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## NATA

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LumCAT: NA01D0201530CA

Luminaire:

Report No: NATA0100

Voltage(V): 3.7000

Test No: GC2018121801

Current(A): 0.2500

LampCAT: NICHIA NF2W757

Power (W): 3.7030

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

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## Photometric Results

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Lumens(lm): 90.30

Efficiency(%): 93.10%

Lumens(lm)/Power(W): 24.39

Central intensity(cd): 142.763

Maximum intensity(cd): 340.538

Angle of maximum intensity: C=0.0  $\gamma$ =10.0

Beam Angle(50%Imax): [C0/180]Total=17.3

[C90/270]Total=31.7

Field angle(10%Imax): [C0/180]Total=40.0

[C90/270]Total=60.9

Maximum s/h(1/2): C0\_180=0.17 C90\_270=0.62

Maximum s/h(1/4): C0\_180=0.24 C90\_270=0.60

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 93.13%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 94.428%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	139.031	0.033	0.033	.034%	.037%
1.0	139.470	0.267	0.3	.275%	.332%
2.0	140.735	0.539	0.839	.555%	.929%
3.0	142.226	0.816	1.655	.842%	1.833%
4.0	144.209	1.103	2.758	1.137%	3.054%
5.0	146.599	1.401	4.159	1.445%	4.606%
6.0	148.959	1.707	5.867	1.760%	6.497%
7.0	151.184	2.020	7.887	2.083%	8.734%
8.0	152.463	2.327	10.214	2.399%	11.311%
9.0	153.148	2.627	12.841	2.709%	14.221%
10.0	152.276	2.900	15.741	2.990%	17.432%
11.0	149.988	3.138	18.879	3.236%	20.907%
12.0	145.992	3.329	22.208	3.432%	24.593%
13.0	140.114	3.456	25.664	3.564%	28.421%
14.0	133.228	3.534	29.199	3.644%	32.335%
15.0	125.475	3.561	32.76	3.672%	36.279%
16.0	116.862	3.532	36.292	3.642%	40.191%
17.0	108.108	3.466	39.759	3.574%	44.029%
18.0	99.002	3.355	43.113	3.459%	47.744%
19.0	90.239	3.222	46.335	3.322%	51.312%
20.0	81.380	3.052	49.387	3.147%	54.692%
21.0	73.207	2.877	52.264	2.966%	57.878%
22.0	65.405	2.687	54.951	2.770%	60.853%
23.0	58.134	2.491	57.442	2.568%	63.612%
24.0	51.413	2.293	59.735	2.364%	66.151%
25.0	45.260	2.098	61.833	2.163%	68.474%
26.0	40.102	1.928	63.761	1.988%	70.609%
27.0	35.304	1.758	65.518	1.812%	72.555%
28.0	31.038	1.598	67.116	1.648%	74.325%
29.0	27.410	1.457	68.573	1.502%	75.939%
30.0	24.237	1.329	69.902	1.370%	77.410%
31.0	21.291	1.202	71.105	1.240%	78.742%
32.0	18.855	1.096	72.201	1.130%	79.955%
33.0	16.819	1.005	73.205	1.036%	81.068%
34.0	14.995	0.920	74.125	.948%	82.086%
35.0	13.392	0.842	74.967	.868%	83.019%
36.0	12.014	0.774	75.741	.798%	83.876%
37.0	10.887	0.718	76.46	.741%	84.672%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.825	0.663	77.123	.684%	85.407%
39.0	8.913	0.615	77.738	.634%	86.088%
40.0	8.154	0.575	78.313	.593%	86.724%
41.0	7.474	0.538	78.851	.554%	87.320%
42.0	6.841	0.502	79.353	.518%	87.876%
43.0	6.309	0.472	79.825	.487%	88.398%
44.0	5.864	0.447	80.271	.461%	88.893%
45.0	5.445	0.422	80.694	.435%	89.361%
46.0	5.086	0.401	81.095	.414%	89.805%
47.0	4.741	0.380	81.475	.392%	90.226%
48.0	4.467	0.364	81.839	.375%	90.629%
49.0	4.184	0.346	82.185	.357%	91.013%
50.0	3.945	0.331	82.517	.342%	91.379%
51.0	3.748	0.319	82.836	.329%	91.733%
52.0	3.570	0.308	83.144	.318%	92.075%
53.0	3.387	0.297	83.441	.306%	92.403%
54.0	3.241	0.288	83.729	.296%	92.722%
55.0	3.105	0.279	84.008	.288%	93.031%
56.0	2.988	0.272	84.279	.280%	93.331%
57.0	2.878	0.265	84.544	.273%	93.625%
58.0	2.768	0.257	84.801	.265%	93.910%
59.0	2.677	0.252	85.053	.259%	94.188%
60.0	2.576	0.245	85.298	.252%	94.459%
61.0	2.487	0.239	85.536	.246%	94.723%
62.0	2.393	0.232	85.768	.239%	94.980%
63.0	2.323	0.227	85.995	.234%	95.231%
64.0	2.243	0.221	86.216	.228%	95.476%
65.0	2.159	0.215	86.43	.221%	95.714%
66.0	2.088	0.209	86.64	.216%	95.945%
67.0	2.060	0.208	86.848	.214%	96.176%
68.0	2.018	0.205	87.053	.212%	96.403%
69.0	1.938	0.198	87.251	.205%	96.622%
70.0	1.854	0.191	87.442	.197%	96.834%
71.0	1.760	0.183	87.625	.188%	97.036%
72.0	1.692	0.176	87.801	.182%	97.232%
73.0	1.650	0.173	87.974	.178%	97.423%
74.0	1.605	0.169	88.143	.174%	97.611%
75.0	1.566	0.166	88.309	.171%	97.794%

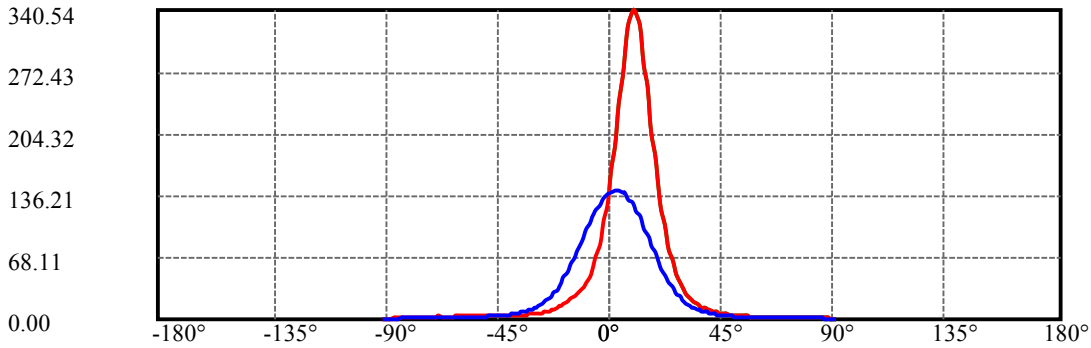
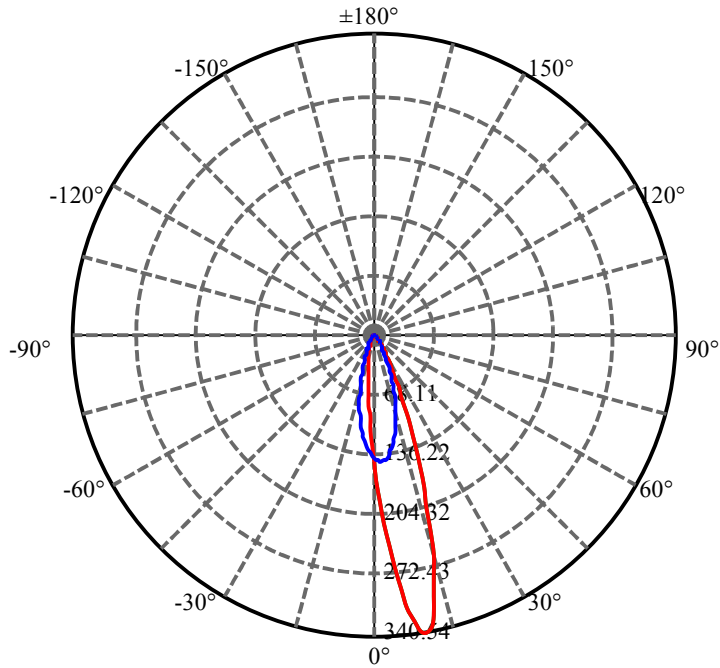
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.530	0.163	88.472	.168%	97.975%
77.0	1.509	0.161	88.633	.166%	98.153%
78.0	1.470	0.158	88.791	.163%	98.328%
79.0	1.453	0.156	88.947	.161%	98.501%
80.0	1.425	0.154	89.101	.159%	98.671%
81.0	1.418	0.154	89.255	.158%	98.842%
82.0	1.406	0.153	89.408	.157%	99.011%
83.0	1.399	0.152	89.56	.157%	99.179%
84.0	1.355	0.148	89.708	.152%	99.343%
85.0	1.334	0.146	89.853	.150%	99.504%
86.0	1.212	0.133	89.986	.137%	99.651%
87.0	0.987	0.108	90.094	.111%	99.771%
88.0	0.844	0.092	90.186	.095%	99.873%
89.0	0.736	0.081	90.267	.083%	99.962%
90.0	0.619	0.034	90.301	.035%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	69.90	72.07%	77.41%
0-40	78.31	80.74%	86.72%
0-60	85.30	87.94%	94.46%
0-90	90.27	93.07%	99.96%
0-120	90.27	93.07%	99.96%
0-180	90.30	93.10%	100.00%
60-90	5.21	5.38%	5.77%
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%
0-32.04	72.24	74.48%	80.00%

ZONAL LUMEN SUMMARY

0-10	15.74
10-20	33.65
20-30	20.51
30-40	8.41
40-50	4.20
50-60	2.78
60-70	2.14
70-80	1.66
80-90	1.17
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: ———

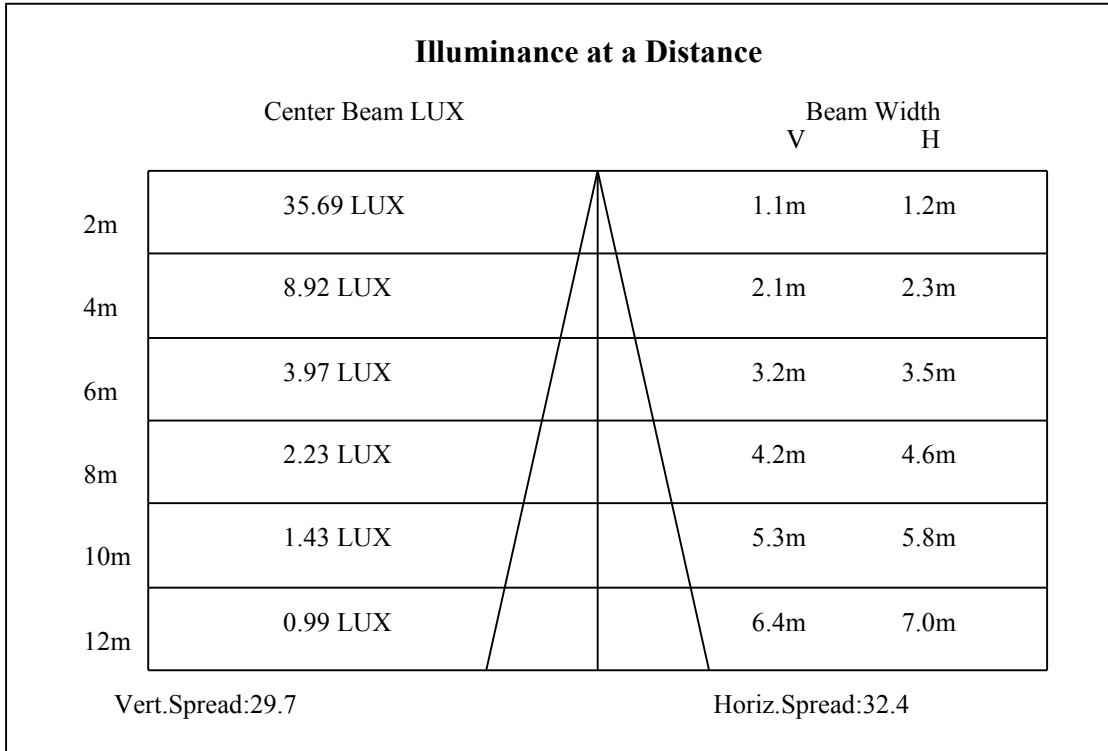
C90/C270: ———

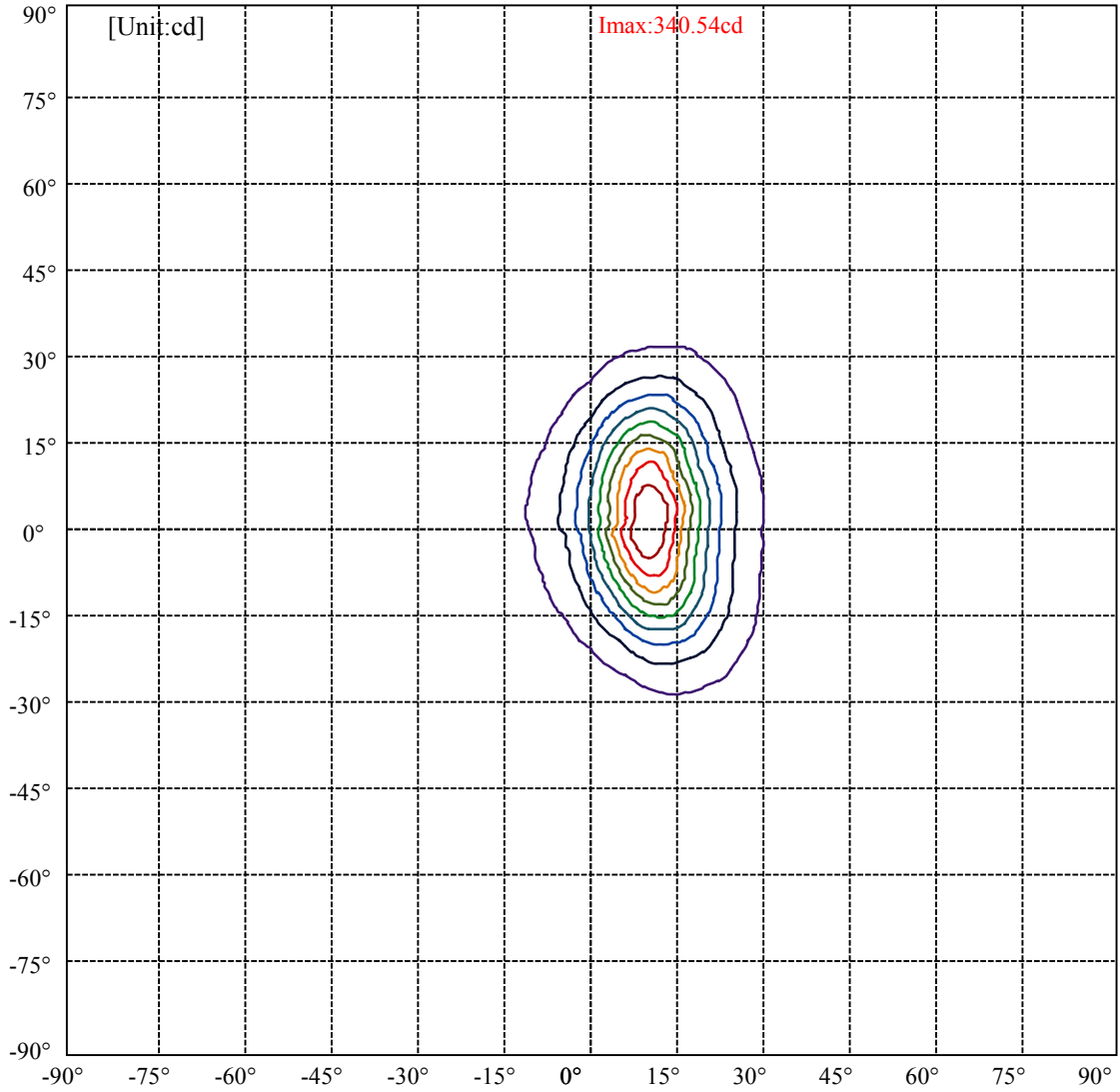
Field angle(10%Imax):C0/180Left:20.7 Right:19.4

:C90/270Left:31.3 Right:29.6

Beam Angle(50%Imax):C0/180Left:8.8 Right:8.5

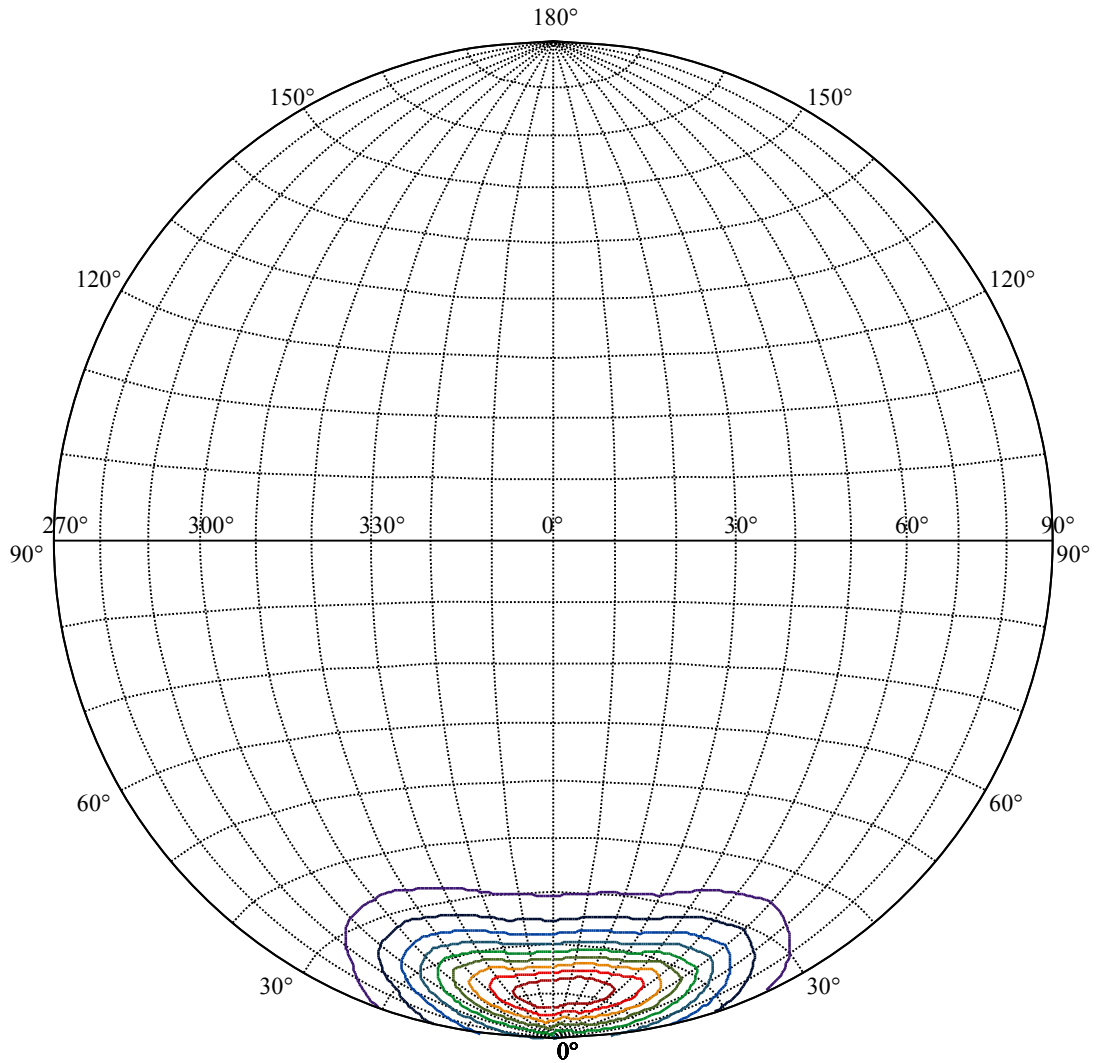
:C90/270Left:16.3 Right:15.4





(10%Imax) 34.0537	—
(20%Imax) 68.1075	—
(30%Imax) 102.161	—
(40%Imax) 136.215	—
(50%Imax) 170.269	—
(60%Imax) 204.323	—
(70%Imax) 238.376	—
(80%Imax) 272.43	—
(90%Imax) 306.484	—





House

[Unit:cd]

Road

**Imax:340.54**

(10%Imax) 34.0537

(20%Imax) 68.1075

(30%Imax) 102.161

(40%Imax) 136.215

(50%Imax) 170.269

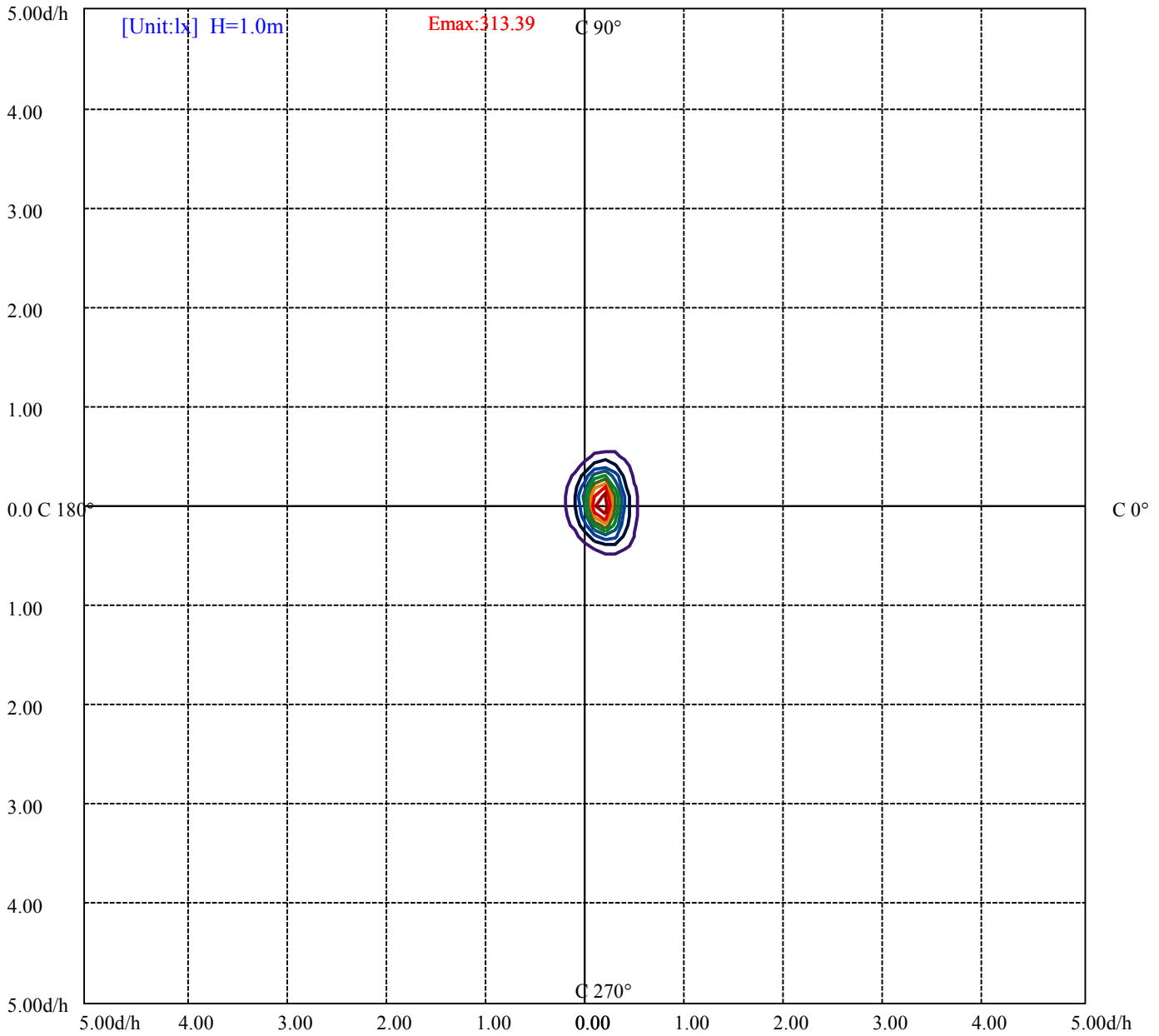
(60%Imax) 204.323

(70%Imax) 238.376

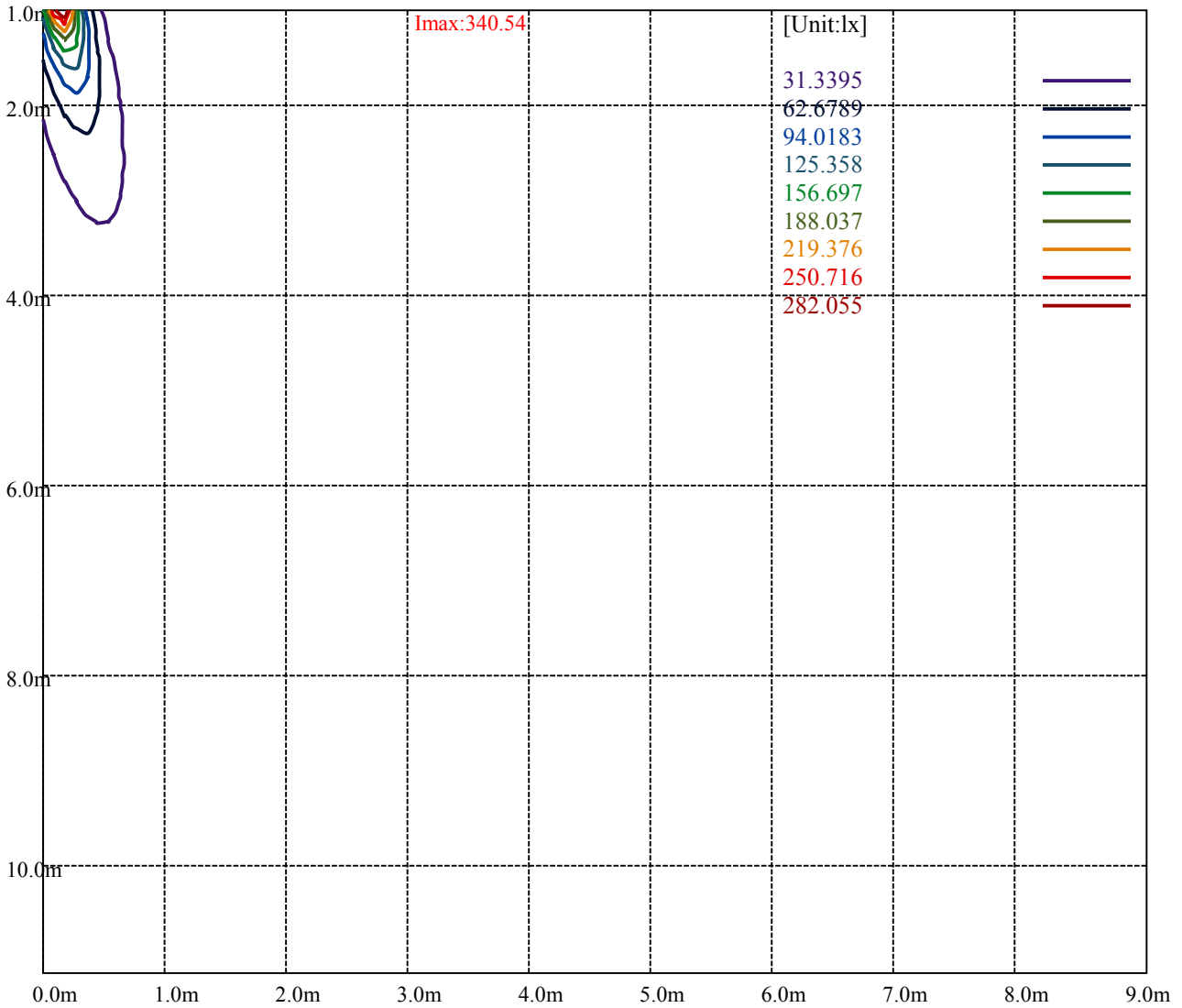
(80%Imax) 272.43

(90%Imax) 306.484





(10%Emax) 31.3393	—
(20%Emax) 62.6786	—
(30%Emax) 94.0179	—
(40%Emax) 125.357	—
(50%Emax) 156.697	—
(60%Emax) 188.036	—
(70%Emax) 219.375	—
(80%Emax) 250.715	—
(90%Emax) 282.054	—



Luminance Table

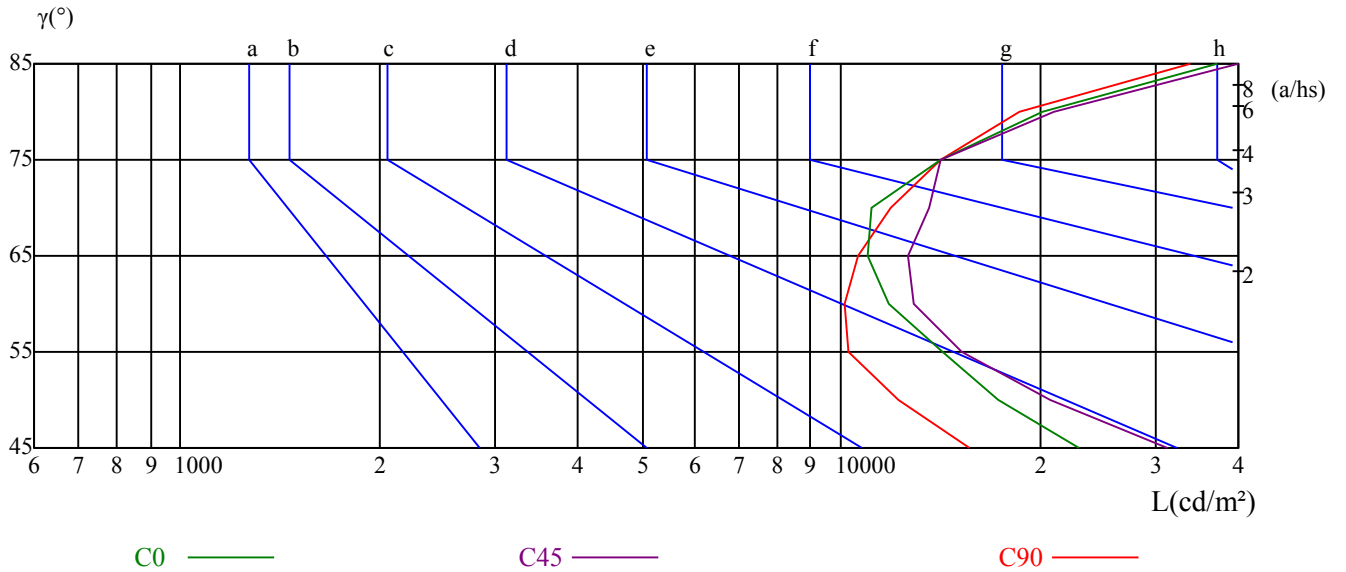
$\gamma$	45	50	55	60	65	70	75	80	85
C0	22870	17283	14220	11813	10981	11101	14127	20246	37110
C45	31223	20784	15201	12938	12644	13568	14127	21056	40337
C90	15711	12251	10297	10125	10648	11924	14127	18626	33883

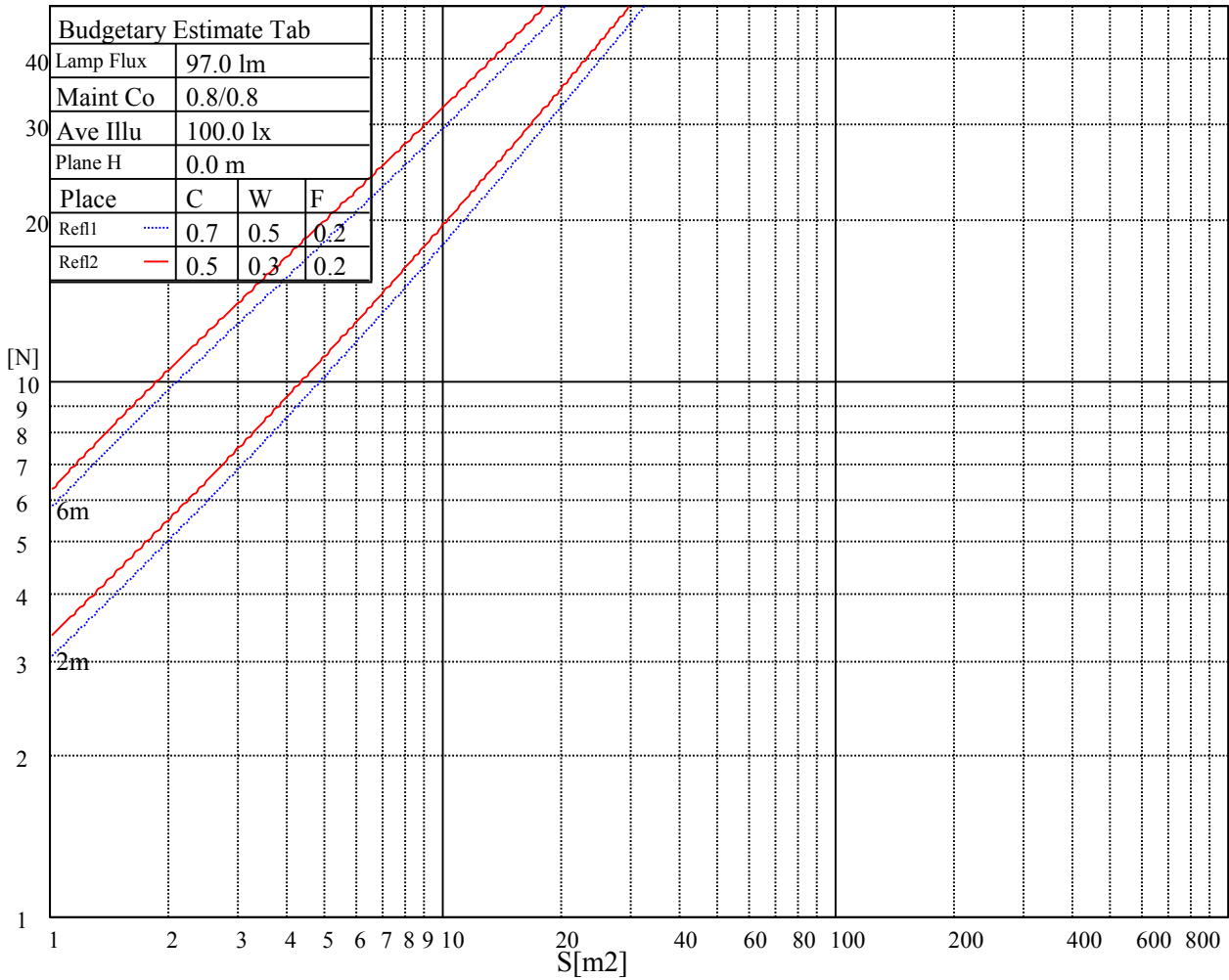
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
13144	10814	13643	16028	13312	15621	38724	30656	43161

Glare Table

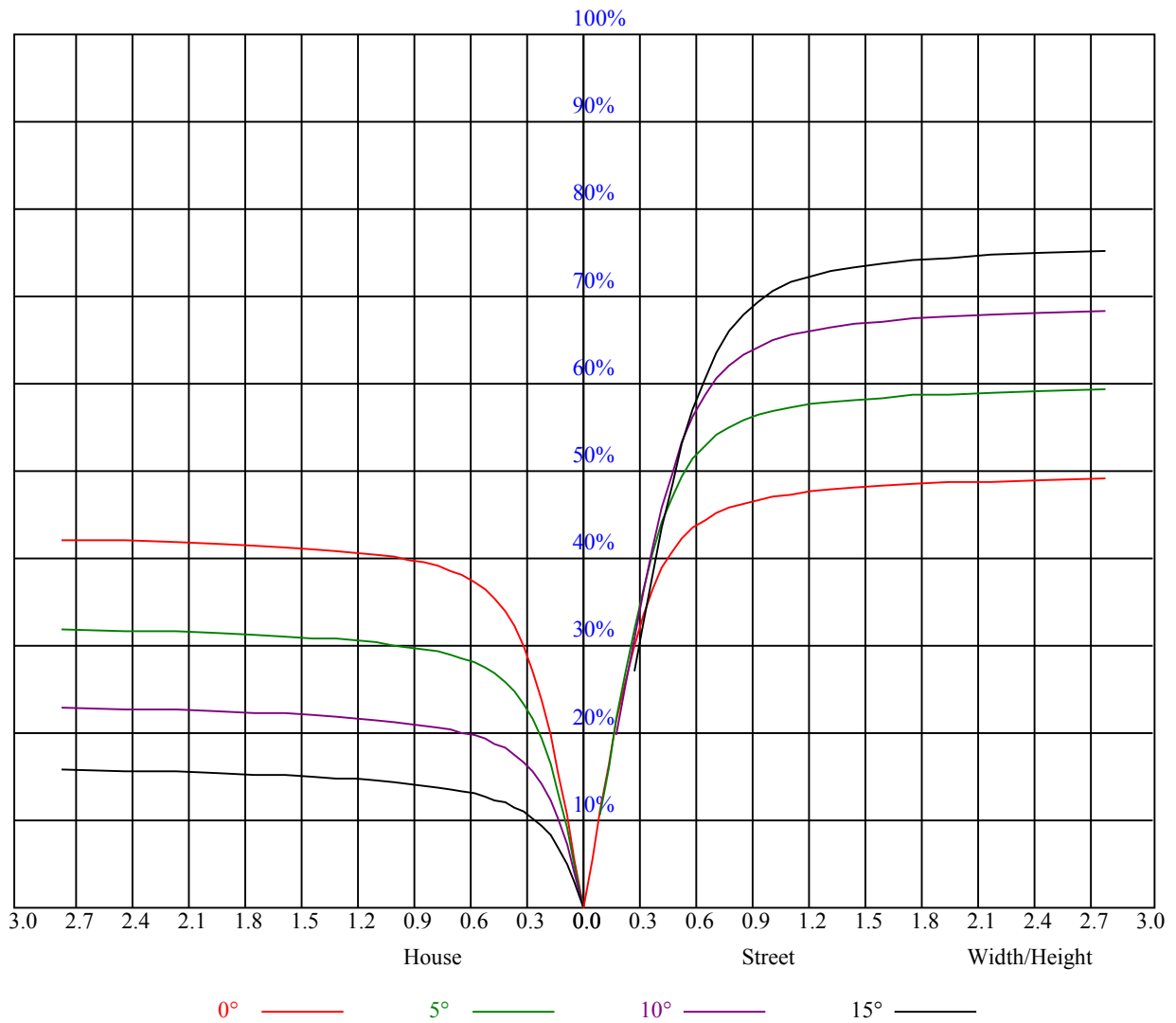
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	1.00	0.97	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.95	0.91	0.88	0.94	0.90	0.87	0.91	0.88	0.85	0.88	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.84	0.81	0.88	0.84	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.78	0.76	0.75
4	0.84	0.79	0.75	0.83	0.78	0.74	0.81	0.77	0.74	0.79	0.75	0.73	0.77	0.74	0.72	0.70
5	0.79	0.74	0.70	0.78	0.73	0.70	0.77	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.67
6	0.75	0.70	0.66	0.74	0.69	0.66	0.73	0.69	0.65	0.72	0.68	0.65	0.70	0.67	0.64	0.63
7	0.71	0.66	0.62	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.60
8	0.68	0.63	0.59	0.68	0.63	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.57
9	0.65	0.60	0.56	0.65	0.60	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.55
10	0.62	0.57	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.60	0.56	0.53	0.52



Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	142.76	165.15	189.73	212.68	239.40	266.06	288.68	310.73	326.08
15.0	126.06	143.83	168.86	190.35	212.57	238.33	264.04	286.54	306.39
30.0	135.11	154.41	173.03	195.13	218.03	238.56	258.98	283.28	299.36
45.0	127.69	143.44	160.65	176.63	195.08	210.94	228.43	245.42	259.20
60.0	137.19	147.94	160.59	173.36	183.83	193.73	205.48	213.98	221.46
75.0	134.04	140.40	148.67	154.97	160.88	165.15	169.20	171.79	173.87
90.0	138.83	140.57	141.98	142.65	142.09	140.57	138.54	135.39	131.85
105.0	141.08	138.21	134.78	130.61	126.23	121.73	113.85	107.61	102.32
120.0	140.23	132.98	124.31	115.65	107.66	98.89	91.07	82.58	74.59
135.0	147.83	136.13	123.41	111.21	101.03	89.55	81.06	72.84	65.48
150.0	142.99	126.68	113.12	99.11	86.91	77.34	68.85	59.46	53.04
165.0	154.58	134.66	116.27	101.98	88.09	76.16	67.05	57.99	51.41
180.0	142.76	124.99	108.68	91.46	79.88	69.98	60.41	52.43	46.46
195.0	126.06	109.63	93.60	80.61	69.36	60.81	53.04	47.25	41.68
210.0	135.11	119.03	102.66	88.65	77.96	67.73	59.01	52.54	47.03
225.0	127.69	114.36	102.21	88.93	79.48	70.93	61.65	55.46	50.01
240.0	137.19	125.27	114.69	104.63	93.15	84.71	76.22	68.74	62.61
255.0	134.04	127.24	119.19	111.04	103.84	97.14	89.38	82.86	76.50
270.0	138.83	136.63	133.26	129.83	125.55	120.49	116.21	111.15	105.02
285.0	141.08	143.78	145.46	146.31	146.53	146.59	145.46	143.16	140.23
300.0	140.23	147.66	156.88	163.52	169.14	175.78	180.62	184.28	187.37
315.0	147.83	161.55	173.70	186.86	198.28	210.66	220.89	232.26	239.91
330.0	142.99	158.79	177.64	197.04	214.65	233.66	251.94	267.02	280.13
345.0	154.58	173.98	194.29	220.22	241.43	262.91	284.96	303.69	317.14
360.0	142.76	165.15	189.73	212.68	239.40	266.06	288.68	310.73	326.08

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	337.39	340.54	336.09	324.17	301.78	280.24	256.78	226.35	202.84
15.0	325.46	335.03	337.89	332.78	318.71	301.16	277.09	253.52	227.64
30.0	312.75	323.27	325.58	322.93	312.47	296.04	277.65	254.93	233.33
45.0	273.09	283.84	291.09	294.58	295.76	292.22	286.03	271.86	256.05
60.0	229.44	234.68	238.56	241.20	241.43	239.29	234.00	229.22	221.23
75.0	175.16	175.67	175.11	173.14	169.59	164.81	159.75	154.24	146.81
90.0	128.64	124.03	118.58	113.18	107.27	99.90	94.11	88.14	81.11
105.0	94.44	88.82	83.81	76.33	69.58	64.46	57.94	53.04	48.66
120.0	68.18	61.82	56.19	51.24	46.69	41.34	37.35	33.98	30.54
135.0	57.43	51.69	46.69	41.91	37.69	34.48	31.05	27.90	25.48
150.0	47.42	41.46	37.35	33.81	30.60	27.62	25.43	23.18	21.32
165.0	45.23	40.05	36.11	33.19	29.31	26.89	24.92	22.11	20.42
180.0	40.95	36.39	32.96	29.70	27.23	24.69	22.39	20.59	18.96
195.0	37.58	33.64	30.26	27.68	25.26	22.67	20.70	18.96	17.10
210.0	41.18	37.13	33.75	30.43	27.51	25.14	22.73	20.48	18.73
225.0	45.34	39.99	36.17	32.79	29.03	26.49	24.19	21.88	19.74
240.0	56.87	50.40	45.73	41.51	37.13	33.08	29.98	26.94	24.13
255.0	69.75	63.28	57.66	51.81	46.41	42.02	37.63	34.20	30.21
270.0	98.83	93.21	86.29	79.26	73.46	66.77	61.37	55.63	50.23
285.0	136.69	131.29	126.00	120.49	113.40	107.27	101.03	94.56	86.18
300.0	188.72	188.83	187.82	185.34	181.35	176.74	171.90	165.04	157.33
315.0	245.81	250.76	252.56	253.07	251.10	246.09	239.74	230.85	218.93
330.0	292.56	298.97	301.61	300.15	293.23	282.94	267.47	249.41	231.86
345.0	326.64	329.85	325.86	313.14	296.78	275.12	250.20	227.70	205.76
360.0	337.39	340.54	336.09	324.17	301.78	280.24	256.78	226.35	202.84



Intensity data(cd)

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	180.84	158.34	137.59	120.71	103.73	88.65	76.78	65.19	56.31
15.0	201.38	178.54	156.26	136.01	119.59	104.01	86.91	75.71	66.09
30.0	208.69	185.01	165.38	144.62	125.78	110.87	97.54	82.58	72.17
45.0	241.20	219.32	199.24	183.66	161.38	144.79	129.04	111.15	98.72
60.0	210.88	199.91	186.69	172.24	158.74	145.35	128.81	116.21	104.46
75.0	139.73	131.85	121.50	112.89	103.95	94.16	84.38	76.39	68.18
90.0	73.91	67.61	60.69	54.62	49.61	44.33	40.11	35.55	31.44
105.0	43.20	38.87	34.88	30.54	27.68	24.81	21.83	19.80	17.89
120.0	27.28	24.81	22.16	19.74	17.78	15.81	14.46	13.05	11.81
135.0	22.95	20.81	18.84	16.99	15.53	13.95	12.43	11.36	10.52
150.0	19.35	17.55	16.09	14.51	13.05	11.87	10.74	9.51	8.72
165.0	19.13	17.10	15.53	14.29	12.77	11.48	10.46	9.28	8.55
180.0	16.99	15.58	14.29	12.71	11.48	10.41	9.34	8.49	7.88
195.0	15.64	14.29	12.83	11.53	10.46	9.39	8.49	7.88	7.31
210.0	16.93	15.53	14.01	12.66	11.53	10.29	9.28	8.49	7.76
225.0	17.78	16.26	14.79	13.28	11.81	10.69	9.51	8.66	7.93
240.0	21.94	19.80	18.06	16.20	14.51	13.05	11.70	10.29	9.39
255.0	27.45	24.69	22.16	19.41	17.44	15.69	13.73	12.43	11.25
270.0	45.56	41.12	36.06	32.29	29.08	25.26	22.67	20.31	18.06
285.0	79.59	73.07	65.64	58.95	53.49	47.70	42.36	38.03	33.75
300.0	149.68	140.91	129.32	119.53	109.86	97.76	88.59	79.88	70.54
315.0	205.26	191.87	176.01	160.03	145.46	129.71	116.38	102.60	90.06
330.0	211.22	192.71	172.69	155.59	137.64	121.16	106.14	93.94	83.03
345.0	179.49	160.20	142.43	123.98	107.38	94.05	82.24	69.47	60.64
360.0	180.84	158.34	137.59	120.71	103.73	88.65	76.78	65.19	56.31
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	47.81	40.78	35.61	31.22	26.72	23.68	21.09	18.39	16.59
15.0	56.03	48.15	42.08	35.78	30.60	26.78	23.18	20.59	18.17
30.0	62.94	53.27	46.35	40.39	34.14	29.98	26.33	22.56	20.31
45.0	87.36	75.32	66.77	58.50	49.89	43.99	38.70	33.53	29.25
60.0	91.97	80.89	71.89	62.89	55.01	48.83	42.69	37.86	33.13
75.0	61.20	53.94	47.53	42.08	36.79	32.12	28.58	25.82	22.16
90.0	28.13	25.26	21.99	19.52	17.38	15.24	13.73	12.43	11.14
105.0	15.86	14.29	12.94	11.59	10.46	9.51	8.78	8.10	7.43
120.0	10.86	10.01	9.06	8.38	7.76	7.09	6.58	6.13	5.68
135.0	9.28	8.55	8.04	7.26	6.81	6.41	5.96	5.63	5.34
150.0	8.10	7.48	6.98	6.53	6.13	5.79	5.51	5.29	5.12
165.0	7.99	7.37	6.98	6.53	6.19	5.85	5.57	5.34	5.12
180.0	7.37	6.92	6.47	6.13	5.85	5.57	5.29	5.06	4.95
195.0	6.86	6.41	6.02	5.74	5.51	5.12	4.95	4.73	4.56
210.0	7.20	6.69	6.24	5.85	5.57	5.23	5.06	4.84	4.67
225.0	7.31	6.69	6.24	5.85	5.46	5.12	4.95	4.67	4.50
240.0	8.61	7.76	7.14	6.69	6.19	5.79	5.46	5.18	4.84
255.0	10.24	9.34	8.66	7.88	7.31	6.75	6.30	5.91	5.51
270.0	16.26	14.68	13.16	11.98	10.80	9.84	9.06	8.27	7.54
285.0	30.26	26.72	23.74	21.43	19.24	16.93	15.24	13.78	12.09
300.0	61.93	55.35	48.60	43.20	37.91	33.19	29.53	25.88	22.73
315.0	79.99	71.10	61.26	54.45	48.43	41.79	37.07	32.85	28.80
330.0	70.88	62.44	55.07	47.64	41.23	36.34	31.50	27.34	24.13
345.0	52.88	45.51	39.04	34.20	29.59	25.59	22.56	19.74	17.66
360.0	47.81	40.78	35.61	31.22	26.72	23.68	21.09	18.39	16.59

Intensity data(cd)

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.96	13.33	11.93	10.91	9.90	9.06	8.27	7.59	7.03
15.0	16.03	14.46	13.28	11.64	10.58	9.79	8.72	7.99	7.48
30.0	17.89	15.69	14.29	12.77	11.31	10.41	9.51	8.38	7.82
45.0	25.76	22.61	20.03	17.55	15.53	13.78	12.15	10.80	9.68
60.0	29.03	25.88	22.73	20.14	18.06	16.09	13.95	12.49	11.25
75.0	19.80	18.00	15.64	13.78	12.60	11.08	9.79	8.94	7.93
90.0	10.07	9.23	8.16	7.48	6.86	6.13	5.68	5.23	4.73
105.0	6.81	6.36	5.91	5.51	5.12	4.78	4.44	4.16	3.94
120.0	5.34	5.06	4.84	4.61	4.39	4.11	3.99	3.77	3.60
135.0	5.06	4.89	4.73	4.50	4.39	4.22	4.05	3.94	3.88
150.0	4.84	4.73	4.61	4.56	4.39	4.33	4.22	4.11	4.05
165.0	4.95	4.84	4.67	4.61	4.44	4.39	4.33	4.28	4.22
180.0	4.78	4.61	4.56	4.44	4.39	4.28	4.28	4.22	4.16
195.0	4.44	4.33	4.22	4.16	4.16	4.11	4.05	3.99	3.94
210.0	4.44	4.33	4.22	4.11	4.05	3.99	3.88	3.83	3.77
225.0	4.33	4.22	4.11	3.94	3.83	3.77	3.71	3.66	3.66
240.0	4.67	4.44	4.33	4.16	3.99	3.88	3.77	3.71	3.54
255.0	5.18	4.89	4.61	4.33	4.11	3.99	3.83	3.60	3.49
270.0	6.98	6.47	5.85	5.46	5.06	4.73	4.44	4.22	3.99
285.0	10.97	9.96	8.94	8.04	7.37	6.69	6.13	5.57	5.12
300.0	20.19	17.94	15.53	13.89	12.49	11.08	9.90	9.00	8.04
315.0	25.26	22.50	19.74	17.61	15.58	13.67	12.26	10.86	9.68
330.0	20.93	18.56	16.26	14.29	12.83	11.59	10.18	9.23	8.44
345.0	15.64	13.95	12.66	11.42	10.29	9.45	8.66	7.88	7.31
360.0	14.96	13.33	11.93	10.91	9.90	9.06	8.27	7.59	7.03
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	6.47	5.96	5.57	5.18	4.78	4.44	4.22	3.99	3.66
15.0	6.81	6.30	5.85	5.34	4.95	4.67	4.28	3.99	3.77
30.0	7.20	6.58	6.02	5.57	5.12	4.73	4.39	4.05	3.77
45.0	8.83	7.76	7.14	6.47	5.85	5.34	4.89	4.56	4.16
60.0	9.90	8.83	7.93	7.20	6.30	5.63	5.12	4.61	4.11
75.0	7.26	6.64	6.02	5.51	5.12	4.61	4.28	3.99	3.66
90.0	4.44	4.16	3.77	3.60	3.38	3.15	2.93	2.81	2.64
105.0	3.71	3.54	3.32	3.15	2.98	2.93	2.81	2.76	2.64
120.0	3.49	3.38	3.26	3.15	3.04	2.98	2.98	2.93	2.87
135.0	3.71	3.66	3.60	3.49	3.43	3.38	3.38	3.32	3.26
150.0	3.94	3.88	3.83	3.77	3.66	3.54	3.49	3.43	3.43
165.0	4.16	4.11	3.99	3.99	3.88	3.83	3.77	3.71	3.66
180.0	4.11	4.11	4.05	4.05	3.94	3.88	3.77	3.77	3.71
195.0	3.88	3.88	3.77	3.77	3.71	3.66	3.60	3.60	3.49
210.0	3.71	3.71	3.66	3.60	3.54	3.49	3.43	3.38	3.32
225.0	3.54	3.49	3.43	3.38	3.32	3.26	3.21	3.21	3.15
240.0	3.49	3.38	3.26	3.26	3.15	3.09	3.09	2.98	2.93
255.0	3.38	3.26	3.15	3.04	2.98	2.87	2.87	2.81	2.76
270.0	3.71	3.54	3.38	3.21	3.09	3.04	2.93	2.81	2.70
285.0	4.78	4.44	4.05	3.77	3.54	3.32	3.09	2.93	2.76
300.0	7.20	6.53	5.85	5.34	4.84	4.39	4.05	3.71	3.38
315.0	8.72	7.88	6.92	6.30	5.68	5.06	4.61	4.22	3.88
330.0	7.48	6.86	6.30	5.74	5.23	4.84	4.50	4.16	3.83
345.0	6.75	6.19	5.68	5.34	4.89	4.56	4.28	3.94	3.77
360.0	6.47	5.96	5.57	5.18	4.78	4.44	4.22	3.99	3.66

Intensity data(cd)

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.43	3.26	3.04	2.93	2.76	2.59	2.36	2.31	2.14
15.0	3.49	3.26	3.09	2.87	2.76	2.59	2.42	2.31	2.19
30.0	3.49	3.26	3.04	2.87	2.70	2.53	2.42	2.25	2.14
45.0	3.83	3.49	3.26	3.09	2.87	2.76	2.59	2.42	2.31
60.0	3.77	3.49	3.26	3.04	2.87	2.70	2.64	2.59	2.59
75.0	3.49	3.26	3.09	2.93	2.81	2.70	2.64	2.59	2.48
90.0	2.53	2.36	2.31	2.25	2.14	2.14	2.03	2.03	1.91
105.0	2.59	2.53	2.48	2.36	2.31	2.19	2.19	2.14	2.08
120.0	2.81	2.76	2.76	2.70	2.64	2.59	2.48	2.48	2.42
135.0	3.26	3.21	3.15	3.04	2.93	2.93	2.81	2.70	2.59
150.0	3.38	3.32	3.26	3.21	3.04	2.93	2.87	2.76	2.64
165.0	3.60	3.49	3.43	3.38	3.32	3.26	3.15	3.04	2.93
180.0	3.66	3.60	3.54	3.49	3.49	3.49	3.38	3.26	3.15
195.0	3.49	3.43	3.43	3.38	3.32	3.26	3.21	3.09	2.93
210.0	3.26	3.26	3.21	3.15	3.09	3.04	2.87	2.81	2.70
225.0	3.09	3.09	2.98	2.93	2.81	2.76	2.70	2.59	2.48
240.0	2.87	2.81	2.81	2.76	2.70	2.64	2.59	2.48	2.42
255.0	2.70	2.64	2.59	2.53	2.42	2.42	2.31	2.25	2.14
270.0	2.64	2.53	2.48	2.42	2.36	2.25	2.19	2.08	2.03
285.0	2.64	2.53	2.42	2.31	2.25	2.14	2.08	2.03	1.97
300.0	3.21	3.04	2.87	2.76	2.64	2.53	2.42	2.31	2.25
315.0	3.49	3.26	3.04	2.93	2.76	2.64	2.59	2.53	2.53
330.0	3.60	3.38	3.09	2.93	2.76	2.59	2.48	2.36	2.31
345.0	3.49	3.26	3.09	2.87	2.70	2.59	2.42	2.31	2.14
360.0	3.43	3.26	3.04	2.93	2.76	2.59	2.36	2.31	2.14
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.08	1.91	1.86	1.80	1.74	1.63	1.63	1.52	1.52
15.0	2.08	1.97	1.86	1.80	1.69	1.63	1.58	1.52	1.52
30.0	2.03	1.97	1.86	1.80	1.74	1.69	1.63	1.52	1.52
45.0	2.31	2.19	2.14	2.03	2.03	1.91	1.86	1.86	1.74
60.0	2.48	2.48	2.42	2.48	2.36	2.25	2.14	2.03	1.91
75.0	2.42	2.36	2.25	2.19	2.08	1.97	1.91	1.86	1.74
90.0	1.86	1.86	1.80	1.74	1.74	1.74	1.69	1.63	1.58
105.0	2.08	1.97	1.97	1.91	1.86	1.80	1.80	1.74	1.69
120.0	2.36	2.36	2.25	2.19	2.14	2.08	1.97	1.91	1.80
135.0	2.59	2.53	2.42	2.31	2.25	2.19	2.03	1.97	1.86
150.0	2.53	2.42	2.31	2.19	2.14	2.08	1.97	1.91	1.86
165.0	2.81	2.64	2.59	2.48	2.31	2.19	2.08	2.03	1.86
180.0	2.93	2.76	2.59	2.36	2.81	3.32	2.93	2.59	2.36
195.0	2.76	2.64	2.42	2.25	2.53	2.87	2.59	2.48	2.25
210.0	2.64	2.53	2.36	2.31	2.19	2.08	2.08	1.91	1.80
225.0	2.42	2.36	2.25	2.19	2.14	2.03	1.97	1.97	1.91
240.0	2.36	2.31	2.25	2.19	2.14	2.03	1.97	1.91	1.86
255.0	2.08	2.03	1.97	1.91	1.86	1.80	1.74	1.69	1.63
270.0	1.97	1.91	1.86	1.80	1.74	1.63	1.63	1.58	1.46
285.0	1.97	1.91	1.86	1.86	1.80	1.69	1.63	1.58	1.46
300.0	2.19	2.19	2.14	2.14	2.08	1.97	1.91	1.80	1.74
315.0	2.48	2.42	2.42	2.36	2.36	2.19	2.14	2.03	1.91
330.0	2.25	2.14	2.08	2.03	1.97	1.97	1.97	1.86	1.74
345.0	2.08	1.97	1.91	1.80	1.74	1.69	1.69	1.63	1.52
360.0	2.08	1.91	1.86	1.80	1.74	1.63	1.63	1.52	1.52

Intensity data(cd)

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.46	1.52	1.52	1.46	1.41	1.46	1.46	1.46	1.41
15.0	1.46	1.46	1.46	1.41	1.41	1.41	1.35	1.41	1.29
30.0	1.46	1.46	1.41	1.41	1.41	1.41	1.41	1.41	1.41
45.0	1.69	1.58	1.52	1.46	1.46	1.46	1.41	1.41	1.46
60.0	1.80	1.69	1.63	1.58	1.52	1.52	1.46	1.46	1.46
75.0	1.69	1.63	1.58	1.52	1.46	1.46	1.41	1.35	1.35
90.0	1.52	1.52	1.46	1.46	1.41	1.41	1.41	1.41	1.29
105.0	1.63	1.58	1.58	1.52	1.52	1.46	1.41	1.41	1.35
120.0	1.74	1.69	1.63	1.52	1.58	1.52	1.52	1.46	1.41
135.0	1.80	1.74	1.69	1.69	1.63	1.58	1.52	1.46	1.46
150.0	1.80	1.74	1.69	1.69	1.58	1.58	1.52	1.46	1.46
165.0	1.86	1.97	1.97	1.97	1.86	1.74	1.69	1.63	1.58
180.0	2.14	2.03	1.91	1.86	1.80	1.74	1.69	1.63	1.63
195.0	2.03	1.91	1.86	1.74	1.69	1.69	1.63	1.63	1.58
210.0	1.80	1.74	1.74	1.80	1.86	1.80	1.69	1.63	1.58
225.0	1.80	1.80	1.74	1.63	1.63	1.63	1.58	1.58	1.52
240.0	1.80	1.74	1.63	1.63	1.58	1.58	1.52	1.46	1.46
255.0	1.58	1.58	1.58	1.41	1.41	1.35	1.29	1.29	1.29
270.0	1.46	1.41	1.35	1.29	1.24	1.24	1.18	1.13	1.13
285.0	1.41	1.35	1.29	1.24	1.24	1.18	1.13	1.13	1.07
300.0	1.63	1.58	1.52	1.52	1.41	1.41	1.35	1.35	1.35
315.0	1.80	1.74	1.63	1.69	1.58	1.63	1.63	1.69	1.69
330.0	1.74	1.63	1.63	1.58	1.58	1.52	1.58	1.58	1.52
345.0	1.52	1.52	1.52	1.52	1.52	1.46	1.46	1.46	1.46
360.0	1.46	1.52	1.52	1.46	1.41	1.46	1.46	1.46	1.41
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.41	1.41	1.35	1.29	1.29	1.24	1.07	0.90	0.73
15.0	1.35	1.29	1.29	1.24	1.24	1.18	1.13	0.90	0.79
30.0	1.41	1.41	1.35	1.29	1.24	1.18	1.01	0.84	0.73
45.0	1.41	1.41	1.46	1.41	1.41	1.35	1.29	1.13	1.01
60.0	1.52	1.52	1.52	1.52	1.52	1.58	1.41	1.29	1.18
75.0	1.35	1.29	1.29	1.24	1.24	1.24	1.13	0.96	0.90
90.0	1.24	1.24	1.24	1.13	1.18	1.01	0.73	0.62	0.45
105.0	1.29	1.29	1.29	1.24	1.18	1.13	0.79	0.62	0.51
120.0	1.35	1.35	1.35	1.29	1.24	1.01	0.79	0.62	0.51
135.0	1.41	1.41	1.41	1.35	1.24	1.24	0.90	0.68	0.56
150.0	1.46	1.46	1.41	1.35	1.35	1.01	0.73	0.68	0.51
165.0	1.58	1.52	1.52	1.46	1.46	1.35	0.90	0.73	0.62
180.0	1.58	1.58	1.46	1.46	1.41	1.13	0.84	0.68	0.56
195.0	1.58	1.46	1.52	1.46	1.46	0.90	0.73	0.56	0.45
210.0	1.58	1.63	1.52	1.46	1.46	1.01	0.79	0.62	0.51
225.0	1.52	1.52	1.58	1.46	1.46	1.01	0.79	0.62	0.45
240.0	1.46	1.46	1.46	1.41	1.41	1.35	0.84	0.68	0.56
255.0	1.29	1.24	1.24	1.18	1.13	1.01	0.73	0.56	0.51
270.0	1.13	1.07	1.07	1.01	0.96	0.90	0.68	0.62	0.51
285.0	1.13	1.07	1.01	1.07	0.96	1.01	0.79	0.73	0.68
300.0	1.29	1.35	1.46	1.46	1.58	1.69	1.63	1.63	1.63
315.0	1.80	1.80	1.91	1.91	1.91	1.91	1.69	1.63	1.58
330.0	1.52	1.58	1.52	1.46	1.46	1.41	1.29	1.13	1.01
345.0	1.41	1.41	1.35	1.35	1.24	1.24	1.01	0.84	0.73
360.0	1.41	1.41	1.35	1.29	1.29	1.24	1.07	0.90	0.73

## Intensity data(cd)

C/γ(°)	90.0
0.0	0.56
15.0	0.62
30.0	0.62
45.0	0.90
60.0	1.07
75.0	0.73
90.0	0.45
105.0	0.39
120.0	0.45
135.0	0.45
150.0	0.39
165.0	0.45
180.0	0.45
195.0	0.34
210.0	0.39
225.0	0.34
240.0	0.45
255.0	0.39
270.0	0.34
285.0	0.34
300.0	1.52
315.0	1.74
330.0	0.84
345.0	0.62
360.0	0.56