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Nata

LumCAT: 3-2438-A
Luminaire: 92.70.153.00
Report No: NATA0100 Voltage(V): 33.8600
Test No: GC2019111415 Current(A): 0.4270
LampCAT: PHILIPS SLM92757 TWL152024 Power (W): 14.4500
Lamp flux(lm): 1410.0 PF: 1.0000
Number of Lamps: 1 Ballast type: DC
Length(mm): 0 Width(mm): 0
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 1156.47
Efficiency(%): 82.02%
Lumens(lm)/Power(W): 80.03
Central intensity(cd): 3353.625
Maximum intensity(cd): 3353.625
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=27.4
[C90/270]Total=27.4
Field angle(10%Imax): [C0/180]Total=65.9
[C90/270]Total=65.9
Maximum s/h(1/2): C0_180=0.46 C90_270=0.46
Maximum s/h(1/4): C0_180=0.48 C90_270=0.48
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.02%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.080%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3353.625	0.000	0	.000%	.000%
1.0	3342.867	3.204	3.204	.227%	.277%
2.0	3307.008	9.545	12.749	.677%	1.102%
3.0	3248.648	15.679	28.428	1.112%	2.458%
4.0	3171.445	21.490	49.918	1.524%	4.316%
5.0	3068.016	26.842	76.76	1.904%	6.637%
6.0	2945.531	31.603	108.362	2.241%	9.370%
7.0	2806.664	35.704	144.066	2.532%	12.457%
8.0	2658.727	39.115	183.181	2.774%	15.840%
9.0	2489.977	41.727	224.908	2.959%	19.448%
10.0	2316.234	43.494	268.403	3.085%	23.209%
11.0	2145.867	44.586	312.988	3.162%	27.064%
12.0	1974.797	45.045	358.033	3.195%	30.959%
13.0	1796.766	44.759	402.792	3.174%	34.829%
14.0	1627.945	43.836	446.628	3.109%	38.620%
15.0	1475.156	42.601	489.229	3.021%	42.304%
16.0	1314.450	40.876	530.104	2.899%	45.838%
17.0	1181.145	38.863	568.967	2.756%	49.199%
18.0	1057.746	36.914	605.882	2.618%	52.391%
19.0	957.565	35.062	640.944	2.487%	55.422%
20.0	859.802	33.263	674.207	2.359%	58.299%
21.0	774.823	31.388	705.595	2.226%	61.013%
22.0	708.307	29.804	735.399	2.114%	63.590%
23.0	650.588	28.513	763.913	2.022%	66.056%
24.0	598.845	27.317	791.23	1.937%	68.418%
25.0	557.557	26.294	817.524	1.865%	70.691%
26.0	523.533	25.519	843.043	1.810%	72.898%
27.0	493.552	24.883	867.926	1.765%	75.050%
28.0	467.445	24.330	892.257	1.726%	77.153%
29.0	446.077	23.900	916.157	1.695%	79.220%
30.0	424.280	23.499	939.656	1.667%	81.252%
31.0	397.849	22.879	962.535	1.623%	83.230%
32.0	366.912	21.910	984.444	1.554%	85.125%
33.0	334.392	20.661	1005.105	1.465%	86.911%
34.0	301.212	19.235	1024.34	1.364%	88.575%
35.0	264.284	17.562	1041.903	1.246%	90.093%
36.0	227.946	15.673	1057.575	1.112%	91.449%
37.0	191.939	13.694	1071.27	.971%	92.633%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	157.690	11.670	1082.94	.828%	93.642%
39.0	126.239	9.691	1092.631	.687%	94.480%
40.0	101.609	7.947	1100.577	.564%	95.167%
41.0	79.777	6.459	1107.037	.458%	95.725%
42.0	61.432	5.130	1112.167	.364%	96.169%
43.0	47.320	4.029	1116.195	.286%	96.517%
44.0	36.309	3.156	1119.352	.224%	96.790%
45.0	27.155	2.439	1121.791	.173%	97.001%
46.0	20.074	1.847	1123.638	.131%	97.161%
47.0	14.414	1.372	1125.009	.097%	97.280%
48.0	10.913	1.024	1126.033	.073%	97.368%
49.0	9.049	0.820	1126.853	.058%	97.439%
50.0	8.100	0.715	1127.568	.051%	97.501%
51.0	7.755	0.671	1128.239	.048%	97.559%
52.0	7.629	0.660	1128.899	.047%	97.616%
53.0	7.538	0.660	1129.559	.047%	97.673%
54.0	7.467	0.661	1130.22	.047%	97.730%
55.0	7.418	0.664	1130.885	.047%	97.788%
56.0	7.369	0.668	1131.553	.047%	97.845%
57.0	7.327	0.672	1132.225	.048%	97.904%
58.0	7.298	0.676	1132.901	.048%	97.962%
59.0	7.270	0.681	1133.582	.048%	98.021%
60.0	7.249	0.686	1134.268	.049%	98.080%
61.0	7.221	0.691	1134.959	.049%	98.140%
62.0	7.207	0.695	1135.654	.049%	98.200%
63.0	7.200	0.701	1136.354	.050%	98.261%
64.0	7.172	0.705	1137.06	.050%	98.322%
65.0	7.158	0.709	1137.769	.050%	98.383%
66.0	7.165	0.715	1138.483	.051%	98.445%
67.0	7.151	0.720	1139.203	.051%	98.507%
68.0	7.137	0.724	1139.927	.051%	98.570%
69.0	7.123	0.727	1140.655	.052%	98.632%
70.0	7.116	0.731	1141.386	.052%	98.696%
71.0	7.102	0.735	1142.121	.052%	98.759%
72.0	7.080	0.737	1142.858	.052%	98.823%
73.0	7.066	0.740	1143.598	.052%	98.887%
74.0	7.066	0.743	1144.341	.053%	98.951%
75.0	7.059	0.746	1145.087	.053%	99.016%

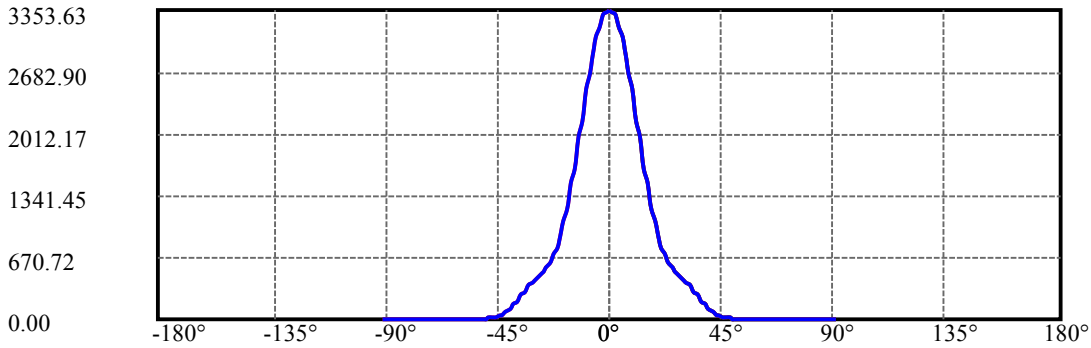
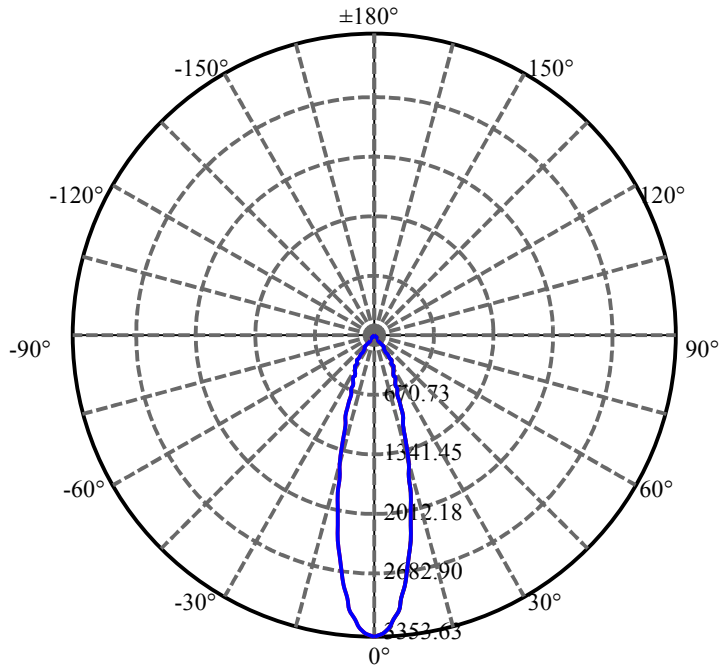
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.038	0.748	1145.836	.053%	99.080%
77.0	7.038	0.750	1146.586	.053%	99.145%
78.0	7.031	0.753	1147.339	.053%	99.210%
79.0	7.038	0.756	1148.095	.054%	99.276%
80.0	7.059	0.760	1148.855	.054%	99.342%
81.0	7.102	0.766	1149.621	.054%	99.408%
82.0	7.151	0.773	1150.394	.055%	99.475%
83.0	7.397	0.791	1151.185	.056%	99.543%
84.0	8.002	0.839	1152.024	.059%	99.616%
85.0	8.880	0.921	1152.945	.065%	99.695%
86.0	8.916	0.973	1153.918	.069%	99.779%
87.0	5.808	0.806	1154.723	.057%	99.849%
88.0	5.288	0.608	1155.331	.043%	99.902%
89.0	5.168	0.573	1155.904	.041%	99.951%
90.0	5.147	0.566	1156.47	.040%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	939.66	66.64%	81.25%
0-40	1100.58	78.06%	95.17%
0-60	1134.27	80.44%	98.08%
0-90	1155.90	81.98%	99.95%
0-120	1155.90	81.98%	99.95%
0-180	1156.47	82.02%	100.00%
60-90	22.32	1.58%	1.93%
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%
0-29.38	925.18	65.62%	80.00%

ZONAL LUMEN SUMMARY

0-10	268.40
10-20	405.80
20-30	265.45
30-40	160.92
40-50	26.99
50-60	6.70
60-70	7.12
70-80	7.47
80-90	7.05
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: —————

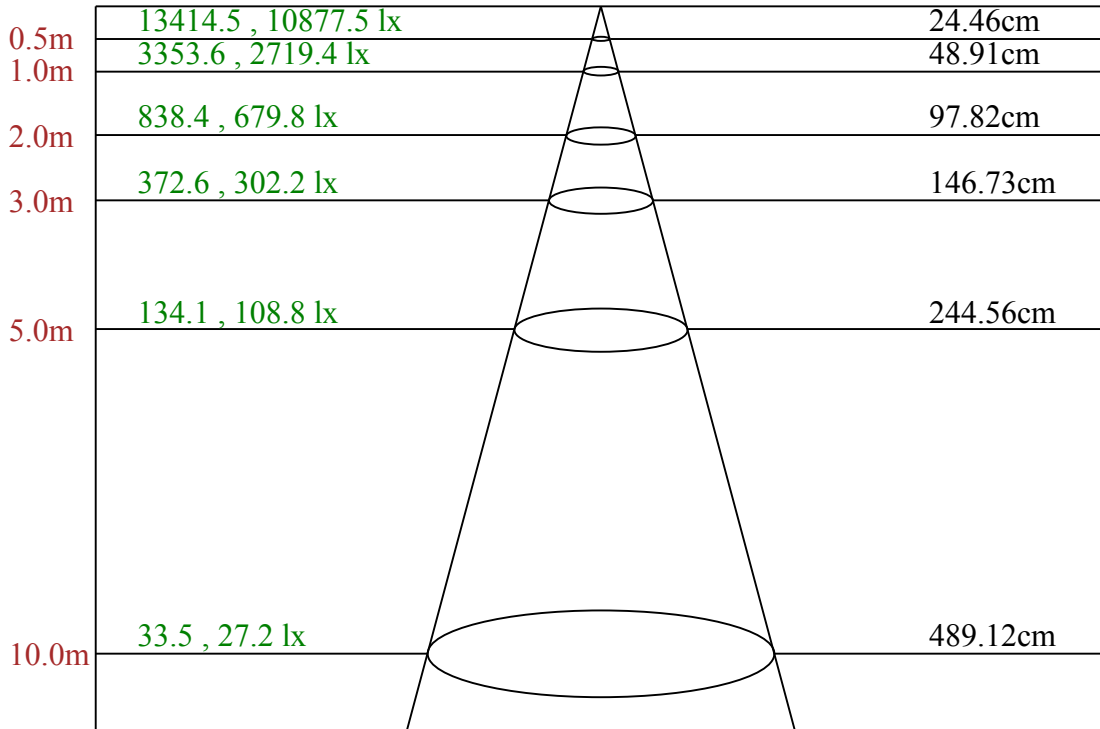
C90/C270: —————

Field angle(10%Imax):C0/180Left:33.0 Right:33.0

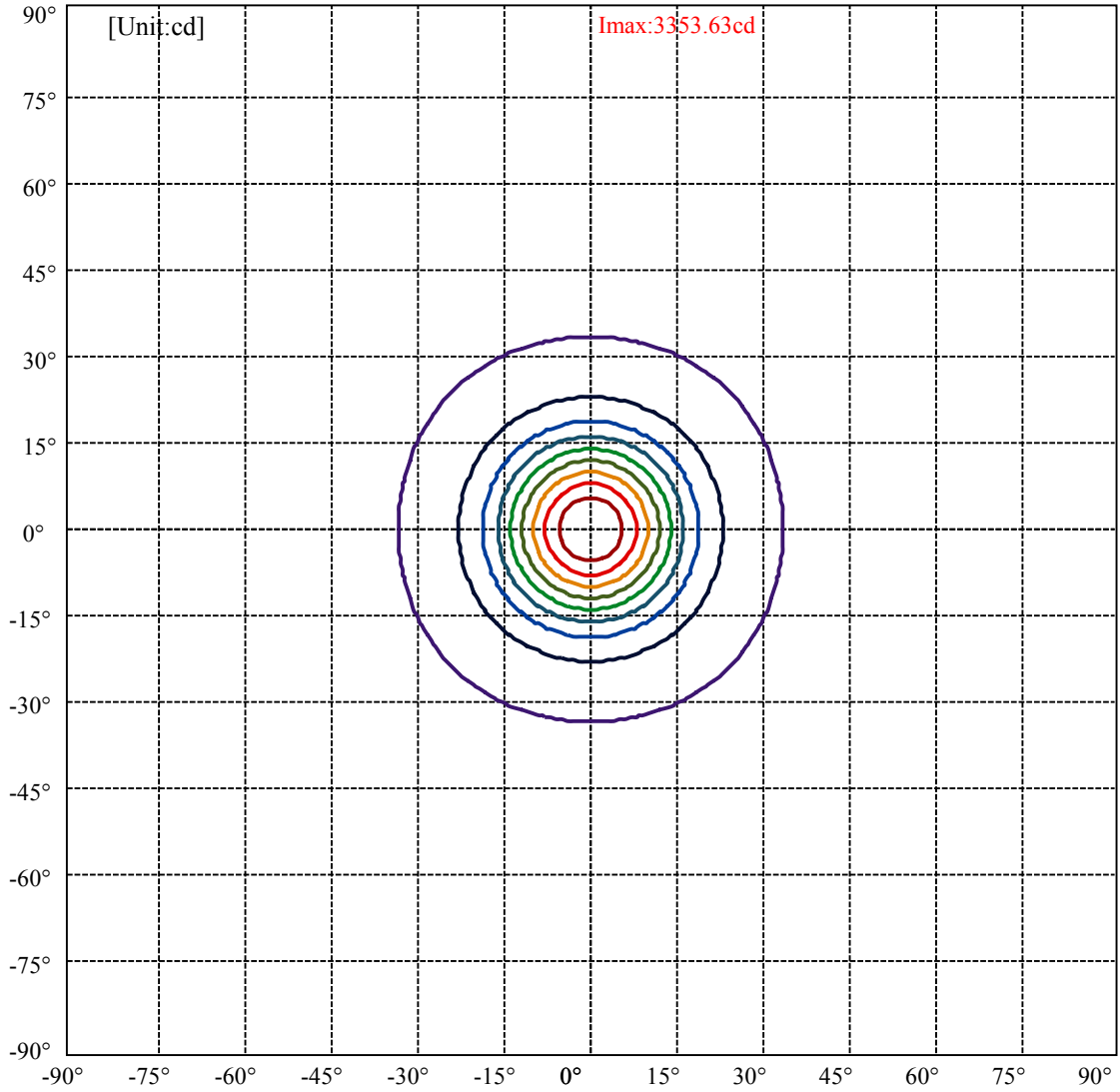
:C90/270Left:33.0 Right:33.0

Beam Angle(50%Imax):C0/180Left:13.7 Right:13.7

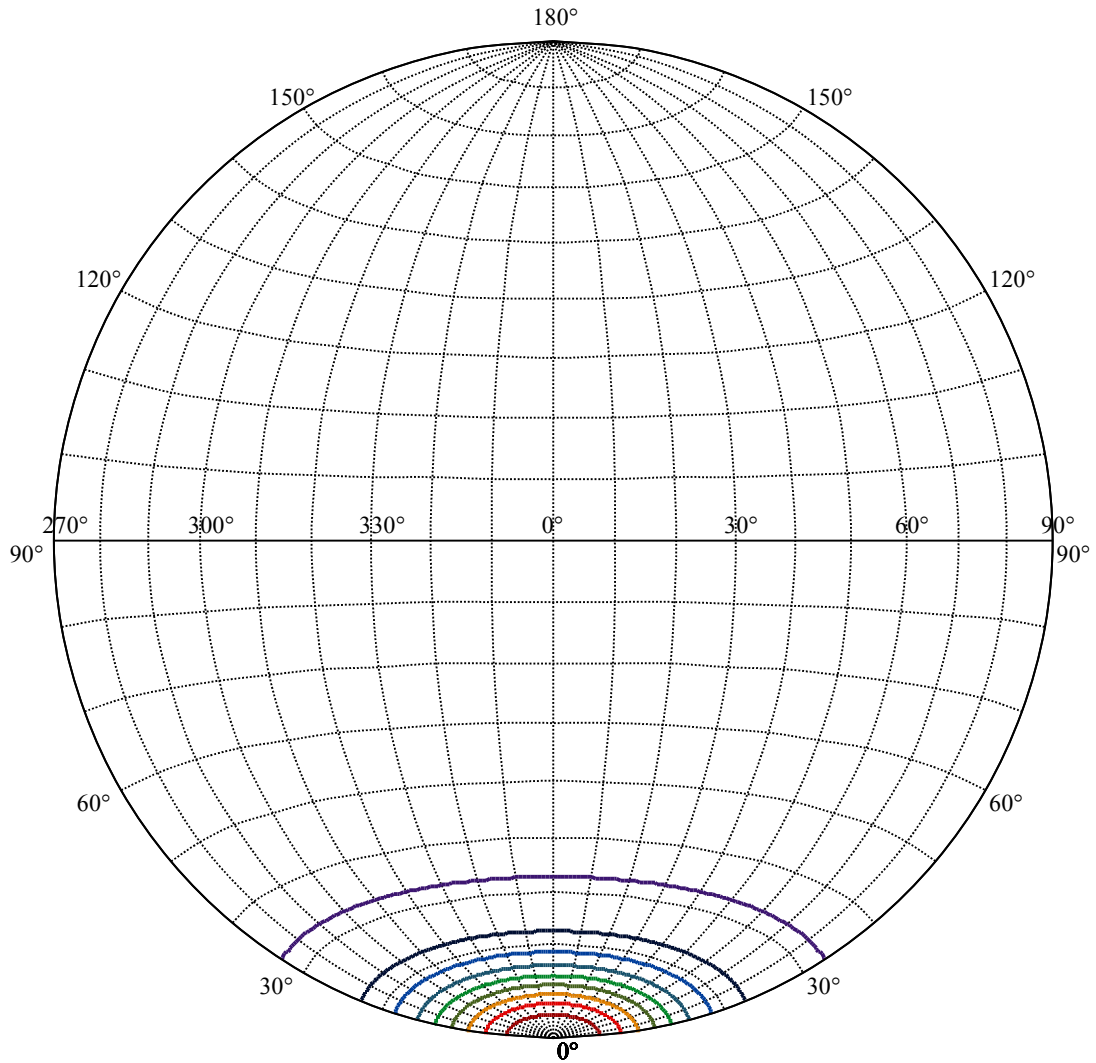
:C90/270Left:13.7 Right:13.7



Max , Ave Beam angle of C0 plane 27.48



(10%Imax) 335.362	—
(20%Imax) 670.725	—
(30%Imax) 1006.09	—
(40%Imax) 1341.45	—
(50%Imax) 1676.81	—
(60%Imax) 2012.18	—
(70%Imax) 2347.54	—
(80%Imax) 2682.9	—
(90%Imax) 3018.26	—



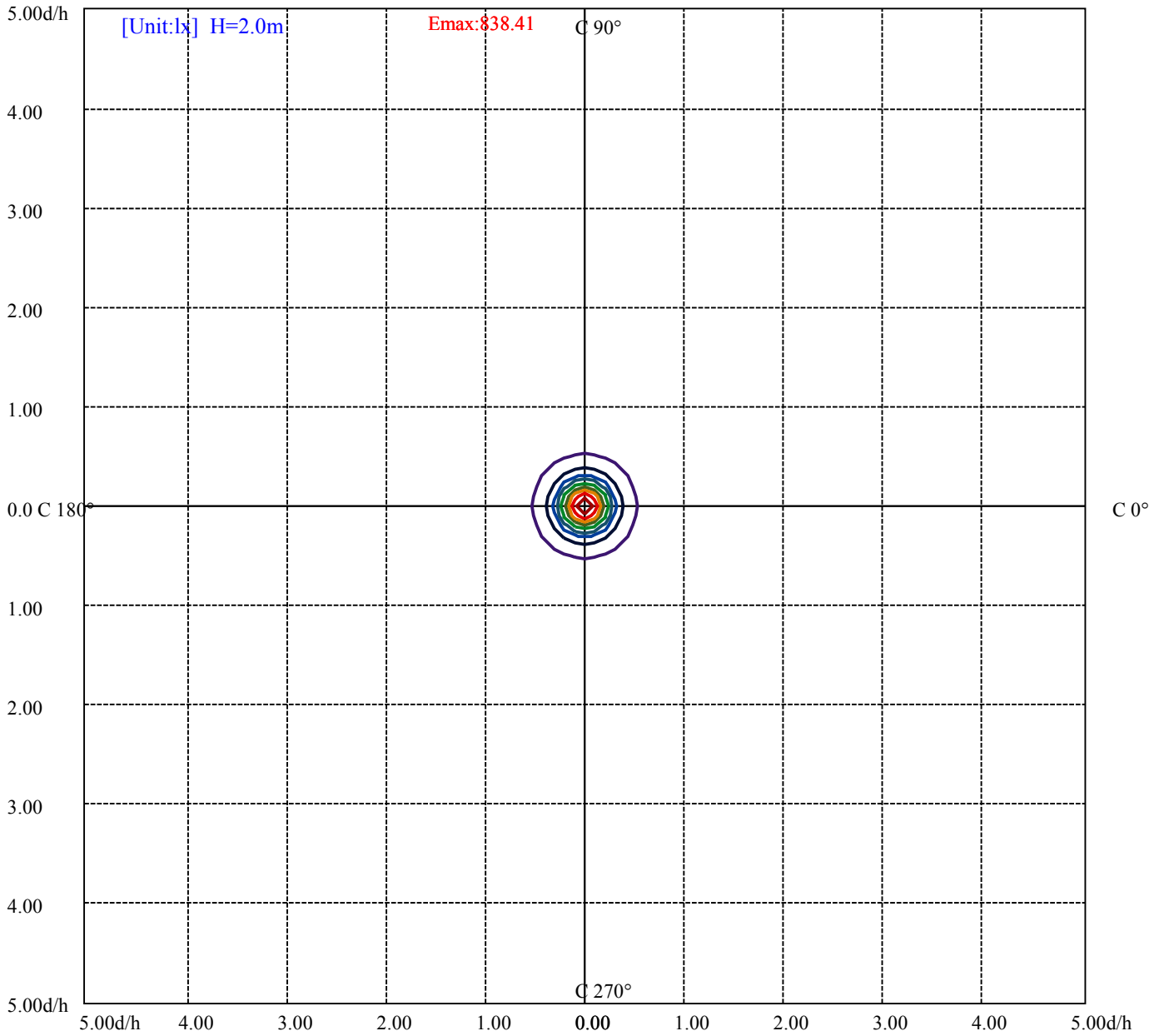
House

[Unit:cd]

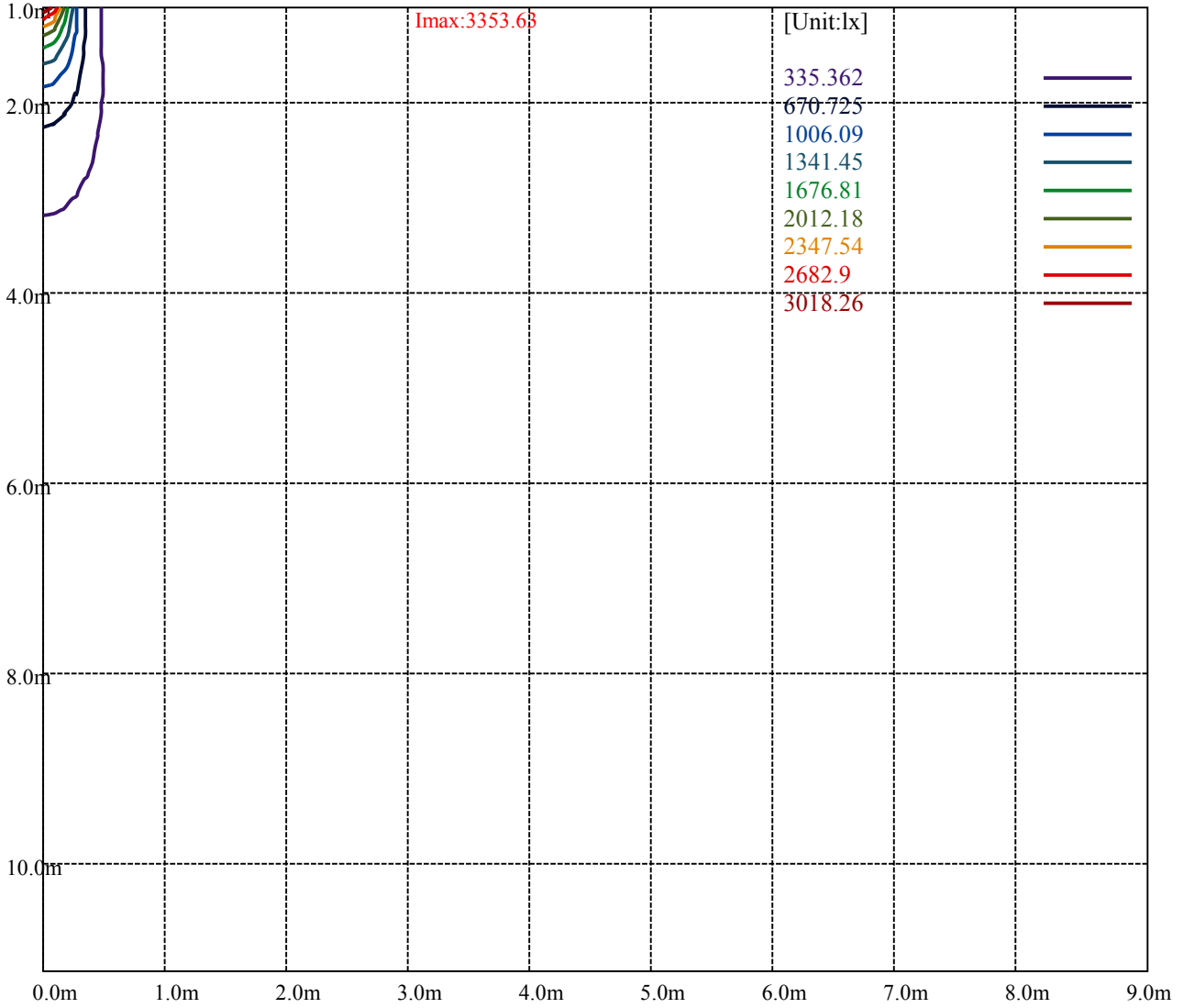
Road

Imax:3353.63

(10%Imax) 335.362	—
(20%Imax) 670.725	—
(30%Imax) 1006.09	—
(40%Imax) 1341.45	—
(50%Imax) 1676.81	—
(60%Imax) 2012.18	—
(70%Imax) 2347.54	—
(80%Imax) 2682.9	—
(90%Imax) 3018.26	—



(10%Emax) 83.8405	—
(20%Emax) 167.6812	—
(30%Emax) 251.5225	—
(40%Emax) 335.3625	—
(50%Emax) 419.2025	—
(60%Emax) 503.0425	—
(70%Emax) 586.885	—
(80%Emax) 670.725	—
(90%Emax) 754.565	—



Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

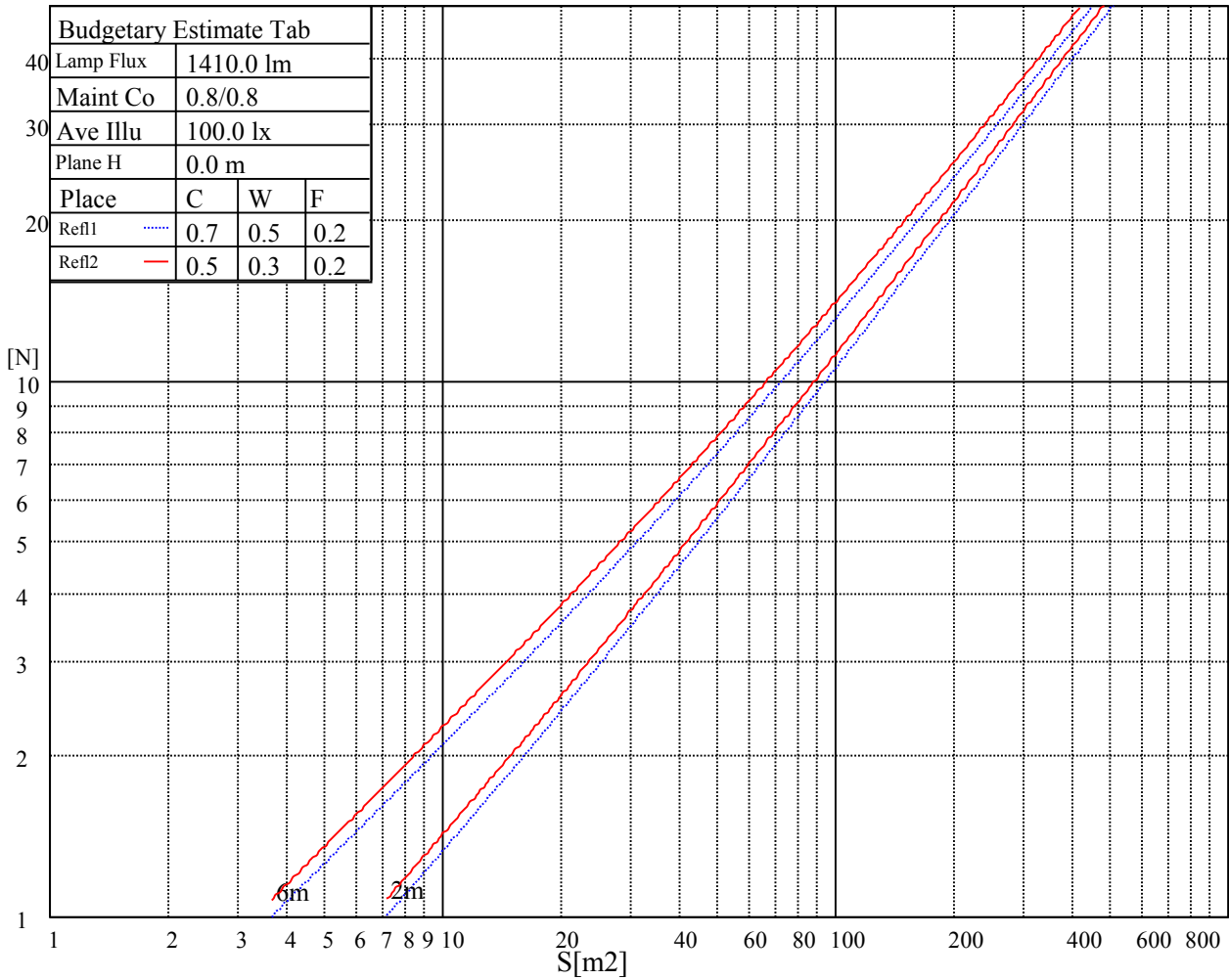
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

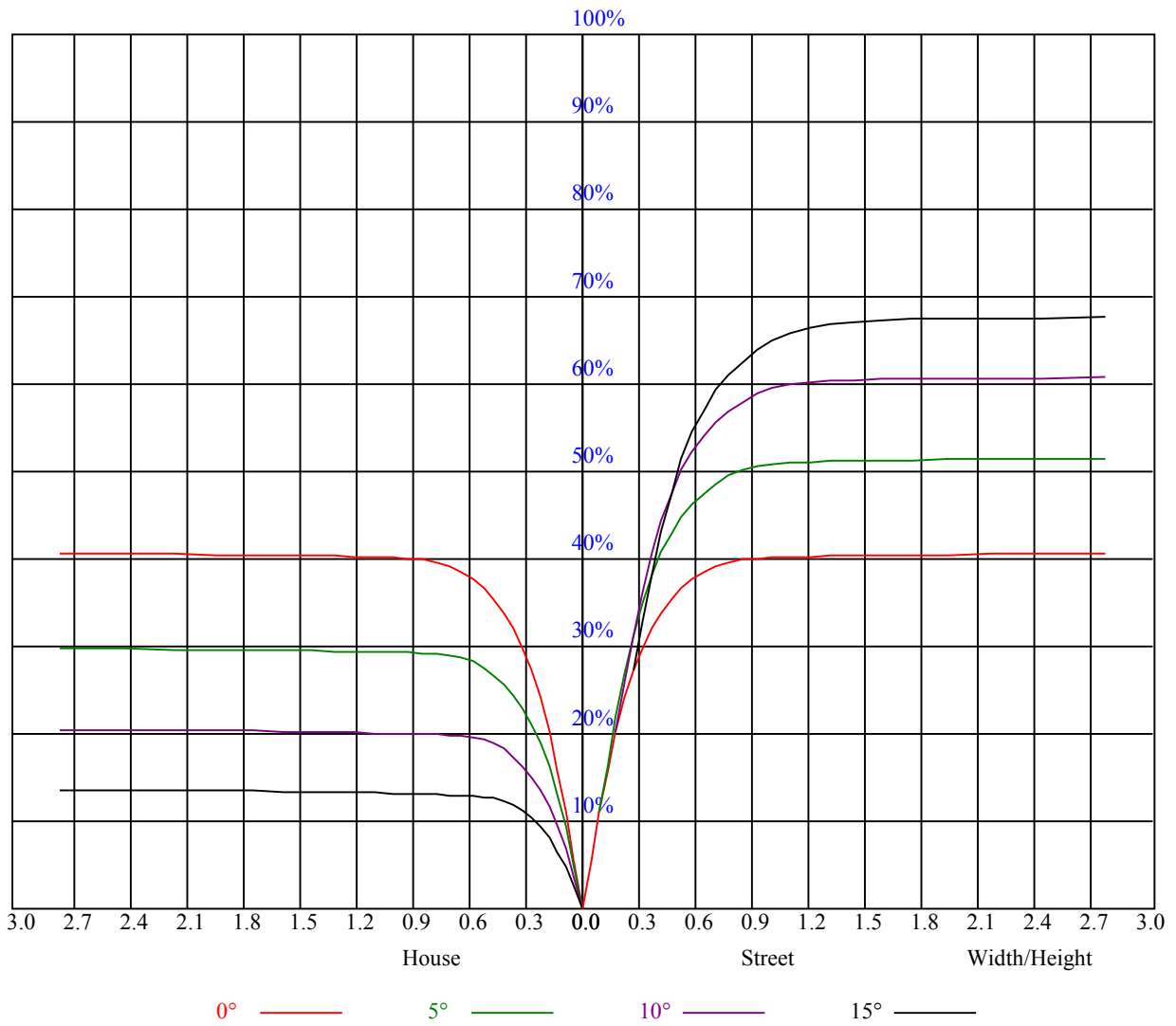
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.91	0.89	0.88	0.90	0.88	0.86	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.77
2	0.86	0.83	0.80	0.84	0.82	0.79	0.82	0.80	0.78	0.79	0.78	0.76	0.77	0.76	0.74	0.73
3	0.81	0.77	0.74	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.69
4	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.71	0.69	0.67	0.66
5	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.68	0.66	0.64	0.63
6	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
7	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57
8	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.55
9	0.61	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.59	0.56	0.53	0.52
10	0.59	0.54	0.52	0.58	0.54	0.52	0.58	0.54	0.52	0.57	0.54	0.51	0.56	0.53	0.51	0.50



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	3354.75	3329.44	3280.50	3215.81	3119.06	3011.63	2872.13	2716.31	2567.25
45.0	3360.38	3329.44	3263.63	3189.38	3099.38	2961.56	2833.88	2692.69	2526.19
90.0	3345.75	3310.31	3256.88	3165.19	3072.94	2963.81	2805.75	2664.00	2512.69
135.0	3353.63	3348.00	3318.19	3271.50	3197.25	3098.25	2990.81	2851.88	2714.06
180.0	3354.75	3355.31	3332.25	3285.00	3221.44	3139.31	3010.50	2886.75	2749.50
225.0	3360.38	3370.50	3351.38	3314.25	3256.31	3155.63	3069.56	2941.88	2778.19
270.0	3345.75	3362.06	3351.38	3319.31	3258.56	3170.81	3073.50	2944.13	2814.75
315.0	3353.63	3337.88	3301.88	3228.75	3146.63	3043.13	2908.13	2755.69	2607.19
360.0	3354.75	3329.44	3280.50	3215.81	3119.06	3011.63	2872.13	2716.31	2567.25
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2392.31	2211.19	2047.50	1883.81	1687.50	1536.75	1393.88	1242.00	1105.88
45.0	2350.69	2189.81	2007.00	1845.00	1668.38	1500.75	1361.81	1217.25	1085.06
90.0	2333.81	2152.69	1992.38	1814.63	1661.06	1495.13	1340.44	1119.04	1090.41
135.0	2545.88	2365.88	2202.75	2037.94	1834.31	1677.38	1528.88	1355.06	1226.25
180.0	2558.81	2397.94	2235.38	2030.06	1866.94	1710.00	1523.25	1398.38	1208.25
225.0	2652.75	2479.50	2275.88	2131.31	1965.94	1745.44	1612.69	1464.75	1308.94
270.0	2655.00	2484.00	2324.25	2160.56	1954.69	1792.13	1635.19	1449.00	1311.75
315.0	2430.56	2248.88	2081.81	1895.06	1735.31	1566.00	1405.13	1270.13	1112.63
360.0	2392.31	2211.19	2047.50	1883.81	1687.50	1536.75	1393.88	1242.00	1105.88
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	998.44	893.81	803.81	735.75	671.06	622.69	576.00	538.88	509.63
45.0	978.19	883.69	783.56	717.19	659.25	605.81	564.19	531.56	500.06
90.0	957.66	866.81	788.40	705.94	651.21	605.42	561.26	523.91	496.07
135.0	1105.31	982.69	874.13	797.06	714.94	657.00	604.13	559.13	525.38
180.0	1122.02	997.99	901.58	807.53	728.55	669.09	612.51	565.43	530.89
225.0	1121.74	1052.44	951.24	842.23	767.14	702.23	640.41	589.61	552.49
270.0	1186.31	1073.25	948.94	862.31	795.38	714.38	652.50	611.44	562.50
315.0	992.31	909.84	826.76	730.58	678.94	628.09	579.77	540.51	511.26
360.0	998.44	893.81	803.81	735.75	671.06	622.69	576.00	538.88	509.63
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	484.88	457.88	438.75	416.81	384.75	354.38	321.75	284.06	242.78
45.0	473.63	454.50	429.75	407.25	375.19	339.75	305.44	284.63	226.58
90.0	469.41	446.40	426.43	399.83	372.49	337.84	300.71	266.40	232.71
135.0	493.31	469.13	446.63	428.06	402.75	375.75	345.38	304.31	287.44
180.0	502.09	471.38	450.11	430.20	405.23	377.27	347.68	312.64	275.85
225.0	516.54	486.39	464.12	441.39	419.68	391.11	358.99	327.54	295.03
270.0	525.38	494.44	471.94	451.69	428.63	398.81	370.69	339.75	298.13
315.0	483.19	459.45	440.89	419.01	394.09	360.39	324.51	290.36	255.77
360.0	484.88	457.88	438.75	416.81	384.75	354.38	321.75	284.06	242.78
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	208.80	172.29	142.26	112.05	87.13	69.24	53.10	40.33	31.28
45.0	193.56	162.84	128.14	104.06	83.25	64.01	49.16	38.42	29.70
90.0	191.14	160.14	131.79	100.97	80.27	63.34	48.60	36.96	28.52
135.0	235.29	206.33	162.62	133.82	111.04	83.19	63.51	51.41	37.74
180.0	242.61	205.65	173.87	141.13	111.66	89.33	68.74	52.48	40.89
225.0	253.13	219.66	186.81	147.88	120.77	97.03	74.76	57.09	44.66
270.0	285.75	227.76	185.46	153.96	125.55	98.27	75.66	59.57	45.23
315.0	213.30	180.84	150.58	116.04	93.21	73.80	57.94	42.30	32.46
360.0	208.80	172.29	142.26	112.05	87.13	69.24	53.10	40.33	31.28

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	23.91	16.48	12.04	9.68	8.44	7.82	7.71	7.54	7.48
45.0	20.87	15.47	11.42	9.11	7.99	7.59	7.54	7.48	7.37
90.0	20.87	15.47	11.14	9.00	8.10	7.59	7.48	7.37	7.31
135.0	28.13	22.22	15.47	11.59	9.45	8.21	7.71	7.59	7.48
180.0	31.61	22.56	16.76	12.26	9.79	8.44	7.88	7.71	7.59
225.0	33.47	25.43	18.11	12.66	10.07	8.61	7.93	7.82	7.71
270.0	33.86	25.59	18.17	13.16	10.01	8.61	7.99	7.82	7.71
315.0	24.53	17.38	12.21	9.84	8.55	7.93	7.82	7.71	7.65
360.0	23.91	16.48	12.04	9.68	8.44	7.82	7.71	7.54	7.48
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.43	7.43	7.31	7.31	7.26	7.20	7.20	7.20	7.14
45.0	7.31	7.26	7.20	7.20	7.14	7.14	7.14	7.09	7.09
90.0	7.26	7.20	7.20	7.14	7.14	7.14	7.14	7.14	7.09
135.0	7.48	7.43	7.37	7.31	7.26	7.26	7.26	7.26	7.20
180.0	7.54	7.48	7.43	7.37	7.31	7.31	7.26	7.20	7.20
225.0	7.59	7.54	7.48	7.37	7.37	7.31	7.26	7.26	7.20
270.0	7.59	7.54	7.48	7.48	7.48	7.43	7.37	7.31	7.37
315.0	7.54	7.48	7.48	7.43	7.43	7.37	7.37	7.31	7.37
360.0	7.43	7.43	7.31	7.31	7.26	7.20	7.20	7.20	7.14
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.14	7.09	7.09	7.09	7.09	7.03	7.03	7.03	7.03
45.0	7.09	7.03	7.03	7.03	7.03	7.03	6.98	6.98	6.98
90.0	7.09	7.14	7.09	7.14	7.09	7.09	7.09	7.09	7.03
135.0	7.20	7.14	7.14	7.14	7.14	7.09	7.09	7.09	7.09
180.0	7.20	7.14	7.09	7.09	7.09	7.03	7.03	7.03	6.98
225.0	7.20	7.14	7.14	7.14	7.09	7.14	7.09	7.09	7.09
270.0	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37
315.0	7.31	7.31	7.31	7.31	7.31	7.31	7.31	7.26	7.26
360.0	7.14	7.09	7.09	7.09	7.09	7.03	7.03	7.03	7.03
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.03	6.98	6.98	6.98	6.98	6.98	6.98	6.92	6.98
45.0	6.92	6.92	6.92	6.92	6.92	6.92	6.86	6.92	6.92
90.0	7.03	7.03	6.98	7.03	7.03	7.03	7.09	7.14	7.20
135.0	7.03	7.03	7.03	6.98	6.98	6.98	6.92	6.92	6.92
180.0	6.98	6.92	6.92	6.92	6.81	6.81	6.81	6.75	6.75
225.0	7.03	7.03	7.03	7.03	7.03	7.03	6.98	6.98	6.92
270.0	7.37	7.37	7.43	7.43	7.37	7.37	7.43	7.43	7.48
315.0	7.26	7.26	7.26	7.20	7.20	7.20	7.20	7.26	7.31
360.0	7.03	6.98	6.98	6.98	6.98	6.98	6.98	6.92	6.98
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.98	6.98	6.98	7.03	7.03	6.98	5.68	5.23	5.12
45.0	6.98	7.03	7.20	7.26	7.31	6.64	5.40	5.18	5.18
90.0	7.20	7.20	7.59	8.66	10.18	6.13	5.40	5.23	5.12
135.0	7.03	7.26	8.10	9.79	12.43	14.34	5.68	5.29	5.18
180.0	6.75	6.69	6.69	6.64	6.58	6.47	5.51	5.23	5.12
225.0	6.92	6.92	6.86	6.92	6.98	7.26	6.30	5.34	5.18
270.0	7.54	7.65	7.99	9.06	10.41	11.31	6.69	5.51	5.29
315.0	7.43	7.48	7.76	8.66	10.13	12.21	5.79	5.29	5.18
360.0	6.98	6.98	6.98	7.03	7.03	6.98	5.68	5.23	5.12

Intensity data(cd)

C/γ(°)	90.0
0.0	5.12
45.0	5.12
90.0	5.18
135.0	5.18
180.0	5.12
225.0	5.12
270.0	5.18
315.0	5.18
360.0	5.12