
Nata

Client:

LumCAT: 2-1794-N

Luminaire: 92.70.131.00

Report No: nata-0100

Test No: GC2018051901

LampCAT: LUMINUS CHM9 XH20

Lamp flux(lm): 1576.5

Number of Lamps: 1

Length(mm): 69

Phm Type: C

Voltage(V): 35.4000

Current(A): 0.4100

Power (W): 14.5140

PF: 0.0000

Ballast type: DC

Width(mm): 69

Height(mm): 0

Photometric Results

Lumens(lm): 1343.92, Efficiency(%): 85.25% , Luminous Efficacy(lm/W): 92.59

Central intensity(cd): 5364.696, Maximum intensity(cd): 5364.696

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=24.6

[C90/270]Total=24.6

Field angle(10%Imax): [C0/180]Total=53.0

[C90/270]Total=53.0

Maximum s/h(1/2): C0_180=0.42 C90_270=0.42

Maximum s/h(1/4): C0_180=0.42 C90_270=0.42

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.20%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.125%

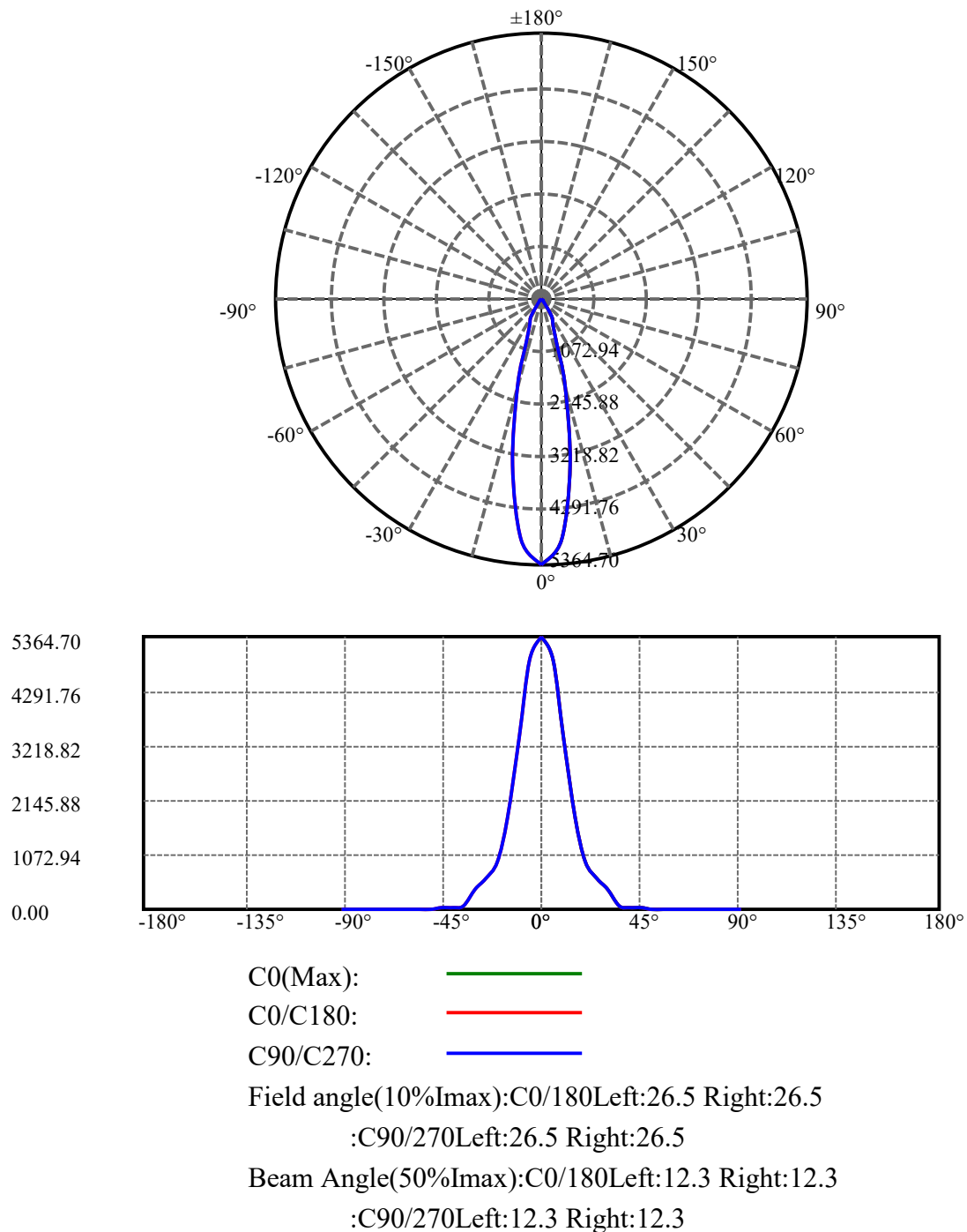
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5364.696	32.082	32.082	2.035%	2.387%
5.0	4885.430	233.393	265.475	14.805%	19.754%
10.0	3414.942	325.045	590.52	20.618%	43.940%
15.0	1799.663	255.315	845.835	16.195%	62.938%
20.0	935.346	175.353	1021.188	11.123%	75.986%
25.0	601.037	139.232	1160.42	8.832%	86.346%
30.0	384.314	105.329	1265.749	6.681%	94.183%
35.0	61.257	19.259	1285.008	1.222%	95.617%
40.0	30.625	10.790	1295.798	.684%	96.419%
45.0	20.935	8.114	1303.912	.515%	97.023%
50.0	15.774	6.623	1310.536	.420%	97.516%
55.0	12.849	5.769	1316.305	.366%	97.945%
60.0	10.839	5.145	1321.45	.326%	98.328%
65.0	9.263	4.602	1326.052	.292%	98.671%
70.0	8.424	4.339	1330.391	.275%	98.993%
75.0	7.763	4.110	1334.501	.261%	99.299%
80.0	7.433	4.012	1338.513	.255%	99.598%
85.0	6.896	3.765	1342.279	.239%	99.878%
90.0	5.981	1.639	1343.918	.104%	100.000%

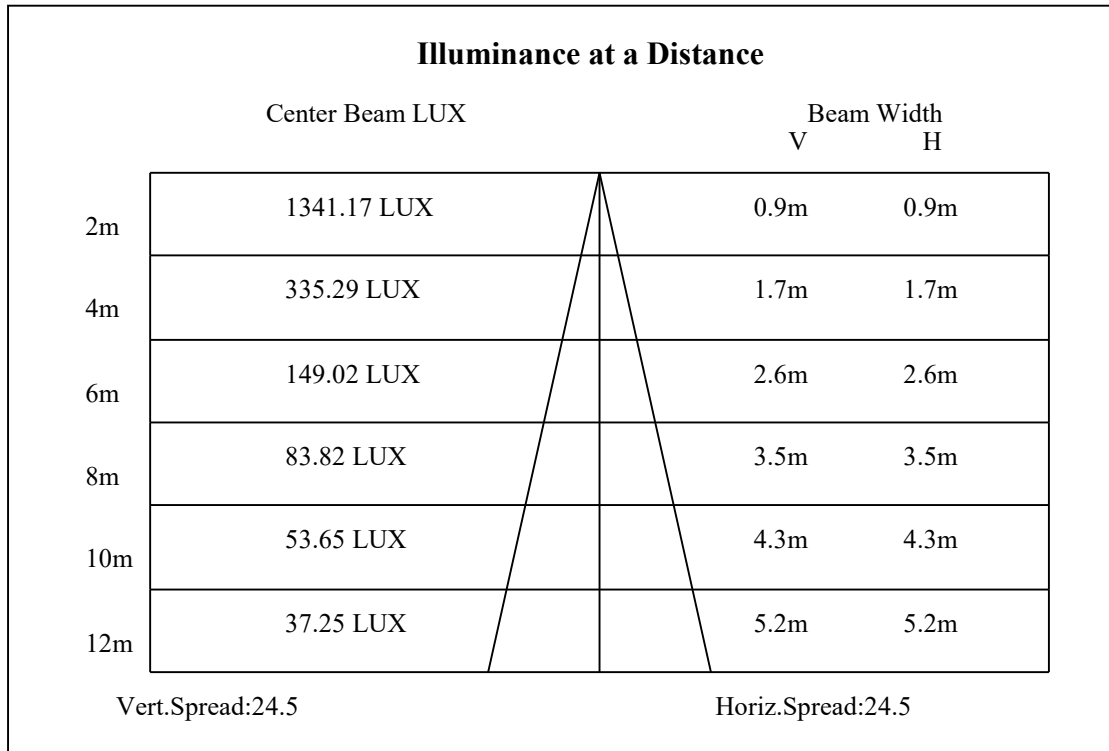
ZONAL LUMEN SUMMARY

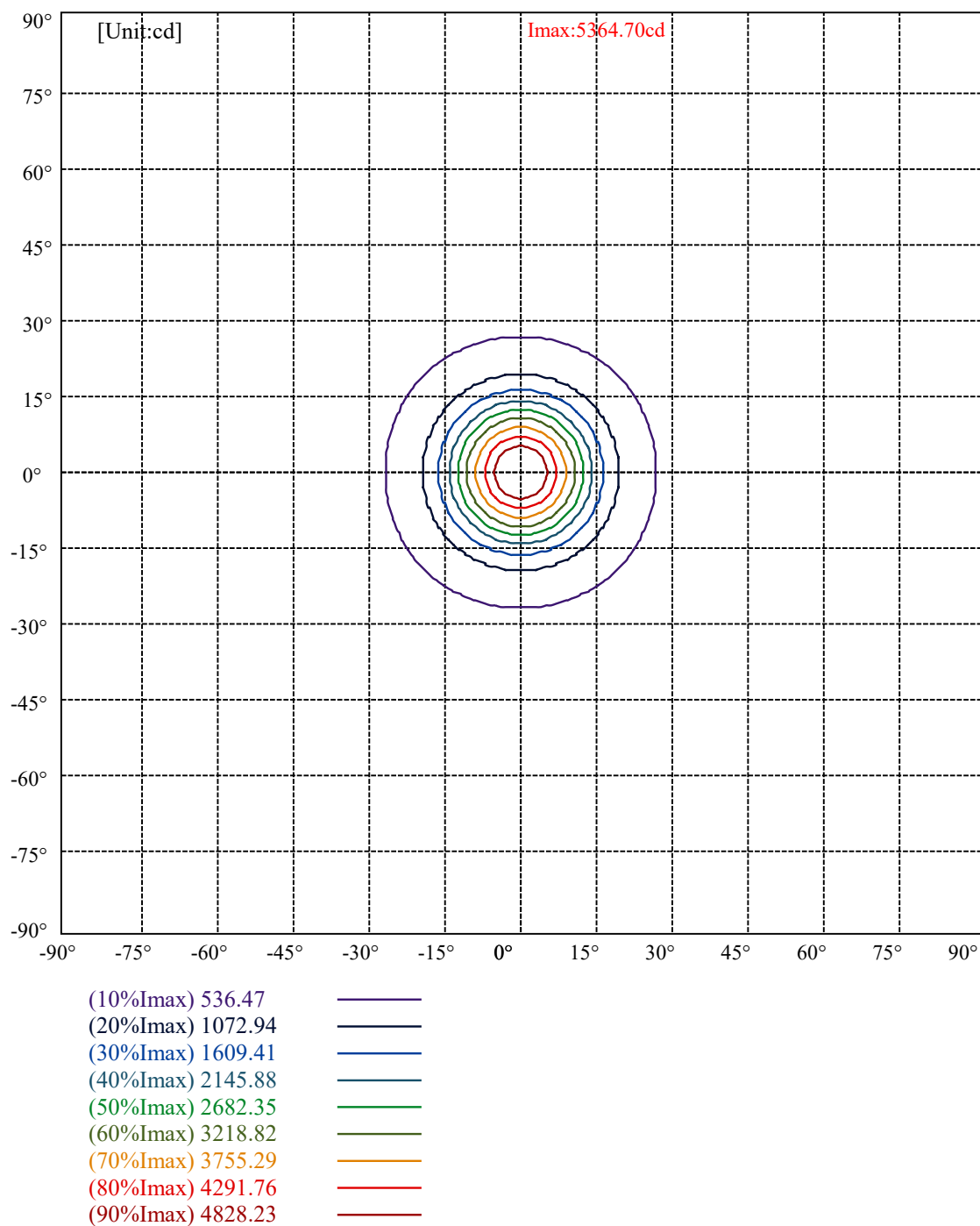
Zone	Lumens	%Lamp	%Fixt
0-30	1265.75	80.29%	94.18%
0-40	1295.80	82.19%	96.42%
0-60	1321.45	83.82%	98.33%
0-90	1342.28	85.14%	99.88%
0-120	1342.28	85.14%	99.88%
0-180	1343.92	85.25%	100.00%
60-90	25.97	1.65%	1.93%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-21.94	1075.13	68.20%	80.00%

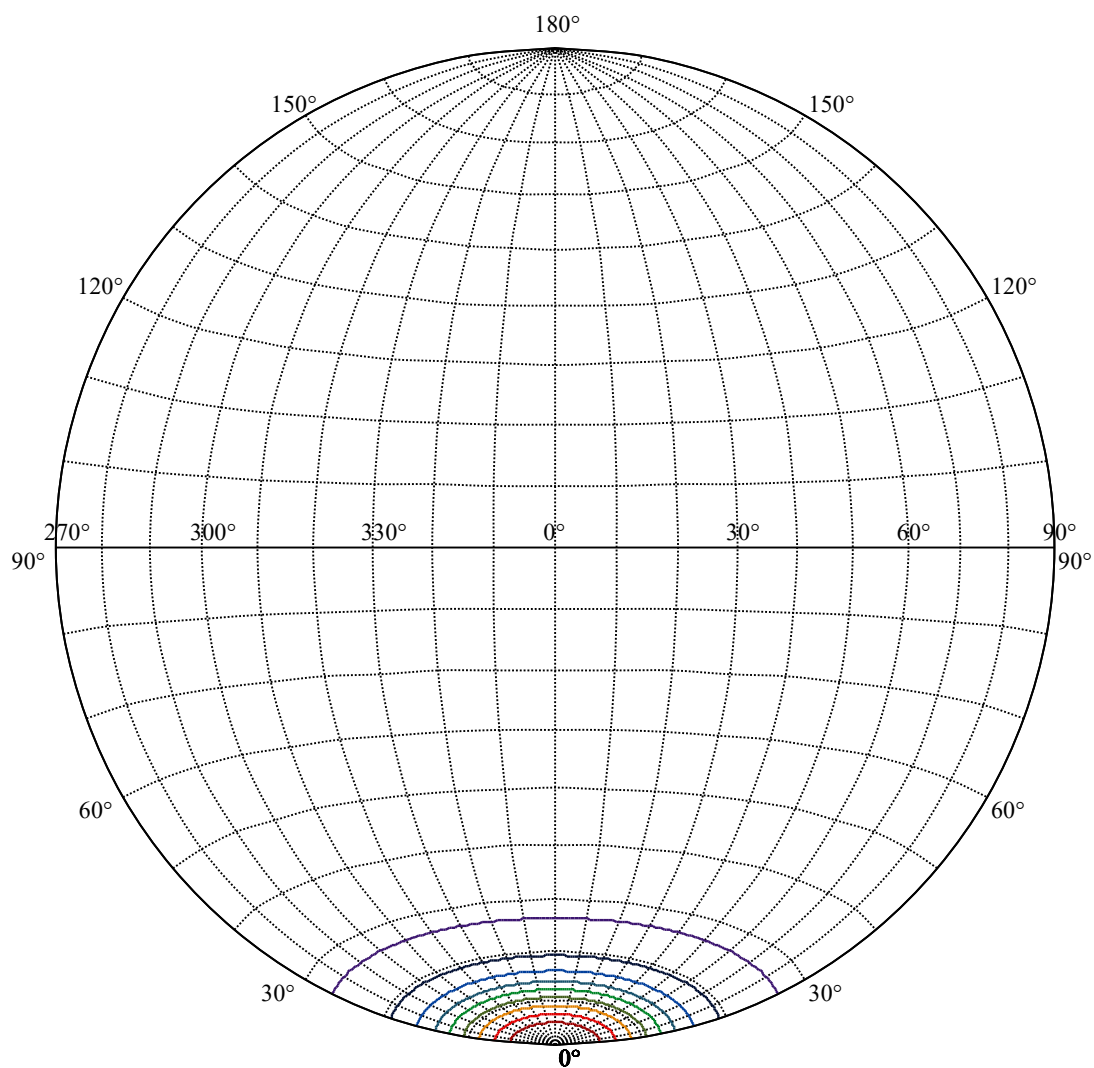
ZONAL LUMEN SUMMARY

0-10	590.52
10-20	430.67
20-30	244.56
30-40	30.05
40-50	14.74
50-60	10.91
60-70	8.94
70-80	8.12
80-90	3.77
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









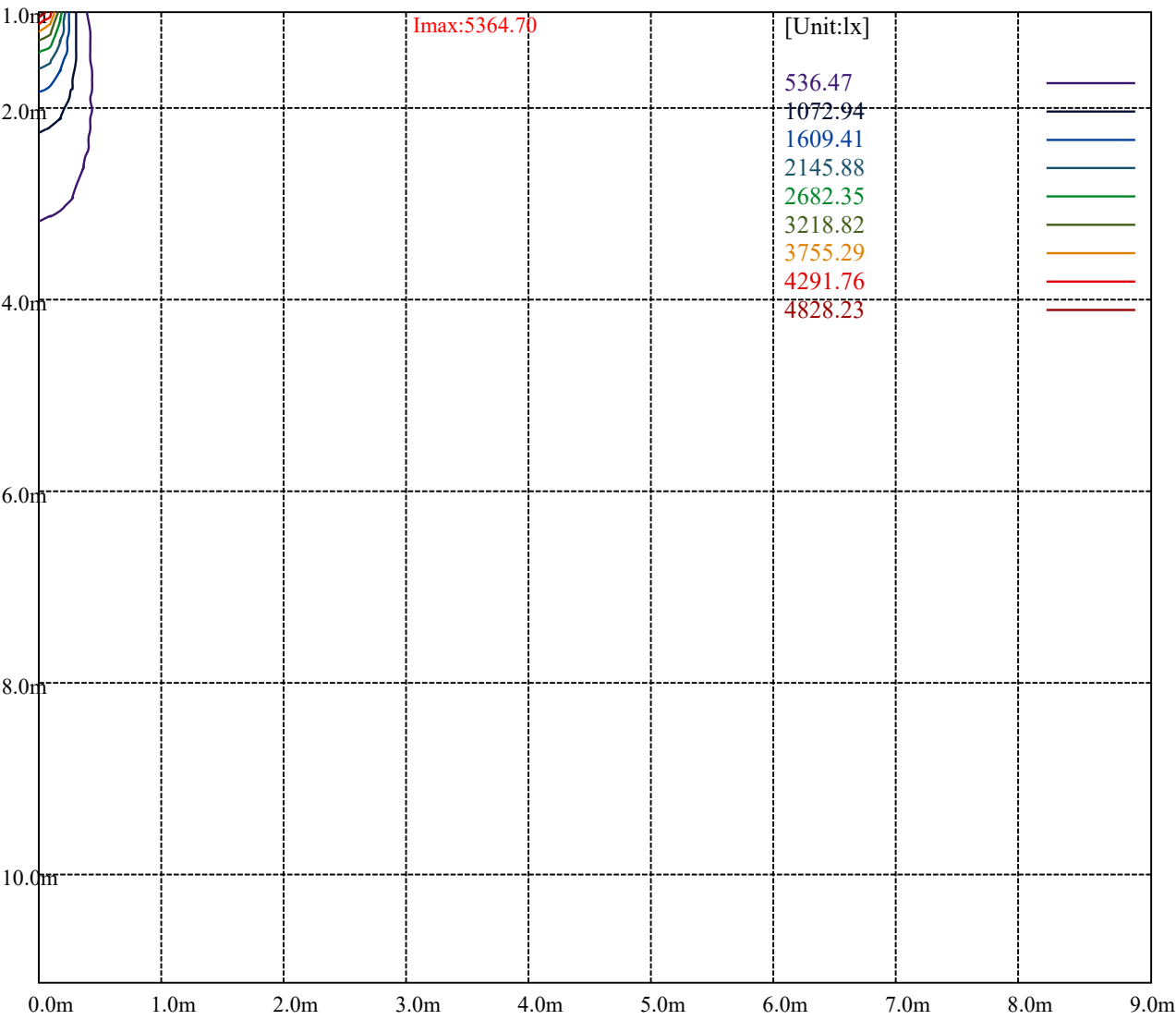
House

[Unit:cd]

Road

Imax:5364.70

(10%Imax)	536.47	—
(20%Imax)	1072.94	—
(30%Imax)	1609.41	—
(40%Imax)	2145.88	—
(50%Imax)	2682.35	—
(60%Imax)	3218.82	—
(70%Imax)	3755.29	—
(80%Imax)	4291.76	—
(90%Imax)	4828.23	—



Luminance Table

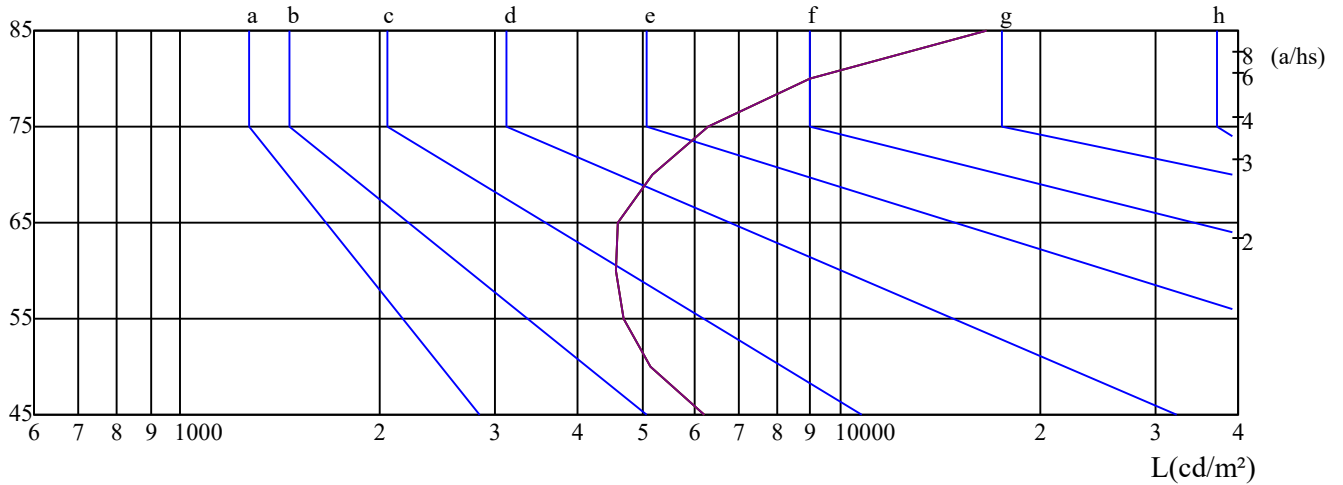
γ	45	50	55	60	65	70	75	80	85
C0	6219	5154	4705	4553	4604	5173	6300	8990	16618
C45	6219	5154	4705	4553	4604	5173	6300	8990	16618
C90	6219	5154	4705	4553	4604	5173	6300	8990	16618

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4604	4604	4604	6300	6300	6300	16618	16618	16618

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

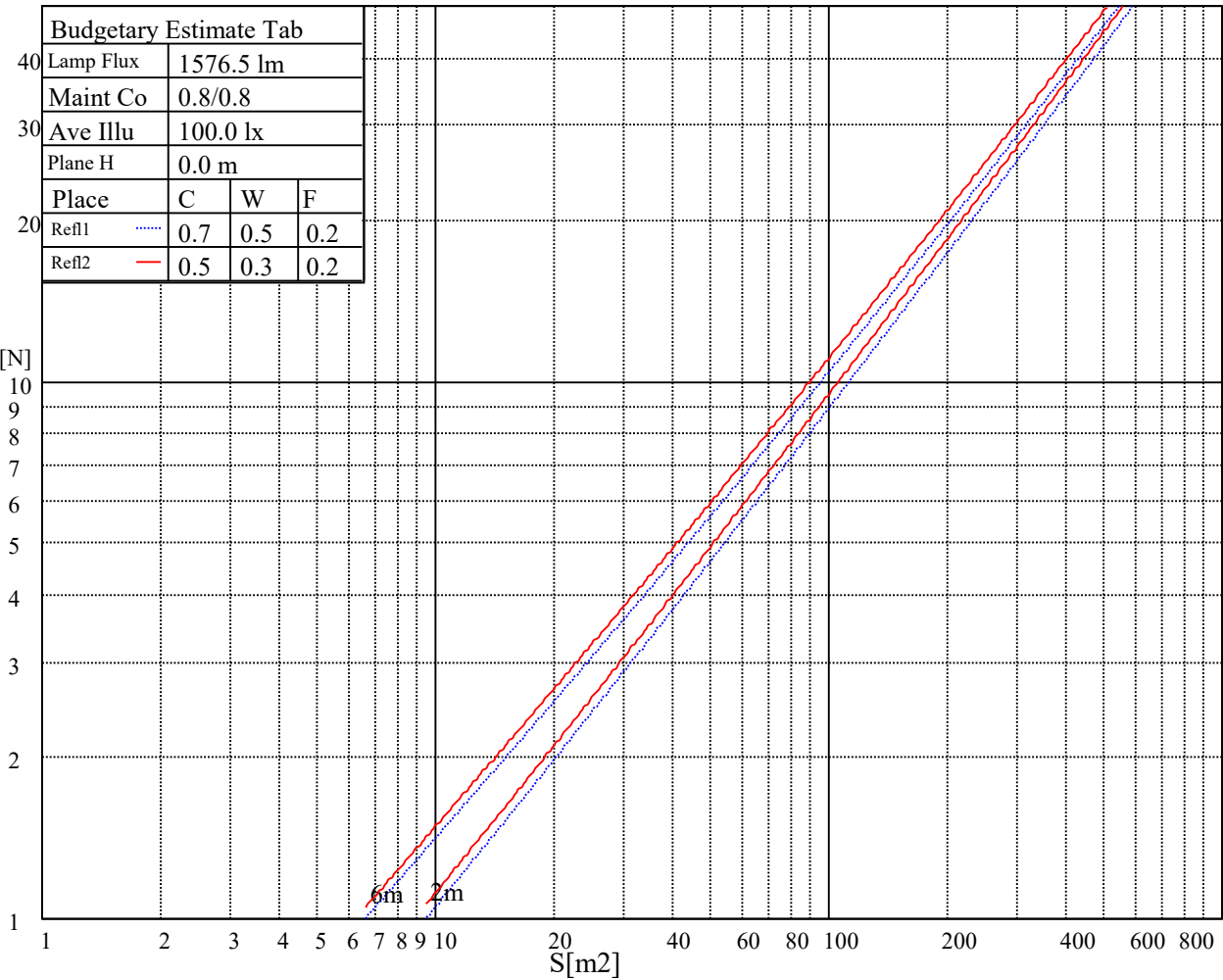
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

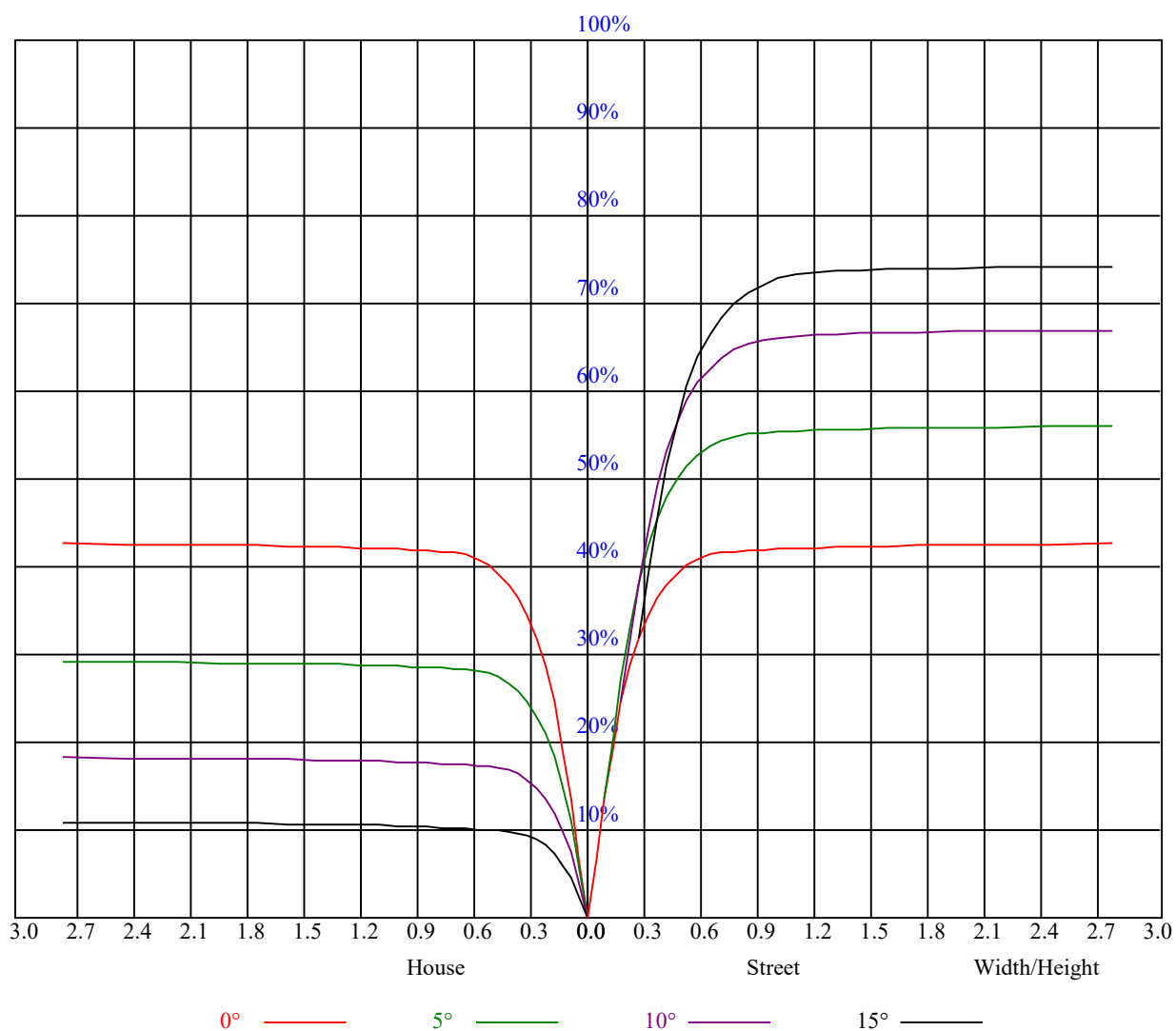
C0 ———

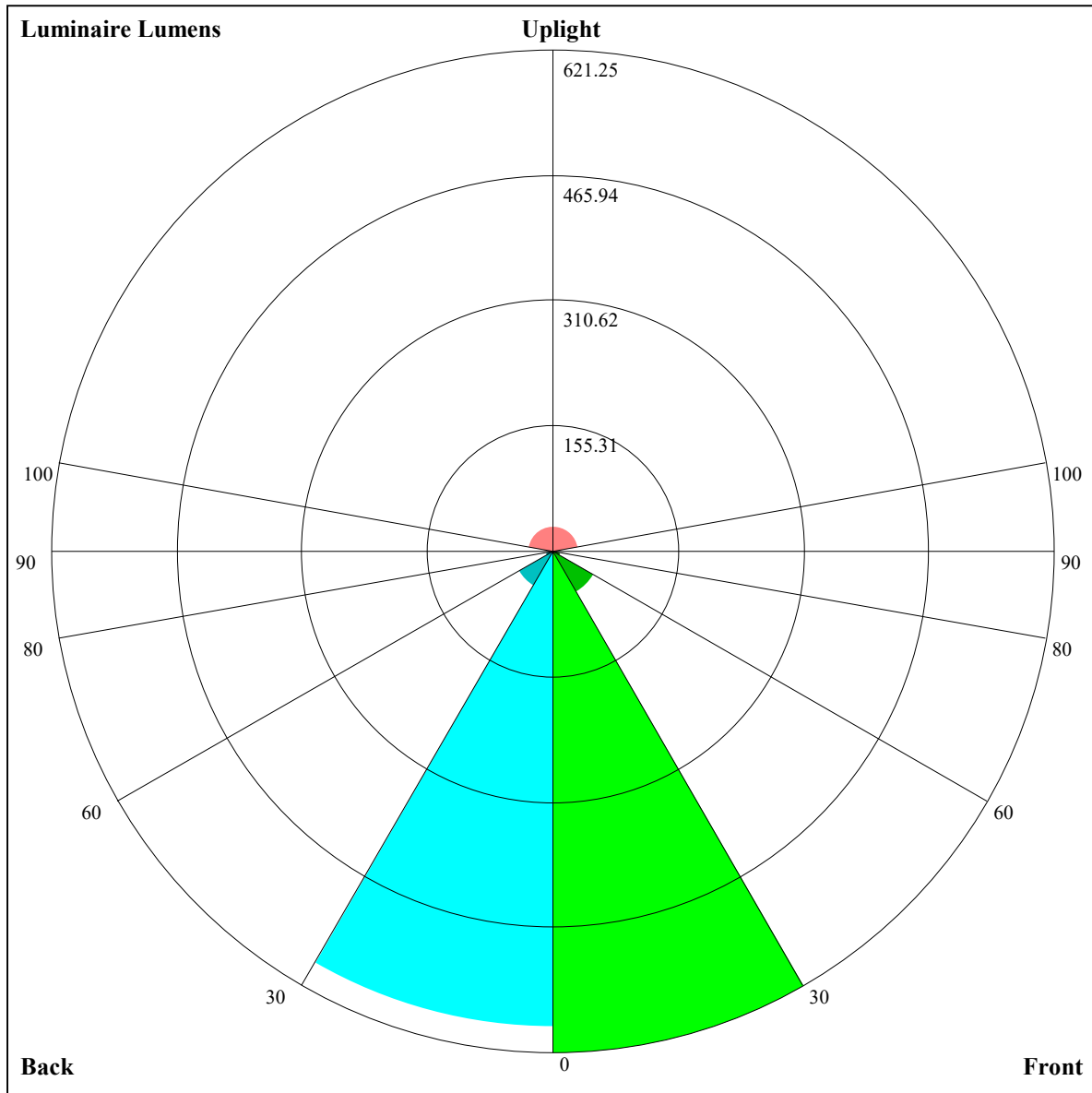
C45 ———

C90 ———



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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.95	0.93	0.91	0.94	0.91	0.89	0.90	0.88	0.87	0.87	0.85	0.84	0.84	0.83	0.82	0.80
2	0.91	0.87	0.85	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.78	0.77
3	0.87	0.83	0.80	0.86	0.82	0.79	0.83	0.81	0.78	0.81	0.79	0.77	0.79	0.77	0.76	0.75
4	0.83	0.79	0.76	0.82	0.79	0.76	0.81	0.77	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.72
5	0.80	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.70
6	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
7	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	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





Luminaire Lumens:

FL=621.25,FM=57.49,FH=8.82,FVH=3.68

BL=589.91,BM=50.33,BH=8.81,BVH=3.7

UL=6.53,UH=31.05

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	5347.08	5066.84	3744.39	2231.99	1104.98	644.71	506.52	95.14	33.86		
45.0	5375.71	4765.68	3327.61	1689.13	858.33	590.20	374.38	47.57	31.33		
90.0	5348.18	4503.06	2800.72	1065.95	768.92	565.54	208.44	41.84	27.20		
135.0	5387.82	4764.58	3240.62	1674.27	875.95	587.45	320.43	44.43	27.20		
180.0	5347.08	4749.17	3153.08	1591.68	774.53	557.89	306.83	40.52	26.54		
225.0	5375.71	5026.65	3537.92	1956.15	961.17	601.82	439.90	52.08	30.17		
270.0	5348.18	5174.75	3935.43	2210.51	1112.69	628.19	465.78	104.83	36.50		
315.0	5387.82	5032.71	3579.77	1977.63	1026.20	632.49	452.23	63.65	32.21		
360.0	5347.08	5066.84	3744.39	2231.99	1104.98	644.71	506.52	95.14	33.86		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	23.45	17.12	13.65	11.62	9.86	8.97	8.26	7.82	7.38		
45.0	21.31	15.91	13.05	10.68	9.03	8.15	7.49	6.94	6.55		
90.0	19.10	14.98	12.39	10.35	9.03	8.26	7.60	7.43	6.83		
135.0	18.66	14.53	12.22	10.52	9.25	8.59	8.09	8.15	7.38		
180.0	18.33	14.20	11.95	10.35	9.14	8.42	7.82	7.82	7.10		
225.0	20.87	15.53	12.88	10.96	9.25	8.31	7.60	7.05	6.61		
270.0	24.06	17.67	13.71	11.45	9.52	8.42	7.65	7.10	6.55		
315.0	21.69	16.24	12.94	10.79	9.03	8.26	7.60	7.16	6.77		
360.0	23.45	17.12	13.65	11.62	9.86	8.97	8.26	7.82	7.38		
C/ γ (°)	90.0										
0.0	6.50										
45.0	5.89										
90.0	5.78										
135.0	5.84										
180.0	5.84										
225.0	5.89										
270.0	5.95										
315.0	6.17										
360.0	6.50										