
NATA

Client:

LumCAT: 2-1121-A4

Luminaire: 99.02.73.172+92.76.365.00

Report No: nata-0100

Voltage(V): 36.3000

Test No: GC2018111504

Current(A): 0.5600

LampCAT: OSRAM SOLERIQ S15

Power (W): 20.3280

Lamp flux(lm): 2616.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 71

Width(mm): 71

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2418.75, Efficiency(%): 92.46% , Luminous Efficacy(lm/W): 118.99

Central intensity(cd): 7951.782, Maximum intensity(cd): 7951.782

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=26.6

[C90/270]Total=26.6

Field angle(10%Imax): [C0/180]Total=62.2

[C90/270]Total=62.2

Maximum s/h(1/2): C0_180=0.45 C90_270=0.45

Maximum s/h(1/4): C0_180=0.44 C90_270=0.44

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 94.19%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.982%

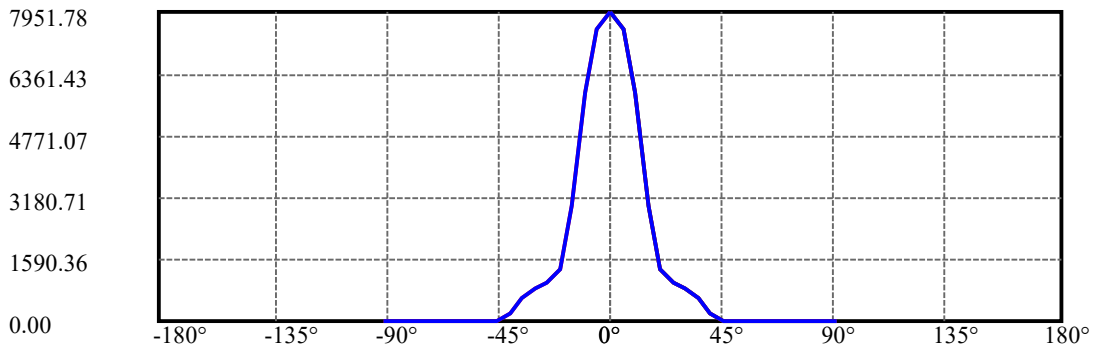
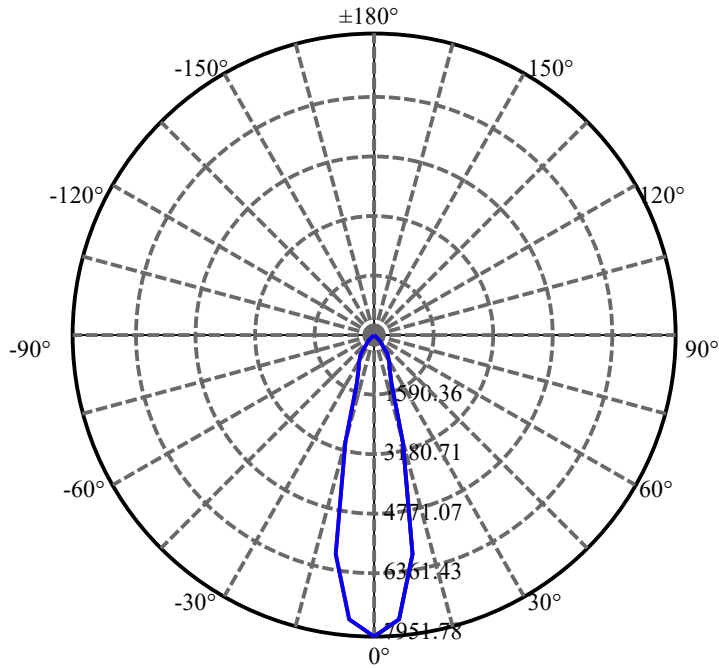
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7951.781	47.553	47.553	1.818%	1.966%
5.0	7520.203	359.265	406.818	13.733%	16.819%
10.0	5883.328	559.993	966.811	21.406%	39.972%
15.0	2957.414	419.564	1386.375	16.038%	57.318%
20.0	1345.359	252.220	1638.595	9.641%	67.746%
25.0	970.615	224.846	1863.441	8.595%	77.042%
30.0	850.289	233.038	2096.478	8.908%	86.676%
35.0	609.623	191.665	2288.143	7.327%	94.600%
40.0	217.484	76.627	2364.77	2.929%	97.768%
45.0	23.351	9.051	2373.821	.346%	98.143%
50.0	12.804	5.376	2379.197	.206%	98.365%
55.0	11.637	5.225	2384.422	.200%	98.581%
60.0	10.997	5.220	2389.643	.200%	98.797%
65.0	10.554	5.243	2394.886	.200%	99.013%
70.0	10.245	5.277	2400.162	.202%	99.232%
75.0	9.998	5.294	2405.456	.202%	99.451%
80.0	9.851	5.318	2410.774	.203%	99.670%
85.0	9.759	5.329	2416.103	.204%	99.891%
90.0	9.647	2.644	2418.747	.101%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2096.48	80.14%	86.68%
0-40	2364.77	90.40%	97.77%
0-60	2389.64	91.35%	98.80%
0-90	2416.10	92.36%	99.89%
0-120	2416.10	92.36%	99.89%
0-180	2418.75	92.46%	100.00%
60-90	31.68	1.21%	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%
0-26.54	1935.00	73.97%	80.00%

ZONAL LUMEN SUMMARY

0-10	966.81
10-20	671.78
20-30	457.88
30-40	268.29
40-50	14.43
50-60	10.45
60-70	10.52
70-80	10.61
80-90	5.33
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: —————

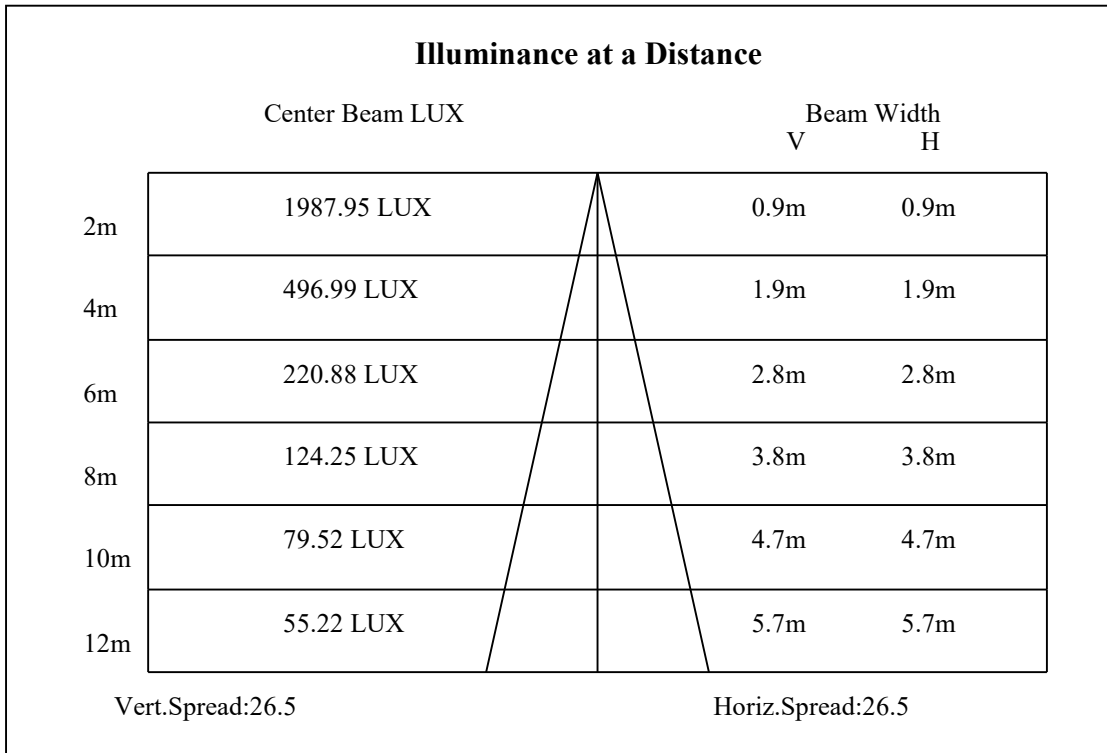
C90/C270: —————

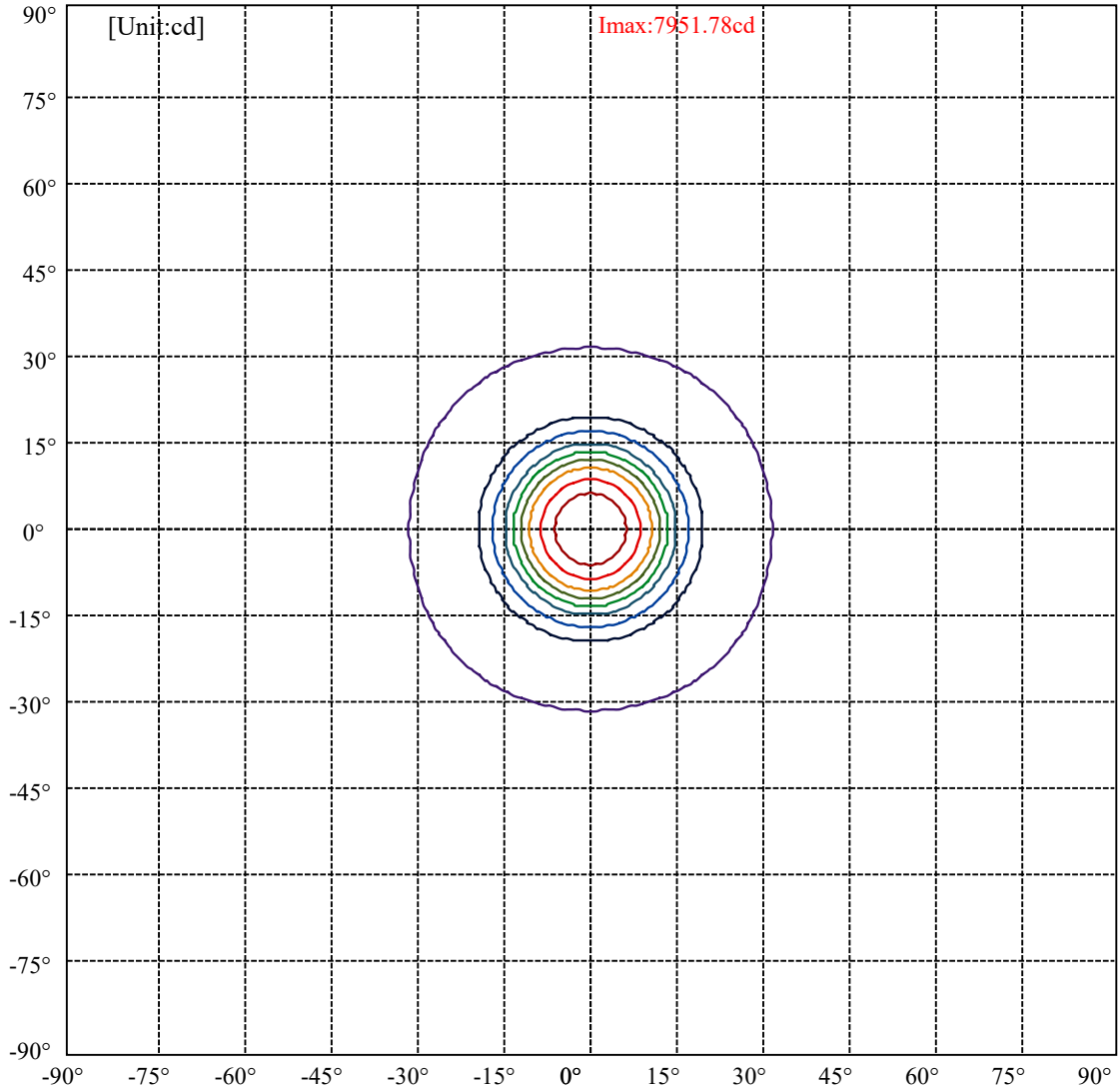
Field angle(10%Imax):C0/180Left:31.1 Right:31.1

:C90/270Left:31.1 Right:31.1

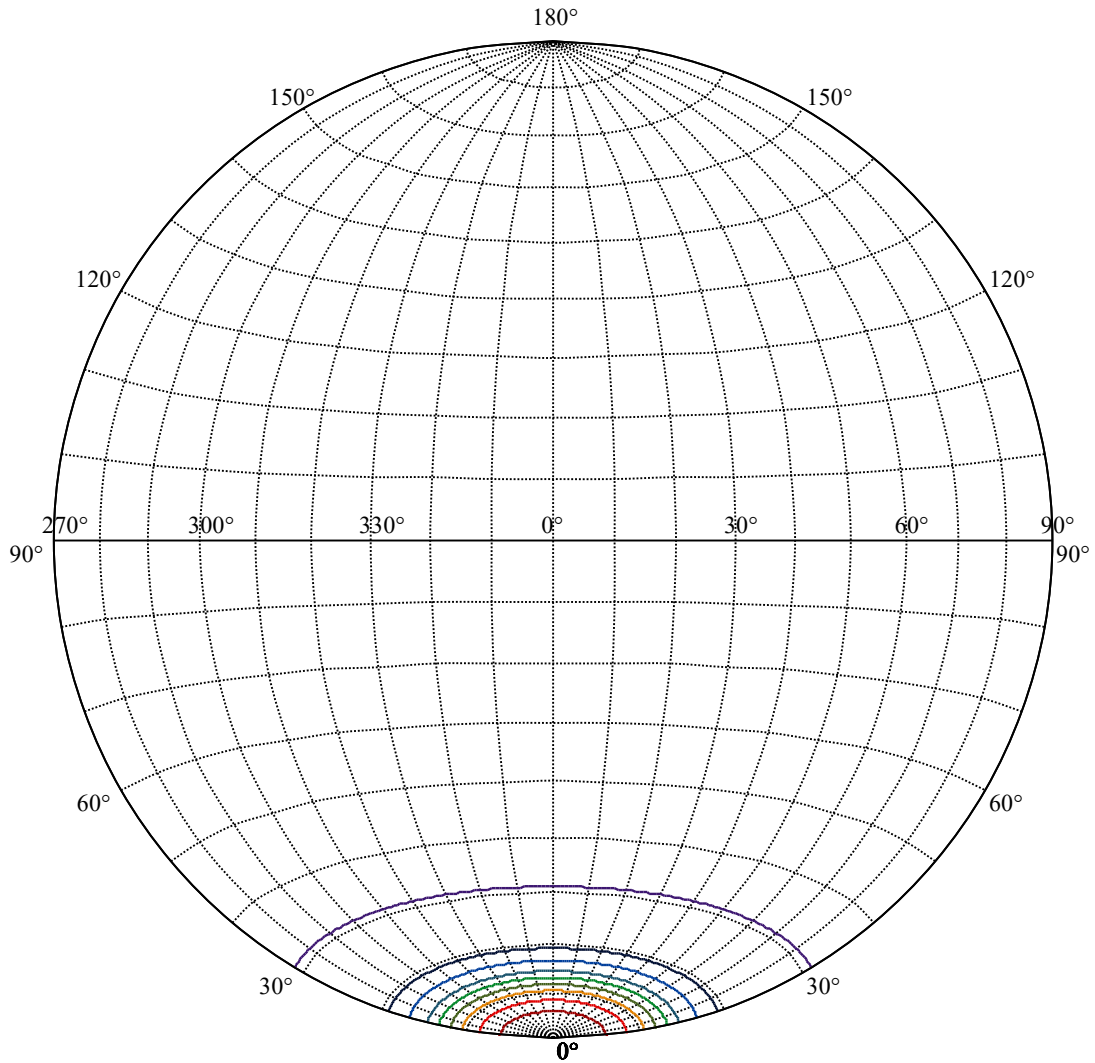
Beam Angle(50%Imax):C0/180Left:13.3 Right:13.3

:C90/270Left:13.3 Right:13.3





(10%Imax) 795.178	—
(20%Imax) 1590.36	—
(30%Imax) 2385.53	—
(40%Imax) 3180.71	—
(50%Imax) 3975.89	—
(60%Imax) 4771.07	—
(70%Imax) 5566.25	—
(80%Imax) 6361.43	—
(90%Imax) 7156.6	—



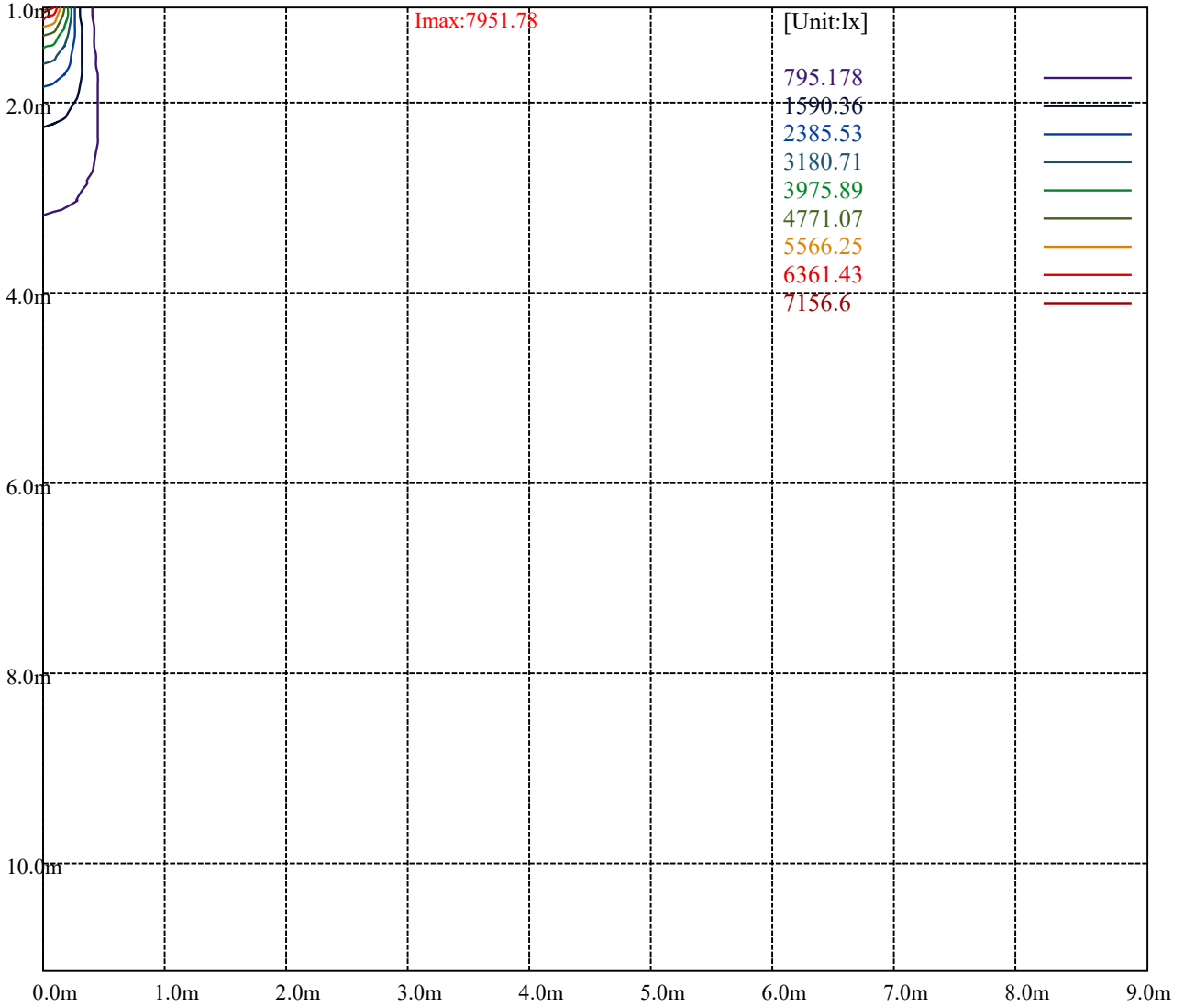
House

[Unit:cd]

Road

I_{max}:7951.78

(10%I _{max}) 795.178	—
(20%I _{max}) 1590.36	—
(30%I _{max}) 2385.53	—
(40%I _{max}) 3180.71	—
(50%I _{max}) 3975.89	—
(60%I _{max}) 4771.07	—
(70%I _{max}) 5566.25	—
(80%I _{max}) 6361.43	—
(90%I _{max}) 7156.6	—



Luminance Table

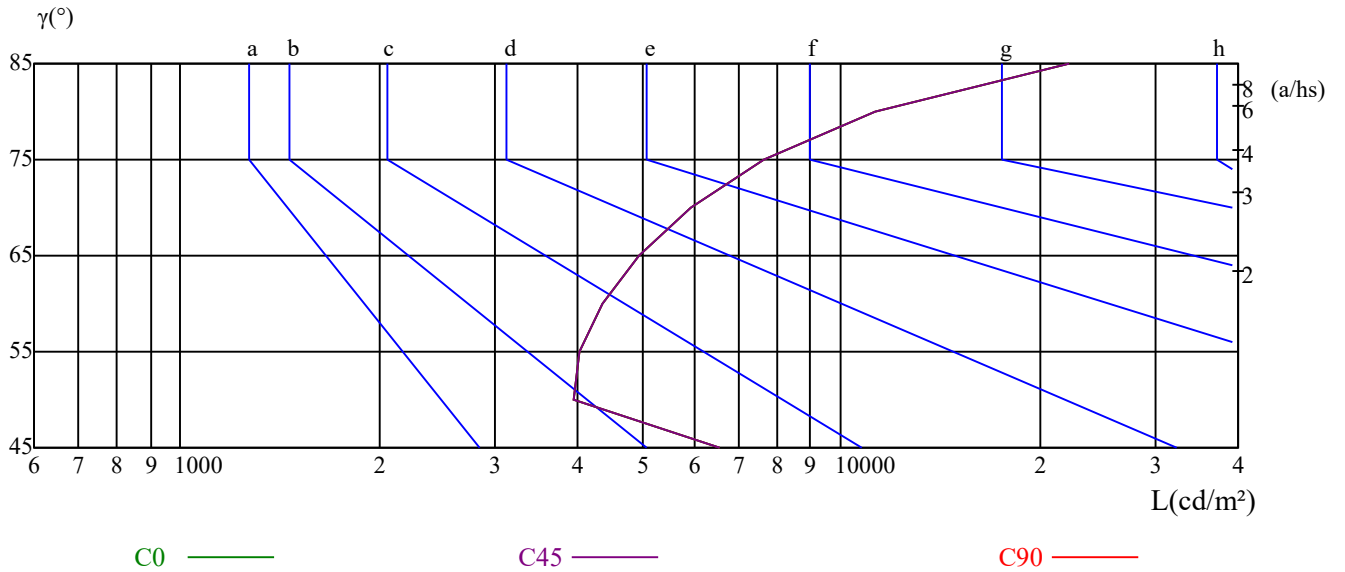
γ	45	50	55	60	65	70	75	80	85
C0	6551	3951	4025	4363	4954	5942	7663	11253	22213
C45	6551	3951	4025	4363	4954	5942	7663	11253	22213
C90	6551	3951	4025	4363	4954	5942	7663	11253	22213

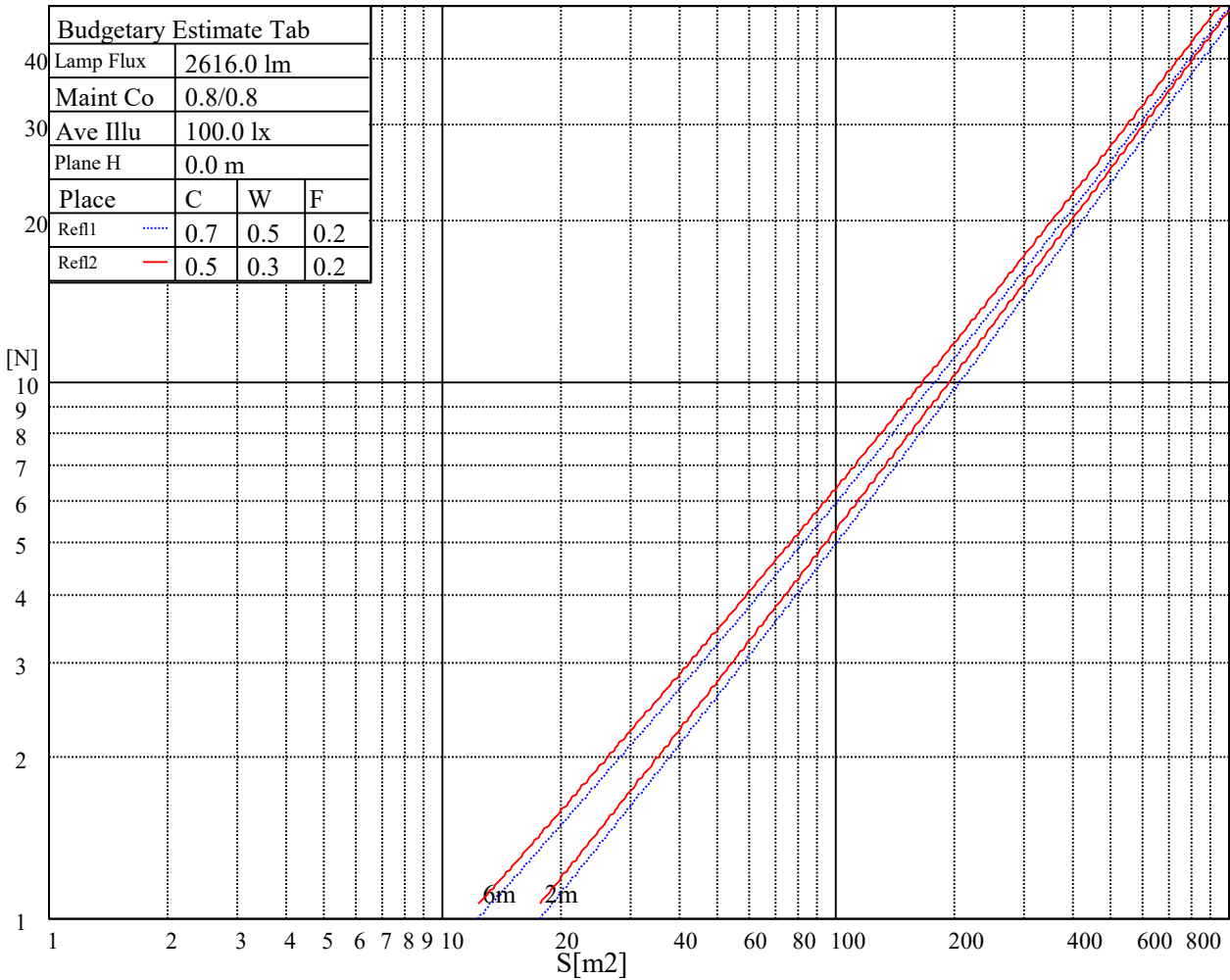
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4954	4954	4954	7663	7663	7663	22213	22213	22213

Glare Table

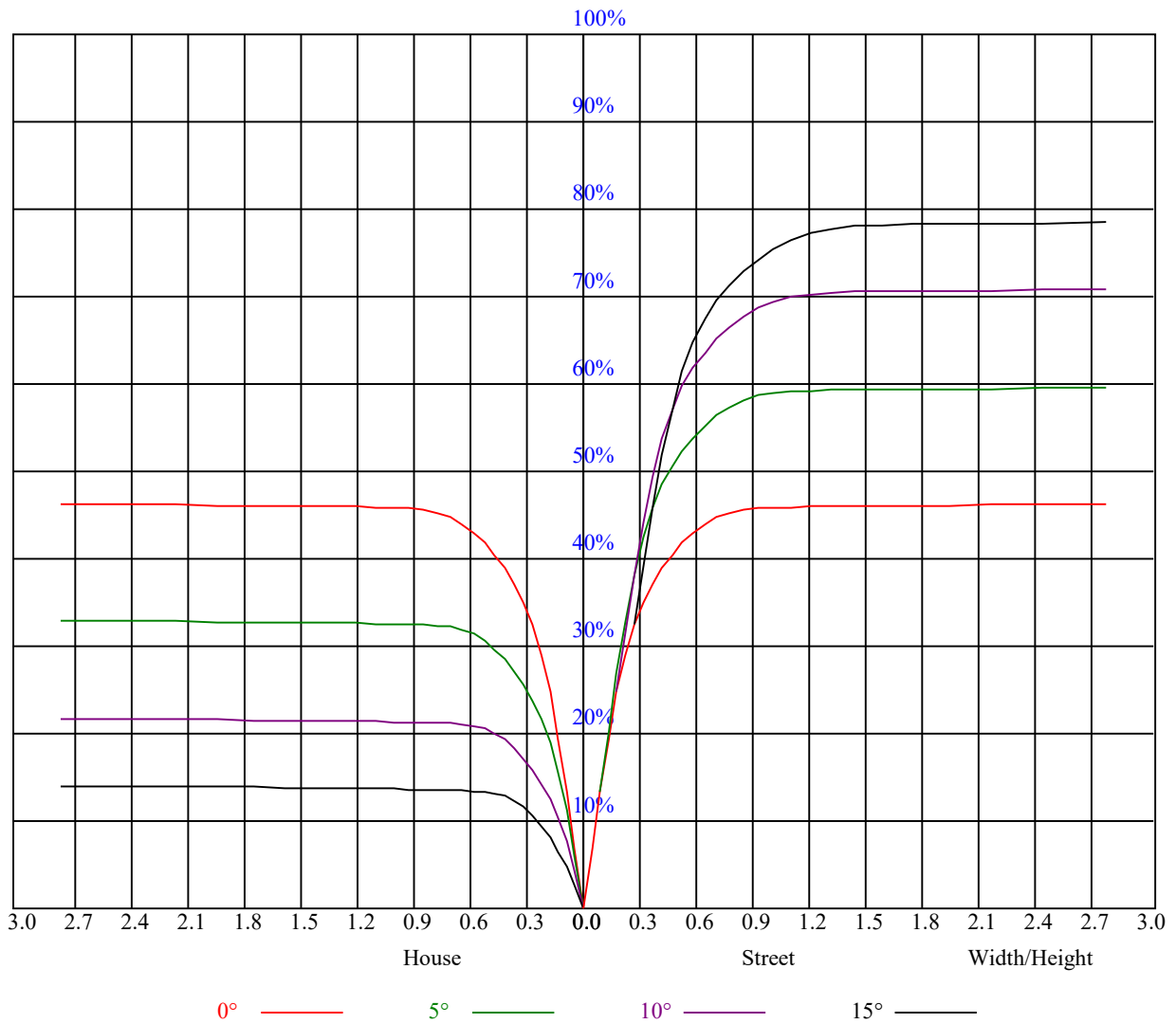
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

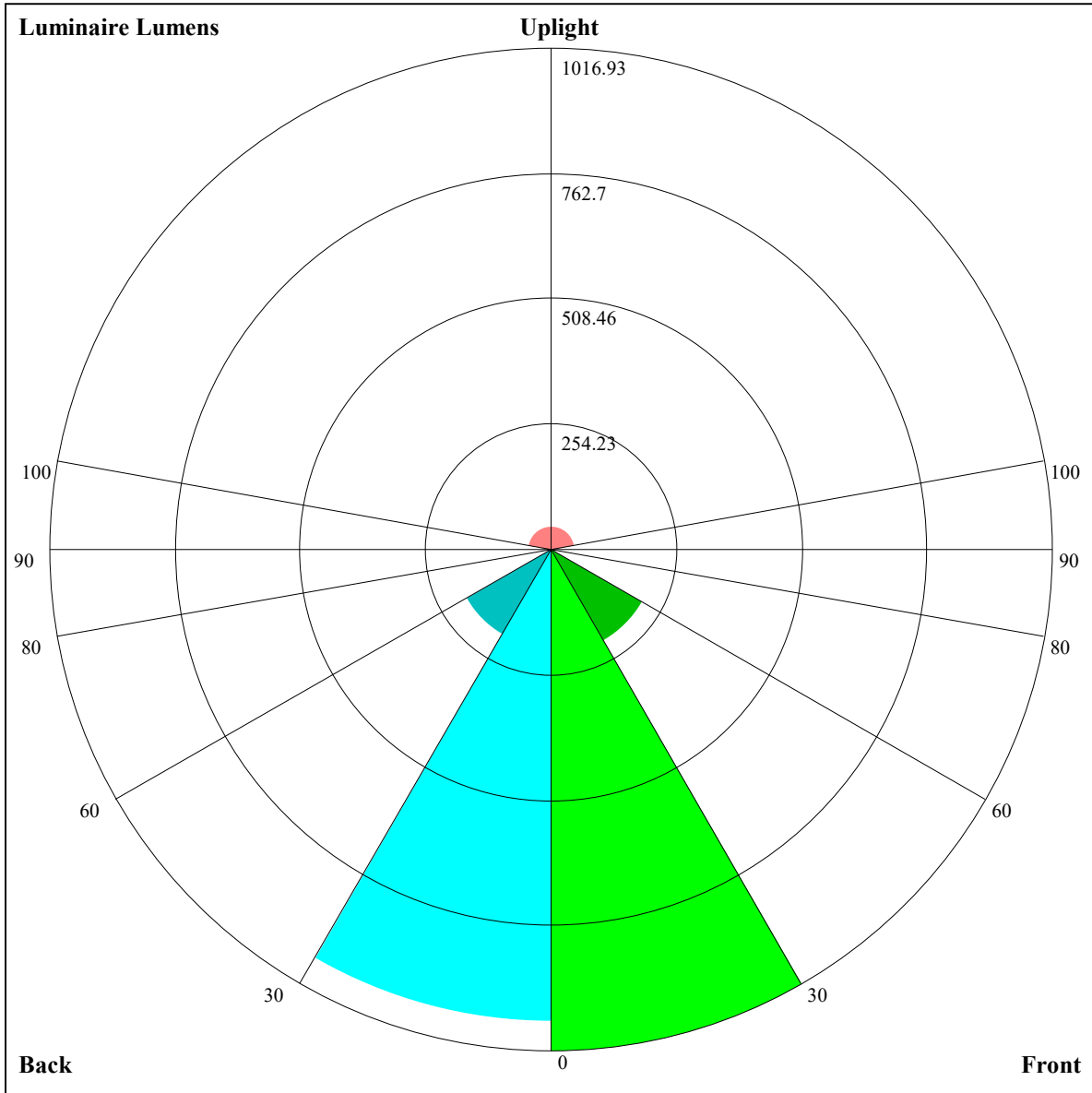
Luminance Limiting Curve





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	1.12	1.12	1.12	1.10	1.10	1.10	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.94
1	1.03	1.01	0.98	1.01	0.99	0.97	0.97	0.96	0.94	0.94	0.92	0.91	0.91	0.90	0.88	0.87
2	0.98	0.94	0.91	0.96	0.93	0.90	0.93	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.85	0.83
3	0.93	0.89	0.86	0.92	0.88	0.85	0.90	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.81	0.80
4	0.89	0.85	0.81	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.77
5	0.85	0.81	0.78	0.85	0.80	0.77	0.83	0.79	0.77	0.82	0.78	0.76	0.80	0.77	0.75	0.74
6	0.82	0.78	0.74	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
7	0.79	0.75	0.72	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.69
8	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
9	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
10	0.72	0.68	0.65	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.66	0.64	0.63





Luminaire Lumens:

FL=1016.93,FM=214.72,FH=10.58,FVH=5.32

BL=958.43,BM=198.19,BH=10.52,BVH=5.31

UL=10.53,UH=50.09

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	7922.25	7729.31	6766.31	4050.56	1749.94	1055.81	879.75	717.19	300.94
45.0	7982.44	7569.00	5816.25	2727.00	1244.81	954.56	839.81	578.81	286.31
90.0	7924.50	7309.69	5108.06	2165.06	1111.28	920.93	820.41	530.89	103.16
135.0	7977.94	7511.63	5793.19	2858.63	1282.50	952.31	845.44	581.63	302.06
180.0	7922.25	7275.94	5267.81	2318.63	1110.04	907.65	819.00	448.03	58.78
225.0	7982.44	7544.25	5903.44	3058.88	1359.56	975.49	865.07	657.45	191.08
270.0	7924.50	7628.63	6288.75	3373.31	1525.50	1016.44	878.06	740.25	299.81
315.0	7977.94	7593.19	6122.81	3107.25	1379.25	981.73	854.78	622.74	197.72
360.0	7922.25	7729.31	6766.31	4050.56	1749.94	1055.81	879.75	717.19	300.94

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	29.81	13.44	12.04	11.25	10.74	10.35	10.07	9.90	9.79
45.0	17.33	12.38	11.53	10.91	10.52	10.24	10.01	9.90	9.90
90.0	15.19	11.98	11.19	10.69	10.35	10.13	9.90	9.79	9.73
135.0	19.52	12.54	11.42	10.86	10.46	10.18	9.96	9.84	9.73
180.0	18.17	12.32	11.42	10.86	10.41	10.13	9.96	9.84	9.73
225.0	28.35	13.05	11.76	11.03	10.58	10.29	10.01	9.90	9.73
270.0	31.56	13.78	11.93	11.25	10.74	10.35	10.07	9.84	9.73
315.0	26.89	12.94	11.81	11.14	10.63	10.29	10.01	9.79	9.73
360.0	29.81	13.44	12.04	11.25	10.74	10.35	10.07	9.90	9.79

C/γ(°)	90.0
0.0	9.68
45.0	9.68
90.0	9.62
135.0	9.62
180.0	9.68
225.0	9.68
270.0	9.62
315.0	9.62
360.0	9.68