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## Nata

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LumCAT: 2-1674-M	
Luminaire: 92.70.131.00	
Report No: NT2017061706	Voltage(V): 34.6000
Test No: GC2017061706	Current(A): 0.5000
LampCAT: BRIDGELUX V13	Power (W): 17.3000
Lamp flux(lm): 2479.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2245.01  
Efficiency(%): 90.56%  
Lumens(lm)/Power(W): 129.77  
Central intensity(cd): 15838.350  
Maximum intensity(cd): 15838.350  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=15.3  
                                  [C90/270]Total=15.3  
Field angle(10%Imax): [C0/180]Total=31.0  
                                  [C90/270]Total=31.0  
Maximum s/h(1/2): C0\_180=0.26 C90\_270=0.26  
Maximum s/h(1/4): C0\_180=0.26 C90\_270=0.26  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 90.56%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.794%

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Equipment: gms1980  
Temperature(°C): 25.0

Date: 2017/4/27  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.42

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15838.350	0.000	0	.000%	.000%
1.0	15686.257	15.084	15.084	.608%	.672%
2.0	15187.308	44.313	59.397	1.788%	2.646%
3.0	14459.187	70.905	130.301	2.860%	5.804%
4.0	13356.545	93.108	223.409	3.756%	9.951%
5.0	12129.613	109.640	333.05	4.423%	14.835%
6.0	10469.456	118.764	451.814	4.791%	20.125%
7.0	8923.197	120.370	572.184	4.856%	25.487%
8.0	7398.685	116.813	688.996	4.712%	30.690%
9.0	5926.340	107.992	796.988	4.356%	35.500%
10.0	4683.992	96.020	893.008	3.873%	39.777%
11.0	3698.276	83.756	976.764	3.379%	43.508%
12.0	2952.950	72.707	1049.471	2.933%	46.747%
13.0	2327.578	62.667	1112.138	2.528%	49.538%
14.0	2022.772	55.684	1167.822	2.246%	52.019%
15.0	1675.160	50.767	1218.589	2.048%	54.280%
16.0	1489.069	46.365	1264.954	1.870%	56.345%
17.0	1317.383	43.704	1308.658	1.763%	58.292%
18.0	1223.326	41.891	1350.548	1.690%	60.158%
19.0	1135.862	41.045	1391.593	1.656%	61.986%
20.0	1073.442	40.436	1432.03	1.631%	63.787%
21.0	1021.179	40.221	1472.251	1.622%	65.579%
22.0	980.382	40.222	1512.473	1.623%	67.370%
23.0	944.912	40.398	1552.871	1.630%	69.170%
24.0	911.300	40.583	1593.454	1.637%	70.978%
25.0	887.867	40.909	1634.364	1.650%	72.800%
26.0	865.748	41.394	1675.758	1.670%	74.644%
27.0	845.976	41.878	1717.636	1.689%	76.509%
28.0	827.587	42.371	1760.007	1.709%	78.396%
29.0	810.279	42.851	1802.858	1.729%	80.305%
30.0	794.952	43.341	1846.199	1.748%	82.236%
31.0	777.121	43.749	1889.947	1.765%	84.184%
32.0	745.023	43.608	1933.555	1.759%	86.127%
33.0	703.215	42.666	1976.221	1.721%	88.027%
34.0	654.338	41.084	2017.304	1.657%	89.857%
35.0	579.455	38.317	2055.621	1.546%	91.564%
36.0	497.675	34.296	2089.917	1.383%	93.092%
37.0	418.931	29.895	2119.812	1.206%	94.423%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	335.252	25.174	2144.985	1.015%	95.545%
39.0	240.741	19.660	2164.646	.793%	96.420%
40.0	172.698	14.419	2179.065	.582%	97.063%
41.0	124.517	10.584	2189.649	.427%	97.534%
42.0	66.728	6.948	2196.597	.280%	97.843%
43.0	38.188	3.886	2200.483	.157%	98.017%
44.0	23.523	2.329	2202.812	.094%	98.120%
45.0	17.336	1.570	2204.383	.063%	98.190%
46.0	14.810	1.257	2205.64	.051%	98.246%
47.0	12.876	1.101	2206.741	.044%	98.295%
48.0	11.472	0.984	2207.725	.040%	98.339%
49.0	10.722	0.911	2208.637	.037%	98.380%
50.0	10.137	0.870	2209.506	.035%	98.419%
51.0	9.903	0.848	2210.354	.034%	98.456%
52.0	9.738	0.843	2211.197	.034%	98.494%
53.0	9.594	0.841	2212.038	.034%	98.531%
54.0	9.456	0.840	2212.878	.034%	98.569%
55.0	9.339	0.839	2213.717	.034%	98.606%
56.0	9.263	0.841	2214.557	.034%	98.643%
57.0	9.132	0.841	2215.398	.034%	98.681%
58.0	9.071	0.842	2216.24	.034%	98.718%
59.0	9.002	0.845	2217.085	.034%	98.756%
60.0	8.940	0.848	2217.933	.034%	98.794%
61.0	8.892	0.851	2218.784	.034%	98.832%
62.0	8.864	0.856	2219.639	.035%	98.870%
63.0	8.823	0.860	2220.499	.035%	98.908%
64.0	8.775	0.863	2221.363	.035%	98.947%
65.0	8.747	0.867	2222.23	.035%	98.985%
66.0	8.733	0.872	2223.102	.035%	99.024%
67.0	8.692	0.876	2223.978	.035%	99.063%
68.0	8.685	0.880	2224.859	.036%	99.102%
69.0	8.678	0.886	2225.744	.036%	99.142%
70.0	8.658	0.890	2226.635	.036%	99.181%
71.0	8.637	0.894	2227.529	.036%	99.221%
72.0	8.609	0.897	2228.425	.036%	99.261%
73.0	8.596	0.900	2229.325	.036%	99.301%
74.0	8.589	0.903	2230.229	.036%	99.342%
75.0	8.582	0.907	2231.136	.037%	99.382%

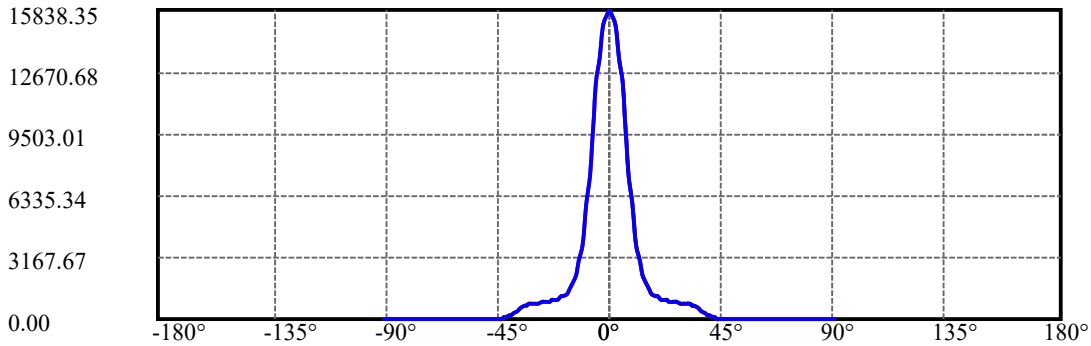
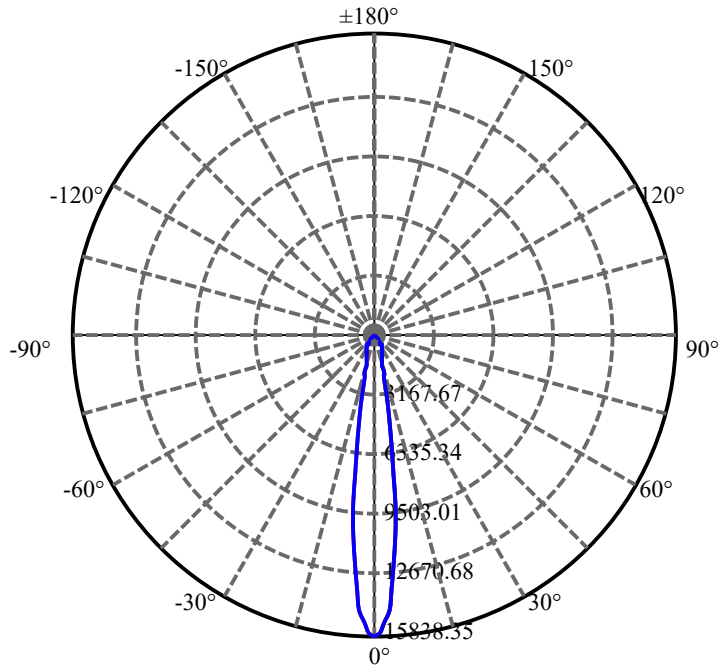
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.589	0.911	2232.047	.037%	99.423%
77.0	8.589	0.916	2232.963	.037%	99.463%
78.0	8.561	0.918	2233.881	.037%	99.504%
79.0	8.554	0.920	2234.801	.037%	99.545%
80.0	8.541	0.922	2235.722	.037%	99.586%
81.0	8.548	0.924	2236.647	.037%	99.627%
82.0	8.554	0.927	2237.574	.037%	99.669%
83.0	8.561	0.930	2238.504	.038%	99.710%
84.0	8.541	0.932	2239.436	.038%	99.752%
85.0	8.527	0.932	2240.368	.038%	99.793%
86.0	8.513	0.931	2241.299	.038%	99.835%
87.0	8.479	0.930	2242.229	.038%	99.876%
88.0	8.451	0.927	2243.156	.037%	99.917%
89.0	8.458	0.927	2244.083	.037%	99.959%
90.0	8.465	0.928	2245.011	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1846.20	74.47%	82.24%
0-40	2179.06	87.90%	97.06%
0-60	2217.93	89.47%	98.79%
0-90	2244.08	90.52%	99.96%
0-120	2244.08	90.52%	99.96%
0-180	2245.01	90.56%	100.00%
60-90	27.00	1.09%	1.20%
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%
0-28.84	1796.01	72.45%	80.00%

ZONAL LUMEN SUMMARY

0-10	893.01
10-20	539.02
20-30	414.17
30-40	332.87
40-50	30.44
50-60	8.43
60-70	8.70
70-80	9.09
80-90	8.36
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: —————

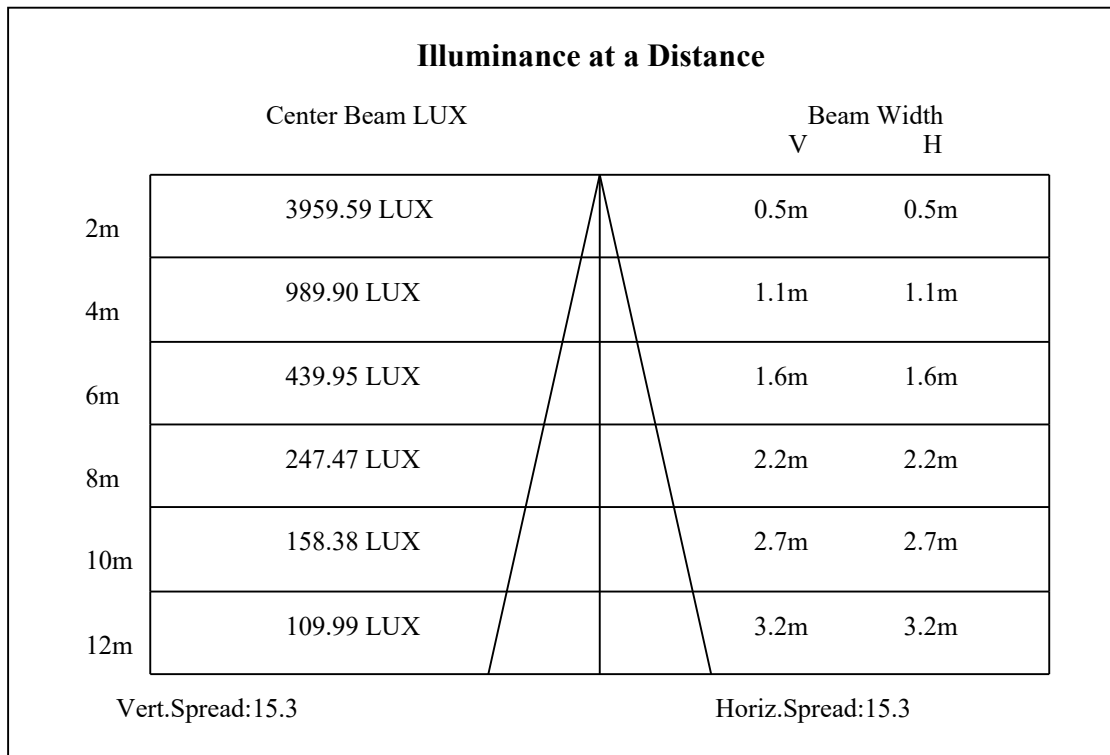
C90/C270: —————

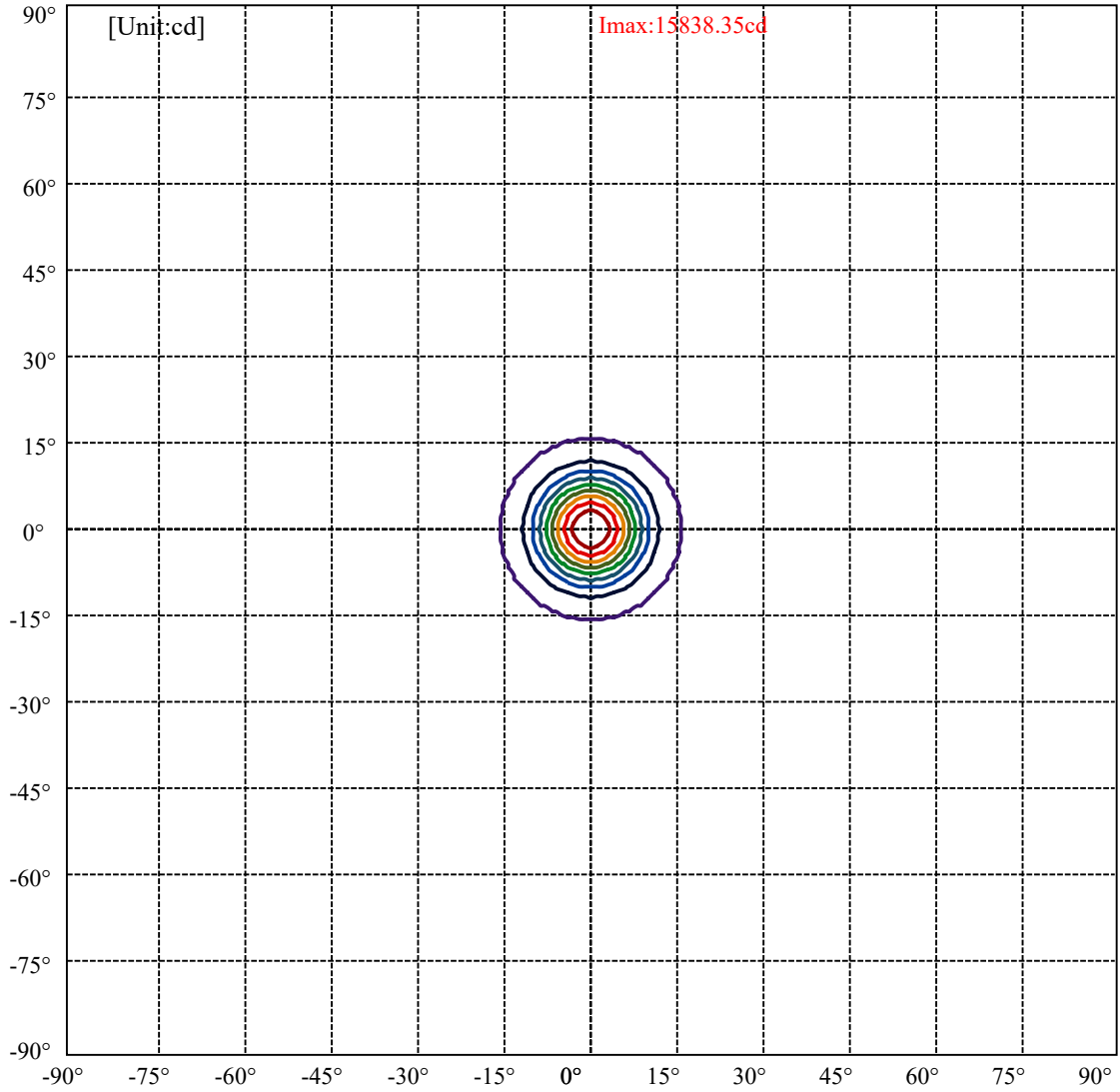
Field angle(10%Imax):C0/180Left:15.5 Right:15.5

:C90/270Left:15.5 Right:15.5

Beam Angle(50%Imax):C0/180Left:7.7 Right:7.7

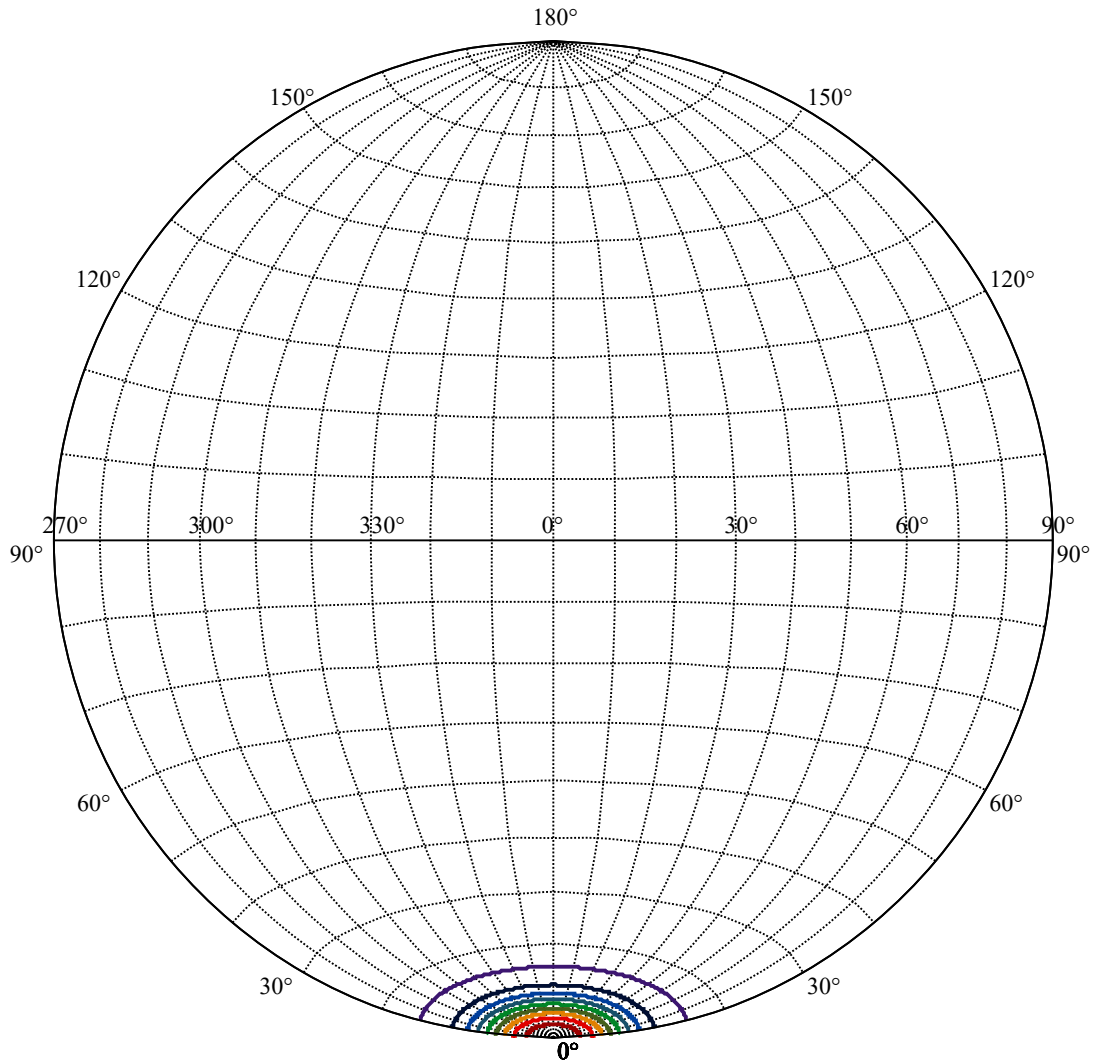
:C90/270Left:7.7 Right:7.7





(10%Imax) 1583.83	—
(20%Imax) 3167.67	—
(30%Imax) 4751.5	—
(40%Imax) 6335.34	—
(50%Imax) 7919.17	—
(60%Imax) 9503.01	—
(70%Imax) 11086.8	—
(80%Imax) 12670.7	—
(90%Imax) 14254.5	—





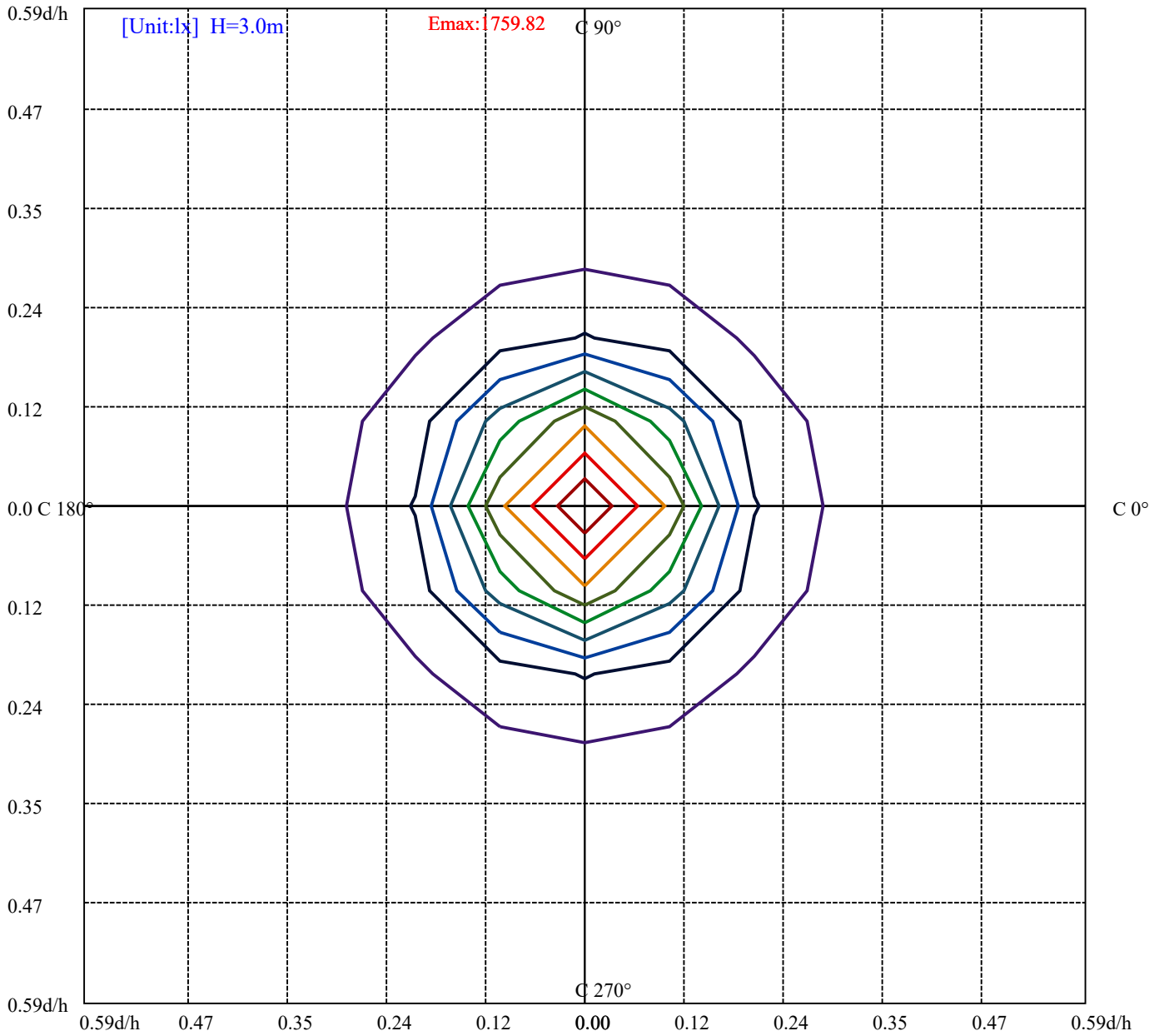
House

[Unit:cd]

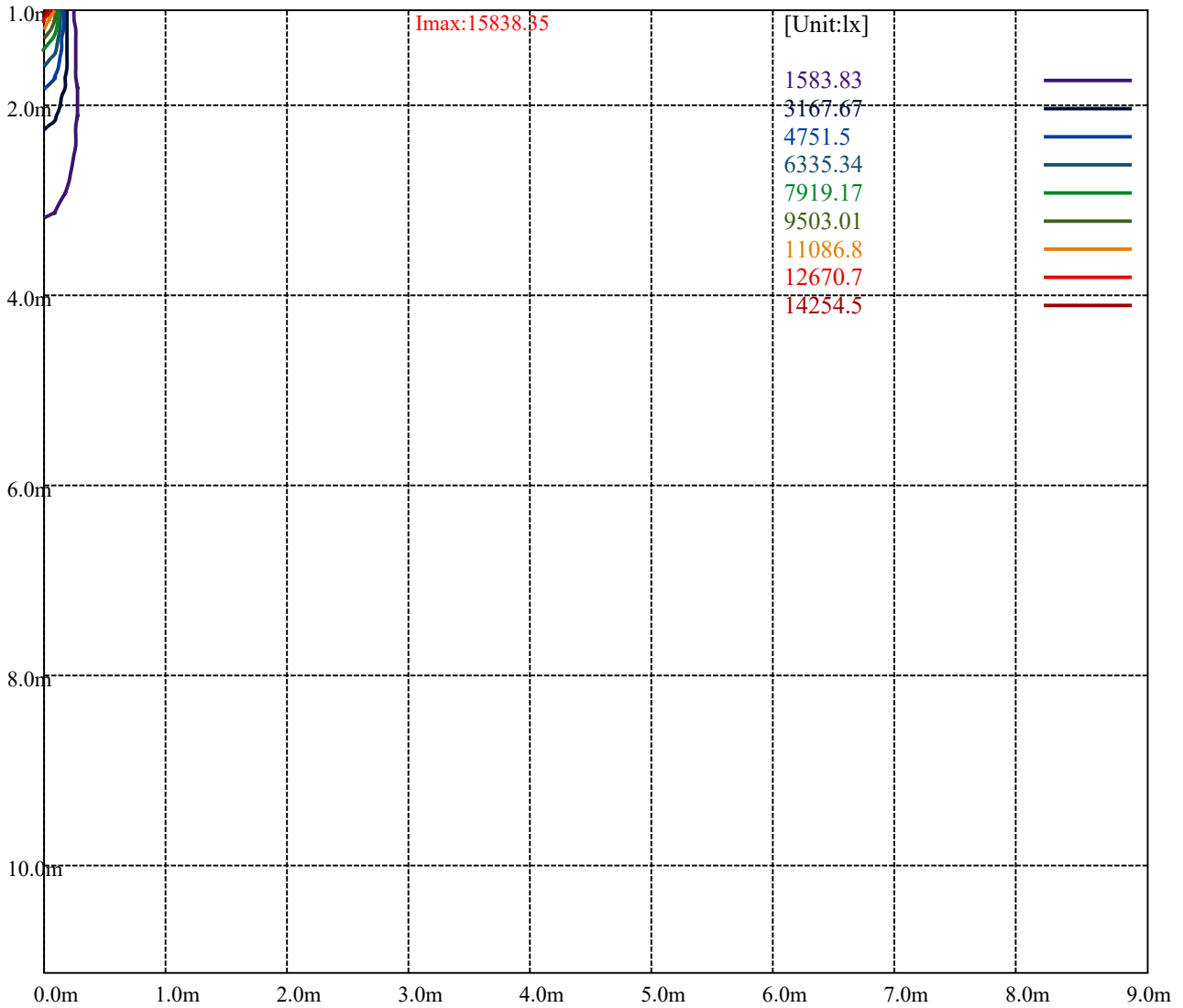
Road

**Imax:15838.35**

(10%Imax) 1583.83	—
(20%Imax) 3167.67	—
(30%Imax) 4751.5	—
(40%Imax) 6335.34	—
(50%Imax) 7919.17	—
(60%Imax) 9503.01	—
(70%Imax) 11086.8	—
(80%Imax) 12670.7	—
(90%Imax) 14254.5	—



- (10%Emax) 175.9811
- (20%Emax) 351.9633
- (30%Emax) 527.9445
- (40%Emax) 703.9255
- (50%Emax) 879.9067
- (60%Emax) 1055.889
- (70%Emax) 1231.867
- (80%Emax) 1407.856
- (90%Emax) 1583.833



Luminance Table

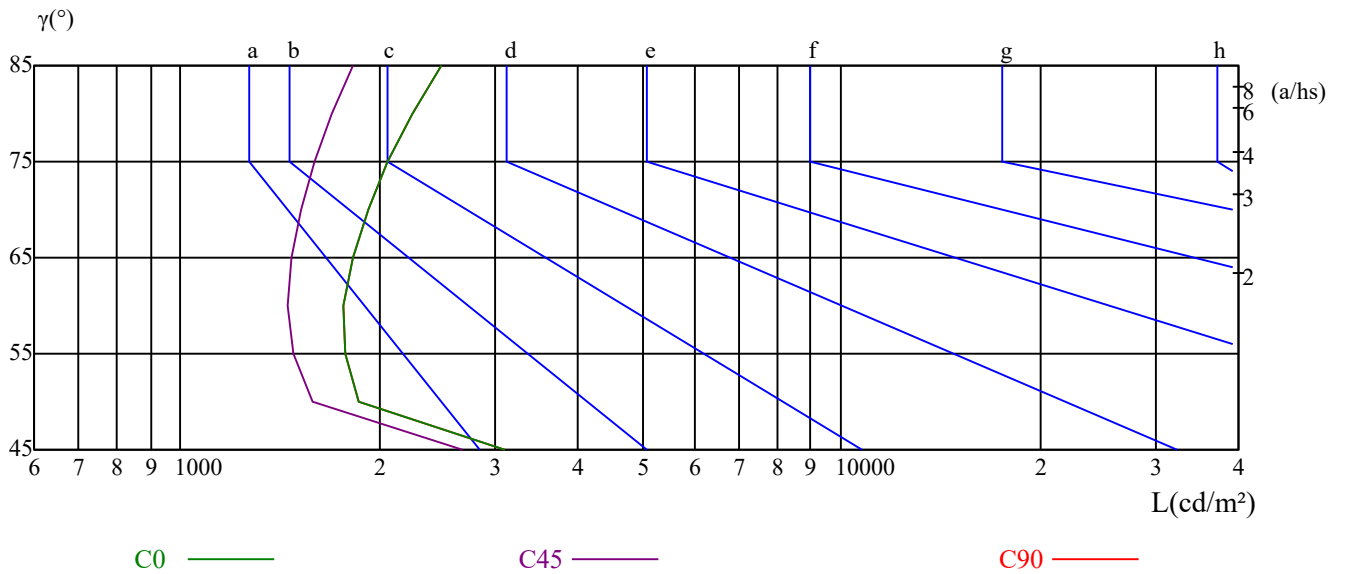
$\gamma$	45	50	55	60	65	70	75	80	85
C0	3099	1858	1770	1768	1823	1922	2055	2239	2489
C45	2677	1581	1483	1457	1475	1525	1595	1694	1827
C90	3099	1858	1770	1768	1823	1922	2055	2239	2489

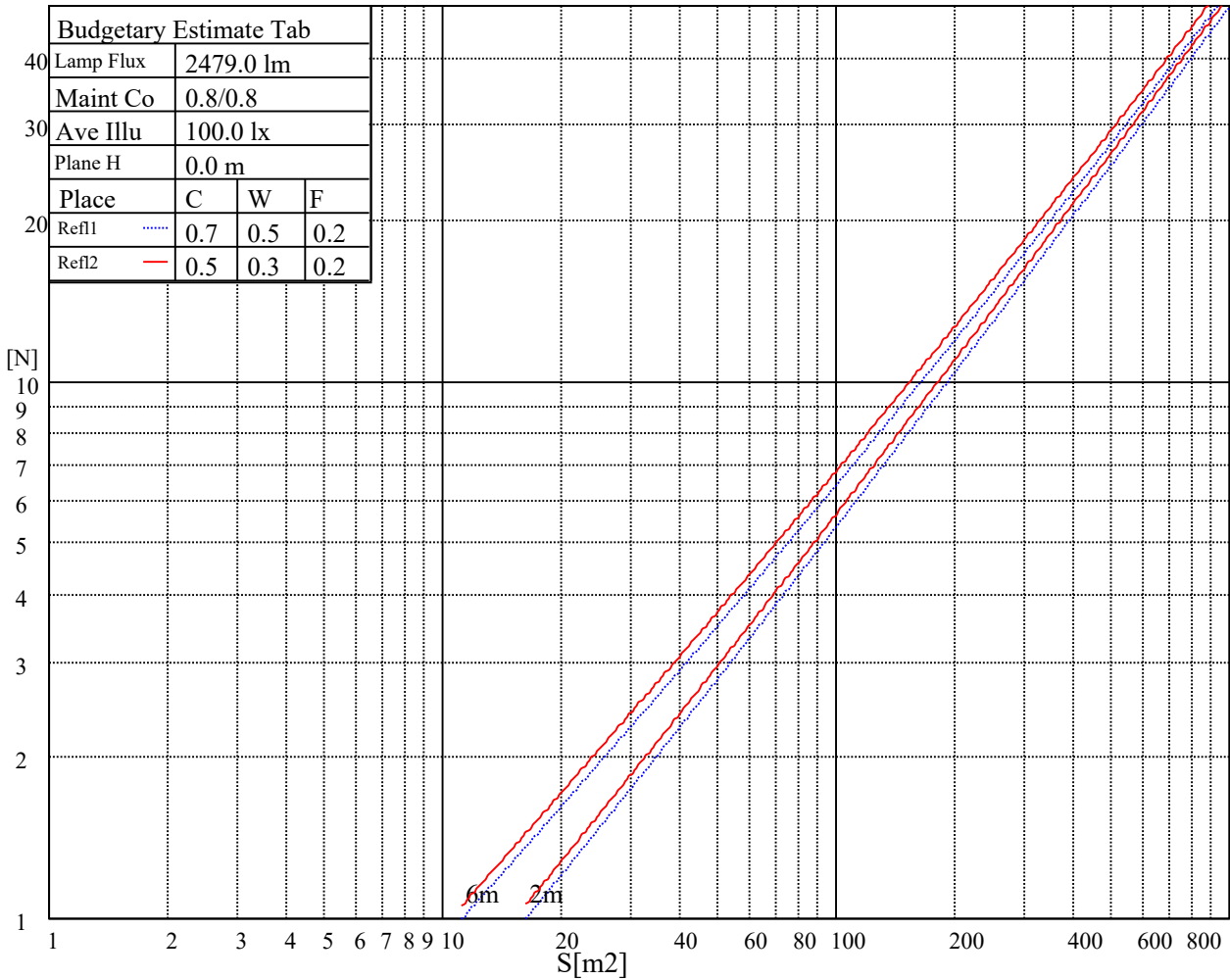
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4224	4224	4224	6767	6767	6767	19966	19966	19966

Glare Table

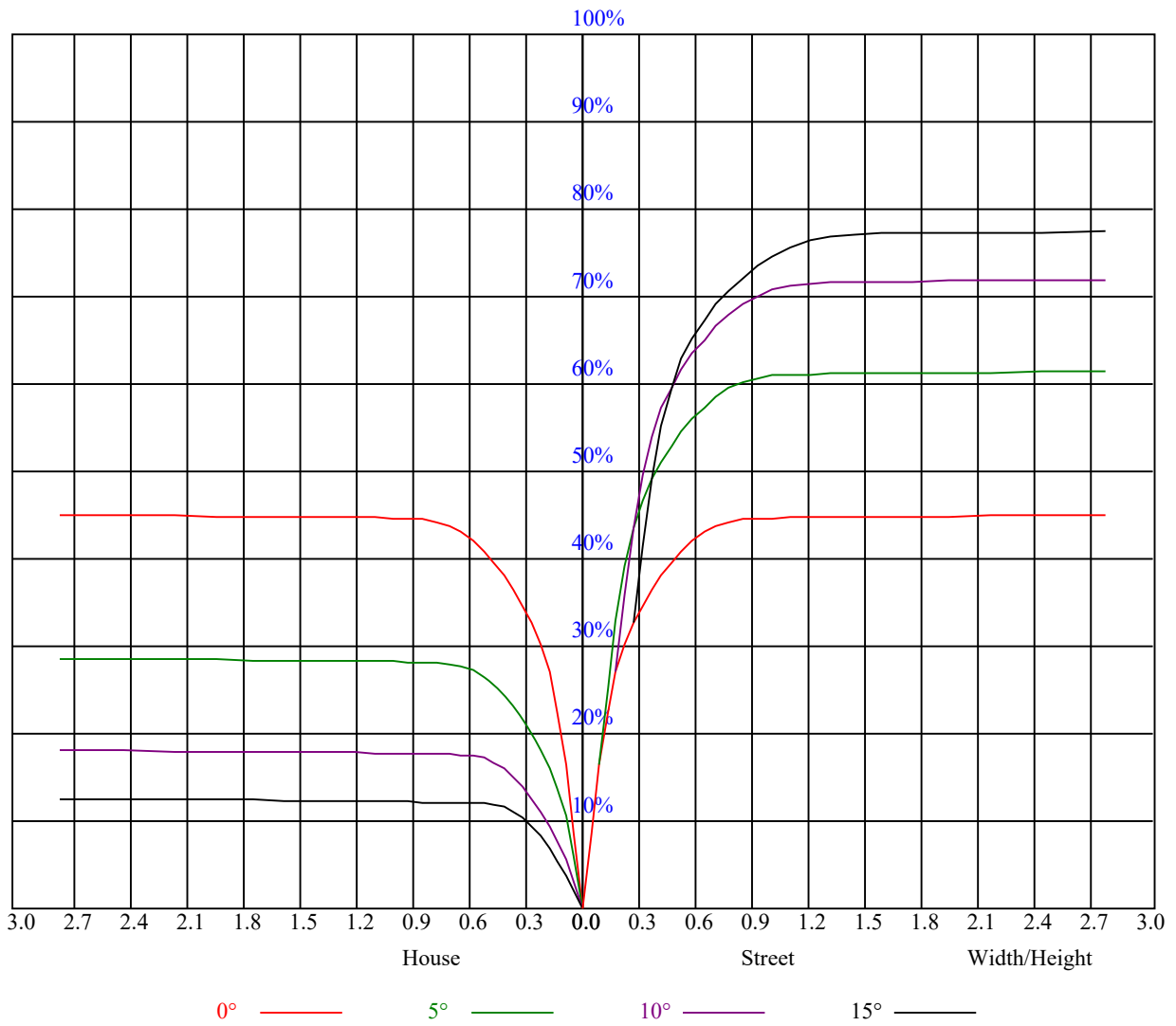
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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 RHOF=20 CU															
0	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.91
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.86
2	0.96	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.83
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
7	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.66
9	0.72	0.68	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62



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	15938.83	15735.12	15046.91	14177.02	12960.28	11330.61	9568.80	7983.18	6270.92
45.0	15784.67	16015.91	15999.39	15751.64	15245.12	14325.68	13004.32	11561.84	9772.51
90.0	15911.30	16120.51	16115.01	15911.30	15437.81	14551.41	13279.60	10869.23	10041.19
135.0	15718.60	16021.41	16081.97	15916.81	15492.87	14810.17	13538.37	12211.51	10675.44
180.0	15938.83	15938.83	15669.05	15074.44	14281.63	13048.37	10899.52	9880.97	8020.07
225.0	15784.67	15267.14	14237.59	13114.43	10895.66	9879.87	8060.81	6527.49	5000.77
270.0	15911.30	15388.26	14303.65	13086.91	11611.39	9805.54	7939.13	6392.05	4883.50
315.0	15718.60	15002.87	14044.89	12640.95	10927.59	9285.26	7465.10	5959.30	4525.09
360.0	15938.83	15735.12	15046.91	14177.02	12960.28	11330.61	9568.80	7983.18	6270.92
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4806.42	3782.37	2934.51	2780.35	1966.61	1701.79	1491.48	1356.59	1247.03
45.0	7950.14	6403.06	4883.50	3826.42	2962.03	2890.46	1999.65	1724.37	1487.07
90.0	8377.38	6553.91	4990.31	3915.61	3047.92	2434.59	2048.65	1766.76	1519.01
135.0	8643.85	7052.72	5593.73	4233.84	3259.34	2780.35	2157.66	1847.69	1598.29
180.0	6461.42	4945.72	3766.41	3006.63	2404.86	1982.03	1715.01	1517.35	1339.52
225.0	3916.16	3023.70	2405.41	2013.41	1697.94	1481.57	1343.38	1241.52	1096.67
270.0	3710.80	2956.53	2802.37	1974.87	1675.37	1488.73	1338.97	1242.62	1157.29
315.0	3544.53	2753.92	2209.96	1872.47	1606.55	1422.66	1306.49	1215.65	1094.19
360.0	4806.42	3782.37	2934.51	2780.35	1966.61	1701.79	1491.48	1356.59	1247.03
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1164.99	1103.33	1041.12	993.77	954.13	926.05	890.81	870.99	857.23
45.0	1353.84	1248.13	1159.49	1100.03	1046.62	998.72	956.88	926.05	898.52
90.0	1375.31	1262.99	1145.72	1091.27	1037.15	988.76	951.93	925.66	902.32
135.0	1418.80	1292.72	1210.14	1123.70	1068.09	1020.20	967.89	933.21	904.58
180.0	1234.92	1092.48	1077.62	1020.64	980.00	942.62	911.95	889.27	866.15
225.0	1082.90	1032.75	990.08	946.42	918.62	895.88	870.55	853.92	834.82
270.0	1090.12	1037.81	989.36	948.07	918.89	896.32	870.44	853.92	835.21
315.0	1065.73	1016.67	974.00	945.54	919.55	890.76	869.95	849.91	827.17
360.0	1164.99	1103.33	1041.12	993.77	954.13	926.05	890.81	870.99	857.23
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	835.21	818.69	808.23	793.36	780.70	765.28	707.47	638.65	561.02
45.0	878.70	857.23	834.66	819.24	802.72	786.21	771.89	753.17	694.26
90.0	879.03	857.01	833.11	815.28	800.74	782.90	766.61	751.57	706.81
135.0	877.05	854.48	834.10	815.39	799.97	785.65	769.69	757.58	720.14
180.0	846.44	823.81	805.14	790.17	775.74	758.24	742.16	701.47	622.36
225.0	818.19	804.10	790.11	775.30	758.84	710.45	638.54	562.79	467.87
270.0	818.14	804.92	792.81	778.50	754.82	705.82	628.19	550.01	458.62
315.0	815.05	800.46	784.06	772.39	743.43	665.63	601.16	519.46	404.55
360.0	835.21	818.69	808.23	793.36	780.70	765.28	707.47	638.65	561.02
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	455.87	367.78	282.99	181.52	113.36	57.75	25.49	21.47	18.66
45.0	625.99	550.01	471.28	361.72	281.89	232.12	106.42	53.74	30.39
90.0	634.53	561.19	483.29	380.16	296.92	217.97	134.67	65.63	33.20
135.0	655.17	581.95	508.72	401.91	322.63	281.89	138.63	80.55	38.87
180.0	548.58	469.69	377.19	284.70	204.75	124.10	64.36	30.01	22.74
225.0	371.96	287.89	206.57	118.76	63.26	31.38	22.41	18.83	15.47
270.0	361.17	286.29	192.70	107.30	53.90	27.36	20.98	17.95	14.76
315.0	328.14	246.65	159.28	89.85	44.87	23.56	20.87	17.34	14.09
360.0	455.87	367.78	282.99	181.52	113.36	57.75	25.49	21.47	18.66



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	15.09	12.44	11.51	10.85	10.46	10.13	9.91	9.74	9.58
45.0	21.47	18.22	15.25	12.72	11.40	10.52	10.13	9.97	9.80
90.0	22.57	19.16	15.75	12.94	12.06	10.52	10.13	9.97	9.80
135.0	22.96	19.38	15.86	12.44	11.23	10.52	10.30	10.08	9.91
180.0	19.05	15.25	13.10	12.22	10.74	10.19	9.97	9.74	9.63
225.0	12.66	11.18	10.57	10.30	10.08	9.86	9.69	9.52	9.41
270.0	12.17	11.07	10.57	10.24	9.97	9.74	9.58	9.47	9.36
315.0	12.72	11.78	10.41	10.08	9.86	9.63	9.52	9.41	9.25
360.0	15.09	12.44	11.51	10.85	10.46	10.13	9.91	9.74	9.58
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.47	9.36	9.25	9.14	9.03	9.03	8.97	8.86	8.86
45.0	9.63	9.52	9.47	9.30	9.19	9.14	9.03	9.03	8.97
90.0	9.63	9.47	9.36	9.25	9.14	9.03	8.97	8.92	8.92
135.0	9.69	9.52	9.41	9.30	9.19	9.14	9.03	8.97	8.92
180.0	9.52	9.36	9.25	9.14	9.08	8.97	8.92	8.86	8.81
225.0	9.30	9.19	9.19	9.03	9.03	8.92	8.92	8.86	8.86
270.0	9.25	9.19	9.14	8.97	8.97	8.92	8.92	8.86	8.81
315.0	9.14	9.08	9.03	8.92	8.92	8.86	8.75	8.75	8.75
360.0	9.47	9.36	9.25	9.14	9.03	9.03	8.97	8.86	8.86
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.81	8.75	8.70	8.70	8.70	8.64	8.64	8.64	8.59
45.0	8.92	8.92	8.86	8.86	8.81	8.81	8.75	8.75	8.75
90.0	8.86	8.81	8.75	8.70	8.70	8.70	8.70	8.64	8.64
135.0	8.86	8.81	8.81	8.81	8.70	8.75	8.75	8.70	8.70
180.0	8.86	8.70	8.70	8.70	8.64	8.64	8.59	8.59	8.53
225.0	8.75	8.75	8.75	8.75	8.64	8.70	8.70	8.70	8.64
270.0	8.75	8.75	8.70	8.70	8.70	8.64	8.64	8.64	8.64
315.0	8.75	8.70	8.70	8.64	8.64	8.59	8.64	8.59	8.59
360.0	8.81	8.75	8.70	8.70	8.70	8.64	8.64	8.64	8.59
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.48	8.48
45.0	8.70	8.64	8.70	8.64	8.70	8.64	8.64	8.64	8.59
90.0	8.59	8.59	8.59	8.59	8.59	8.59	8.53	8.53	8.53
135.0	8.64	8.64	8.64	8.64	8.64	8.64	8.59	8.64	8.59
180.0	8.59	8.53	8.53	8.48	8.48	8.48	8.48	8.48	8.48
225.0	8.64	8.64	8.59	8.64	8.64	8.59	8.64	8.59	8.59
270.0	8.64	8.59	8.59	8.59	8.59	8.59	8.59	8.53	8.53
315.0	8.53	8.59	8.53	8.53	8.53	8.64	8.48	8.53	8.53
360.0	8.53	8.53	8.53	8.53	8.53	8.53	8.53	8.48	8.48
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.48	8.48	8.48	8.48	8.48	8.53	8.42	8.37	8.42
45.0	8.59	8.64	8.64	8.59	8.59	8.53	8.59	8.59	8.53
90.0	8.53	8.53	8.53	8.48	8.53	8.53	8.48	8.48	8.48
135.0	8.64	8.59	8.64	8.64	8.59	8.59	8.48	8.42	8.48
180.0	8.48	8.42	8.48	8.42	8.42	8.42	8.37	8.37	8.37
225.0	8.53	8.59	8.59	8.59	8.53	8.53	8.53	8.48	8.48
270.0	8.59	8.59	8.59	8.59	8.59	8.53	8.48	8.48	8.48
315.0	8.53	8.59	8.53	8.53	8.48	8.42	8.48	8.42	8.42
360.0	8.48	8.48	8.48	8.48	8.48	8.53	8.42	8.37	8.42

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>8.42</b>
<b>45.0</b>	<b>8.53</b>
<b>90.0</b>	<b>8.48</b>
<b>135.0</b>	<b>8.42</b>
<b>180.0</b>	<b>8.42</b>
<b>225.0</b>	<b>8.53</b>
<b>270.0</b>	<b>8.48</b>
<b>315.0</b>	<b>8.42</b>
<b>360.0</b>	<b>8.42</b>