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Nata

LumCAT: 1654-S	
Luminaire:92.70.064.00	
Report No: NATA0100	Voltage(V): 33.7500
Test No: GC20190901	Current(A): 0.2970
LampCAT: XICATO XOB LES 9.8MM	Power (W): 10.0000
Lamp flux(lm): 1025.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 31.9	Width(mm): 31.9
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 902.70
Efficiency(%): 88.07%
Lumens(lm)/Power(W): 90.27
Central intensity(cd): 3058.031
Maximum intensity(cd): 3058.031
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=26.0
 [C90/270]Total=26.0
Field angle(10%Imax): [C0/180]Total=59.0
 [C90/270]Total=59.0
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.45 C90_270=0.45
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.07%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.387%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3058.031	0.000	0	.000%	.000%
1.0	3049.734	2.922	2.922	.285%	.324%
2.0	3017.250	8.708	11.63	.850%	1.288%
3.0	2967.258	14.313	25.943	1.396%	2.874%
4.0	2896.172	19.627	45.57	1.915%	5.048%
5.0	2788.102	24.453	70.024	2.386%	7.757%
6.0	2675.109	28.711	98.734	2.801%	10.938%
7.0	2543.695	32.393	131.127	3.160%	14.526%
8.0	2389.711	35.307	166.435	3.445%	18.437%
9.0	2229.328	37.435	203.869	3.652%	22.584%
10.0	2058.820	38.806	242.676	3.786%	26.883%
11.0	1874.813	39.305	281.981	3.835%	31.238%
12.0	1710.563	39.193	321.174	3.824%	35.579%
13.0	1530.492	38.463	359.637	3.753%	39.840%
14.0	1355.259	36.937	396.575	3.604%	43.932%
15.0	1224.007	35.409	431.984	3.455%	47.855%
16.0	1083.923	33.818	465.801	3.299%	51.601%
17.0	945.499	31.604	497.405	3.083%	55.102%
18.0	840.621	29.449	526.854	2.873%	58.364%
19.0	756.977	27.795	554.649	2.712%	61.444%
20.0	669.080	26.101	580.75	2.546%	64.335%
21.0	603.478	24.436	605.186	2.384%	67.042%
22.0	550.519	23.190	628.376	2.262%	69.611%
23.0	503.438	22.115	650.491	2.158%	72.061%
24.0	466.509	21.207	671.697	2.069%	74.410%
25.0	433.589	20.466	692.163	1.997%	76.677%
26.0	403.791	19.766	711.93	1.928%	78.867%
27.0	374.175	19.033	730.963	1.857%	80.975%
28.0	348.792	18.304	749.267	1.786%	83.003%
29.0	320.041	17.499	766.766	1.707%	84.942%
30.0	290.116	16.474	783.24	1.607%	86.767%
31.0	262.666	15.383	798.623	1.501%	88.471%
32.0	229.894	14.111	812.734	1.377%	90.034%
33.0	203.414	12.765	825.5	1.245%	91.448%
34.0	172.371	11.372	836.872	1.109%	92.708%
35.0	144.766	9.849	846.721	.961%	93.799%
36.0	116.283	8.312	855.033	.811%	94.720%
37.0	93.241	6.834	861.866	.667%	95.477%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	70.798	5.475	867.342	.534%	96.083%
39.0	51.180	4.163	871.505	.406%	96.545%
40.0	37.209	3.083	874.588	.301%	96.886%
41.0	26.135	2.256	876.844	.220%	97.136%
42.0	17.515	1.586	878.429	.155%	97.312%
43.0	11.974	1.092	879.522	.107%	97.433%
44.0	9.084	0.795	880.317	.078%	97.521%
45.0	7.791	0.649	880.965	.063%	97.593%
46.0	7.010	0.579	881.544	.056%	97.657%
47.0	6.307	0.530	882.074	.052%	97.715%
48.0	5.885	0.493	882.567	.048%	97.770%
49.0	5.695	0.476	883.042	.046%	97.823%
50.0	5.555	0.469	883.511	.046%	97.875%
51.0	5.449	0.466	883.977	.045%	97.926%
52.0	5.365	0.464	884.441	.045%	97.978%
53.0	5.273	0.463	884.904	.045%	98.029%
54.0	5.203	0.462	885.365	.045%	98.080%
55.0	5.154	0.462	885.828	.045%	98.131%
56.0	5.070	0.462	886.29	.045%	98.182%
57.0	5.013	0.461	886.751	.045%	98.233%
58.0	4.971	0.462	887.212	.045%	98.285%
59.0	4.929	0.463	887.675	.045%	98.336%
60.0	4.887	0.464	888.139	.045%	98.387%
61.0	4.845	0.464	888.603	.045%	98.439%
62.0	4.823	0.466	889.069	.045%	98.490%
63.0	4.788	0.467	889.537	.046%	98.542%
64.0	4.760	0.469	890.005	.046%	98.594%
65.0	4.753	0.471	890.476	.046%	98.646%
66.0	4.725	0.473	890.949	.046%	98.699%
67.0	4.711	0.474	891.423	.046%	98.751%
68.0	4.697	0.477	891.9	.046%	98.804%
69.0	4.676	0.478	892.378	.047%	98.857%
70.0	4.669	0.480	892.858	.047%	98.910%
71.0	4.662	0.482	893.34	.047%	98.963%
72.0	4.641	0.484	893.824	.047%	99.017%
73.0	4.634	0.485	894.309	.047%	99.071%
74.0	4.634	0.487	894.796	.048%	99.125%
75.0	4.605	0.488	895.284	.048%	99.179%

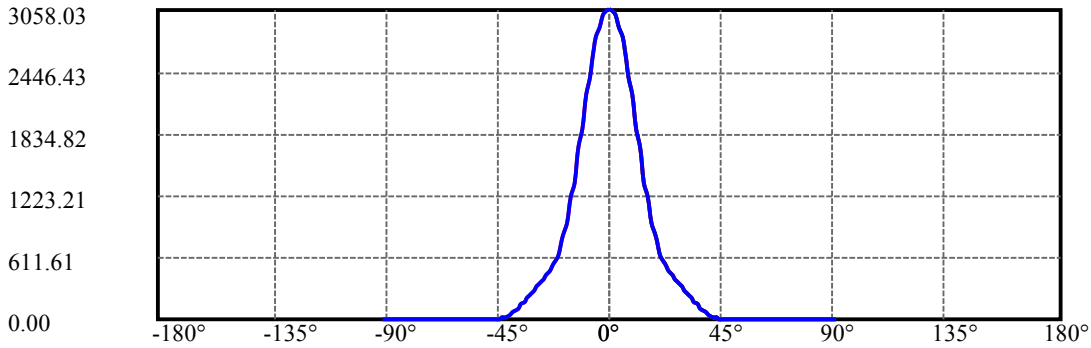
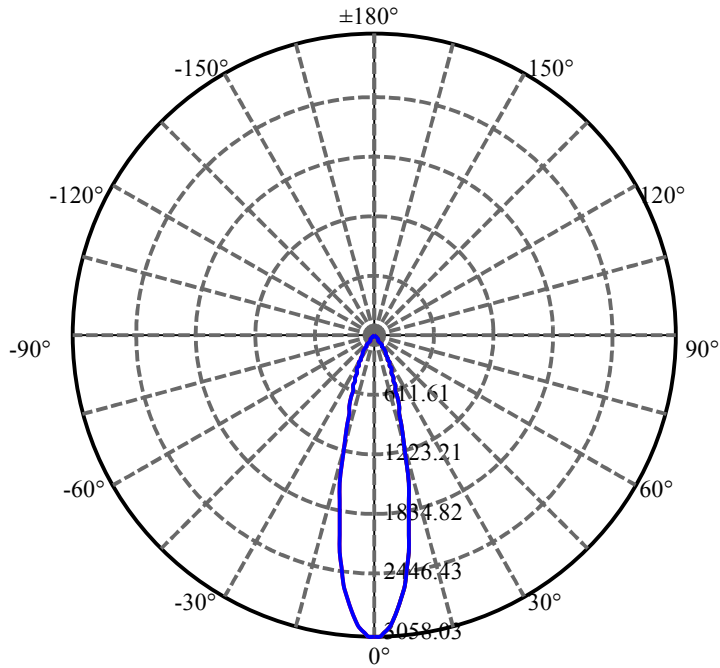
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.598	0.489	895.773	.048%	99.233%
77.0	4.591	0.490	896.263	.048%	99.287%
78.0	4.605	0.492	896.755	.048%	99.342%
79.0	4.683	0.499	897.254	.049%	99.397%
80.0	4.802	0.511	897.765	.050%	99.454%
81.0	4.866	0.523	898.288	.051%	99.512%
82.0	4.732	0.520	898.809	.051%	99.569%
83.0	4.676	0.511	899.32	.050%	99.626%
84.0	4.669	0.509	899.829	.050%	99.682%
85.0	4.697	0.511	900.34	.050%	99.739%
86.0	4.507	0.503	900.843	.049%	99.795%
87.0	4.247	0.479	901.323	.047%	99.848%
88.0	4.177	0.461	901.784	.045%	99.899%
89.0	4.155	0.457	902.241	.045%	99.949%
90.0	4.163	0.456	902.697	.044%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	783.24	76.41%	86.77%
0-40	874.59	85.33%	96.89%
0-60	888.14	86.65%	98.39%
0-90	902.24	88.02%	99.95%
0-120	902.24	88.02%	99.95%
0-180	902.70	88.07%	100.00%
60-90	14.57	1.42%	1.61%
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%
0-26.54	722.16	70.45%	80.00%

ZONAL LUMEN SUMMARY

0-10	242.68
10-20	338.07
20-30	202.49
30-40	91.35
40-50	8.92
50-60	4.63
60-70	4.72
70-80	4.91
80-90	4.48
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: —————

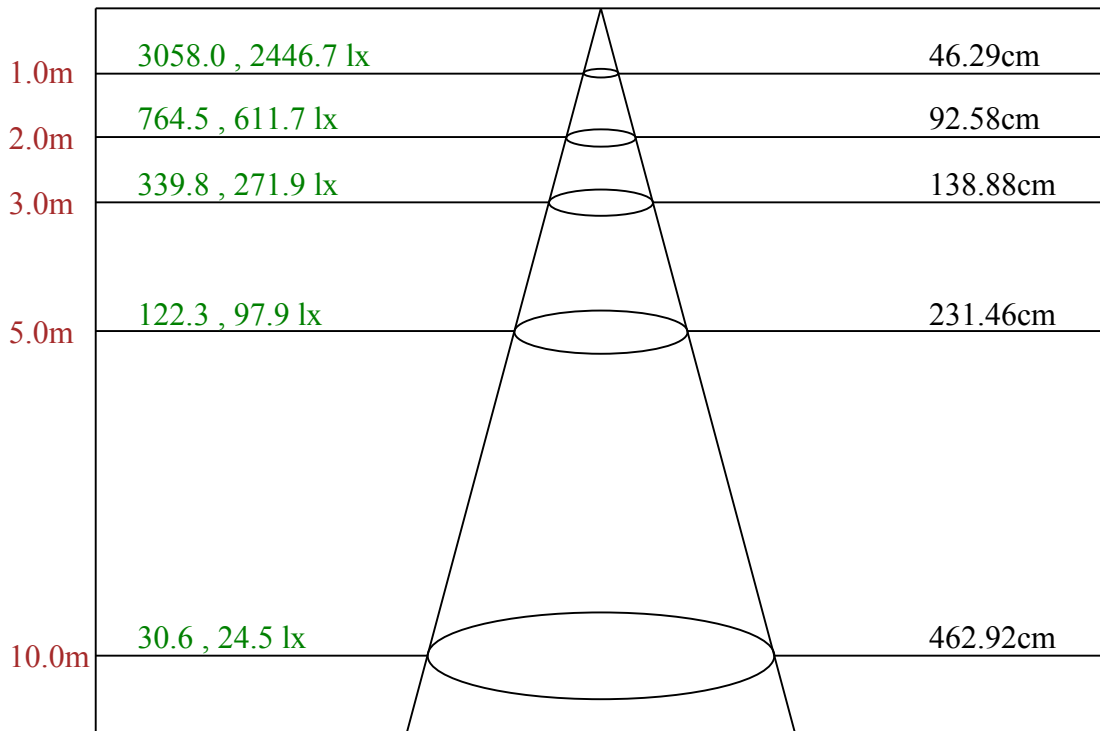
C90/C270: —————

Field angle(10%Imax):C0/180Left:29.5 Right:29.5

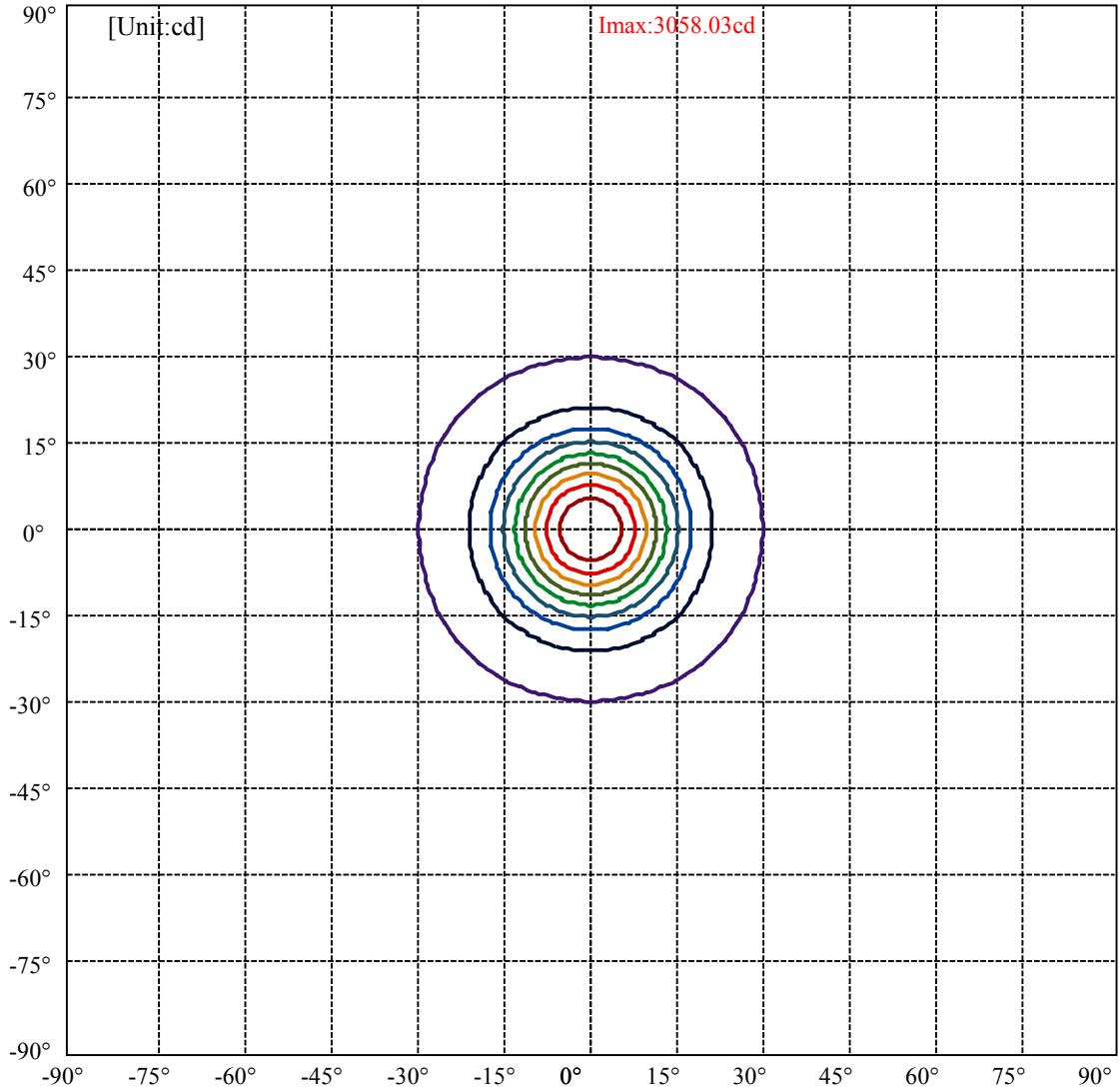
:C90/270Left:29.5 Right:29.5

Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0

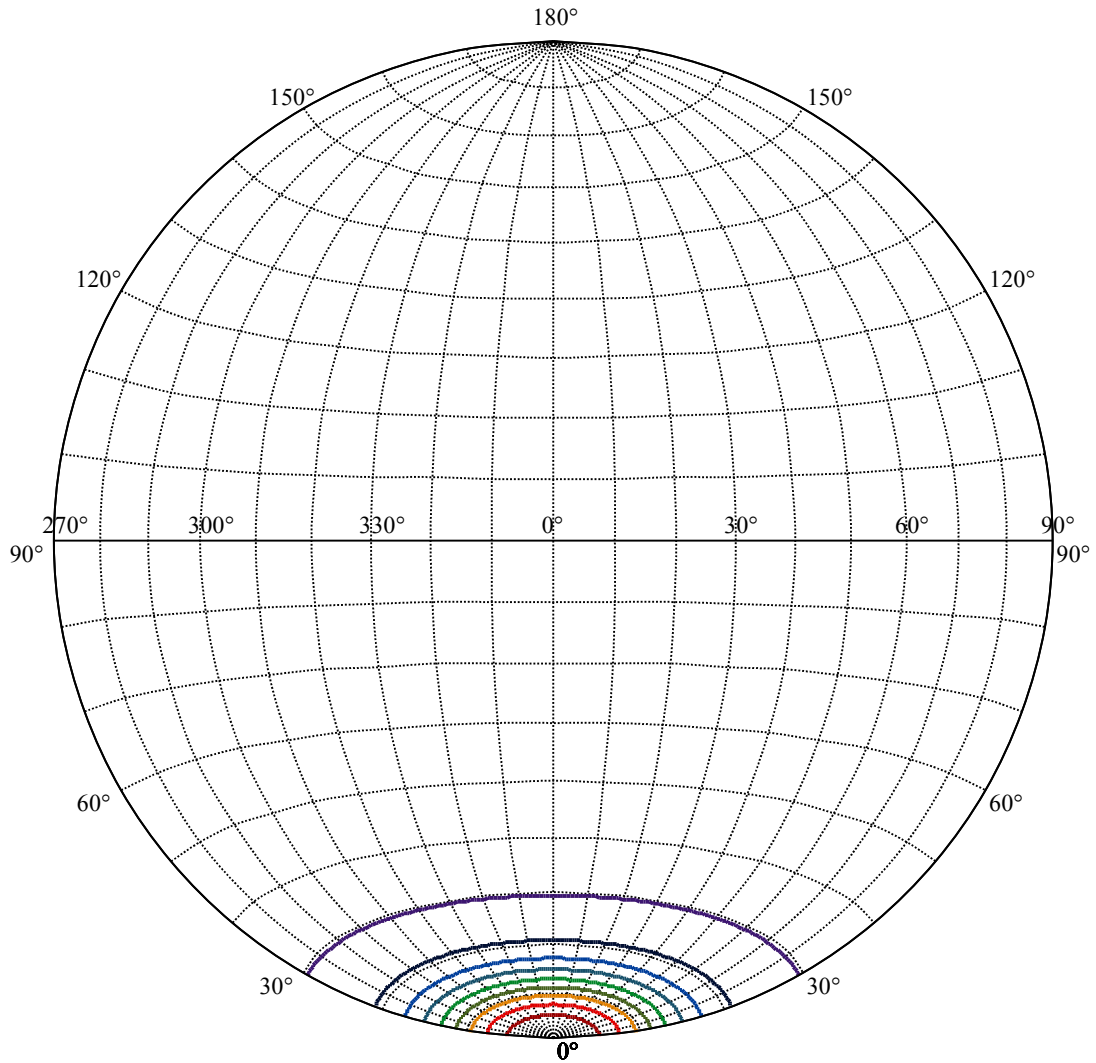
:C90/270Left:13.0 Right:13.0



Max , Ave Beam angle of C0 plane 26.06



(10%Imax) 305.803	—
(20%Imax) 611.606	—
(30%Imax) 917.409	—
(40%Imax) 1223.21	—
(50%Imax) 1529.02	—
(60%Imax) 1834.82	—
(70%Imax) 2140.62	—
(80%Imax) 2446.43	—
(90%Imax) 2752.23	—



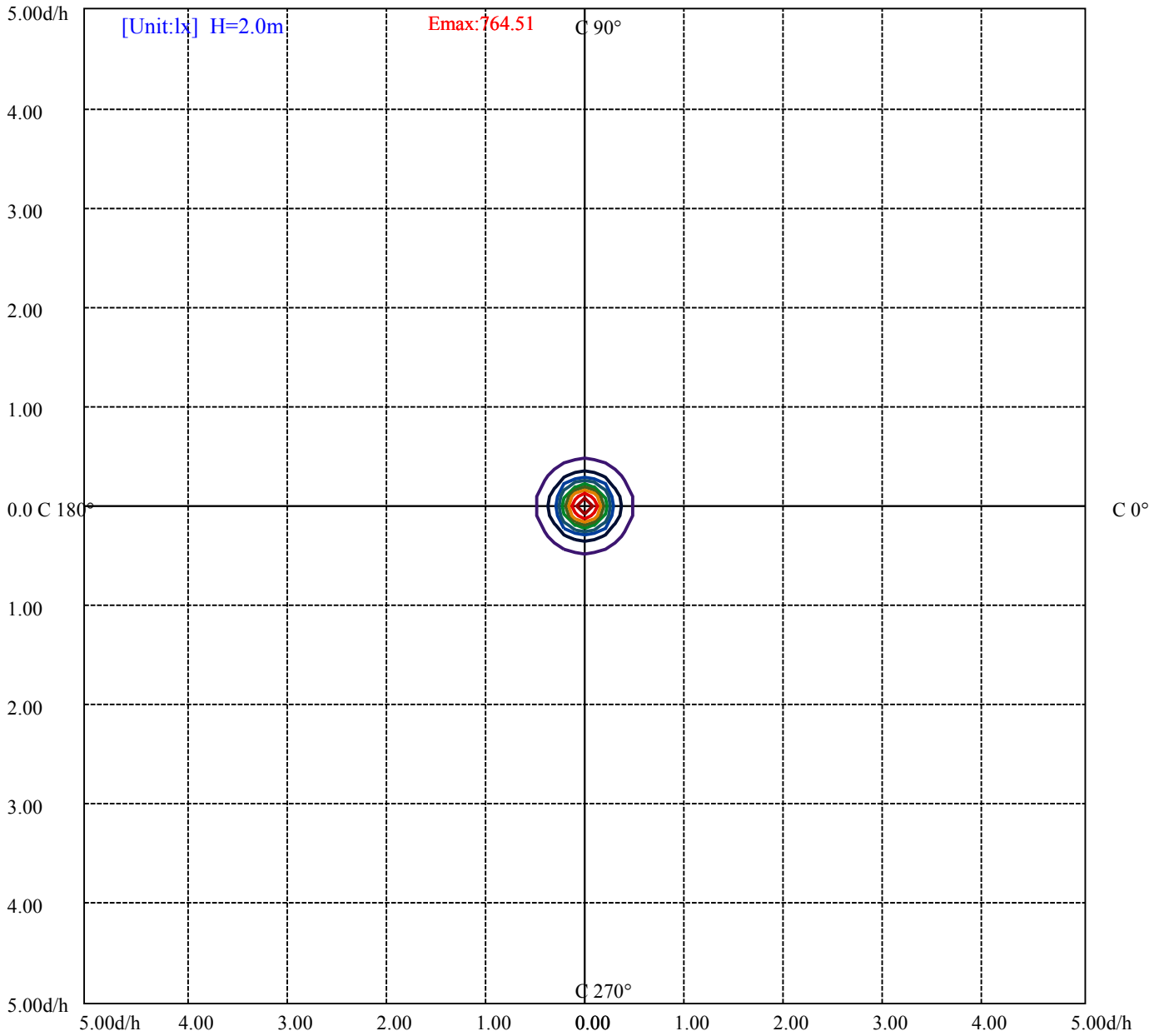
House

[Unit:cd]

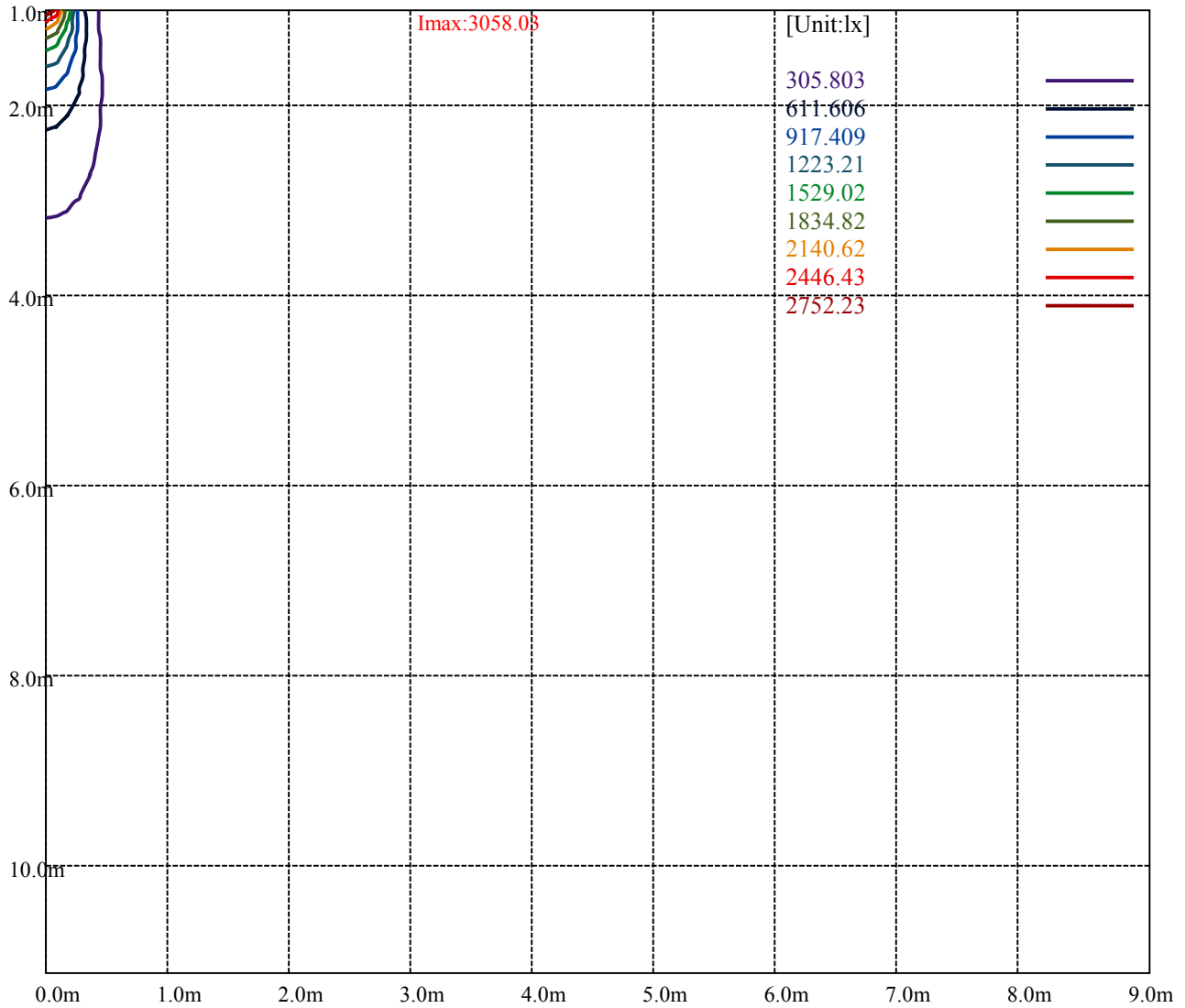
Road

Imax:3058.03

(10%Imax) 305.803	—
(20%Imax) 611.606	—
(30%Imax) 917.409	—
(40%Imax) 1223.21	—
(50%Imax) 1529.02	—
(60%Imax) 1834.82	—
(70%Imax) 2140.62	—
(80%Imax) 2446.43	—
(90%Imax) 2752.23	—



- (10%Emax) 76.45075
- (20%Emax) 152.9015
- (30%Emax) 229.3522
- (40%Emax) 305.8025
- (50%Emax) 382.255
- (60%Emax) 458.705
- (70%Emax) 535.155
- (80%Emax) 611.605
- (90%Emax) 688.0575



Luminance Table

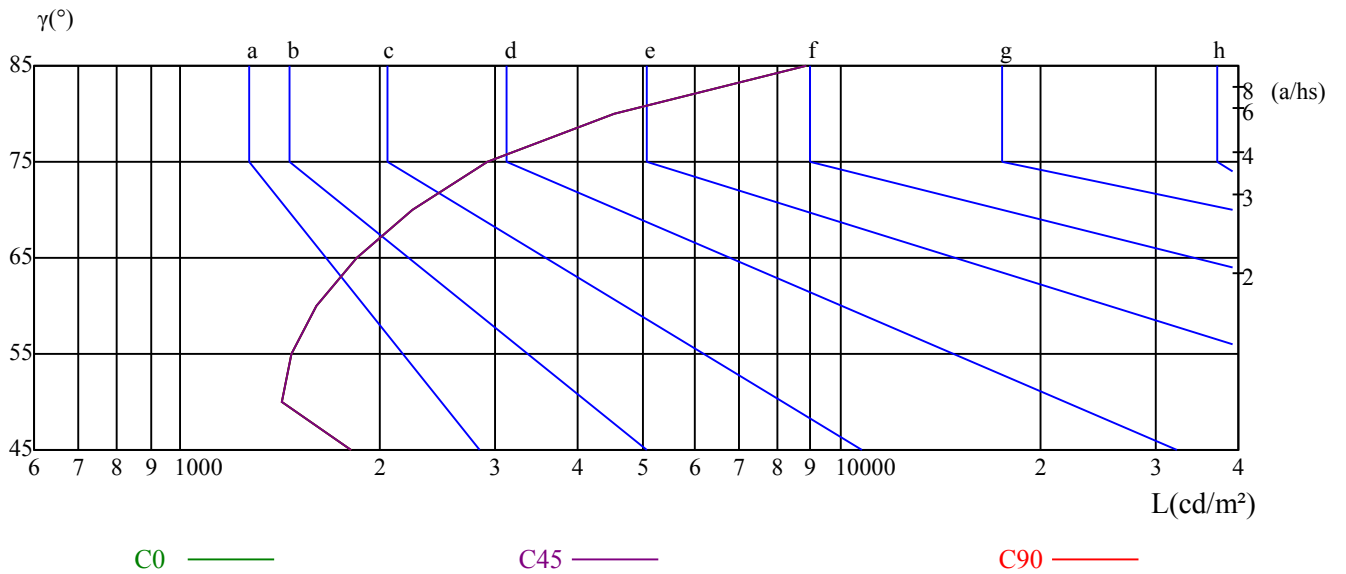
γ	45	50	55	60	65	70	75	80	85
C0	1811	1420	1477	1606	1849	2244	2925	4546	8858
C45	1811	1420	1477	1606	1849	2244	2925	4546	8858
C90	1811	1420	1477	1606	1849	2244	2925	4546	8858

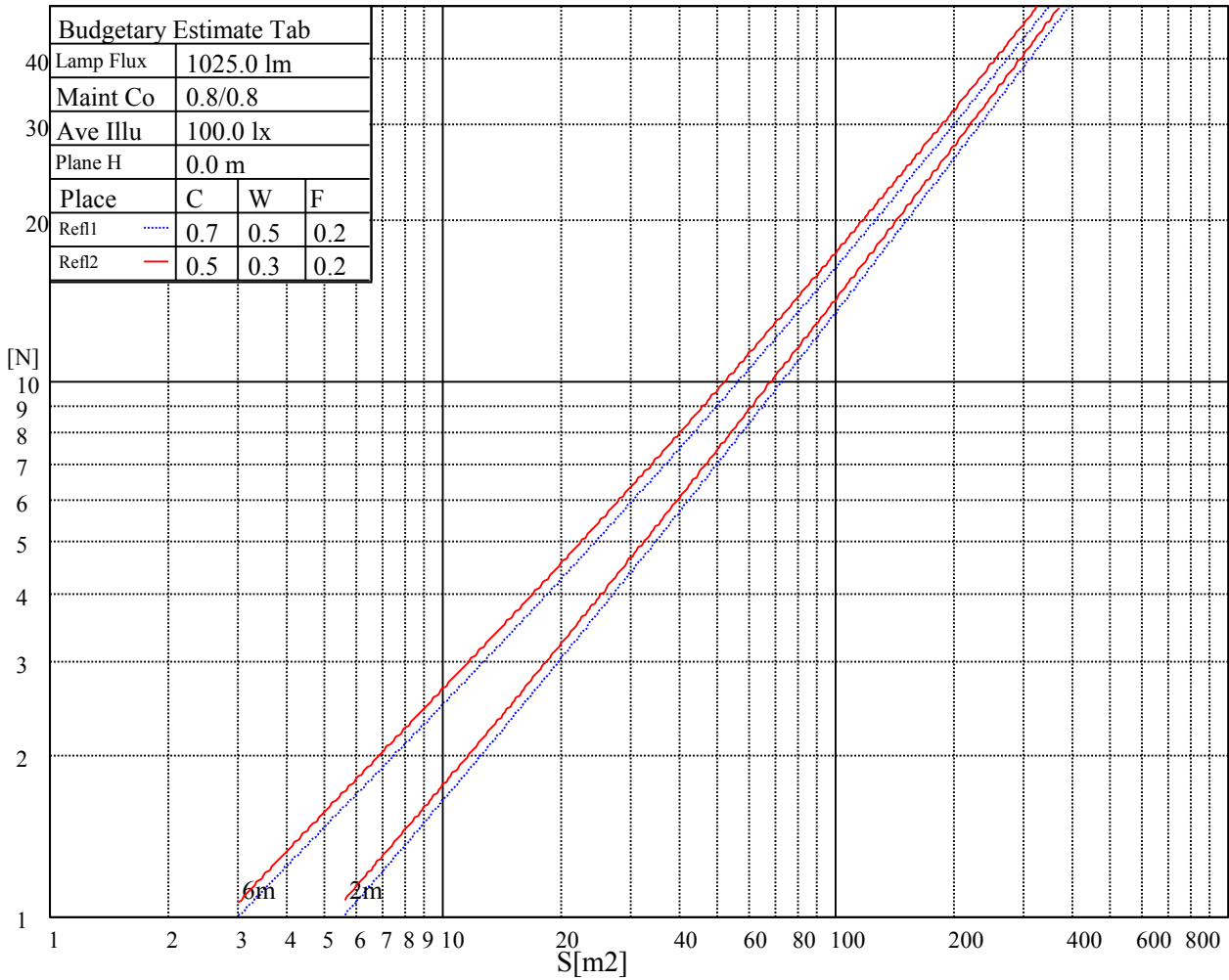
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1849	1849	1849	2925	2925	2925	8858	8858	8858

Glare Table

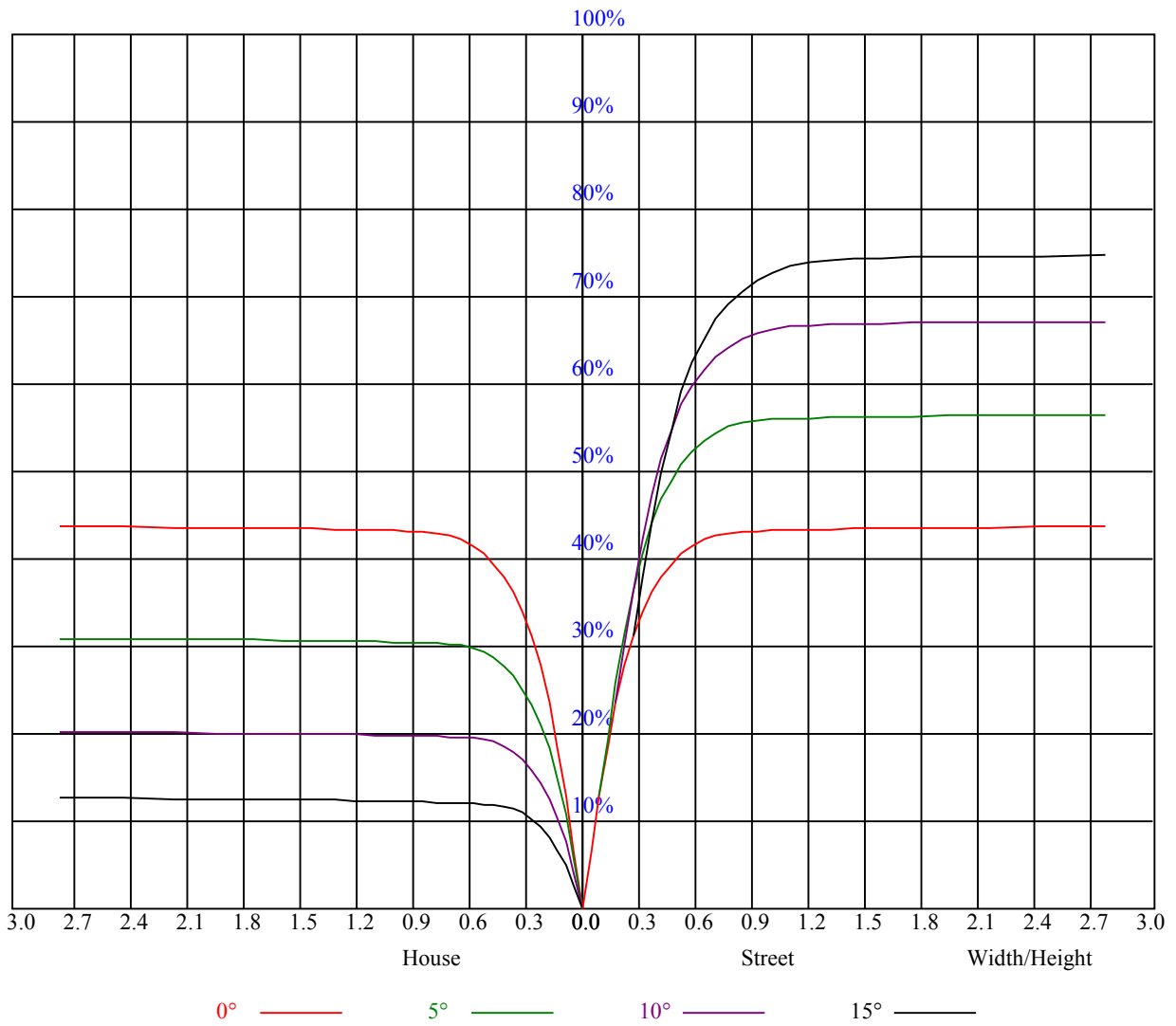
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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



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	3064.50	2997.56	2908.69	2802.38	2662.31	2498.63	2335.50	2140.88	1969.88
45.0	3072.94	3023.44	2947.50	2865.38	2761.31	2597.63	2451.38	2286.00	2093.63
90.0	3054.38	3034.69	2989.69	2920.50	2839.50	2724.75	2583.56	2437.31	2265.75
135.0	3040.31	3069.00	3083.63	3069.56	3043.13	2978.44	2909.81	2820.38	2697.19
180.0	3064.50	3106.69	3131.44	3133.69	3121.88	3083.63	3018.94	2943.00	2855.25
225.0	3072.94	3107.81	3116.81	3108.94	3072.38	3020.63	2955.94	2856.38	2735.44
270.0	3054.38	3063.38	3041.44	3007.69	2953.13	2857.50	2754.56	2636.44	2481.19
315.0	3040.31	2995.31	2918.81	2829.94	2715.75	2543.63	2391.19	2229.19	2019.38
360.0	3064.50	2997.56	2908.69	2802.38	2662.31	2498.63	2335.50	2140.88	1969.88
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1776.38	1588.50	1430.44	1283.63	1115.44	990.00	880.88	759.94	678.38
45.0	1902.38	1733.63	1545.19	1372.50	1230.19	1082.25	961.31	843.19	750.38
90.0	2098.69	1907.44	1721.25	1559.81	1406.81	1106.10	1091.36	970.99	838.01
135.0	2552.63	2404.69	2221.88	2055.38	1862.44	1670.63	1505.81	1329.75	1171.13
180.0	2724.75	2564.44	2408.06	2219.63	2045.81	1848.94	1654.31	1485.56	1310.63
225.0	2599.88	2445.19	2236.50	2060.44	1883.81	1666.69	1499.06	1338.75	1109.59
270.0	2310.75	2143.69	1953.00	1783.13	1591.31	1415.25	1267.88	1114.31	976.50
315.0	1869.19	1683.00	1482.19	1350.00	1108.13	1062.23	931.44	828.90	729.39
360.0	1776.38	1588.50	1430.44	1283.63	1115.44	990.00	880.88	759.94	678.38
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	613.69	568.69	510.75	476.44	444.38	420.19	393.75	364.50	335.81
45.0	661.50	597.94	534.38	497.25	465.19	433.69	409.50	387.00	364.50
90.0	745.54	667.74	591.98	546.36	506.42	465.02	441.23	414.73	387.68
135.0	1041.19	921.38	791.44	711.00	642.38	576.56	530.44	493.31	456.75
180.0	1110.77	1015.59	898.71	772.31	688.44	617.29	555.86	506.76	470.59
225.0	1031.12	916.43	801.73	713.87	631.07	567.06	521.49	479.98	446.12
270.0	871.31	777.38	679.50	615.38	563.63	513.56	473.06	442.69	413.44
315.0	649.86	590.68	544.16	495.23	462.66	434.14	406.74	379.74	355.44
360.0	613.69	568.69	510.75	476.44	444.38	420.19	393.75	364.50	335.81
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	304.31	285.19	241.09	211.84	180.51	149.96	123.81	99.79	71.72
45.0	329.06	301.50	284.63	235.18	205.82	176.85	147.26	116.38	93.71
90.0	366.86	339.08	304.31	279.56	249.24	209.70	184.39	157.39	131.40
135.0	425.81	403.31	377.44	353.25	322.31	291.94	285.19	227.64	195.53
180.0	436.61	409.33	386.61	360.90	336.32	307.07	276.92	250.26	222.86
225.0	419.91	398.19	368.78	344.03	318.94	288.00	256.39	227.53	194.74
270.0	387.00	362.25	334.69	306.56	286.88	246.09	214.26	186.86	159.08
315.0	323.83	291.49	262.80	229.61	201.32	169.54	139.11	113.12	89.10
360.0	304.31	285.19	241.09	211.84	180.51	149.96	123.81	99.79	71.72
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	51.98	34.88	19.07	12.54	10.01	8.94	7.54	6.53	6.13
45.0	69.24	49.84	31.84	18.90	12.43	9.84	8.55	7.09	6.30
90.0	100.69	77.85	57.15	35.44	22.73	14.51	10.29	8.94	7.54
135.0	167.91	141.19	109.86	86.91	64.91	43.48	26.44	16.76	11.31
180.0	188.44	161.72	135.68	104.63	81.62	60.41	39.83	23.85	15.08
225.0	163.74	136.35	107.55	84.04	60.53	40.44	26.16	15.53	10.86
270.0	126.39	101.19	77.29	51.24	34.43	21.94	12.94	10.13	9.17
315.0	61.88	42.92	27.96	15.75	11.03	9.51	8.38	6.98	6.30
360.0	51.98	34.88	19.07	12.54	10.01	8.94	7.54	6.53	6.13

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	5.96	5.85	5.68	5.63	5.46	5.40	5.29	5.23	5.12
45.0	5.96	5.79	5.68	5.57	5.46	5.40	5.29	5.23	5.18
90.0	6.30	5.96	5.74	5.63	5.51	5.40	5.34	5.29	5.23
135.0	9.79	8.16	6.75	6.08	5.85	5.68	5.57	5.46	5.34
180.0	10.86	9.56	7.99	6.53	6.02	5.79	5.68	5.57	5.46
225.0	9.62	8.27	6.69	6.13	5.96	5.74	5.63	5.51	5.40
270.0	7.82	6.64	6.19	5.96	5.79	5.63	5.51	5.40	5.29
315.0	6.02	5.85	5.74	5.57	5.51	5.40	5.29	5.23	5.18
360.0	5.96	5.85	5.68	5.63	5.46	5.40	5.29	5.23	5.12
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.12	5.06	5.01	4.95	4.89	4.89	4.89	4.84	4.84
45.0	5.12	5.12	5.06	5.01	5.01	5.01	4.89	4.89	4.89
90.0	5.12	5.12	5.01	5.01	4.95	4.89	4.89	4.84	4.84
135.0	5.29	5.23	5.12	5.06	5.01	4.95	4.89	4.89	4.84
180.0	5.34	5.23	5.12	5.06	5.01	4.95	4.89	4.84	4.78
225.0	5.29	5.23	5.12	5.06	5.01	4.95	4.89	4.84	4.78
270.0	5.23	5.18	5.12	5.01	5.01	4.95	4.89	4.84	4.84
315.0	5.12	5.06	5.01	4.95	4.89	4.84	4.84	4.78	4.78
360.0	5.12	5.06	5.01	4.95	4.89	4.89	4.89	4.84	4.84
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.84	4.84	4.84	4.78	4.84	4.84	4.84	4.84	4.84
45.0	4.89	4.89	4.89	4.89	4.84	4.84	4.84	4.84	4.89
90.0	4.78	4.78	4.78	4.78	4.73	4.73	4.73	4.67	4.67
135.0	4.78	4.78	4.73	4.73	4.67	4.67	4.61	4.61	4.61
180.0	4.73	4.73	4.67	4.61	4.61	4.61	4.56	4.56	4.50
225.0	4.73	4.67	4.67	4.61	4.61	4.56	4.50	4.50	4.50
270.0	4.78	4.67	4.73	4.67	4.67	4.61	4.61	4.61	4.56
315.0	4.78	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73
360.0	4.84	4.84	4.84	4.78	4.84	4.84	4.84	4.84	4.84
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.78	4.78	4.78	4.73	4.78	4.84	4.84	5.12	5.46
45.0	4.89	4.89	4.89	4.89	4.89	4.84	4.95	5.23	5.57
90.0	4.67	4.67	4.67	4.61	4.67	4.61	4.67	4.61	4.61
135.0	4.56	4.56	4.56	4.56	4.50	4.50	4.44	4.50	4.50
180.0	4.50	4.44	4.44	4.44	4.39	4.39	4.39	4.39	4.39
225.0	4.44	4.44	4.44	4.39	4.39	4.39	4.39	4.39	4.33
270.0	4.56	4.56	4.56	4.50	4.50	4.50	4.50	4.50	4.44
315.0	4.73	4.73	4.73	4.73	4.67	4.67	4.67	4.73	5.12
360.0	4.78	4.78	4.78	4.73	4.78	4.84	4.84	5.12	5.46
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.46	5.18	5.40	5.23	5.23	4.16	4.11	4.11	4.11
45.0	5.79	5.34	5.06	5.12	5.18	5.23	4.16	4.16	4.16
90.0	4.89	4.89	4.73	4.67	4.61	4.84	4.22	4.22	4.16
135.0	4.44	4.44	4.44	4.44	4.50	4.44	4.56	4.22	4.16
180.0	4.33	4.33	4.33	4.33	4.33	4.33	4.33	4.16	4.11
225.0	4.33	4.33	4.28	4.28	4.28	4.28	4.22	4.16	4.16
270.0	4.44	4.50	4.44	4.44	4.50	4.56	4.22	4.22	4.22
315.0	5.23	4.84	4.73	4.84	4.95	4.22	4.16	4.16	4.16
360.0	5.46	5.18	5.40	5.23	5.23	4.16	4.11	4.11	4.11

Intensity data(cd)

C/γ($^{\circ}$)	90.0
0.0	4.11
45.0	4.16
90.0	4.16
135.0	4.16
180.0	4.16
225.0	4.16
270.0	4.22
315.0	4.16
360.0	4.11