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## Nata

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### Client:

LumCAT: 4-2204-L

Luminaire: 92.70.131.00

Report No: NT2018011009

Test No: GC2018011009

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): 2767.17, Efficiency(%): 96.42% , Luminous Efficacy(lm/W): 124.24

Central intensity(cd): 6102.107, Maximum intensity(cd): 6102.107

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

Beam Angle(50%Imax): [C0/180]Total=37.4

[C90/270]Total=37.4

Field angle(10%Imax): [C0/180]Total=68.4

[C90/270]Total=68.4

Maximum s/h(1/2): C0\_180=0.61 C90\_270=0.61

Maximum s/h(1/4): C0\_180=0.61 C90\_270=0.61

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 97.60%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.281%

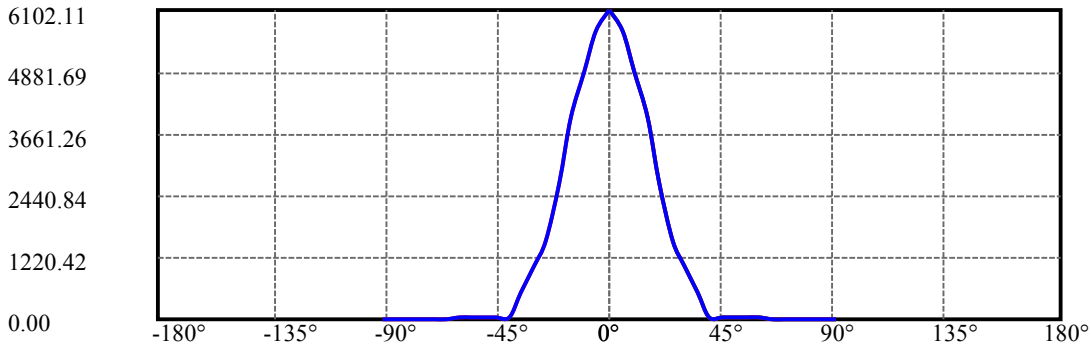
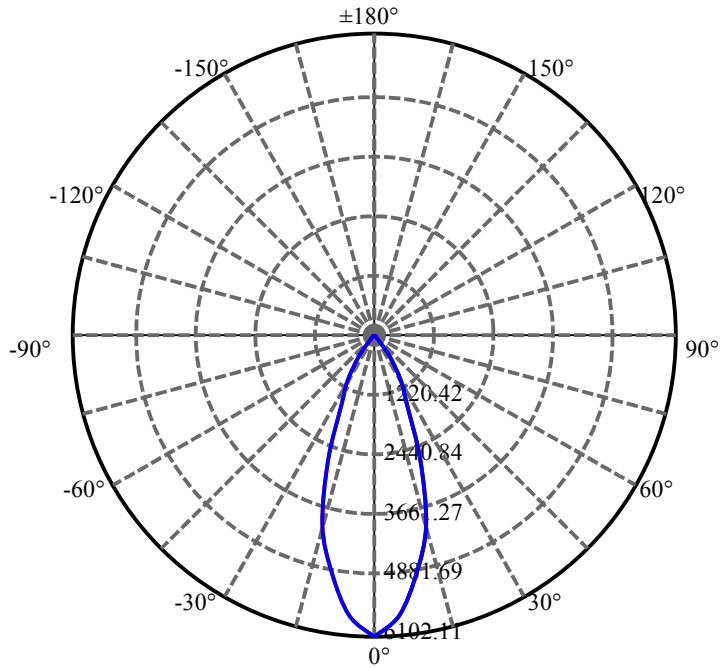
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6102.107	36.492	36.492	1.271%	1.319%
5.0	5698.888	272.255	308.747	9.486%	11.157%
10.0	4898.781	466.281	775.028	16.247%	28.008%
15.0	3995.099	566.778	1341.806	19.748%	48.490%
20.0	2708.775	507.825	1849.631	17.694%	66.842%
25.0	1546.190	358.179	2207.81	12.480%	79.786%
30.0	1073.455	294.200	2502.011	10.251%	90.418%
35.0	517.103	162.577	2664.587	5.665%	96.293%
40.0	56.818	20.019	2684.606	.698%	97.016%
45.0	27.686	10.731	2695.337	.374%	97.404%
50.0	23.798	9.993	2705.33	.348%	97.765%
55.0	22.091	9.919	2715.249	.346%	98.124%
60.0	20.247	9.611	2724.861	.335%	98.471%
65.0	17.763	8.824	2733.685	.307%	98.790%
70.0	15.478	7.972	2741.657	.278%	99.078%
75.0	13.957	7.390	2749.047	.257%	99.345%
80.0	13.537	7.307	2756.354	.255%	99.609%
85.0	13.248	7.234	2763.588	.252%	99.871%
90.0	13.069	3.582	2767.17	.125%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2502.01	87.18%	90.42%
0-40	2684.61	93.54%	97.02%
0-60	2724.86	94.94%	98.47%
0-90	2763.59	96.29%	99.87%
0-120	2763.59	96.29%	99.87%
0-180	2767.17	96.42%	100.00%
60-90	48.34	1.68%	1.75%
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%
0-25.10	2213.74	77.13%	80.00%

ZONAL LUMEN SUMMARY

0-10	775.03
10-20	1074.60
20-30	652.38
30-40	182.60
40-50	20.72
50-60	19.53
60-70	16.80
70-80	14.70
80-90	7.23
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: —————

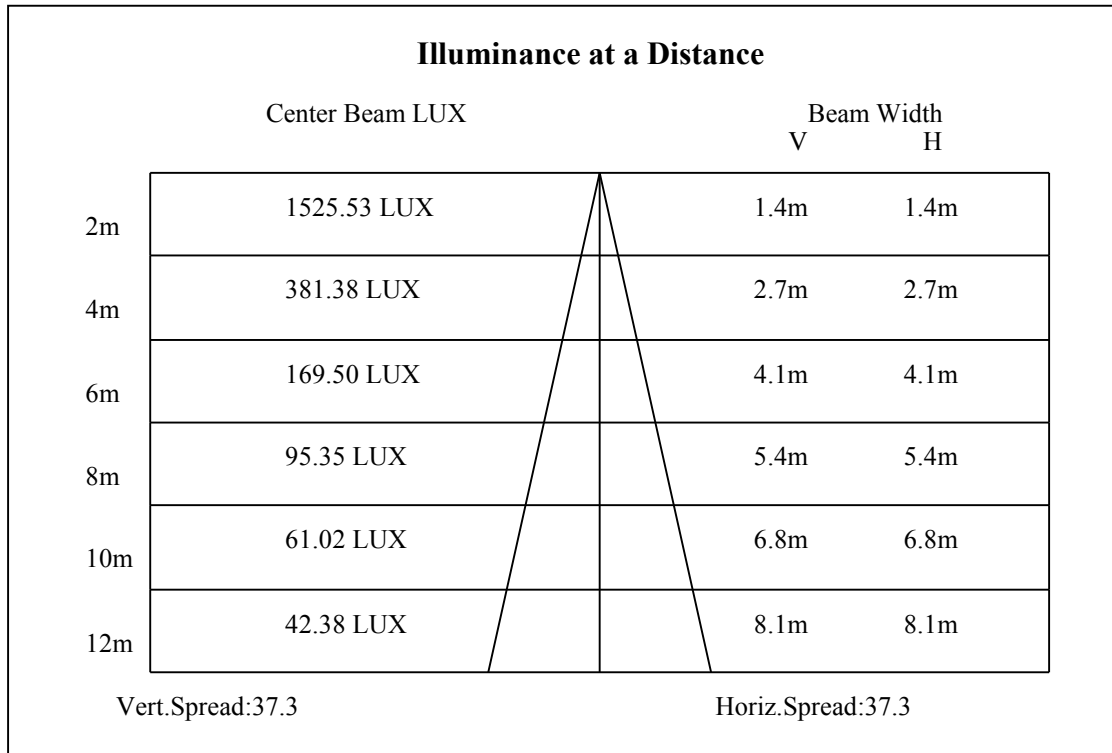
C90/C270: —————

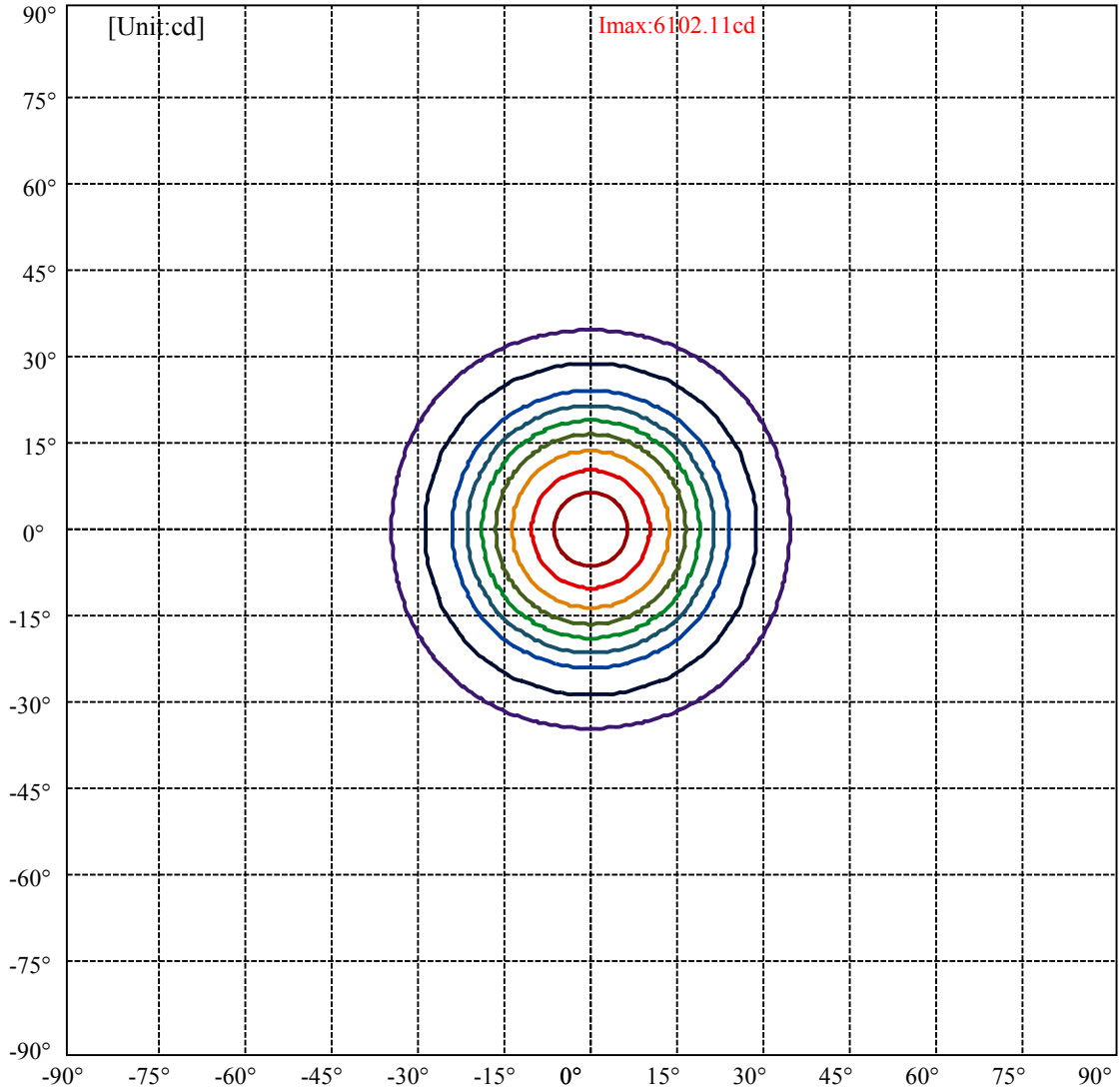
Field angle(10%Imax):C0/180Left:34.2 Right:34.2

:C90/270Left:34.2 Right:34.2

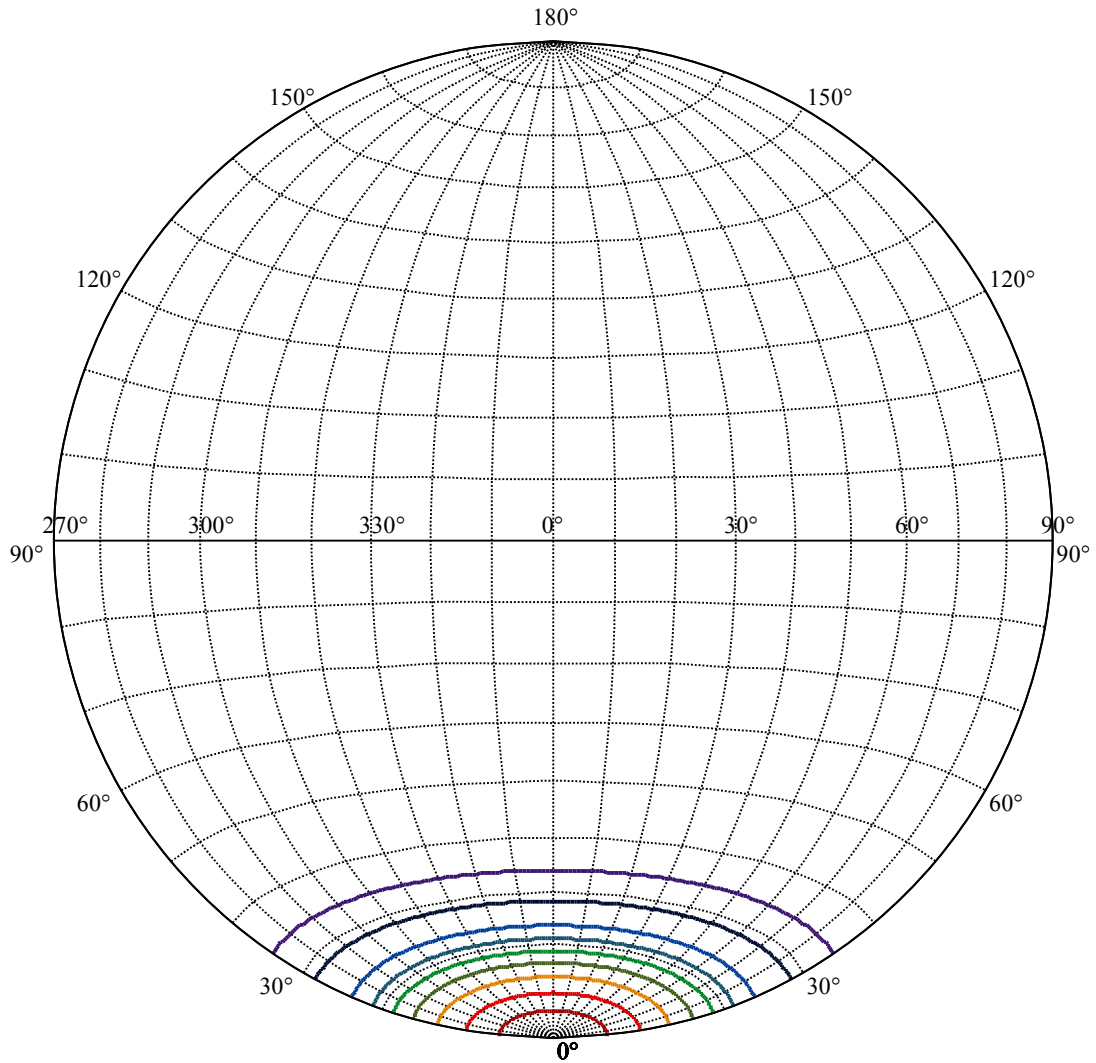
Beam Angle(50%Imax):C0/180Left:18.7 Right:18.7

:C90/270Left:18.7 Right:18.7





(10%I <sub>max</sub> ) 610.211	—
(20%I <sub>max</sub> ) 1220.42	—
(30%I <sub>max</sub> ) 1830.63	—
(40%I <sub>max</sub> ) 2440.84	—
(50%I <sub>max</sub> ) 3051.05	—
(60%I <sub>max</sub> ) 3661.26	—
(70%I <sub>max</sub> ) 4271.48	—
(80%I <sub>max</sub> ) 4881.69	—
(90%I <sub>max</sub> ) 5491.9	—



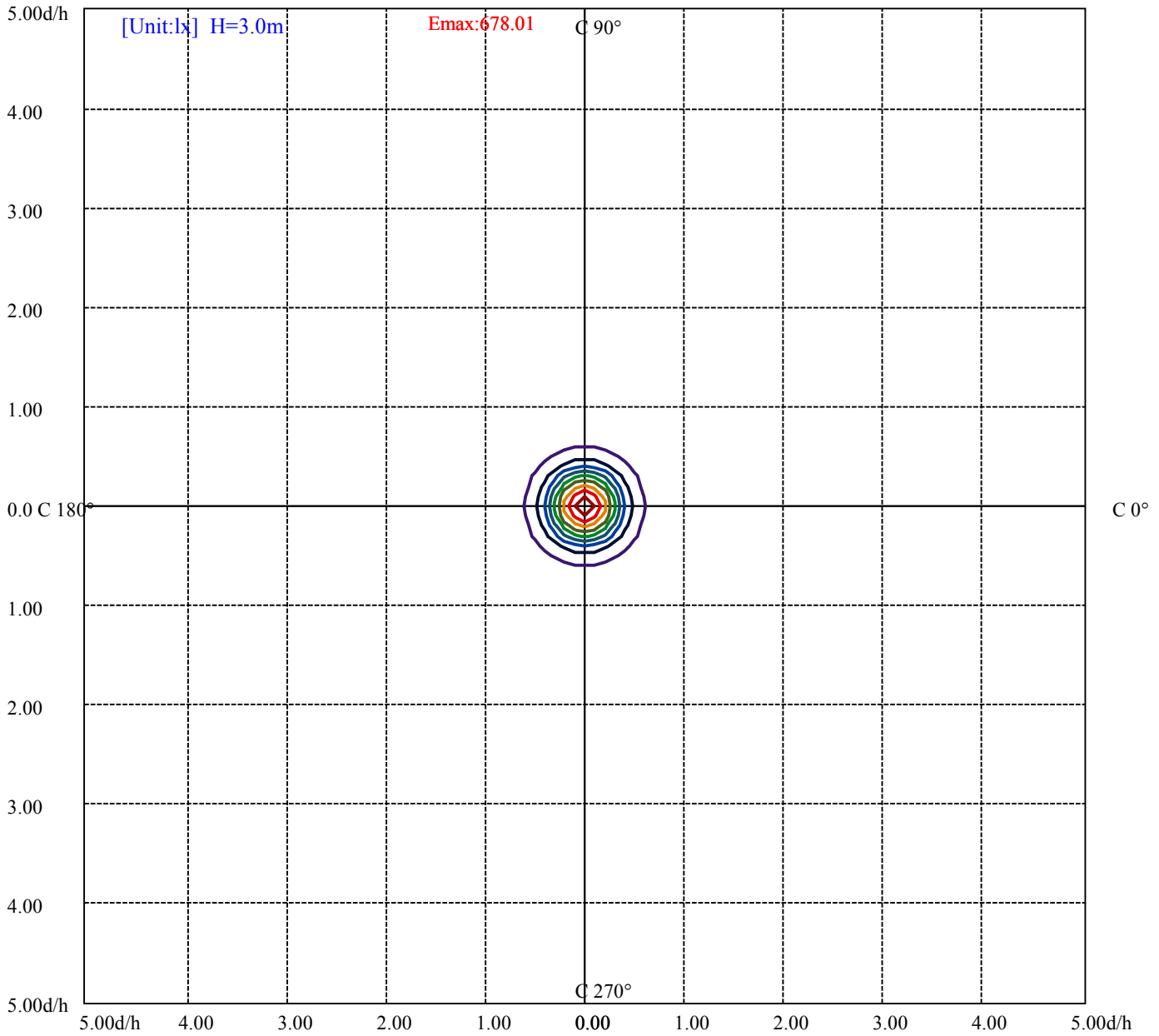
House

[Unit:cd]

Road

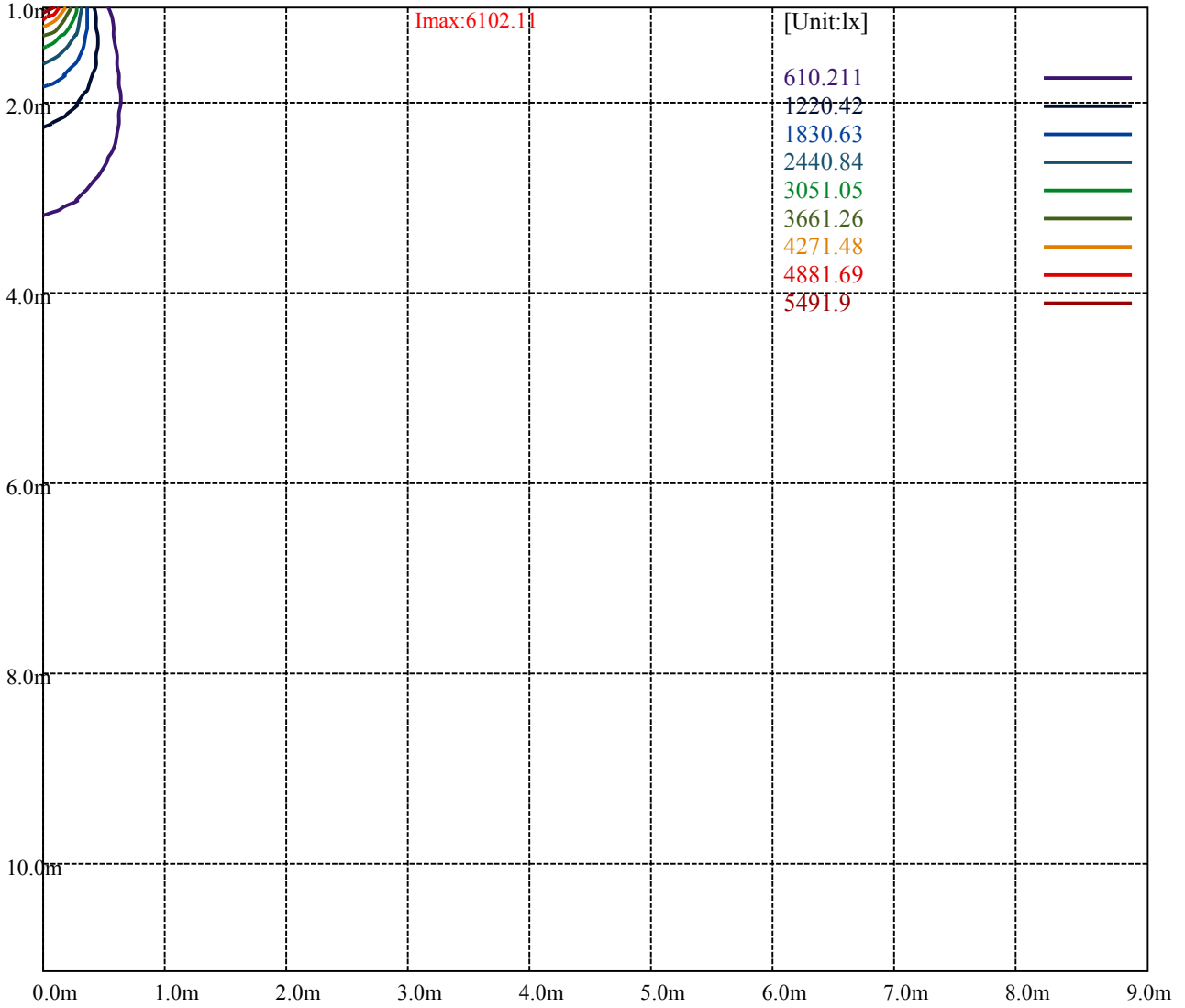
**Imax:6102.11**

(10%Imax) 610.211	—
(20%Imax) 1220.42	—
(30%Imax) 1830.63	—
(40%Imax) 2440.84	—
(50%Imax) 3051.05	—
(60%Imax) 3661.26	—
(70%Imax) 4271.48	—
(80%Imax) 4881.69	—
(90%Imax) 5491.9	—



- (10%Emax) 67.80112
- (20%Emax) 135.6022
- (30%Emax) 203.4033
- (40%Emax) 271.2045
- (50%Emax) 339.0056
- (60%Emax) 406.8067
- (70%Emax) 474.6078
- (80%Emax) 542.4089
- (90%Emax) 610.21





Luminance Table

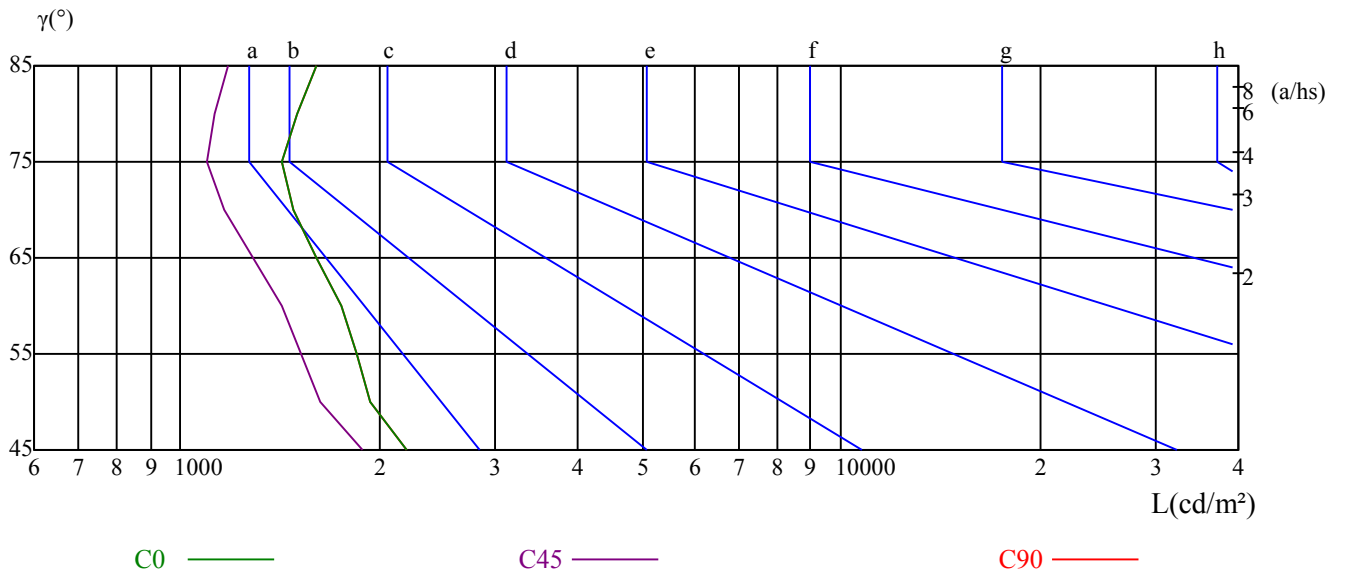
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2206	1933	1844	1751	1607	1480	1426	1498	1611
C45	1883	1625	1526	1426	1286	1162	1097	1125	1177
C90	2206	1933	1844	1751	1607	1480	1426	1498	1611

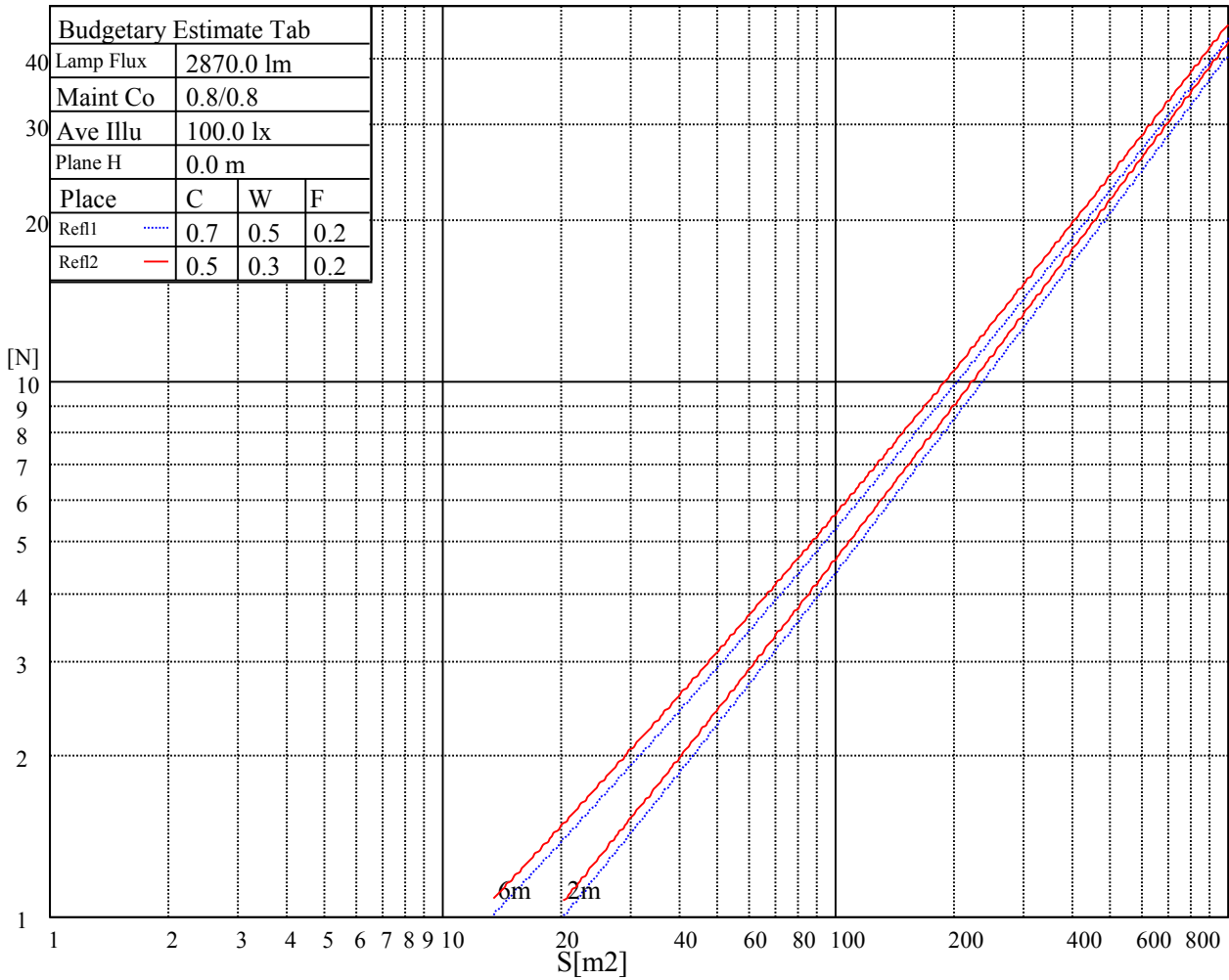
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4040	4040	4040	5183	5183	5183	14610	14610	14610

Glare Table

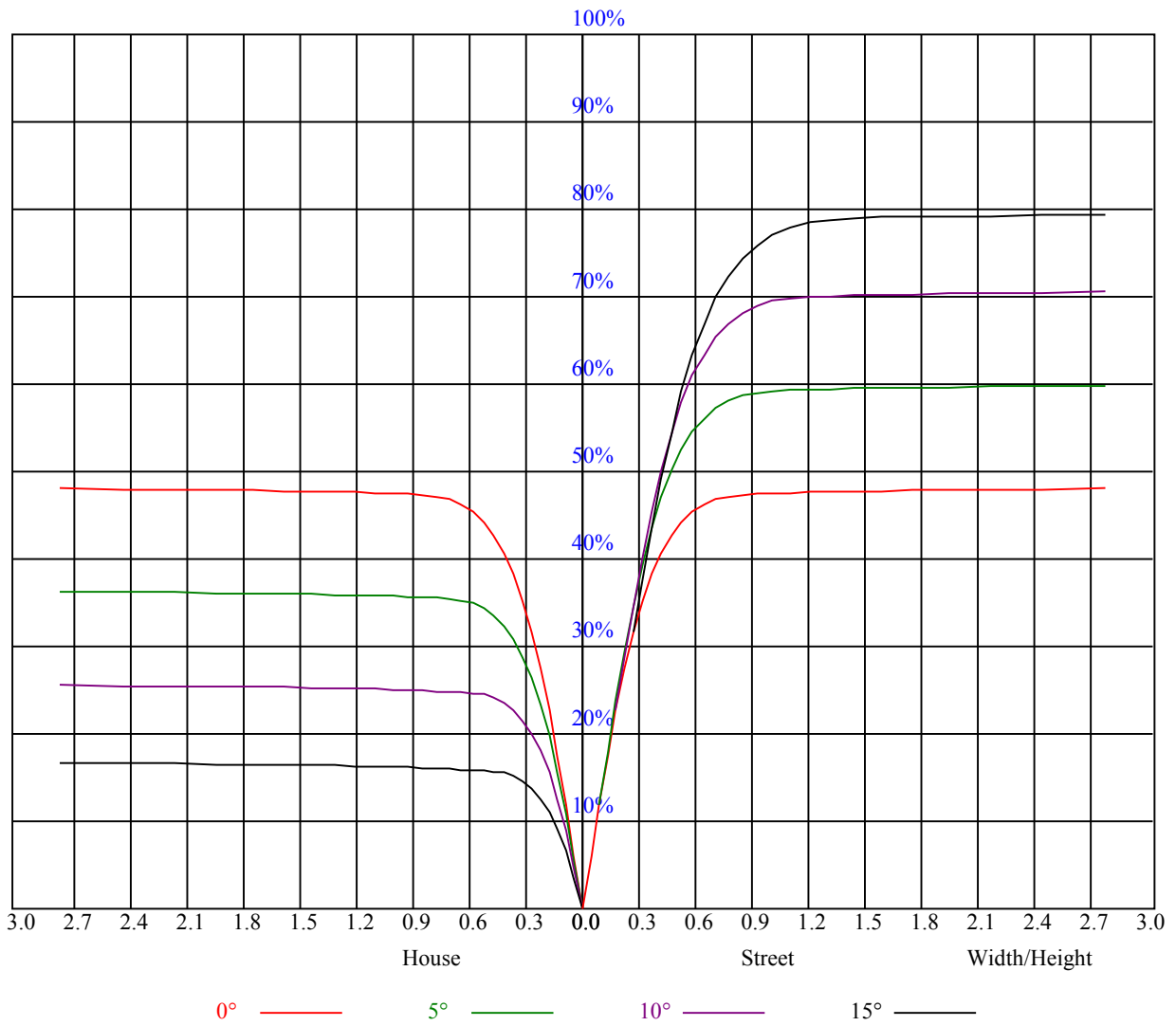
Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

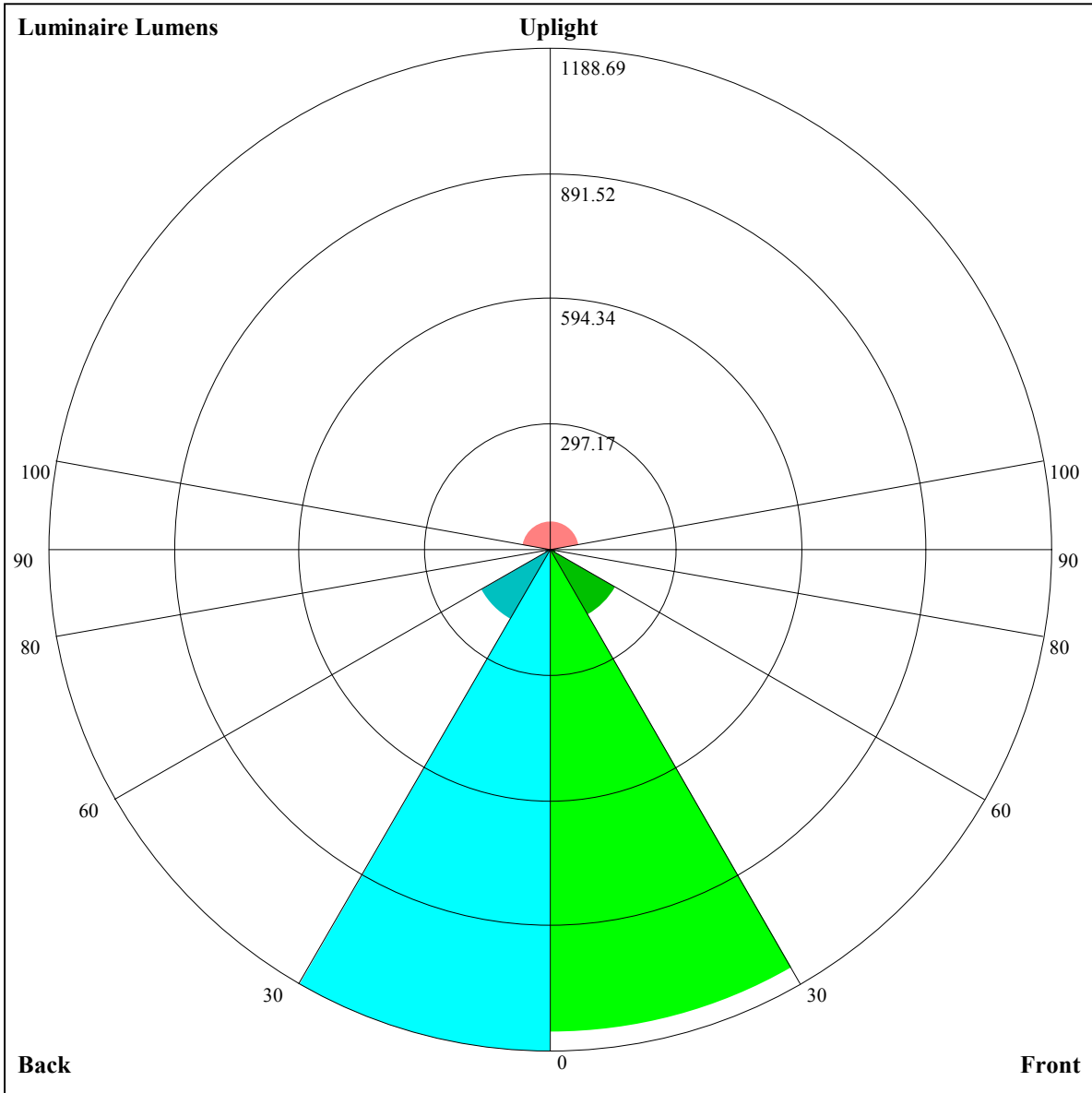
Luminance Limiting Curve





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	1.16	1.16	1.16	1.13	1.13	1.13	1.08	1.08	1.08	1.04	1.04	1.04	1.00	1.00	1.00	0.98
1	1.08	1.05	1.03	1.05	1.03	1.01	1.02	1.00	0.98	0.98	0.96	0.95	0.95	0.93	0.92	0.91
2	1.02	0.98	0.95	1.00	0.97	0.94	0.97	0.94	0.92	0.94	0.92	0.90	0.91	0.90	0.88	0.86
3	0.97	0.92	0.89	0.95	0.91	0.88	0.93	0.89	0.87	0.90	0.88	0.85	0.88	0.86	0.84	0.83
4	0.92	0.87	0.84	0.91	0.87	0.83	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.83	0.80	0.79
5	0.88	0.83	0.80	0.87	0.83	0.79	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.80	0.77	0.76
6	0.84	0.79	0.76	0.84	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.73
7	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.70
8	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.75	0.71	0.69	0.68
9	0.75	0.70	0.67	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.65
10	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.63





Luminaire Lumens:

FL=1144.26,FM=178.21,FH=16.48,FVH=7.25

BL=1188.69,BM=191.01,BH=16.37,BVH=7.24

UL=14.26,UH=67.86

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	6147.60	5571.16	4642.36	3782.37	2844.76	1791.54	1238.77	575.89	77.79
45.0	6082.63	5585.47	4750.27	3957.45	2706.57	1546.53	1049.37	512.02	42.23
90.0	6097.50	5649.34	4795.41	3922.22	2680.70	1389.07	967.18	552.99	38.48
135.0	6081.53	6045.74	5387.27	4515.18	3220.25	1839.98	1217.30	715.73	129.60
180.0	6147.60	5930.68	5180.26	4073.07	2736.30	1633.52	1096.39	513.68	54.23
225.0	6082.63	5773.21	5010.68	4040.59	2535.35	1385.77	1013.42	479.21	38.26
270.0	6095.84	5706.05	4886.26	3877.62	2368.53	1275.11	970.09	535.15	34.36
315.0	6081.53	5329.46	4537.75	3792.28	2577.74	1507.99	1035.12	252.16	39.59
360.0	6147.60	5571.16	4642.36	3782.37	2844.76	1791.54	1238.77	575.89	77.79
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	40.58	30.23	25.38	21.80	17.95	15.69	13.93	13.43	13.10
45.0	23.56	20.54	19.66	18.72	17.29	15.53	14.15	13.71	13.43
90.0	21.75	19.21	18.28	17.45	16.35	15.09	13.98	13.54	13.32
135.0	26.65	21.03	19.71	18.83	17.45	15.75	14.04	13.60	13.21
180.0	29.62	23.84	22.30	20.59	17.34	14.92	13.82	13.38	13.05
225.0	24.22	21.36	20.37	19.27	17.45	15.25	13.98	13.65	13.38
270.0	28.19	30.06	28.74	25.11	20.54	16.46	13.98	13.54	13.27
315.0	26.92	24.11	22.30	20.21	17.73	15.14	13.76	13.43	13.21
360.0	40.58	30.23	25.38	21.80	17.95	15.69	13.93	13.43	13.10
C/γ(°)	90.0								
0.0	12.94								
45.0	13.27								
90.0	13.16								
135.0	12.94								
180.0	12.88								
225.0	13.27								
270.0	13.10								
315.0	12.99								
360.0	12.94								