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NATA

Client:

LumCAT: 1680-S

Luminaire: 92.70.064.00

Report No: nt0100

Test No: GC2019122417

LampCAT: LUMINUS CXM-9-AC40

Lamp flux(lm): 1077.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 33.5600

Current(A): 0.2970

Power (W): 9.9700

PF: 0.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 942.79, Efficiency(%): 87.54% , Luminous Efficacy(lm/W): 94.56

Central intensity(cd): 977.302, Maximum intensity(cd): 979.910

Angle of maximum intensity: C=0.0 $\gamma=5.0$

Beam Angle(50%Imax): [C0/180]Total=61.8

[C90/270]Total=61.8

Field angle(10%Imax): [C0/180]Total=83.6

[C90/270]Total=83.6

Maximum s/h(1/2): C0_180=0.99 C90_270=0.99

Maximum s/h(1/4): C0_180=0.91 C90_270=0.91

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.54%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.991%

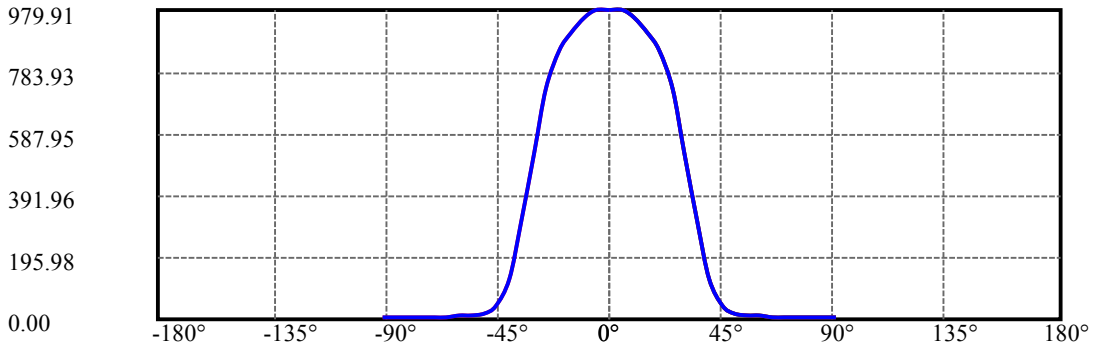
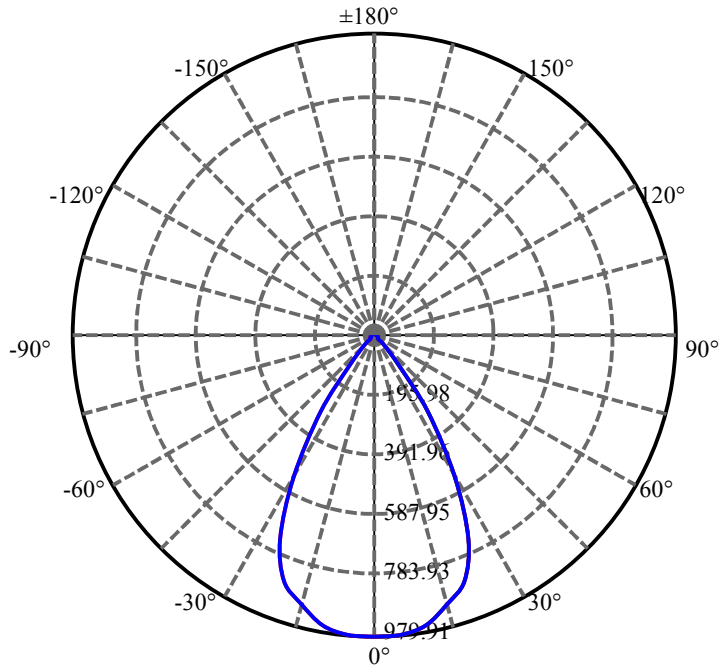
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	977.302	0.000	0	.000%	.000%
5.0	979.910	23.398	23.398	2.173%	2.482%
10.0	955.828	69.247	92.645	6.430%	9.827%
15.0	904.584	110.358	203.004	10.247%	21.532%
20.0	851.337	144.713	347.716	13.437%	36.881%
25.0	729.443	165.795	513.511	15.394%	54.467%
30.0	529.840	159.363	672.874	14.797%	71.370%
35.0	301.486	122.419	795.293	11.367%	84.355%
40.0	128.102	71.674	866.966	6.655%	91.957%
45.0	45.274	32.102	899.068	2.981%	95.362%
50.0	19.610	13.111	912.179	1.217%	96.753%
55.0	11.805	6.831	919.01	.634%	97.477%
60.0	9.134	4.840	923.85	.449%	97.991%
65.0	7.559	4.058	927.908	.377%	98.421%
70.0	6.616	3.589	931.497	.333%	98.802%
75.0	5.702	3.220	934.717	.299%	99.143%
80.0	5.266	2.935	937.652	.273%	99.455%
85.0	4.711	2.711	940.363	.252%	99.742%
90.0	4.170	2.432	942.795	.226%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	672.87	62.48%	71.37%
0-40	866.97	80.50%	91.96%
0-60	923.85	85.78%	97.99%
0-90	940.36	87.31%	99.74%
0-120	940.36	87.31%	99.74%
0-180	942.79	87.54%	100.00%
60-90	21.35	1.98%	2.26%
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%
0-33.32	754.24	70.03%	80.00%

ZONAL LUMEN SUMMARY

0-10	92.65
10-20	255.07
20-30	325.16
30-40	194.09
40-50	45.21
50-60	11.67
60-70	7.65
70-80	6.15
80-90	2.71
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: —————

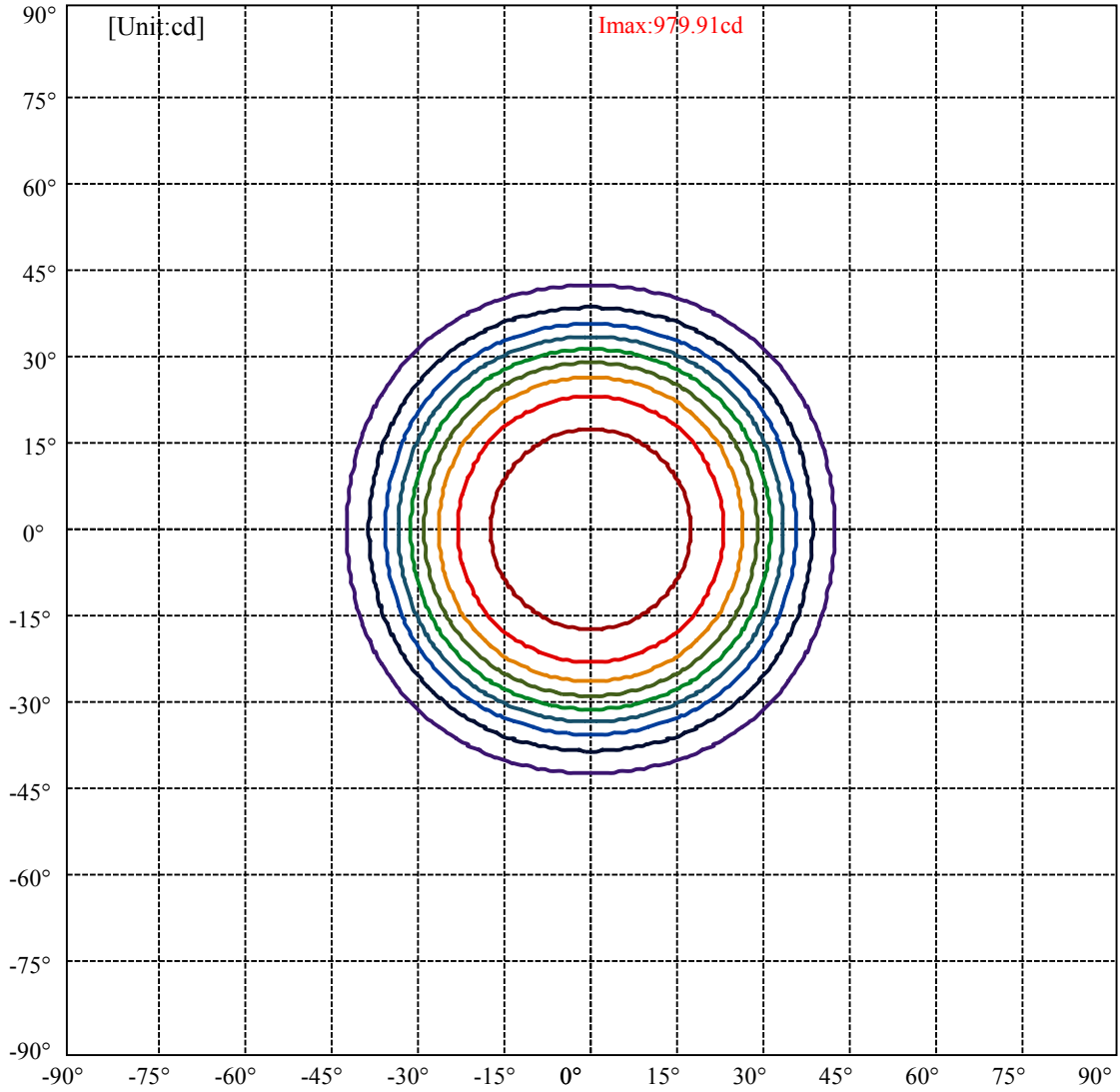
C90/C270: —————

Field angle(10%Imax):C0/180Left:41.8 Right:41.8

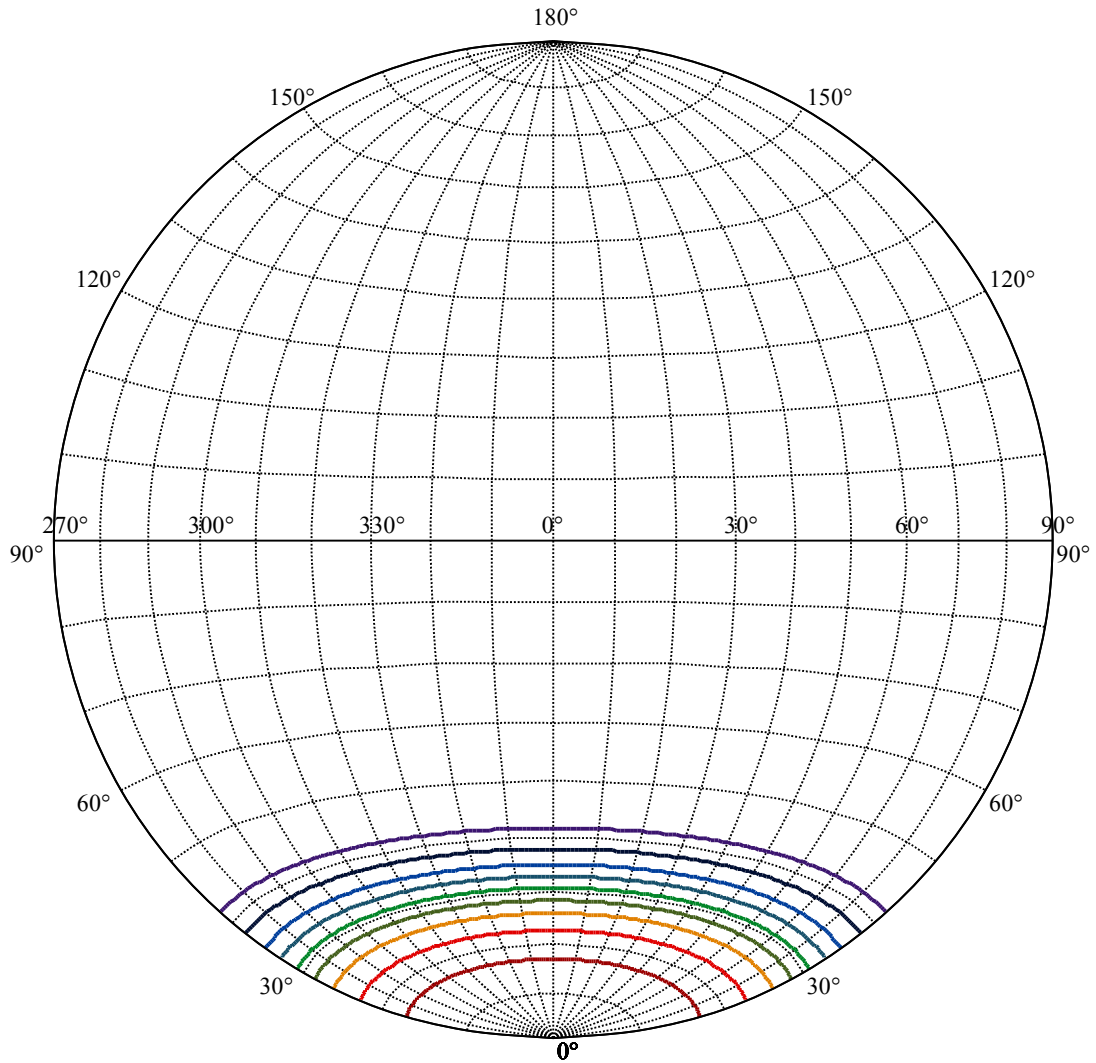
:C90/270Left:41.8 Right:41.8

Beam Angle(50%Imax):C0/180Left:30.9 Right:30.9

:C90/270Left:30.9 Right:30.9



(10%Imax) 97.991	—
(20%Imax) 195.982	—
(30%Imax) 293.973	—
(40%Imax) 391.964	—
(50%Imax) 489.955	—
(60%Imax) 587.946	—
(70%Imax) 685.937	—
(80%Imax) 783.928	—
(90%Imax) 881.919	—



House

[Unit:cd]

Road

Imax:979.91

(10%Imax) 97.991

(20%Imax) 195.982

(30%Imax) 293.973

(40%Imax) 391.964

(50%Imax) 489.955

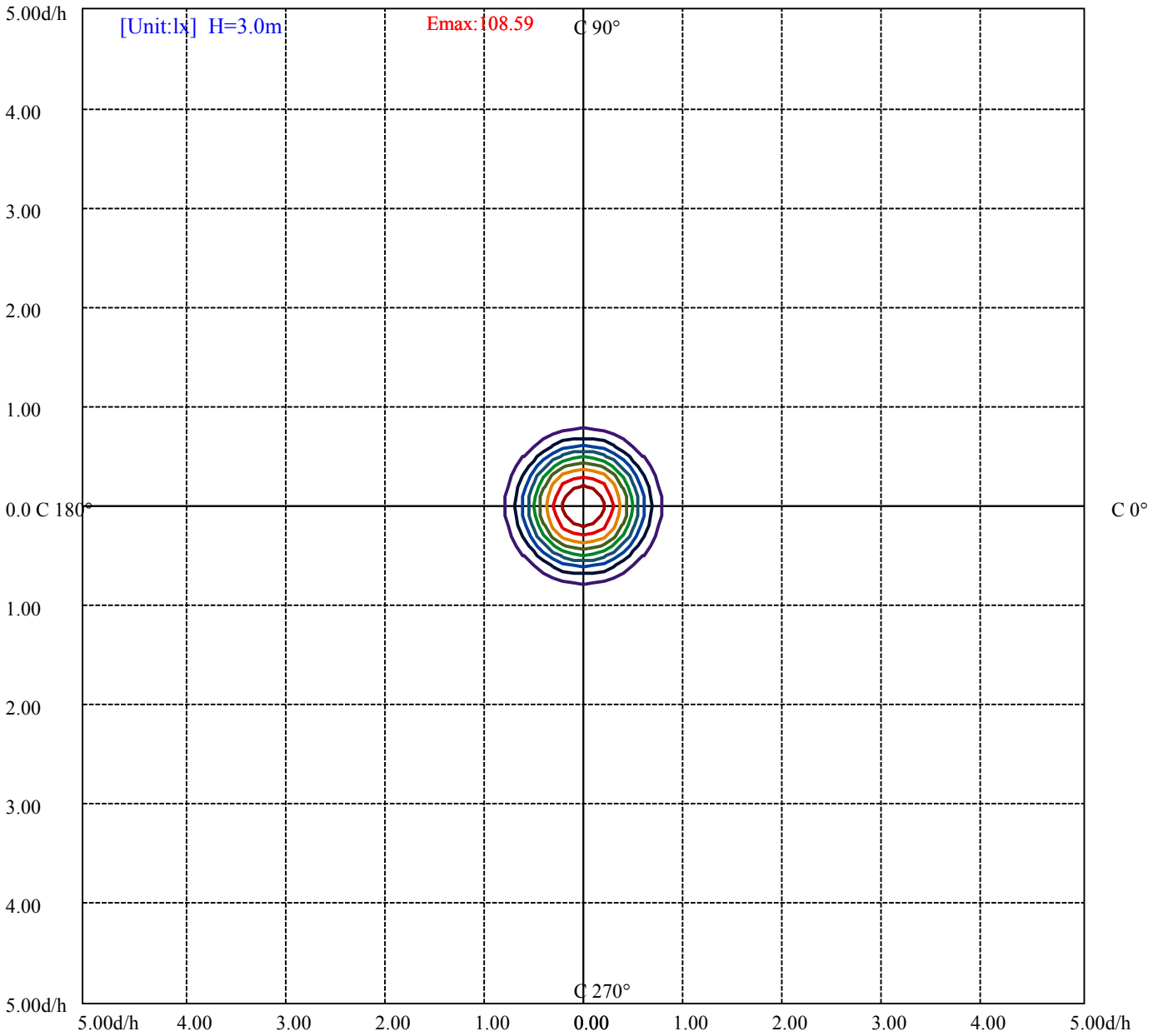
(60%Imax) 587.946

(70%Imax) 685.937

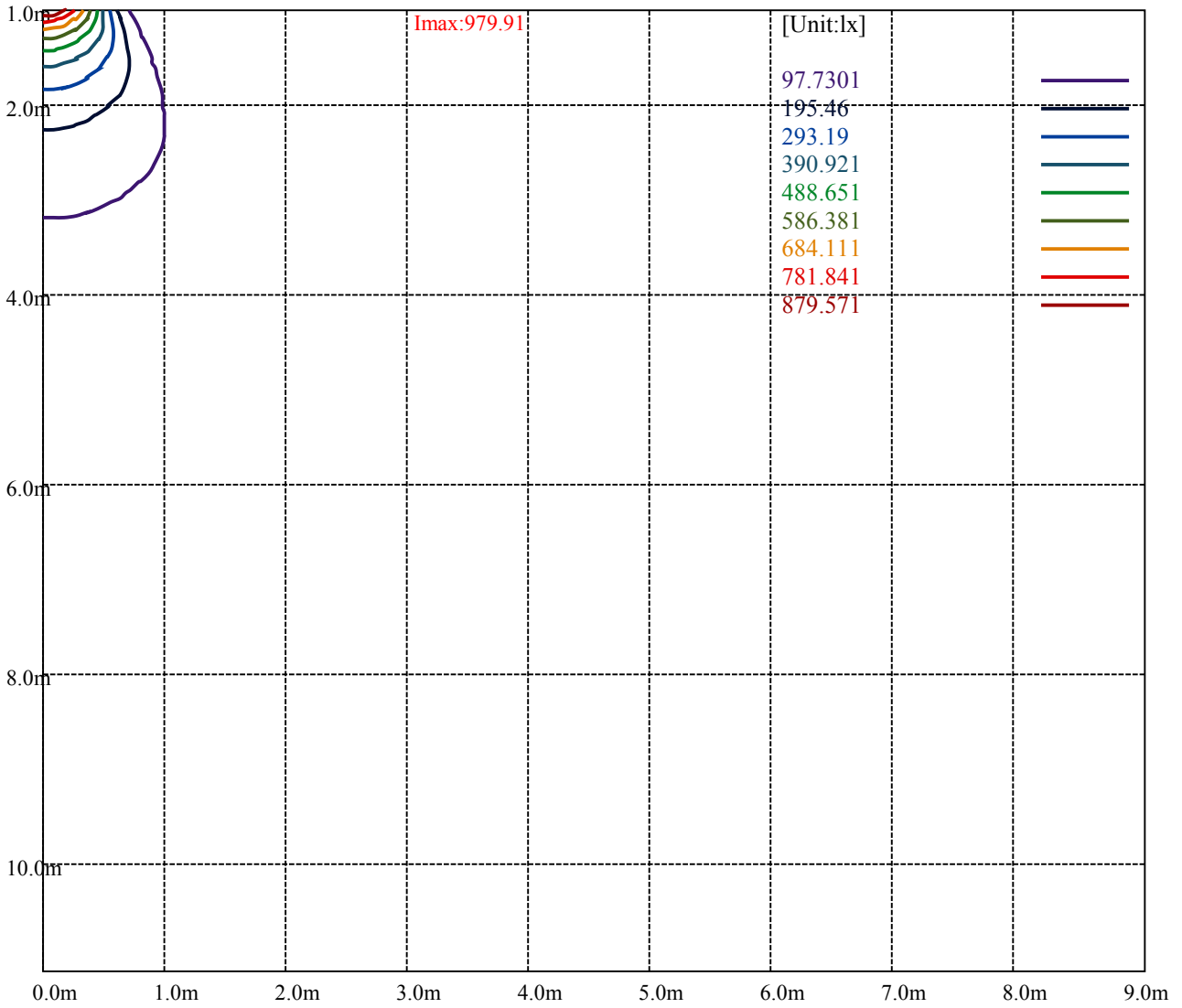
(80%Imax) 783.928

(90%Imax) 881.919





(10%Emax) 10.8589	—
(20%Emax) 21.71778	—
(30%Emax) 32.57667	—
(40%Emax) 43.43567	—
(50%Emax) 54.29456	—
(60%Emax) 65.15344	—
(70%Emax) 76.01234	—
(80%Emax) 86.87122	—
(90%Emax) 97.73011	—



Luminance Table

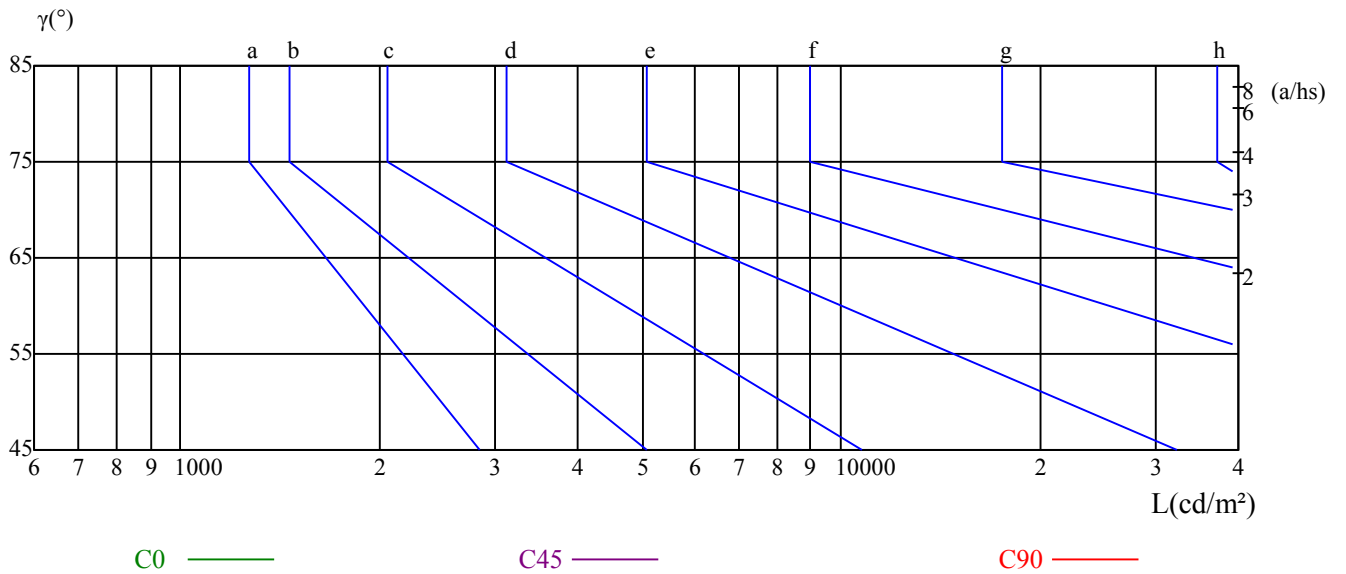
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

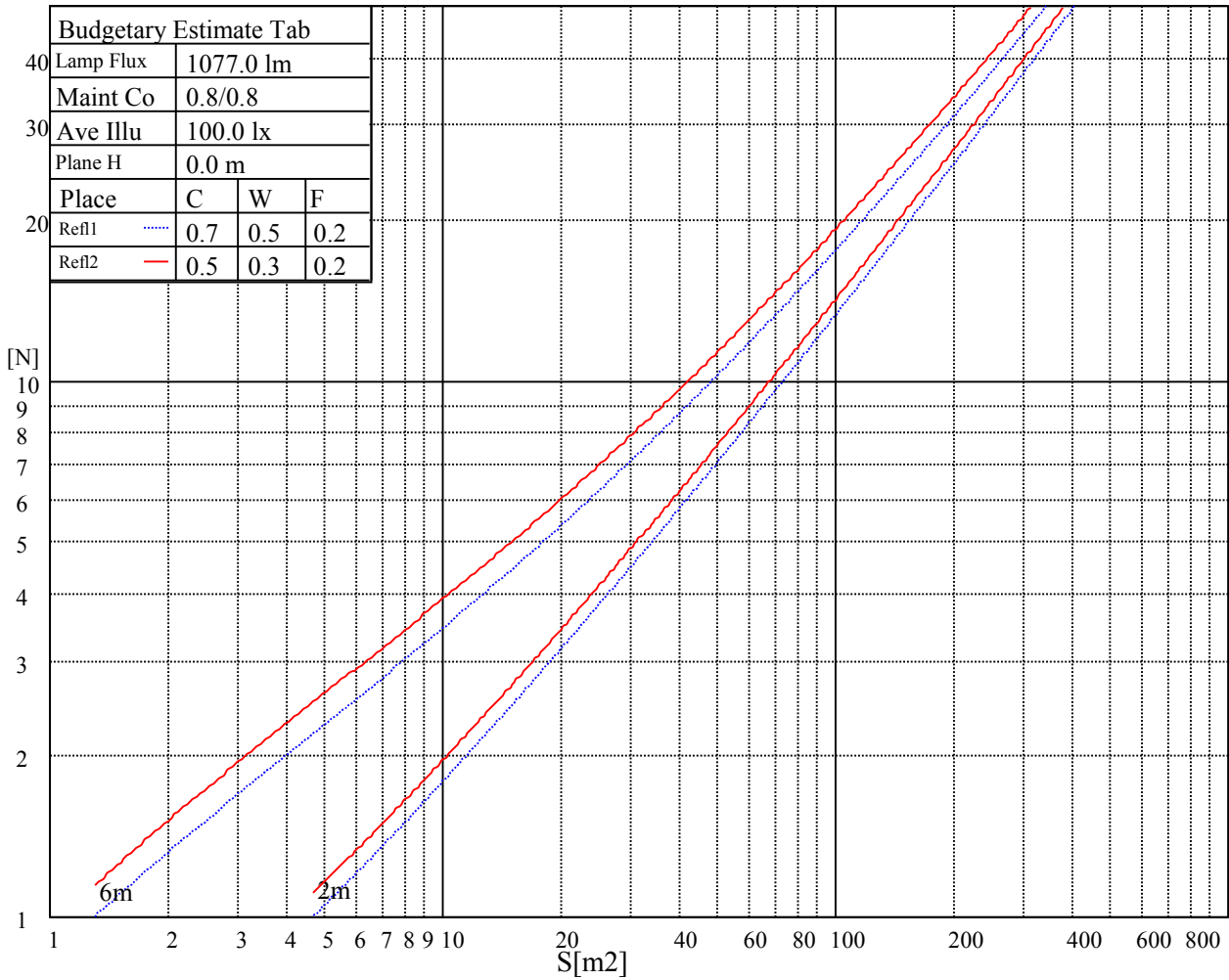
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

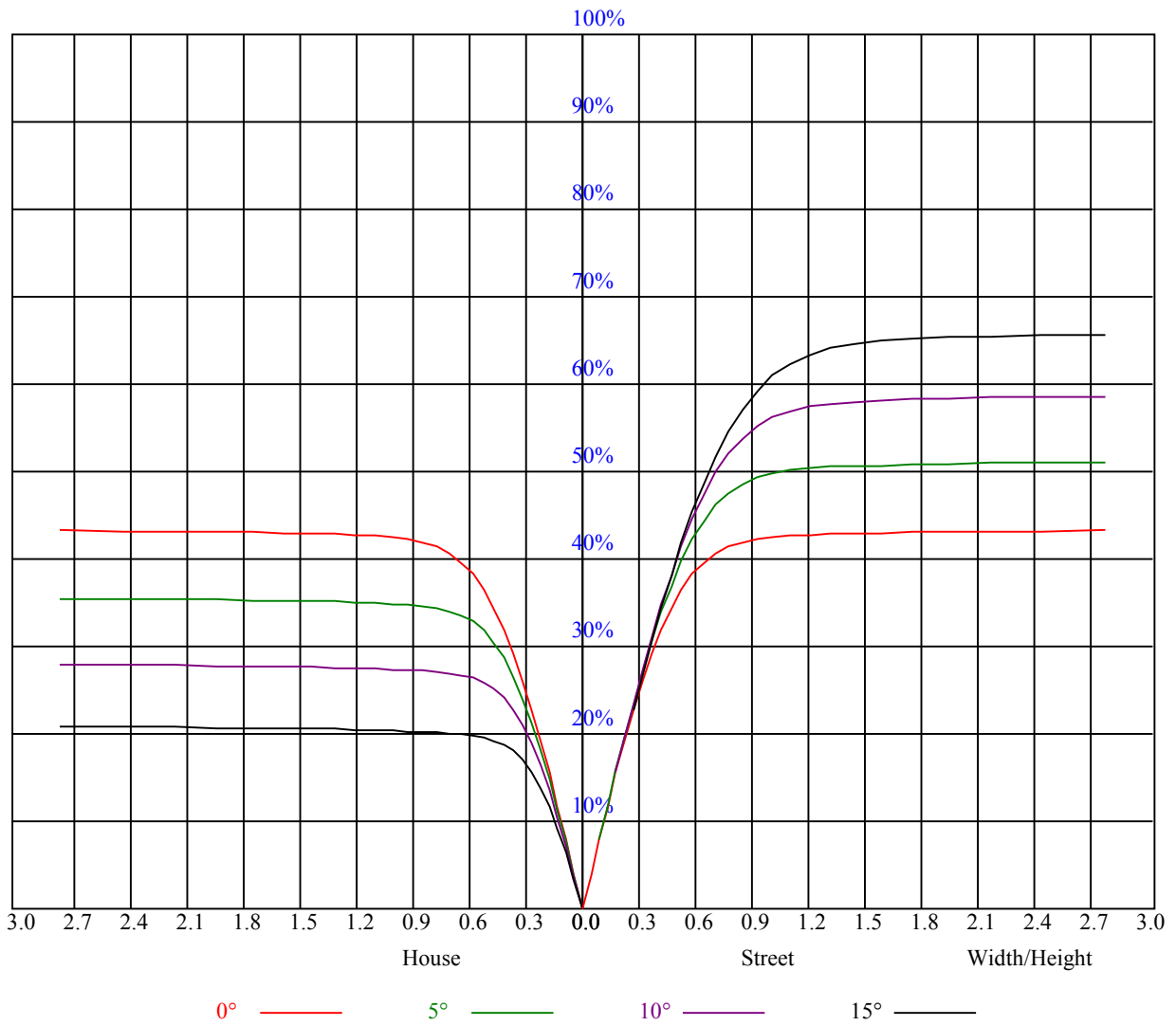
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

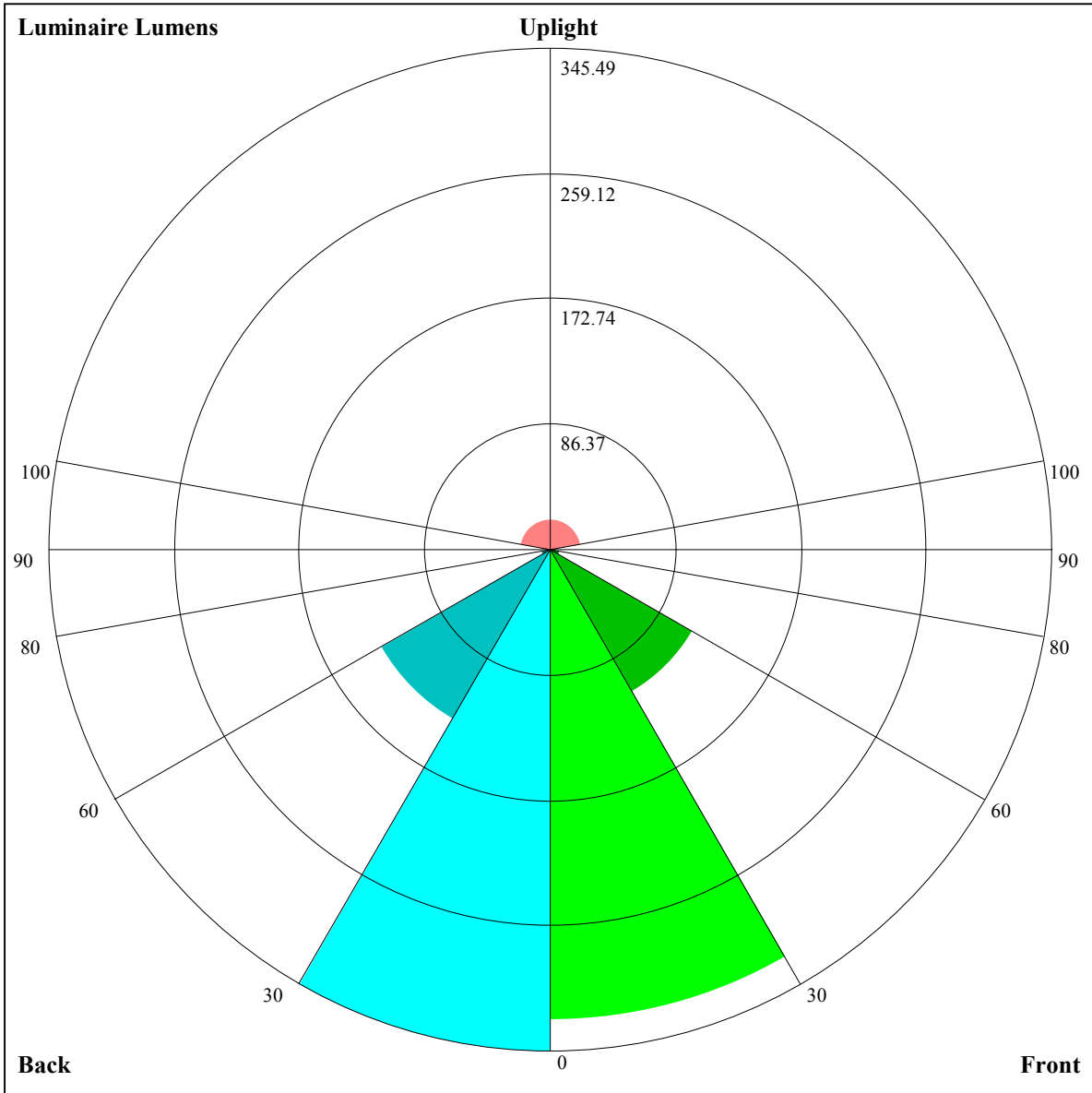
Luminance Limiting Curve





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	1.04	1.04	1.04	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.88
1	0.97	0.94	0.92	0.95	0.93	0.91	0.91	0.89	0.88	0.88	0.86	0.85	0.85	0.84	0.83	0.81
2	0.90	0.86	0.83	0.88	0.85	0.82	0.85	0.83	0.80	0.83	0.80	0.78	0.80	0.78	0.77	0.75
3	0.83	0.79	0.75	0.82	0.78	0.75	0.80	0.76	0.74	0.78	0.75	0.72	0.76	0.73	0.71	0.70
4	0.78	0.73	0.69	0.77	0.72	0.69	0.75	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.66	0.65
5	0.73	0.68	0.64	0.72	0.67	0.64	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.64	0.62	0.61
6	0.68	0.63	0.59	0.68	0.63	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
7	0.64	0.59	0.55	0.64	0.59	0.55	0.63	0.58	0.55	0.61	0.57	0.54	0.60	0.57	0.54	0.53
8	0.61	0.55	0.52	0.60	0.55	0.51	0.59	0.54	0.51	0.58	0.54	0.51	0.57	0.54	0.51	0.50
9	0.57	0.52	0.48	0.57	0.52	0.48	0.56	0.51	0.48	0.55	0.51	0.48	0.54	0.51	0.48	0.47
10	0.54	0.49	0.45	0.54	0.49	0.45	0.53	0.48	0.45	0.52	0.48	0.45	0.52	0.48	0.45	0.44





Luminaire Lumens:

FL=323.76,FM=112.38,FH=7.12,FVH=2.59

BL=345.49,BM=135.24,BH=7.1,BVH=2.6

UL=4.55,UH=21.65

BUG Rating:B1-U2-G0

NATA 1680-S

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	975.43	961.65	942.13	889.09	828.84	668.70	473.12	251.16	96.52
45.0	975.04	978.81	957.71	901.13	839.98	722.14	533.87	315.11	136.91
90.0	983.08	1000.46	966.38	916.31	856.41	755.55	555.86	339.69	149.79
135.0	975.66	1010.03	1004.18	962.49	918.90	835.03	666.06	426.09	214.37
180.0	975.43	990.34	970.93	942.02	905.29	820.07	612.84	352.46	149.12
225.0	975.04	973.07	943.54	896.01	852.36	736.71	530.55	287.83	105.75
270.0	983.08	963.56	933.19	868.50	824.57	681.69	470.19	253.80	97.09
315.0	975.66	961.37	928.58	861.13	784.35	615.66	396.23	185.74	75.26
360.0	975.43	961.65	942.13	889.09	828.84	668.70	473.12	251.16	96.52

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	43.03	21.43	13.16	9.51	7.37	6.08	5.40	4.67	4.73
45.0	48.32	18.00	10.58	8.27	6.92	6.13	5.34	5.01	4.44
90.0	48.32	16.09	10.29	9.51	9.00	8.33	6.75	5.63	4.73
135.0	72.28	26.78	12.88	9.00	7.14	6.19	5.51	4.95	4.56
180.0	45.45	20.87	13.11	9.84	7.59	6.36	5.40	4.84	4.50
225.0	35.21	16.93	10.46	8.16	6.64	5.91	5.23	5.01	5.06
270.0	36.84	19.18	12.32	10.01	8.72	7.76	6.53	5.74	5.29
315.0	32.74	17.61	11.64	8.78	7.09	6.19	5.46	6.30	4.39
360.0	43.03	21.43	13.16	9.51	7.37	6.08	5.40	4.67	4.73

C/γ(°)	90.0
0.0	4.05
45.0	4.16
90.0	4.16
135.0	4.22
180.0	4.33
225.0	4.28
270.0	4.11
315.0	4.05
360.0	4.05