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NATA

Client:

LumCAT: 1451-E

Luminaire: 92.70.064.00

Report No: nt0100

Test No: GC2019122619

LampCAT: LUMINUS CXM-9-AC40

Lamp flux(lm): 1100.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 33.5800

Current(A): 0.2970

Power (W): 9.9700

PF: 1.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 970.19, Efficiency(%): 88.20% , Luminous Efficacy(lm/W): 97.31

Central intensity(cd): 1448.156, Maximum intensity(cd): 1448.156

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=44.2

[C90/270]Total=44.2

Field angle(10%Imax): [C0/180]Total=81.8

[C90/270]Total=81.8

Maximum s/h(1/2): C0_180=0.69 C90_270=0.69

Maximum s/h(1/4): C0_180=0.74 C90_270=0.74

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.20%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.548%

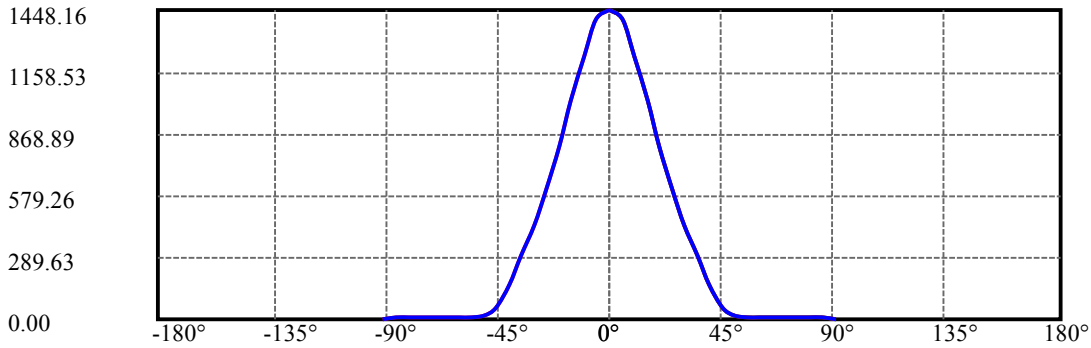
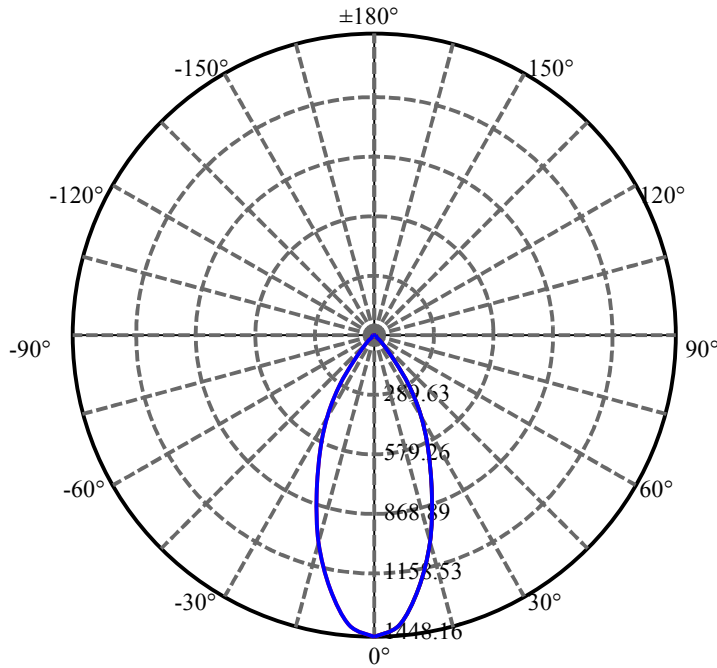
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1448.156	0.000	0	.000%	.000%
5.0	1401.891	34.071	34.071	3.097%	3.512%
10.0	1232.367	94.236	128.307	8.567%	13.225%
15.0	1028.904	134.137	262.444	12.194%	27.051%
20.0	811.927	151.710	414.155	13.792%	42.688%
25.0	605.250	148.636	562.79	13.512%	58.008%
30.0	439.186	132.174	694.964	12.016%	71.632%
35.0	294.680	108.067	803.031	9.824%	82.770%
40.0	163.533	76.449	879.481	6.950%	90.650%
45.0	53.754	40.232	919.713	3.657%	94.797%
50.0	18.042	14.507	934.22	1.319%	96.292%
55.0	12.769	6.699	940.92	.609%	96.983%
60.0	10.934	5.479	946.399	.498%	97.548%
65.0	9.830	5.048	951.446	.459%	98.068%
70.0	9.014	4.771	956.217	.434%	98.560%
75.0	8.009	4.449	960.667	.404%	99.018%
80.0	6.462	3.872	964.539	.352%	99.417%
85.0	5.048	3.128	967.666	.284%	99.740%
90.0	4.170	2.524	970.19	.229%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	694.96	63.18%	71.63%
0-40	879.48	79.95%	90.65%
0-60	946.40	86.04%	97.55%
0-90	967.67	87.97%	99.74%
0-120	967.67	87.97%	99.74%
0-180	970.19	88.20%	100.00%
60-90	26.75	2.43%	2.76%
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%
0-33.76	776.15	70.56%	80.00%

ZONAL LUMEN SUMMARY

0-10	128.31
10-20	285.85
20-30	280.81
30-40	184.52
40-50	54.74
50-60	12.18
60-70	9.82
70-80	8.32
80-90	3.13
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



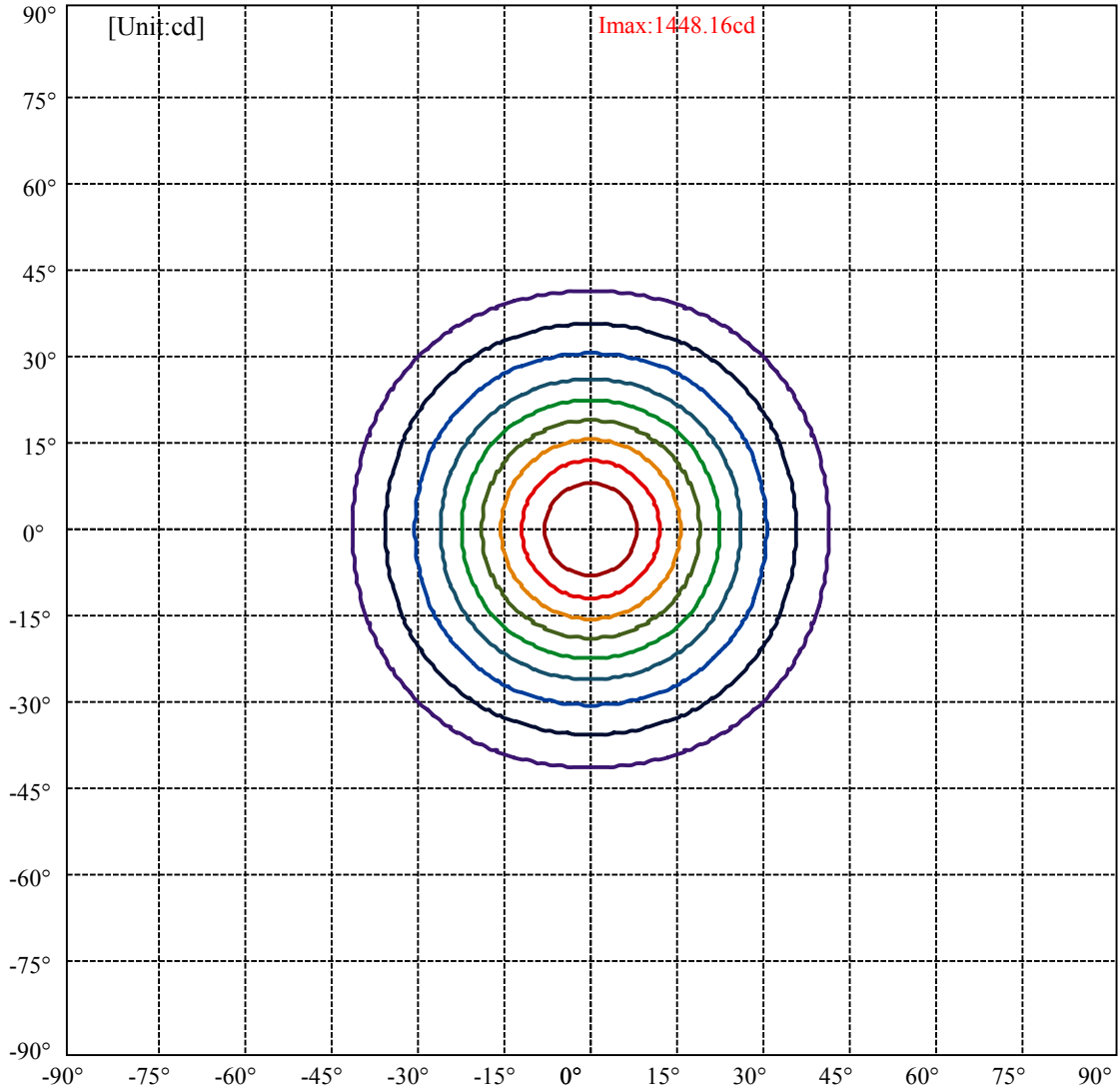
C0(Max): —————

C0/C180: —————

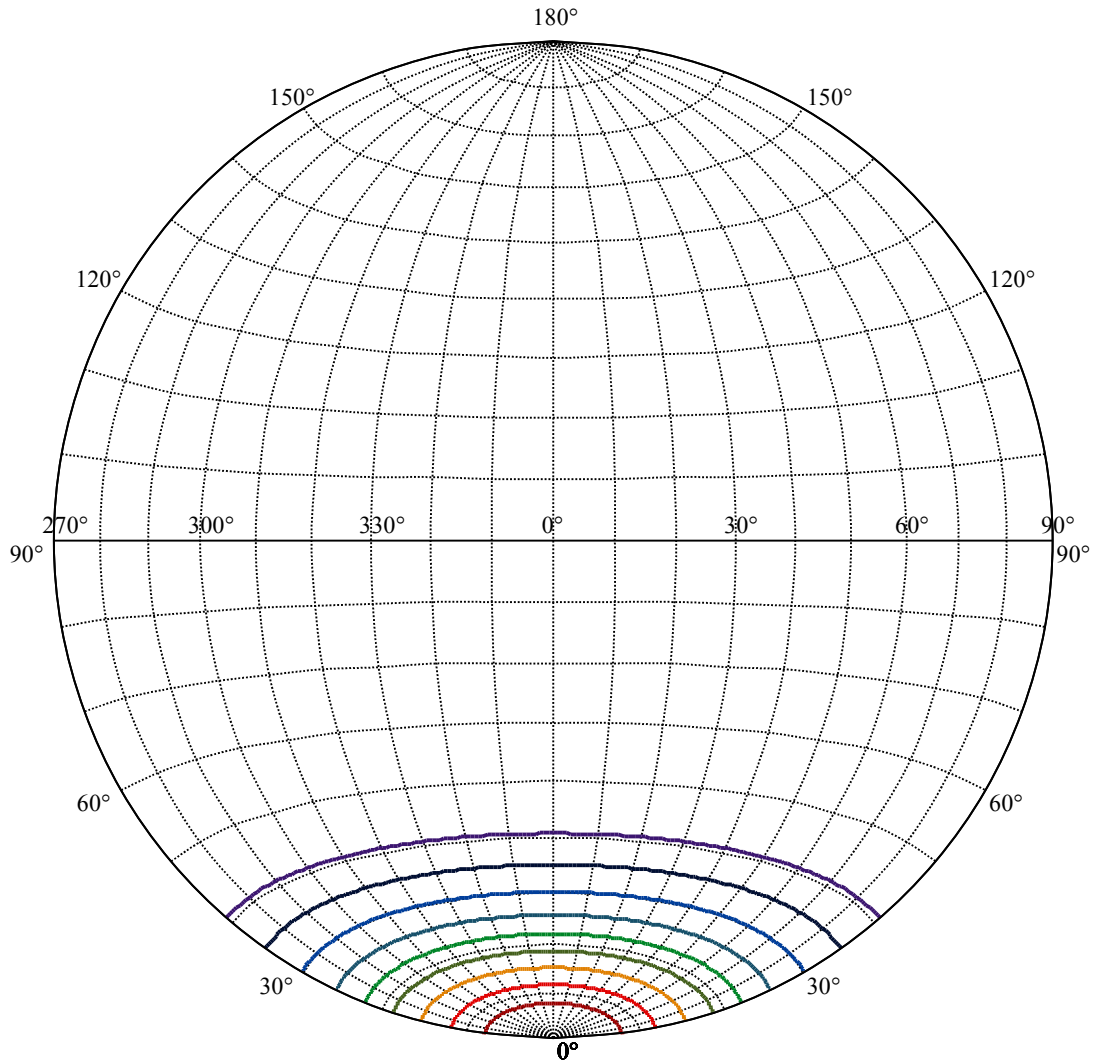
C90/C270: —————

Field angle(10%Imax):C0/180Left:40.9 Right:40.9
:C90/270Left:40.9 Right:40.9

Beam Angle(50%Imax):C0/180Left:22.1 Right:22.1
:C90/270Left:22.1 Right:22.1



(10%Imax) 144.816	—
(20%Imax) 289.631	—
(30%Imax) 434.447	—
(40%Imax) 579.263	—
(50%Imax) 724.078	—
(60%Imax) 868.894	—
(70%Imax) 1013.71	—
(80%Imax) 1158.53	—
(90%Imax) 1303.34	—



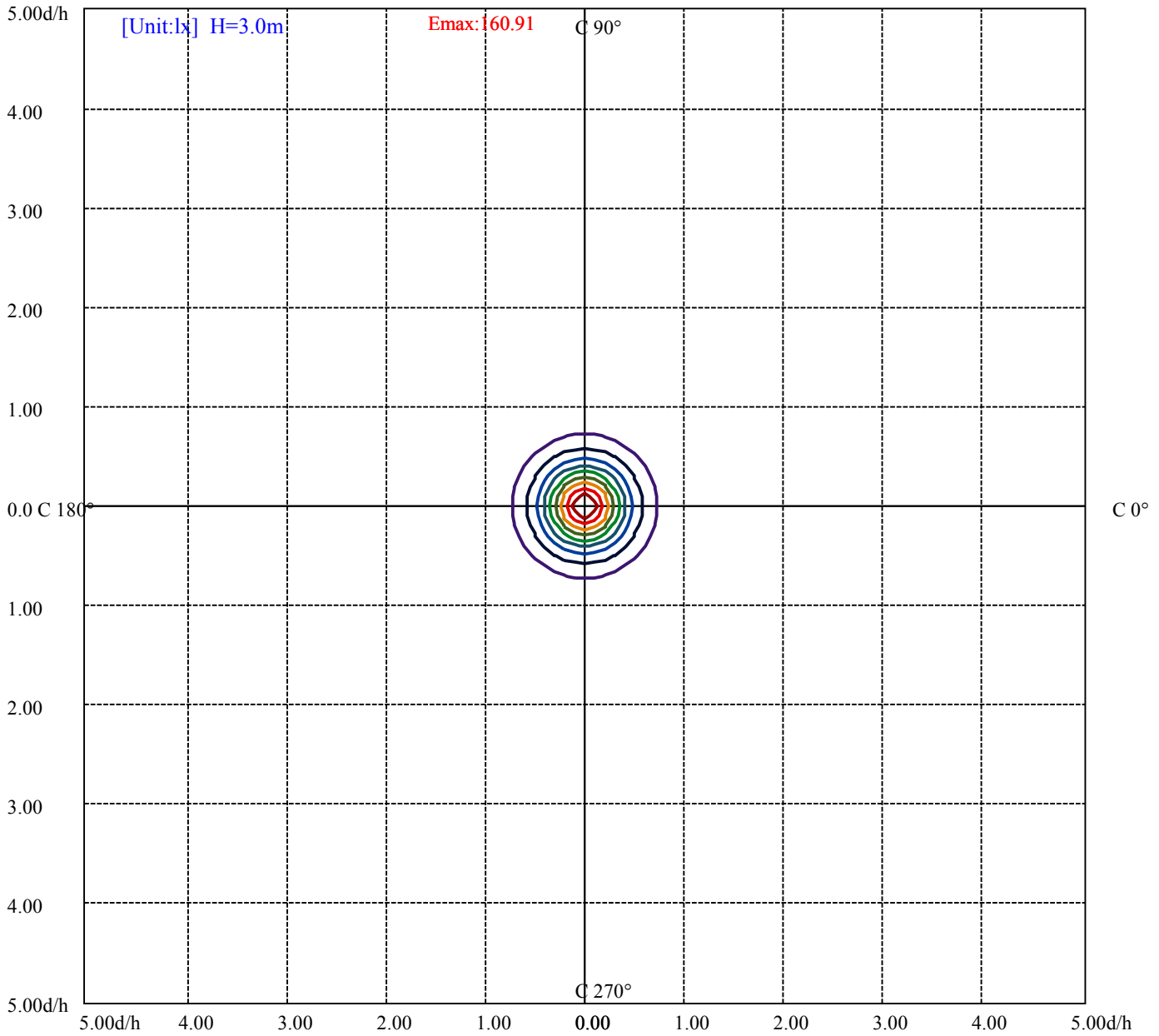
House

[Unit:cd]

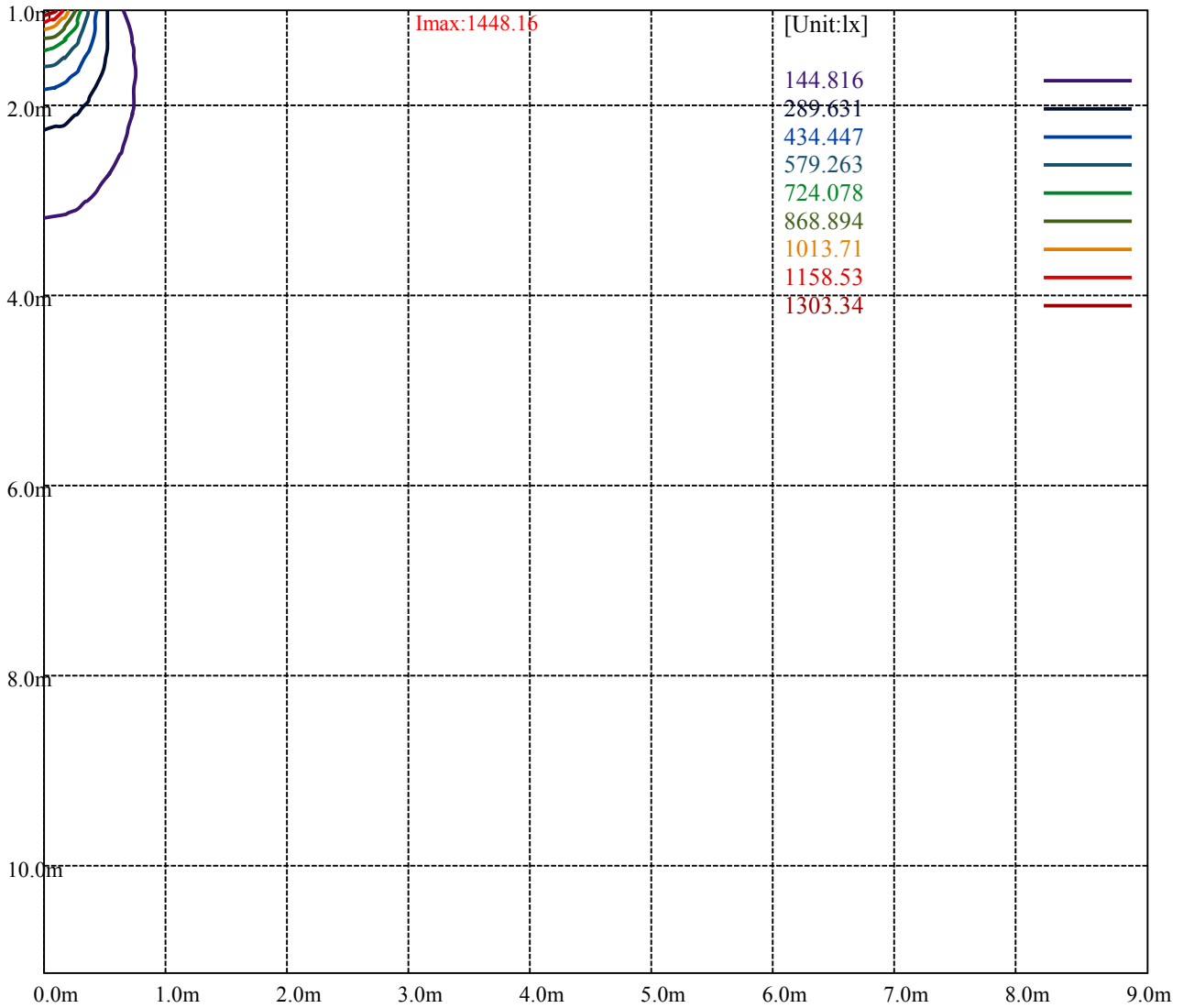
Road

Imax:1448.16

(10%Imax)	144.816	—
(20%Imax)	289.631	—
(30%Imax)	434.447	—
(40%Imax)	579.263	—
(50%Imax)	724.078	—
(60%Imax)	868.894	—
(70%Imax)	1013.71	—
(80%Imax)	1158.53	—
(90%Imax)	1303.34	—



(10%Emax) 16.09056	—
(20%Emax) 32.18122	—
(30%Emax) 48.27178	—
(40%Emax) 64.36245	—
(50%Emax) 80.453	—
(60%Emax) 96.54367	—
(70%Emax) 112.6344	—
(80%Emax) 128.7244	—
(90%Emax) 144.8156	—



Luminance Table

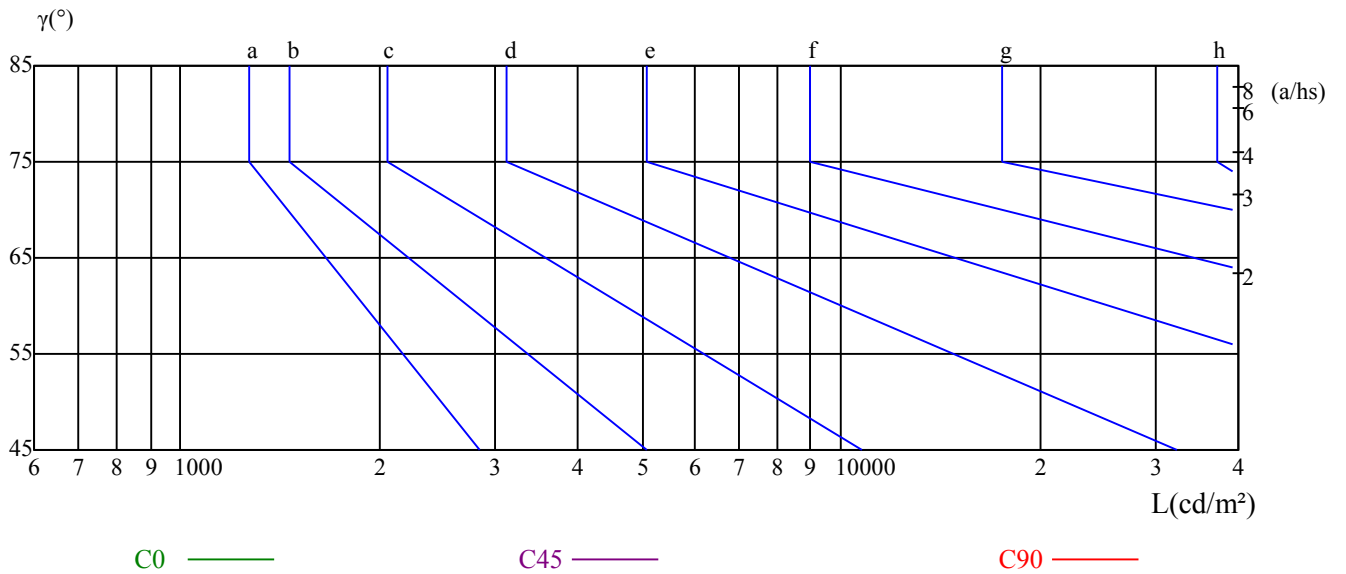
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

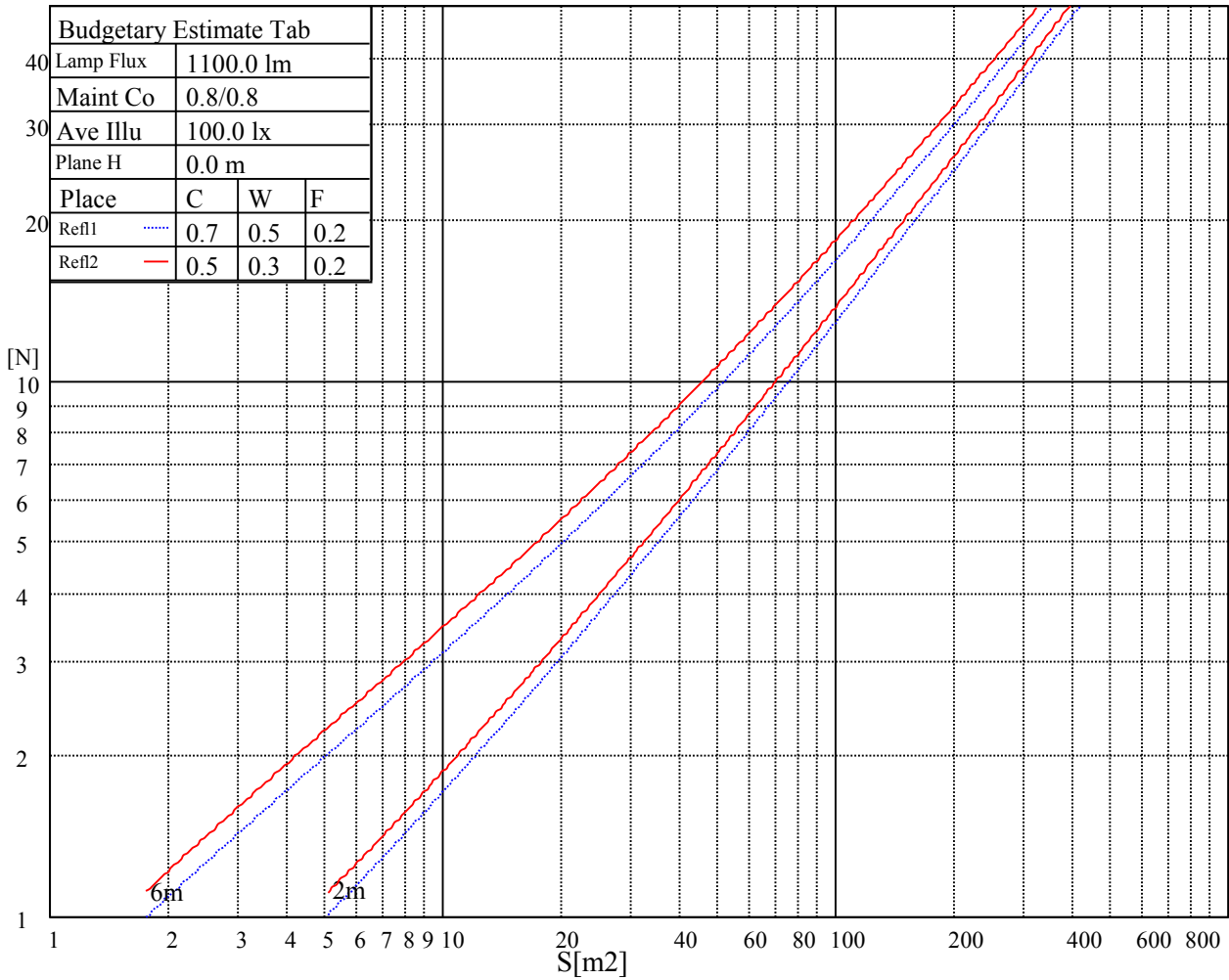
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

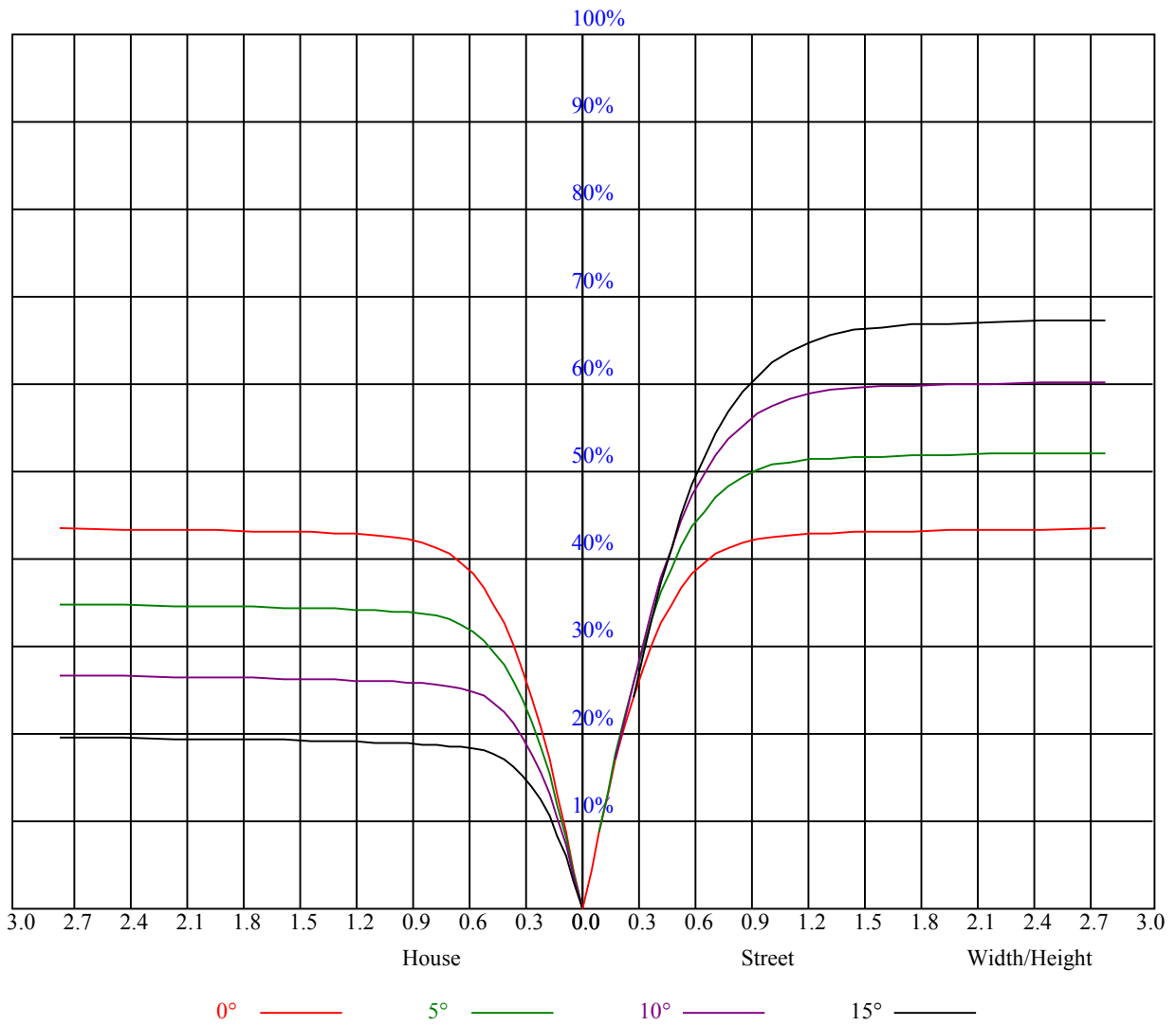
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

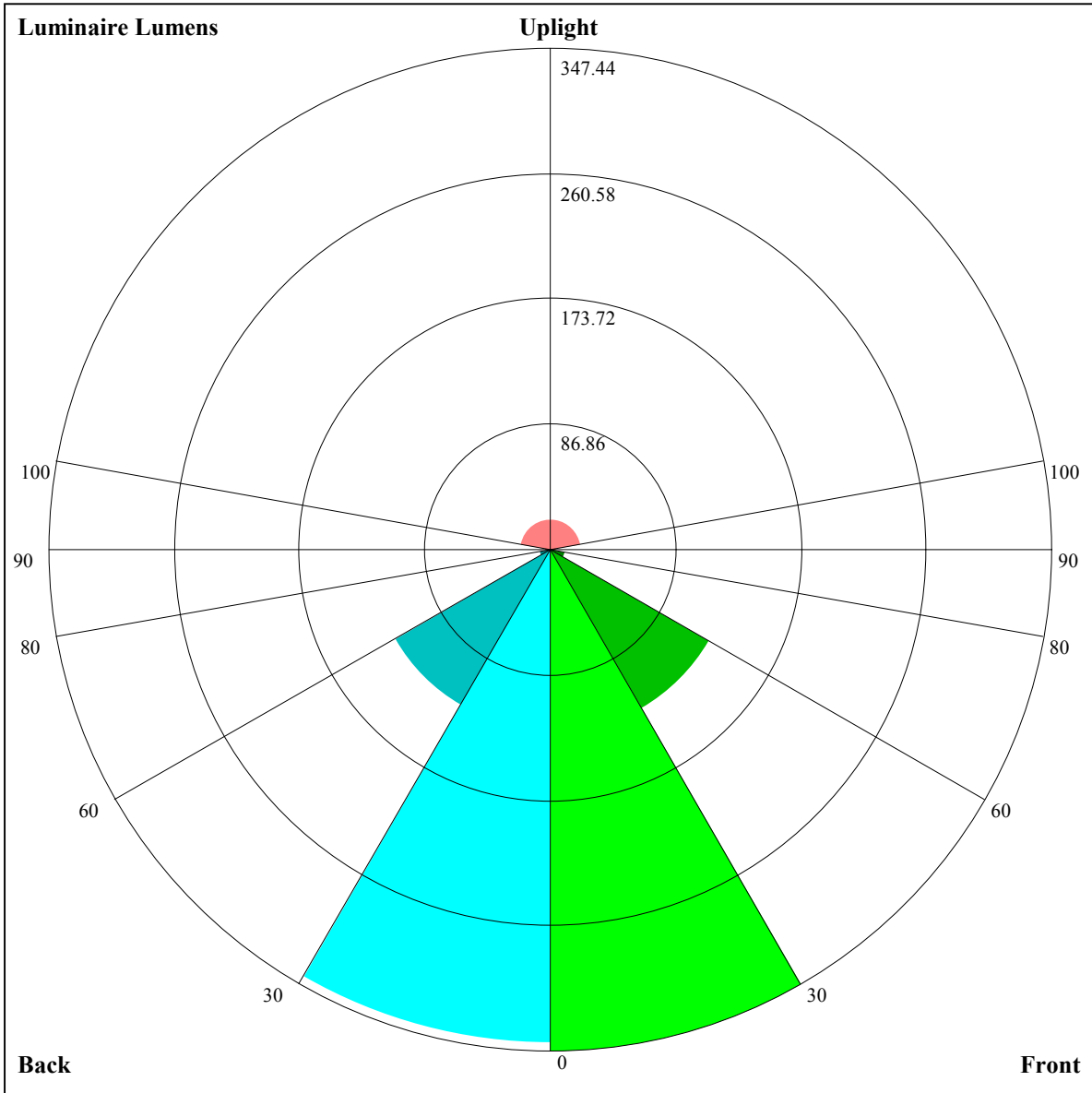
Luminance Limiting Curve





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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.97	0.95	0.93	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.87	0.86	0.86	0.84	0.84	0.82
2	0.91	0.87	0.84	0.89	0.86	0.83	0.86	0.83	0.81	0.83	0.81	0.79	0.81	0.79	0.78	0.76
3	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.77	0.75	0.79	0.76	0.73	0.77	0.74	0.72	0.71
4	0.79	0.74	0.70	0.78	0.74	0.70	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.66
5	0.74	0.69	0.65	0.73	0.69	0.65	0.72	0.68	0.64	0.70	0.67	0.64	0.69	0.66	0.63	0.62
6	0.70	0.65	0.61	0.69	0.64	0.61	0.68	0.63	0.60	0.67	0.63	0.60	0.65	0.62	0.59	0.58
7	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.62	0.59	0.56	0.55
8	0.62	0.57	0.54	0.62	0.57	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.52
9	0.59	0.54	0.50	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.50	0.56	0.53	0.50	0.49
10	0.56	0.51	0.48	0.56	0.51	0.48	0.55	0.51	0.47	0.54	0.50	0.47	0.54	0.50	0.47	0.46





Luminaire Lumens:

FL=347.44,FM=126.63,FH=10.32,FVH=2.98

BL=342.41,BM=124.15,BH=7.72,BVH=2.65

UL=4.55,UH=21.65

BUG Rating:B1-U2-G0

NATA 1451-E

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	1453.50	1420.31	1299.94	1108.69	881.44	665.44	474.75	316.13	188.55
45.0	1448.44	1375.88	1190.25	960.75	750.38	549.00	382.50	290.25	134.38
90.0	1436.06	1342.69	1110.99	897.24	713.25	522.45	372.60	246.71	132.75
135.0	1454.63	1397.25	1223.44	1019.25	791.44	591.75	451.13	295.88	160.71
180.0	1453.50	1376.44	1119.32	971.78	754.26	565.54	422.38	279.39	140.51
225.0	1448.44	1435.50	1284.19	1070.49	845.44	634.28	466.59	291.99	171.73
270.0	1436.06	1446.19	1334.25	1123.88	912.94	688.50	499.50	346.50	210.71
315.0	1454.63	1420.88	1296.56	1079.16	846.28	625.05	444.04	290.59	168.92
360.0	1453.50	1420.31	1299.94	1108.69	881.44	665.44	474.75	316.13	188.55
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	67.61	23.51	15.64	14.46	13.50	12.83	11.76	9.17	6.64
45.0	39.38	19.13	16.82	14.29	14.23	13.05	10.35	7.48	4.50
90.0	29.70	13.05	10.41	8.78	7.59	7.20	6.41	5.57	4.39
135.0	48.43	11.25	8.78	7.26	6.08	5.34	5.06	5.01	4.67
180.0	34.59	11.36	8.83	7.20	6.02	5.40	4.95	4.78	4.61
225.0	72.56	25.09	15.75	12.77	10.74	9.28	7.76	5.91	4.89
270.0	85.33	23.57	14.06	12.26	10.97	10.24	9.84	7.54	5.40
315.0	52.43	17.38	11.87	10.46	9.51	8.78	7.93	6.24	5.29
360.0	67.61	23.51	15.64	14.46	13.50	12.83	11.76	9.17	6.64
C/ γ (°)	90.0								
0.0	4.28								
45.0	4.11								
90.0	4.05								
135.0	4.11								
180.0	4.05								
225.0	4.16								
270.0	4.28								
315.0	4.33								
360.0	4.28								