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## Nata

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### Client:

LumCAT: 3-2326-M

Luminaire: 92.70.129.00

Report No: GC2019091909

Test No: NATA07

LampCAT: CREE CXA1830

Lamp flux(lm): 1602.0

Number of Lamps: 1

Length(mm): 78

Phm Type: C

Voltage(V): 220.4000

Current(A): 0.0700

Power (W): 14.2400

PF: 0.9180

Ballast type: AC

Width(mm): 78

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1437.54, Efficiency(%): 89.73% , Luminous Efficacy(lm/W): 100.95

Central intensity(cd): 3231.459, Maximum intensity(cd): 3231.459

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

Beam Angle(50%Imax): [C0/180]Total=35.4

[C90/270]Total=35.4

Field angle(10%Imax): [C0/180]Total=69.2

[C90/270]Total=69.2

Maximum s/h(1/2): C0\_180=0.59 C90\_270=0.59

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(%): 89.73%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.605%

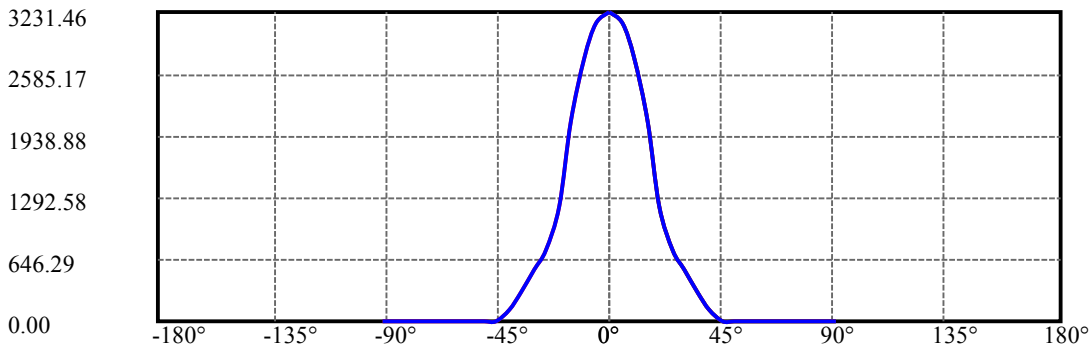
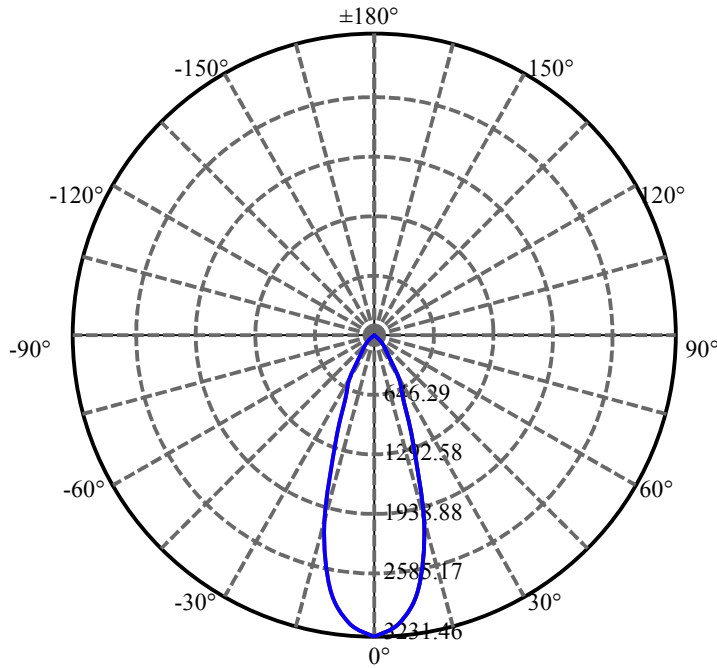
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3231.459	0.000	0	.000%	.000%
5.0	3107.098	75.776	75.776	4.730%	5.271%
10.0	2753.215	209.642	285.417	13.086%	19.855%
15.0	2078.974	286.642	572.06	17.893%	39.794%
20.0	1206.429	270.763	842.823	16.902%	58.629%
25.0	745.609	204.733	1047.556	12.780%	72.871%
30.0	535.709	162.152	1209.708	10.122%	84.151%
35.0	303.466	123.574	1333.282	7.714%	92.747%
40.0	117.853	70.294	1403.576	4.388%	97.637%
45.0	6.612	23.046	1426.622	1.439%	99.240%
50.0	4.281	2.201	1428.823	.137%	99.394%
55.0	3.347	1.658	1430.481	.104%	99.509%
60.0	2.616	1.378	1431.86	.086%	99.605%
65.0	2.152	1.159	1433.019	.072%	99.685%
70.0	1.845	1.012	1434.031	.063%	99.756%
75.0	1.636	0.910	1434.94	.057%	99.819%
80.0	1.508	0.841	1435.781	.053%	99.878%
85.0	1.497	0.816	1436.598	.051%	99.934%
90.0	1.949	0.943	1437.541	.059%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1209.71	75.51%	84.15%
0-40	1403.58	87.61%	97.64%
0-60	1431.86	89.38%	99.60%
0-90	1436.60	89.68%	99.93%
0-120	1436.60	89.68%	99.93%
0-180	1437.54	89.73%	100.00%
60-90	6.12	0.38%	0.43%
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%
0-28.16	1150.03	71.79%	80.00%

ZONAL LUMEN SUMMARY

0-10	285.42
10-20	557.41
20-30	366.88
30-40	193.87
40-50	25.25
50-60	3.04
60-70	2.17
70-80	1.75
80-90	0.82
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: —————

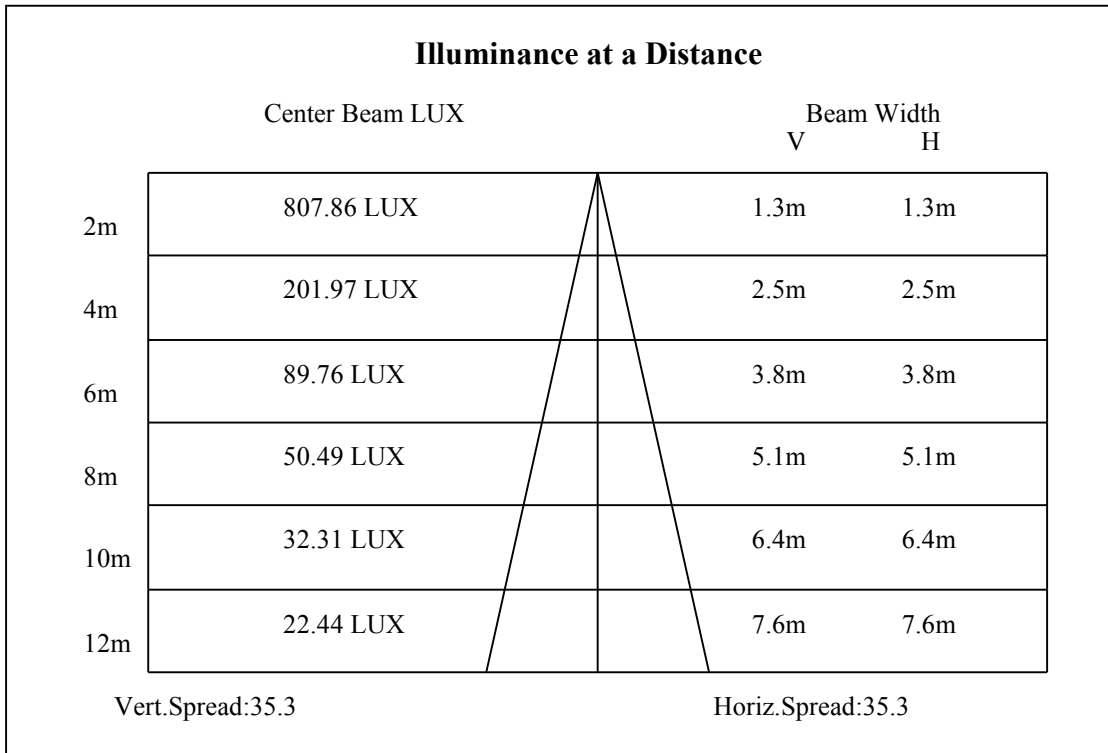
C90/C270: —————

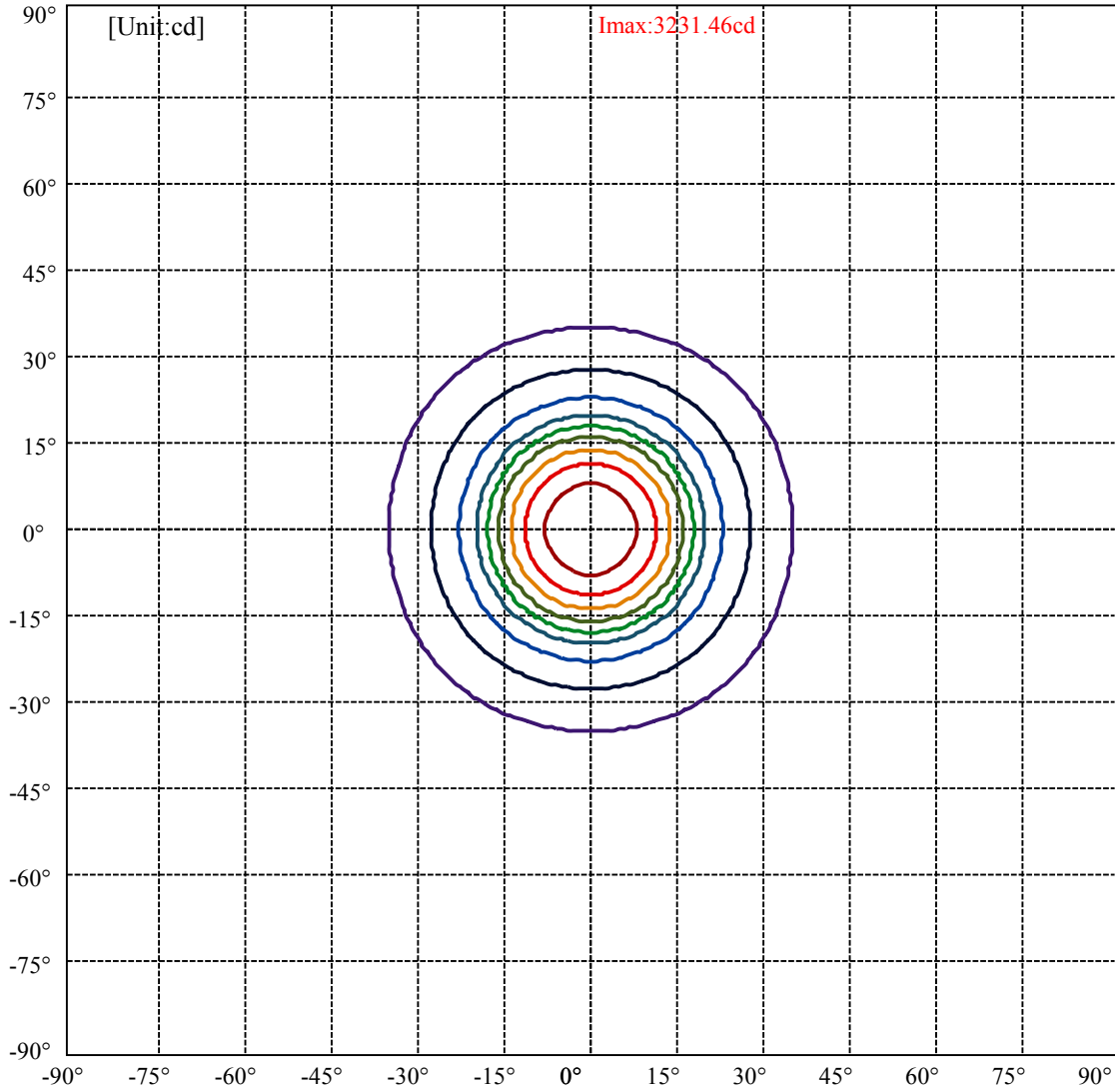
Field angle(10%Imax):C0/180Left:34.6 Right:34.6

:C90/270Left:34.6 Right:34.6

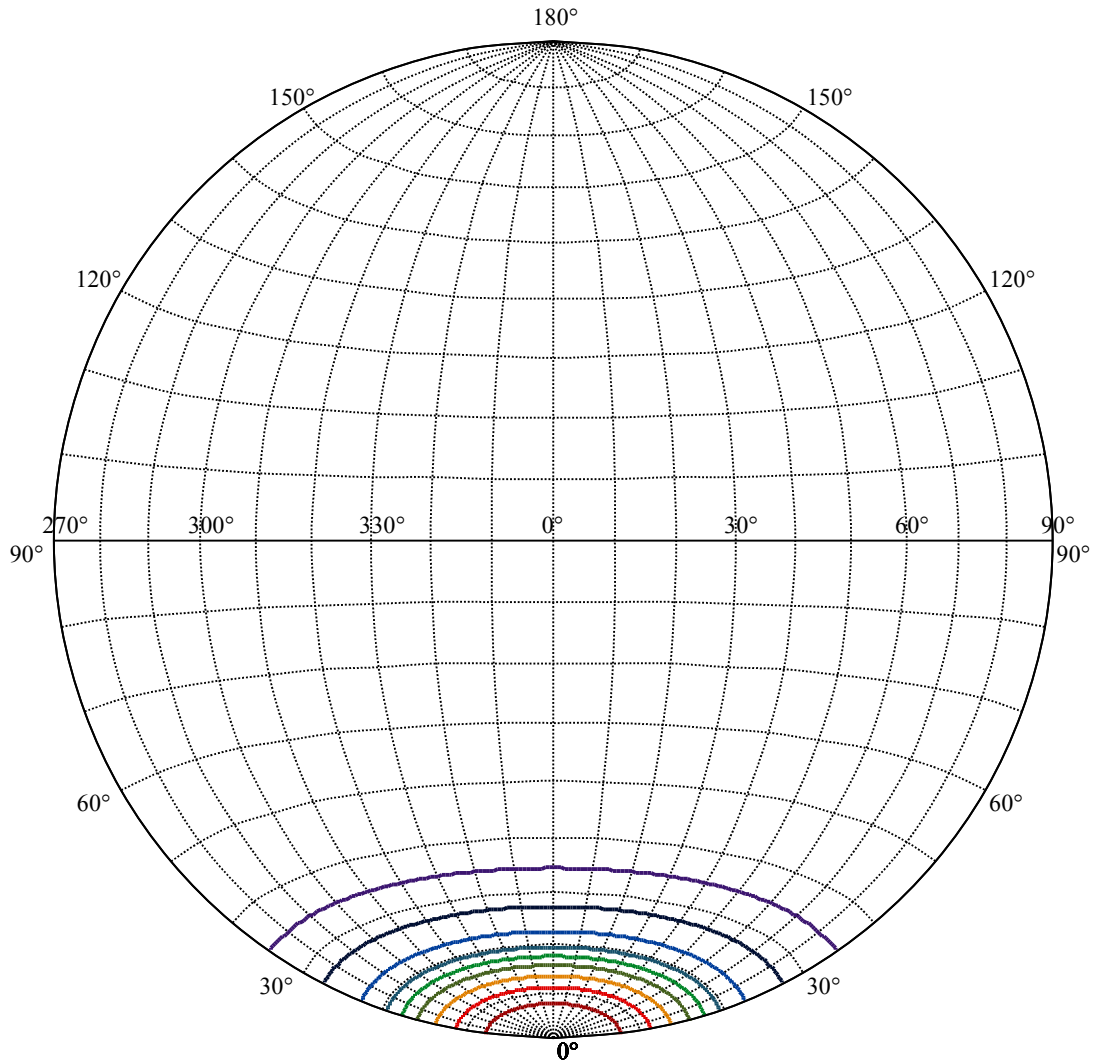
Beam Angle(50%Imax):C0/180Left:17.7 Right:17.7

:C90/270Left:17.7 Right:17.7





(10%Imax) 323.146	—
(20%Imax) 646.292	—
(30%Imax) 969.438	—
(40%Imax) 1292.58	—
(50%Imax) 1615.73	—
(60%Imax) 1938.88	—
(70%Imax) 2262.02	—
(80%Imax) 2585.17	—
(90%Imax) 2908.31	—



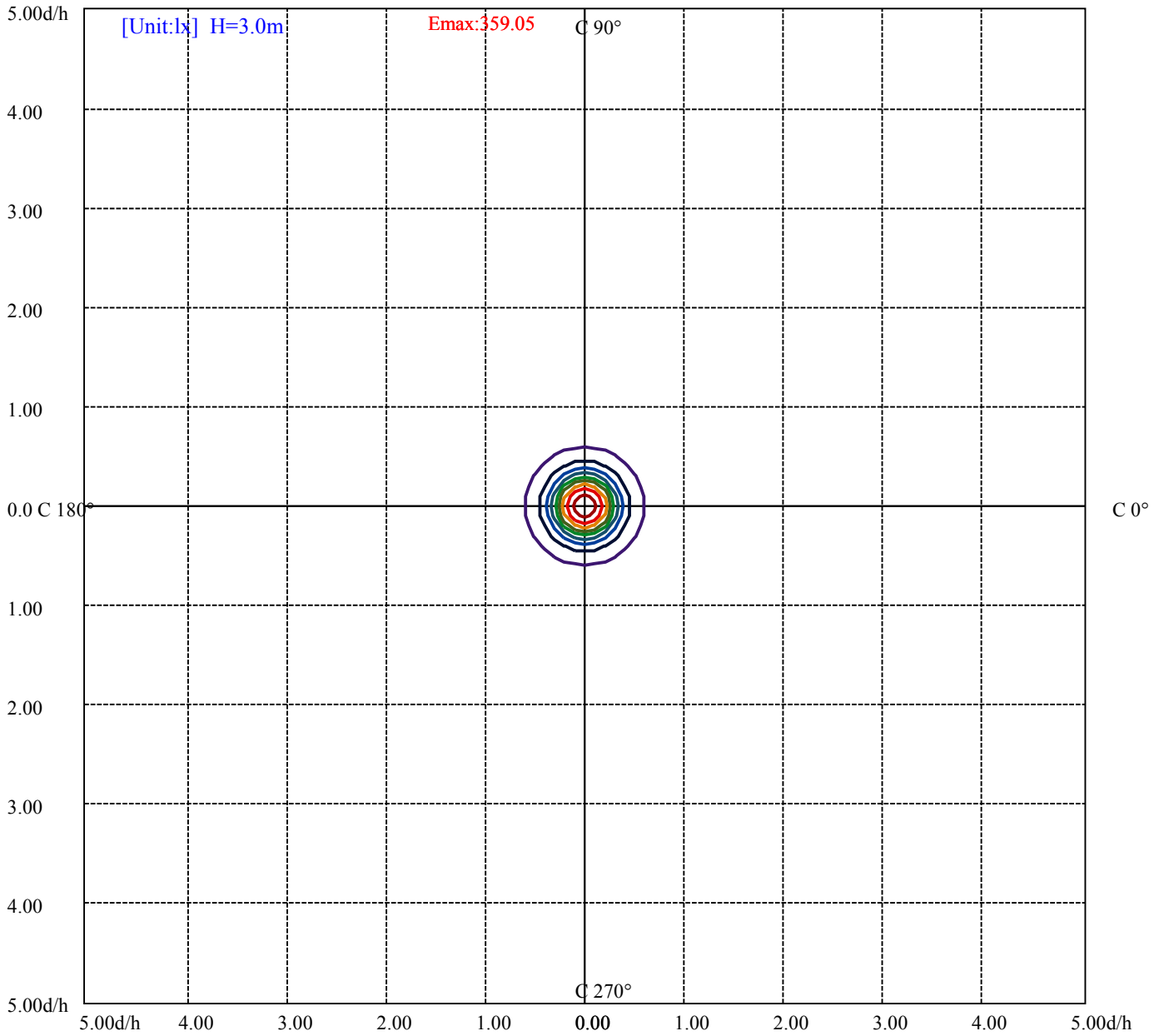
House

[Unit:cd]

Road

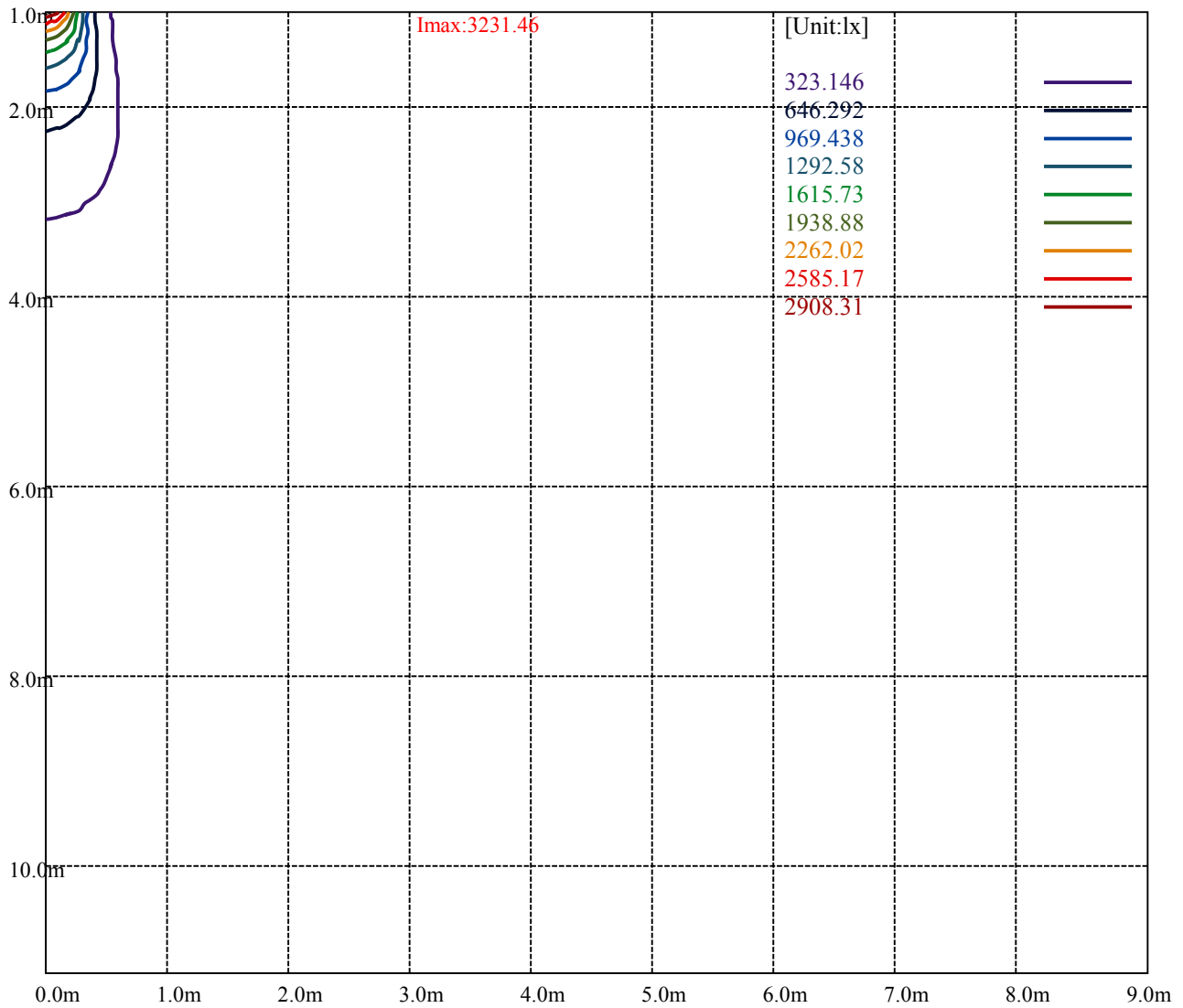
**Imax:3231.46**

(10%Imax) 323.146	—
(20%Imax) 646.292	—
(30%Imax) 969.438	—
(40%Imax) 1292.58	—
(50%Imax) 1615.73	—
(60%Imax) 1938.88	—
(70%Imax) 2262.02	—
(80%Imax) 2585.17	—
(90%Imax) 2908.31	—



- (10%Emax) 35.90511
- (20%Emax) 71.81011
- (30%Emax) 107.7152
- (40%Emax) 143.62
- (50%Emax) 179.5256
- (60%Emax) 215.43
- (70%Emax) 251.3356
- (80%Emax) 287.24
- (90%Emax) 323.1456





Luminance Table

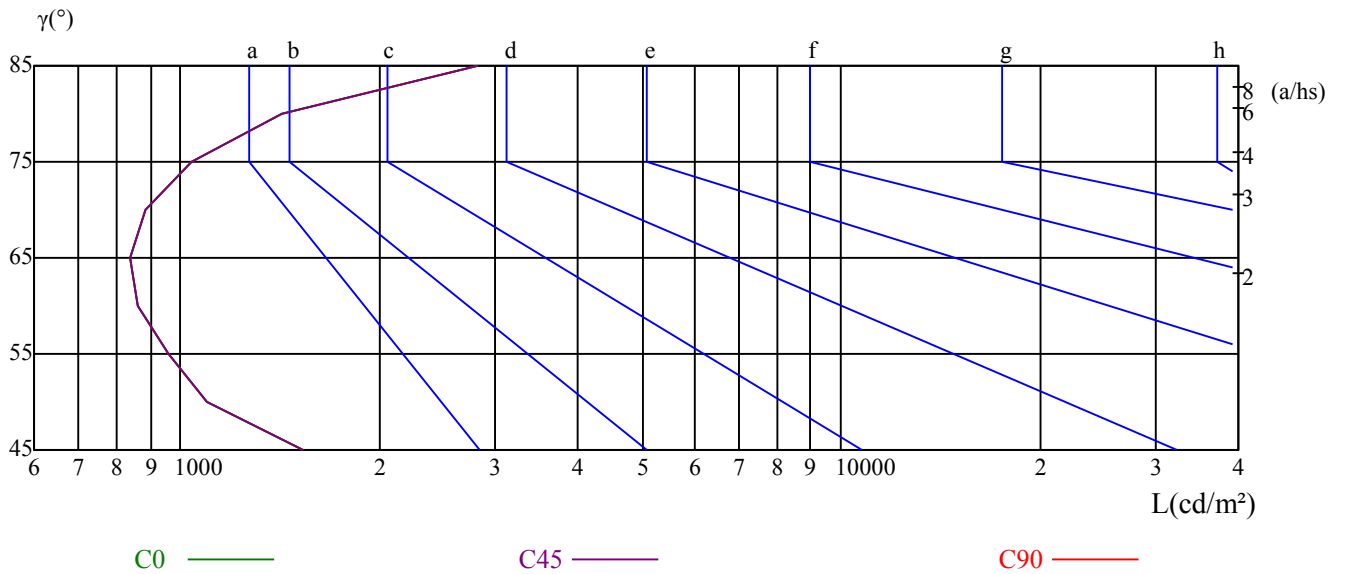
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1537	1095	959	860	837	886	1039	1427	2822
C45	1537	1095	959	860	837	886	1039	1427	2822
C90	1537	1095	959	860	837	886	1039	1427	2822

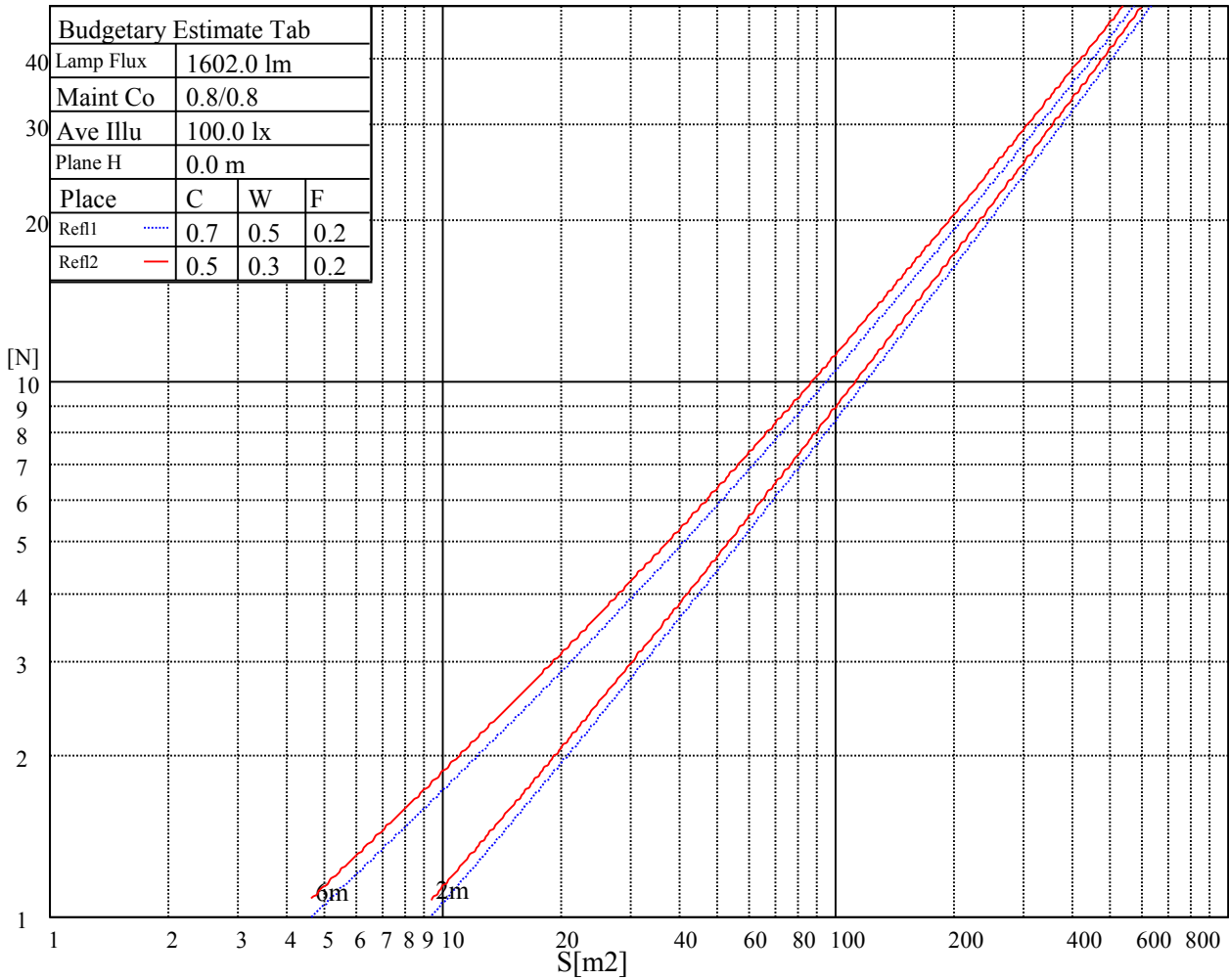
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
837	837	837	1039	1039	1039	2822	2822	2822

Glare Table

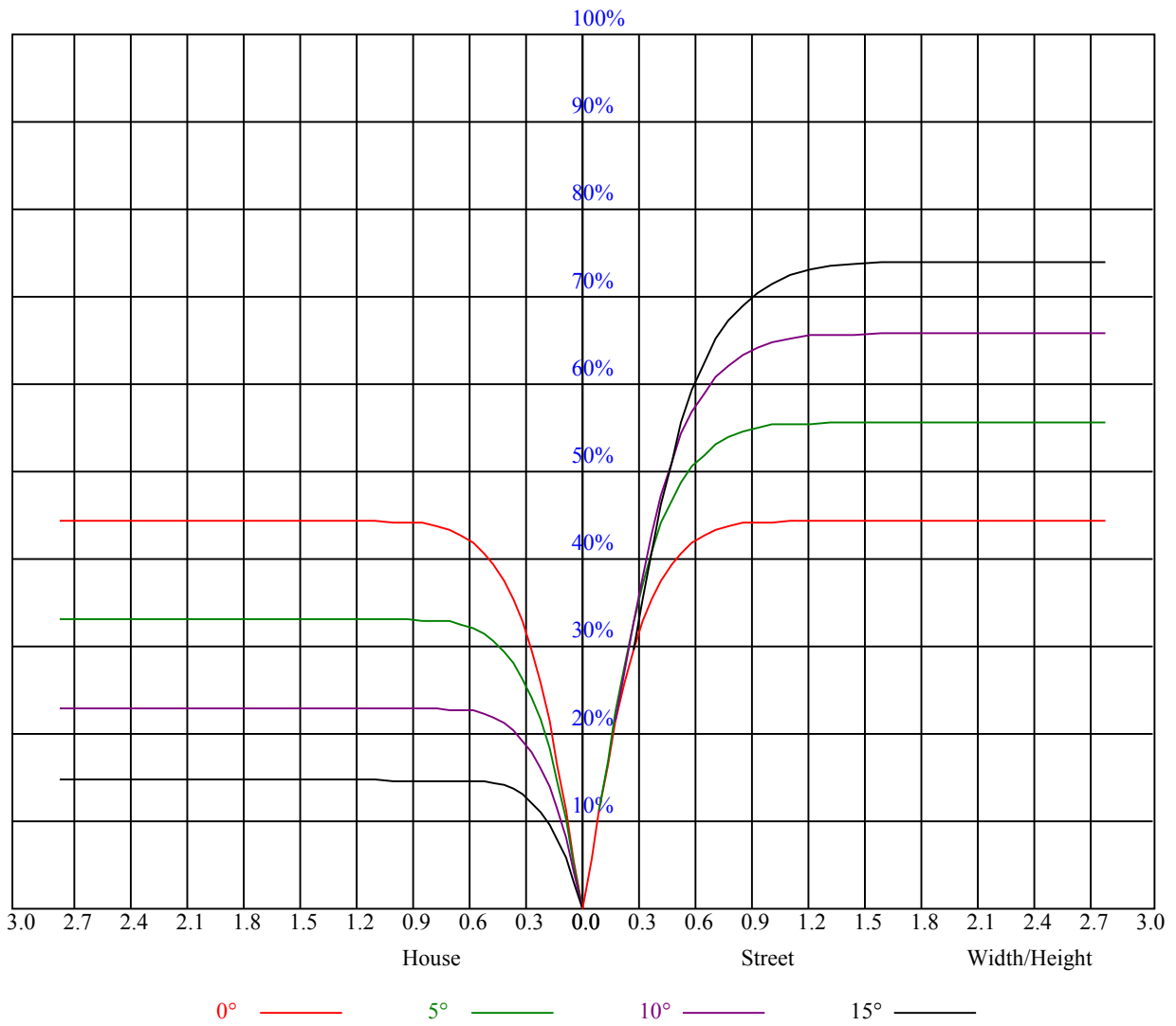
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

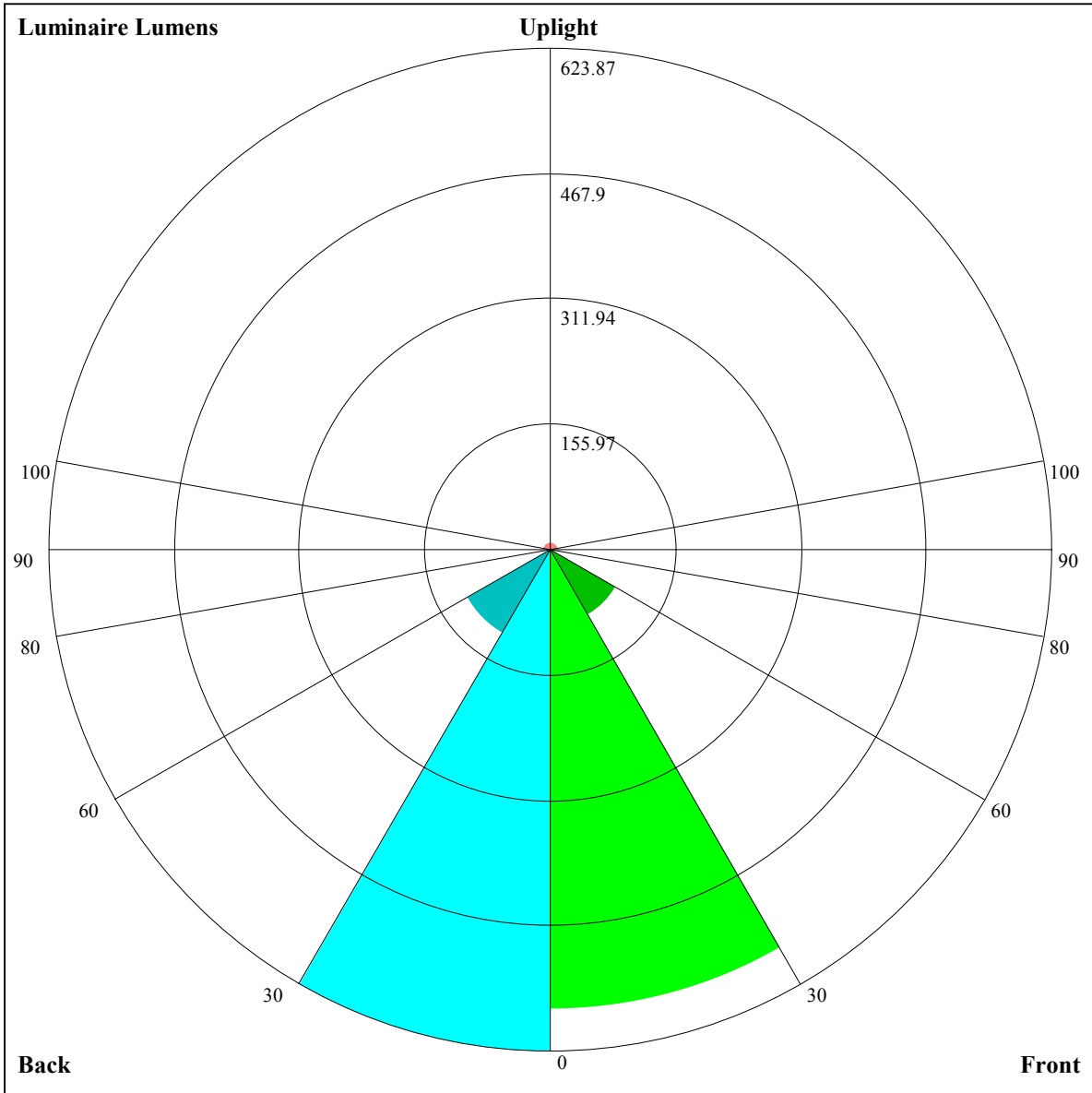
Luminance Limiting Curve





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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.92	0.92	0.92	0.90
1	1.00	0.98	0.97	0.98	0.97	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.82	0.81
3	0.89	0.85	0.82	0.88	0.85	0.82	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.80	0.77	0.84	0.80	0.77	0.82	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.73	0.80	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.75	0.73	0.70	0.69
6	0.77	0.72	0.69	0.76	0.72	0.68	0.75	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.62	0.59	0.56	0.55





Luminaire Lumens:

FL=571.35,FM=94.03,FH=1.9,FVH=0.96

BL=623.87,BM=119.39,BH=2.02,BVH=0.85

UL=2.13,UH=10.12

BUG Rating:B2-U2-G0

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	3217.19	2962.44	2478.91	1696.55	857.07	599.95	462.92	182.32	11.23
45.0	3232.04	3161.97	2857.56	2329.96	1532.75	838.55	572.66	408.86	278.93
90.0	3244.57	3140.62	2775.89	2087.73	912.89	745.28	547.65	301.81	28.68
135.0	3232.04	3242.25	3005.13	2423.69	1635.30	956.88	633.45	454.34	301.67
180.0	3217.19	3218.58	3010.70	2416.27	1664.53	866.40	585.66	448.30	274.75
225.0	3232.04	3057.56	2594.46	1815.81	910.71	634.01	489.93	200.09	13.04
270.0	3244.57	3116.96	2800.95	2137.85	1274.75	720.69	524.87	293.78	25.38
315.0	3232.04	2956.40	2502.11	1723.93	863.43	603.10	468.53	138.24	9.14
360.0	3217.19	2962.44	2478.91	1696.55	857.07	599.95	462.92	182.32	11.23

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	4.92	3.71	2.92	2.27	1.86	1.67	1.44	1.35	1.35
45.0	6.50	4.27	3.39	2.69	2.23	1.90	1.76	1.81	1.95
90.0	6.08	4.08	3.25	2.55	2.13	1.86	1.72	1.67	1.86
135.0	11.37	5.34	4.18	3.25	2.51	2.09	1.72	1.48	1.30
180.0	8.12	4.73	3.67	2.78	2.27	1.95	1.62	1.44	1.35
225.0	4.78	3.81	3.06	2.41	2.09	1.86	1.72	1.48	1.39
270.0	5.89	4.22	3.20	2.55	2.13	1.81	1.67	1.48	1.48
315.0	5.24	4.08	3.11	2.41	2.00	1.62	1.44	1.35	1.30
360.0	4.92	3.71	2.92	2.27	1.86	1.67	1.44	1.35	1.35

C/γ(°)	90.0
0.0	2.60
45.0	2.60
90.0	3.06
135.0	1.30
180.0	1.35
225.0	1.39
270.0	1.58
315.0	1.72
360.0	2.60