
Nata

Client:

LumCAT: 3-2115-N

Luminaire: 92.70.131.00

Report No: nata0100

Test No: GC2018052101

LampCAT: LUMINUS CHM-9 XH20

Lamp flux(lm): 1521.7

Number of Lamps: 1

Length(mm): 81

Phm Type: C

Voltage(V): 35.0000

Current(A): 0.4000

Power (W): 14.0000

PF: 0.0000

Ballast type: DC

Width(mm): 81

Height(mm): 0

Photometric Results

Lumens(lm): 1315.12, Efficiency(%): 86.42% , Luminous Efficacy(lm/W): 93.94

Central intensity(cd): 12239.040, Maximum intensity(cd): 12239.040

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=13.0

[C90/270]Total=13.0

Field angle(10%Imax): [C0/180]Total=30.8

[C90/270]Total=30.8

Maximum s/h(1/2): C0_180=0.22 C90_270=0.22

Maximum s/h(1/4): C0_180=0.25 C90_270=0.25

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.18%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.399%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12239.038	11.712	11.712	.770%	.891%
2.0	11185.396	85.612	97.324	5.626%	7.400%
4.0	9028.837	138.128	235.452	9.077%	17.904%
6.0	6588.737	151.043	386.496	9.926%	29.389%
8.0	4709.318	143.740	530.236	9.446%	40.319%
10.0	3218.597	122.575	652.811	8.055%	49.639%
12.0	2384.699	108.737	761.548	7.146%	57.907%
14.0	1540.409	81.729	843.277	5.371%	64.122%
16.0	1089.490	65.861	909.138	4.328%	69.130%
18.0	799.233	54.165	963.303	3.560%	73.248%
20.0	639.625	47.978	1011.281	3.153%	76.897%
22.0	558.740	45.904	1057.185	3.017%	80.387%
24.0	508.983	45.403	1102.588	2.984%	83.839%
26.0	473.003	45.475	1148.063	2.988%	87.297%
28.0	439.563	45.258	1193.321	2.974%	90.739%
30.0	341.439	37.441	1230.762	2.460%	93.586%
32.0	191.493	22.255	1253.017	1.463%	95.278%
34.0	56.261	6.900	1259.917	.453%	95.803%
36.0	37.232	4.800	1264.716	.315%	96.167%
38.0	28.292	3.820	1268.536	.251%	96.458%
40.0	21.830	3.077	1271.614	.202%	96.692%
42.0	17.584	2.580	1274.194	.170%	96.888%
44.0	15.092	2.299	1276.493	.151%	97.063%
46.0	13.427	2.118	1278.612	.139%	97.224%
48.0	12.395	2.020	1280.632	.133%	97.378%
50.0	11.589	1.947	1282.579	.128%	97.526%
52.0	11.053	1.910	1284.489	.126%	97.671%
54.0	10.674	1.894	1286.383	.124%	97.815%
56.0	10.461	1.902	1288.285	.125%	97.960%
58.0	10.282	1.912	1290.197	.126%	98.105%
60.0	10.144	1.927	1292.124	.127%	98.252%
62.0	10.020	1.940	1294.064	.128%	98.399%
64.0	9.993	1.970	1296.034	.129%	98.549%
66.0	9.470	1.897	1297.931	.125%	98.693%
68.0	8.775	1.784	1299.715	.117%	98.829%
70.0	8.272	1.705	1301.42	.112%	98.958%
72.0	7.894	1.646	1303.067	.108%	99.084%
74.0	7.618	1.606	1304.673	.106%	99.206%

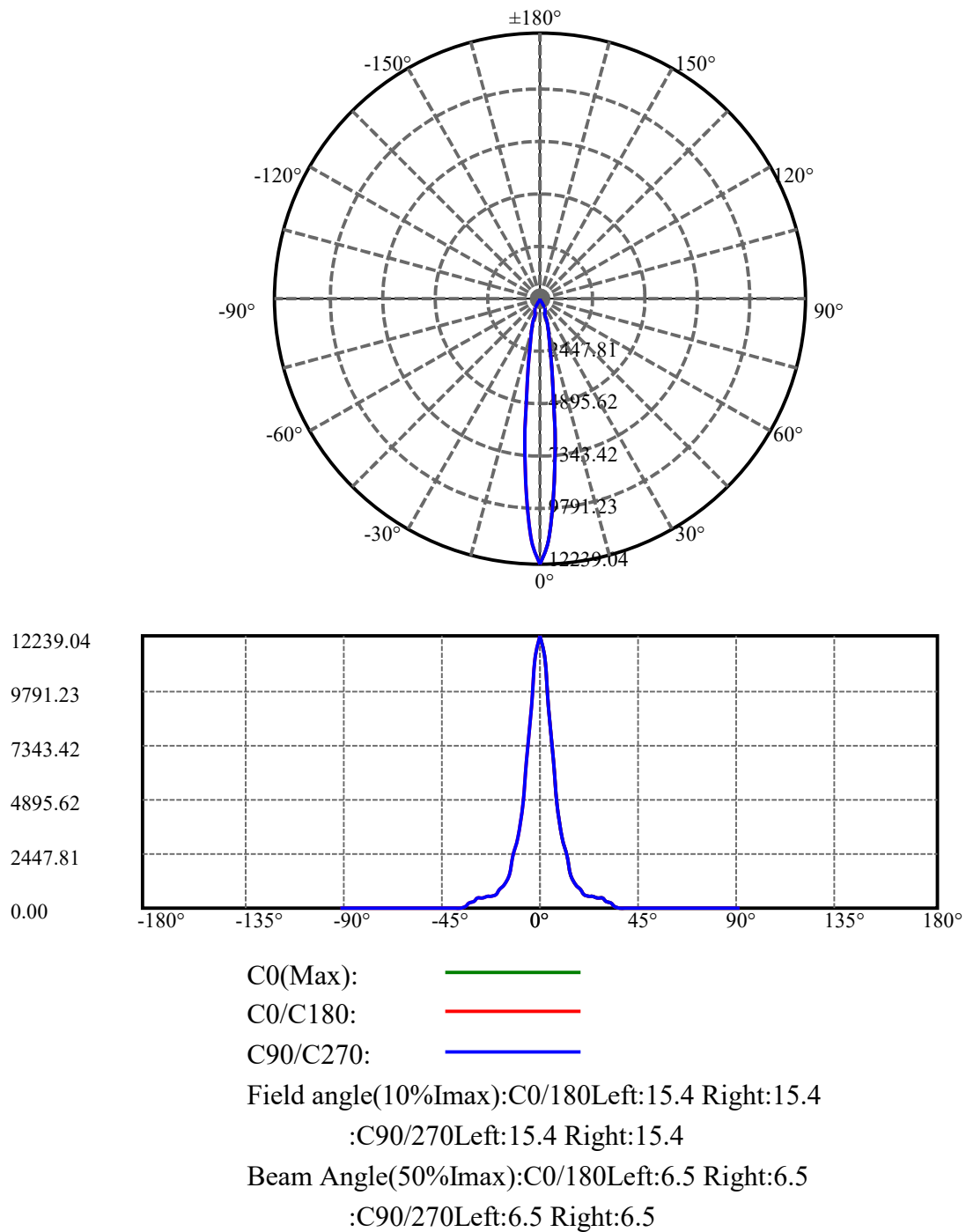
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.336	1.561	1306.234	.103%	99.324%
78.0	7.040	1.510	1307.744	.099%	99.439%
80.0	6.744	1.457	1309.201	.096%	99.550%
82.0	6.476	1.406	1310.607	.092%	99.657%
84.0	6.221	1.357	1311.964	.089%	99.760%
86.0	5.967	1.305	1313.27	.086%	99.859%
88.0	5.698	1.249	1314.519	.082%	99.954%
90.0	5.471	0.600	1315.119	.039%	100.000%

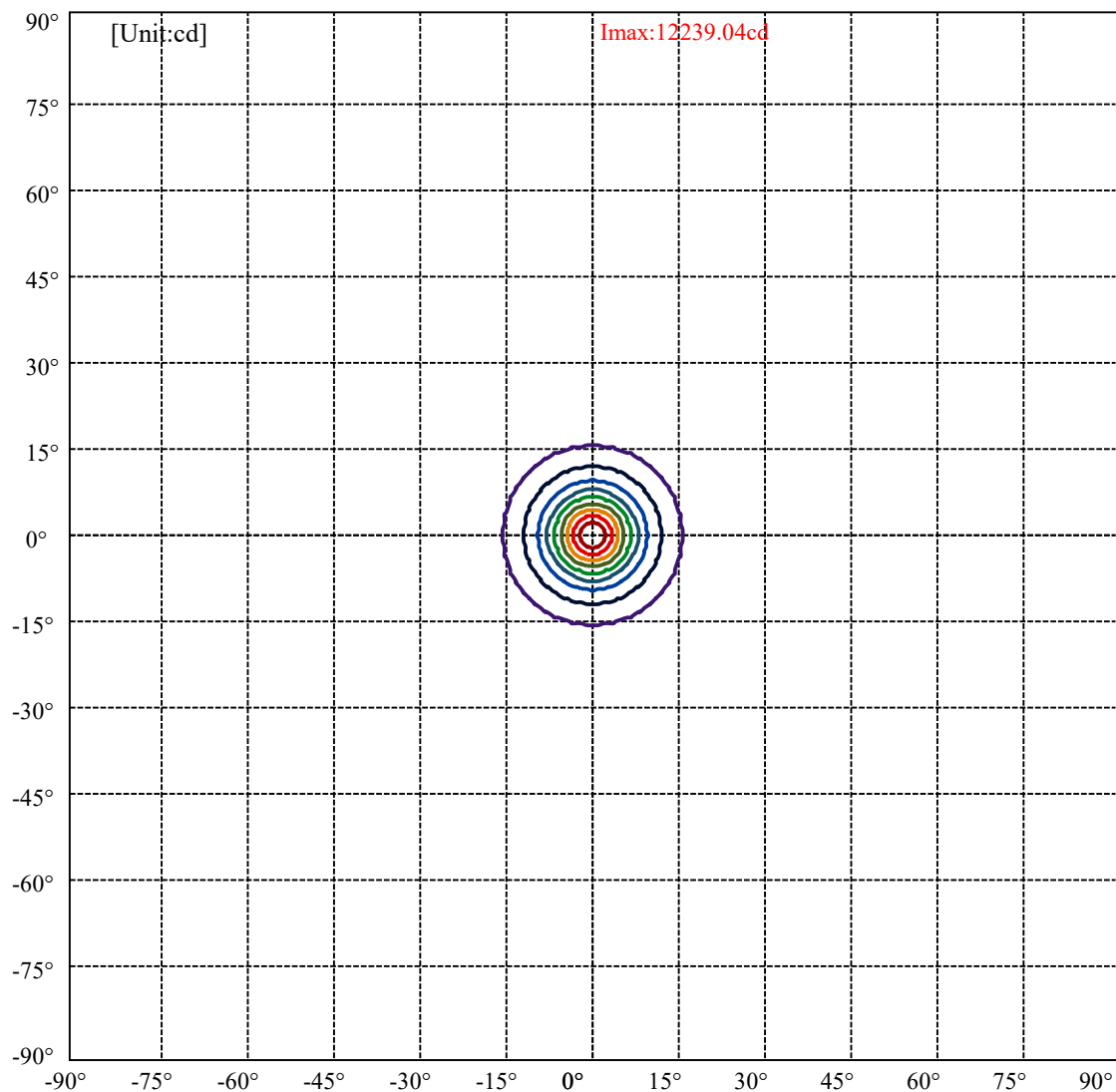
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1230.76	80.88%	93.59%
0-40	1271.61	83.57%	96.69%
0-60	1292.12	84.91%	98.25%
0-90	1314.52	86.39%	99.95%
0-120	1314.52	86.39%	99.95%
0-180	1315.12	86.42%	100.00%
60-90	24.32	1.60%	1.85%
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%
0-21.78	1052.10	69.14%	80.00%

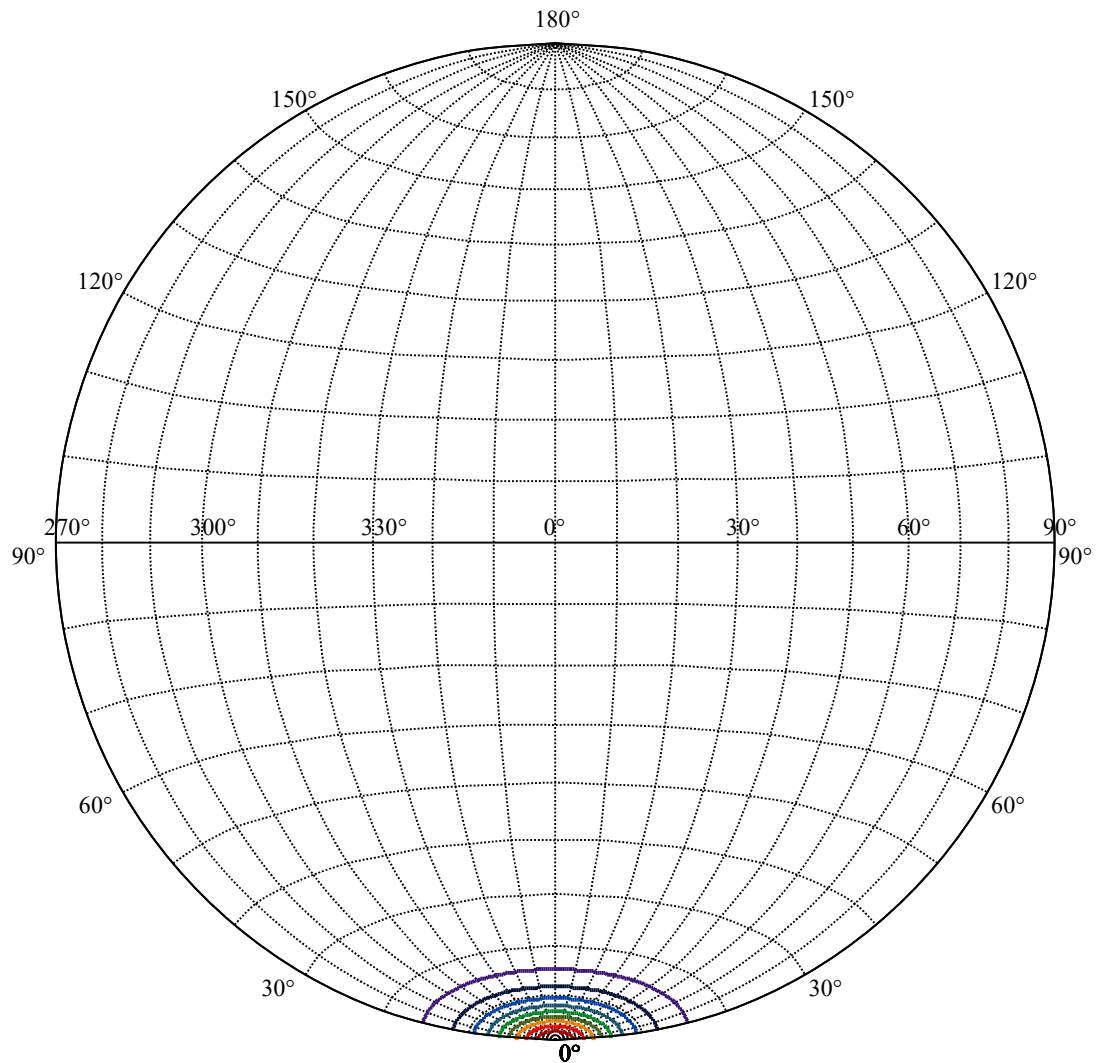
ZONAL LUMEN SUMMARY

0-10	652.81
10-20	358.47
20-30	219.48
30-40	40.85
40-50	10.97
50-60	9.54
60-70	9.30
70-80	7.78
80-90	5.32
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





(10%Imax) 1223.9	—
(20%Imax) 2447.81	—
(30%Imax) 3671.71	—
(40%Imax) 4895.62	—
(50%Imax) 6119.52	—
(60%Imax) 7343.42	—
(70%Imax) 8567.33	—
(80%Imax) 9791.23	—
(90%Imax) 11015.1	—



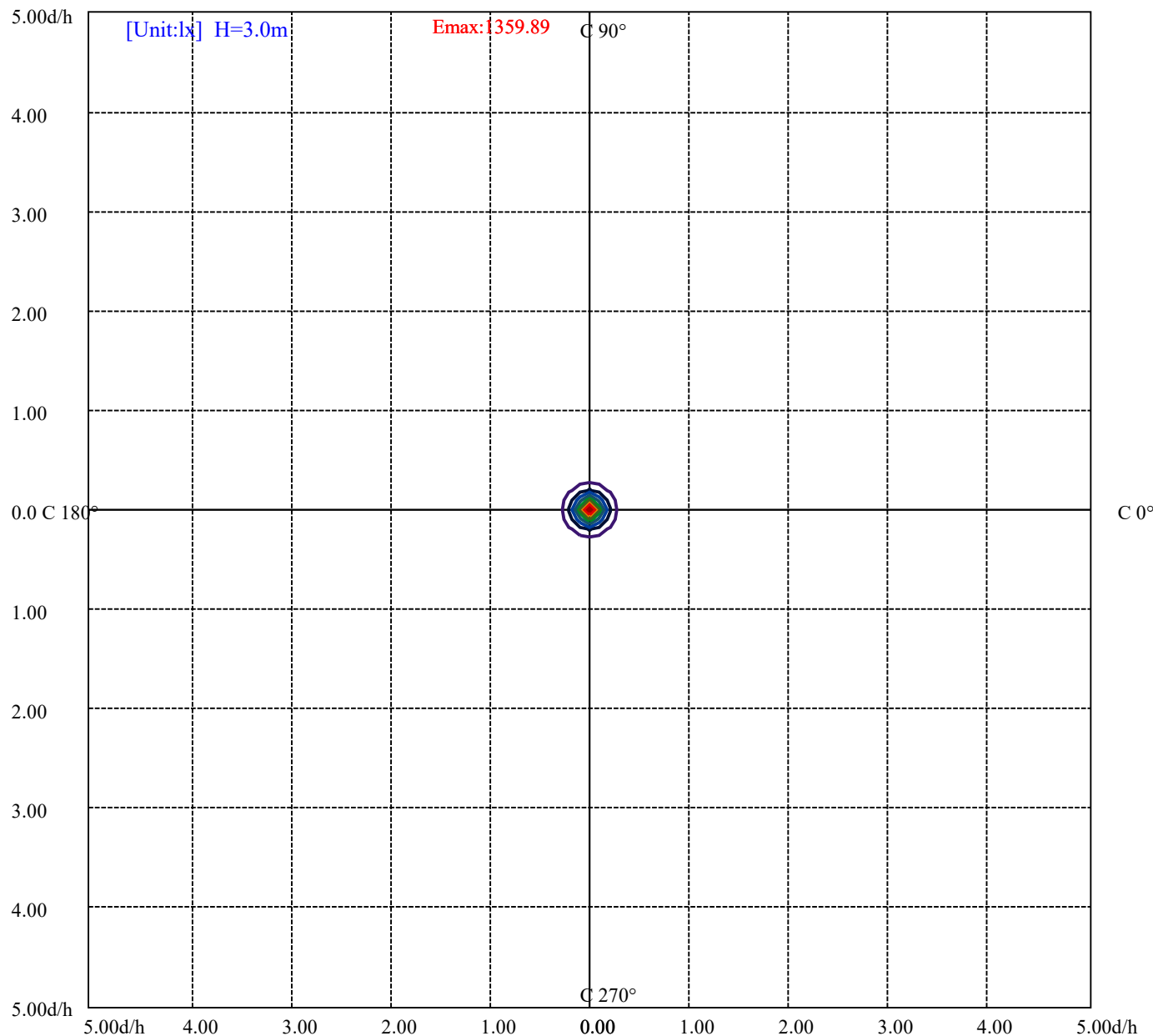
House

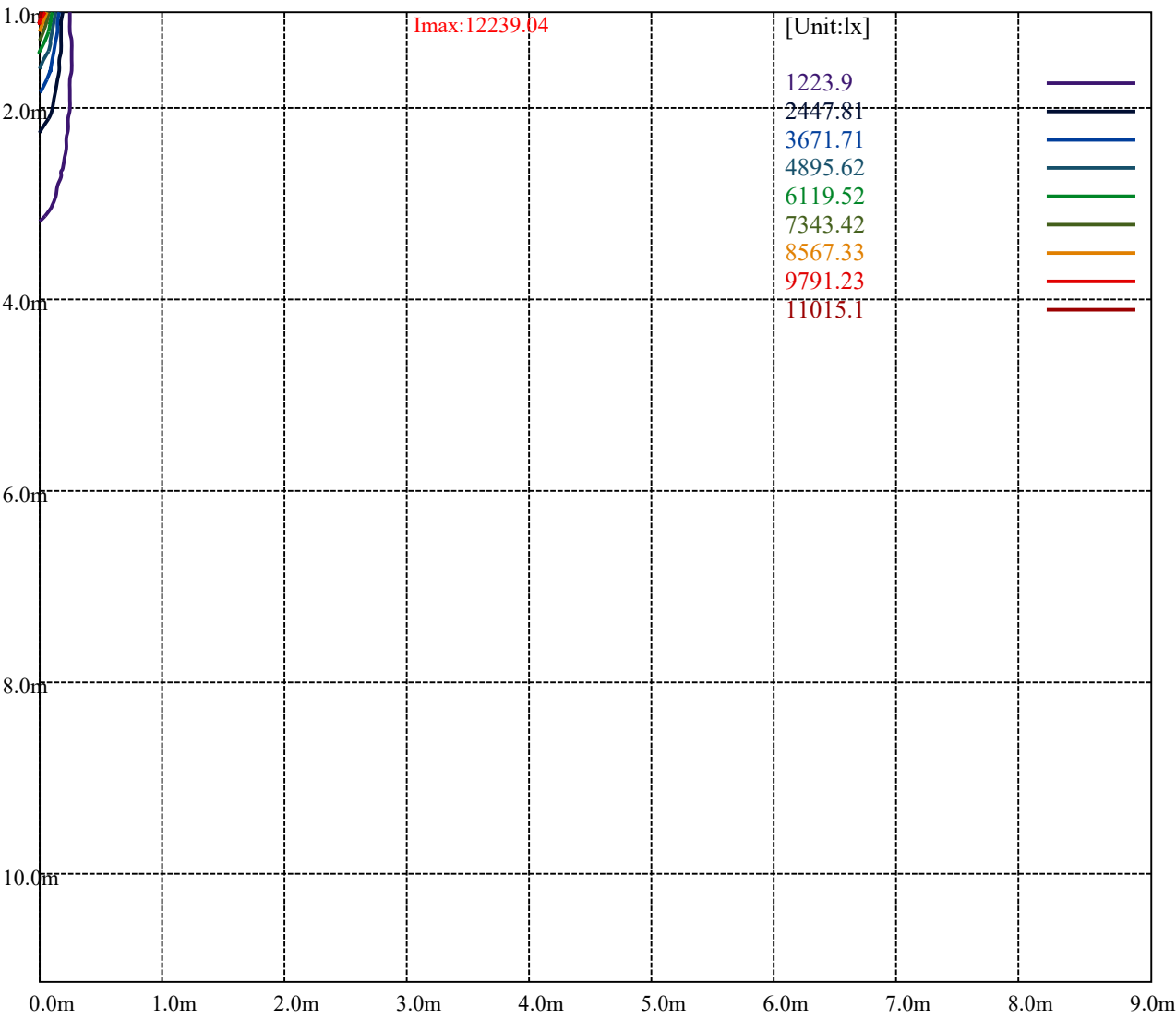
[Unit:cd]

Road

Imax:12239.04

(10%Imax)	1223.9	—
(20%Imax)	2447.81	—
(30%Imax)	3671.71	—
(40%Imax)	4895.62	—
(50%Imax)	6119.52	—
(60%Imax)	7343.42	—
(70%Imax)	8567.33	—
(80%Imax)	9791.23	—
(90%Imax)	11015.1	—





Luminance Table

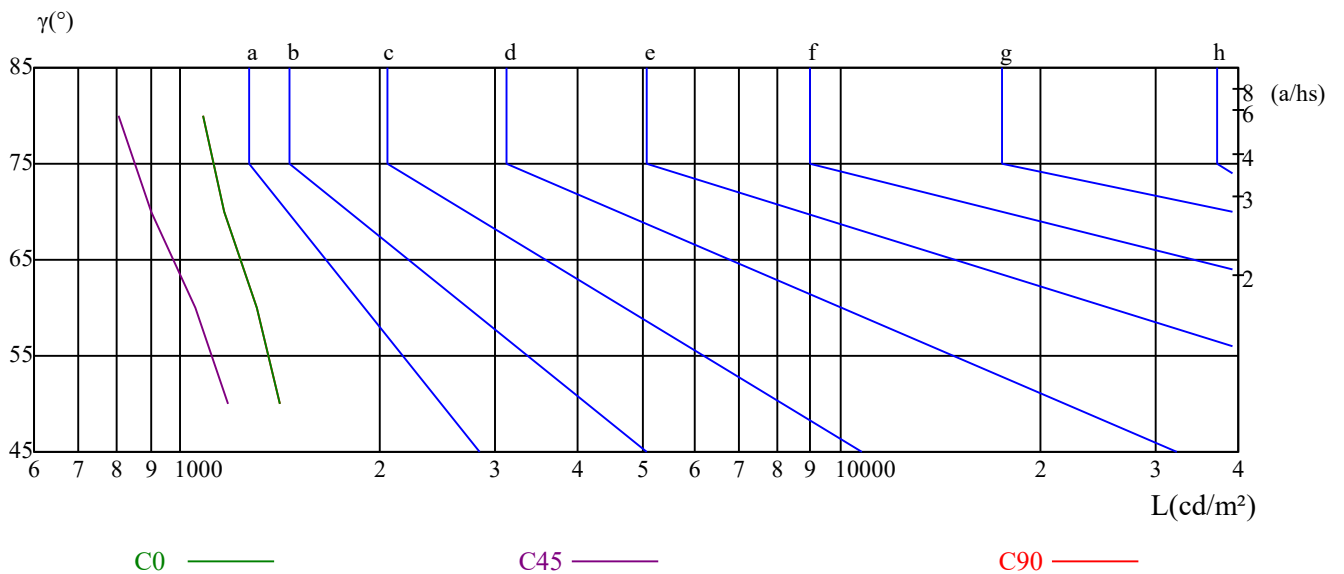
γ	45	50	55	60	65	70	75	80	85
C0	0	1415	0	1306	0	1163	0	1080	0
C45	0	1179	0	1053	0	906	0	807	0
C90	0	1415	0	1306	0	1163	0	1080	0

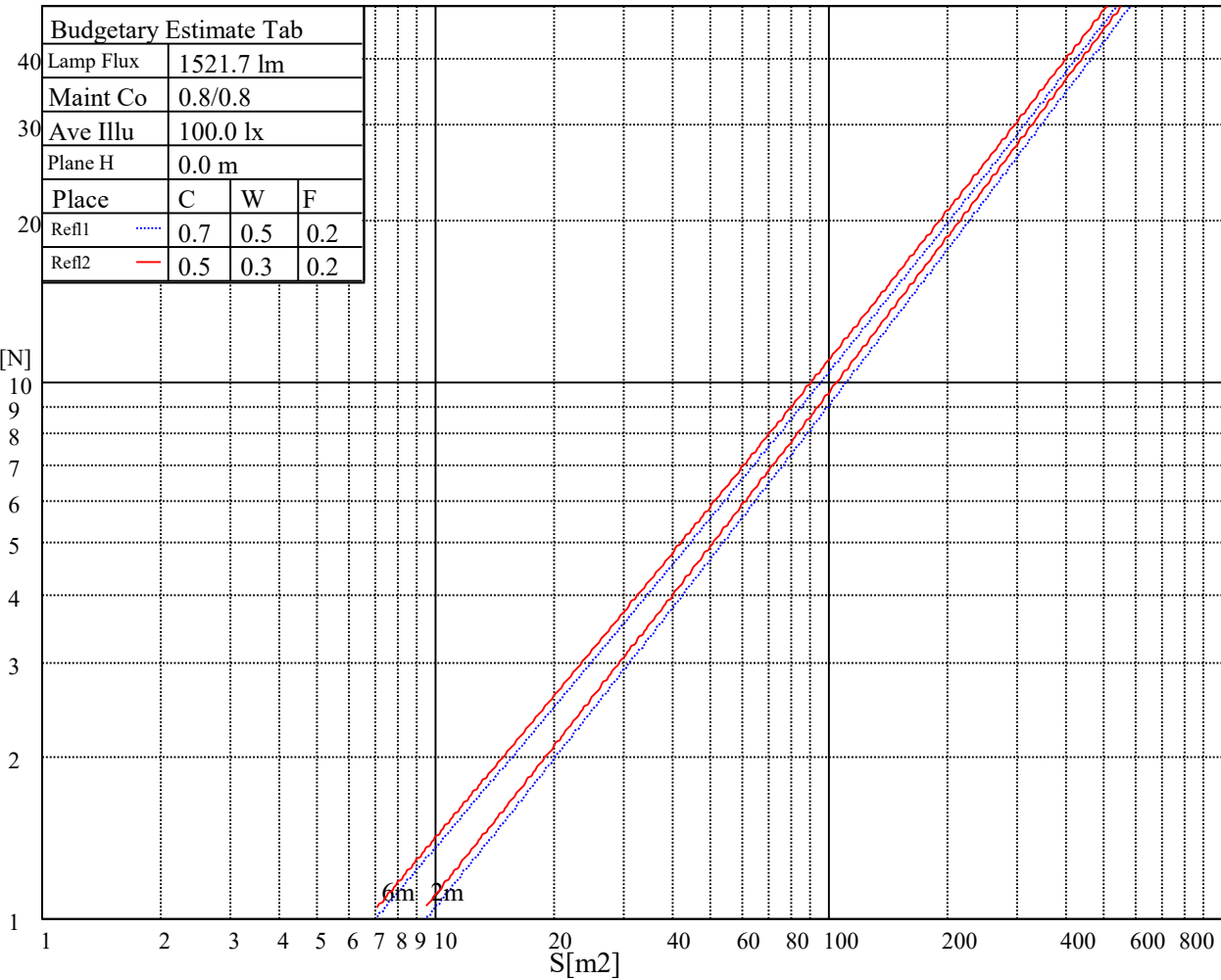
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3763	3763	3763	4588	4588	4588	11217	11217	11217

Glare Table

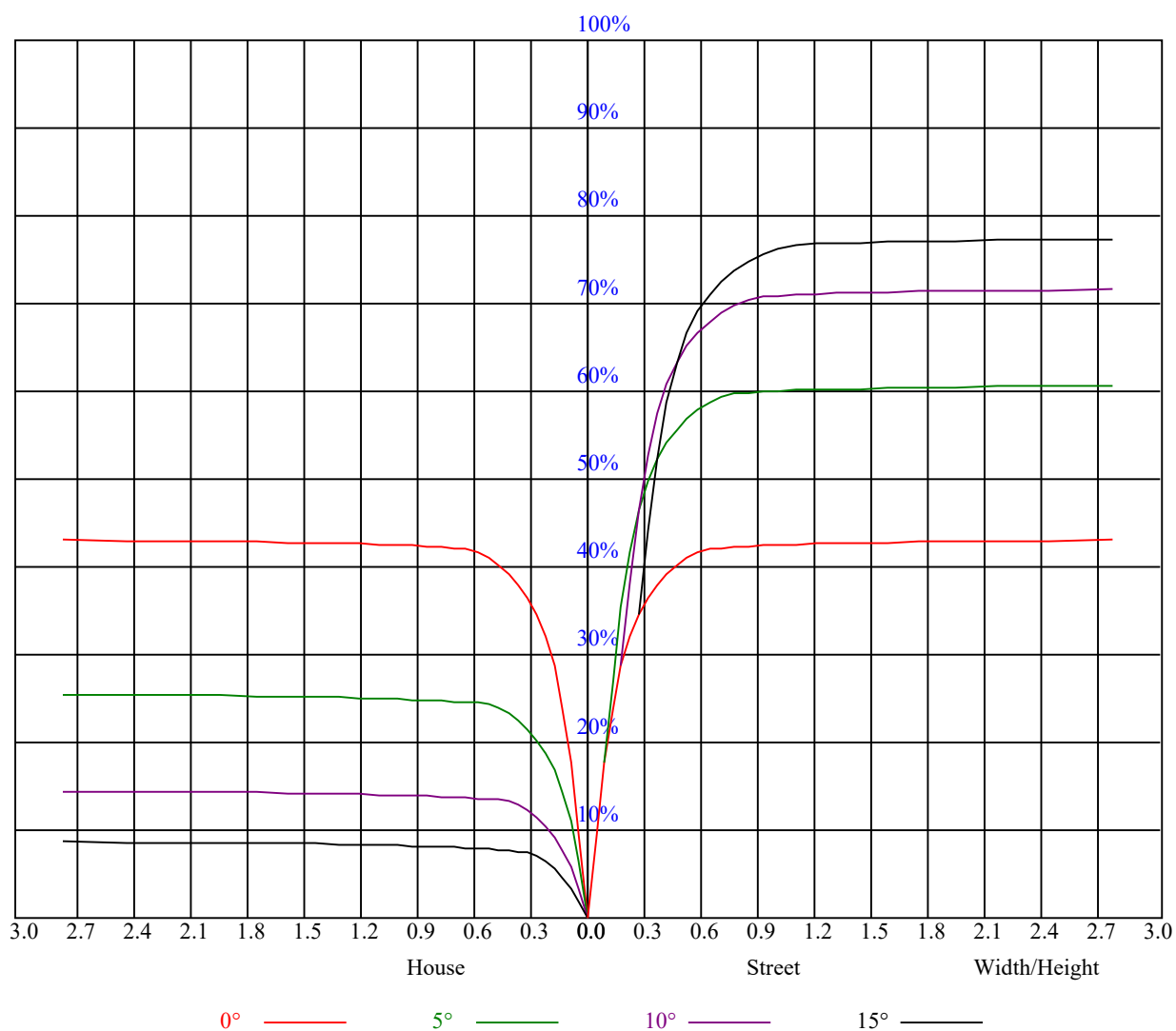
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

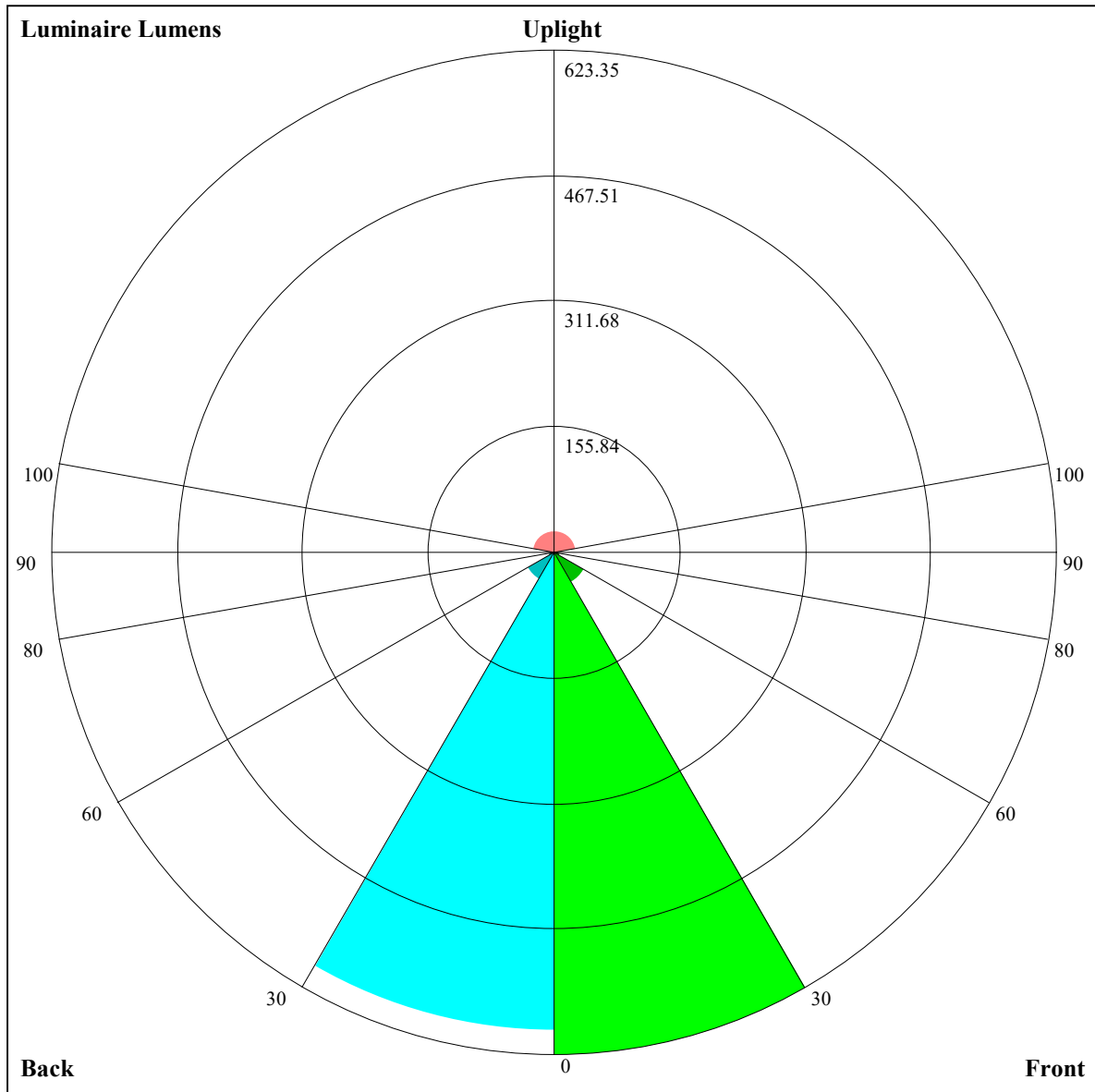
Luminance Limiting Curve





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





Luminaire Lumens:

FL=623.35,FM=42.22,FH=8.71,FVH=3.34

BL=594.08,BM=39.54,BH=8.64,BVH=3.3

UL=5.97,UH=28.41

BUG Rating:B2-U2-G0

Nata 3-2115-N

Intensity data(cd)										Appendix Page: 16 Total:17	
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0		
0.0	12145.44	11699.49	9678.92	7162.84	5147.77	3551.14	2807.88	1712.80	1234.92		
45.0	12211.51	11721.51	9700.94	7201.38	5125.75	3490.58	2818.89	1694.09	1194.17		
90.0	12354.66	10925.94	9444.93	7000.42	4922.04	3290.17	2299.16	1526.16	1074.98		
135.0	12244.54	11572.86	9431.16	7014.19	5037.66	3474.06	2802.37	1680.32	1194.72		
180.0	12145.44	10601.11	8124.12	5684.57	4095.65	2825.49	1984.78	1392.38	991.95		
225.0	12211.51	10865.93	8314.07	5931.78	4169.97	2830.45	1977.08	1326.31	946.42		
270.0	12354.66	11198.47	8930.15	6535.19	4663.28	3187.77	2252.36	1515.15	1038.91		
315.0	12244.54	10897.86	8606.42	6179.53	4512.42	3099.12	2135.09	1476.06	1039.85		
360.0	12145.44	11699.49	9678.92	7162.84	5147.77	3551.14	2807.88	1712.80	1234.92		
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0		
0.0	851.72	663.43	577.54	507.62	482.84	459.72	395.86	280.79	72.07		
45.0	868.24	672.24	579.74	521.38	483.40	466.33	407.97	279.14	61.94		
90.0	799.97	645.15	553.04	492.20	431.09	380.11	302.70	163.13	64.25		
135.0	872.64	669.49	573.69	519.18	471.28	439.35	374.93	284.64	62.49		
180.0	730.49	608.59	541.04	498.92	470.13	442.82	311.89	118.04	44.65		
225.0	724.82	610.63	543.85	509.55	478.00	443.31	301.49	129.77	48.28		
270.0	779.60	621.04	552.77	514.23	482.84	456.97	341.35	156.47	46.85		
315.0	766.39	626.43	548.25	508.78	484.44	427.90	295.32	119.97	49.55		
360.0	851.72	663.43	577.54	507.62	482.84	459.72	395.86	280.79	72.07		
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0		
0.0	39.09	29.18	22.74	17.95	15.31	13.65	12.55	11.67	11.12		
45.0	38.32	28.68	22.30	17.45	15.03	13.38	12.39	11.62	11.12		
90.0	41.51	30.89	23.67	19.27	16.46	14.53	13.32	12.39	11.67		
135.0	38.48	29.51	23.29	18.39	15.58	13.82	12.72	11.84	11.29		
180.0	34.08	26.54	20.10	16.79	14.53	13.05	12.17	11.45	10.90		
225.0	36.72	28.68	21.69	17.56	14.98	13.16	12.22	11.45	10.96		
270.0	34.74	26.59	21.25	16.90	14.76	13.21	12.11	11.34	10.90		
315.0	34.91	26.26	19.60	16.35	14.09	12.61	11.67	10.96	10.46		
360.0	39.09	29.18	22.74	17.95	15.31	13.65	12.55	11.67	11.12		
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0		
0.0	10.68	10.46	10.24	10.08	9.97	10.13	9.63	9.03	8.53		
45.0	10.68	10.52	10.35	10.24	10.08	10.19	9.63	8.92	8.42		
90.0	11.18	10.85	10.63	10.52	10.30	10.08	9.52	8.92	8.31		
135.0	10.85	10.57	10.30	10.08	9.97	10.13	9.47	8.81	8.31		
180.0	10.57	10.41	10.24	10.13	9.97	9.74	9.25	8.59	8.09		
225.0	10.63	10.35	10.19	10.02	9.86	9.74	9.30	8.53	8.09		
270.0	10.57	10.46	10.35	10.24	10.24	10.35	9.80	8.92	8.37		
315.0	10.24	10.08	9.97	9.86	9.80	9.58	9.14	8.48	8.04		
360.0	10.68	10.46	10.24	10.08	9.97	10.13	9.63	9.03	8.53		
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0		
0.0	8.09	7.82	7.60	7.32	6.99	6.72	6.44	6.17	6.00		
45.0	7.98	7.71	7.43	7.10	6.83	6.55	6.28	6.00	5.73		
90.0	7.98	7.65	7.32	7.05	6.72	6.44	6.22	5.95	5.67		
135.0	7.87	7.60	7.32	7.05	6.72	6.44	6.22	5.95	5.73		
180.0	7.82	7.54	7.21	6.94	6.66	6.39	6.11	5.89	5.56		
225.0	7.76	7.49	7.21	6.94	6.61	6.39	6.11	5.89	5.62		
270.0	7.93	7.65	7.38	7.05	6.77	6.50	6.22	5.95	5.62		
315.0	7.71	7.49	7.21	6.88	6.66	6.39	6.17	5.95	5.67		
360.0	8.09	7.82	7.60	7.32	6.99	6.72	6.44	6.17	6.00		

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	90.0
0.0	5.51
45.0	5.51
90.0	5.45
135.0	5.45
180.0	5.45
225.0	5.51
270.0	5.51
315.0	5.40
360.0	5.51