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NATA

LumCAT: NA01D020038BW

Luminaire:

Report No: NATA0100

Voltage(V): 3.7000

Test No: GC2018121804

Current(A): 0.2600

LampCAT: NICHIA NF2W757

Power (W): 0.9620

Lamp flux(lm): 97.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 20

Width(mm): 20

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 90.55

Efficiency(%): 93.35%

Lumens(lm)/Power(W): 94.13

Central intensity(cd): 146.032

Maximum intensity(cd): 146.032

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=37.2

[C90/270]Total=37.2

Field angle(10%Imax): [C0/180]Total=79.6

[C90/270]Total=79.6

Maximum s/h(1/2): C0_180=0.60 C90_270=0.60

Maximum s/h(1/4): C0_180=0.64 C90_270=0.64

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 94.16%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 93.459%

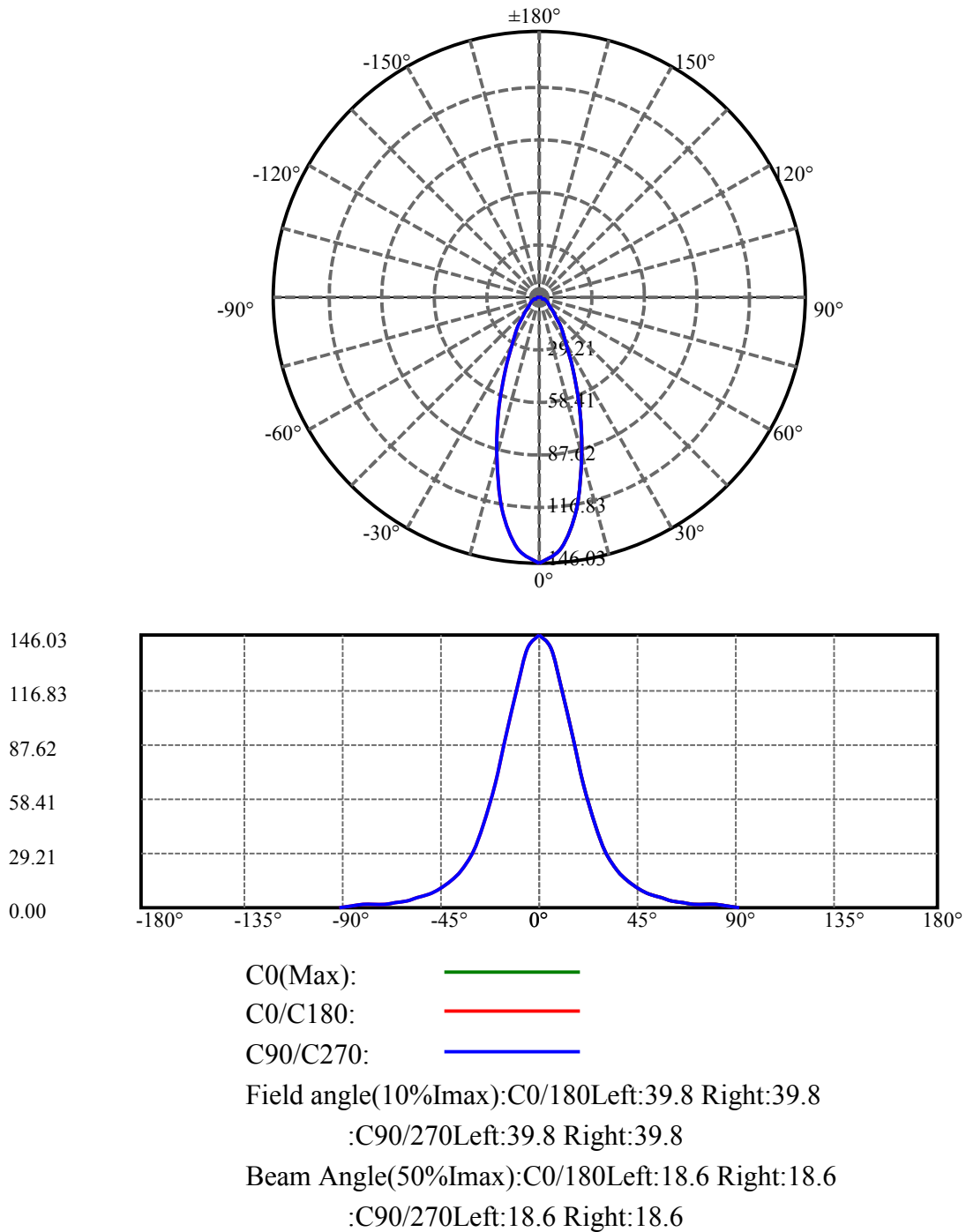
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	146.032	0.873	0.873	.900%	.964%
5.0	138.544	6.619	7.492	6.823%	8.274%
10.0	118.301	11.260	18.752	11.608%	20.710%
15.0	90.809	12.883	31.635	13.281%	34.937%
20.0	66.263	12.422	44.058	12.807%	48.656%
25.0	44.409	10.288	54.345	10.606%	60.018%
30.0	29.798	8.167	62.512	8.419%	69.037%
35.0	20.299	6.382	68.894	6.579%	76.085%
40.0	14.351	5.056	73.95	5.213%	81.669%
45.0	10.167	3.941	77.891	4.063%	86.021%
50.0	7.495	3.147	81.038	3.245%	89.497%
55.0	5.421	2.434	83.472	2.509%	92.185%
60.0	3.980	1.889	85.362	1.948%	94.272%
65.0	2.918	1.450	86.811	1.494%	95.873%
70.0	2.236	1.152	87.963	1.187%	97.145%
75.0	1.772	0.938	88.901	.967%	98.181%
80.0	1.554	0.839	89.74	.865%	99.107%
85.0	1.308	0.714	90.454	.736%	99.896%
90.0	0.345	0.094	90.548	.097%	100.000%

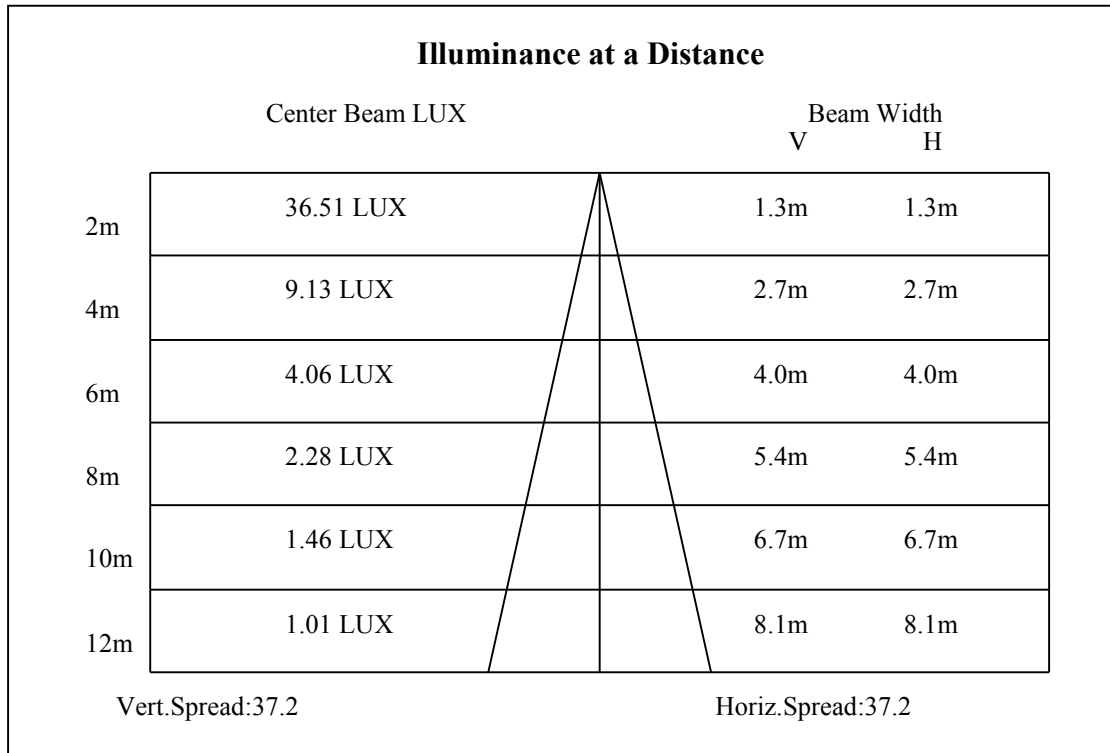
ZONAL LUMEN SUMMARY

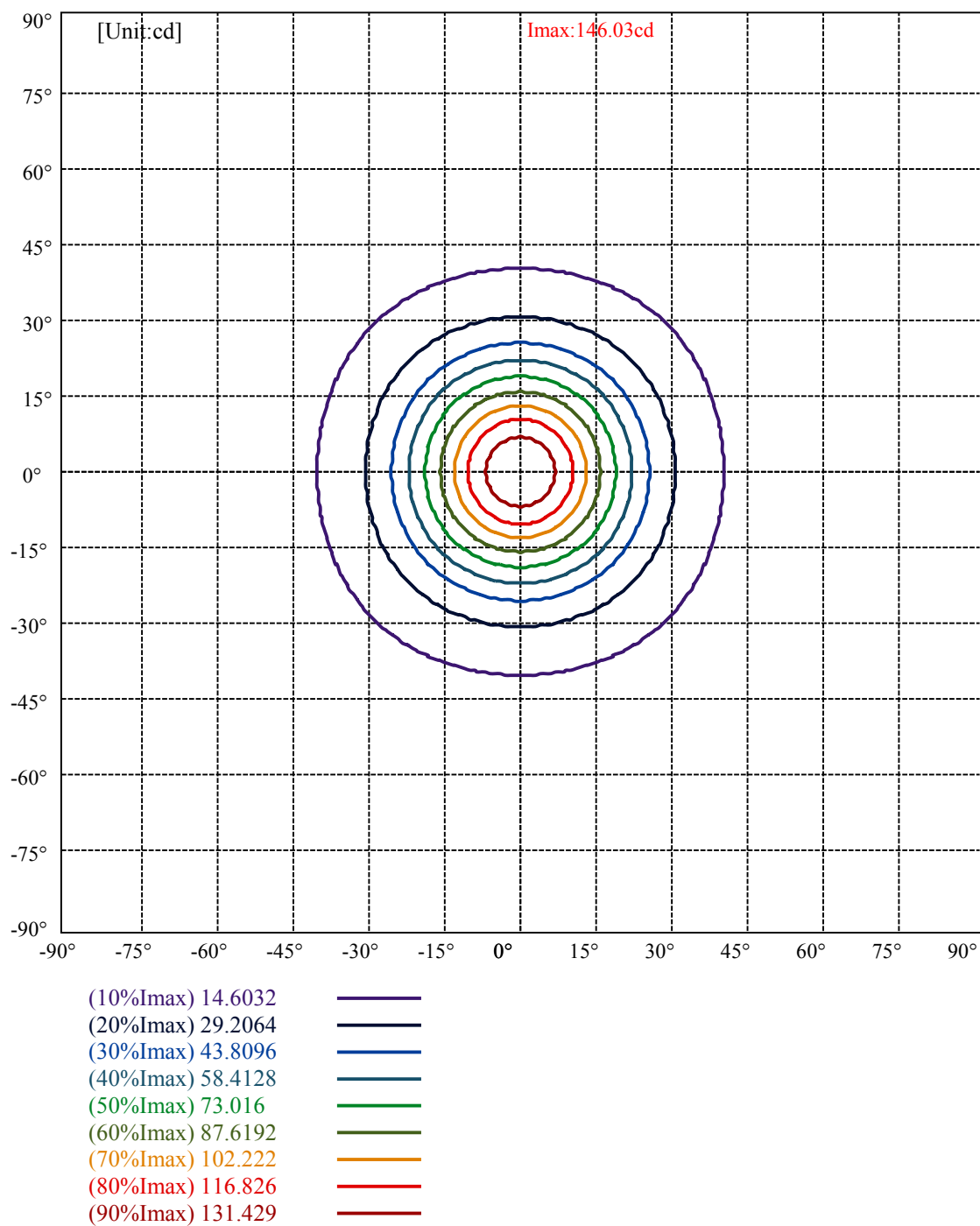
Zone	Lumens	%Lamp	%Fixt
0-30	62.51	64.45%	69.04%
0-40	73.95	76.24%	81.67%
0-60	85.36	88.00%	94.27%
0-90	90.45	93.25%	99.90%
0-120	90.45	93.25%	99.90%
0-180	90.55	93.35%	100.00%
60-90	6.98	7.20%	7.71%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-38.51	72.44	74.68%	80.00%

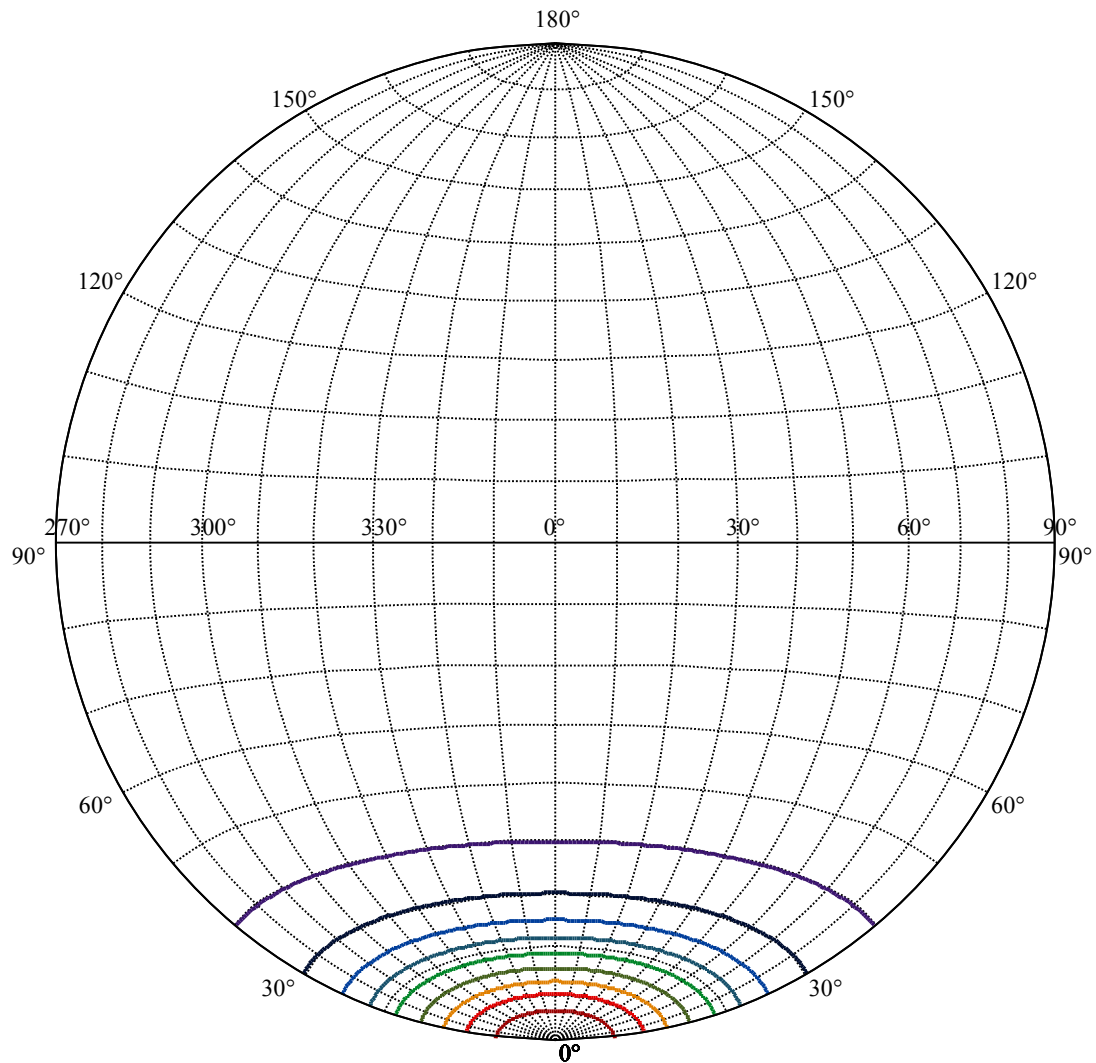
ZONAL LUMEN SUMMARY

0-10	18.75
10-20	25.31
20-30	18.45
30-40	11.44
40-50	7.09
50-60	4.32
60-70	2.60
70-80	1.78
80-90	0.71
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









House

[Unit:cd]

Road

Imax:146.03

(10%Imax) 14.6032

(20%Imax) 29.2064

(30%Imax) 43.8096

(40%Imax) 58.4128

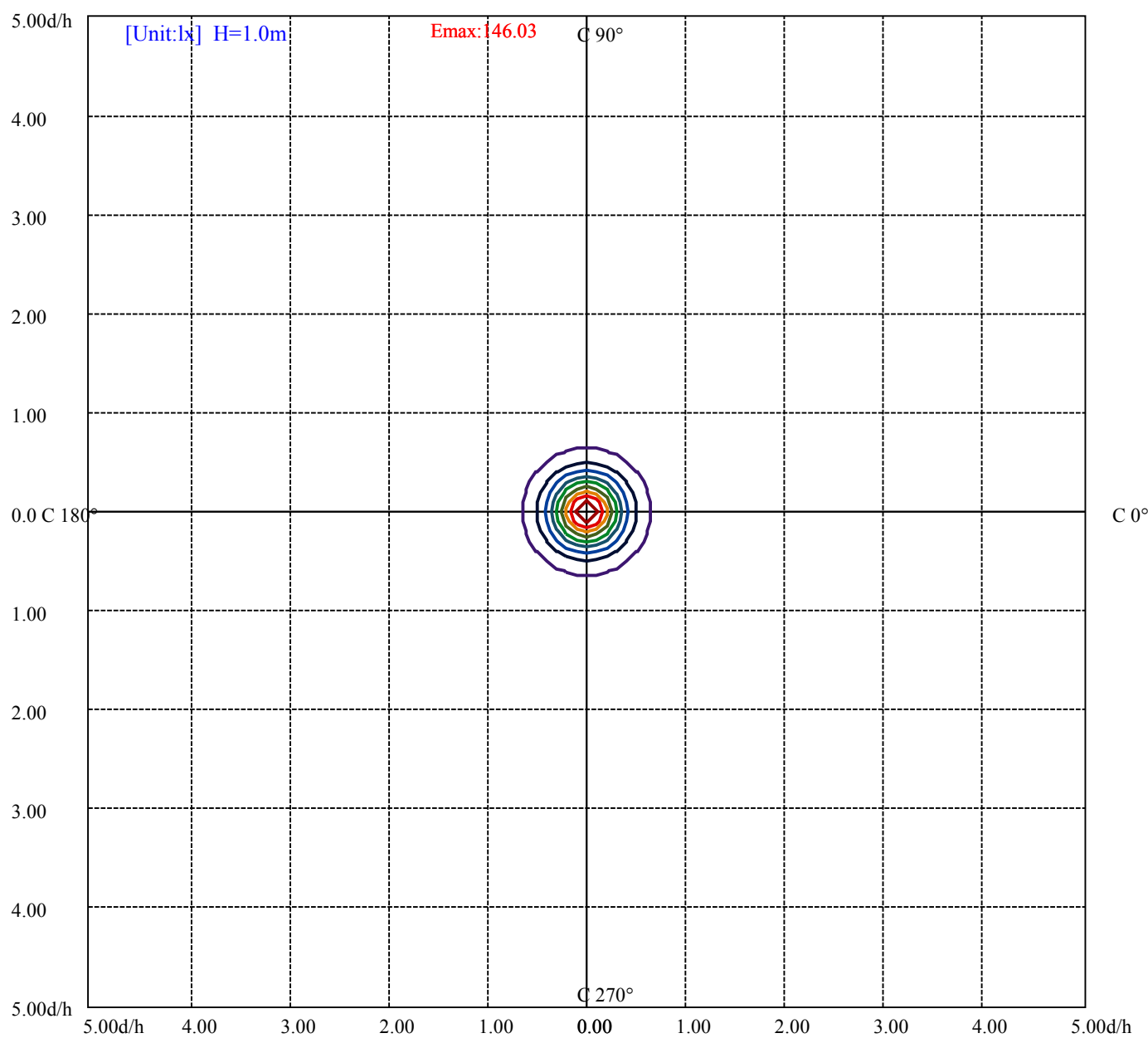
(50%Imax) 73.016

(60%Imax) 87.6192

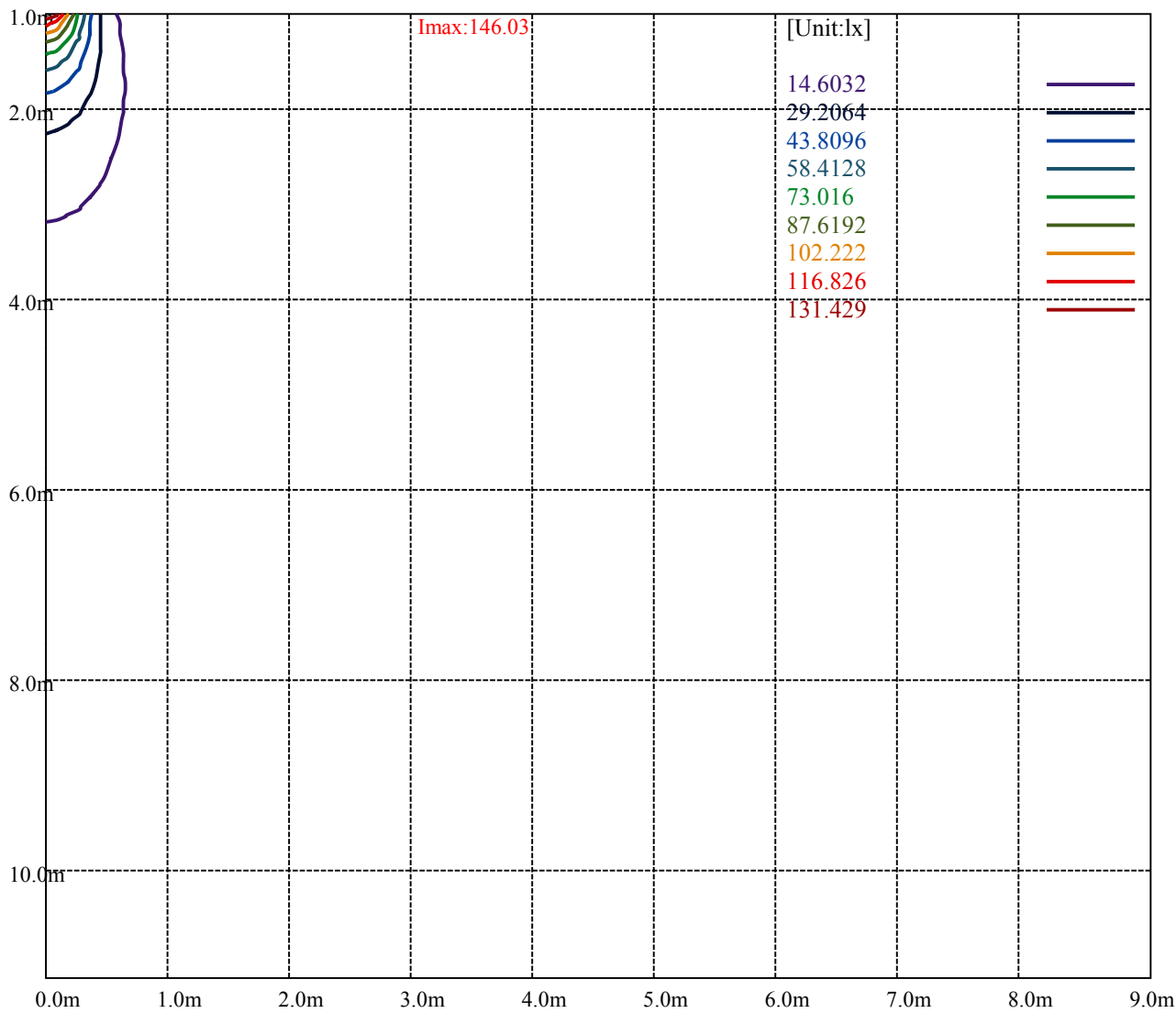
(70%Imax) 102.222

(80%Imax) 116.826

(90%Imax) 131.429



(10%Emax) 14.6032	—
(20%Emax) 29.2064	—
(30%Emax) 43.8095	—
(40%Emax) 58.4127	—
(50%Emax) 73.0159	—
(60%Emax) 87.6191	—
(70%Emax) 102.222	—
(80%Emax) 116.825	—
(90%Emax) 131.429	—



Luminance Table

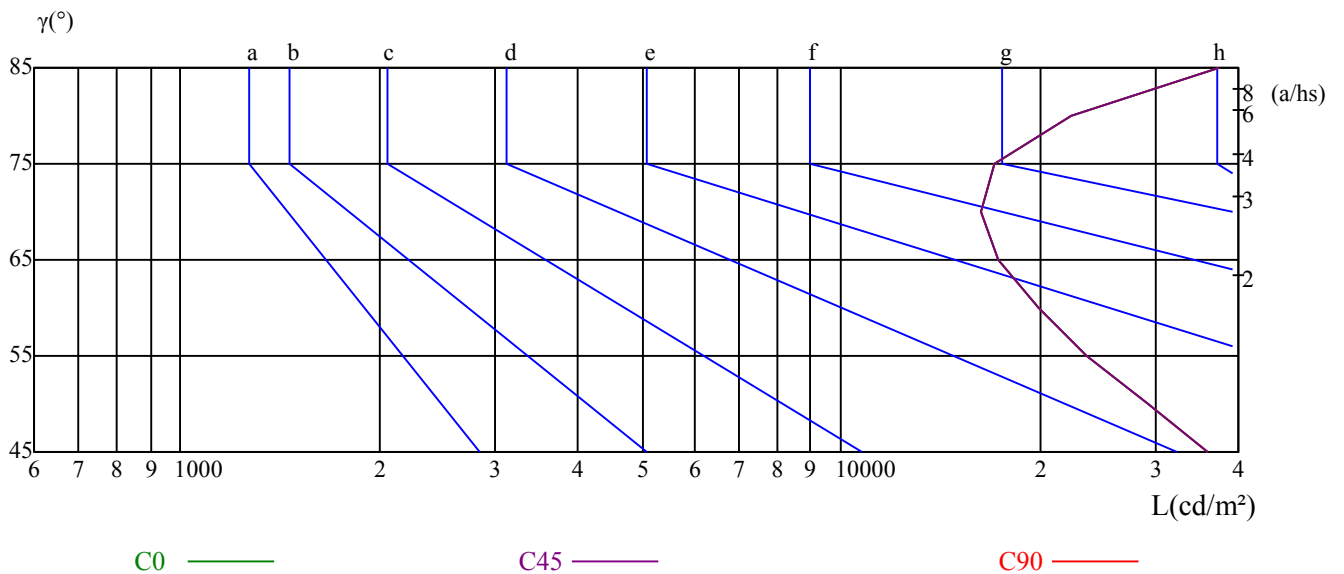
γ	45	50	55	60	65	70	75	80	85
C0	35946	29152	23628	19898	17261	16344	17115	22371	37514
C45	35946	29152	23628	19898	17261	16344	17115	22371	37514
C90	35946	29152	23628	19898	17261	16344	17115	22371	37514

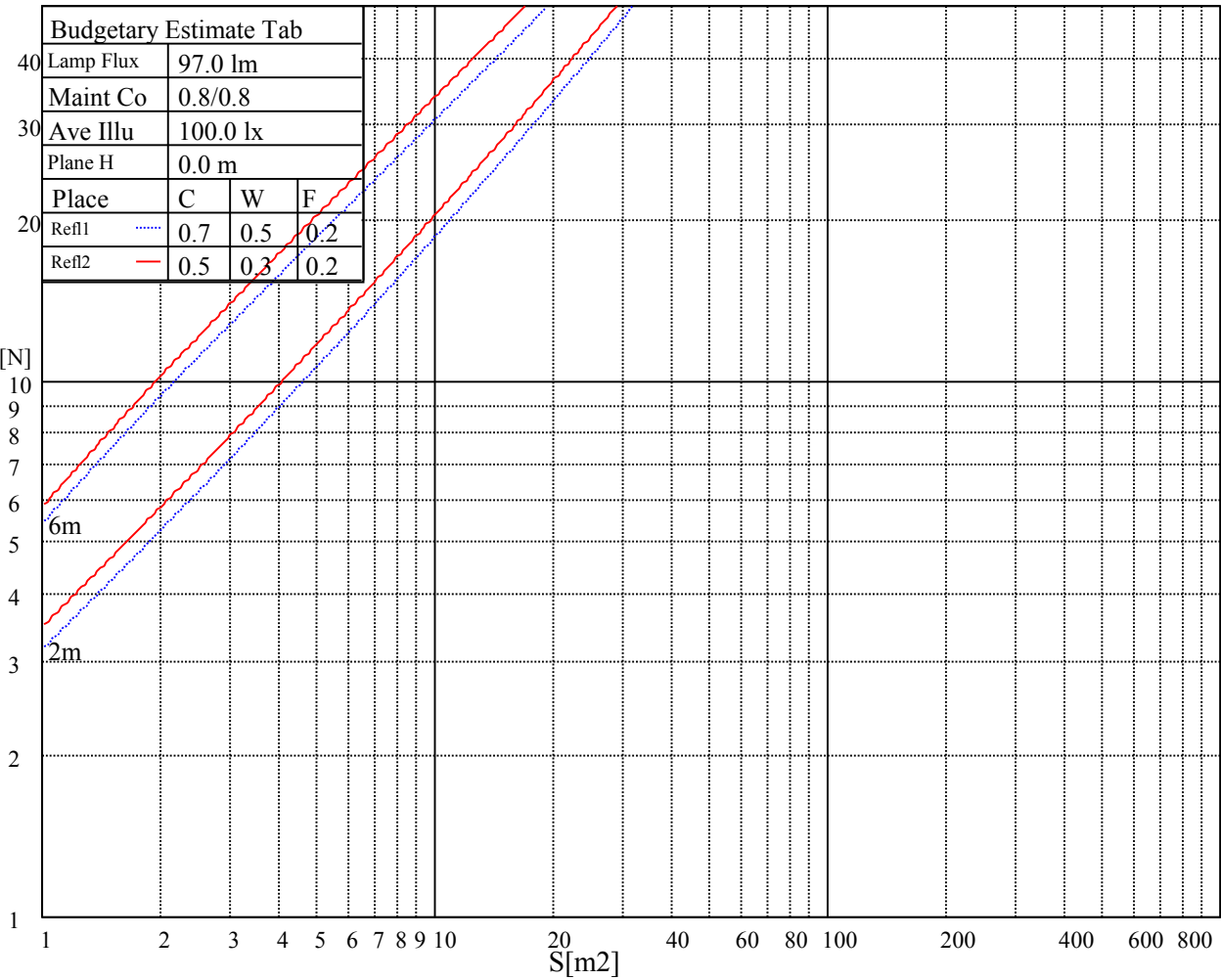
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
17261	17261	17261	17115	17115	17115	37514	37514	37514

Glare Table

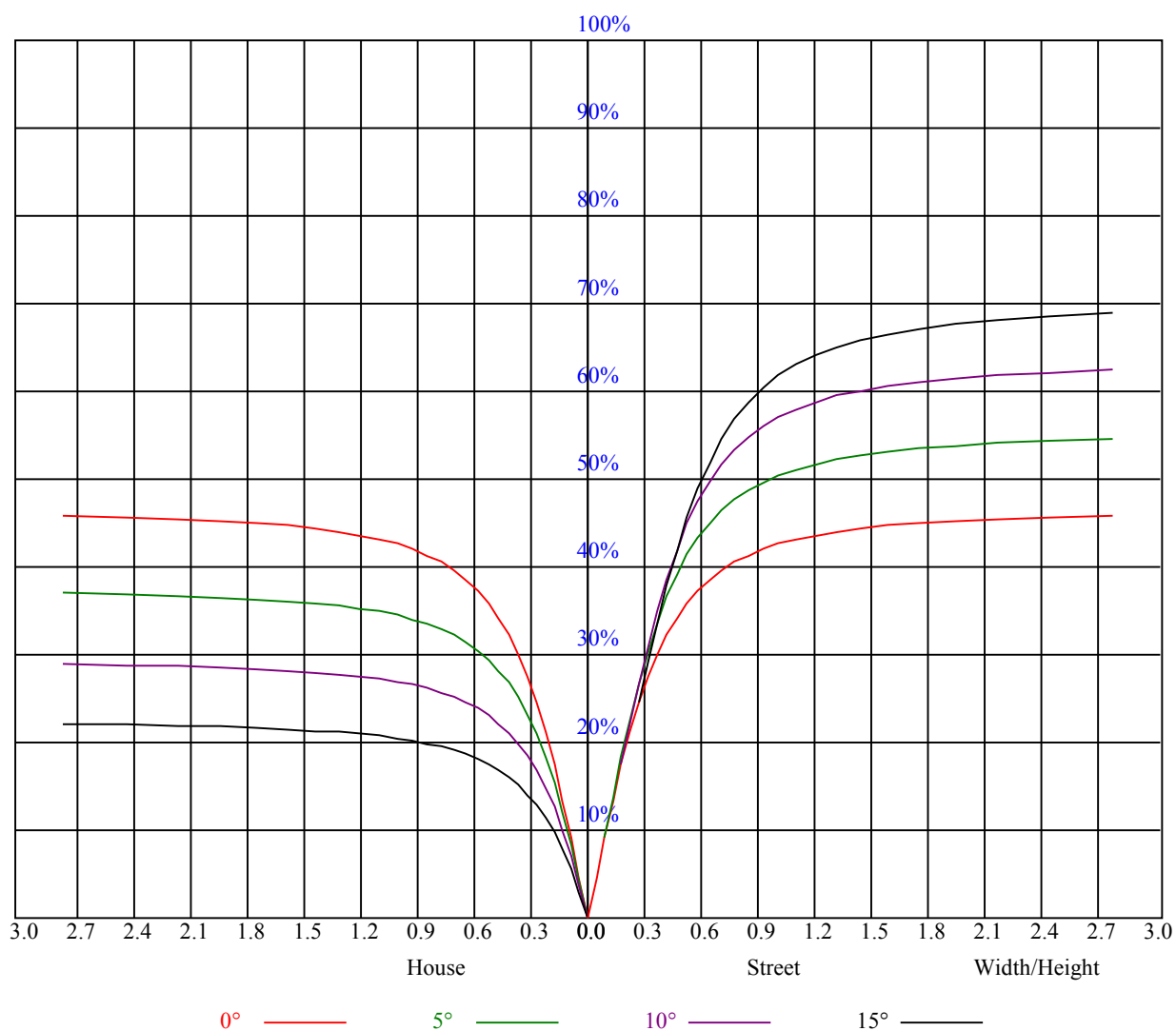
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.12	1.12	1.12	1.09	1.09	1.09	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.94
1	1.02	0.99	0.97	1.00	0.97	0.95	0.96	0.94	0.92	0.93	0.91	0.89	0.89	0.88	0.87	0.85
2	0.94	0.90	0.86	0.93	0.89	0.85	0.90	0.86	0.84	0.87	0.84	0.82	0.84	0.82	0.80	0.78
3	0.88	0.83	0.79	0.87	0.82	0.78	0.84	0.80	0.77	0.82	0.78	0.75	0.80	0.77	0.74	0.73
4	0.82	0.77	0.72	0.81	0.76	0.72	0.79	0.75	0.71	0.77	0.73	0.70	0.75	0.72	0.69	0.68
5	0.77	0.71	0.67	0.76	0.71	0.67	0.75	0.70	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.64
6	0.73	0.67	0.63	0.72	0.67	0.63	0.71	0.66	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.60
7	0.69	0.63	0.59	0.68	0.63	0.59	0.67	0.62	0.59	0.66	0.62	0.58	0.65	0.61	0.58	0.57
8	0.66	0.60	0.56	0.65	0.60	0.56	0.64	0.59	0.56	0.63	0.59	0.55	0.62	0.58	0.55	0.54
9	0.62	0.57	0.53	0.62	0.57	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.60	0.56	0.53	0.51
10	0.60	0.54	0.51	0.59	0.54	0.51	0.59	0.54	0.51	0.58	0.53	0.50	0.57	0.53	0.50	0.49



Intensity data(cd)										Appendix Page: 14 Total:14	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	146.36	137.42	117.96	93.38	68.29	46.13	30.94	20.87	14.46		
45.0	145.35	135.62	114.98	88.76	65.19	44.16	29.53	19.58	13.95		
90.0	145.80	132.81	108.17	79.37	58.73	39.32	26.49	18.00	12.77		
135.0	146.59	137.36	116.94	88.71	64.52	43.31	29.42	20.19	14.23		
180.0	146.36	139.33	118.63	90.23	65.03	43.31	29.31	19.97	14.57		
225.0	145.35	139.61	119.42	92.08	65.36	43.43	28.97	20.48	14.57		
270.0	145.80	144.96	128.59	100.24	74.36	49.84	33.19	22.56	15.75		
315.0	146.64	141.24	121.73	93.71	68.63	45.79	30.54	20.76	14.51		
360.0	146.36	137.42	117.96	93.38	68.29	46.13	30.94	20.87	14.46		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	10.01	7.26	5.18	3.77	2.87	2.19	1.86	1.63	1.46		
45.0	9.73	7.20	5.18	3.88	2.93	2.31	1.91	1.63	1.41		
90.0	9.11	6.75	4.89	3.66	2.64	2.14	1.74	1.52	1.24		
135.0	10.13	7.59	5.40	3.99	2.98	2.31	1.91	1.69	1.35		
180.0	10.52	7.71	5.68	4.11	2.93	2.14	1.52	1.58	1.41		
225.0	10.52	7.88	5.68	4.16	3.09	2.36	1.86	1.58	1.41		
270.0	11.08	8.16	5.96	4.33	3.04	2.25	1.58	1.35	1.07		
315.0	10.24	7.43	5.40	3.94	2.87	2.19	1.80	1.46	1.13		
360.0	10.01	7.26	5.18	3.77	2.87	2.19	1.86	1.63	1.46		
C/ γ (°)	90.0										
0.0	0.34										
45.0	0.39										
90.0	0.34										
135.0	0.34										
180.0	0.34										
225.0	0.34										
270.0	0.34										
315.0	0.34										
360.0	0.34										