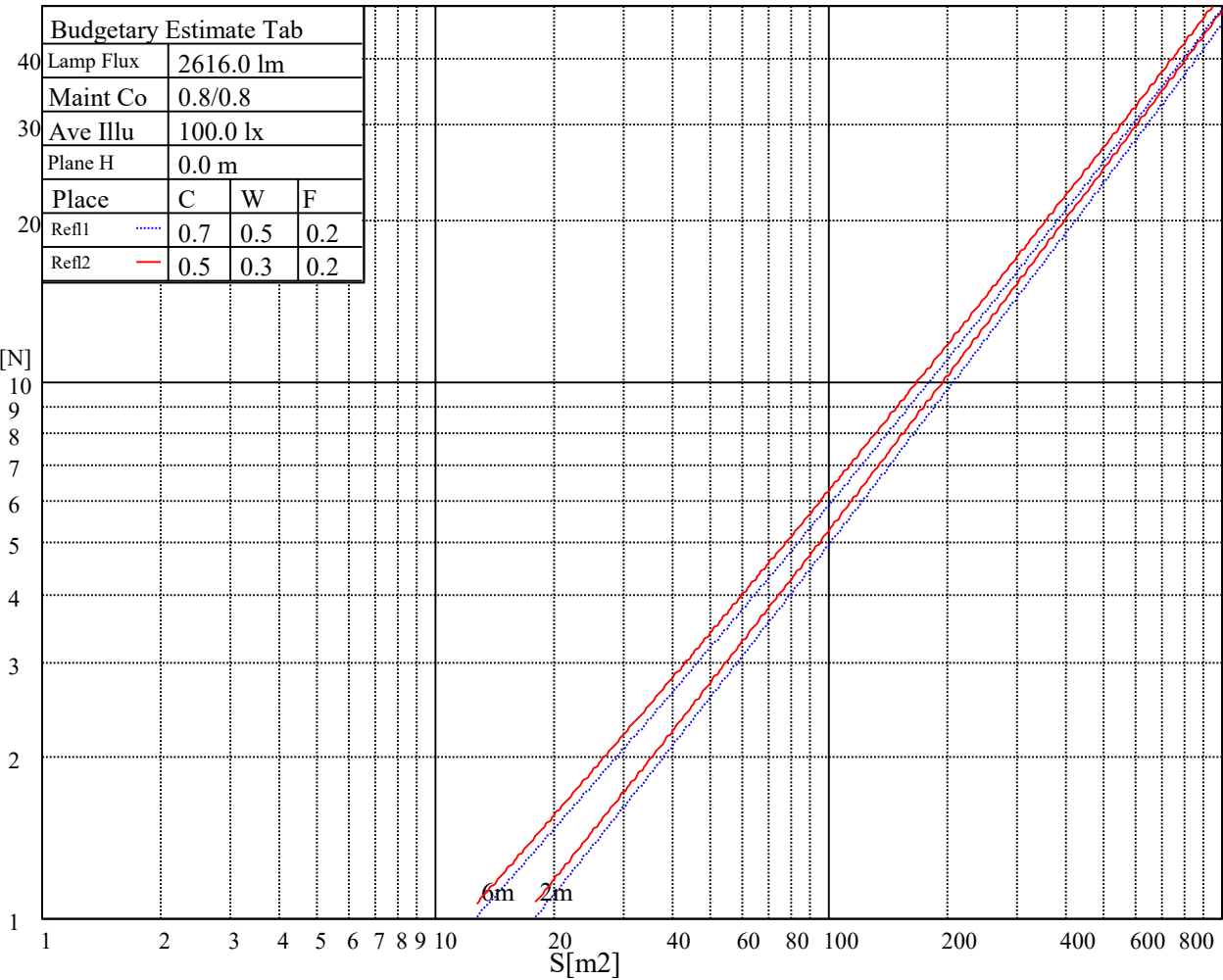
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3969	3969	3969	6277	6277	6277	18317	18317	18317

Glare Table

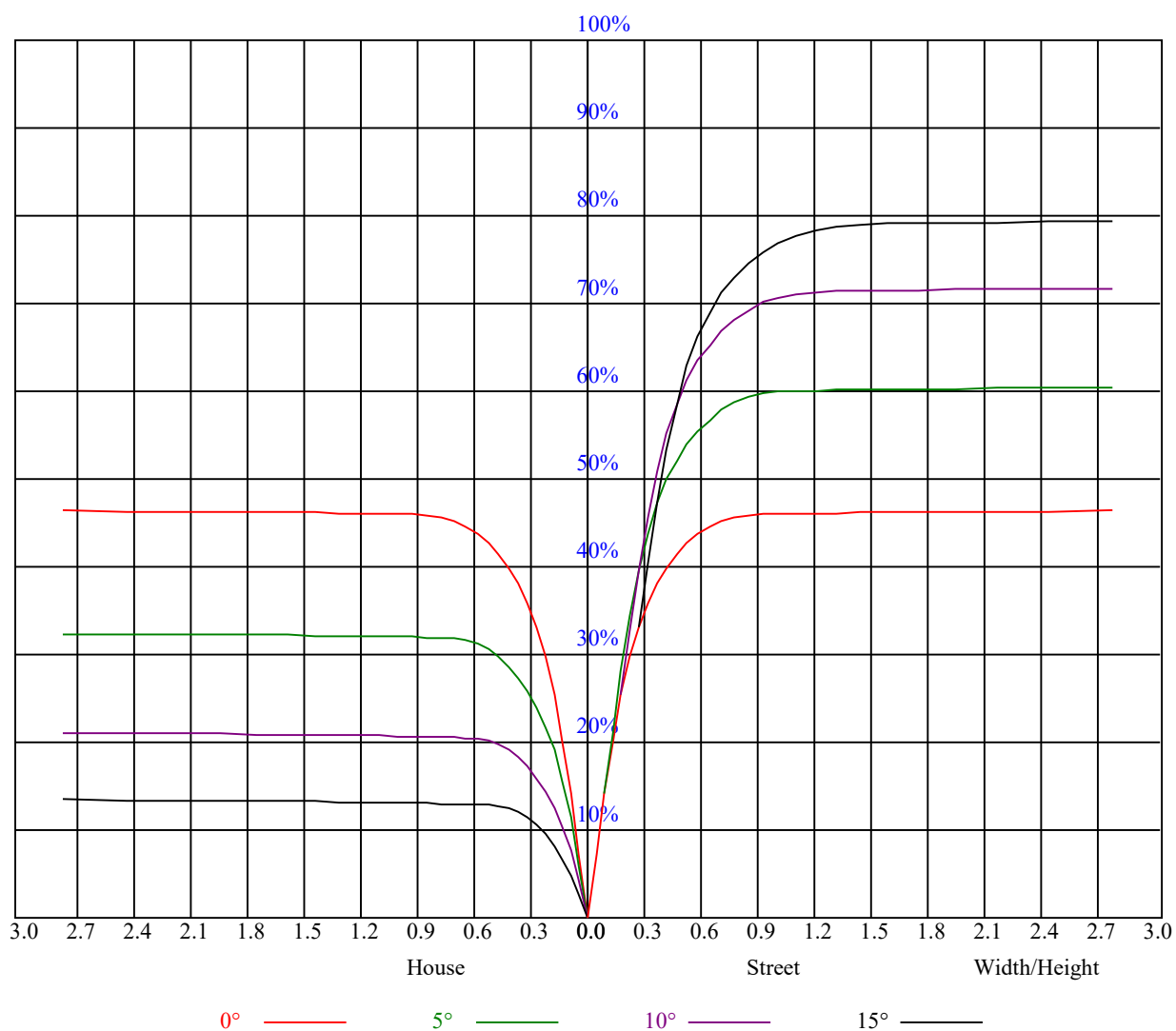
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

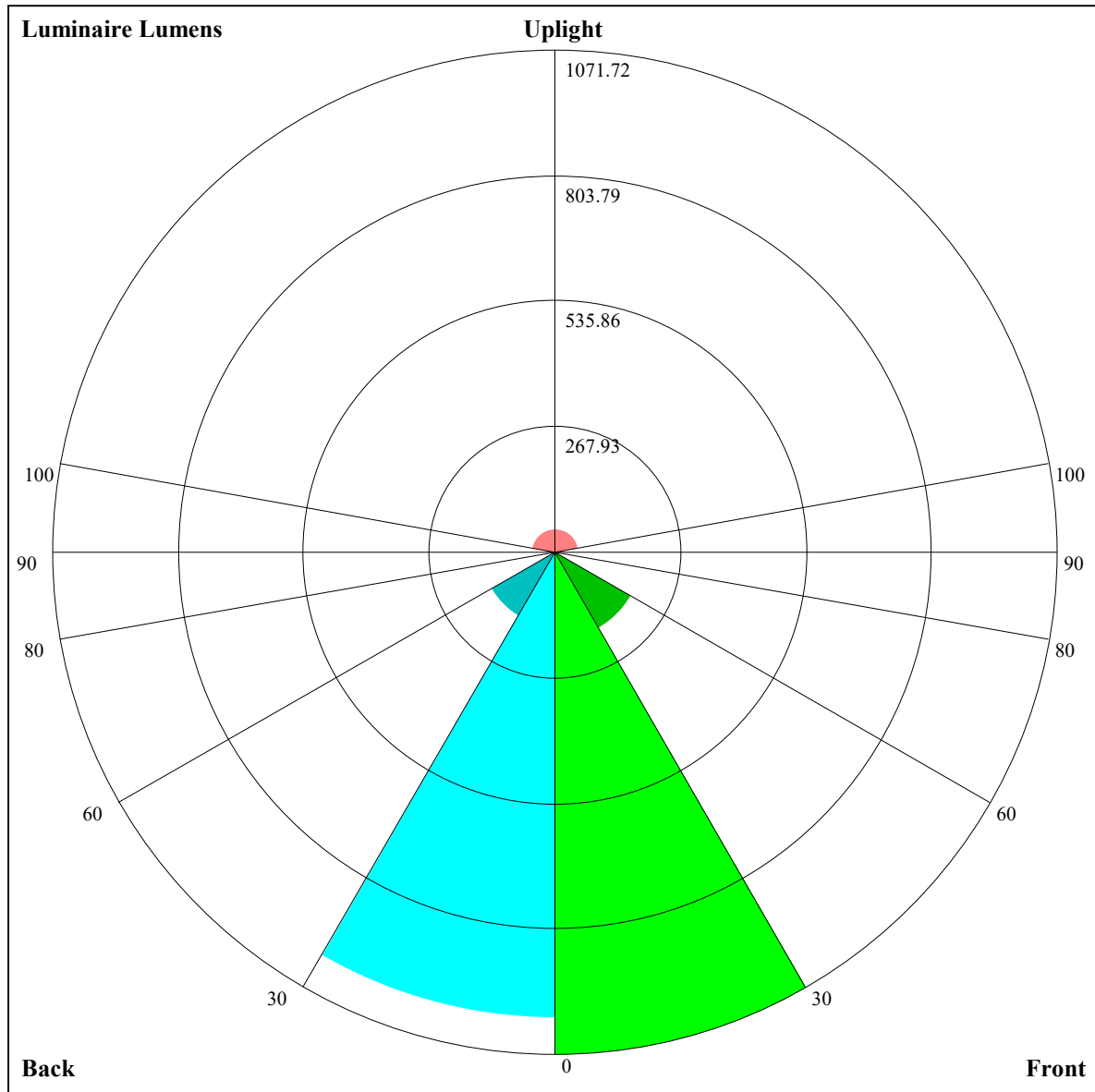
Luminance Limiting Curve





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	1.13	1.13	1.13	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	0.97	0.97	0.97	0.95
1	1.04	1.01	0.98	1.02	0.99	0.97	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.88	0.87
2	0.98	0.95	0.92	0.97	0.93	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.86	0.85	0.83
3	0.94	0.89	0.86	0.92	0.89	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.82	0.80
4	0.90	0.85	0.82	0.89	0.85	0.81	0.87	0.83	0.80	0.85	0.82	0.80	0.83	0.81	0.79	0.77
5	0.86	0.82	0.78	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.75
6	0.83	0.78	0.75	0.82	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.72
7	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
8	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
9	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
10	0.73	0.69	0.66	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.71	0.68	0.65	0.64





Luminaire Lumens:

FL=1071.72,FM=186.48,FH=10.58,FVH=5.42

BL=994.91,BM=156.87,BH=10.58,BVH=5.43

UL=10.71,UH=50.96

BUG Rating:B2-U2-G0

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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	9690.75	9120.94	6471.00	3746.81	1835.44	1178.44	933.19	704.25	296.44		
45.0	9832.50	8119.13	5226.75	2572.88	1454.63	995.63	844.31	470.81	39.49		
90.0	9615.94	7329.94	4525.88	2176.31	1111.78	935.78	790.65	256.16	30.71		
135.0	9828.56	7939.13	5196.38	2544.19	1375.88	986.63	828.56	376.88	38.70		
180.0	9690.75	7714.69	4719.94	2274.19	1121.68	927.84	801.11	308.53	27.45		
225.0	9832.50	8860.50	6013.69	2971.13	1640.25	1049.74	862.99	580.05	83.64		
270.0	9615.94	9270.00	6685.88	3933.56	1911.38	1172.81	938.25	704.81	298.69		
315.0	9828.56	8826.75	6172.31	3241.13	1699.88	1108.35	903.94	601.14	102.60		
360.0	9690.75	9120.94	6471.00	3746.81	1835.44	1178.44	933.19	704.25	296.44		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	24.30	12.32	11.53	10.91	10.52	10.29	10.13	10.01	9.96		
45.0	13.56	11.93	11.19	10.69	10.35	10.18	10.07	9.96	9.84		
90.0	12.60	11.64	11.03	10.63	10.29	10.18	10.07	9.96	9.96		
135.0	13.11	11.87	11.19	10.80	10.41	10.29	10.13	9.96	9.90		
180.0	12.77	11.76	11.08	10.69	10.46	10.29	10.13	9.96	10.01		
225.0	18.34	12.09	11.31	10.86	10.52	10.35	10.18	10.07	10.07		
270.0	24.24	12.43	11.59	11.03	10.63	10.41	10.24	10.07	10.01		
315.0	22.39	12.21	11.42	10.97	10.58	10.29	10.18	10.07	9.96		
360.0	24.30	12.32	11.53	10.91	10.52	10.29	10.13	10.01	9.96		
C/γ(°)	90.0										
0.0	9.84										
45.0	9.79										
90.0	9.79										
135.0	9.84										
180.0	9.84										
225.0	9.79										
270.0	9.79										
315.0	9.84										
360.0	9.84										