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### NATA

LumCAT: 2-1259-N

Luminaire: 92.70.045.00+92.70.059.00

Report No: NATA0100

Voltage(V): 35.8000

Test No: GC2019011206

Current(A): 0.7000

LampCAT: LUMILEDS LUXEON 1208

Power (W): 25.0600

Lamp flux(lm): 3211.0

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): 2365.55

Efficiency(%): 73.67%

Lumens(lm)/Power(W): 95.46

Central intensity(cd): 4847.906

Maximum intensity(cd): 4847.906

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

Beam Angle(50%Imax): [C0/180]Total=36.5

[C90/270]Total=36.5

Field angle(10%Imax): [C0/180]Total=67.0

[C90/270]Total=67.0

Maximum s/h(1/2): C0\_180=0.60 C90\_270=0.60

Maximum s/h(1/4): C0\_180=0.60 C90\_270=0.60

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 74.50%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.367%

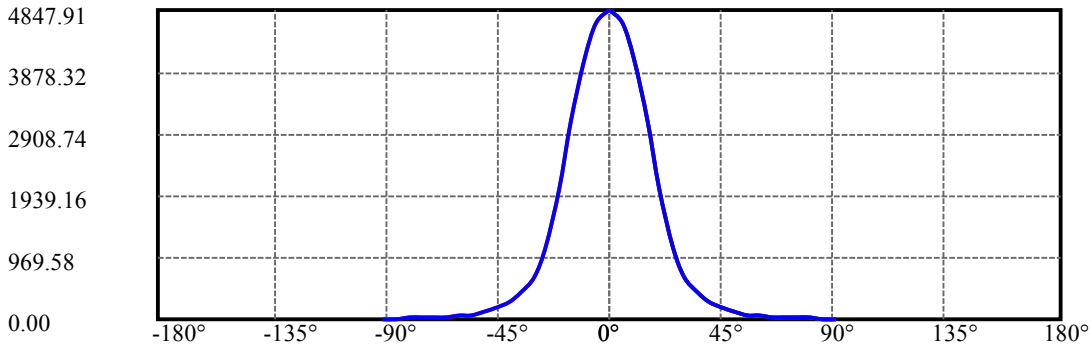
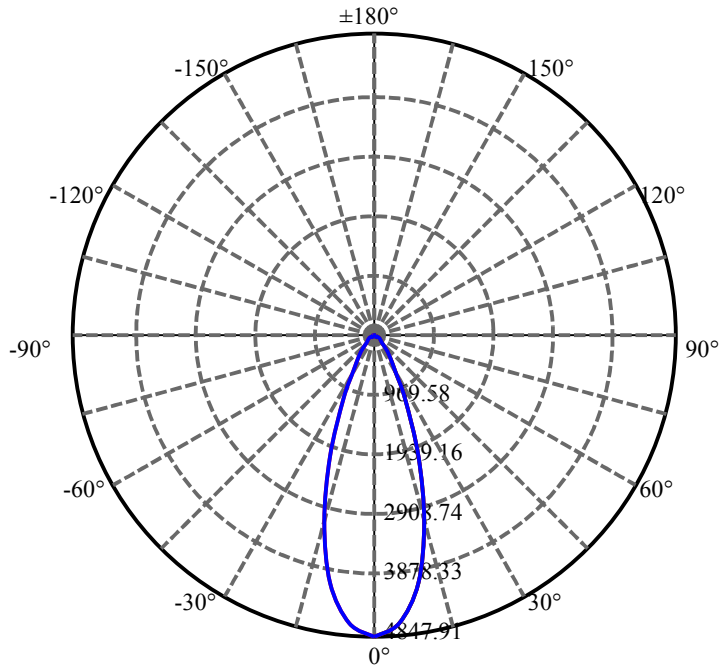
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4847.906	28.991	28.991	.903%	1.226%
5.0	4643.789	221.849	250.841	6.909%	10.604%
10.0	4050.141	385.505	636.345	12.006%	26.901%
15.0	3110.414	441.269	1077.615	13.742%	45.554%
20.0	2055.867	385.422	1463.037	12.003%	61.848%
25.0	1139.048	263.864	1726.9	8.217%	73.002%
30.0	661.795	181.377	1908.278	5.649%	80.669%
35.0	410.323	129.005	2037.283	4.018%	86.123%
40.0	280.990	99.003	2136.286	3.083%	90.308%
45.0	173.707	67.327	2203.613	2.097%	93.154%
50.0	112.226	47.123	2250.736	1.468%	95.146%
55.0	71.571	32.136	2282.872	1.001%	96.505%
60.0	47.405	22.503	2305.375	.701%	97.456%
65.0	33.096	16.442	2321.817	.512%	98.151%
70.0	26.859	13.835	2335.652	.431%	98.736%
75.0	21.530	11.399	2347.051	.355%	99.218%
80.0	16.868	9.105	2356.156	.284%	99.603%
85.0	12.382	6.761	2362.917	.211%	99.889%
90.0	9.612	2.634	2365.552	.082%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1908.28	59.43%	80.67%
0-40	2136.29	66.53%	90.31%
0-60	2305.38	71.80%	97.46%
0-90	2362.92	73.59%	99.89%
0-120	2362.92	73.59%	99.89%
0-180	2365.55	73.67%	100.00%
60-90	80.05	2.49%	3.38%
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%
0-29.56	1892.44	58.94%	80.00%

ZONAL LUMEN SUMMARY

0-10	636.35
10-20	826.69
20-30	445.24
30-40	228.01
40-50	114.45
50-60	54.64
60-70	30.28
70-80	20.50
80-90	6.76
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: —————

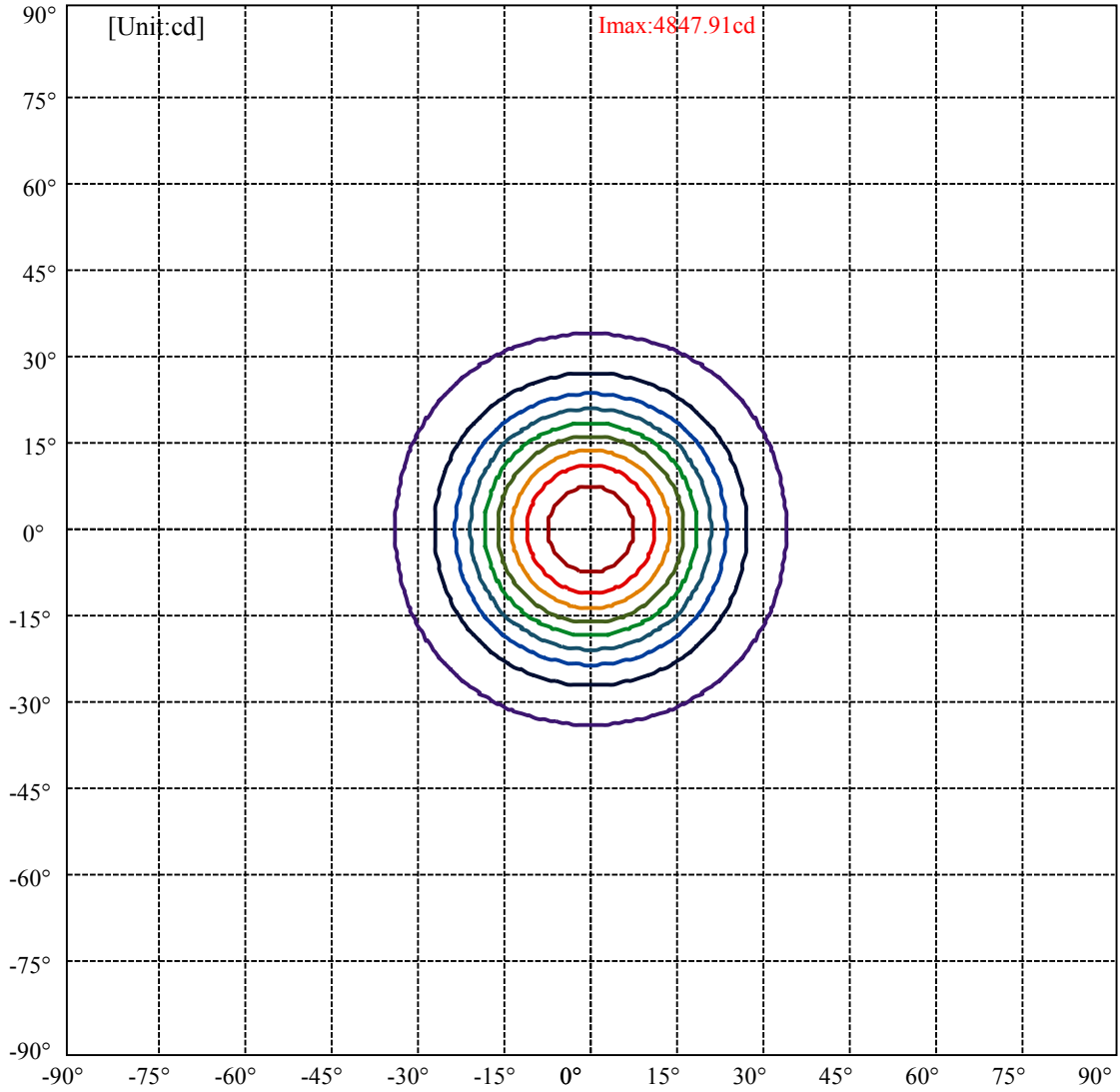
Field angle(10%Imax):C0/180Left:33.5 Right:33.5

:C90/270Left:33.5 Right:33.5

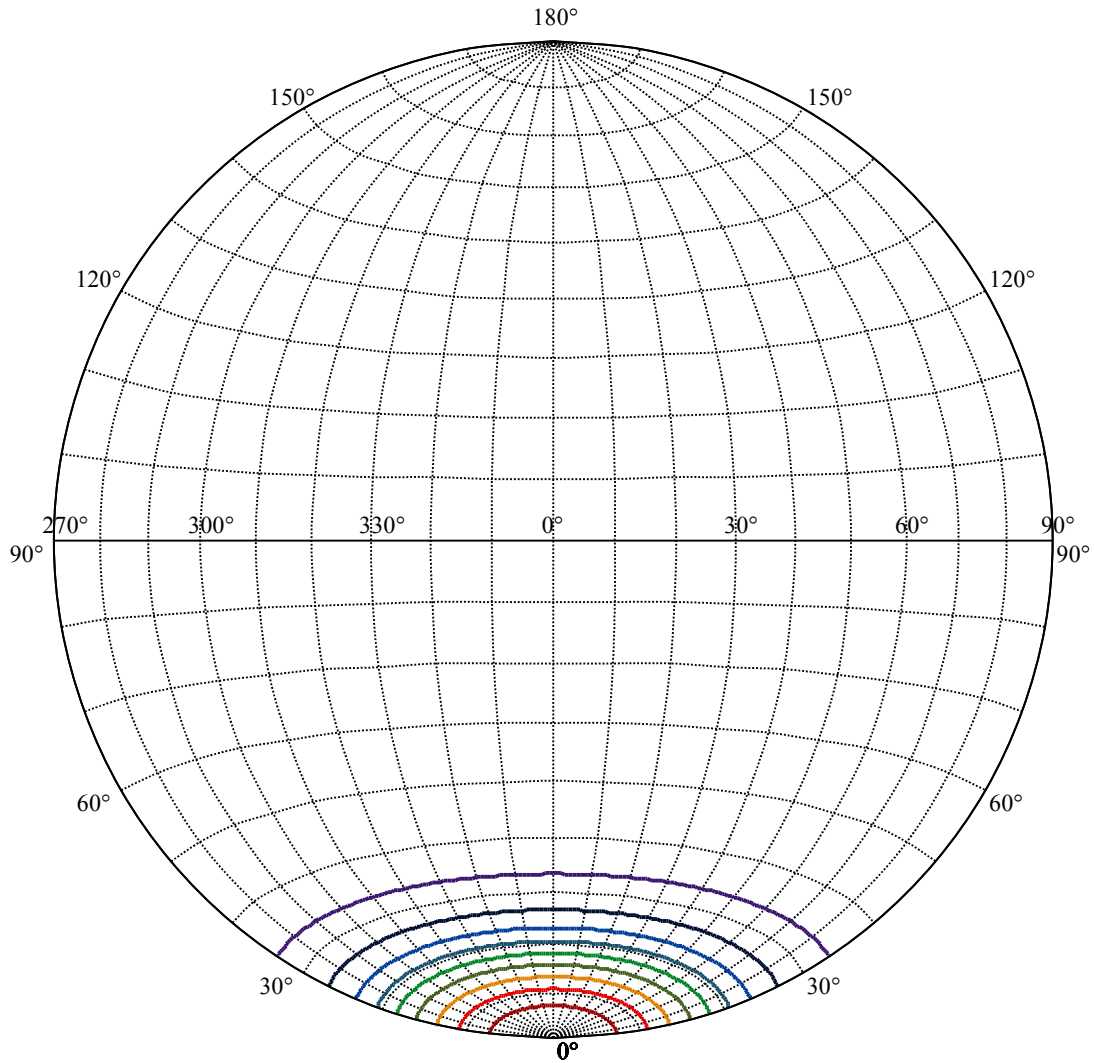
Beam Angle(50%Imax):C0/180Left:18.3 Right:18.3

:C90/270Left:18.3 Right:18.3





(10%Imax) 484.791	—
(20%Imax) 969.581	—
(30%Imax) 1454.37	—
(40%Imax) 1939.16	—
(50%Imax) 2423.95	—
(60%Imax) 2908.74	—
(70%Imax) 3393.53	—
(80%Imax) 3878.32	—
(90%Imax) 4363.12	—



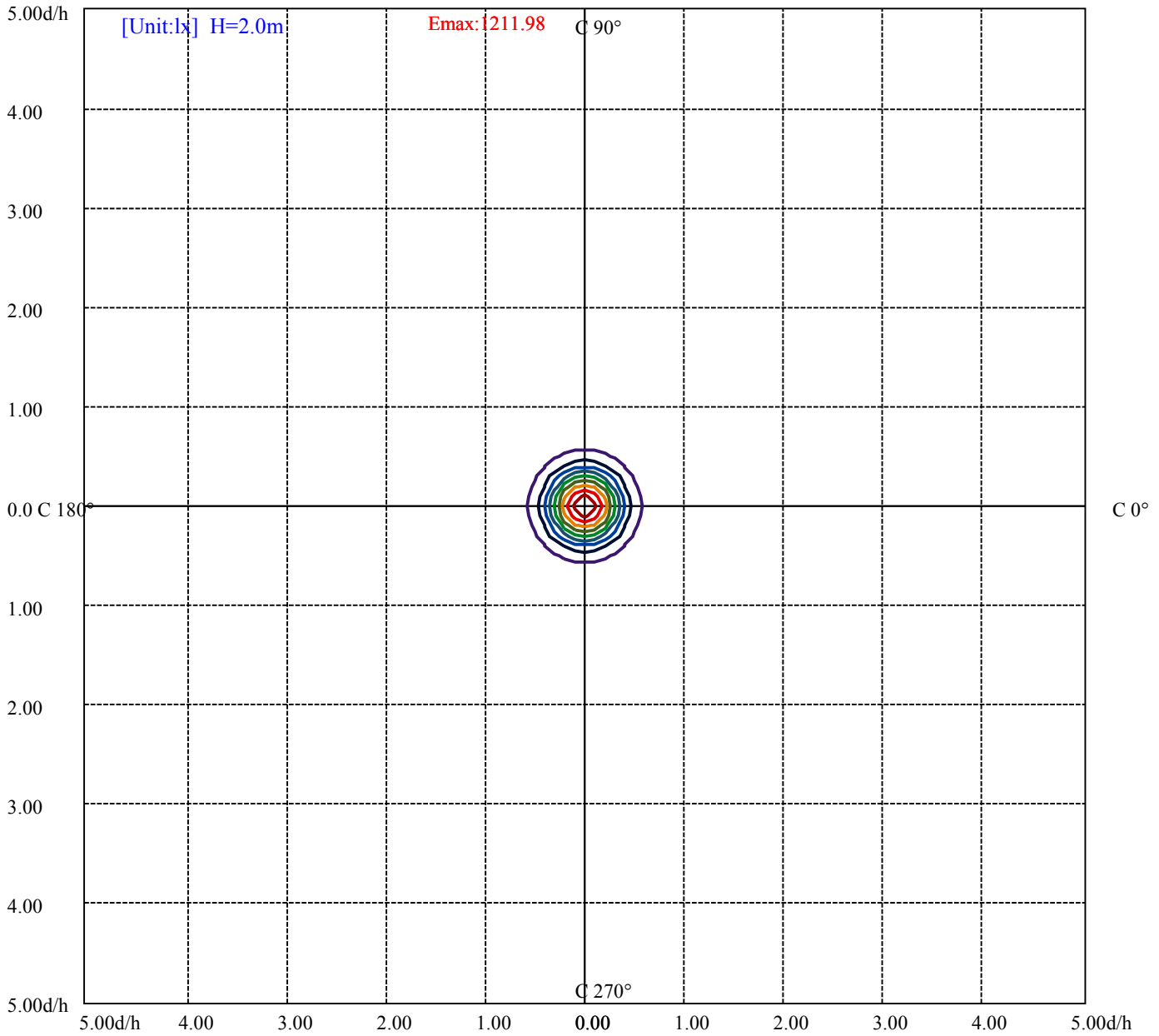
House

[Unit:cd]

Road

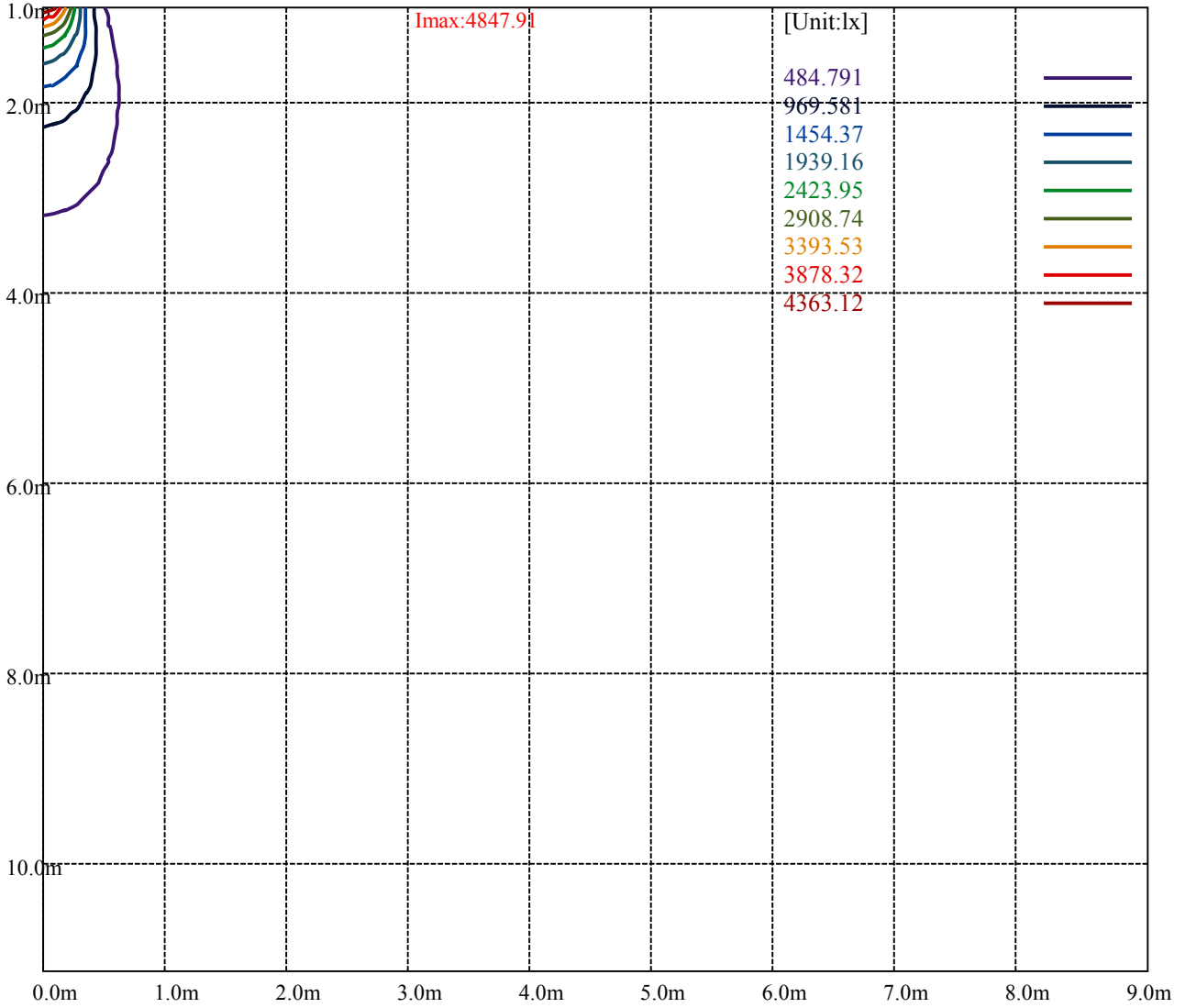
**Imax:4847.91**

(10%Imax) 484.791	—
(20%Imax) 969.581	—
(30%Imax) 1454.37	—
(40%Imax) 1939.16	—
(50%Imax) 2423.95	—
(60%Imax) 2908.74	—
(70%Imax) 3393.53	—
(80%Imax) 3878.32	—
(90%Imax) 4363.12	—



- (10%Emax) 121.1975
- (20%Emax) 242.395
- (30%Emax) 363.5925
- (40%Emax) 484.79
- (50%Emax) 605.9875
- (60%Emax) 727.185
- (70%Emax) 848.3825
- (80%Emax) 969.58
- (90%Emax) 1090.777





Luminance Table

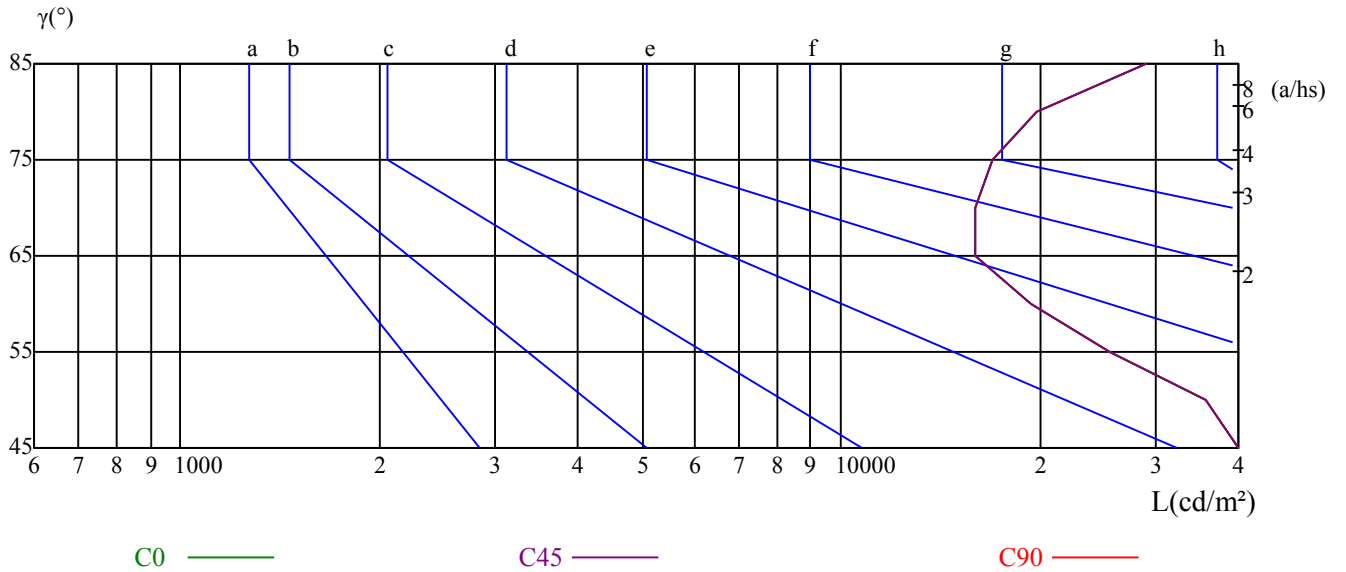
$\gamma$	45	50	55	60	65	70	75	80	85
C0	50134	35631	25465	19349	15982	16027	16976	19824	28993
C45	50134	35631	25465	19349	15982	16027	16976	19824	28993
C90	50134	35631	25465	19349	15982	16027	16976	19824	28993

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
15982	15982	15982	16976	16976	16976	28993	28993	28993

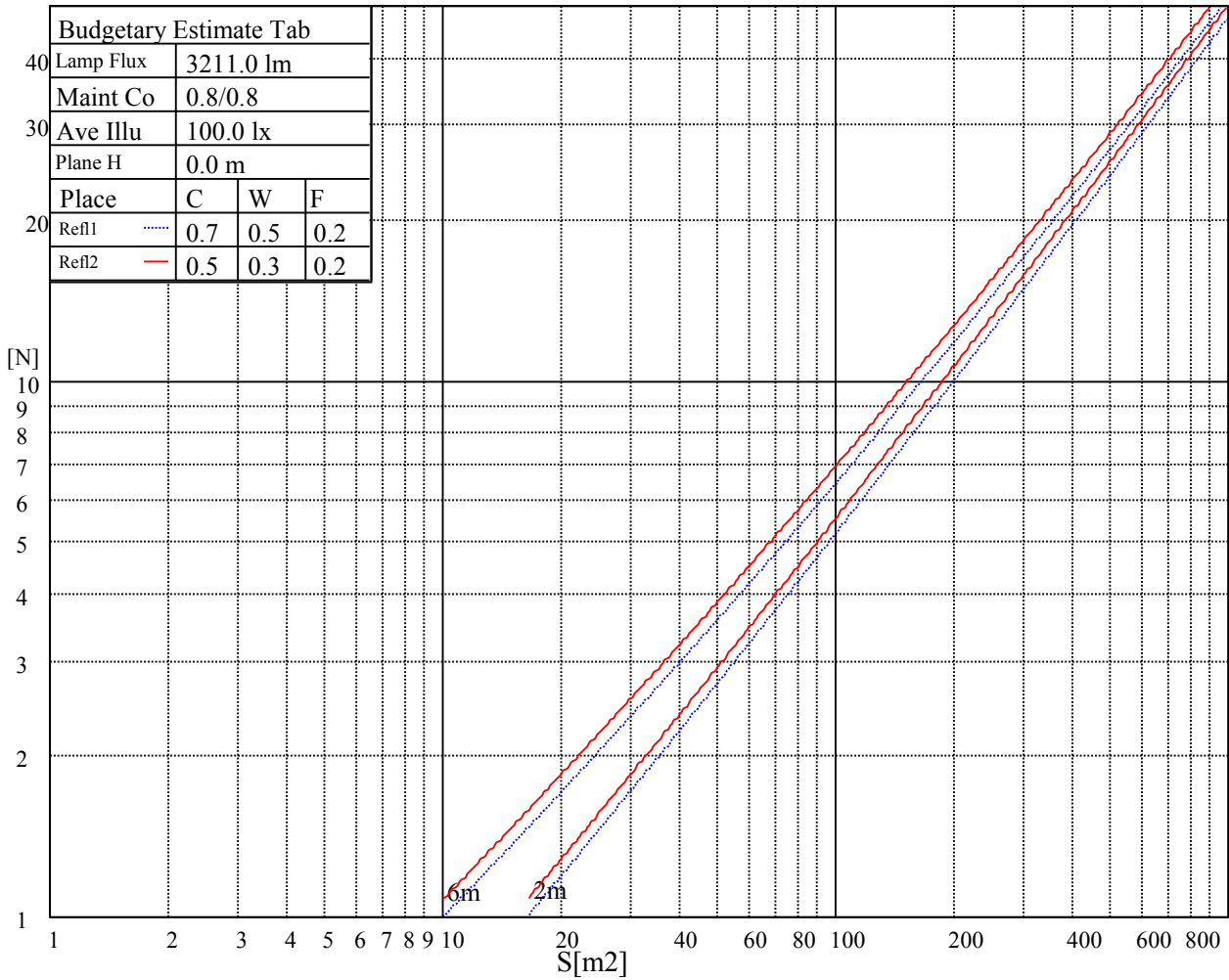
Glare Table

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

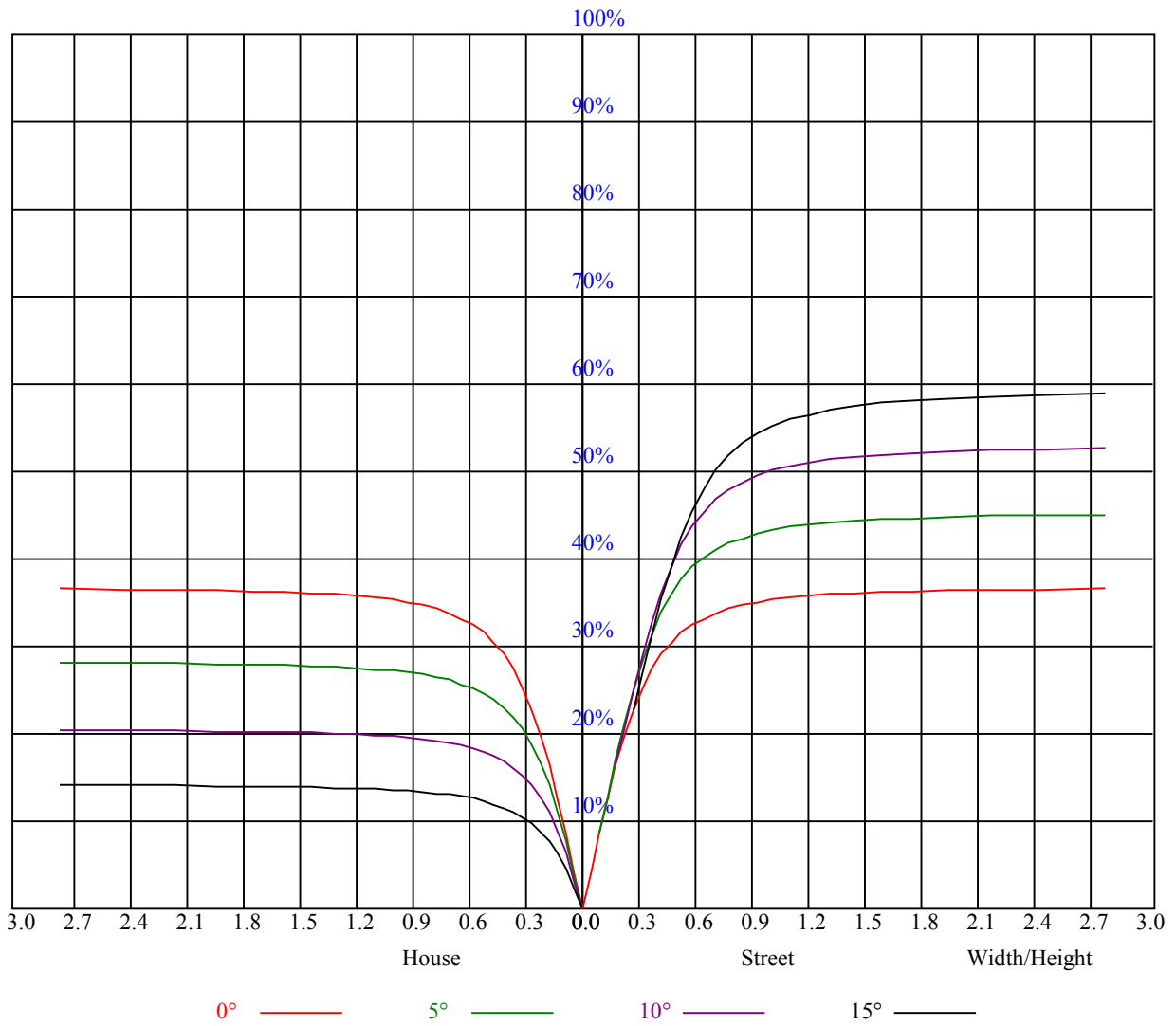
Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	14.12	15.17	14.49	15.48	15.80	14.20	15.24	14.56	15.55	15.87
	3H	15.24	16.16	15.62	16.50	16.87	15.33	16.25	15.71	16.59	16.95
	4H	15.85	16.71	16.26	17.06	17.45	15.93	16.79	16.34	17.14	17.53
	6H	16.51	17.30	16.93	17.67	18.07	16.58	17.36	17.00	17.74	18.14
	8H	16.86	17.60	17.30	17.99	18.40	16.92	17.66	17.36	18.05	18.46
	12H	17.46	18.16	17.89	18.55	18.98	17.51	18.22	17.95	18.60	19.03
4H	2H	14.34	15.19	14.74	15.55	15.93	14.40	15.25	14.81	15.61	16.00
	3H	15.75	16.45	16.17	16.86	17.27	15.82	16.52	16.24	16.93	17.34
	4H	16.55	17.17	16.98	17.60	18.04	16.61	17.23	17.05	17.66	18.11
	6H	17.31	17.84	17.78	18.29	18.77	17.36	17.90	17.83	18.35	18.82
	8H	17.77	18.27	18.25	18.72	19.20	17.82	18.32	18.29	18.77	19.24
	12H	18.43	18.87	18.93	19.36	19.83	18.48	18.91	18.97	19.40	19.88
8H	4H	16.83	17.33	17.30	17.78	18.25	16.88	17.38	17.36	17.83	18.31
	6H	17.83	18.23	18.33	18.73	19.21	17.87	18.27	18.38	18.77	19.26
	8H	18.45	18.81	18.98	19.33	19.82	18.49	18.85	19.02	19.37	19.86
	12H	19.48	19.79	20.00	20.29	20.87	19.52	19.83	20.04	20.33	20.91
12H	4H	16.87	17.30	17.36	17.79	18.27	16.92	17.36	17.41	17.84	18.32
	6H	18.28	18.31	18.48	18.78	19.33	18.32	18.35	18.53	18.82	19.37
	8H	18.67	18.98	19.19	19.48	20.06	18.71	19.02	19.23	19.52	20.10
Variation with the observer position at spacings:											
S = 1.0H	1.7/-1.9					1.7/-1.9					
S = 1.5H	3.0/-2.3					3.0/-2.3					
S = 2.0H	4.5/-2.1					4.5/-2.1					
Standard tables:	BK3					BK3					
Uncorrected UGR	4.5					4.5					



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	0.89	0.89	0.89	0.87	0.87	0.87	0.83	0.83	0.83	0.79	0.79	0.79	0.76	0.76	0.76	0.75
1	0.82	0.80	0.78	0.80	0.78	0.77	0.77	0.76	0.74	0.74	0.73	0.72	0.72	0.71	0.70	0.69
2	0.77	0.74	0.71	0.75	0.73	0.70	0.73	0.71	0.69	0.71	0.69	0.67	0.69	0.67	0.66	0.65
3	0.72	0.69	0.66	0.71	0.68	0.65	0.69	0.67	0.64	0.68	0.65	0.63	0.66	0.64	0.62	0.61
4	0.68	0.65	0.62	0.68	0.64	0.61	0.66	0.63	0.61	0.65	0.62	0.60	0.63	0.61	0.59	0.58
5	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.61	0.58	0.56	0.55
6	0.62	0.58	0.55	0.61	0.58	0.55	0.60	0.57	0.55	0.59	0.56	0.54	0.58	0.56	0.54	0.53
7	0.59	0.55	0.53	0.59	0.55	0.52	0.58	0.55	0.52	0.57	0.54	0.52	0.56	0.54	0.52	0.51
8	0.57	0.53	0.50	0.56	0.53	0.50	0.56	0.52	0.50	0.55	0.52	0.50	0.54	0.52	0.50	0.49
9	0.55	0.51	0.48	0.54	0.51	0.48	0.54	0.50	0.48	0.53	0.50	0.48	0.52	0.50	0.48	0.47
10	0.53	0.49	0.46	0.52	0.49	0.46	0.52	0.48	0.46	0.51	0.48	0.46	0.51	0.48	0.46	0.45



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	4835.81	4757.63	4322.81	3454.88	2392.31	1397.25	791.44	470.81	322.31
45.0	4853.81	4753.69	4257.00	3332.25	2308.50	1287.56	722.81	440.44	309.38
90.0	4855.50	4647.94	3984.75	2991.94	1971.00	1086.30	619.48	393.19	269.83
135.0	4846.50	4626.00	4035.94	3054.94	1992.94	1106.44	639.56	395.44	285.75
180.0	4835.81	4507.88	3744.00	2757.94	1700.44	929.03	555.92	358.43	235.52
225.0	4853.81	4558.50	3861.00	2887.88	1831.50	993.21	574.82	375.08	250.31
270.0	4855.50	4650.75	4101.19	3267.00	2162.25	1208.25	694.13	434.81	291.38
315.0	4846.50	4647.94	4094.44	3136.50	2088.00	1104.36	696.21	414.39	283.44
360.0	4835.81	4757.63	4322.81	3454.88	2392.31	1397.25	791.44	470.81	322.31
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	200.64	129.15	83.42	54.00	36.51	29.42	23.40	18.51	13.56
45.0	190.86	122.57	78.13	51.24	34.54	28.13	22.67	17.72	12.94
90.0	166.73	106.48	68.12	45.17	31.84	26.44	21.21	16.48	12.09
135.0	167.18	108.06	68.46	46.52	32.29	26.38	21.54	16.99	12.66
180.0	147.66	97.88	62.38	40.56	30.88	25.14	19.86	15.30	11.14
225.0	155.81	102.15	65.59	43.48	31.44	25.37	20.19	15.64	11.64
270.0	183.60	117.23	73.80	48.99	33.81	27.23	21.71	17.27	12.43
315.0	177.19	114.30	72.68	49.28	33.47	26.78	21.66	17.04	12.60
360.0	200.64	129.15	83.42	54.00	36.51	29.42	23.40	18.51	13.56
C/γ(°)	90.0								
0.0	9.90								
45.0	9.56								
90.0	9.51								
135.0	9.62								
180.0	9.62								
225.0	9.56								
270.0	9.56								
315.0	9.56								
360.0	9.90								