
Nata

Client:

LumCAT: 2-1652-A

Luminaire: 92.70.131.00+92.70.148.00

Report No: NT2018031204

Test No: nata-0100

LampCAT: CITIZEN CLU721

Lamp flux(lm): 1963.0

Number of Lamps: 1

Length(mm): 70

Phm Type: C

Voltage(V): 35.2200

Current(A): 0.5000

Power (W): 17.6100

PF: 0.0000

Ballast type: DC

Width(mm): 70

Height(mm): 0

Photometric Results

Lumens(lm): 1666.33, Efficiency(%): 84.89% , Luminous Efficacy(lm/W): 94.62

Central intensity(cd): 3230.021, Maximum intensity(cd): 3230.021

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=40.4

[C90/270]Total=40.4

Field angle(10%Imax): [C0/180]Total=67.8

[C90/270]Total=67.8

Maximum s/h(1/2): C0_180=0.66 C90_270=0.66

Maximum s/h(1/4): C0_180=0.63 C90_270=0.63

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 85.79%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.219%

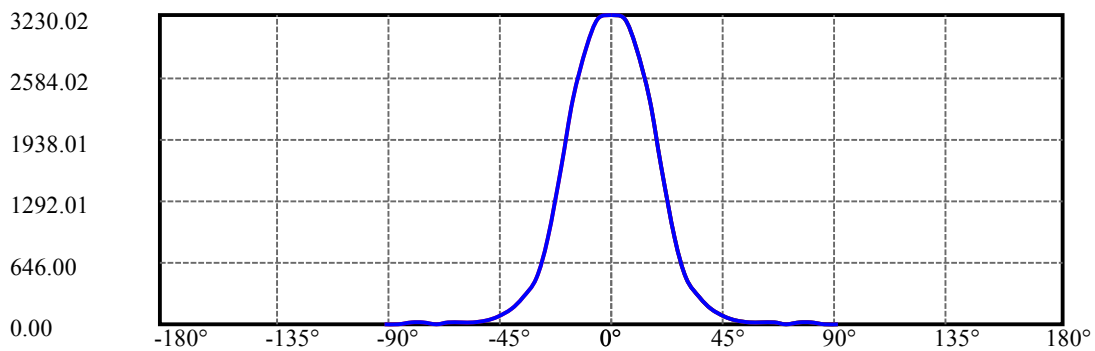
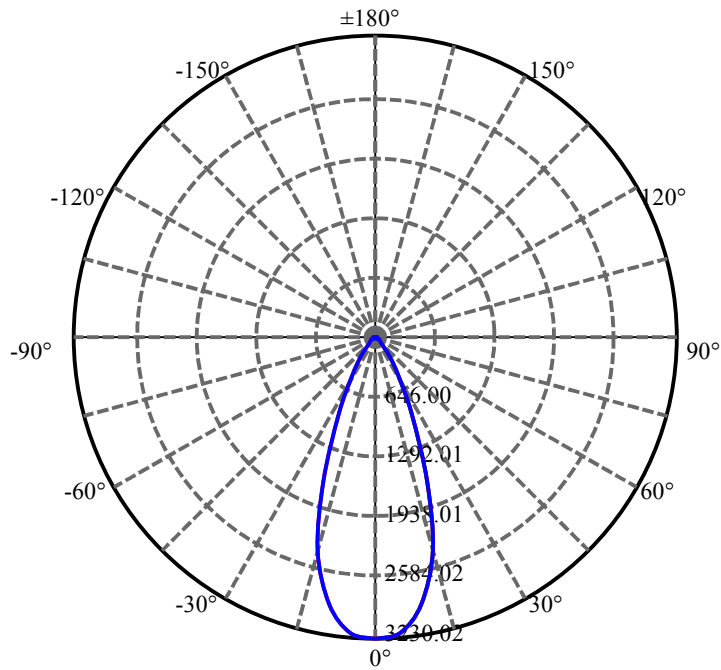
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3230.021	19.316	19.316	.984%	1.159%
5.0	3182.742	152.050	171.366	7.746%	10.284%
10.0	2898.719	275.909	447.275	14.055%	26.842%
15.0	2356.896	334.369	781.644	17.034%	46.908%
20.0	1637.377	306.966	1088.61	15.638%	65.330%
25.0	901.204	208.767	1297.377	10.635%	77.858%
30.0	481.530	131.972	1429.349	6.723%	85.778%
35.0	278.159	87.453	1516.802	4.455%	91.027%
40.0	156.264	55.057	1571.859	2.805%	94.331%
45.0	83.830	32.492	1604.351	1.655%	96.281%
50.0	43.323	18.191	1622.542	.927%	97.372%
55.0	19.628	8.813	1631.355	.449%	97.901%
60.0	12.353	5.864	1637.219	.299%	98.253%
65.0	10.316	5.125	1642.344	.261%	98.561%
70.0	9.917	5.108	1647.452	.260%	98.867%
75.0	10.509	5.564	1653.016	.283%	99.201%
80.0	11.562	6.241	1659.257	.318%	99.576%
85.0	9.518	5.197	1664.454	.265%	99.887%
90.0	6.841	1.875	1666.329	.096%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1429.35	72.81%	85.78%
0-40	1571.86	80.07%	94.33%
0-60	1637.22	83.40%	98.25%
0-90	1664.45	84.79%	99.89%
0-120	1664.45	84.79%	99.89%
0-180	1666.33	84.89%	100.00%
60-90	33.10	1.69%	1.99%
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%
0-26.35	1333.06	67.91%	80.00%

ZONAL LUMEN SUMMARY

0-10	447.28
10-20	641.33
20-30	340.74
30-40	142.51
40-50	50.68
50-60	14.68
60-70	10.23
70-80	11.81
80-90	5.20
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: —————

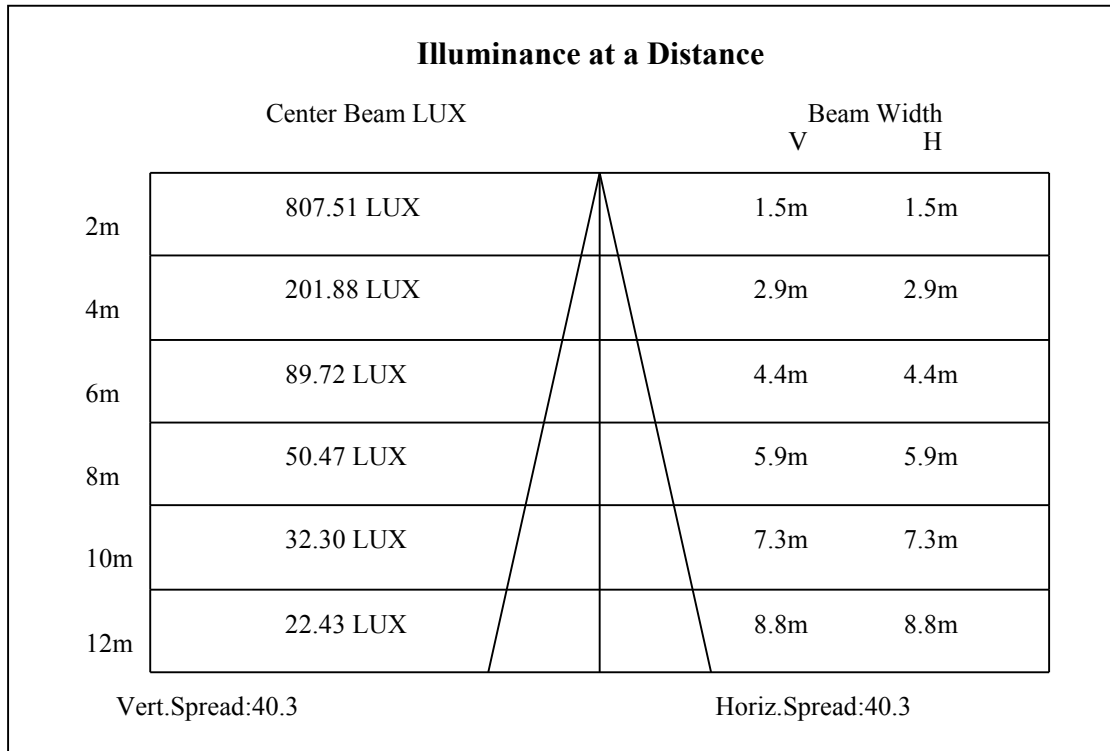
C90/C270: —————

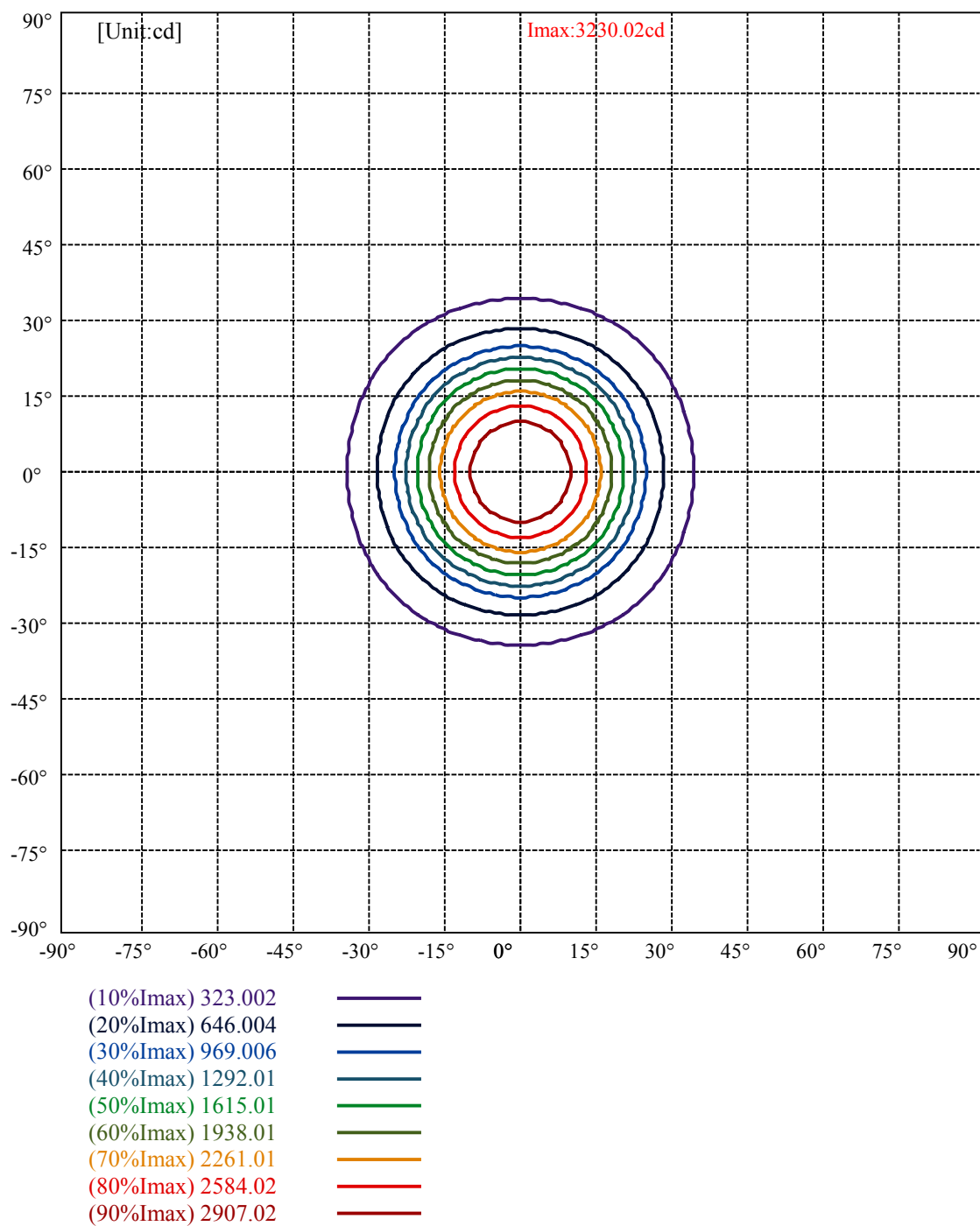
Field angle(10%Imax):C0/180Left:33.9 Right:33.9

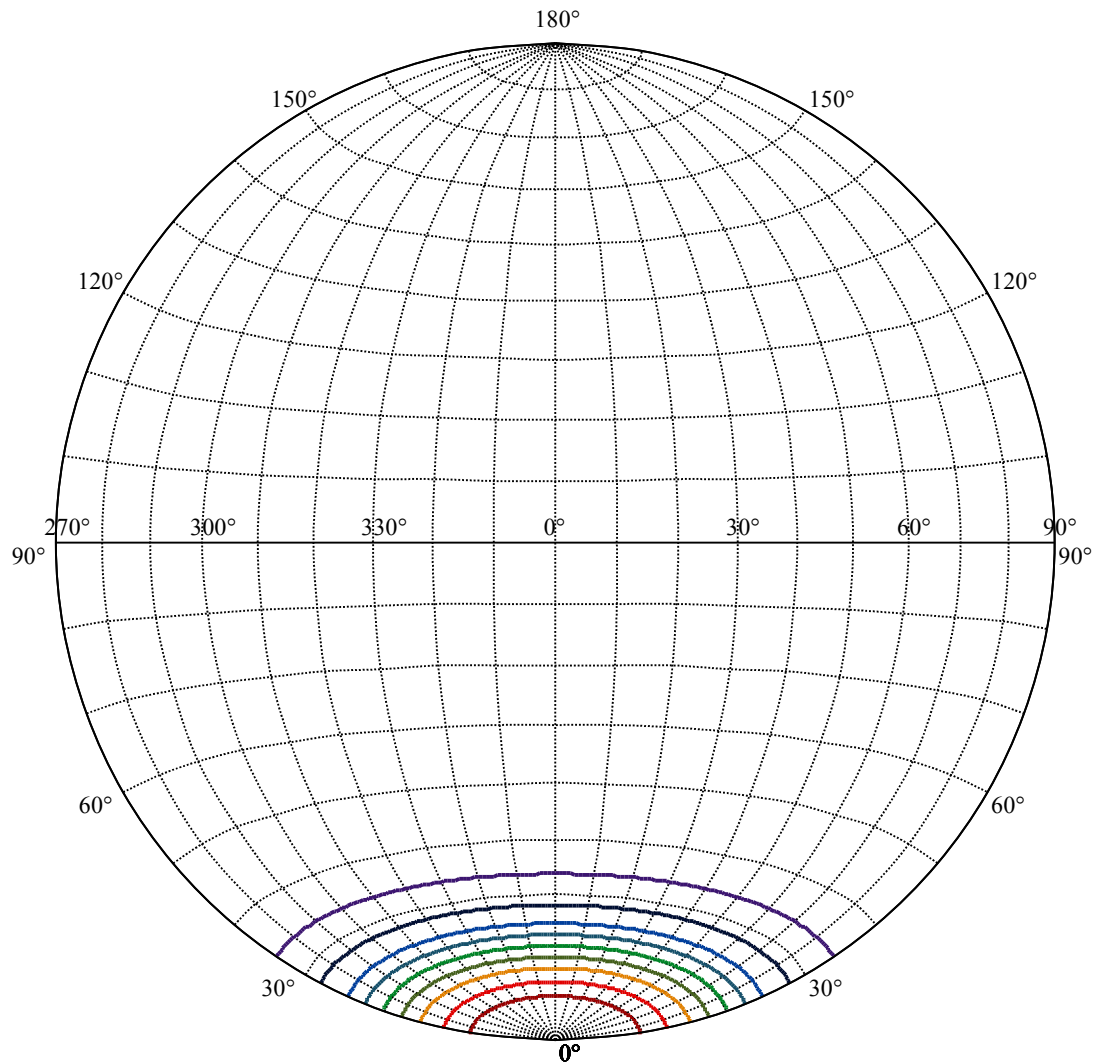
:C90/270Left:33.9 Right:33.9

Beam Angle(50%Imax):C0/180Left:20.2 Right:20.2

:C90/270Left:20.2 Right:20.2







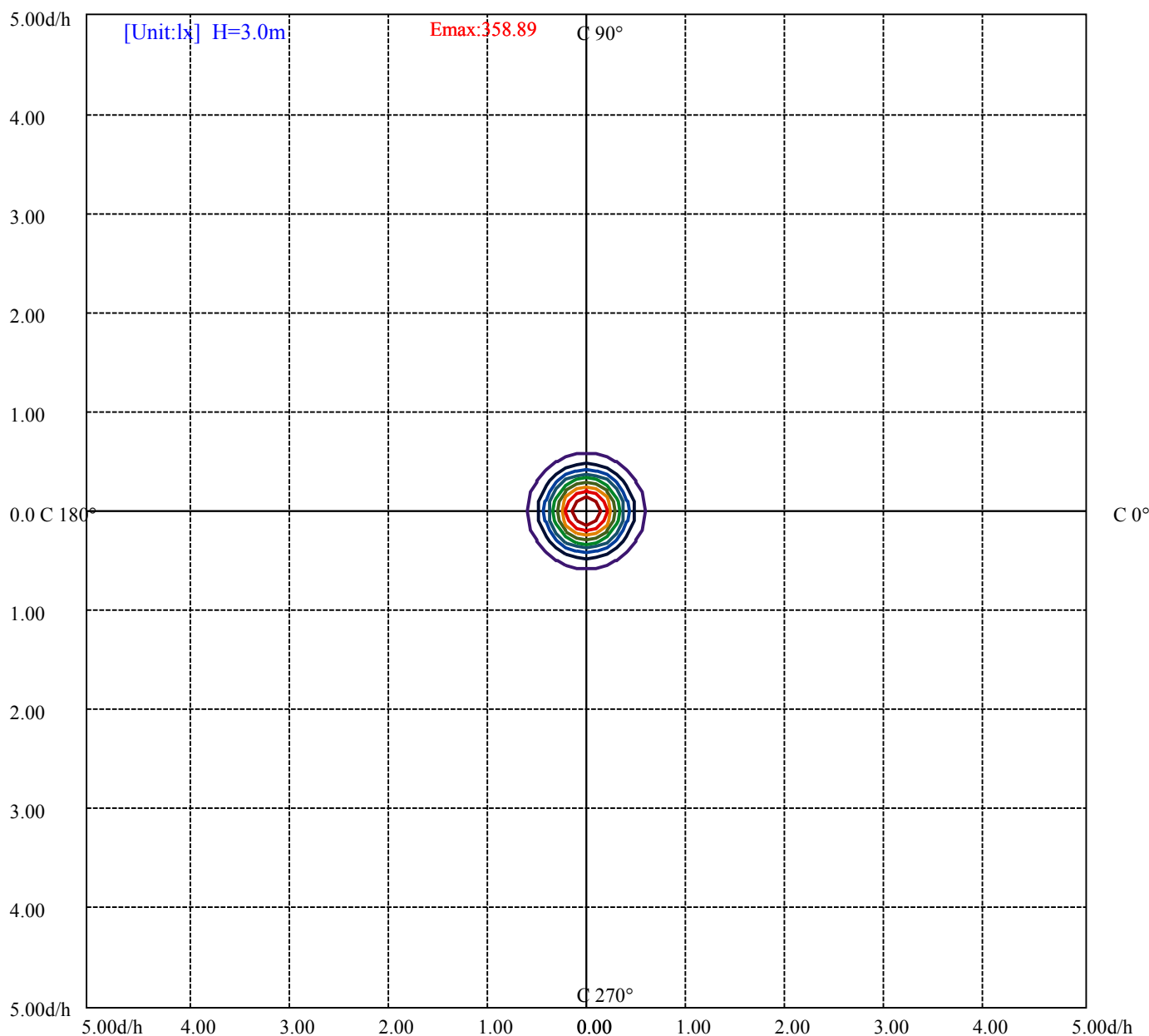
House

[Unit:cd]

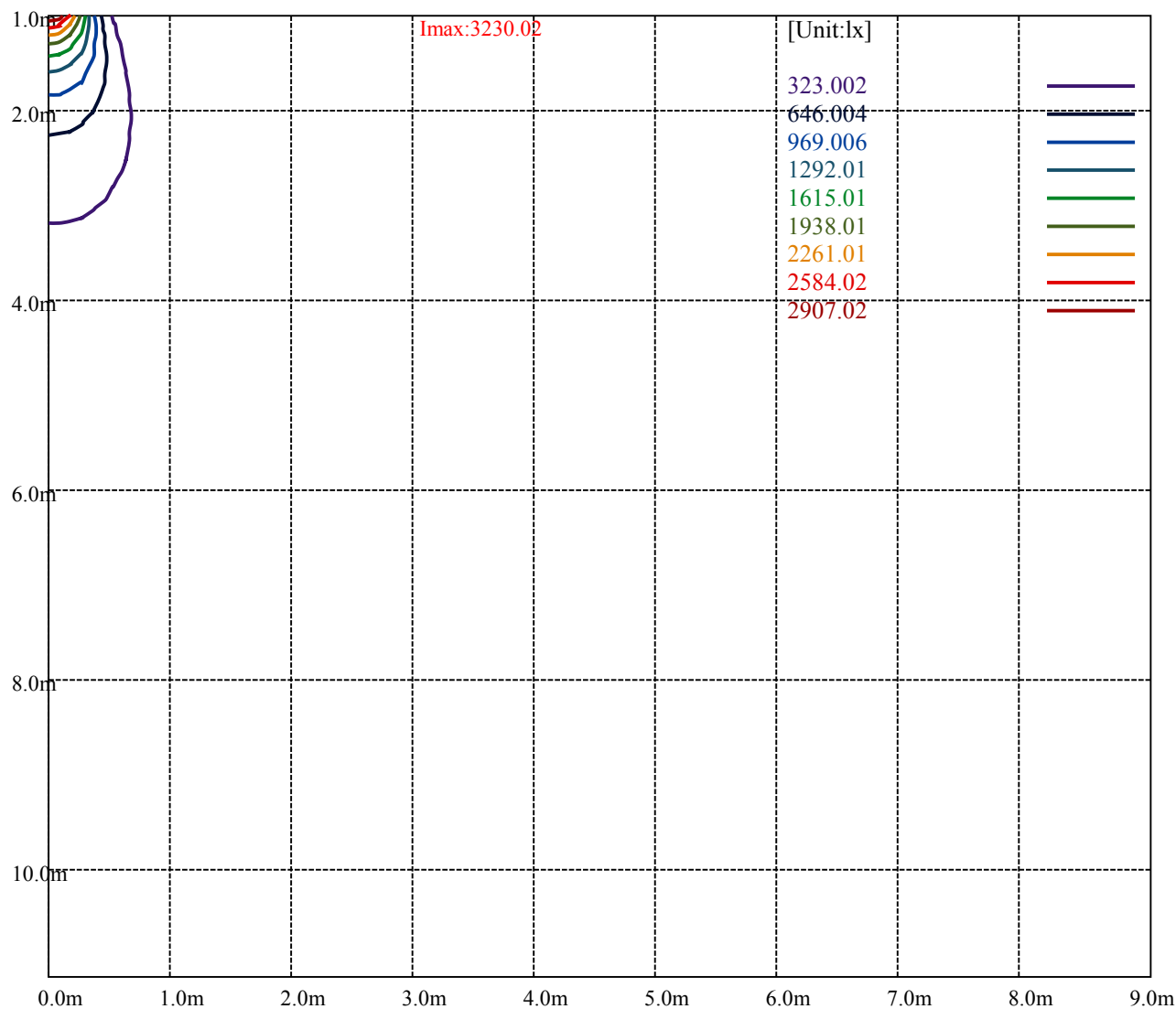
Road

Imax:3230.02

(10%Imax)	323.002	—
(20%Imax)	646.004	—
(30%Imax)	969.006	—
(40%Imax)	1292.01	—
(50%Imax)	1615.01	—
(60%Imax)	1938.01	—
(70%Imax)	2261.01	—
(80%Imax)	2584.02	—
(90%Imax)	2907.02	—



(10%Emax) 35.88911	—
(20%Emax) 71.77823	—
(30%Emax) 107.6673	—
(40%Emax) 143.5567	—
(50%Emax) 179.4456	—
(60%Emax) 215.3344	—
(70%Emax) 251.2233	—
(80%Emax) 287.1133	—
(90%Emax) 323.0022	—



Luminance Table

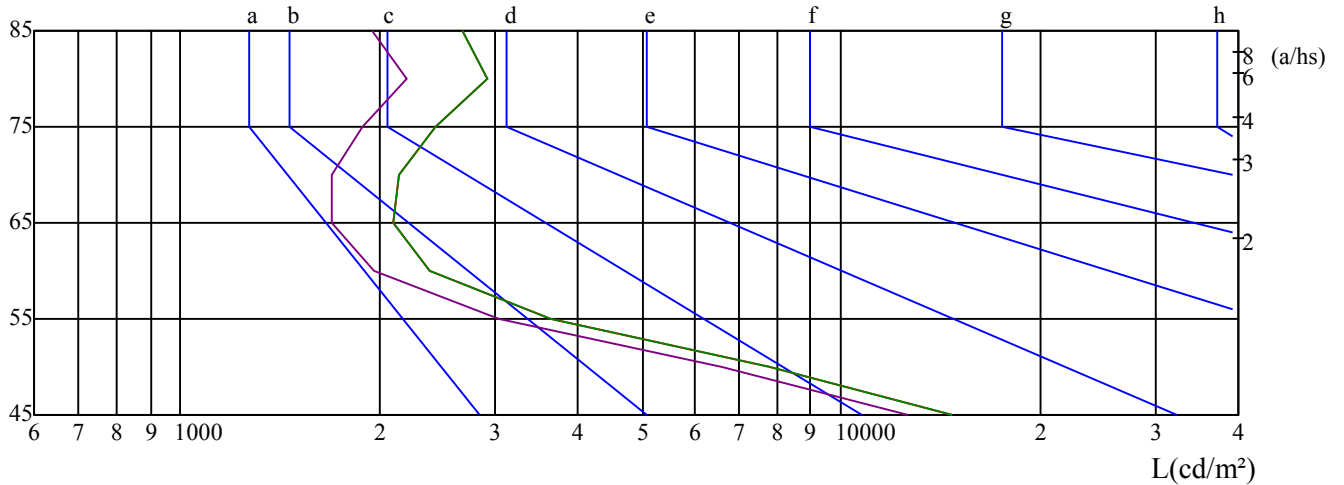
γ	45	50	55	60	65	70	75	80	85
C0	14727	7788	3641	2386	2094	2139	2438	2925	2670
C45	12673	6602	3038	1958	1689	1692	1886	2207	1956
C90	14727	7788	3641	2386	2094	2139	2438	2925	2670

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4982	4982	4982	8286	8286	8286	22287	22287	22287

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

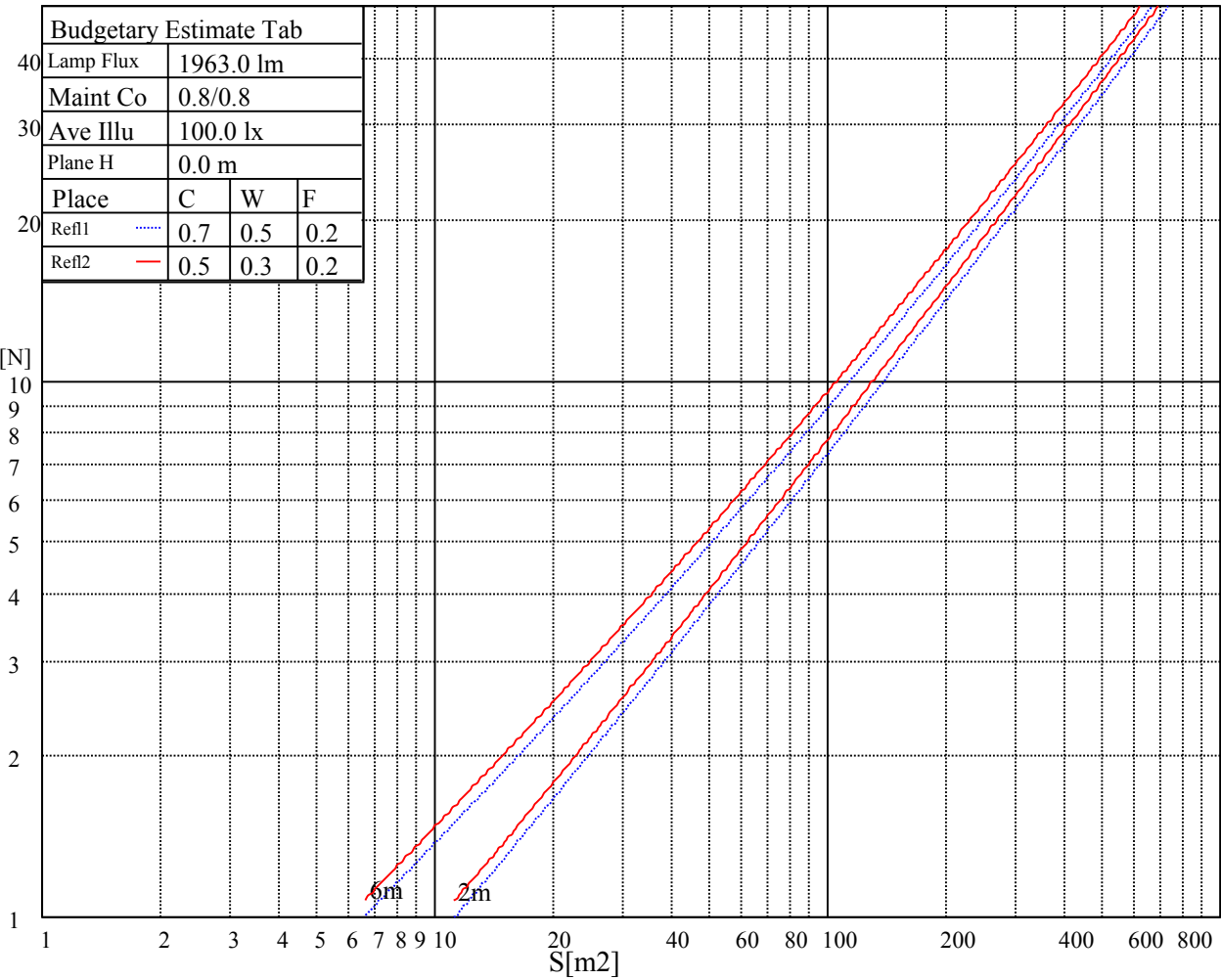
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

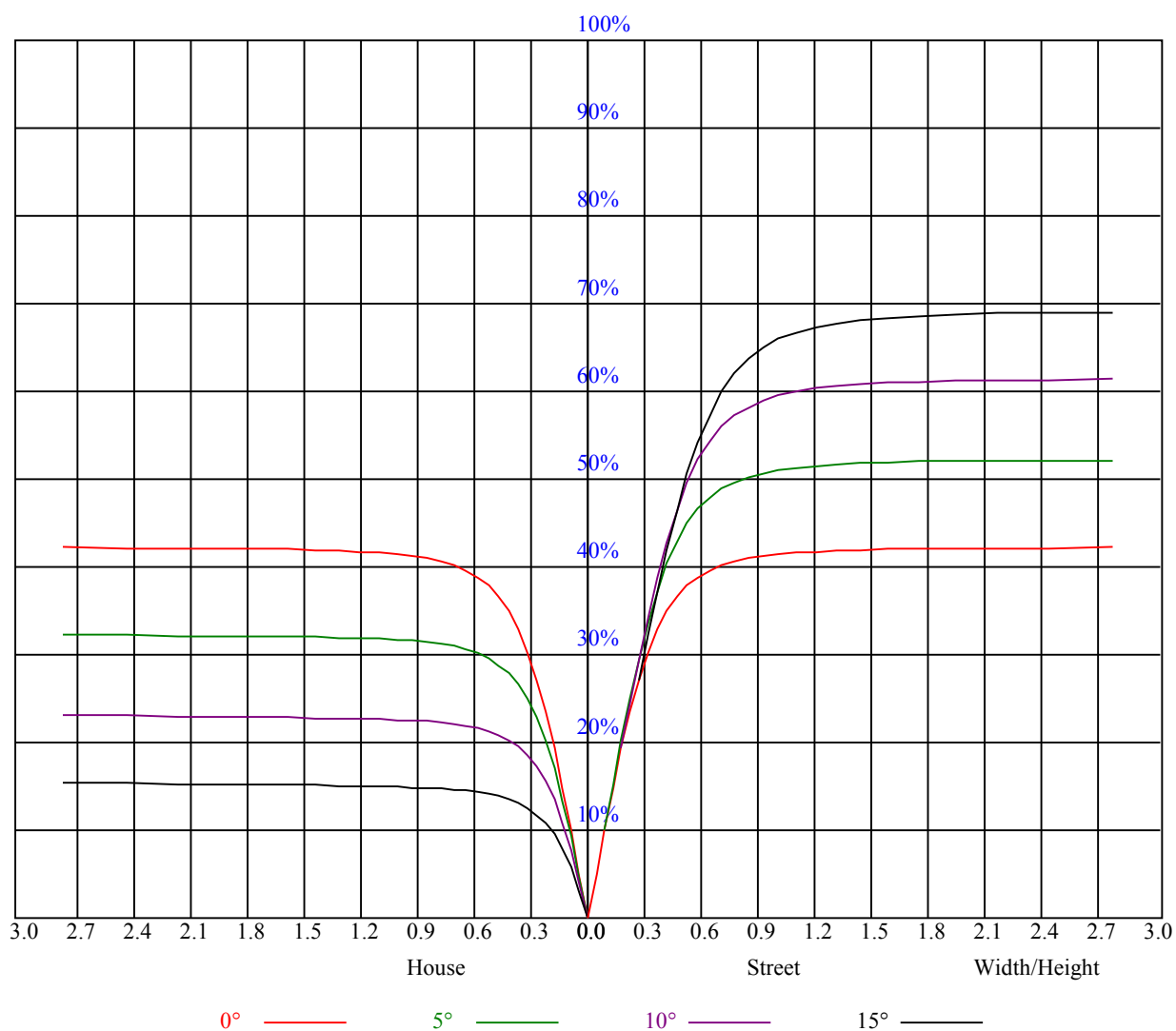
C0 ———

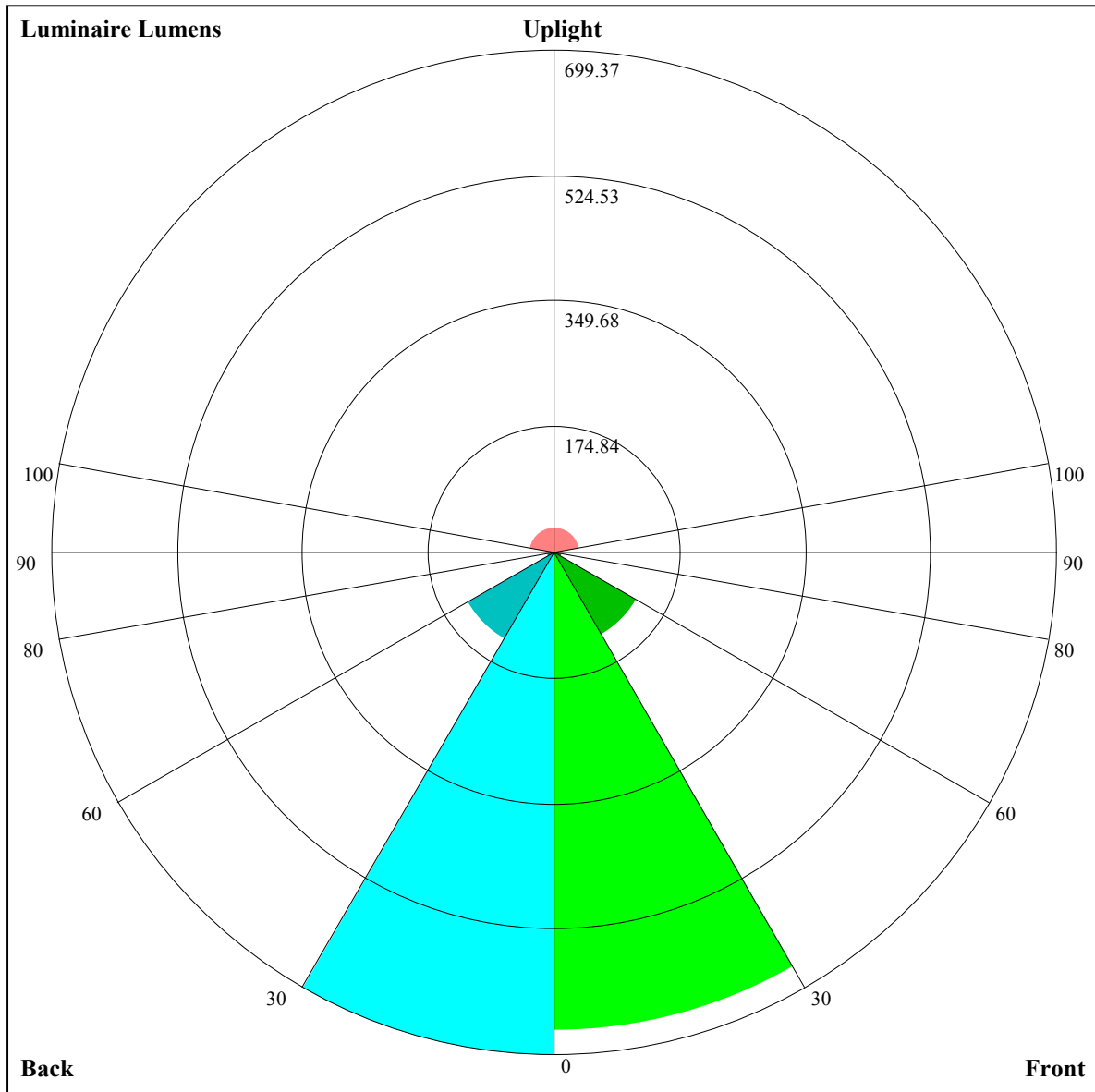
C45 ———

C90 ———



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	1.02	1.02	1.02	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.88	0.88	0.88	0.86
1	0.95	0.92	0.90	0.93	0.91	0.89	0.89	0.88	0.86	0.86	0.85	0.83	0.83	0.82	0.81	0.80
2	0.89	0.86	0.83	0.88	0.85	0.82	0.85	0.82	0.80	0.82	0.80	0.79	0.80	0.78	0.77	0.76
3	0.84	0.80	0.77	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.76	0.74	0.77	0.75	0.73	0.72
4	0.80	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.74	0.72	0.70	0.69
5	0.76	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
6	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
7	0.70	0.66	0.63	0.70	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61
8	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.58
9	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.56
10	0.62	0.58	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.61	0.58	0.55	0.60	0.57	0.55	0.54





Luminaire Lumens:

FL=665.86,FM=132.98,FH=10.83,FVH=4.95

BL=699.37,BM=140.6,BH=11.28,BVH=5.25

UL=7.46,UH=35.52

BUG Rating:B2-U2-G0

Nata 2-1652-A

Intensity data(cd)										Appendix Page: 15 Total:15	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	3229.61	3197.13	2896.52	2329.99	1609.30	904.58	477.89	285.74	157.13		
45.0	3232.36	3170.70	2794.11	2174.18	1456.24	768.04	415.68	285.74	133.57		
90.0	3228.51	3150.88	2772.09	2149.95	1440.28	756.59	407.20	230.03	135.22		
135.0	3229.61	3188.32	2955.43	2430.19	1707.85	941.46	518.63	282.99	160.21		
180.0	3229.61	3174.55	2913.03	2394.95	1657.20	903.97	485.60	269.06	154.38		
225.0	3232.36	3203.73	3000.57	2512.77	1843.84	1038.09	537.46	300.00	176.95		
270.0	3228.51	3207.04	3003.88	2581.04	1852.10	1051.03	557.72	313.27	178.82		
315.0	3229.61	3169.60	2854.12	2282.09	1532.22	845.89	452.07	258.43	153.83		
360.0	3229.61	3197.13	2896.52	2329.99	1609.30	904.58	477.89	285.74	157.13		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	84.35	43.33	20.81	12.28	10.19	9.74	9.36	9.36	9.80		
45.0	69.43	37.11	16.85	11.84	10.13	9.97	9.91	9.36	9.03		
90.0	70.64	34.36	16.63	11.84	10.24	10.08	15.42	13.87	9.69		
135.0	86.38	44.60	20.04	12.77	10.57	10.13	10.08	9.91	9.52		
180.0	84.24	43.66	19.10	12.22	10.35	9.91	9.80	9.74	9.74		
225.0	97.23	52.03	23.07	12.88	10.52	10.02	10.19	19.60	9.86		
270.0	96.95	50.98	23.34	13.05	10.46	9.80	9.74	9.52	9.08		
315.0	81.43	40.52	17.18	11.95	10.08	9.69	9.58	11.12	9.41		
360.0	84.35	43.33	20.81	12.28	10.19	9.74	9.36	9.36	9.80		
C/γ(°)	90.0										
0.0	6.77										
45.0	6.88										
90.0	6.88										
135.0	6.83										
180.0	6.77										
225.0	6.88										
270.0	6.88										
315.0	6.83										
360.0	6.77										