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## NATA

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LumCAT: 2-1701-A  
Luminaire: 99.02.73.173+92.76.365.00  
Report No: NATA0100  
Test No: GC2018101208  
LampCAT: LUMILEDS 1216  
Lamp flux(lm): 3345.0  
Number of Lamps: 1  
Length(mm): 70  
Phm Type: C

Voltage(V): 33.6000  
Current(A): 0.6500  
Power (W): 21.8400  
PF: 0.0000  
Ballast type: DC  
Width(mm): 70  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 2964.00  
Efficiency(%): 88.61%  
Lumens(lm)/Power(W): 136.93  
Central intensity(cd): 4911.117  
Maximum intensity(cd): 4911.117  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=44.9  
                                  [C90/270]Total=44.9  
Field angle(10%Imax): [C0/180]Total=75.3  
                                  [C90/270]Total=75.3  
Maximum s/h(1/2): C0\_180=0.73 C90\_270=0.73  
Maximum s/h(1/4): C0\_180=0.71 C90\_270=0.71  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 89.40%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.681%

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Equipment:  
Temperature(°C): 25.0

Date: 2018/10/12  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50

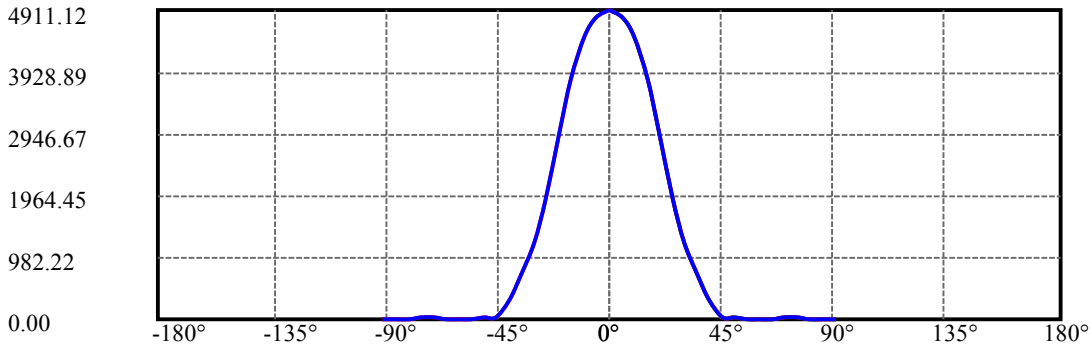
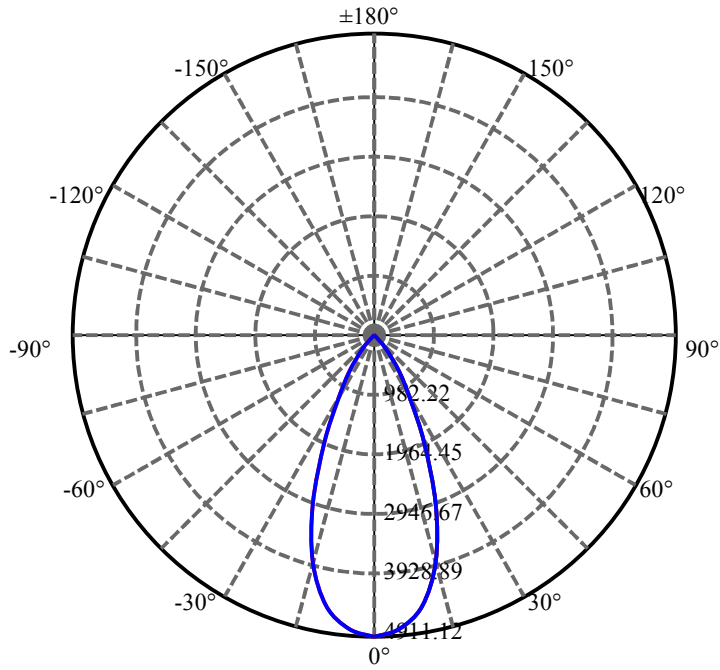
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4911.117	29.369	29.369	.878%	.991%
5.0	4793.414	228.997	258.367	6.846%	8.717%
10.0	4483.336	426.738	685.104	12.757%	23.114%
15.0	3812.766	540.911	1226.015	16.171%	41.364%
20.0	2945.883	552.277	1778.292	16.511%	59.996%
25.0	1936.477	448.590	2226.882	13.411%	75.131%
30.0	1210.029	331.631	2558.513	9.914%	86.320%
35.0	709.376	223.027	2781.54	6.667%	93.844%
40.0	300.002	105.702	2887.242	3.160%	97.410%
45.0	34.327	13.305	2900.546	.398%	97.859%
50.0	16.530	6.941	2907.487	.208%	98.094%
55.0	15.216	6.832	2914.319	.204%	98.324%
60.0	14.470	6.869	2921.188	.205%	98.556%
65.0	15.195	7.548	2928.737	.226%	98.810%
70.0	15.729	8.102	2936.838	.242%	99.084%
75.0	15.370	8.138	2944.976	.243%	99.358%
80.0	14.836	8.009	2952.985	.239%	99.629%
85.0	13.964	7.625	2960.61	.228%	99.886%
90.0	12.354	3.386	2963.996	.101%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2558.51	76.49%	86.32%
0-40	2887.24	86.32%	97.41%
0-60	2921.19	87.33%	98.56%
0-90	2960.61	88.51%	99.89%
0-120	2960.61	88.51%	99.89%
0-180	2964.00	88.61%	100.00%
60-90	46.29	1.38%	1.56%
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%
0-27.18	2371.20	70.89%	80.00%

ZONAL LUMEN SUMMARY

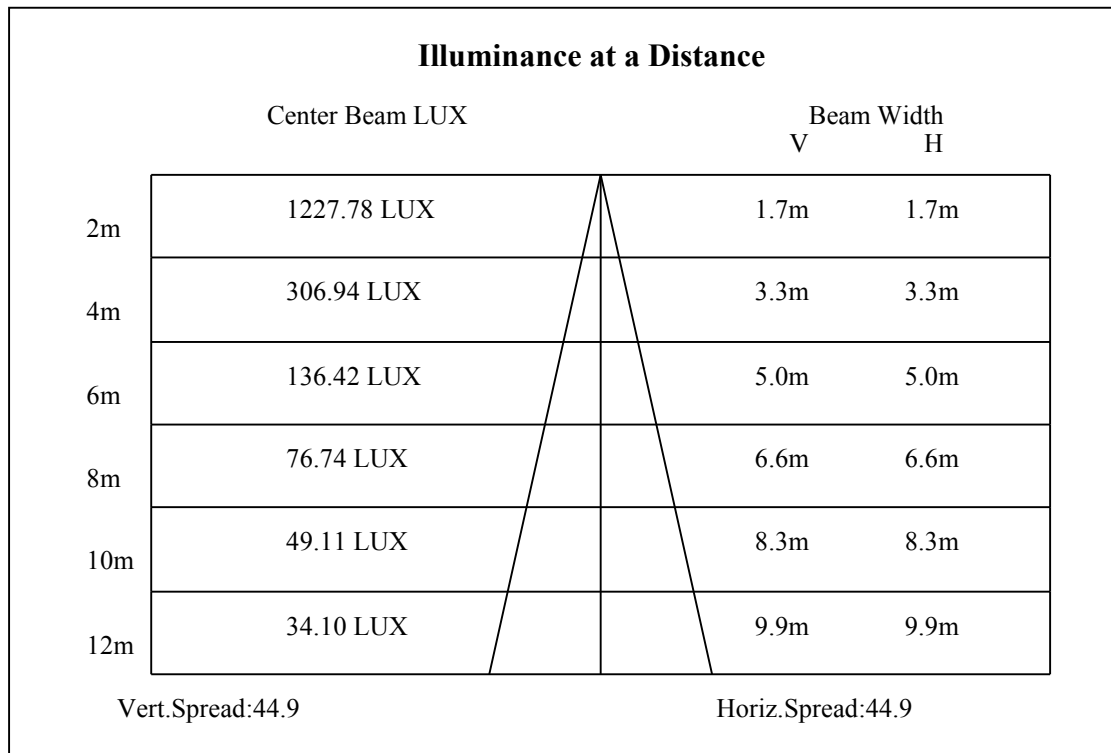
0-10	685.10
10-20	1093.19
20-30	780.22
30-40	328.73
40-50	20.25
50-60	13.70
60-70	15.65
70-80	16.15
80-90	7.63
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

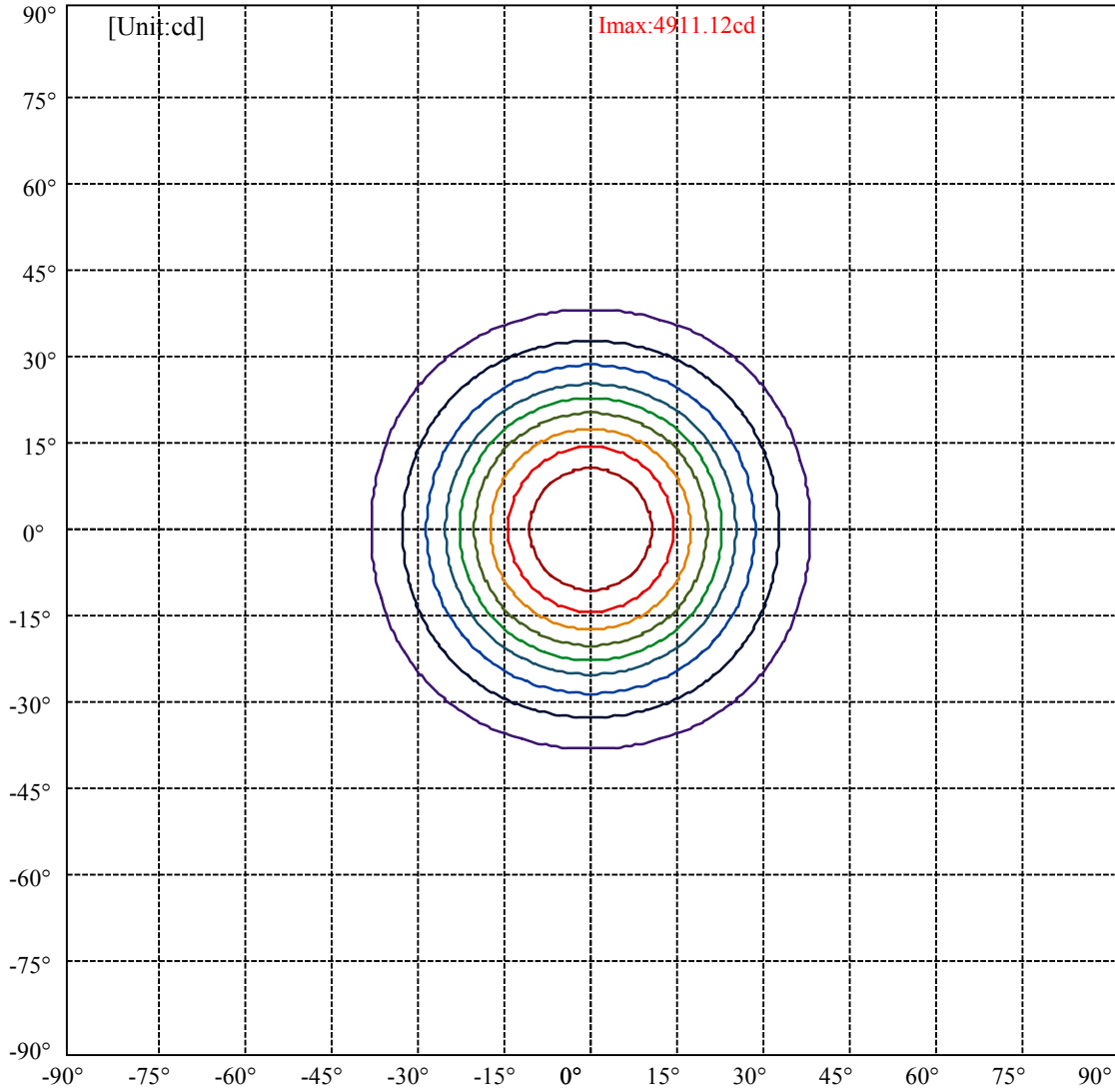


C0(Max): ———  
C0/C180: ———  
C90/C270: ———

Field angle(10%Imax):C0/180Left:37.7 Right:37.7  
:C90/270Left:37.7 Right:37.7

Beam Angle(50%Imax):C0/180Left:22.4 Right:22.4  
:C90/270Left:22.4 Right:22.4



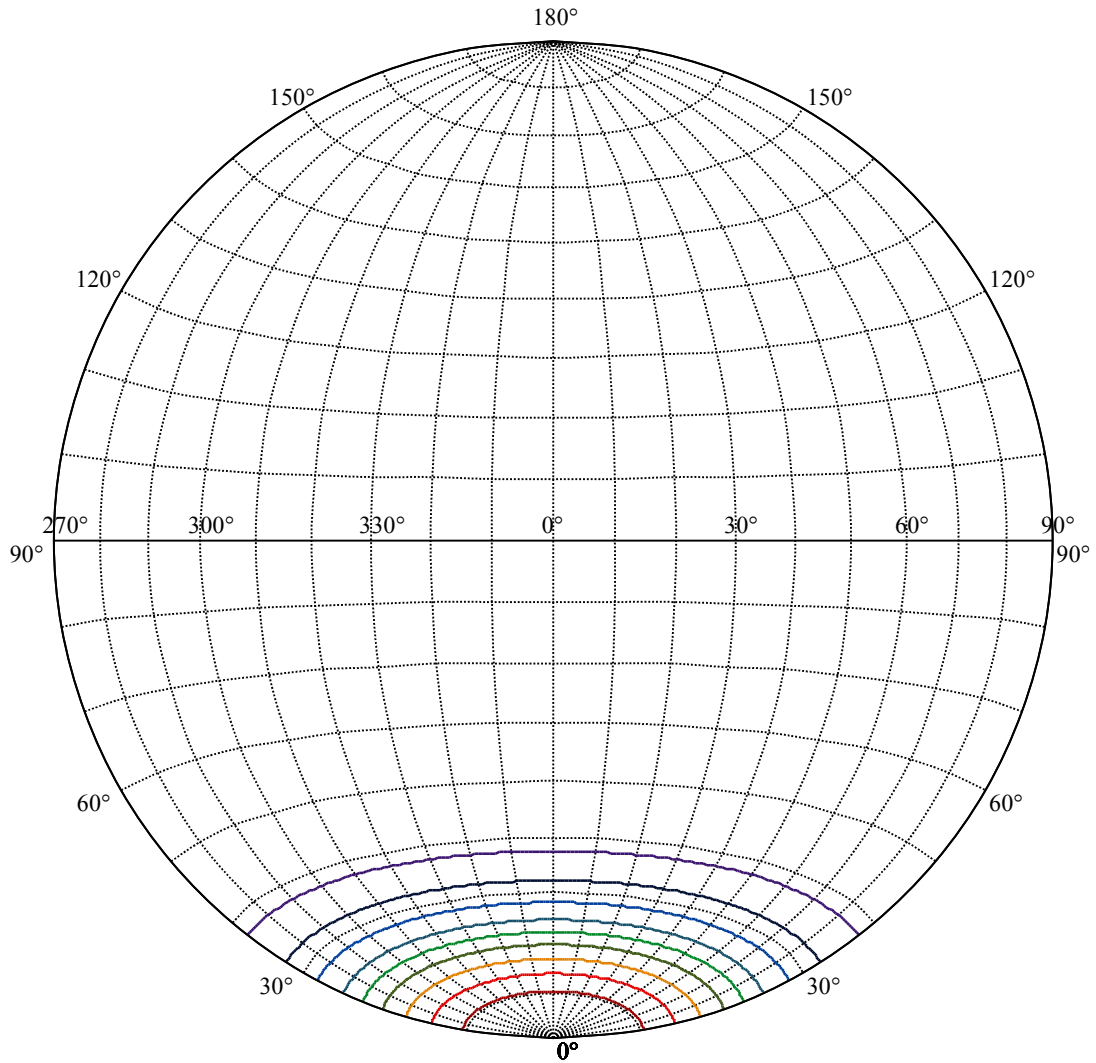


(10%Imax) 491.112	—
(20%Imax) 982.223	—
(30%Imax) 1473.34	—
(40%Imax) 1964.45	—
(50%Imax) 2455.56	—
(60%Imax) 2946.67	—
(70%Imax) 3437.78	—
(80%Imax) 3928.89	—
(90%Imax) 4420.01	—

Equipment:  
Temperature(°C): 25.0

Date: 2018/10/12  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50



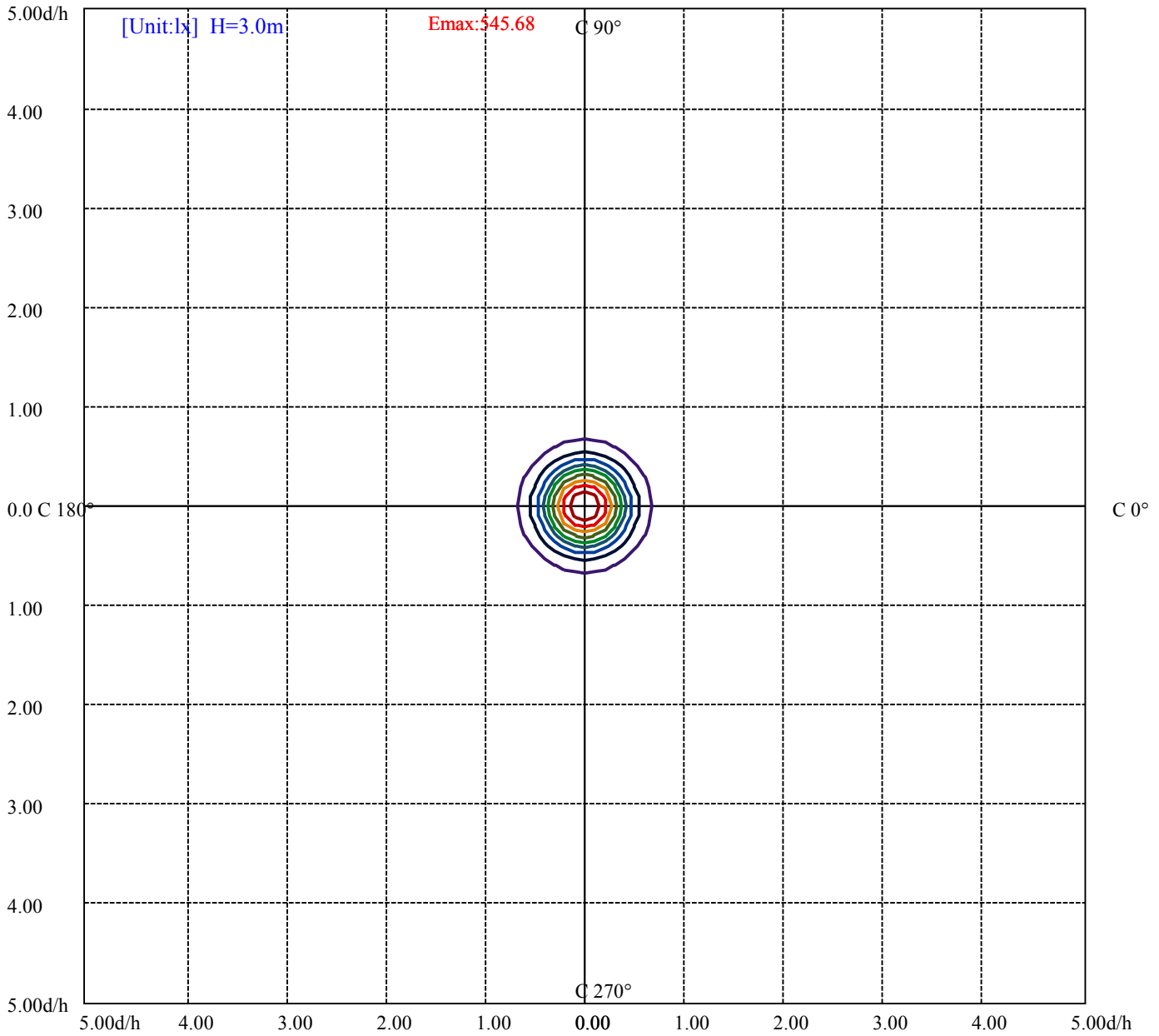
House

[Unit:cd]

Road

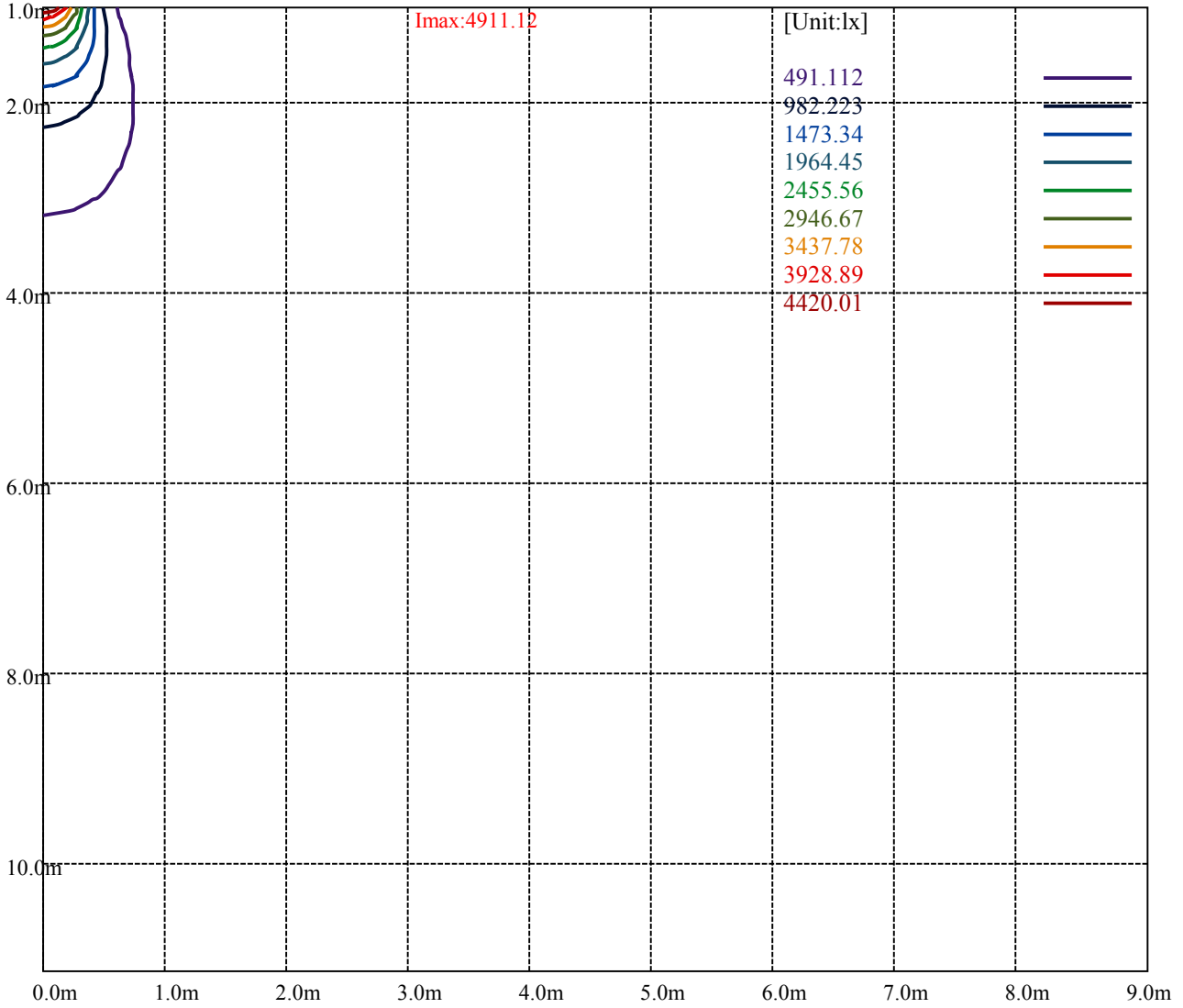
**Imax:4911.12**

(10%Imax) 491.112	—
(20%Imax) 982.223	—
(30%Imax) 1473.34	—
(40%Imax) 1964.45	—
(50%Imax) 2455.56	—
(60%Imax) 2946.67	—
(70%Imax) 3437.78	—
(80%Imax) 3928.89	—
(90%Imax) 4420.01	—



- (10%Emax) 54.56789 ———
- (20%Emax) 109.1359 ———
- (30%Emax) 163.7033 ———
- (40%Emax) 218.2722 ———
- (50%Emax) 272.84 ———
- (60%Emax) 327.4078 ———
- (70%Emax) 381.9756 ———
- (80%Emax) 436.5433 ———
- (90%Emax) 491.1111 ———





Luminance Table

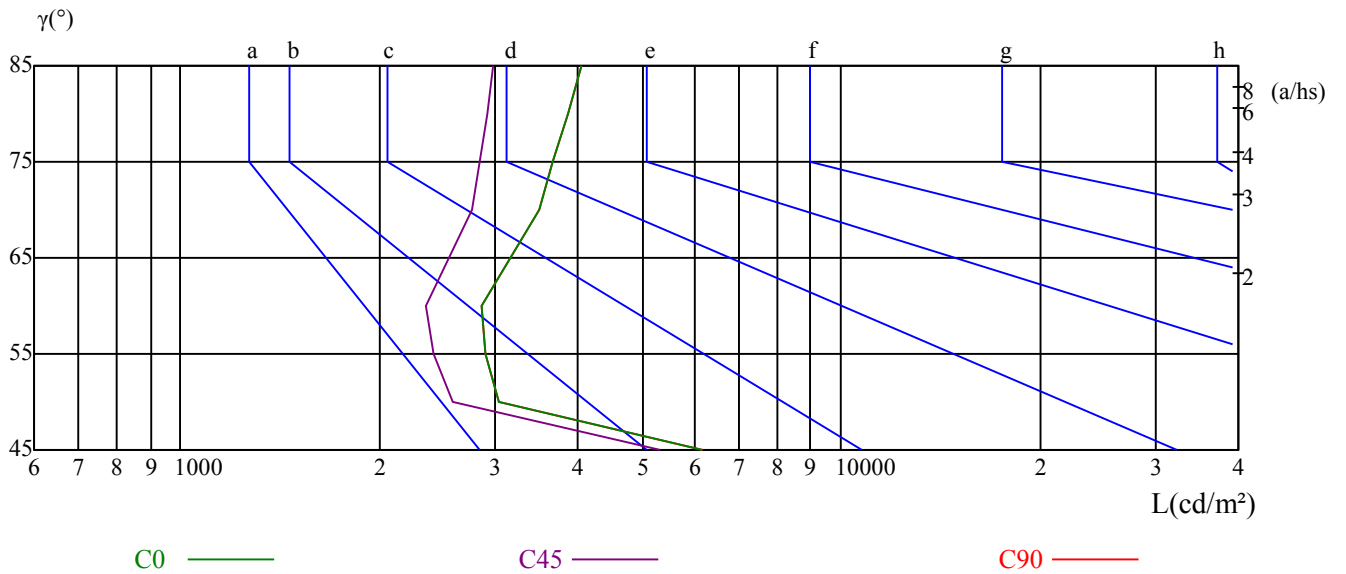
$\gamma$	45	50	55	60	65	70	75	80	85
C0	6165	3041	2890	2865	3165	3486	3668	3867	4043
C45	5314	2582	2416	2355	2557	2761	2842	2921	2965
C90	6165	3041	2890	2865	3165	3486	3668	3867	4043

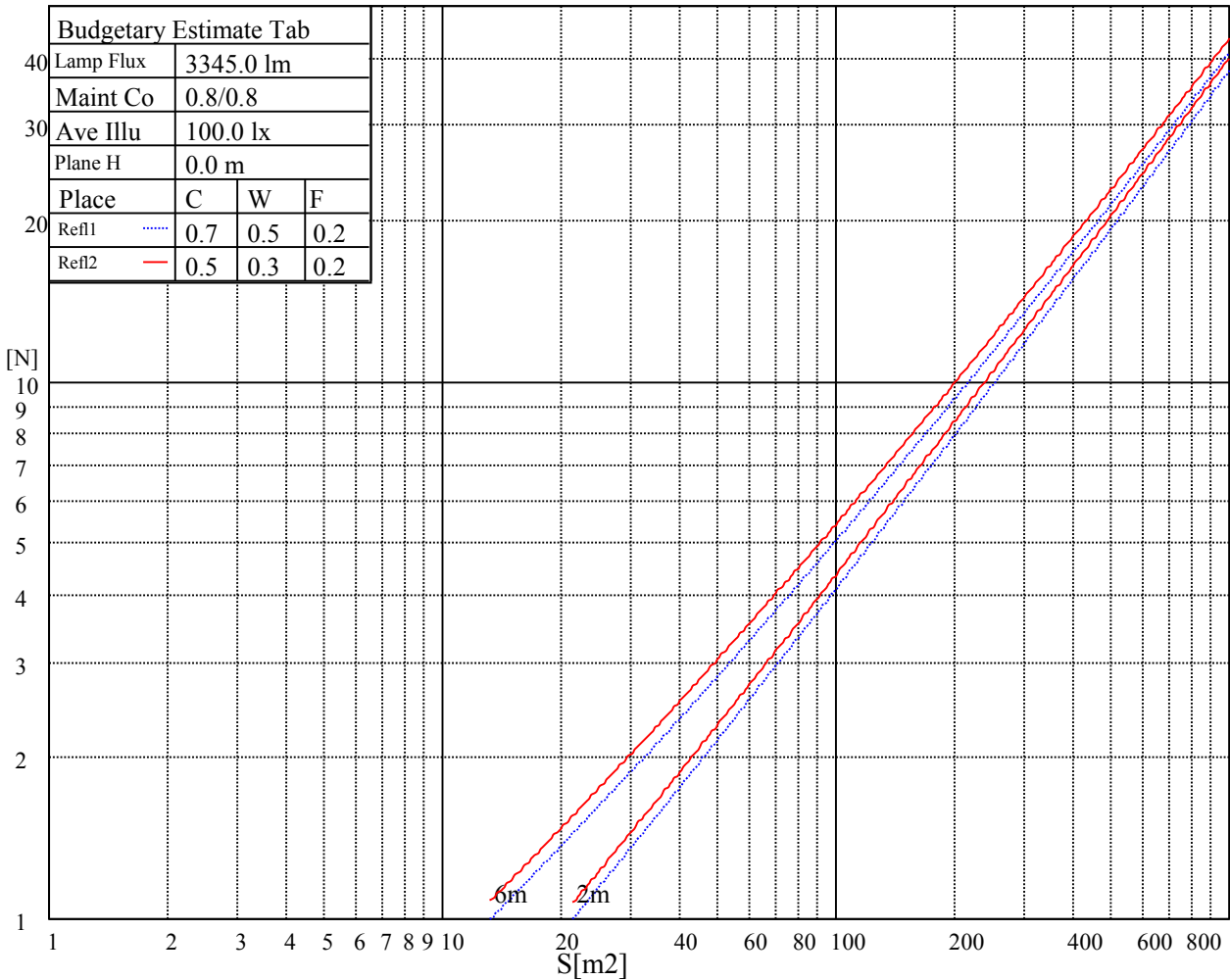
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7443	7443	7443	12295	12295	12295	33170	33170	33170

Glare Table

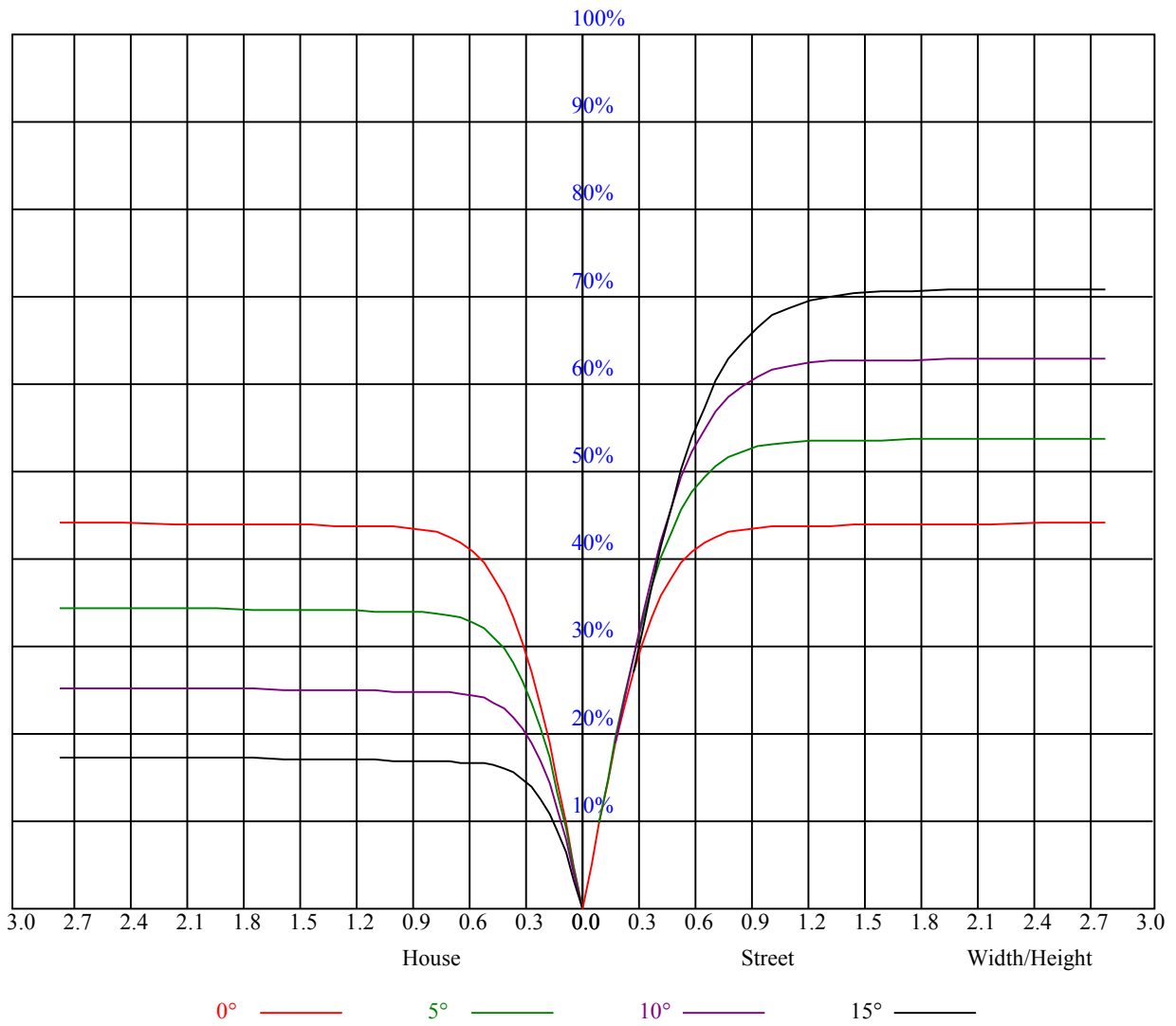
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.96	0.94	0.97	0.95	0.93	0.93	0.91	0.90	0.90	0.88	0.87	0.87	0.86	0.85	0.83
2	0.93	0.90	0.87	0.91	0.88	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.81	0.87	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.77	0.80	0.78	0.76	0.75
4	0.83	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.73	0.71
5	0.79	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.72	0.69	0.68
6	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.71	0.69	0.66	0.65
7	0.72	0.68	0.65	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.62
8	0.69	0.65	0.62	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.60
9	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
10	0.64	0.59	0.57	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.55



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	4908.94	4812.75	4565.25	3967.31	3054.38	2063.25	1324.69	764.44	393.75
45.0	4911.19	4823.44	4543.88	3866.63	3021.19	1988.44	1288.69	773.44	353.25
90.0	4912.88	4792.50	4414.50	3671.44	2794.50	1801.13	1122.08	653.57	240.81
135.0	4912.88	4813.31	4518.56	3872.25	2995.88	1956.94	1275.75	717.19	289.69
180.0	4908.94	4772.25	4411.69	3744.56	2838.38	1828.13	1112.96	636.08	239.96
225.0	4908.38	4763.81	4394.25	3681.00	2852.44	1847.25	1114.31	662.91	255.54
270.0	4912.88	4792.50	4530.38	3890.25	3096.00	2070.56	1337.63	786.94	340.31
315.0	4912.88	4776.75	4488.19	3808.69	2914.31	1936.13	1104.13	680.46	286.71
360.0	4908.94	4812.75	4565.25	3967.31	3054.38	2063.25	1324.69	764.44	393.75

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	48.71	17.04	15.58	14.51	14.23	15.69	15.41	14.91	13.73
45.0	40.16	15.81	14.74	14.34	14.06	14.34	14.63	14.29	13.44
90.0	24.13	16.37	15.02	14.40	15.47	15.13	14.68	14.34	13.67
135.0	31.84	17.44	14.96	14.40	15.69	15.53	14.96	14.57	13.89
180.0	28.69	15.92	14.96	14.29	14.01	14.40	14.57	14.34	13.50
225.0	29.19	16.14	15.02	14.34	14.68	15.81	15.75	15.08	14.12
270.0	43.43	17.10	15.92	14.74	16.48	17.72	16.59	15.86	14.96
315.0	28.46	16.43	15.53	14.74	16.93	17.21	16.37	15.30	14.40
360.0	48.71	17.04	15.58	14.51	14.23	15.69	15.41	14.91	13.73

C/γ(°)	90.0
0.0	12.38
45.0	12.38
90.0	12.32
135.0	12.38
180.0	12.38
225.0	12.32
270.0	12.38
315.0	12.32
360.0	12.38