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Nata

LumCAT: 3-2441-A
Luminaire: 92.70.153.00
Report No: NATA0100
Test No: GC2019111414
LampCAT: PHILIPS SLM92757 TWL152024
Lamp flux(lm): 1410.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 33.8900
Current(A): 0.4270
Power (W): 14.4700
PF: 1.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1157.23
Efficiency(%): 82.07%
Lumens(lm)/Power(W): 79.97
Central intensity(cd): 3663.703
Maximum intensity(cd): 3663.703
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=26.1
 [C90/270]Total=26.1
Field angle(10%Imax): [C0/180]Total=64.1
 [C90/270]Total=64.1
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(%): 82.07%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.292%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3663.703	0.000	0	.000%	.000%
1.0	3648.023	3.499	3.499	.248%	.302%
2.0	3598.523	10.401	13.899	.738%	1.201%
3.0	3520.055	17.025	30.925	1.207%	2.672%
4.0	3422.602	23.239	54.164	1.648%	4.681%
5.0	3292.383	28.888	83.052	2.049%	7.177%
6.0	3152.039	33.867	116.919	2.402%	10.103%
7.0	2990.109	38.124	155.043	2.704%	13.398%
8.0	2821.570	41.593	196.636	2.950%	16.992%
9.0	2627.227	44.160	240.796	3.132%	20.808%
10.0	2428.805	45.755	286.551	3.245%	24.762%
11.0	2237.625	46.627	333.178	3.307%	28.791%
12.0	2039.414	46.754	379.932	3.316%	32.831%
13.0	1839.023	46.027	425.959	3.264%	36.809%
14.0	1646.367	44.613	470.572	3.164%	40.664%
15.0	1463.344	42.691	513.264	3.028%	44.353%
16.0	1278.612	40.177	553.441	2.849%	47.825%
17.0	1137.994	37.633	591.074	2.669%	51.077%
18.0	1014.771	35.494	626.568	2.517%	54.144%
19.0	907.249	33.439	660.008	2.372%	57.034%
20.0	809.895	31.428	691.436	2.229%	59.749%
21.0	730.216	29.573	721.009	2.097%	62.305%
22.0	667.877	28.095	749.105	1.993%	64.733%
23.0	615.811	26.935	776.04	1.910%	67.060%
24.0	568.758	25.899	801.939	1.837%	69.298%
25.0	531.070	25.008	826.947	1.774%	71.459%
26.0	499.627	24.330	851.276	1.726%	73.562%
27.0	471.417	23.757	875.033	1.685%	75.615%
28.0	448.699	23.295	898.328	1.652%	77.628%
29.0	428.759	22.957	921.285	1.628%	79.611%
30.0	411.314	22.682	943.967	1.609%	81.572%
31.0	392.147	22.359	966.326	1.586%	83.504%
32.0	367.847	21.773	988.099	1.544%	85.385%
33.0	340.502	20.868	1008.967	1.480%	87.188%
34.0	309.642	19.675	1028.643	1.395%	88.889%
35.0	272.053	18.065	1046.708	1.281%	90.450%
36.0	237.776	16.233	1062.941	1.151%	91.852%
37.0	201.663	14.332	1077.273	1.016%	93.091%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	162.696	12.162	1089.435	.863%	94.142%
39.0	129.094	9.960	1099.394	.706%	95.003%
40.0	101.116	8.029	1107.423	.569%	95.696%
41.0	77.435	6.358	1113.781	.451%	96.246%
42.0	57.340	4.897	1118.678	.347%	96.669%
43.0	41.878	3.675	1122.353	.261%	96.987%
44.0	30.656	2.738	1125.091	.194%	97.223%
45.0	21.895	2.020	1127.111	.143%	97.398%
46.0	15.420	1.459	1128.57	.103%	97.524%
47.0	10.976	1.050	1129.62	.074%	97.614%
48.0	8.522	0.788	1130.408	.056%	97.683%
49.0	7.355	0.652	1131.06	.046%	97.739%
50.0	6.884	0.594	1131.654	.042%	97.790%
51.0	6.729	0.576	1132.23	.041%	97.840%
52.0	6.630	0.573	1132.803	.041%	97.889%
53.0	6.539	0.573	1133.376	.041%	97.939%
54.0	6.497	0.575	1133.95	.041%	97.989%
55.0	6.420	0.577	1134.527	.041%	98.038%
56.0	6.384	0.579	1135.105	.041%	98.088%
57.0	6.349	0.582	1135.688	.041%	98.139%
58.0	6.314	0.586	1136.273	.042%	98.189%
59.0	6.293	0.589	1136.863	.042%	98.240%
60.0	6.265	0.593	1137.456	.042%	98.292%
61.0	6.251	0.597	1138.053	.042%	98.343%
62.0	6.237	0.602	1138.655	.043%	98.395%
63.0	6.237	0.607	1139.261	.043%	98.448%
64.0	6.237	0.612	1139.874	.043%	98.500%
65.0	6.230	0.617	1140.491	.044%	98.554%
66.0	6.244	0.622	1141.113	.044%	98.608%
67.0	6.223	0.627	1141.74	.044%	98.662%
68.0	6.237	0.631	1142.371	.045%	98.716%
69.0	6.244	0.637	1143.008	.045%	98.771%
70.0	6.237	0.641	1143.649	.045%	98.827%
71.0	6.237	0.645	1144.293	.046%	98.882%
72.0	6.237	0.649	1144.942	.046%	98.938%
73.0	6.237	0.652	1145.594	.046%	98.995%
74.0	6.251	0.656	1146.251	.047%	99.052%
75.0	6.237	0.660	1146.91	.047%	99.109%

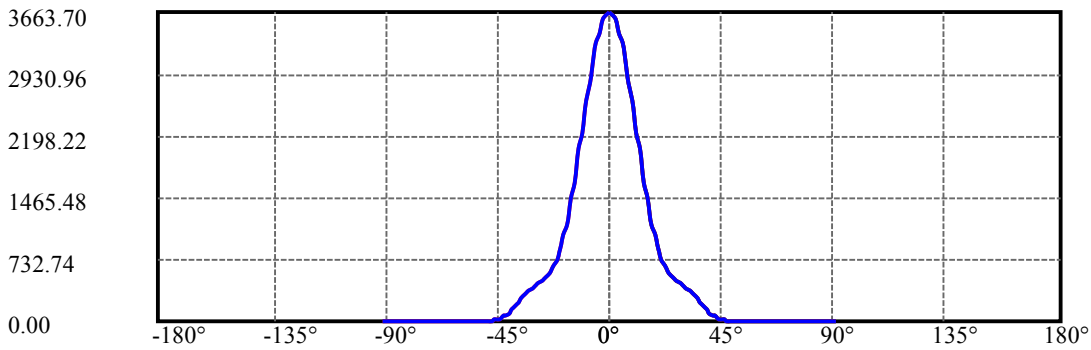
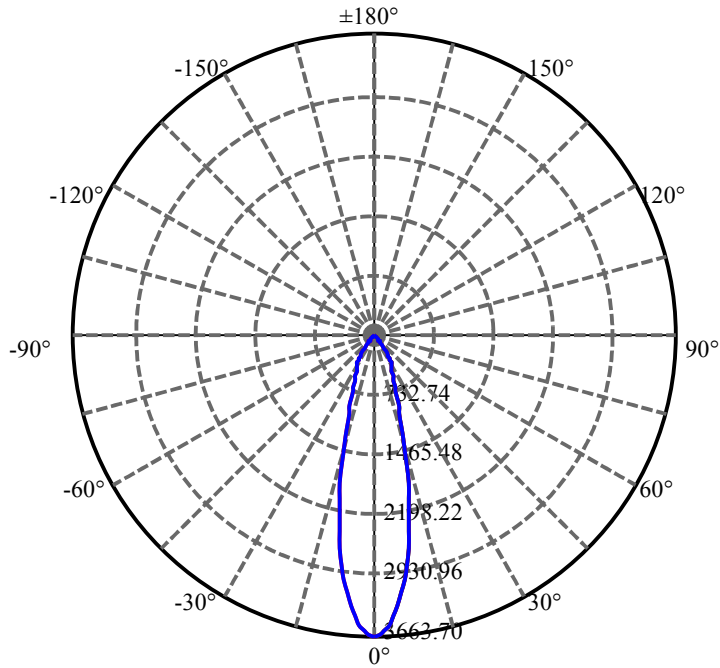
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.237	0.662	1147.572	.047%	99.166%
77.0	6.230	0.665	1148.237	.047%	99.223%
78.0	6.251	0.668	1148.905	.047%	99.281%
79.0	6.265	0.672	1149.578	.048%	99.339%
80.0	6.293	0.677	1150.255	.048%	99.398%
81.0	6.349	0.684	1150.938	.048%	99.457%
82.0	6.441	0.694	1151.632	.049%	99.517%
83.0	6.630	0.711	1152.343	.050%	99.578%
84.0	7.144	0.750	1153.093	.053%	99.643%
85.0	7.798	0.815	1153.908	.058%	99.713%
86.0	8.205	0.875	1154.783	.062%	99.789%
87.0	5.400	0.745	1155.528	.053%	99.853%
88.0	5.147	0.578	1156.105	.041%	99.903%
89.0	5.105	0.562	1156.667	.040%	99.952%
90.0	5.091	0.559	1157.226	.040%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	943.97	66.95%	81.57%
0-40	1107.42	78.54%	95.70%
0-60	1137.46	80.67%	98.29%
0-90	1156.67	82.03%	99.95%
0-120	1156.67	82.03%	99.95%
0-180	1157.23	82.07%	100.00%
60-90	19.80	1.40%	1.71%
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%
0-29.20	925.78	65.66%	80.00%

ZONAL LUMEN SUMMARY

0-10	286.55
10-20	404.89
20-30	252.53
30-40	163.46
40-50	24.23
50-60	5.80
60-70	6.19
70-80	6.61
80-90	6.41
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



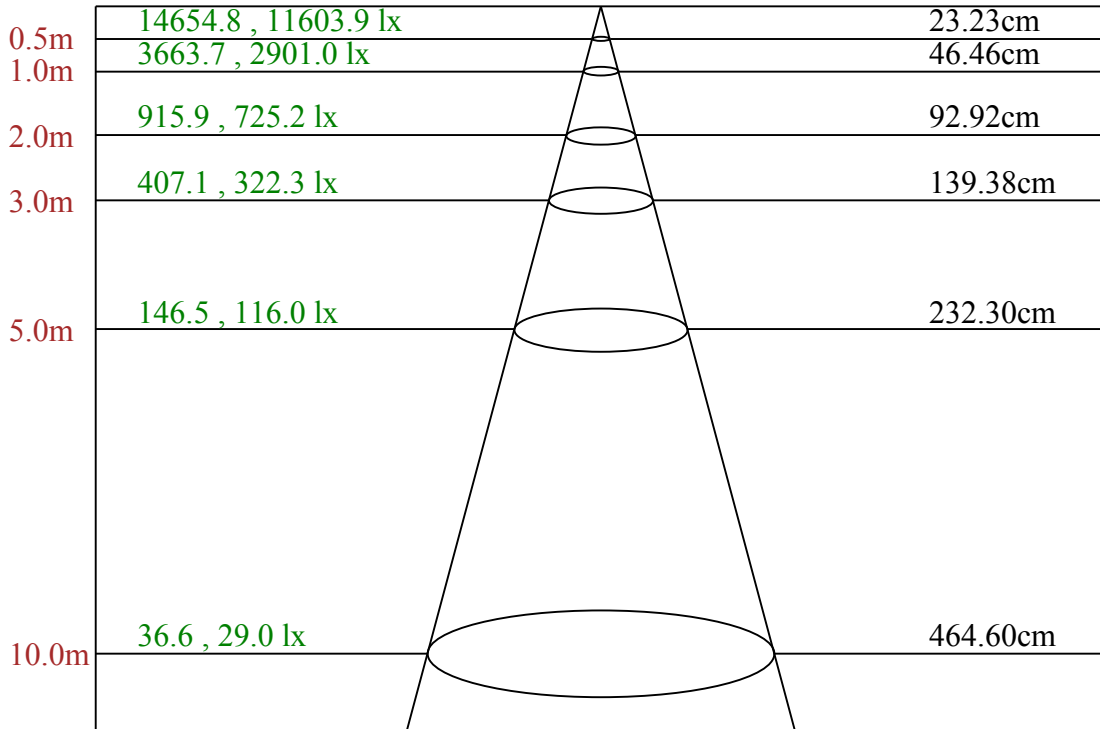
C0(Max): —————

C0/C180: —————

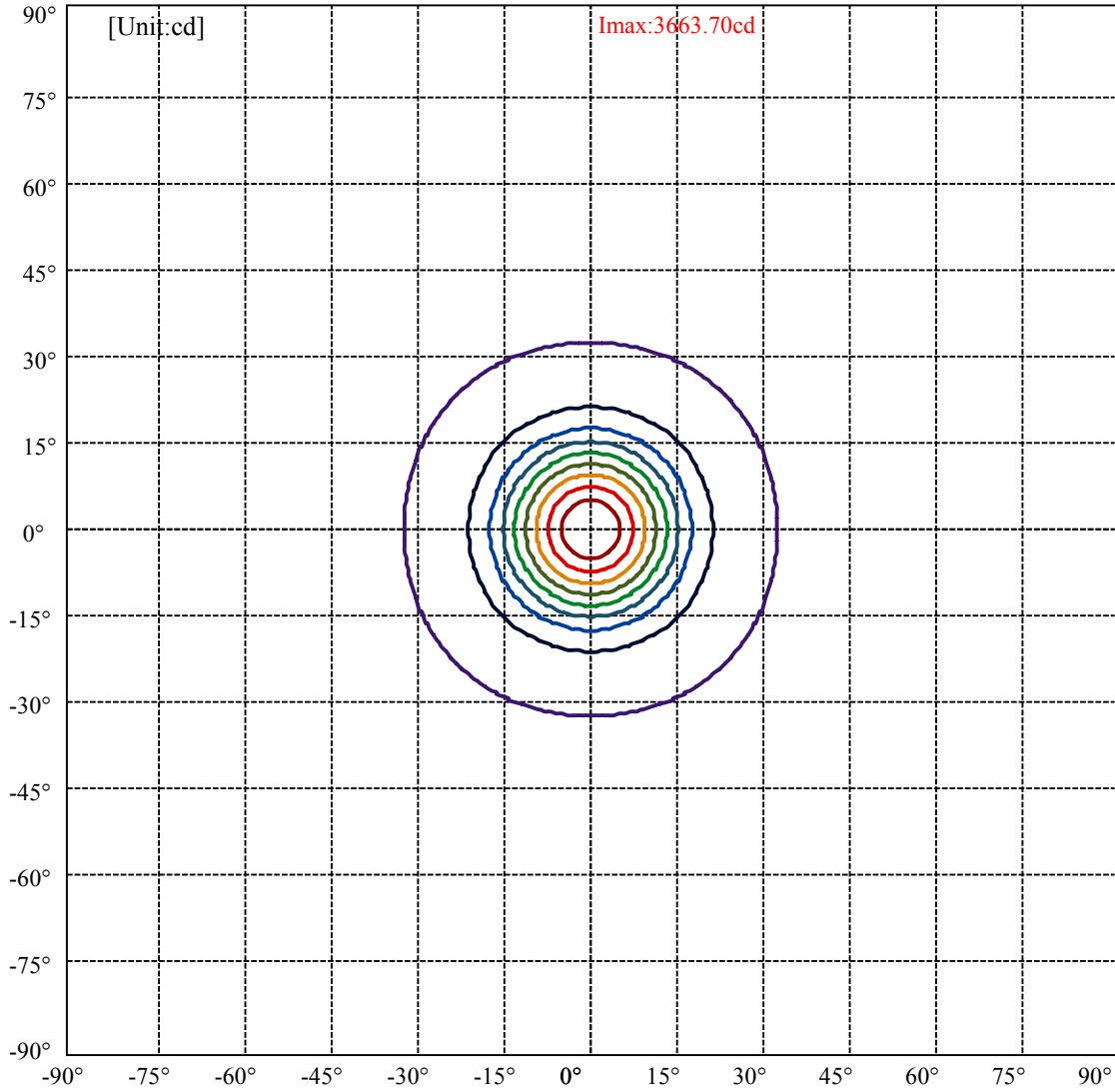
C90/C270: —————

Field angle(10%Imax):C0/180Left:32.1 Right:32.1
:C90/270Left:32.1 Right:32.1

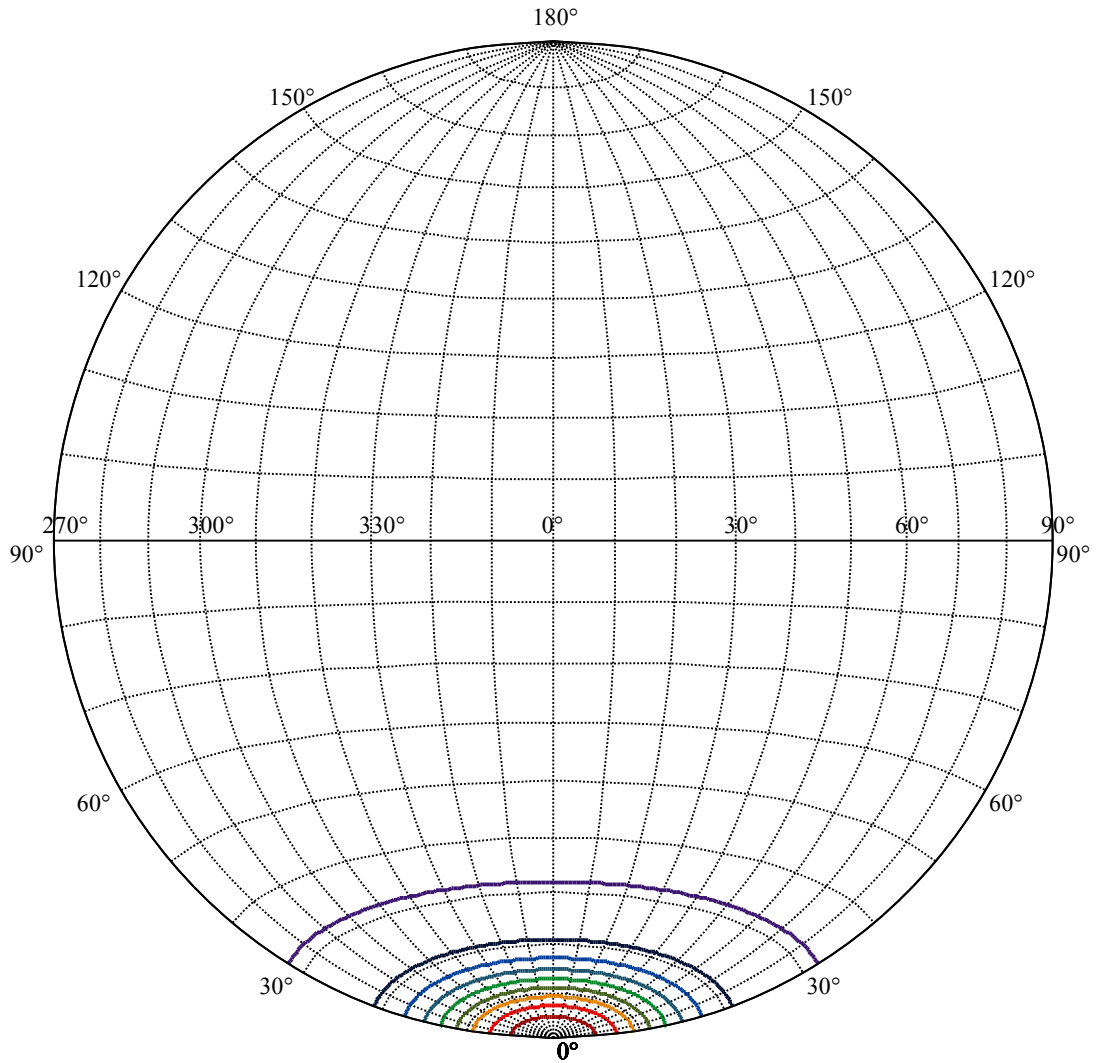
Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0
:C90/270Left:13.0 Right:13.0



Max , Ave Beam angle of C0 plane 26.16



(10%Imax) 366.37	—
(20%Imax) 732.741	—
(30%Imax) 1099.11	—
(40%Imax) 1465.48	—
(50%Imax) 1831.85	—
(60%Imax) 2198.22	—
(70%Imax) 2564.59	—
(80%Imax) 2930.96	—
(90%Imax) 3297.33	—



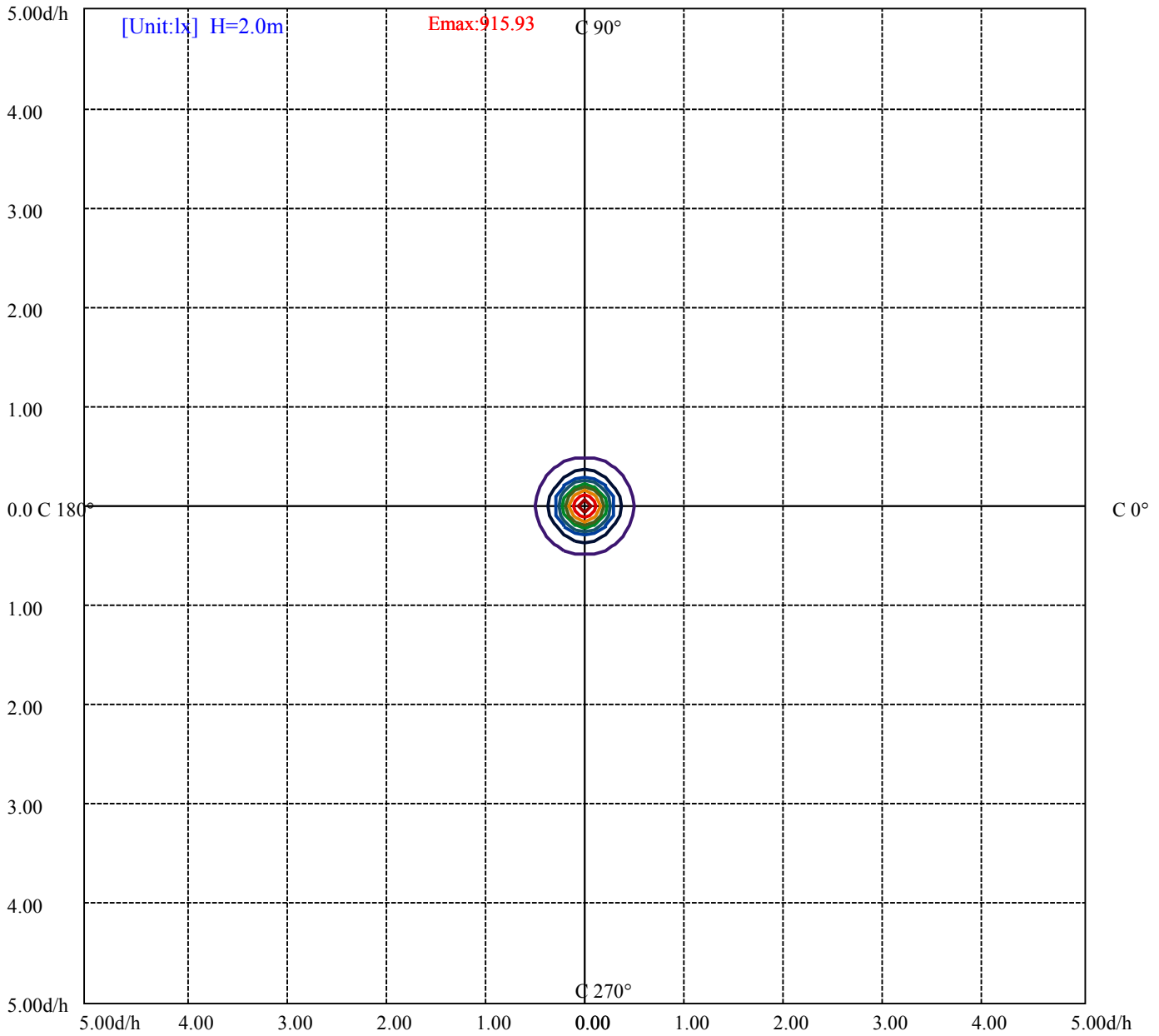
House

[Unit:cd]

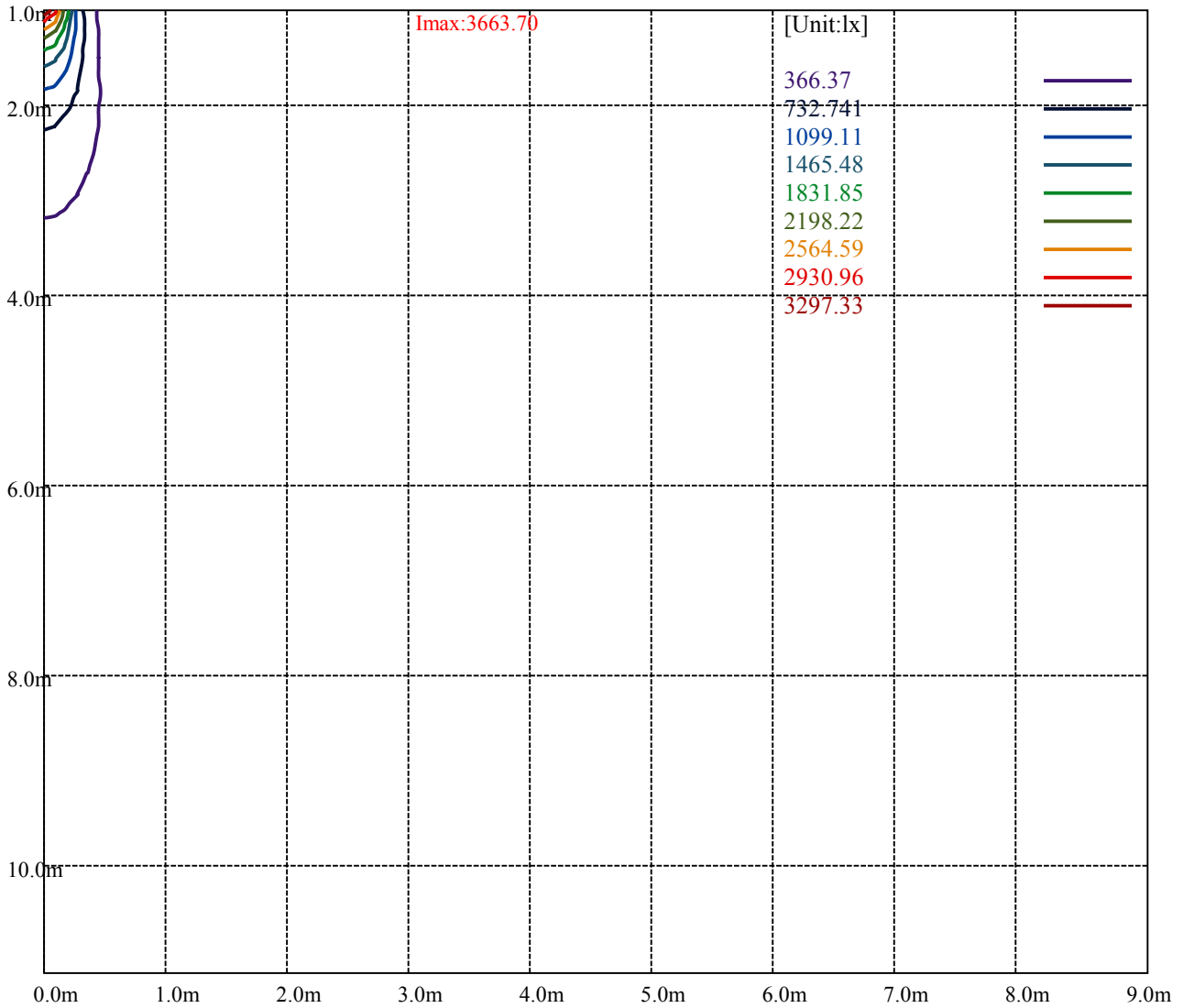
Road

Imax:3663.70

(10%Imax) 366.37	—
(20%Imax) 732.741	—
(30%Imax) 1099.11	—
(40%Imax) 1465.48	—
(50%Imax) 1831.85	—
(60%Imax) 2198.22	—
(70%Imax) 2564.59	—
(80%Imax) 2930.96	—
(90%Imax) 3297.33	—



- (10%Emax) 91.5925
- (20%Emax) 183.185
- (30%Emax) 274.7775
- (40%Emax) 366.37
- (50%Emax) 457.9625
- (60%Emax) 549.555
- (70%Emax) 641.1475
- (80%Emax) 732.74
- (90%Emax) 824.3325



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

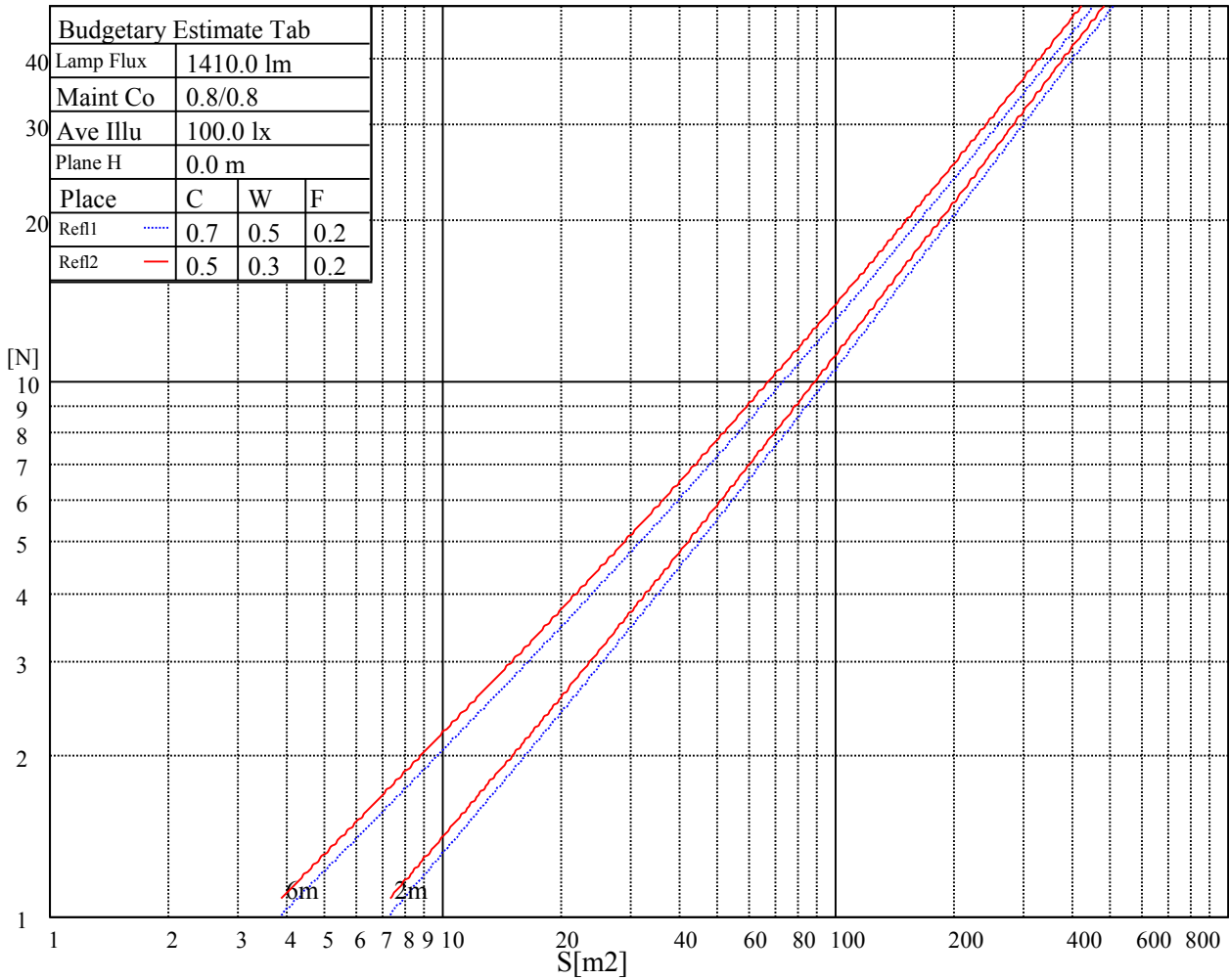
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

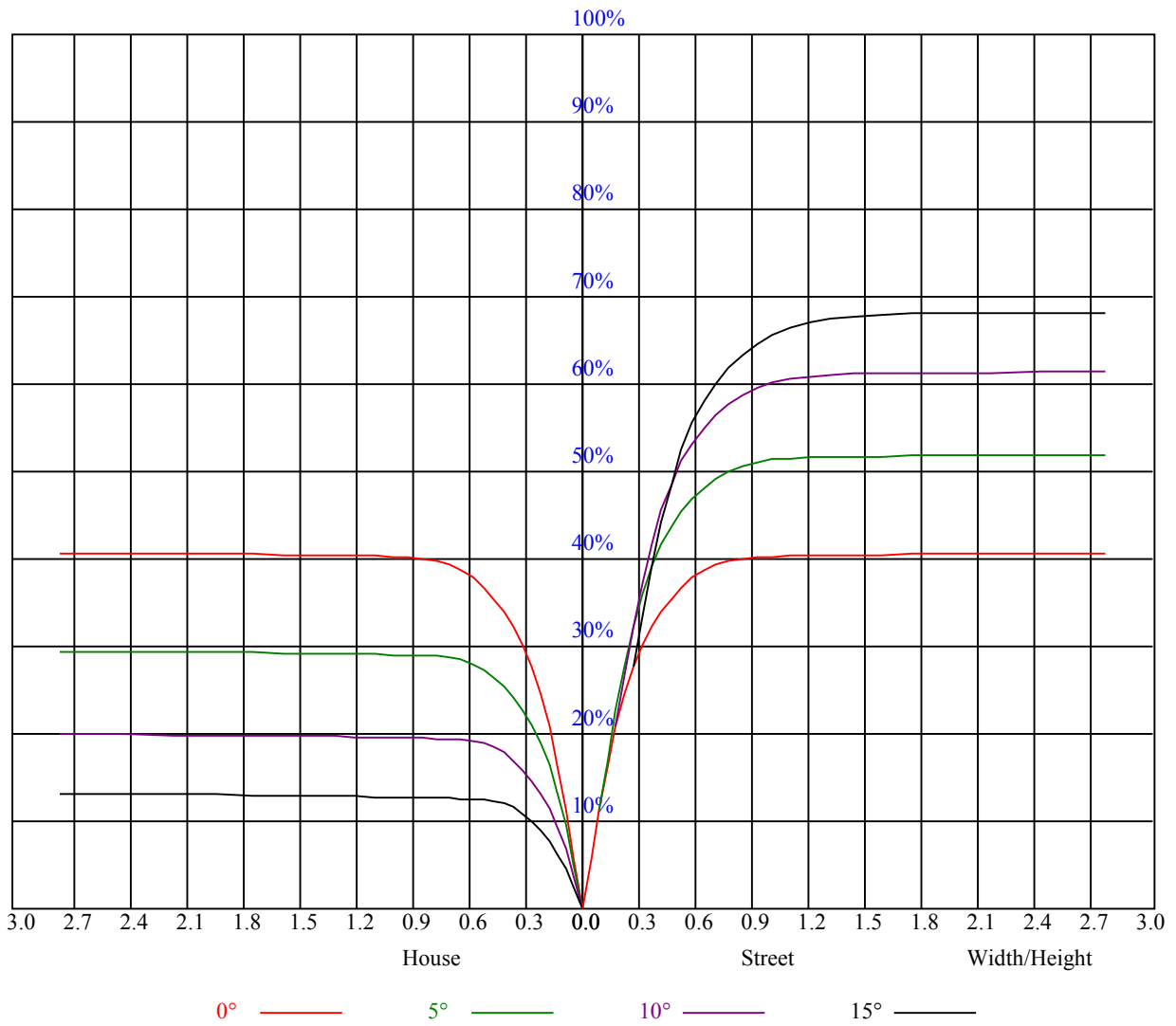
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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



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	3663.56	3675.94	3648.94	3596.63	3520.13	3395.25	3273.75	3136.50	2964.38
45.0	3654.00	3678.19	3675.38	3639.94	3579.75	3485.25	3364.31	3236.63	3093.75
90.0	3672.00	3678.19	3657.38	3603.38	3519.56	3421.13	3303.00	3129.75	2973.94
135.0	3665.25	3666.38	3624.75	3563.44	3480.19	3347.44	3220.31	3075.19	2936.25
180.0	3663.56	3621.38	3541.50	3435.75	3318.75	3165.19	3012.19	2823.75	2620.13
225.0	3654.00	3593.81	3511.69	3395.25	3255.75	3112.31	2957.06	2751.19	2575.13
270.0	3672.00	3637.69	3565.69	3461.63	3349.69	3199.50	3033.00	2873.25	2703.94
315.0	3665.25	3632.63	3562.88	3464.44	3357.00	3213.00	3052.69	2894.63	2705.06
360.0	3663.56	3675.94	3648.94	3596.63	3520.13	3395.25	3273.75	3136.50	2964.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2780.44	2606.06	2401.88	2215.13	2003.63	1796.63	1619.44	1429.31	1257.19
45.0	2892.94	2718.00	2534.06	2322.00	2109.38	1919.81	1716.75	1522.69	1361.25
90.0	2805.19	2578.50	2392.88	2205.56	1992.94	1786.50	1609.88	1401.19	1202.06
135.0	2700.56	2518.31	2355.19	2120.63	1910.81	1751.63	1537.31	1358.44	1212.75
180.0	2432.81	2221.88	2013.19	1830.94	1655.44	1447.31	1294.88	1119.77	998.21
225.0	2393.44	2162.81	1974.94	1789.88	1591.88	1406.81	1207.69	1098.28	965.31
270.0	2483.44	2301.19	2116.13	1905.75	1704.38	1531.69	1350.00	1183.50	1053.56
315.0	2529.00	2323.69	2112.75	1925.44	1743.75	1530.56	1370.81	1115.72	1053.62
360.0	2780.44	2606.06	2401.88	2215.13	2003.63	1796.63	1619.44	1429.31	1257.19
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1121.63	1002.38	876.38	794.25	725.63	661.50	608.06	568.69	529.88
45.0	1192.50	1062.56	930.94	834.19	749.25	691.31	625.50	578.81	542.81
90.0	1107.11	974.03	874.46	781.37	712.69	649.01	601.43	555.92	518.12
135.0	1064.25	952.31	852.75	759.38	689.63	639.00	581.63	545.63	514.13
180.0	893.19	805.50	723.99	656.66	607.33	561.77	527.40	494.61	467.27
225.0	867.15	774.79	707.12	644.23	591.92	552.43	518.79	484.54	461.76
270.0	928.69	836.44	750.94	680.63	628.88	584.44	538.31	507.38	480.38
315.0	943.65	849.99	762.58	691.03	637.71	587.03	548.94	513.00	482.68
360.0	1121.63	1002.38	876.38	794.25	725.63	661.50	608.06	568.69	529.88
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	496.69	471.94	448.31	429.75	411.75	392.63	371.81	345.94	306.56
45.0	504.56	480.94	457.88	439.88	418.50	403.31	379.69	358.31	322.31
90.0	490.50	463.89	441.06	423.39	408.04	385.37	363.49	337.67	304.03
135.0	480.38	457.88	438.19	417.94	399.94	383.63	356.63	326.25	290.25
180.0	446.57	425.93	407.19	391.11	371.14	339.08	308.81	276.02	234.06
225.0	441.73	420.13	404.72	388.01	366.36	330.47	297.73	253.91	222.13
270.0	451.69	432.56	415.69	398.81	376.31	351.00	318.38	285.19	242.94
315.0	459.23	436.33	417.04	401.63	385.14	357.30	327.49	293.85	254.14
360.0	496.69	471.94	448.31	429.75	411.75	392.63	371.81	345.94	306.56
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	285.19	234.51	198.84	156.60	126.28	99.68	72.23	54.90	41.23
45.0	286.88	267.24	212.57	179.72	141.86	112.11	83.59	60.92	45.79
90.0	266.85	232.37	193.61	155.93	124.31	93.43	71.16	51.98	37.52
135.0	263.53	214.14	176.06	140.68	112.16	87.13	61.88	46.52	34.37
180.0	199.91	166.67	128.36	101.25	77.91	54.84	42.47	30.21	20.19
225.0	182.81	150.53	117.34	88.65	64.01	50.57	38.08	25.03	18.79
270.0	202.89	168.47	132.36	100.74	77.74	59.51	42.36	31.73	23.34
315.0	214.14	179.38	142.43	109.18	84.66	62.21	46.97	33.75	24.02
360.0	285.19	234.51	198.84	156.60	126.28	99.68	72.23	54.90	41.23

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	28.41	20.70	14.79	10.13	8.04	7.20	6.86	6.75	6.64
45.0	34.03	23.01	16.43	11.59	8.21	7.20	6.86	6.69	6.58
90.0	27.51	19.74	12.60	9.00	7.65	6.86	6.75	6.64	6.58
135.0	23.91	16.26	11.31	8.27	7.31	6.86	6.75	6.64	6.58
180.0	14.96	10.58	7.76	7.09	6.81	6.64	6.58	6.53	6.47
225.0	13.33	9.28	7.65	6.98	6.81	6.69	6.58	6.53	6.41
270.0	15.58	11.25	8.55	7.54	6.98	6.81	6.75	6.64	6.53
315.0	17.44	12.54	8.72	7.59	7.03	6.81	6.69	6.64	6.53
360.0	28.41	20.70	14.79	10.13	8.04	7.20	6.86	6.75	6.64
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.58	6.47	6.36	6.36	6.30	6.30	6.24	6.19	6.19
45.0	6.53	6.41	6.41	6.36	6.30	6.24	6.24	6.19	6.19
90.0	6.53	6.47	6.41	6.36	6.36	6.36	6.30	6.30	6.30
135.0	6.58	6.47	6.47	6.41	6.36	6.36	6.30	6.30	6.30
180.0	6.36	6.30	6.30	6.24	6.24	6.19	6.19	6.19	6.13
225.0	6.41	6.36	6.30	6.30	6.30	6.24	6.19	6.19	6.24
270.0	6.53	6.41	6.41	6.41	6.36	6.36	6.36	6.36	6.30
315.0	6.47	6.47	6.41	6.36	6.30	6.30	6.30	6.30	6.24
360.0	6.58	6.47	6.36	6.36	6.30	6.30	6.24	6.19	6.19
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.19	6.19	6.13	6.19	6.13	6.13	6.13	6.13	6.13
45.0	6.19	6.19	6.13	6.13	6.19	6.13	6.19	6.13	6.13
90.0	6.30	6.30	6.36	6.36	6.36	6.36	6.41	6.41	6.41
135.0	6.30	6.30	6.30	6.30	6.24	6.30	6.30	6.30	6.30
180.0	6.13	6.13	6.13	6.13	6.08	6.13	6.08	6.08	6.08
225.0	6.19	6.19	6.19	6.19	6.19	6.19	6.19	6.19	6.24
270.0	6.36	6.36	6.36	6.36	6.36	6.41	6.41	6.41	6.36
315.0	6.24	6.24	6.24	6.30	6.24	6.24	6.24	6.24	6.24
360.0	6.19	6.19	6.13	6.19	6.13	6.13	6.13	6.13	6.13
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.13	6.13	6.13	6.08	6.08	6.08	6.08	6.08	6.08
45.0	6.13	6.13	6.19	6.13	6.13	6.13	6.19	6.13	6.19
90.0	6.41	6.41	6.47	6.47	6.47	6.47	6.47	6.47	6.47
135.0	6.30	6.30	6.30	6.24	6.24	6.24	6.30	6.30	6.36
180.0	6.08	6.08	6.08	6.08	6.08	6.08	6.02	6.02	6.08
225.0	6.19	6.19	6.19	6.24	6.19	6.19	6.19	6.24	6.30
270.0	6.36	6.41	6.41	6.41	6.41	6.41	6.47	6.58	6.58
315.0	6.30	6.24	6.24	6.24	6.30	6.24	6.30	6.30	6.30
360.0	6.13	6.13	6.13	6.08	6.08	6.08	6.08	6.08	6.08
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.08	6.08	6.02	6.02	6.02	5.91	5.74	5.23	5.12
45.0	6.13	6.13	6.13	6.13	6.19	6.47	5.63	5.18	5.12
90.0	6.53	6.69	6.98	7.76	8.83	9.28	5.34	5.12	5.12
135.0	6.47	6.53	6.58	6.86	7.76	9.17	5.46	5.18	5.06
180.0	6.08	6.08	6.08	6.08	5.96	5.85	5.18	5.06	5.06
225.0	6.36	6.41	6.53	6.64	6.64	5.96	5.18	5.12	5.12
270.0	6.69	6.75	6.75	7.59	8.83	10.41	5.34	5.18	5.12
315.0	6.47	6.86	7.99	10.07	12.15	12.60	5.34	5.12	5.12
360.0	6.08	6.08	6.02	6.02	6.02	5.91	5.74	5.23	5.12

Intensity data(cd)

C/γ(°)	90.0
0.0	5.06
45.0	5.12
90.0	5.12
135.0	5.06
180.0	5.06
225.0	5.06
270.0	5.12
315.0	5.12
360.0	5.06