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## Nata

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### Client:

LumCAT: 4-2202-L

Luminaire: 92.70.131.00

Report No: NT2018011008

Test No: GC2018011008

LampCAT: CITIZEN CLU038

Lamp flux(lm): 2870.0

Number of Lamps: 1

Length(mm): 102

Phm Type: C

Voltage(V): 34.8000

Current(A): 0.6400

Power (W): 22.2720

PF: 0.0000

Ballast type: DC

Width(mm): 102

Height(mm): 0

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## Photometric Results

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Lumens(lm): 2854.44, Efficiency(%): 99.46% , Luminous Efficacy(lm/W): 128.16

Central intensity(cd): 13431.010, Maximum intensity(cd): 13431.010

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

Beam Angle(50%Imax): [C0/180]Total=22.6

[C90/270]Total=22.6

Field angle(10%Imax): [C0/180]Total=41.8

[C90/270]Total=41.8

Maximum s/h(1/2): C0\_180=0.39 C90\_270=0.39

Maximum s/h(1/4): C0\_180=0.37 C90\_270=0.37

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 102.16%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.002%

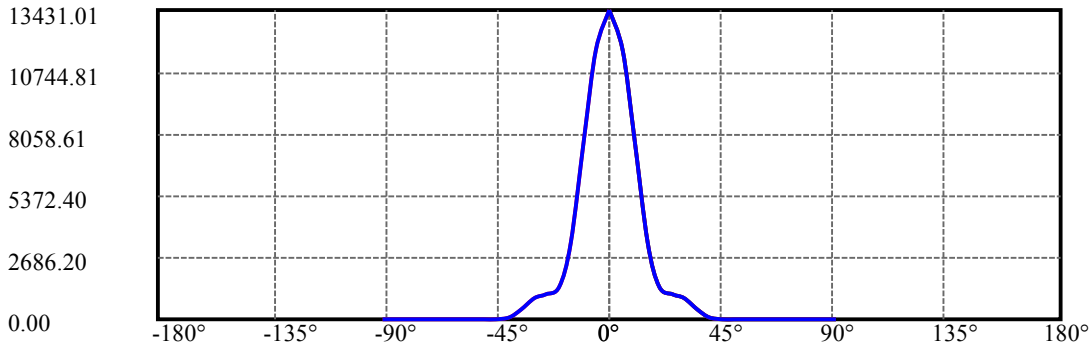
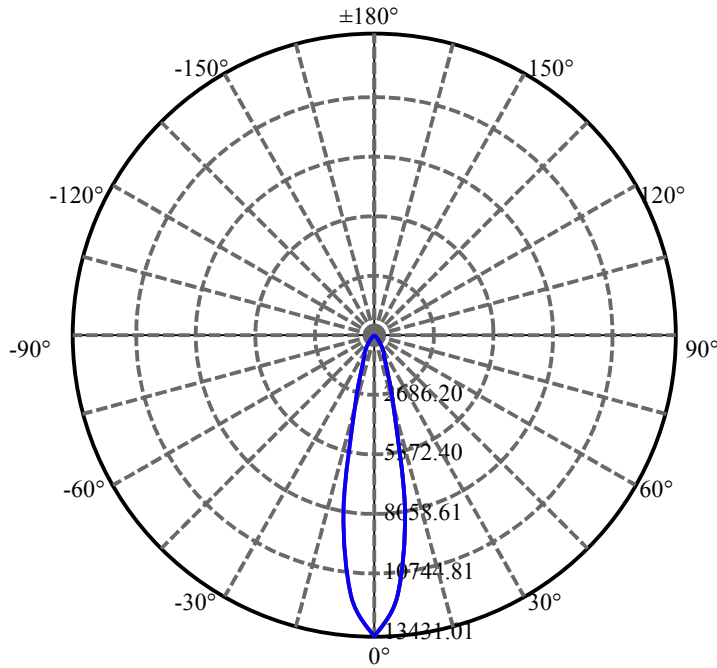
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13431.009	80.320	80.32	2.799%	2.814%
5.0	11675.811	557.792	638.112	19.435%	22.355%
10.0	7941.266	755.874	1393.986	26.337%	48.836%
15.0	3303.453	468.656	1862.642	16.329%	65.254%
20.0	1405.996	263.588	2126.23	9.184%	74.488%
25.0	1048.040	242.781	2369.011	8.459%	82.994%
30.0	897.646	246.017	2615.028	8.572%	91.613%
35.0	457.526	143.845	2758.873	5.012%	96.652%
40.0	75.118	26.467	2785.34	.922%	97.579%
45.0	19.456	7.541	2792.881	.263%	97.843%
50.0	17.329	7.276	2800.157	.254%	98.098%
55.0	16.193	7.271	2807.428	.253%	98.353%
60.0	15.602	7.406	2814.834	.258%	98.612%
65.0	14.831	7.368	2822.202	.257%	98.870%
70.0	14.032	7.228	2829.43	.252%	99.124%
75.0	13.475	7.135	2836.564	.249%	99.374%
80.0	13.255	7.155	2843.719	.249%	99.624%
85.0	13.138	7.174	2850.893	.250%	99.876%
90.0	12.952	3.550	2854.443	.124%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2615.03	91.12%	91.61%
0-40	2785.34	97.05%	97.58%
0-60	2814.83	98.08%	98.61%
0-90	2850.89	99.33%	99.88%
0-120	2850.89	99.33%	99.88%
0-180	2854.44	99.46%	100.00%
60-90	43.47	1.51%	1.52%
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%
0-23.24	2283.55	79.57%	80.00%

ZONAL LUMEN SUMMARY

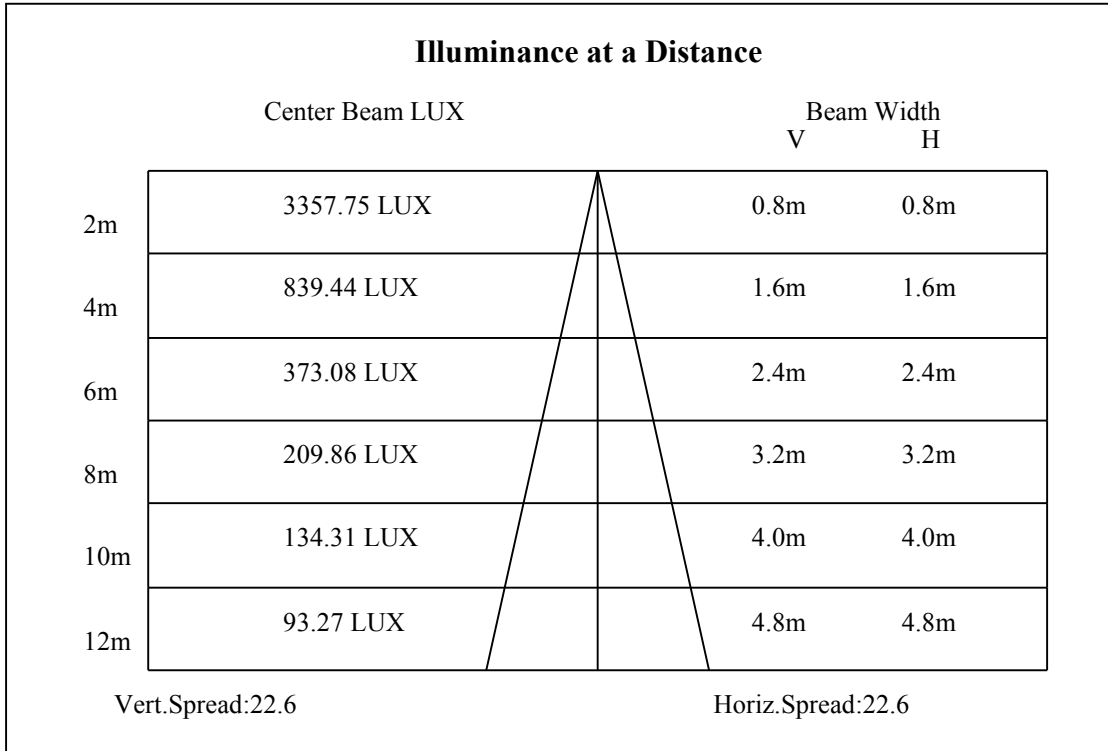
0-10	1393.99
10-20	732.24
20-30	488.80
30-40	170.31
40-50	14.82
50-60	14.68
60-70	14.60
70-80	14.29
80-90	7.17
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

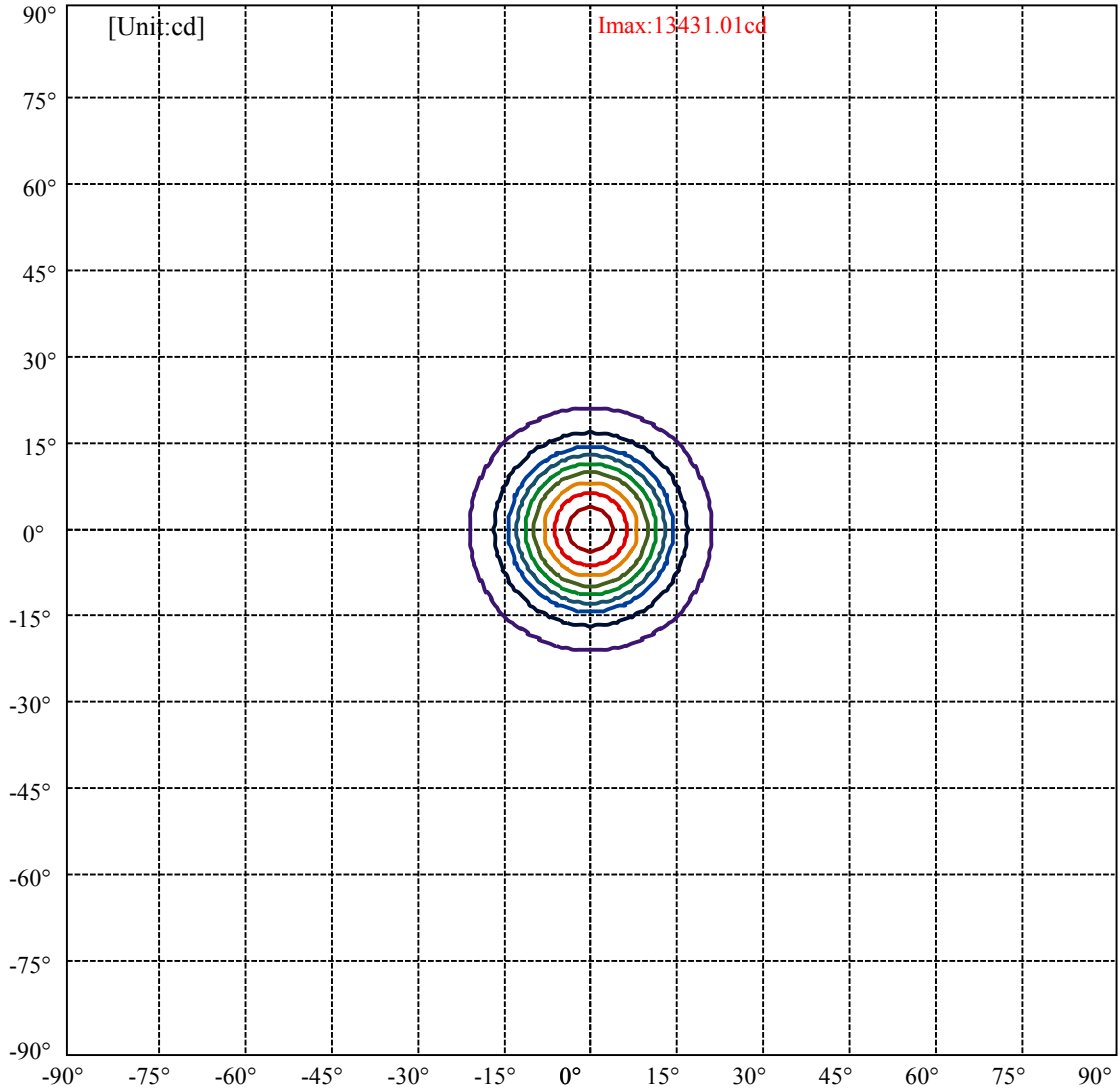


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

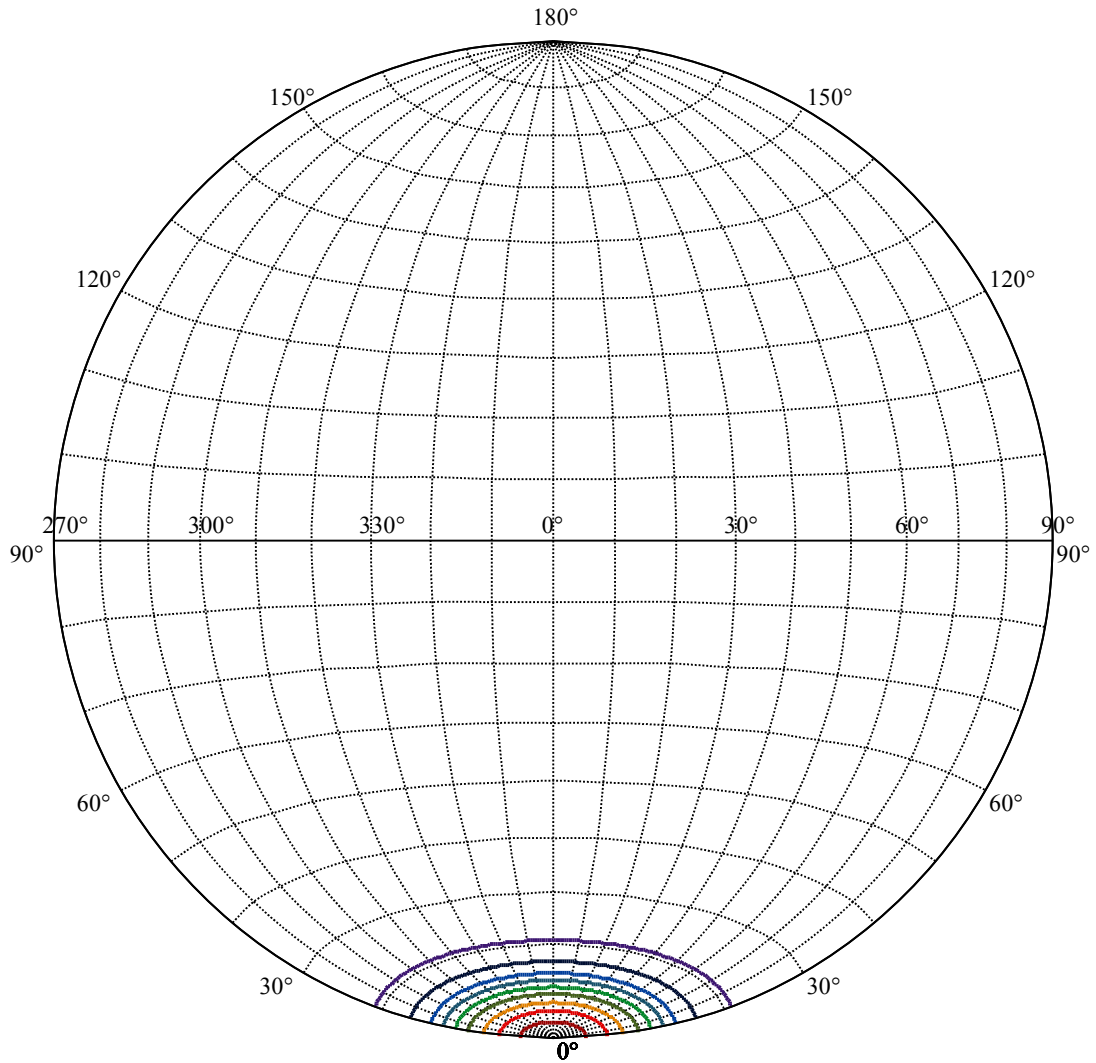
Field angle(10%Imax):C0/180Left:20.9 Right:20.9  
:C90/270Left:20.9 Right:20.9

Beam Angle(50%Imax):C0/180Left:11.3 Right:11.3  
:C90/270Left:11.3 Right:11.3





(10%Imax) 1343.1	—
(20%Imax) 2686.2	—
(30%Imax) 4029.3	—
(40%Imax) 5372.4	—
(50%Imax) 6715.5	—
(60%Imax) 8058.61	—
(70%Imax) 9401.71	—
(80%Imax) 10744.8	—
(90%Imax) 12087.9	—



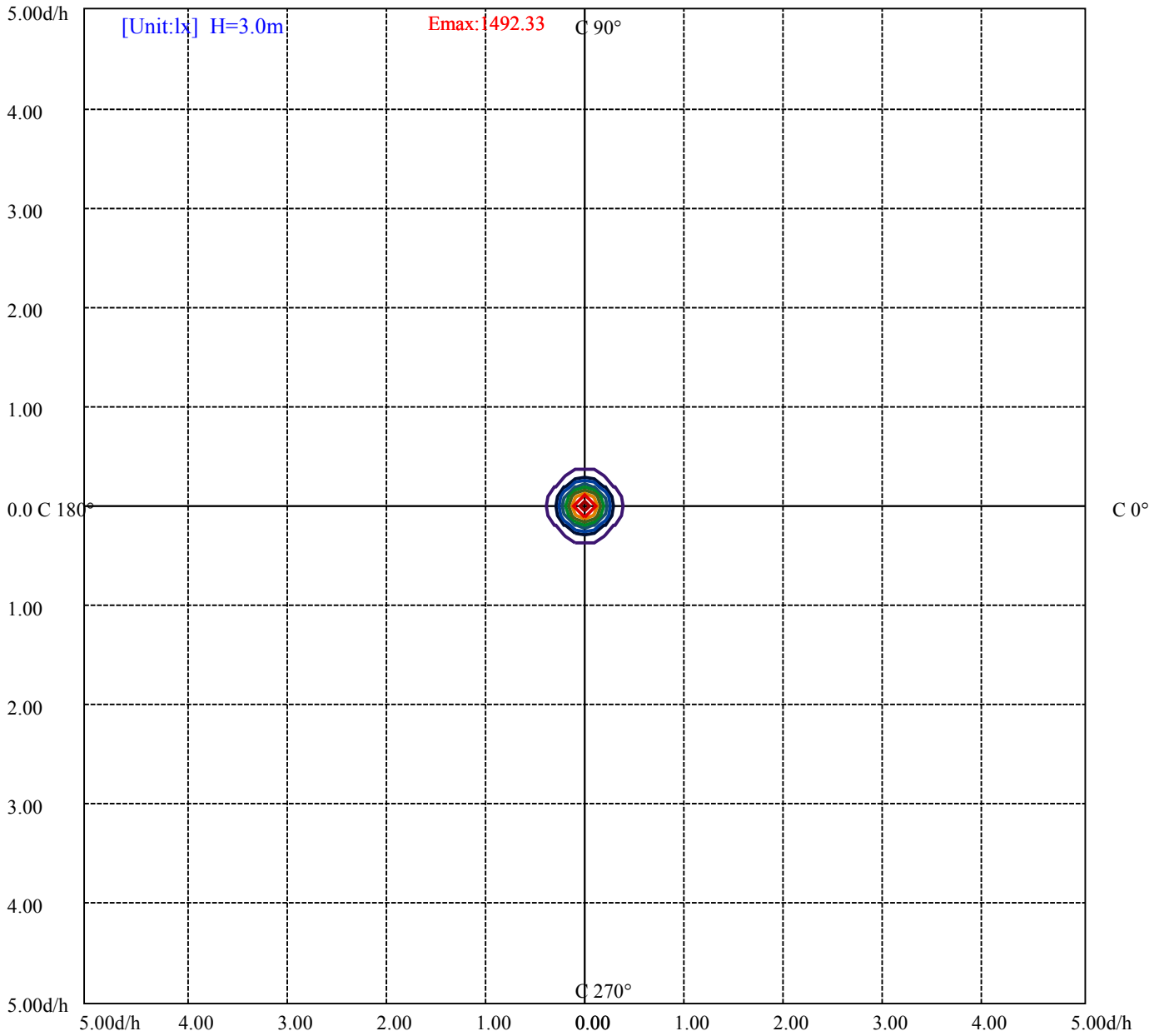
House

[Unit:cd]

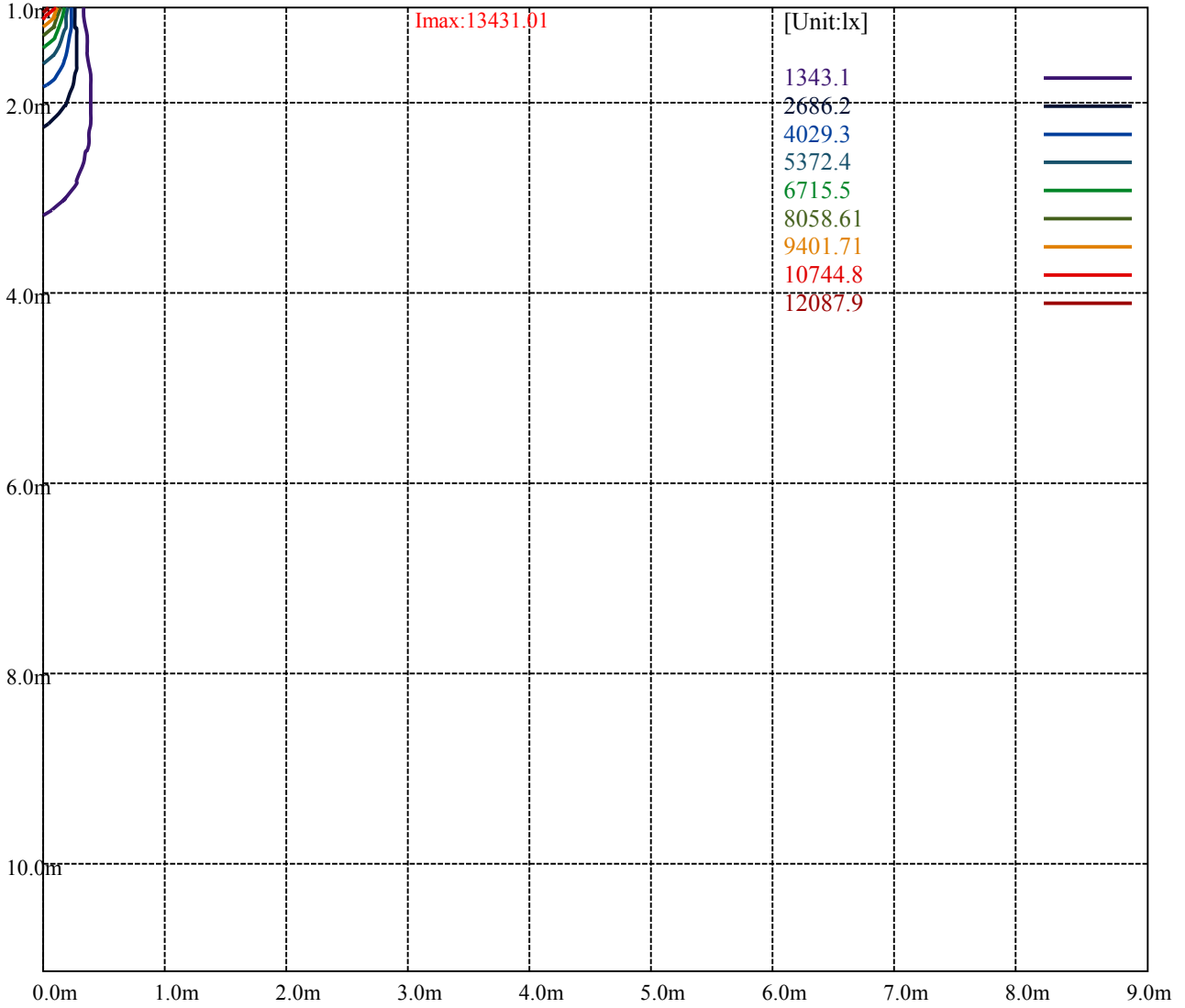
Road

**Imax:13431.01**

(10%Imax) 1343.1	—
(20%Imax) 2686.2	—
(30%Imax) 4029.3	—
(40%Imax) 5372.4	—
(50%Imax) 6715.5	—
(60%Imax) 8058.61	—
(70%Imax) 9401.71	—
(80%Imax) 10744.8	—
(90%Imax) 12087.9	—







Luminance Table

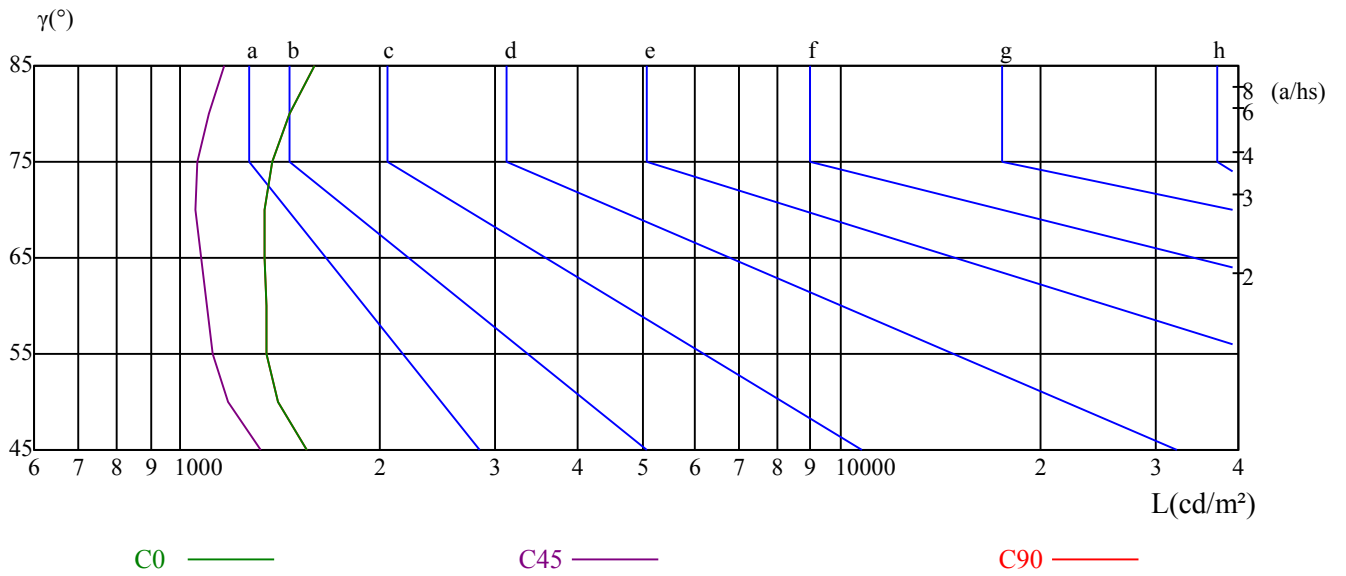
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1550	1407	1351	1349	1342	1342	1377	1466	1598
C45	1323	1183	1119	1099	1074	1054	1059	1101	1167
C90	1550	1407	1351	1349	1342	1342	1377	1466	1598

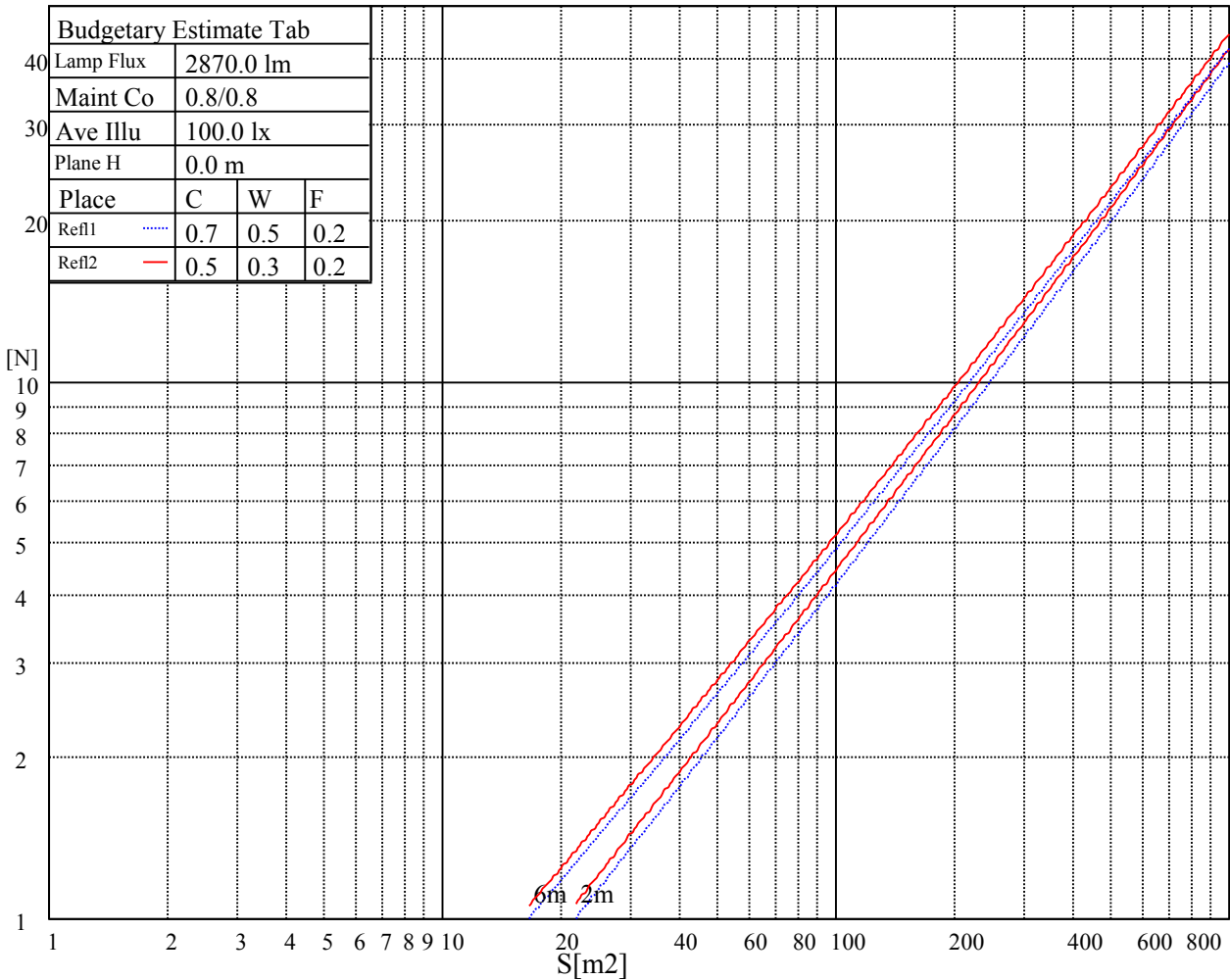
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3373	3373	3373	5004	5004	5004	14489	14489	14489

Glare Table

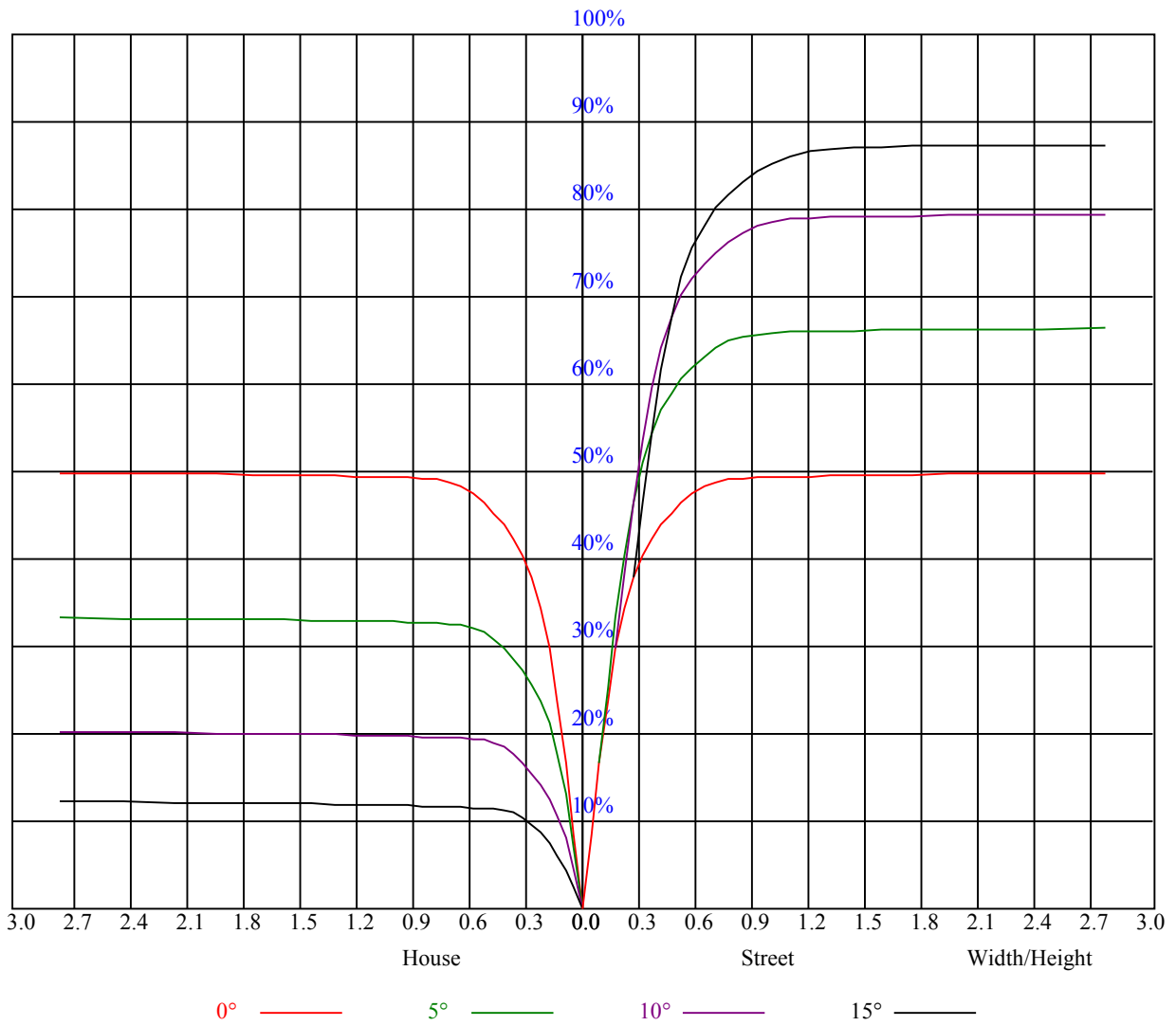
Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

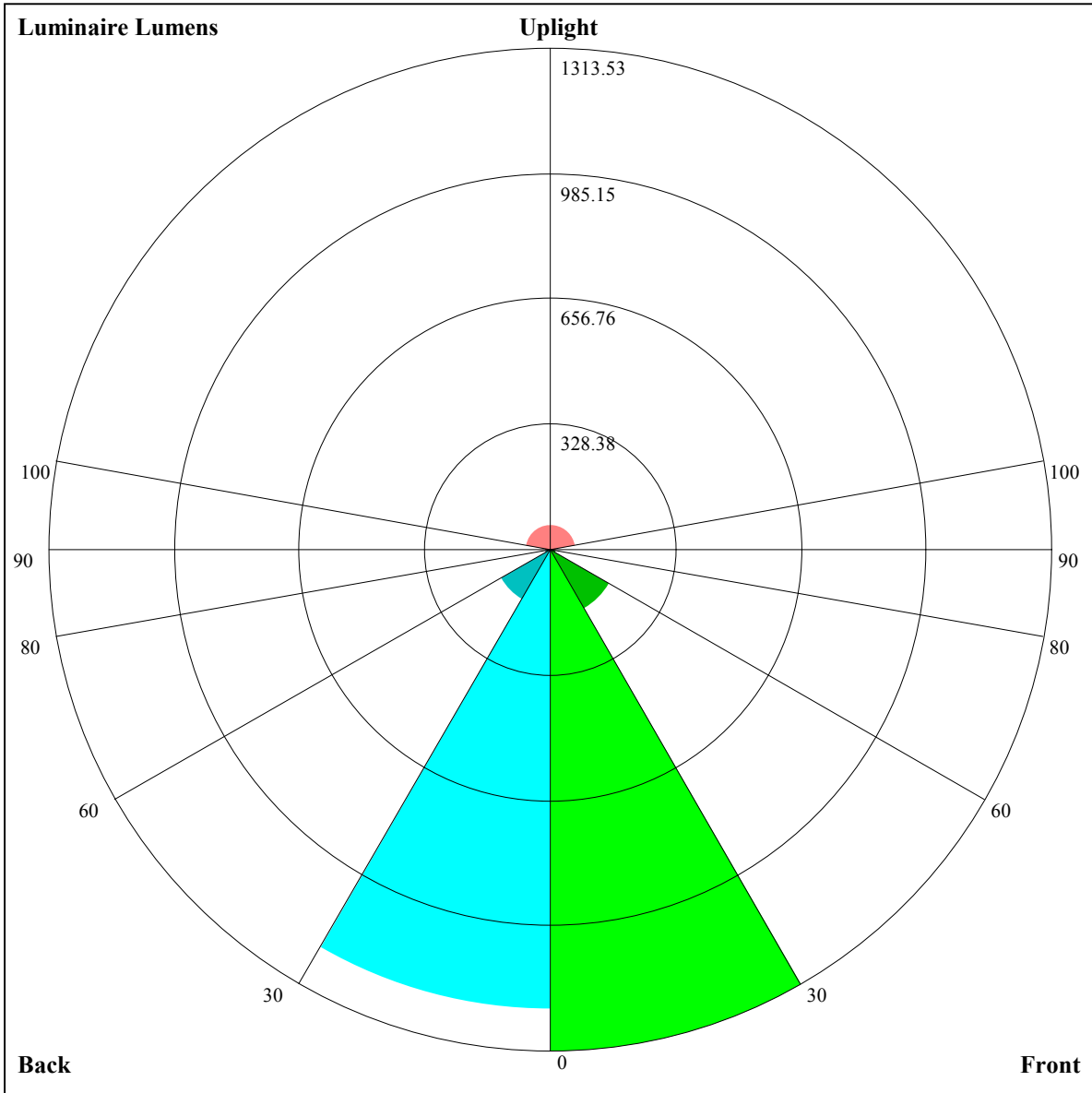
Luminance Limiting Curve





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	1.22	1.22	1.22	1.19	1.19	1.19	1.14	1.14	1.14	1.09	1.09	1.09	1.04	1.04	1.04	1.02
1	1.11	1.08	1.06	1.09	1.07	1.04	1.05	1.03	1.01	1.01	0.99	0.98	0.98	0.96	0.95	0.93
2	1.06	1.02	0.99	1.04	1.01	0.98	1.01	0.98	0.96	0.98	0.96	0.93	0.95	0.93	0.92	0.90
3	1.01	0.97	0.93	1.00	0.96	0.93	0.97	0.94	0.91	0.95	0.92	0.90	0.93	0.90	0.88	0.87
4	0.97	0.93	0.89	0.96	0.92	0.89	0.94	0.91	0.88	0.92	0.89	0.87	0.90	0.88	0.86	0.84
5	0.94	0.89	0.86	0.93	0.89	0.85	0.91	0.88	0.85	0.90	0.86	0.84	0.88	0.85	0.83	0.82
6	0.91	0.86	0.83	0.90	0.86	0.82	0.89	0.85	0.82	0.87	0.84	0.81	0.86	0.83	0.81	0.80
7	0.88	0.83	0.80	0.87	0.83	0.80	0.86	0.82	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.78
8	0.86	0.81	0.78	0.85	0.81	0.78	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.77	0.76
9	0.83	0.79	0.76	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.74
10	0.81	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.74	0.79	0.76	0.73	0.72





Luminaire Lumens:

FL=1313.53,FM=178.17,FH=14.45,FVH=7.16

BL=1202.7,BM=151.05,BH=14.44,BVH=7.15

UL=14.13,UH=67.25

BUG Rating:B3-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	13505.33	12365.67	9249.48	3953.05	1529.47	1116.54	959.08	735.55	114.41
45.0	13615.45	11391.17	7228.91	2967.54	1234.92	1021.30	895.77	315.47	24.56
90.0	12932.75	10246.55	5225.40	1555.89	1089.51	976.26	751.69	118.87	19.55
135.0	13670.50	11011.28	6705.87	2813.38	1198.03	1007.53	881.45	281.34	22.68
180.0	13505.33	10843.36	6068.32	1992.49	1167.75	996.08	877.76	214.17	24.61
225.0	13615.45	11837.13	8971.44	3443.23	1381.37	1041.06	917.51	545.44	31.60
270.0	12932.75	13285.11	10477.23	5417.55	2131.23	1135.26	960.18	792.81	300.61
315.0	13670.50	12426.23	9603.49	4284.49	1515.70	1090.28	937.72	656.55	62.93
360.0	13505.33	12365.67	9249.48	3953.05	1529.47	1116.54	959.08	735.55	114.41
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	22.19	19.32	17.29	15.86	14.92	14.26	13.76	13.43	13.27
45.0	17.45	16.19	15.69	15.53	14.76	13.76	13.16	12.99	12.94
90.0	16.85	15.80	14.92	14.37	13.82	13.49	13.27	13.16	13.10
135.0	18.28	17.12	16.85	16.57	15.36	14.15	13.60	13.38	13.16
180.0	20.48	18.61	16.85	15.64	14.81	14.09	13.65	13.38	13.21
225.0	18.77	16.52	15.64	15.69	15.09	14.04	13.21	12.99	12.94
270.0	20.10	17.29	15.91	15.09	14.37	13.93	13.49	13.27	13.10
315.0	21.53	17.78	16.41	16.08	15.53	14.53	13.65	13.43	13.38
360.0	22.19	19.32	17.29	15.86	14.92	14.26	13.76	13.43	13.27
C/γ(°)	90.0								
0.0	13.05								
45.0	12.72								
90.0	12.88								
135.0	13.05								
180.0	13.10								
225.0	12.72								
270.0	12.99								
315.0	13.10								
360.0	13.05								