
NATA

Client:

LumCAT: 2-1122-A4

Luminaire: 99.02.73.172+92.76.365.00

Report No: nata-0100

Voltage(V): 36.3000

Test No: GC2018111505

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): 70

Width(mm): 70

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2420.26, Efficiency(%): 92.52% , Luminous Efficacy(lm/W): 119.06

Central intensity(cd): 5527.547, Maximum intensity(cd): 5527.547

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=34.8

[C90/270]Total=34.8

Field angle(10%Imax): [C0/180]Total=70.8

[C90/270]Total=70.8

Maximum s/h(1/2): C0_180=0.58 C90_270=0.58

Maximum s/h(1/4): C0_180=0.58 C90_270=0.58

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 93.69%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.532%

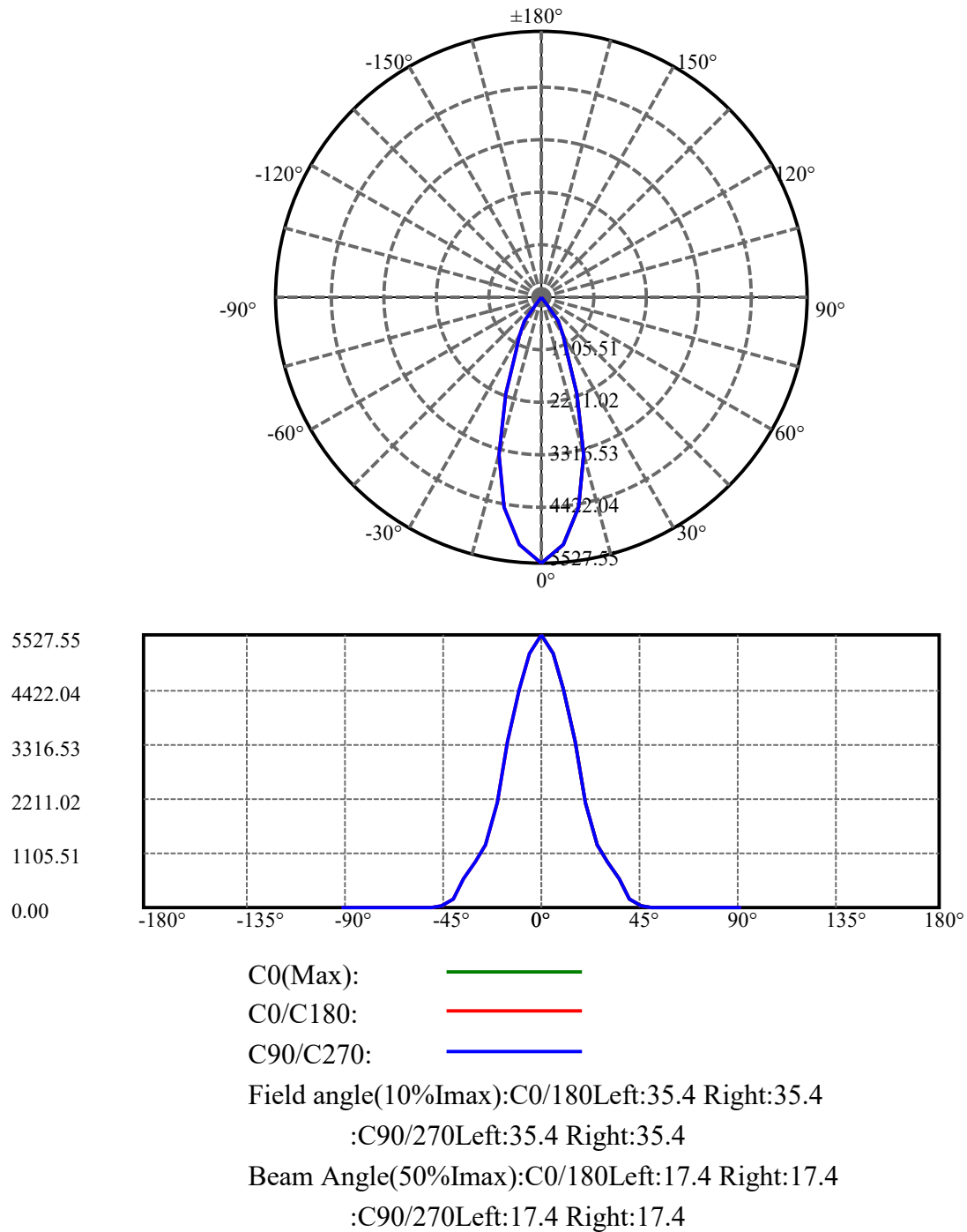
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5527.547	33.056	33.056	1.264%	1.366%
5.0	5161.852	246.599	279.655	9.427%	11.555%
10.0	4423.289	421.022	700.677	16.094%	28.951%
15.0	3380.906	479.644	1180.321	18.335%	48.768%
20.0	2117.813	397.035	1577.355	15.177%	65.173%
25.0	1254.677	290.650	1868.005	11.110%	77.182%
30.0	916.481	251.179	2119.184	9.602%	87.560%
35.0	590.365	185.610	2304.794	7.095%	95.229%
40.0	171.373	60.381	2365.174	2.308%	97.724%
45.0	24.166	9.367	2374.541	.358%	98.111%
50.0	12.832	5.388	2379.929	.206%	98.334%
55.0	11.777	5.288	2385.217	.202%	98.552%
60.0	11.187	5.310	2390.528	.203%	98.772%
65.0	10.737	5.334	2395.862	.204%	98.992%
70.0	10.448	5.382	2401.243	.206%	99.214%
75.0	10.216	5.409	2406.653	.207%	99.438%
80.0	10.083	5.443	2412.095	.208%	99.663%
85.0	9.984	5.452	2417.547	.208%	99.888%
90.0	9.886	2.709	2420.257	.104%	100.000%

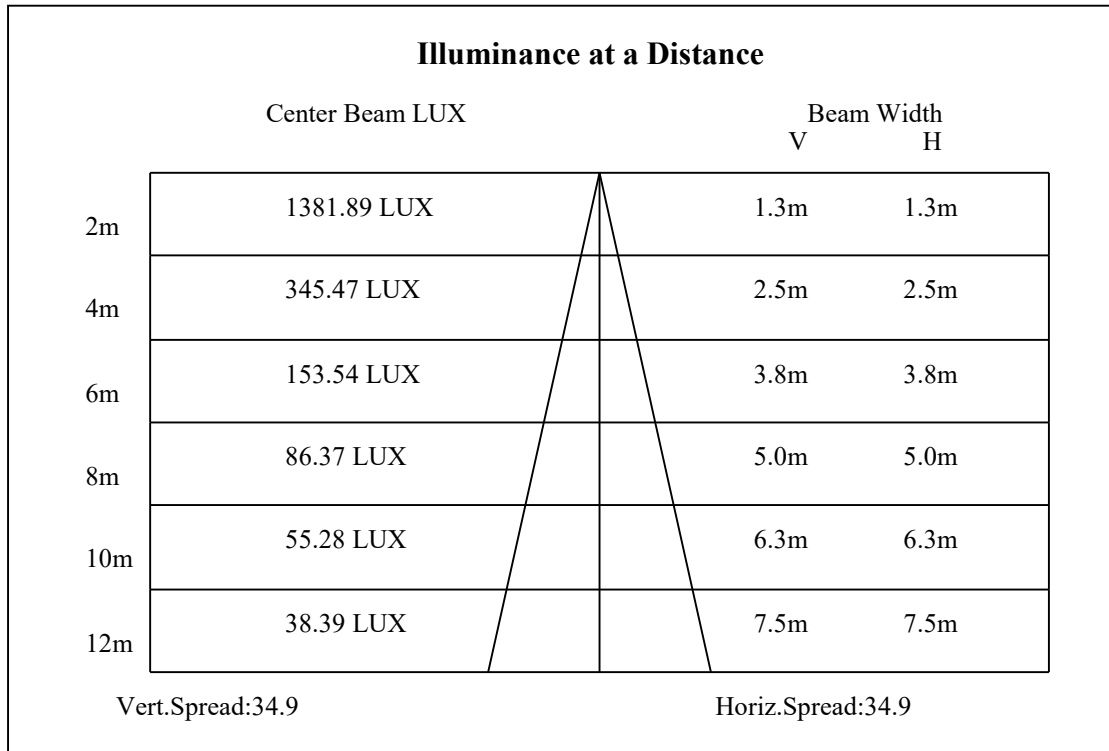
ZONAL LUMEN SUMMARY

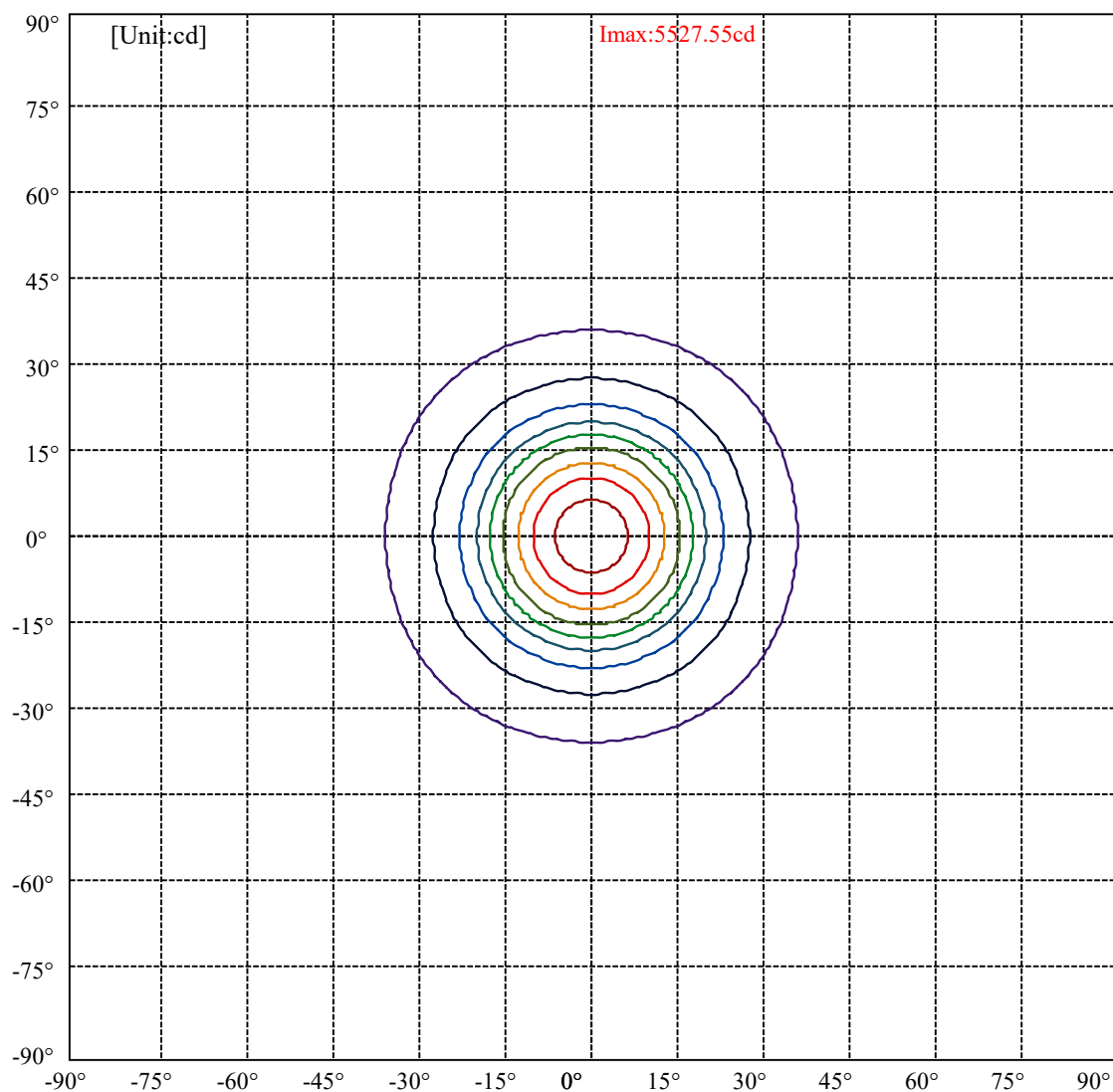
Zone	Lumens	%Lamp	%Fixt
0-30	2119.18	81.01%	87.56%
0-40	2365.17	90.41%	97.72%
0-60	2390.53	91.38%	98.77%
0-90	2417.55	92.41%	99.89%
0-120	2417.55	92.41%	99.89%
0-180	2420.26	92.52%	100.00%
60-90	32.33	1.24%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.36	1936.21	74.01%	80.00%

ZONAL LUMEN SUMMARY

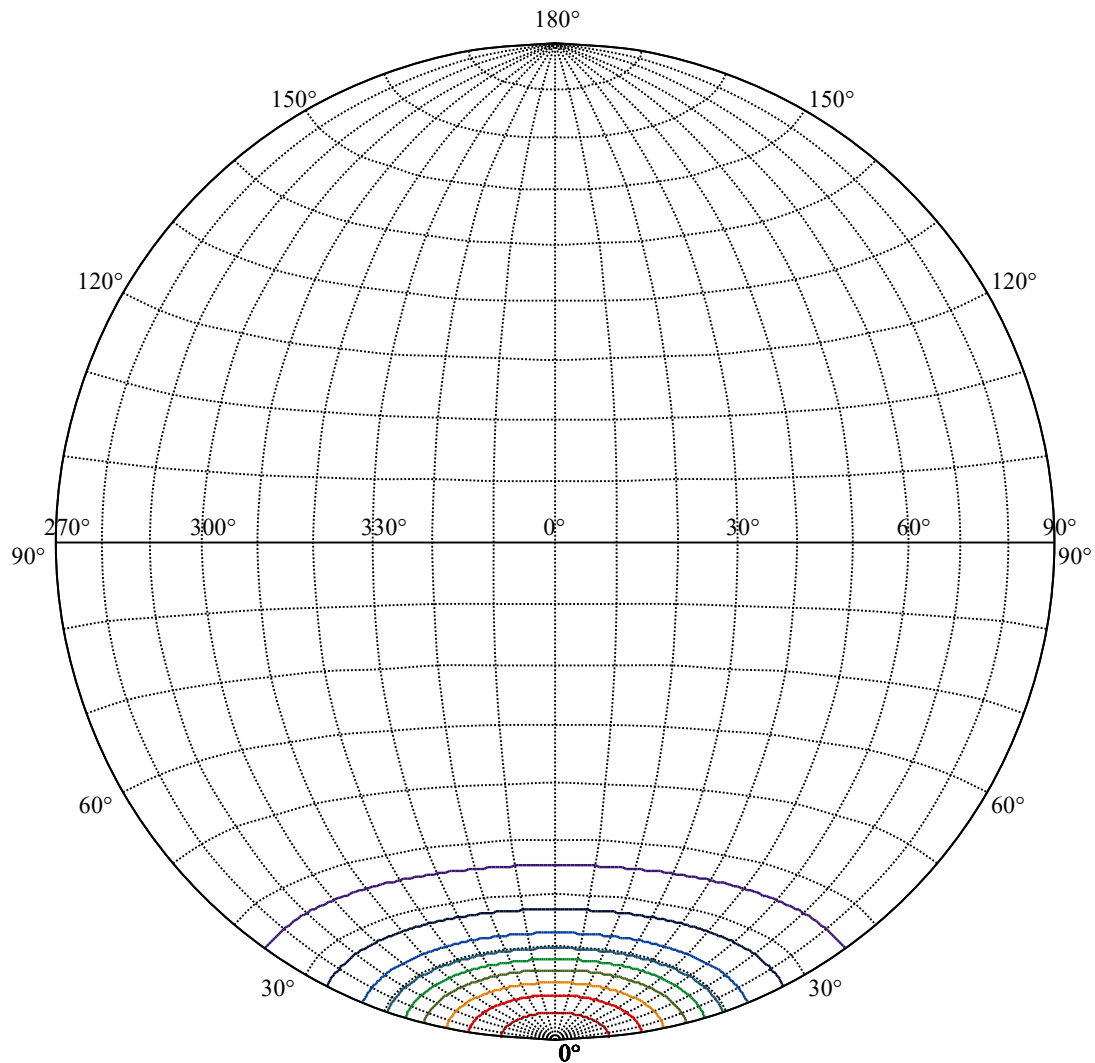
0-10	700.68
10-20	876.68
20-30	541.83
30-40	245.99
40-50	14.75
50-60	10.60
60-70	10.72
70-80	10.85
80-90	5.45
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax) 552.755	—
(20%Imax) 1105.51	—
(30%Imax) 1658.26	—
(40%Imax) 2211.02	—
(50%Imax) 2763.77	—
(60%Imax) 3316.53	—
(70%Imax) 3869.28	—
(80%Imax) 4422.04	—
(90%Imax) 4974.79	—



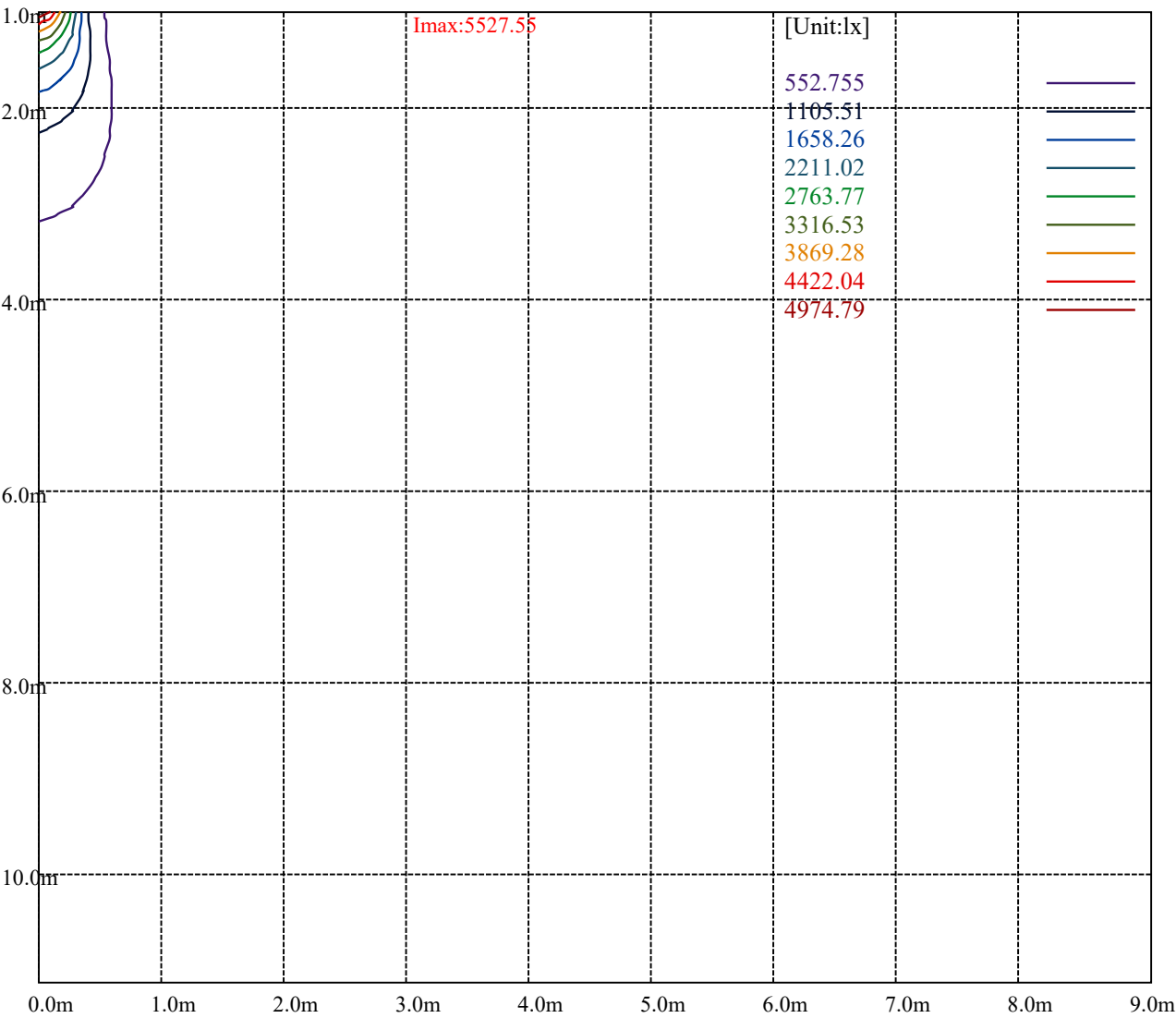
House

[Unit:cd]

Road

Imax:5527.55

(10%Imax)	552.755	—
(20%Imax)	1105.51	—
(30%Imax)	1658.26	—
(40%Imax)	2211.02	—
(50%Imax)	2763.77	—
(60%Imax)	3316.53	—
(70%Imax)	3869.28	—
(80%Imax)	4422.04	—
(90%Imax)	4974.79	—



Luminance Table

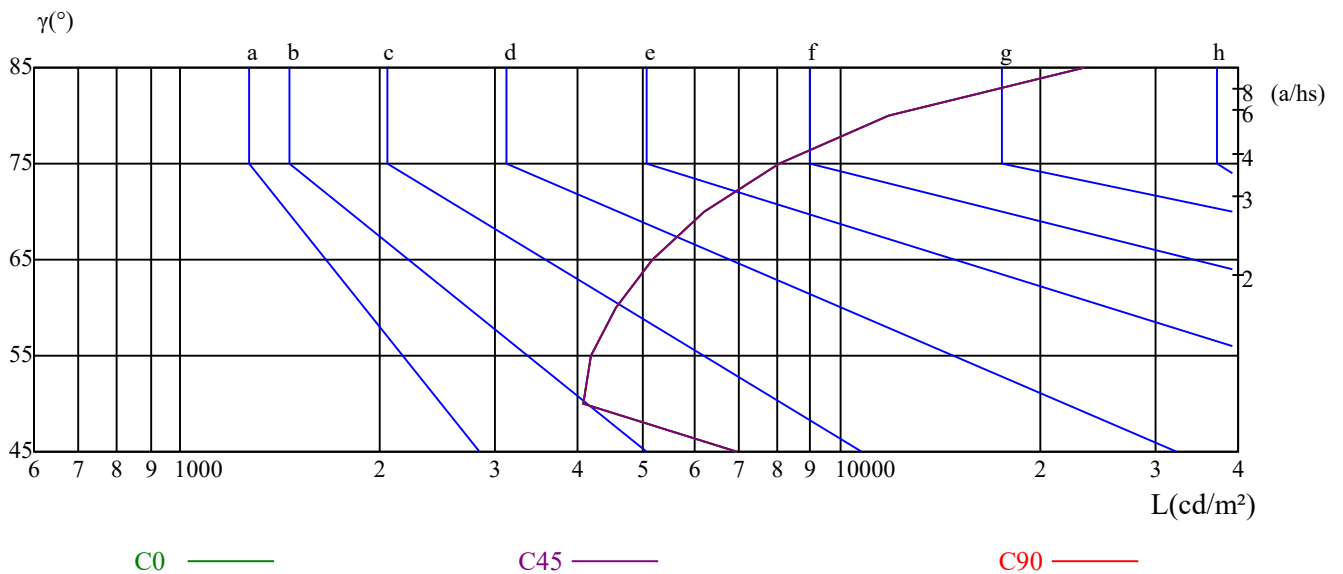
γ	45	50	55	60	65	70	75	80	85
C0	6975	4074	4190	4566	5185	6235	8056	11850	23379
C45	6975	4074	4190	4566	5185	6235	8056	11850	23379
C90	6975	4074	4190	4566	5185	6235	8056	11850	23379

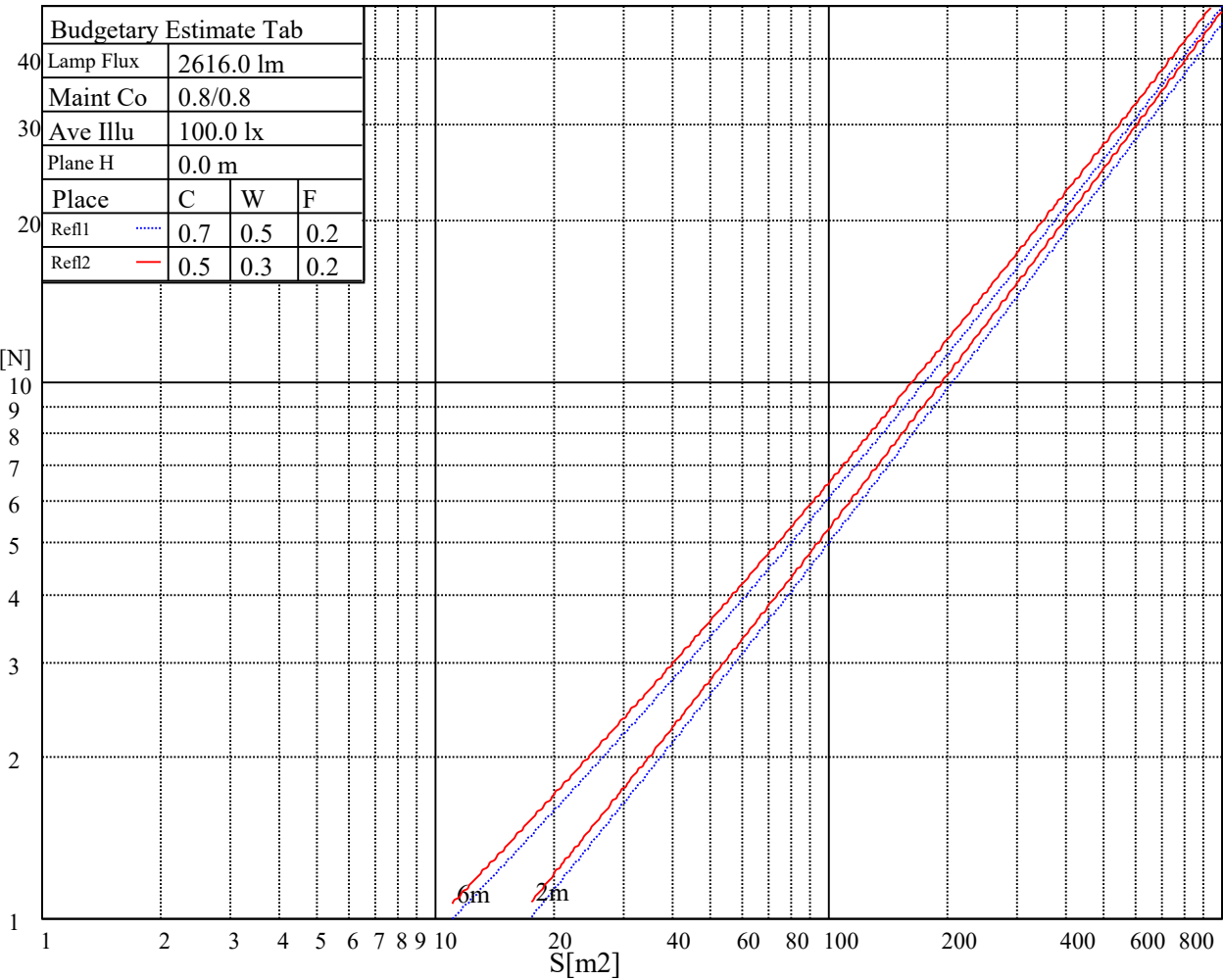
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5185	5185	5185	8056	8056	8056	23379	23379	23379

Glare Table

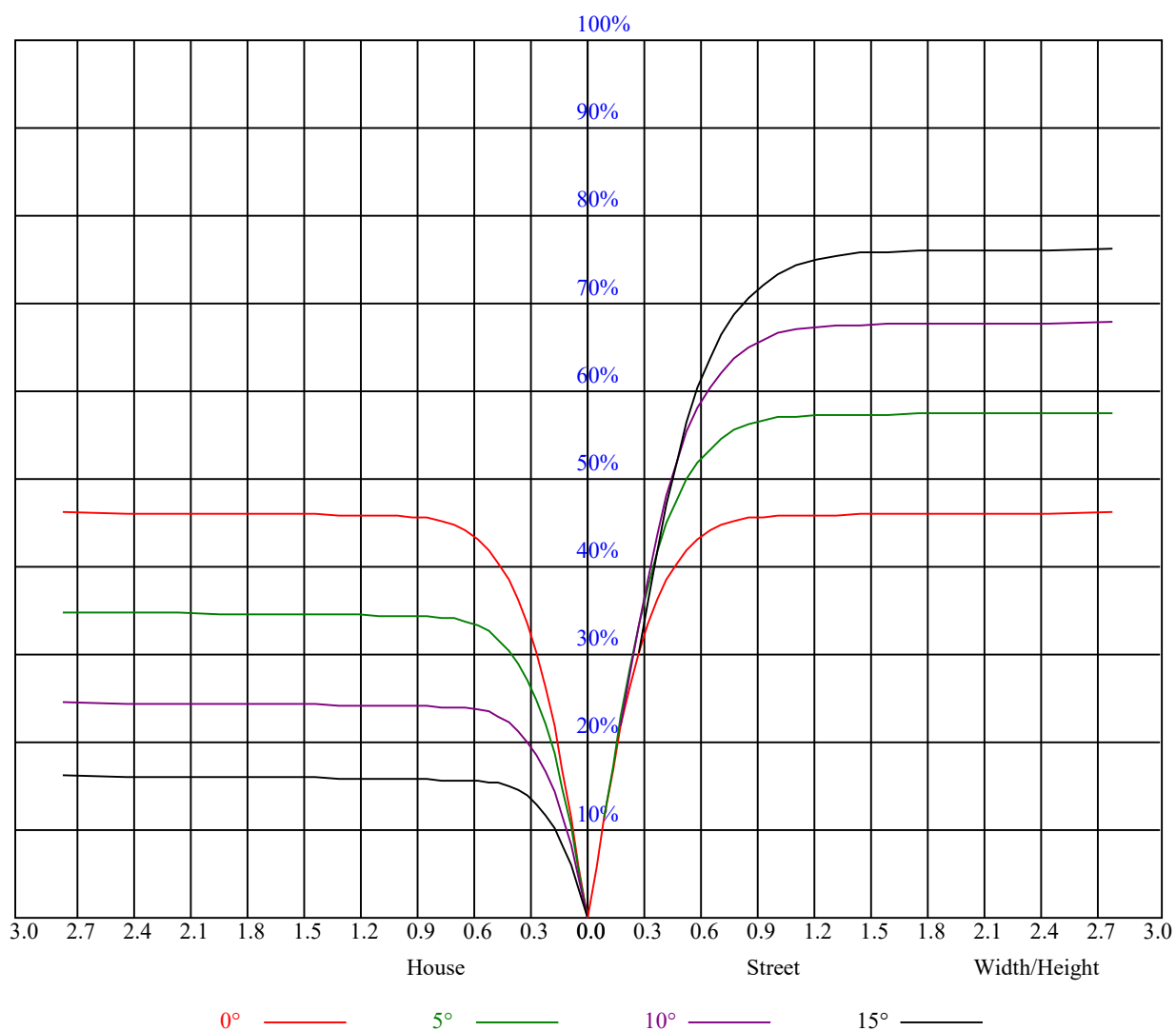
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

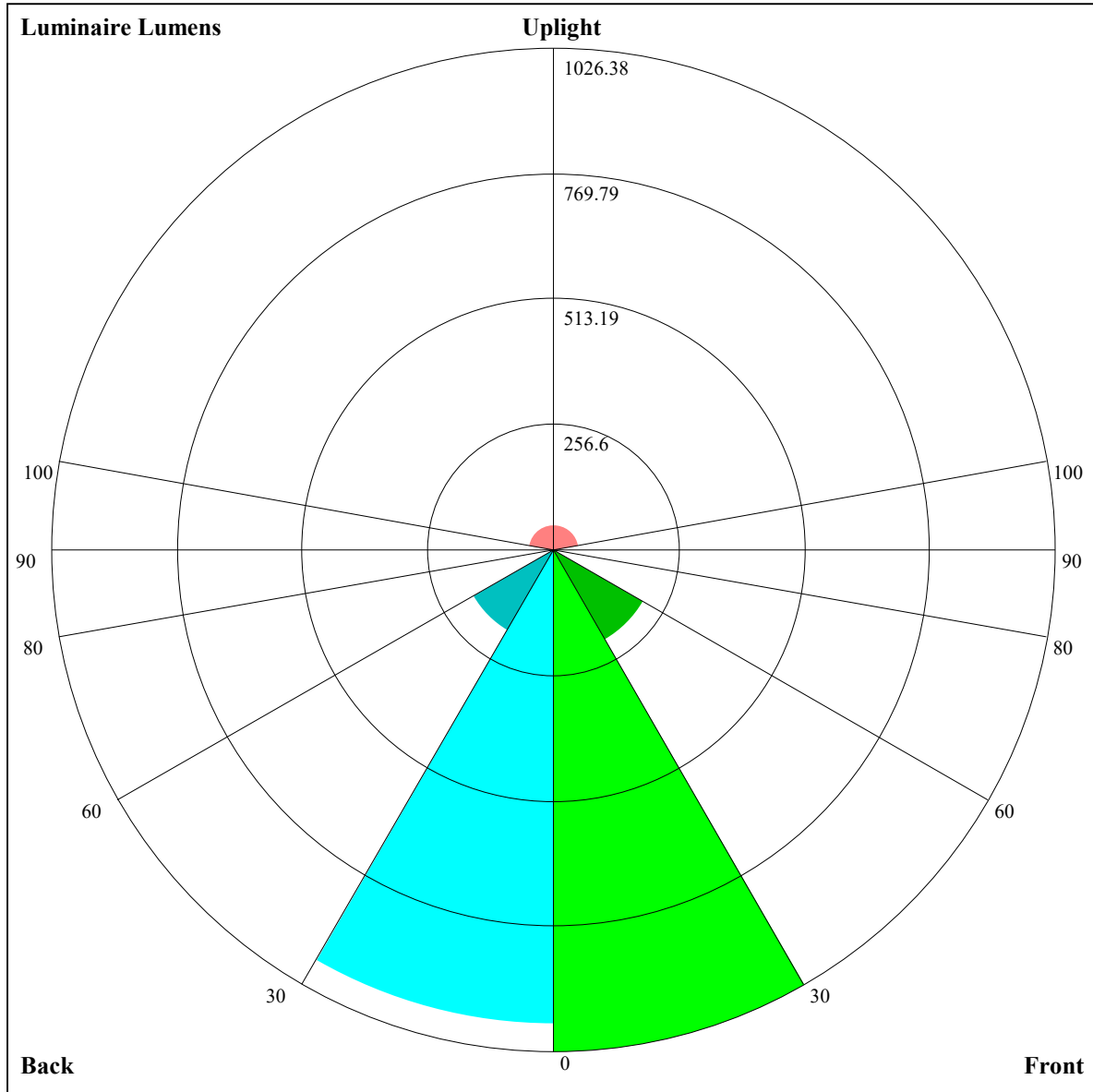
Luminance Limiting Curve





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	1.12	1.12	1.12	1.09	1.09	1.09	1.04	1.04	1.04	1.00	1.00	1.00	0.96	0.96	0.96	0.94
1	1.03	1.01	0.99	1.01	0.99	0.97	0.97	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.87
2	0.98	0.94	0.91	0.96	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.83
3	0.93	0.88	0.85	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.82	0.81	0.79
4	0.88	0.84	0.80	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.76
5	0.84	0.80	0.76	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.81	0.76	0.73	0.80	0.76	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.70
7	0.77	0.73	0.69	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.67
8	0.74	0.70	0.67	0.74	0.70	0.66	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.65
9	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.62
10	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.67	0.64	0.61	0.60





Luminaire Lumens:

FL=1026.38,FM=212.16,FH=10.77,FVH=5.45

BL=970.62,BM=189.47,BH=10.75,BVH=5.44

UL=10.79,UH=51.33

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	5499.00	5356.69	4683.38	3795.19	2554.88	1459.13	1011.94	730.13	306.56		
45.0	5558.06	5072.63	4308.75	3243.94	1928.25	1177.88	875.81	501.75	97.09		
90.0	5490.56	4893.75	4006.13	2941.31	1670.06	1063.63	825.64	405.17	43.31		
135.0	5562.56	5046.19	4226.63	3197.25	1881.00	1170.56	860.63	523.69	85.61		
180.0	5499.00	4942.13	4138.31	2915.44	1696.50	1097.10	834.41	424.58	61.42		
225.0	5558.06	5259.94	4596.75	3546.00	2236.50	1224.00	952.20	671.51	203.74		
270.0	5490.56	5418.56	4800.38	3823.31	2612.81	1491.19	1011.94	778.50	338.06		
315.0	5562.56	5304.94	4626.00	3584.81	2362.50	1353.94	959.29	687.60	235.18		
360.0	5499.00	5356.69	4683.38	3795.19	2554.88	1459.13	1011.94	730.13	306.56		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	29.25	13.33	12.04	11.36	10.80	10.52	10.29	10.18	10.07		
45.0	17.83	12.49	11.70	11.19	10.74	10.41	10.18	10.07	9.96		
90.0	15.36	12.43	11.64	11.08	10.69	10.41	10.13	10.01	9.96		
135.0	18.17	12.71	11.81	11.19	10.80	10.46	10.24	10.07	9.96		
180.0	20.25	12.49	11.70	11.14	10.69	10.41	10.18	10.01	9.96		
225.0	30.88	12.77	11.76	11.14	10.69	10.41	10.24	10.07	9.96		
270.0	33.92	13.56	11.81	11.19	10.74	10.52	10.24	10.13	10.01		
315.0	27.68	12.88	11.76	11.19	10.74	10.46	10.24	10.13	10.01		
360.0	29.25	13.33	12.04	11.36	10.80	10.52	10.29	10.18	10.07		
C/ γ (°)	90.0										
0.0	9.90										
45.0	9.84										
90.0	9.84										
135.0	9.90										
180.0	9.90										
225.0	9.90										
270.0	9.90										
315.0	9.90										
360.0	9.90										