



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.cn  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380 JinOu Road,GaoXin Zone,,Jiang Men City,Guangdong,China

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## Nata

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### Client:

LumCAT: 3-1703-N

Luminaire: 92.70.065.00+92.70.061.00

Report No: nata0100

Test No: GC2018052101

LampCAT: LUMINUS CHM-9 XH20

Lamp flux(lm): 1576.5

Number of Lamps: 1

Length(mm): 86

Phm Type: C

Voltage(V): 35.1000

Current(A): 0.4000

Power (W): 14.0400

PF: 0.0000

Ballast type: DC

Width(mm): 86

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1230.67, Efficiency(%): 78.06% , Luminous Efficacy(lm/W): 87.65

Central intensity(cd): 3087.150, Maximum intensity(cd): 3087.150

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

Beam Angle(50%Imax): [C0/180]Total=33.2

[C90/270]Total=33.2

Field angle(10%Imax): [C0/180]Total=59.4

[C90/270]Total=59.4

Maximum s/h(1/2): C0\_180=0.55 C90\_270=0.55

Maximum s/h(1/4): C0\_180=0.55 C90\_270=0.55

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 79.16%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.723%

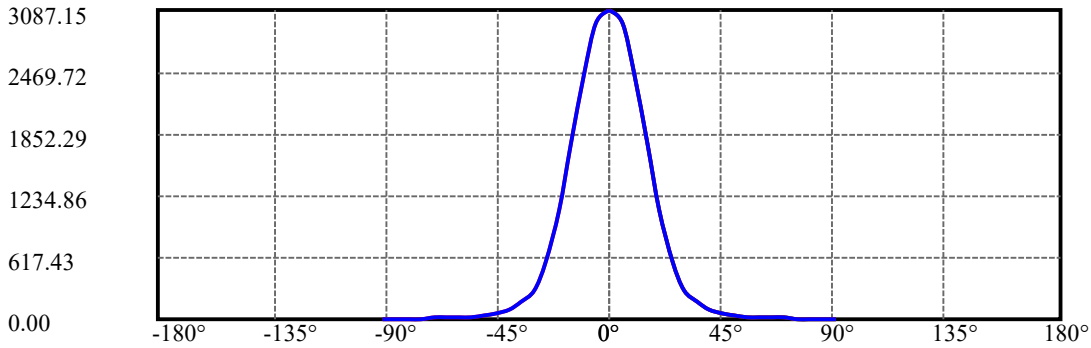
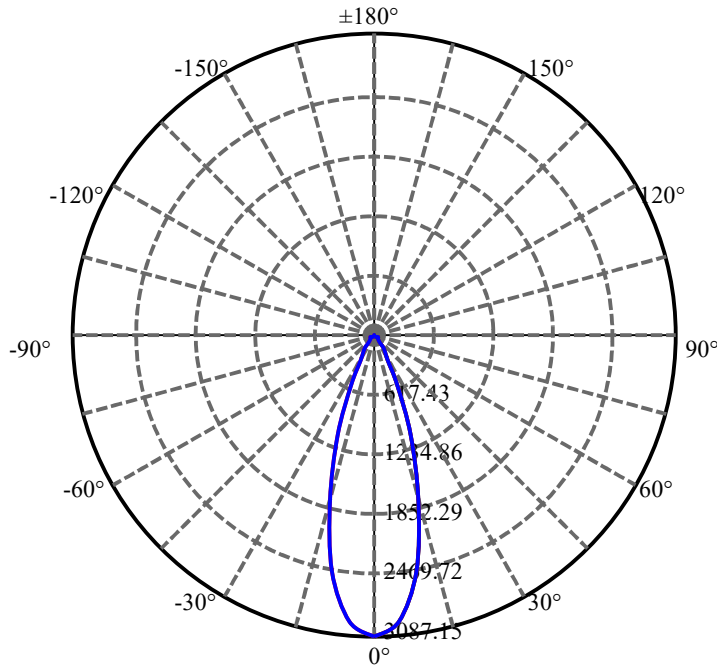
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3087.150	18.462	18.462	1.171%	1.500%
5.0	2947.444	140.809	159.271	8.932%	12.942%
10.0	2453.244	233.507	392.778	14.812%	31.916%
15.0	1750.449	248.333	641.112	15.752%	52.094%
20.0	1092.560	204.827	845.938	12.992%	68.738%
25.0	567.115	131.374	977.312	8.333%	79.413%
30.0	294.744	80.780	1058.092	5.124%	85.977%
35.0	164.275	51.648	1109.74	3.276%	90.173%
40.0	103.382	36.425	1146.165	2.311%	93.133%
45.0	64.856	25.138	1171.303	1.595%	95.176%
50.0	41.079	17.249	1188.552	1.094%	96.577%
55.0	24.562	11.029	1199.581	.700%	97.473%
60.0	15.787	7.494	1207.075	.475%	98.082%
65.0	11.569	5.747	1212.822	.365%	98.549%
70.0	9.883	5.090	1217.912	.323%	98.963%
75.0	8.396	4.445	1222.358	.282%	99.324%
80.0	7.054	3.808	1226.166	.242%	99.634%
85.0	5.774	3.153	1229.319	.200%	99.890%
90.0	4.948	1.356	1230.675	.086%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1058.09	67.12%	85.98%
0-40	1146.17	72.70%	93.13%
0-60	1207.08	76.57%	98.08%
0-90	1229.32	77.98%	99.89%
0-120	1229.32	77.98%	99.89%
0-180	1230.67	78.06%	100.00%
60-90	29.74	1.89%	2.42%
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%
0-25.45	984.54	62.45%	80.00%

ZONAL LUMEN SUMMARY

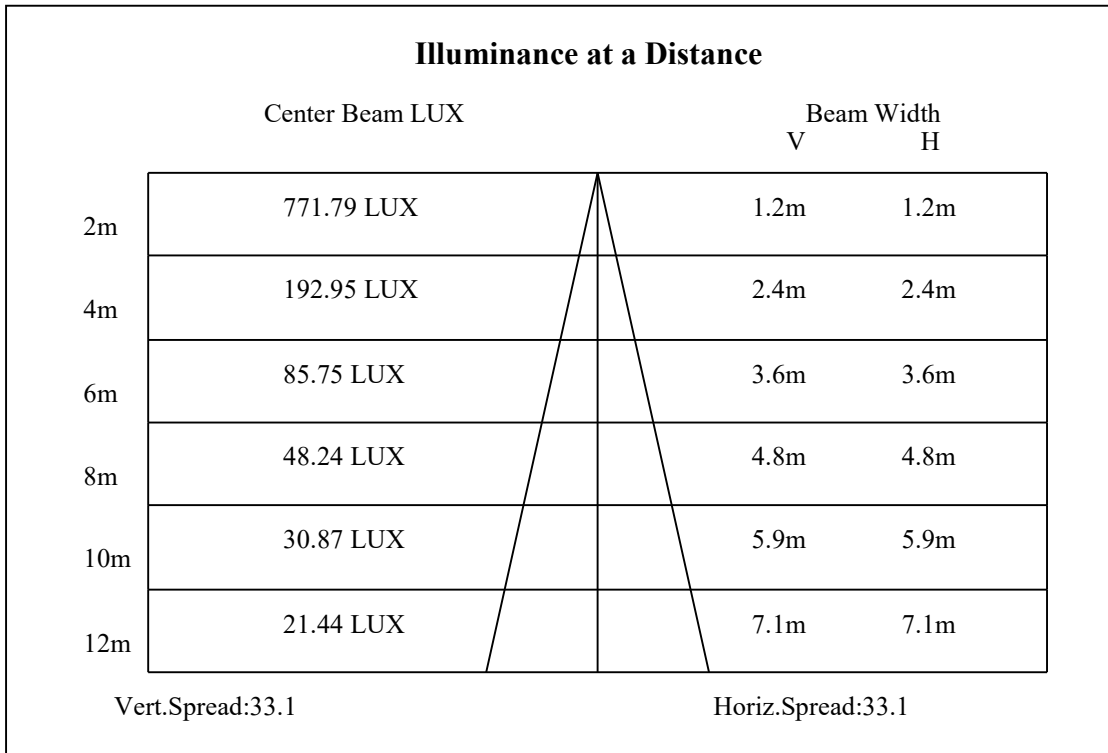
0-10	392.78
10-20	453.16
20-30	212.15
30-40	88.07
40-50	42.39
50-60	18.52
60-70	10.84
70-80	8.25
80-90	3.15
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

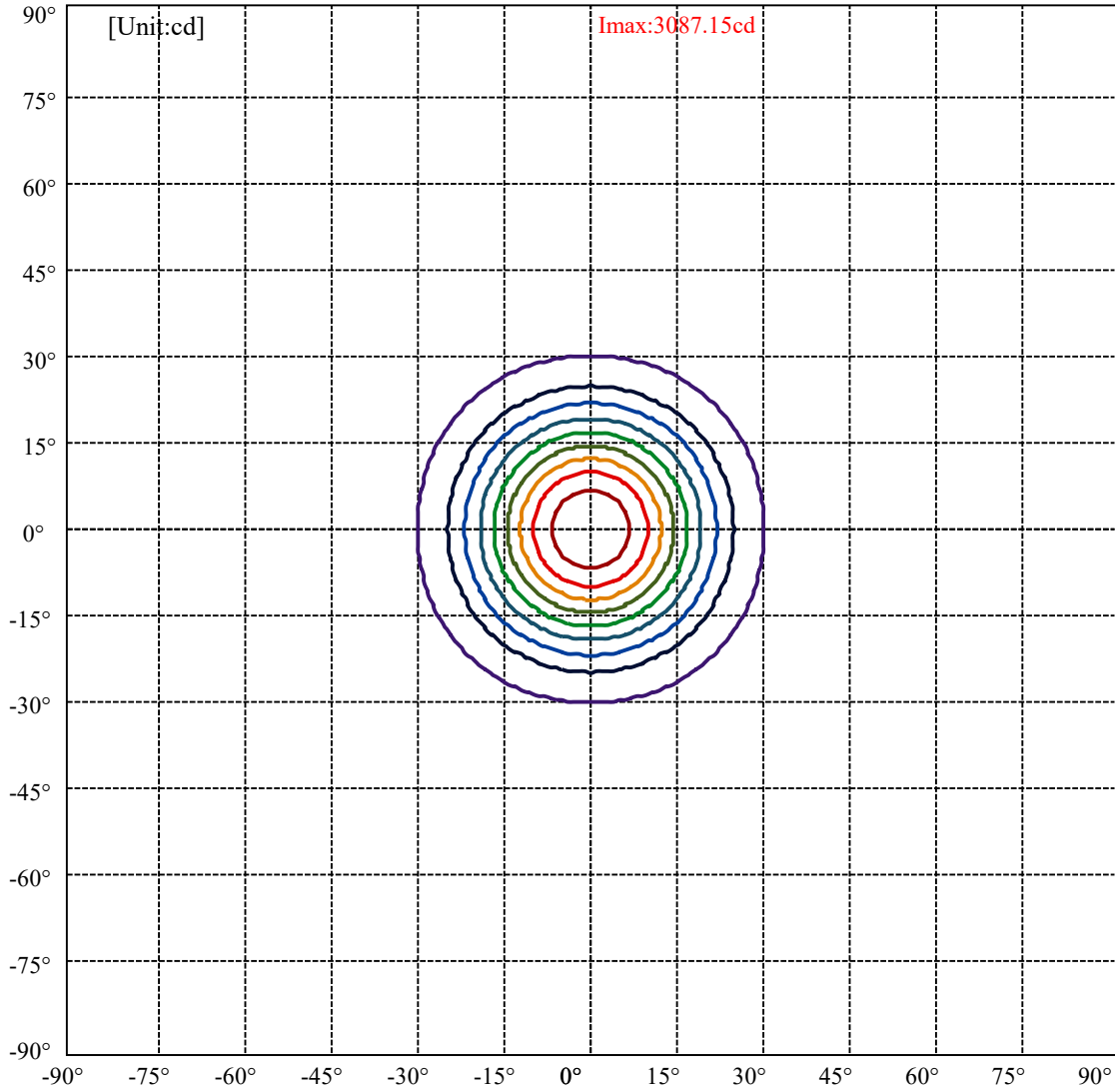


C0(Max): ———  
C0/C180: ———  
C90/C270: ———

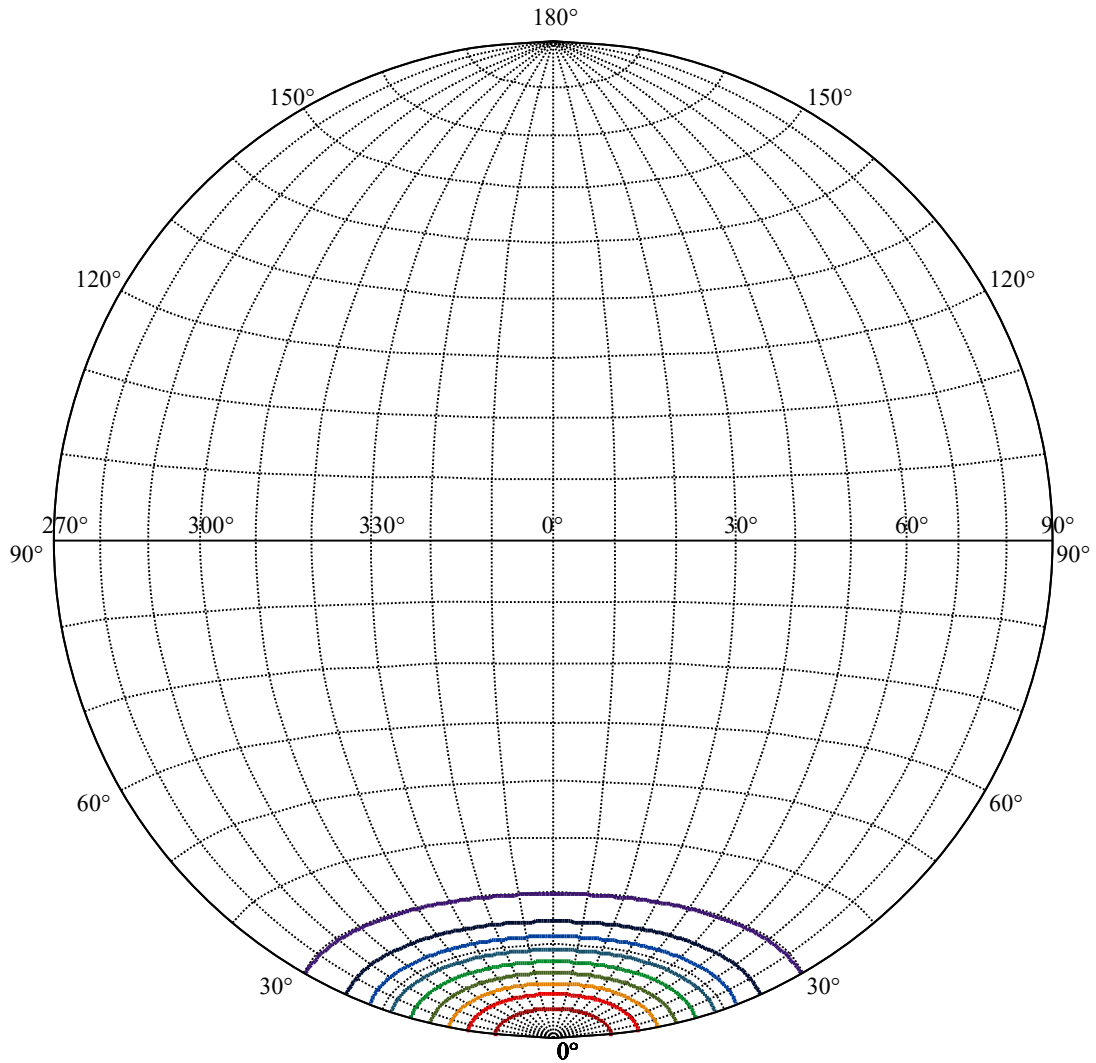
Field angle(10%Imax):C0/180Left:29.7 Right:29.7  
:C90/270Left:29.7 Right:29.7

Beam Angle(50%Imax):C0/180Left:16.6 Right:16.6  
:C90/270Left:16.6 Right:16.6





(10%Imax) 308.715	—
(20%Imax) 617.43	—
(30%Imax) 926.145	—
(40%Imax) 1234.86	—
(50%Imax) 1543.57	—
(60%Imax) 1852.29	—
(70%Imax) 2161	—
(80%Imax) 2469.72	—
(90%Imax) 2778.43	—



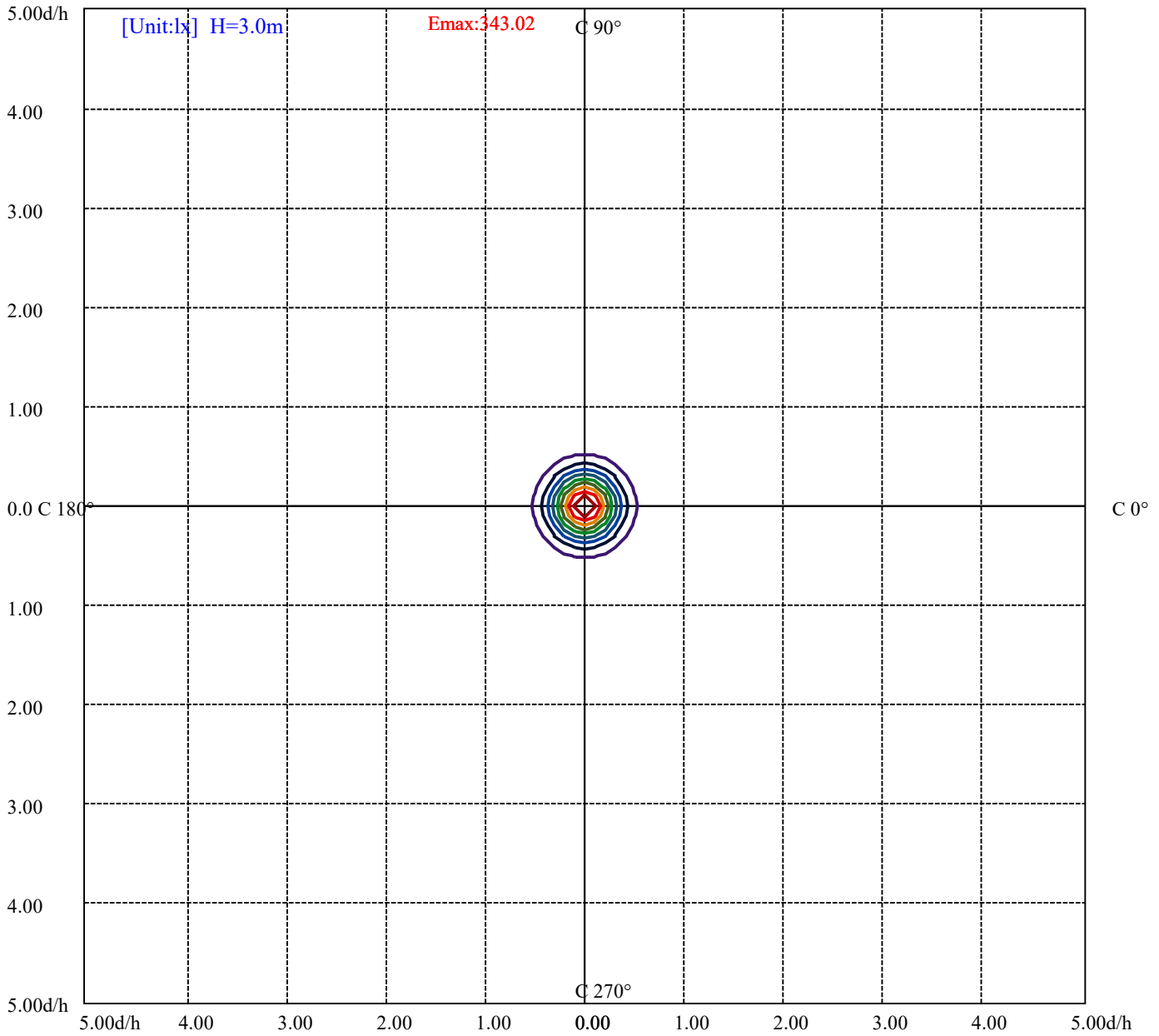
House

[Unit:cd]

Road

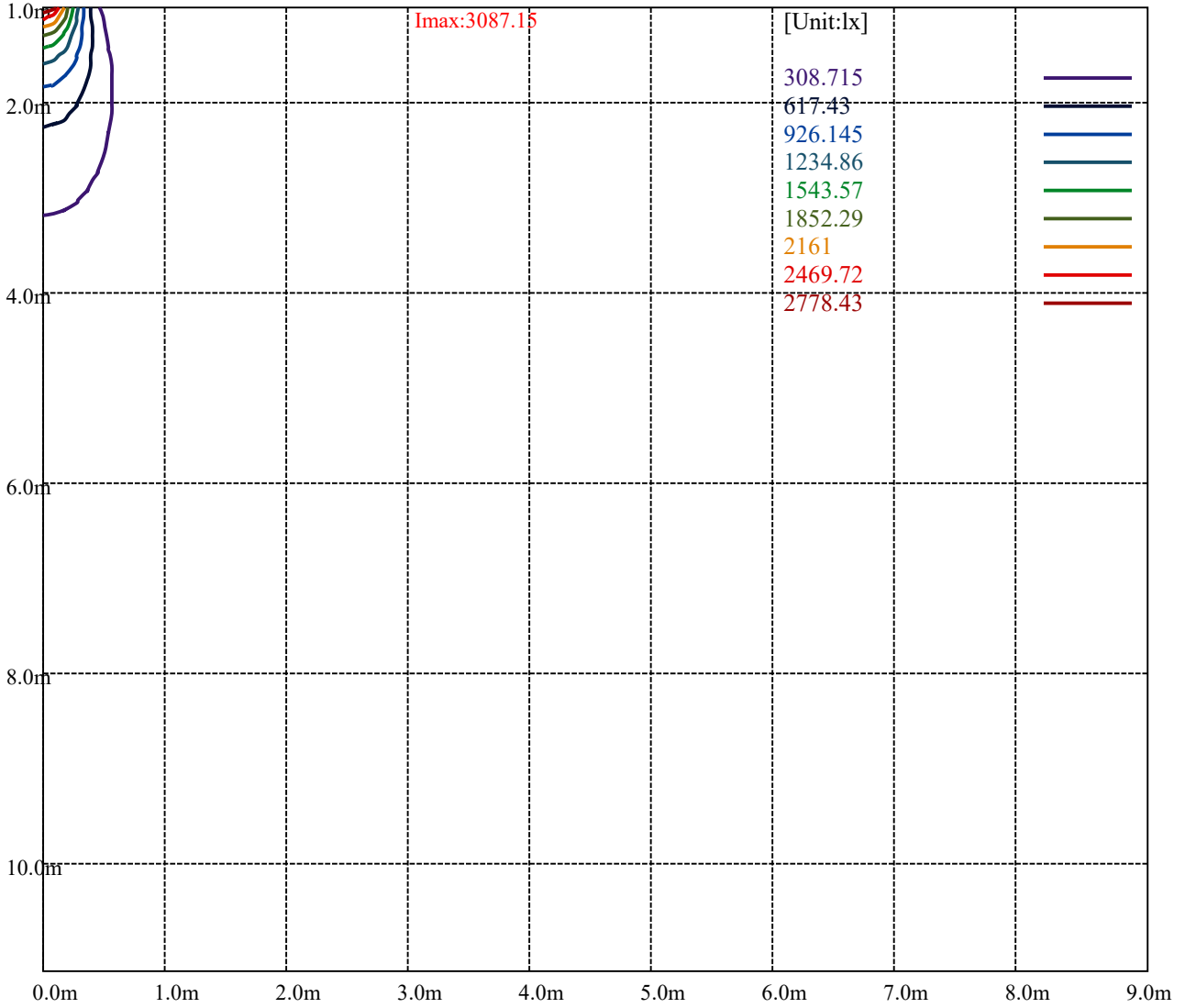
Imax:3087.15

(10%Imax) 308.715	—
(20%Imax) 617.43	—
(30%Imax) 926.145	—
(40%Imax) 1234.86	—
(50%Imax) 1543.57	—
(60%Imax) 1852.29	—
(70%Imax) 2161	—
(80%Imax) 2469.72	—
(90%Imax) 2778.43	—



- (10%Emax) 34.30167
- (20%Emax) 68.60323
- (30%Emax) 102.9049
- (40%Emax) 137.2067
- (50%Emax) 171.5078
- (60%Emax) 205.81
- (70%Emax) 240.1111
- (80%Emax) 274.4133
- (90%Emax) 308.7144





Luminance Table

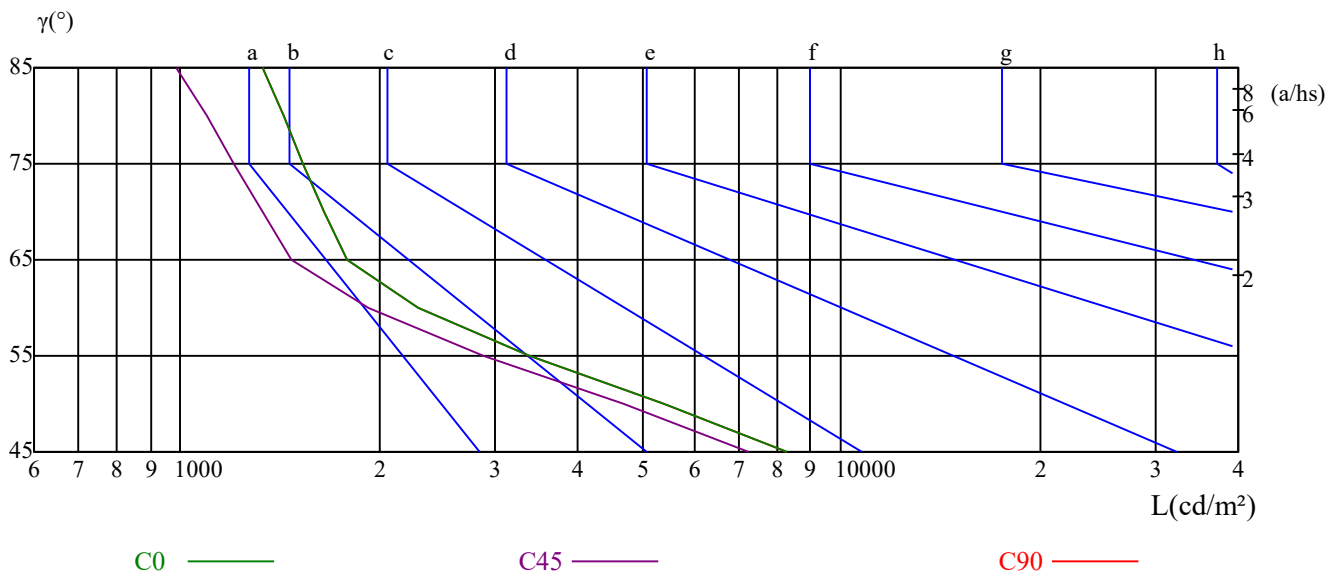
$\gamma$	45	50	55	60	65	70	75	80	85
C0	8268	5414	3378	2288	1786	1646	1530	1432	1334
C45	7265	4689	2881	1919	1471	1328	1205	1096	986
C90	8268	5414	3378	2288	1786	1646	1530	1432	1334

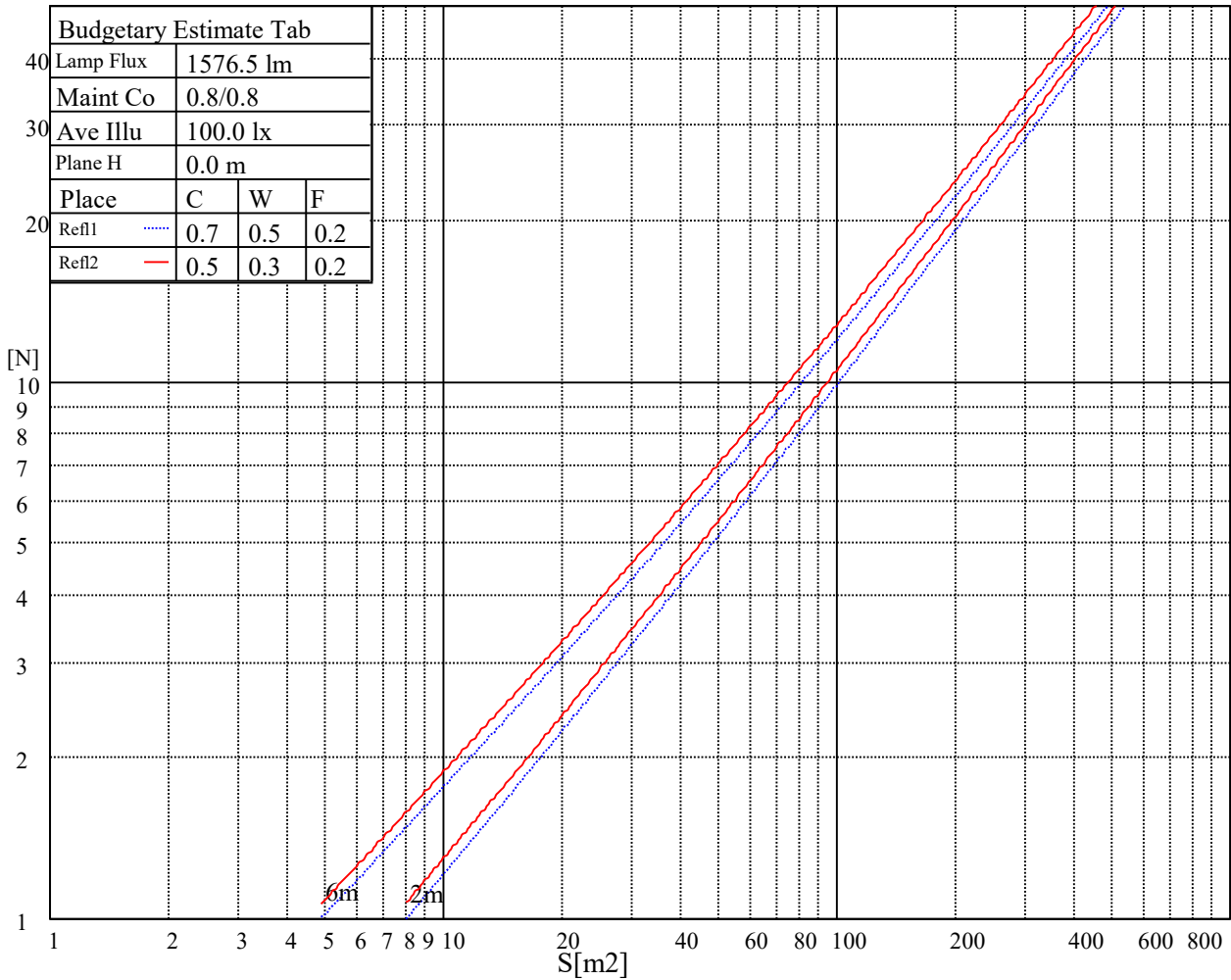
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3701	3701	3701	4386	4386	4386	8957	8957	8957

Glare Table

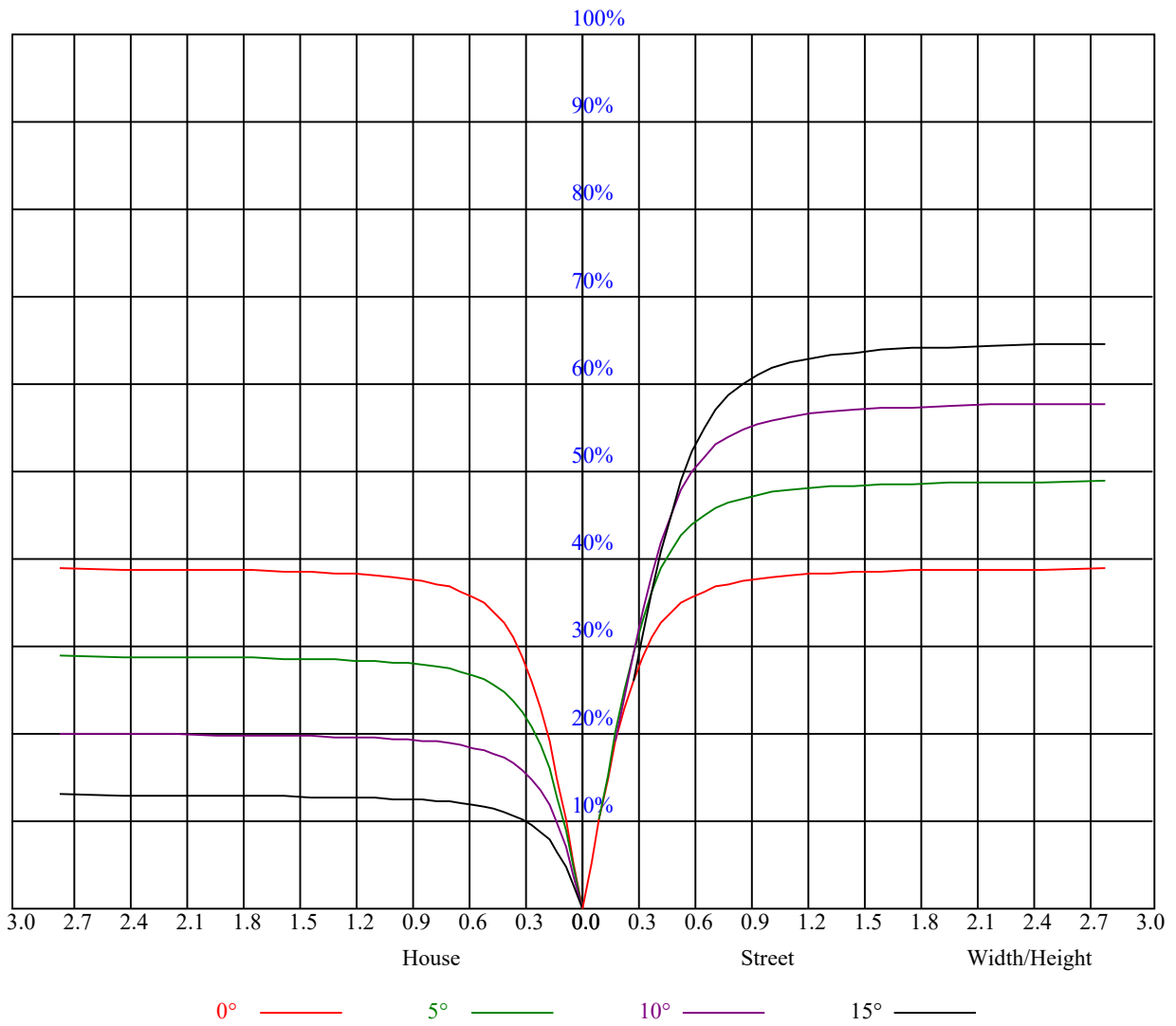
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

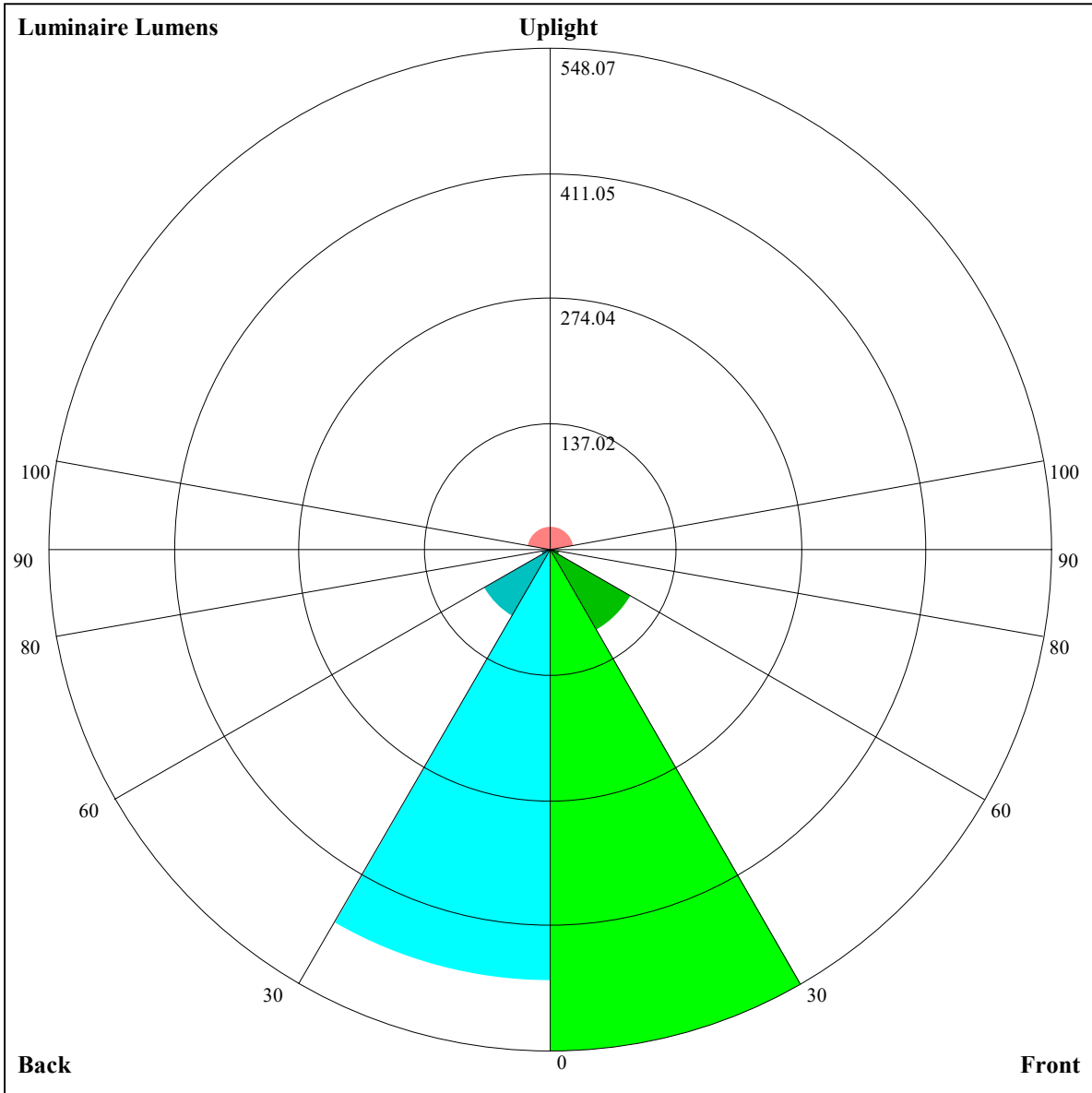
Luminance Limiting Curve





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	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.81	0.81	0.81	0.79
1	0.87	0.85	0.83	0.85	0.83	0.82	0.82	0.81	0.79	0.79	0.78	0.77	0.76	0.75	0.75	0.73
2	0.82	0.79	0.76	0.81	0.78	0.76	0.78	0.76	0.74	0.76	0.74	0.72	0.74	0.72	0.71	0.70
3	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.71	0.69	0.68	0.66
4	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.66	0.70	0.68	0.65	0.69	0.66	0.65	0.64
5	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.66	0.64	0.62	0.61
6	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59
7	0.65	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.57
8	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55
9	0.61	0.57	0.54	0.60	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.53
10	0.59	0.55	0.53	0.58	0.55	0.52	0.58	0.55	0.52	0.57	0.54	0.52	0.57	0.54	0.52	0.51





Luminaire Lumens:

FL=548.07,FM=101.93,FH=10.86,FVH=3.3

BL=470.75,BM=85.16,BH=10.11,BVH=3.12

UL=5.4,UH=25.69

BUG Rating:B1-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	3077.10	3096.37	2775.39	2088.84	1387.97	817.04	376.59	207.89	129.05
45.0	3078.75	3084.81	2732.45	2081.13	1427.06	800.52	379.34	210.87	129.27
90.0	3098.02	2989.01	2544.16	1904.95	1068.81	623.51	313.05	175.30	111.32
135.0	3094.72	2936.16	2458.82	1758.50	1114.89	560.47	292.35	162.09	105.27
180.0	3077.10	2755.57	2132.33	1423.76	834.71	381.10	225.18	130.32	81.37
225.0	3078.75	2786.40	2105.36	1380.26	835.15	375.65	211.64	127.29	81.92
270.0	3098.02	2924.05	2419.73	1650.04	1010.28	472.93	284.09	146.95	92.05
315.0	3094.72	3007.18	2457.72	1716.11	1061.60	505.69	275.72	153.50	96.79
360.0	3077.10	3096.37	2775.39	2088.84	1387.97	817.04	376.59	207.89	129.05
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	78.90	50.27	29.95	18.88	12.44	10.57	9.03	7.65	6.28
45.0	78.29	51.31	30.28	18.55	12.66	10.63	9.03	7.65	6.17
90.0	69.37	43.66	25.11	16.57	11.78	9.97	8.59	7.16	5.84
135.0	65.46	41.35	26.04	16.02	11.56	9.97	8.48	6.99	5.62
180.0	52.58	32.76	19.32	13.10	10.79	9.25	7.76	6.50	5.34
225.0	51.37	31.71	19.43	12.88	10.57	9.25	7.82	6.55	5.40
270.0	59.68	37.66	22.52	14.81	11.29	9.69	8.20	6.88	5.67
315.0	63.20	39.92	23.84	15.47	11.45	9.74	8.26	7.05	5.89
360.0	78.90	50.27	29.95	18.88	12.44	10.57	9.03	7.65	6.28
C/ $\gamma$ (°)	90.0								
0.0	5.07								
45.0	5.07								
90.0	4.90								
135.0	4.90								
180.0	4.96								
225.0	4.90								
270.0	4.90								
315.0	4.90								
360.0	5.07								