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## Nata

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Client:

LumCAT: 3-2020-A

Luminaire: 92.70.045.00+92.70.089.000

Report No: NT2018031905

Test No: nata-0100

LampCAT: CREE CXA2520

Lamp flux(lm): 2355.0

Number of Lamps: 1

Length(mm): 86

Phm Type: C

Voltage(V): 36.0000

Current(A): 0.8000

Power (W): 28.8000

PF: 0.0000

Ballast type: DC

Width(mm): 86

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1903.72, Efficiency(%): 80.84% , Luminous Efficacy(lm/W): 66.10

Central intensity(cd): 6357.087, Maximum intensity(cd): 6357.087

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

Beam Angle(50%Imax): [C0/180]Total=26.4

[C90/270]Total=26.4

Field angle(10%Imax): [C0/180]Total=54.6

[C90/270]Total=54.6

Maximum s/h(1/2): C0\_180=0.44 C90\_270=0.44

Maximum s/h(1/4): C0\_180=0.47 C90\_270=0.47

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 82.37%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.979%

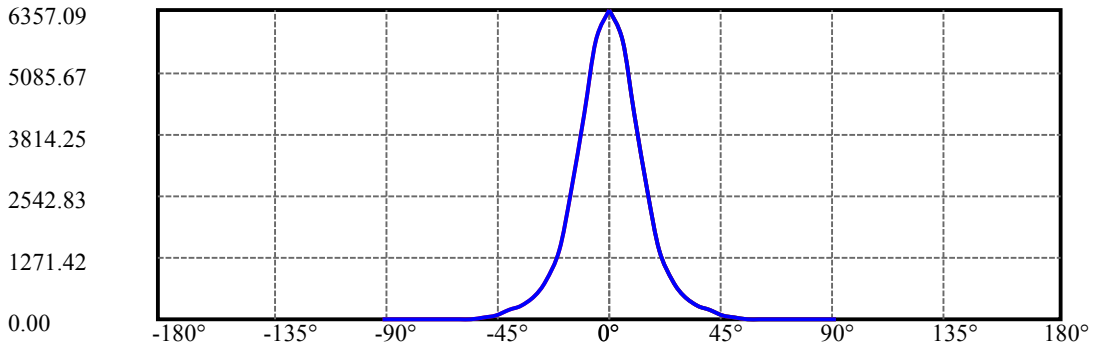
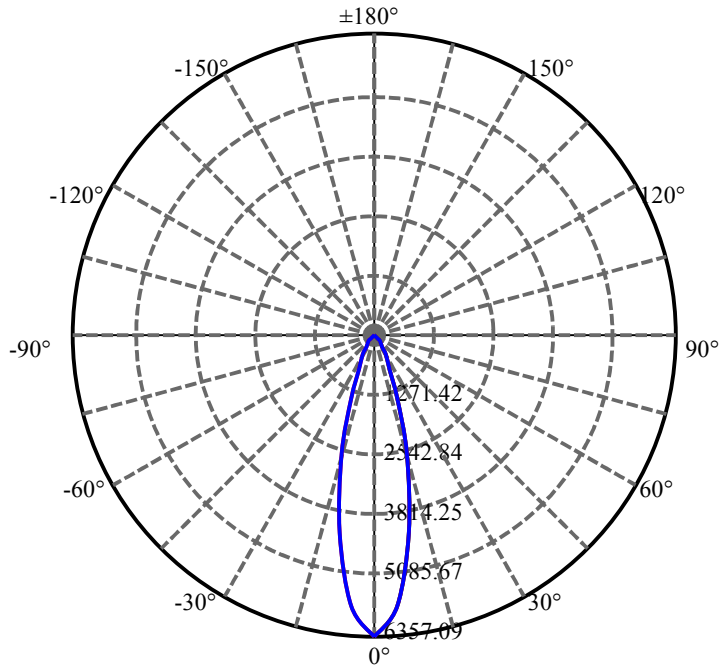
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6357.087	38.017	38.017	1.614%	1.997%
5.0	5732.128	273.843	311.859	11.628%	16.382%
10.0	4217.458	401.431	713.29	17.046%	37.468%
15.0	2602.654	369.234	1082.524	15.679%	56.864%
20.0	1426.855	267.498	1350.023	11.359%	70.915%
25.0	783.074	181.401	1531.424	7.703%	80.444%
30.0	467.009	127.993	1659.417	5.435%	87.167%
35.0	294.159	92.483	1751.9	3.927%	92.025%
40.0	183.200	64.548	1816.448	2.741%	95.416%
45.0	92.502	35.853	1852.301	1.522%	97.299%
50.0	43.729	18.362	1870.662	.780%	98.264%
55.0	15.085	6.773	1877.436	.288%	98.619%
60.0	8.190	3.888	1881.323	.165%	98.824%
65.0	7.818	3.884	1885.207	.165%	99.028%
70.0	7.715	3.974	1889.181	.169%	99.236%
75.0	7.701	4.077	1893.258	.173%	99.450%
80.0	7.749	4.183	1897.441	.178%	99.670%
85.0	7.770	4.243	1901.684	.180%	99.893%
90.0	7.426	2.035	1903.719	.086%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1659.42	70.46%	87.17%
0-40	1816.45	77.13%	95.42%
0-60	1881.32	79.89%	98.82%
0-90	1901.68	80.75%	99.89%
0-120	1901.68	80.75%	99.89%
0-180	1903.72	80.84%	100.00%
60-90	24.25	1.03%	1.27%
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%
0-24.77	1522.98	64.67%	80.00%

ZONAL LUMEN SUMMARY

0-10	713.29
10-20	636.73
20-30	309.39
30-40	157.03
40-50	54.21
50-60	10.66
60-70	7.86
70-80	8.26
80-90	4.24
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: —————

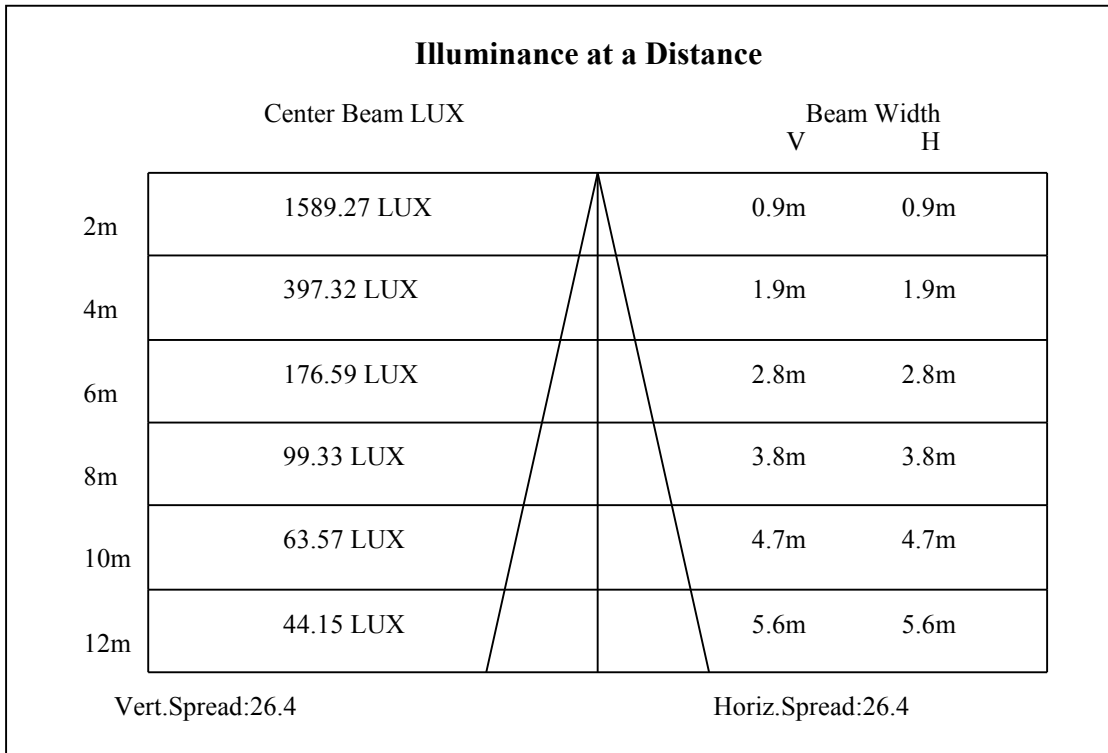
C90/C270: —————

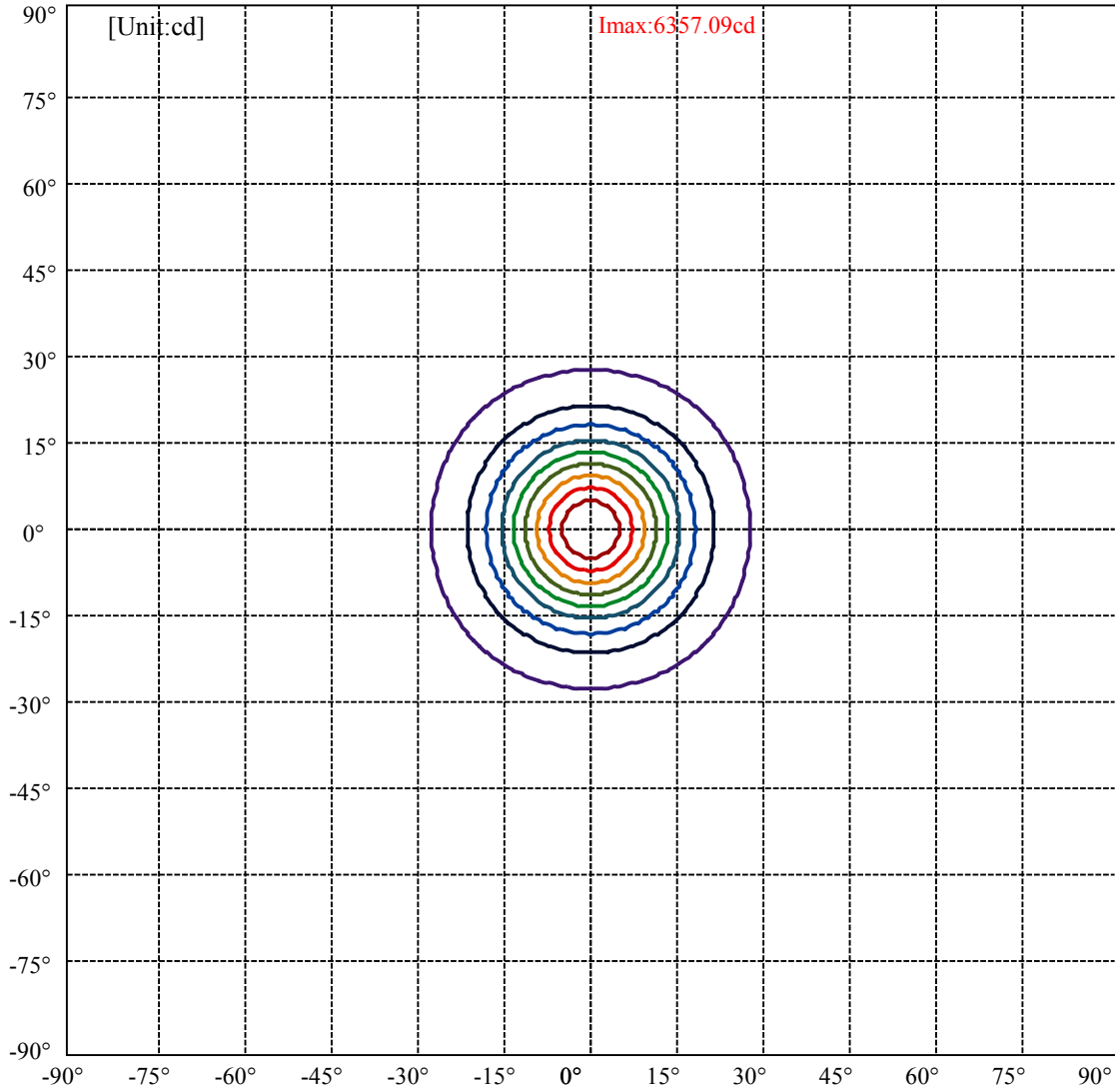
Field angle(10%Imax):C0/180Left:27.3 Right:27.3

:C90/270Left:27.3 Right:27.3

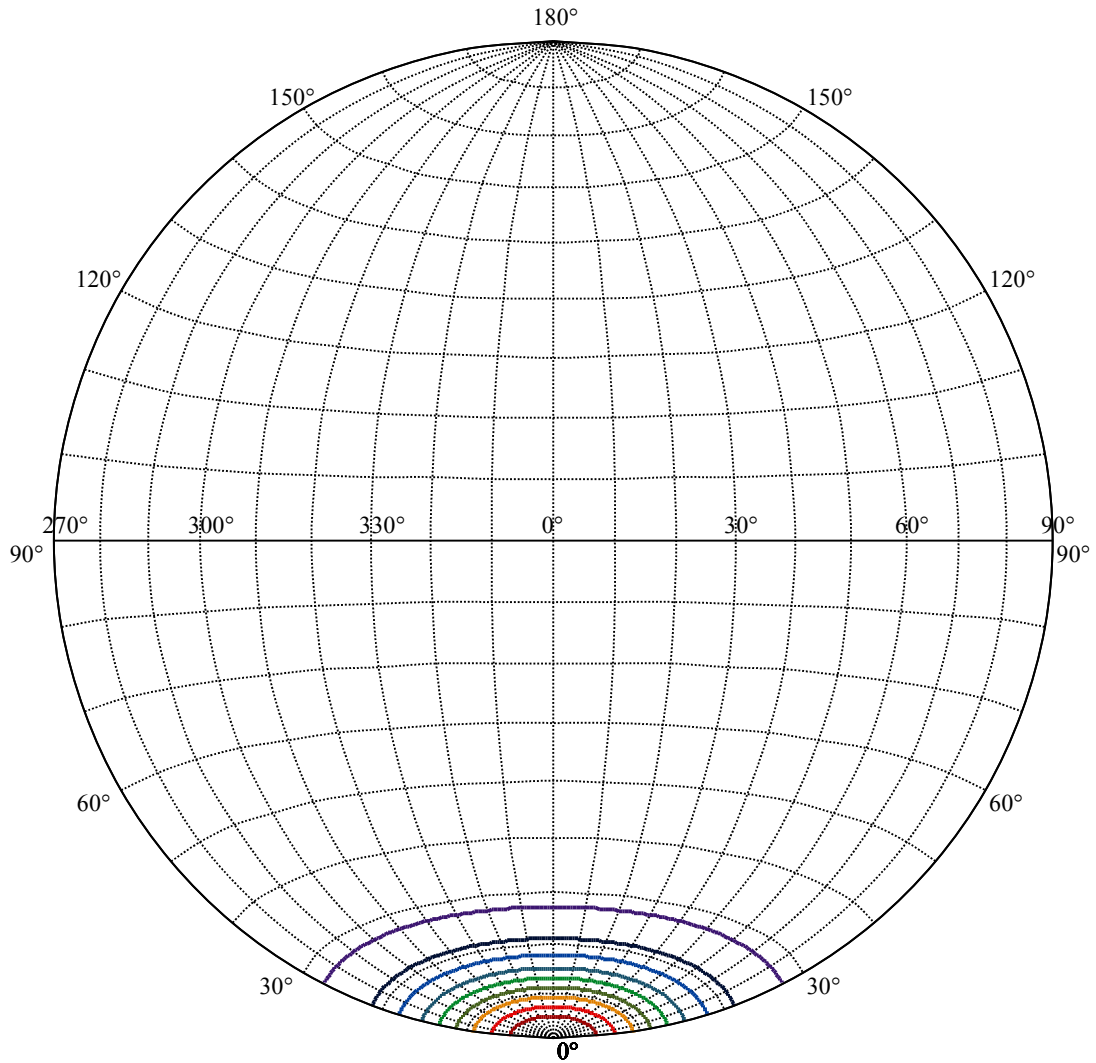
Beam Angle(50%Imax):C0/180Left:13.2 Right:13.2

:C90/270Left:13.2 Right:13.2





(10%Imax) 635.709	—
(20%Imax) 1271.42	—
(30%Imax) 1907.13	—
(40%Imax) 2542.83	—
(50%Imax) 3178.54	—
(60%Imax) 3814.25	—
(70%Imax) 4449.96	—
(80%Imax) 5085.67	—
(90%Imax) 5721.38	—



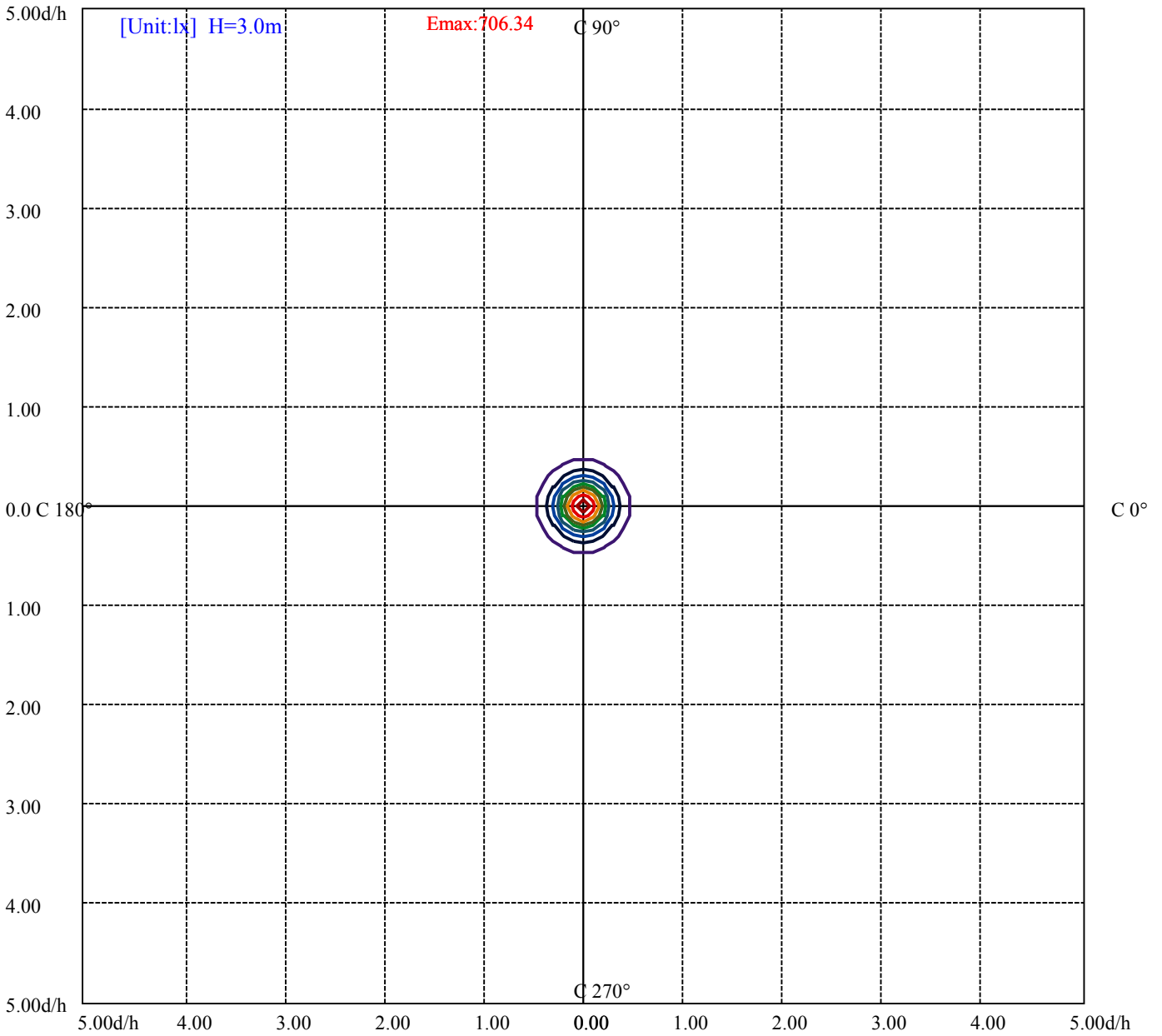
House

[Unit:cd]

Road

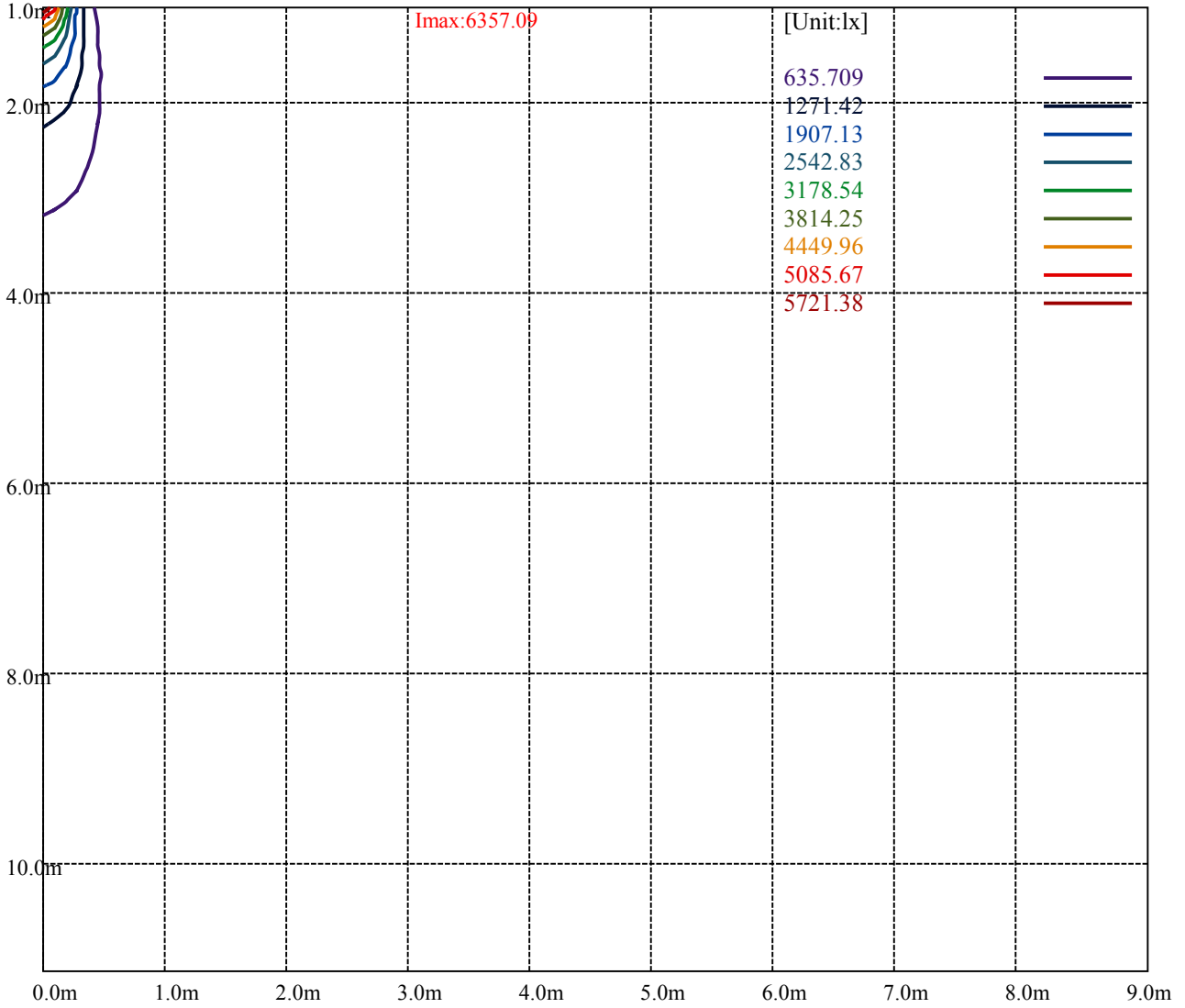
**Imax:6357.09**

(10%Imax) 635.709	—
(20%Imax) 1271.42	—
(30%Imax) 1907.13	—
(40%Imax) 2542.83	—
(50%Imax) 3178.54	—
(60%Imax) 3814.25	—
(70%Imax) 4449.96	—
(80%Imax) 5085.67	—
(90%Imax) 5721.38	—



(10%Emax) 70.63411	—
(20%Emax) 141.2678	—
(30%Emax) 211.9022	—
(40%Emax) 282.5367	—
(50%Emax) 353.17	—
(60%Emax) 423.8044	—
(70%Emax) 494.4389	—
(80%Emax) 565.0722	—
(90%Emax) 635.7067	—





Luminance Table

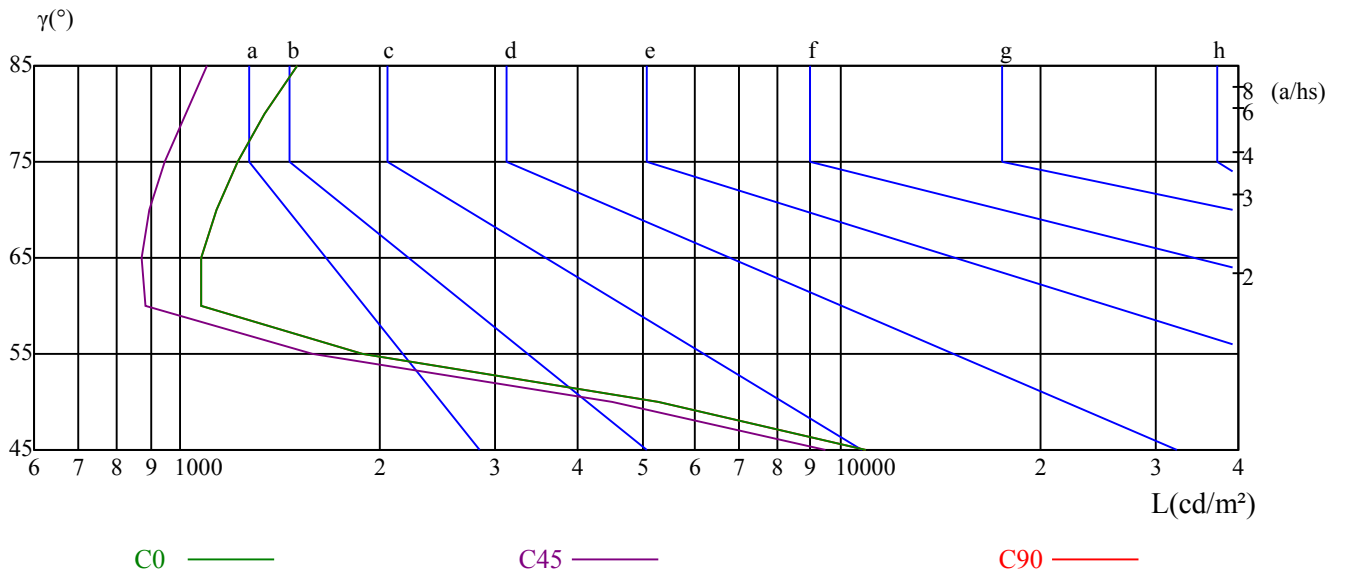
$\gamma$	45	50	55	60	65	70	75	80	85
C0	10943	5303	1891	1071	1077	1132	1219	1342	1498
C45	9451	4512	1584	882	872	898	946	1015	1100
C90	10943	5303	1891	1071	1077	1132	1219	1342	1498

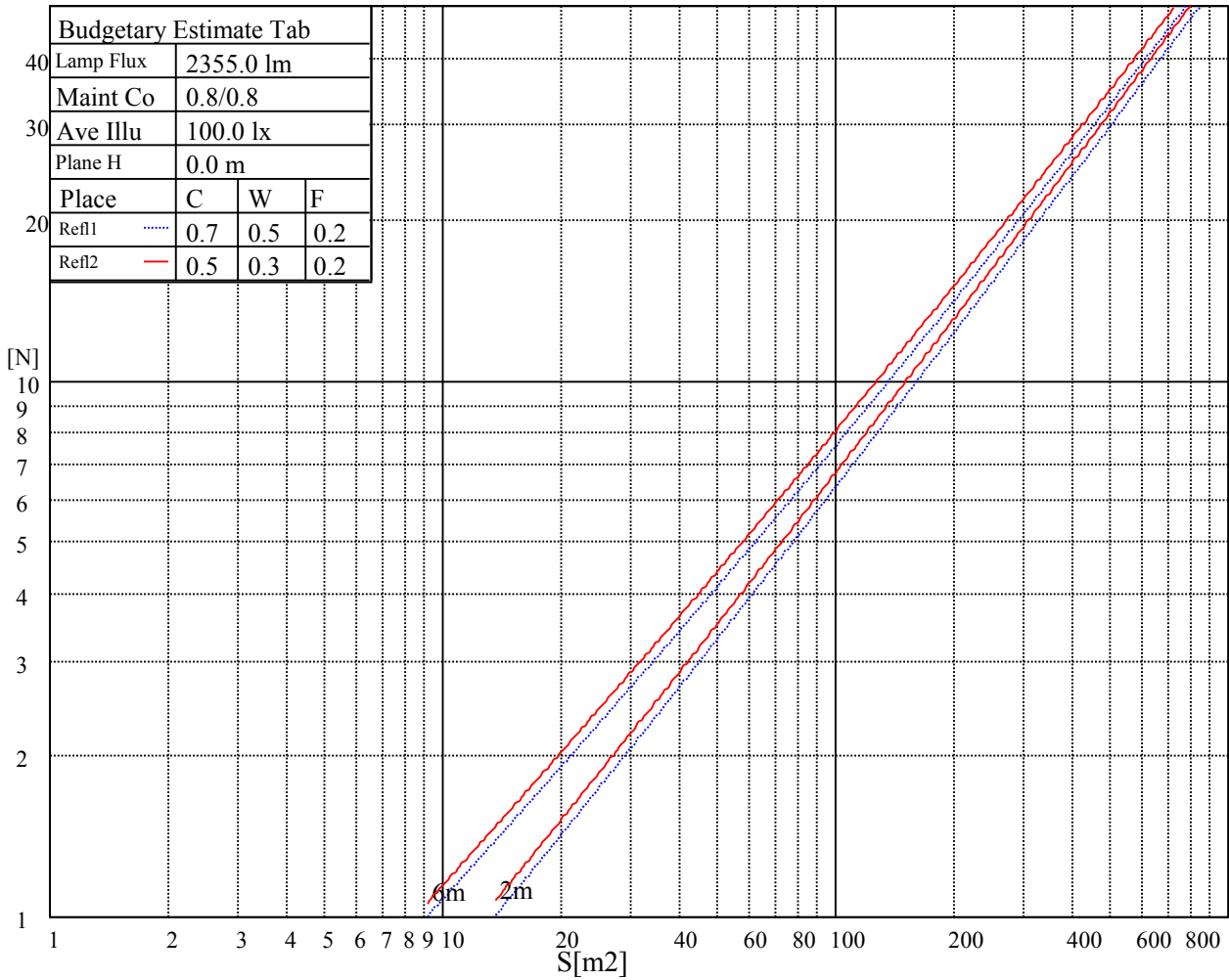
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2501	2501	2501	4023	4023	4023	12054	12054	12054

Glare Table

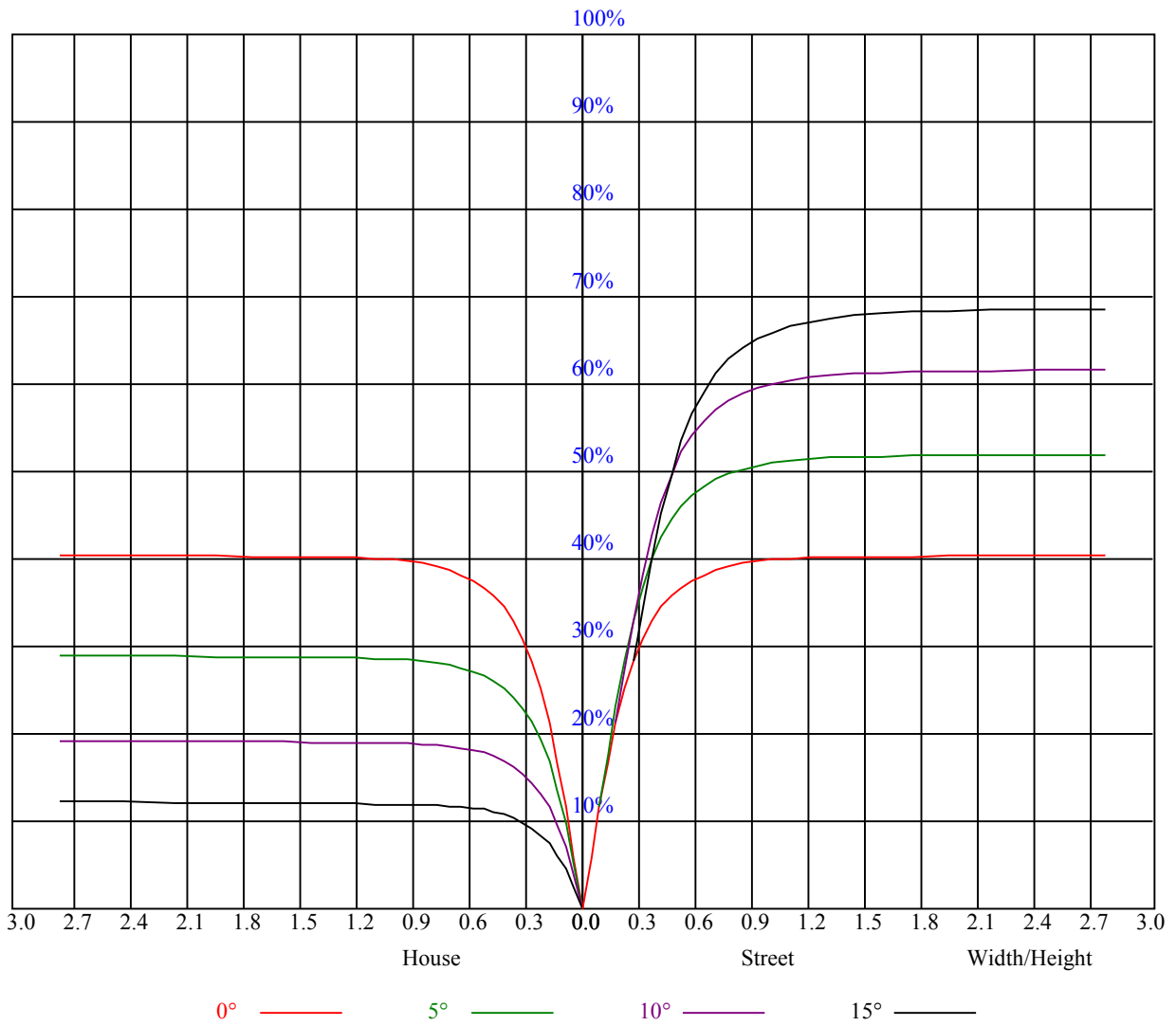
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

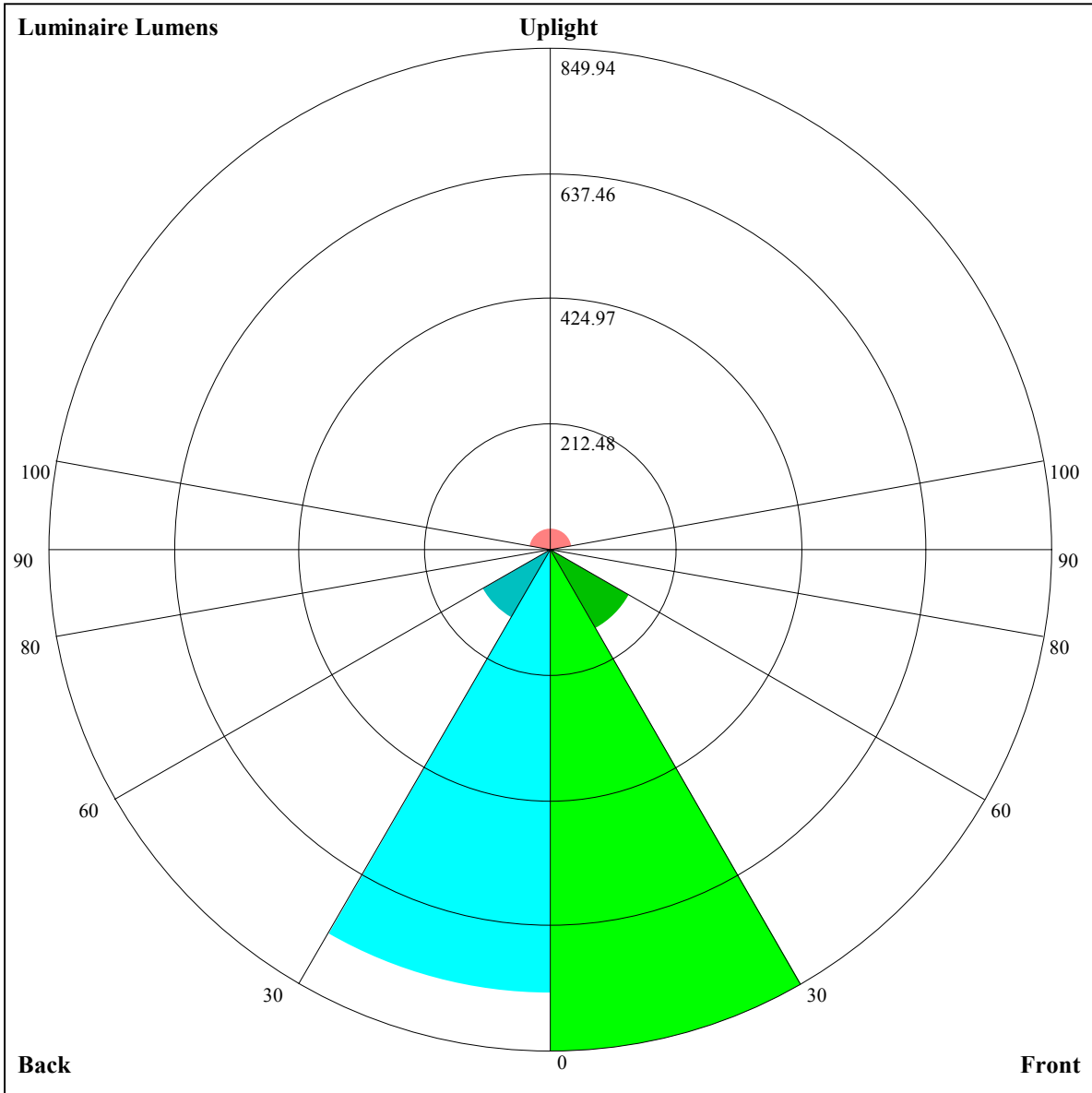
Luminance Limiting Curve





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	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.82
1	0.90	0.88	0.86	0.89	0.86	0.85	0.85	0.84	0.82	0.82	0.81	0.80	0.79	0.78	0.77	0.76
2	0.86	0.82	0.80	0.84	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.75	0.77	0.75	0.74	0.73
3	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.73	0.71	0.70
4	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.67
5	0.75	0.71	0.68	0.74	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.70	0.68	0.66	0.65
6	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
7	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.60
8	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.58
9	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.57
10	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.55





Luminaire Lumens:  
FL=849.94,FM=153.83,FH=7.97,FVH=4.18  
BL=751.85,BM=133.09,BH=8,BVH=4.19  
UL=8.1,UH=38.56

BUG Rating:B2-U2-G0

Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	6283.04	6186.69	4888.46	3235.66	1940.74	994.87	561.58	368.88	244.84
45.0	6374.43	6059.51	4583.45	2926.25	1653.89	856.68	508.72	317.68	195.73
90.0	6398.10	5750.64	4221.72	2557.37	1278.41	775.25	463.80	285.74	173.81
135.0	6372.78	5731.92	4226.68	2556.27	1472.21	764.73	450.36	279.69	178.00
180.0	6283.04	5151.63	3494.98	2029.38	1065.29	621.04	392.50	245.28	141.88
225.0	6374.43	5463.80	3846.79	2273.28	1056.59	679.73	414.52	261.57	162.53
270.0	6398.10	5737.98	4311.47	2645.46	1491.48	815.94	483.40	303.91	189.89
315.0	6372.78	5774.87	4166.12	2597.56	1456.24	756.36	461.21	290.53	178.93
360.0	6283.04	6186.69	4888.46	3235.66	1940.74	994.87	561.58	368.88	244.84
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	119.75	59.74	23.12	8.70	7.87	7.71	7.65	7.65	7.87
45.0	103.40	51.64	19.05	8.31	7.87	7.71	7.71	7.71	7.71
90.0	90.24	41.29	13.43	8.09	7.76	7.65	7.65	7.71	7.71
135.0	90.29	41.68	15.14	8.20	7.87	7.82	7.76	7.87	7.93
180.0	67.39	30.45	9.30	7.98	7.87	7.76	7.82	7.93	7.54
225.0	80.16	35.95	11.29	8.04	7.82	7.76	7.71	7.82	7.87
270.0	97.01	44.38	14.37	8.15	7.76	7.65	7.65	7.71	7.76
315.0	91.78	44.71	14.98	8.04	7.71	7.65	7.65	7.60	7.76
360.0	119.75	59.74	23.12	8.70	7.87	7.71	7.65	7.65	7.87
C/ $\gamma$ (°)	90.0								
0.0	7.43								
45.0	7.49								
90.0	7.43								
135.0	7.38								
180.0	7.43								
225.0	7.49								
270.0	7.38								
315.0	7.38								
360.0	7.43								