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Nata

LumCAT: 3-2079-E
Luminaire: 92.70.153.00
Report No: NATA0100
Test No: GC2019111417
LampCAT: PHILIPS SLM92757 TWL152024
Lamp flux(lm): 1410.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 33.8600
Current(A): 0.4270
Power (W): 14.4500
PF: 1.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1143.26
Efficiency(%): 81.08%
Lumens(lm)/Power(W): 79.12
Central intensity(cd): 4914.000
Maximum intensity(cd): 4914.000
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.7
 [C90/270]Total=19.7
Field angle(10%Imax): [C0/180]Total=51.8
 [C90/270]Total=51.8
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 81.08%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.133%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4914.000	0.000	0	.000%	.000%
1.0	4882.430	4.687	4.687	.332%	.410%
2.0	4776.469	13.863	18.551	.983%	1.623%
3.0	4608.492	22.446	40.997	1.592%	3.586%
4.0	4397.273	30.145	71.142	2.138%	6.223%
5.0	4103.578	36.570	107.712	2.594%	9.422%
6.0	3800.180	41.536	149.248	2.946%	13.055%
7.0	3451.570	45.011	194.26	3.192%	16.992%
8.0	3102.398	46.906	241.165	3.327%	21.095%
9.0	2745.844	47.397	288.562	3.361%	25.240%
10.0	2403.211	46.597	335.159	3.305%	29.316%
11.0	2095.523	44.952	380.111	3.188%	33.248%
12.0	1827.141	42.880	422.991	3.041%	36.999%
13.0	1580.414	40.439	463.43	2.868%	40.536%
14.0	1342.448	37.412	500.843	2.653%	43.808%
15.0	1208.398	35.019	535.862	2.484%	46.872%
16.0	1054.041	33.151	569.013	2.351%	49.771%
17.0	953.409	31.261	600.274	2.217%	52.506%
18.0	859.388	29.889	630.163	2.120%	55.120%
19.0	786.361	28.633	658.796	2.031%	57.625%
20.0	715.163	27.482	686.278	1.949%	60.028%
21.0	658.547	26.378	712.656	1.871%	62.336%
22.0	615.059	25.594	738.25	1.815%	64.574%
23.0	575.494	24.981	763.231	1.772%	66.759%
24.0	541.547	24.423	787.653	1.732%	68.896%
25.0	513.626	23.992	811.645	1.702%	70.994%
26.0	489.361	23.676	835.321	1.679%	73.065%
27.0	466.917	23.396	858.717	1.659%	75.111%
28.0	447.982	23.163	881.88	1.643%	77.138%
29.0	430.650	22.987	904.867	1.630%	79.148%
30.0	411.293	22.732	927.6	1.612%	81.137%
31.0	388.835	22.266	949.866	1.579%	83.084%
32.0	361.104	21.485	971.351	1.524%	84.964%
33.0	330.384	20.372	991.722	1.445%	86.745%
34.0	305.107	19.232	1010.954	1.364%	88.428%
35.0	264.030	17.675	1028.63	1.254%	89.974%
36.0	228.136	15.671	1044.3	1.111%	91.344%
37.0	193.971	13.767	1058.067	.976%	92.549%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	159.145	11.787	1069.854	.836%	93.580%
39.0	128.159	9.806	1079.66	.695%	94.437%
40.0	103.556	8.081	1087.741	.573%	95.144%
41.0	81.780	6.600	1094.341	.468%	95.721%
42.0	62.529	5.243	1099.584	.372%	96.180%
43.0	48.094	4.098	1103.682	.291%	96.538%
44.0	36.949	3.210	1106.892	.228%	96.819%
45.0	27.373	2.472	1109.364	.175%	97.035%
46.0	20.651	1.878	1111.242	.133%	97.200%
47.0	14.963	1.416	1112.658	.100%	97.324%
48.0	11.271	1.060	1113.719	.075%	97.416%
49.0	9.084	0.836	1114.555	.059%	97.490%
50.0	8.170	0.719	1115.274	.051%	97.552%
51.0	7.847	0.678	1115.952	.048%	97.612%
52.0	7.699	0.667	1116.619	.047%	97.670%
53.0	7.566	0.664	1117.283	.047%	97.728%
54.0	7.453	0.662	1117.945	.047%	97.786%
55.0	7.341	0.660	1118.605	.047%	97.844%
56.0	7.263	0.660	1119.265	.047%	97.902%
57.0	7.186	0.661	1119.926	.047%	97.959%
58.0	7.116	0.661	1120.587	.047%	98.017%
59.0	7.073	0.663	1121.25	.047%	98.075%
60.0	7.017	0.666	1121.916	.047%	98.133%
61.0	6.968	0.667	1122.584	.047%	98.192%
62.0	6.926	0.669	1123.253	.047%	98.250%
63.0	6.891	0.672	1123.925	.048%	98.309%
64.0	6.877	0.676	1124.601	.048%	98.368%
65.0	6.841	0.679	1125.279	.048%	98.428%
66.0	6.841	0.683	1125.962	.048%	98.487%
67.0	6.806	0.686	1126.648	.049%	98.547%
68.0	6.785	0.688	1127.337	.049%	98.608%
69.0	6.771	0.692	1128.028	.049%	98.668%
70.0	6.750	0.694	1128.723	.049%	98.729%
71.0	6.729	0.697	1129.42	.049%	98.790%
72.0	6.715	0.699	1130.119	.050%	98.851%
73.0	6.701	0.702	1130.82	.050%	98.912%
74.0	6.680	0.703	1131.524	.050%	98.974%
75.0	6.673	0.705	1132.229	.050%	99.035%

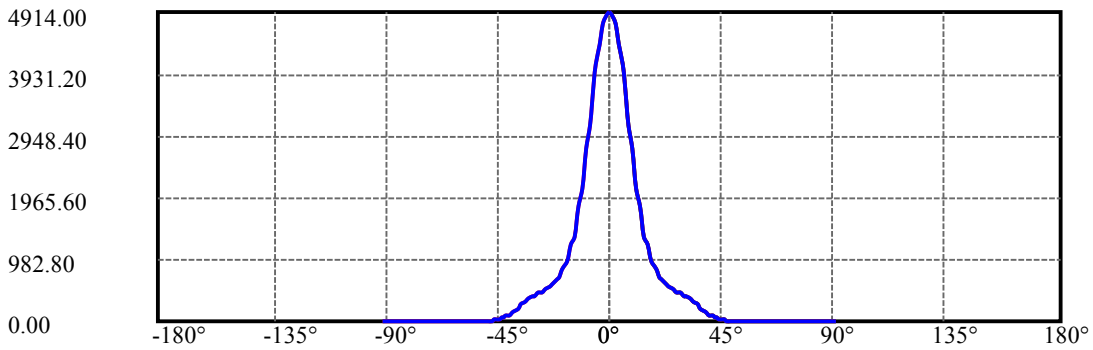
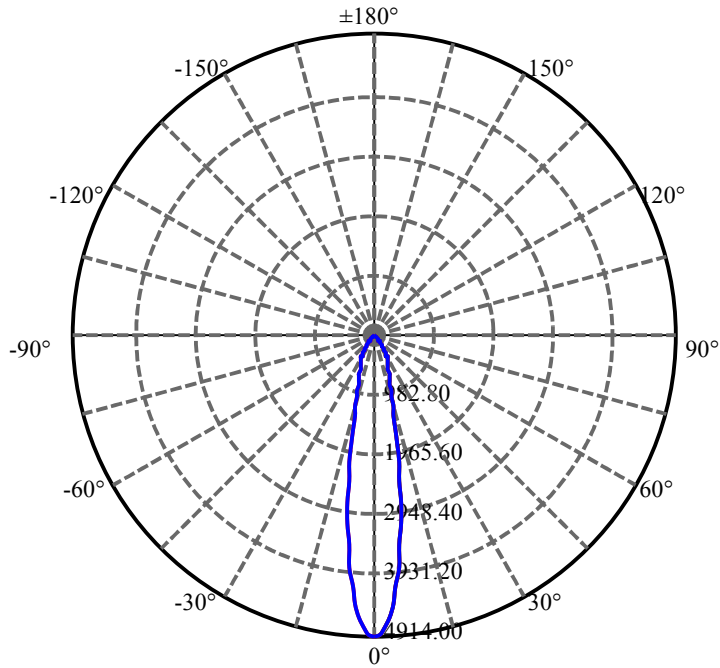
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.687	0.709	1132.938	.050%	99.098%
77.0	6.666	0.712	1133.65	.050%	99.160%
78.0	6.680	0.714	1134.364	.051%	99.222%
79.0	6.680	0.718	1135.082	.051%	99.285%
80.0	6.722	0.723	1135.805	.051%	99.348%
81.0	6.757	0.729	1136.534	.052%	99.412%
82.0	6.834	0.737	1137.271	.052%	99.476%
83.0	7.080	0.756	1138.027	.054%	99.543%
84.0	7.847	0.813	1138.84	.058%	99.614%
85.0	8.895	0.914	1139.754	.065%	99.694%
86.0	9.141	0.986	1140.74	.070%	99.780%
87.0	5.674	0.811	1141.551	.058%	99.851%
88.0	5.147	0.593	1142.143	.042%	99.903%
89.0	5.048	0.559	1142.702	.040%	99.952%
90.0	5.048	0.554	1143.256	.039%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	927.60	65.79%	81.14%
0-40	1087.74	77.14%	95.14%
0-60	1121.92	79.57%	98.13%
0-90	1142.70	81.04%	99.95%
0-120	1142.70	81.04%	99.95%
0-180	1143.26	81.08%	100.00%
60-90	21.45	1.52%	1.88%
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%
0-29.43	914.60	64.87%	80.00%

ZONAL LUMEN SUMMARY

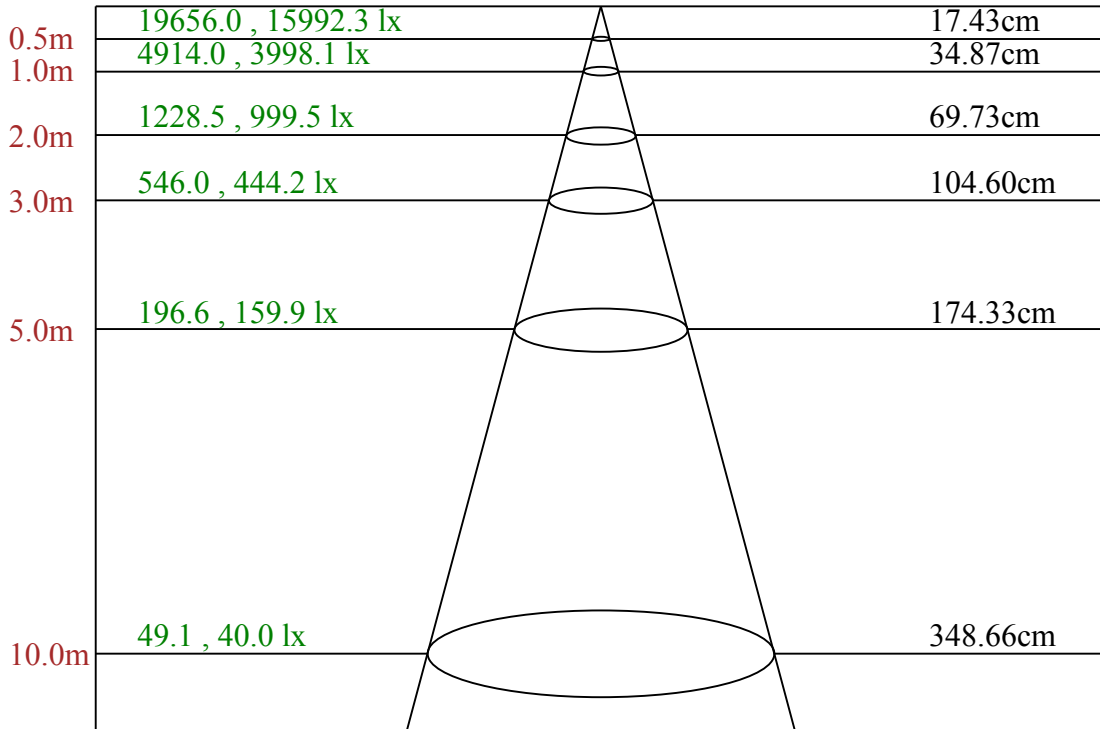
0-10	335.16
10-20	351.12
20-30	241.32
30-40	160.14
40-50	27.53
50-60	6.64
60-70	6.81
70-80	7.08
80-90	6.90
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



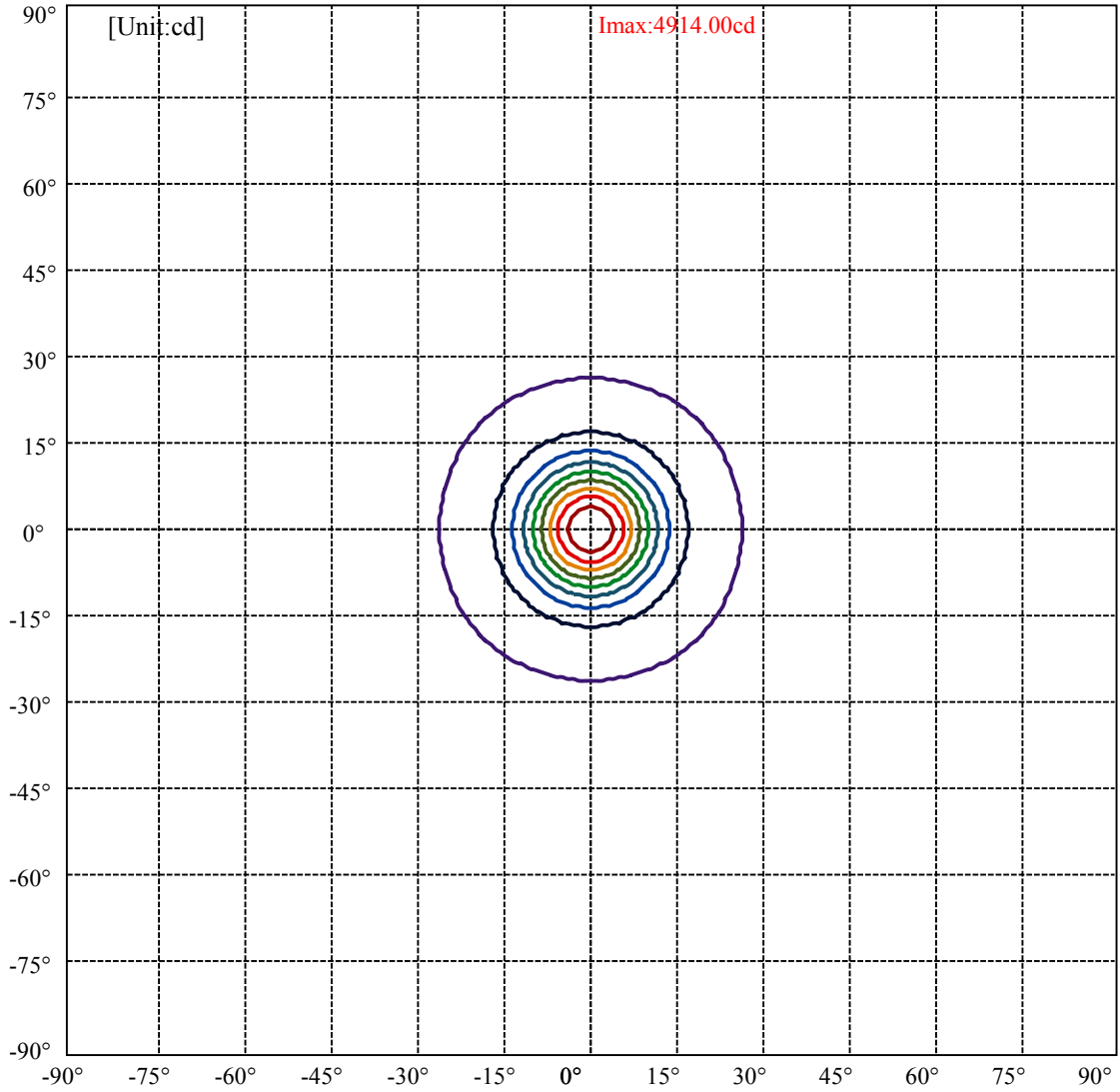
C0(Max): —————
C0/C180: —————
C90/C270: —————

Field angle(10%Imax):C0/180Left:25.9 Right:25.9
:C90/270Left:25.9 Right:25.9

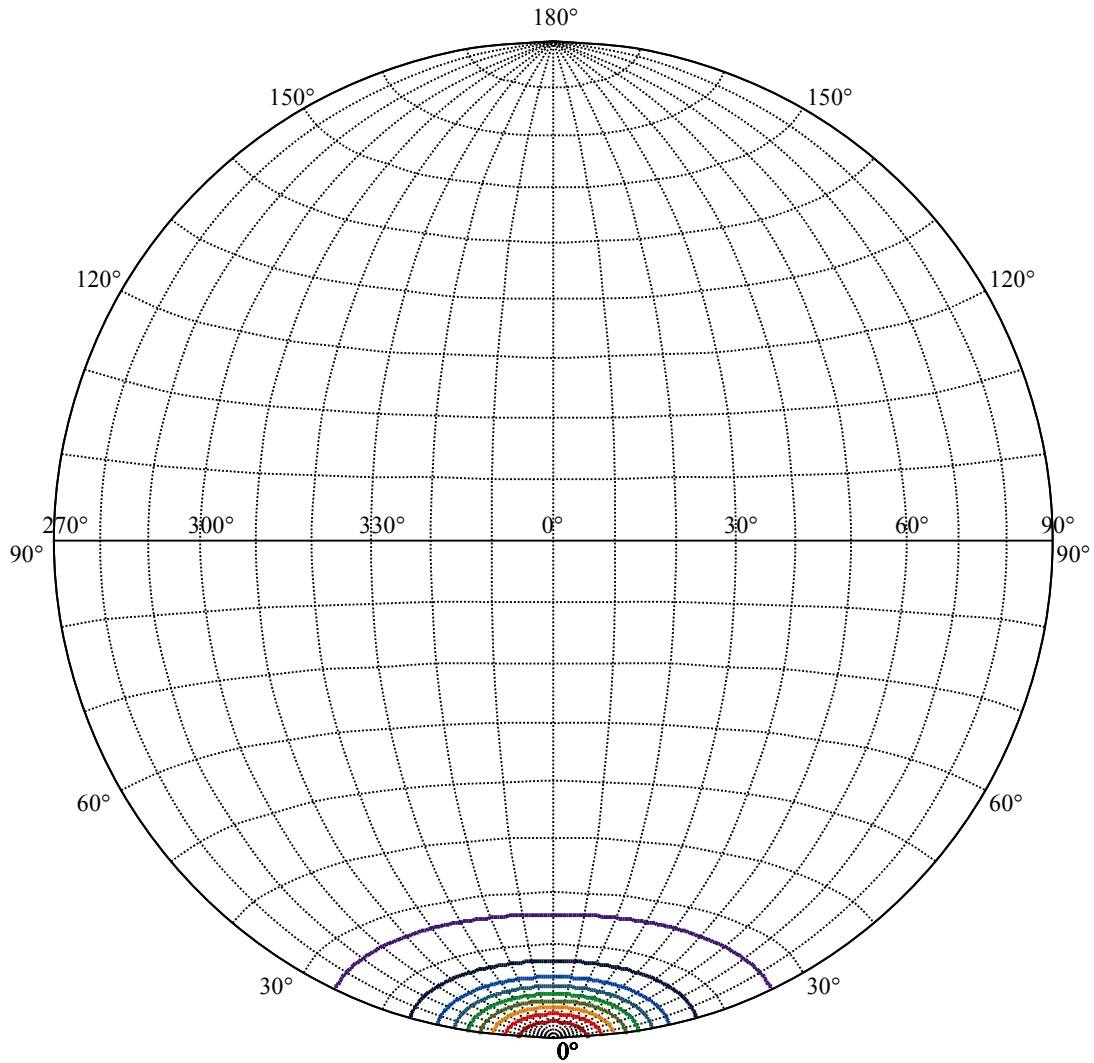
Beam Angle(50%Imax):C0/180Left:9.8 Right:9.8
:C90/270Left:9.8 Right:9.8



Max , Ave Beam angle of C0 plane 19.78



(10%Imax) 491.4	—
(20%Imax) 982.8	—
(30%Imax) 1474.2	—
(40%Imax) 1965.6	—
(50%Imax) 2457	—
(60%Imax) 2948.4	—
(70%Imax) 3439.8	—
(80%Imax) 3931.2	—
(90%Imax) 4422.6	—



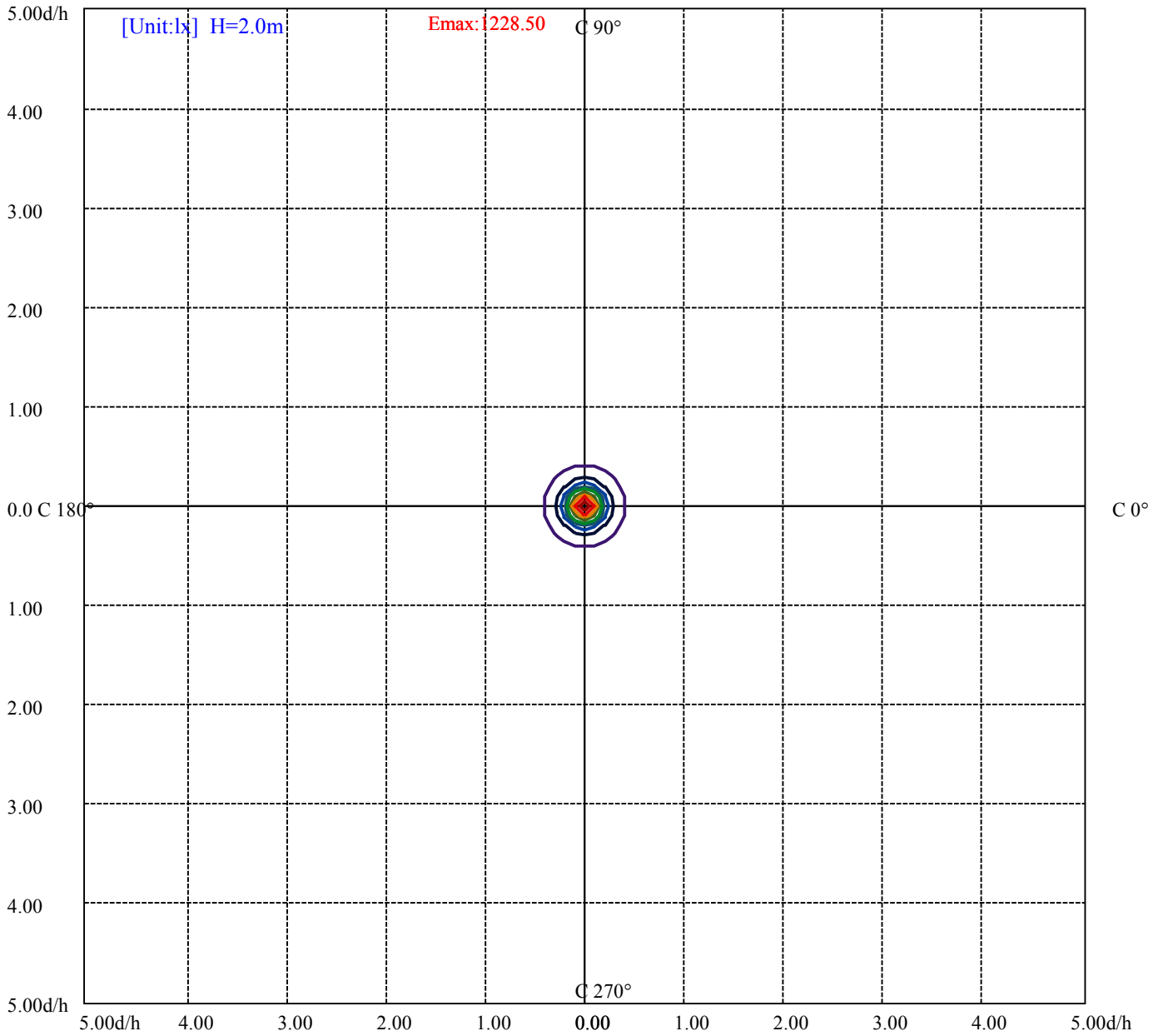
House

[Unit:cd]

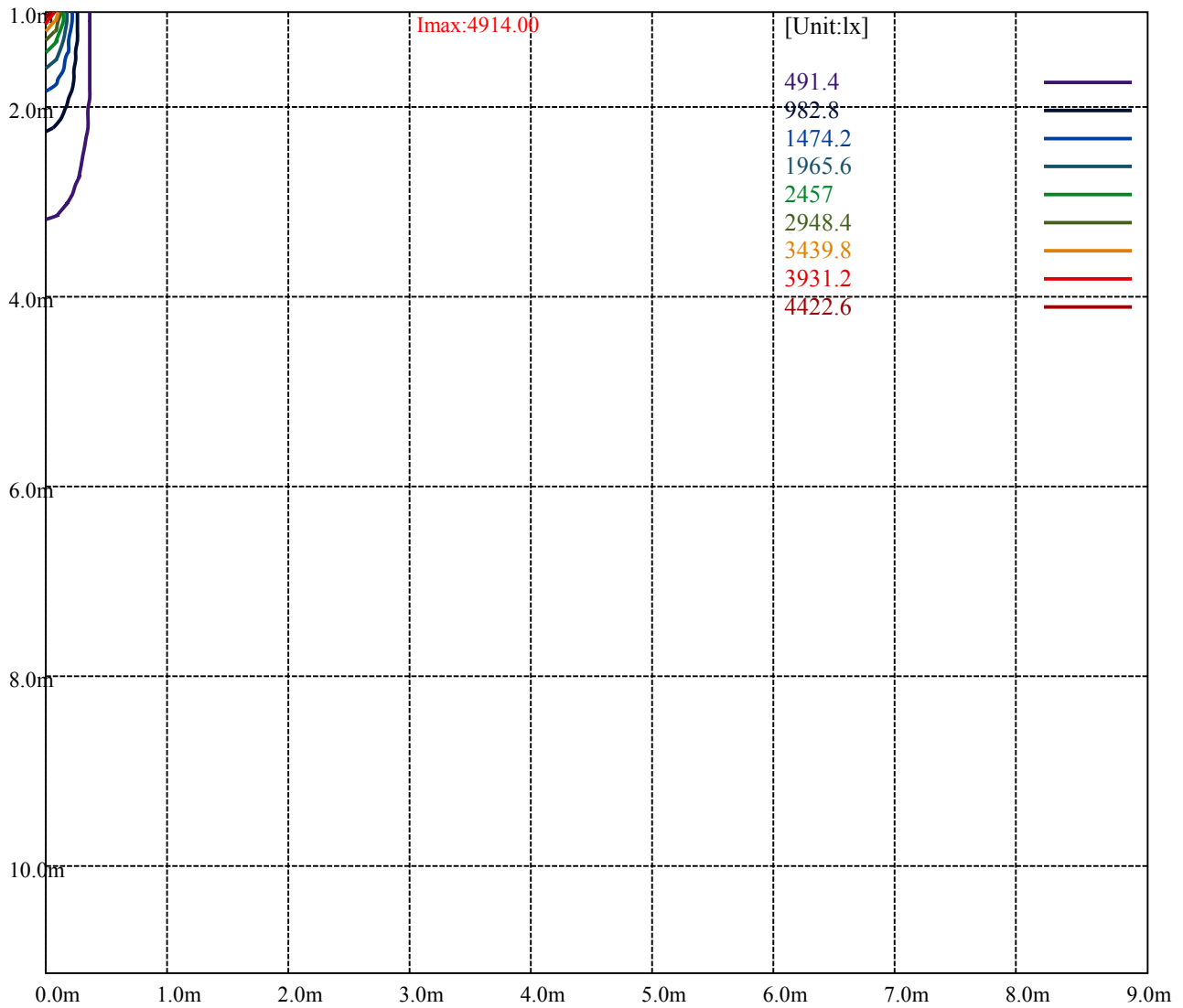
Road

Imax:4914.00

(10%Imax) 491.4	—
(20%Imax) 982.8	—
(30%Imax) 1474.2	—
(40%Imax) 1965.6	—
(50%Imax) 2457	—
(60%Imax) 2948.4	—
(70%Imax) 3439.8	—
(80%Imax) 3931.2	—
(90%Imax) 4422.6	—



- (10%Emax) 122.85
- (20%Emax) 245.6998
- (30%Emax) 368.55
- (40%Emax) 491.4
- (50%Emax) 614.25
- (60%Emax) 737.1
- (70%Emax) 859.95
- (80%Emax) 982.8
- (90%Emax) 1105.65



Luminance Table

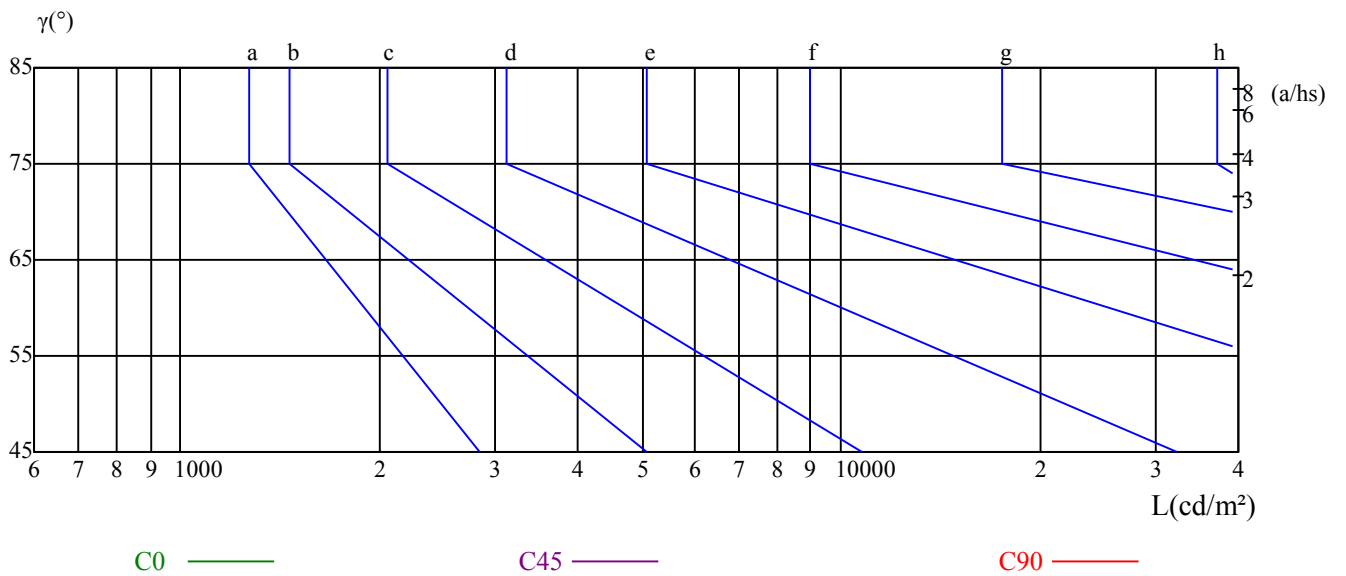
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

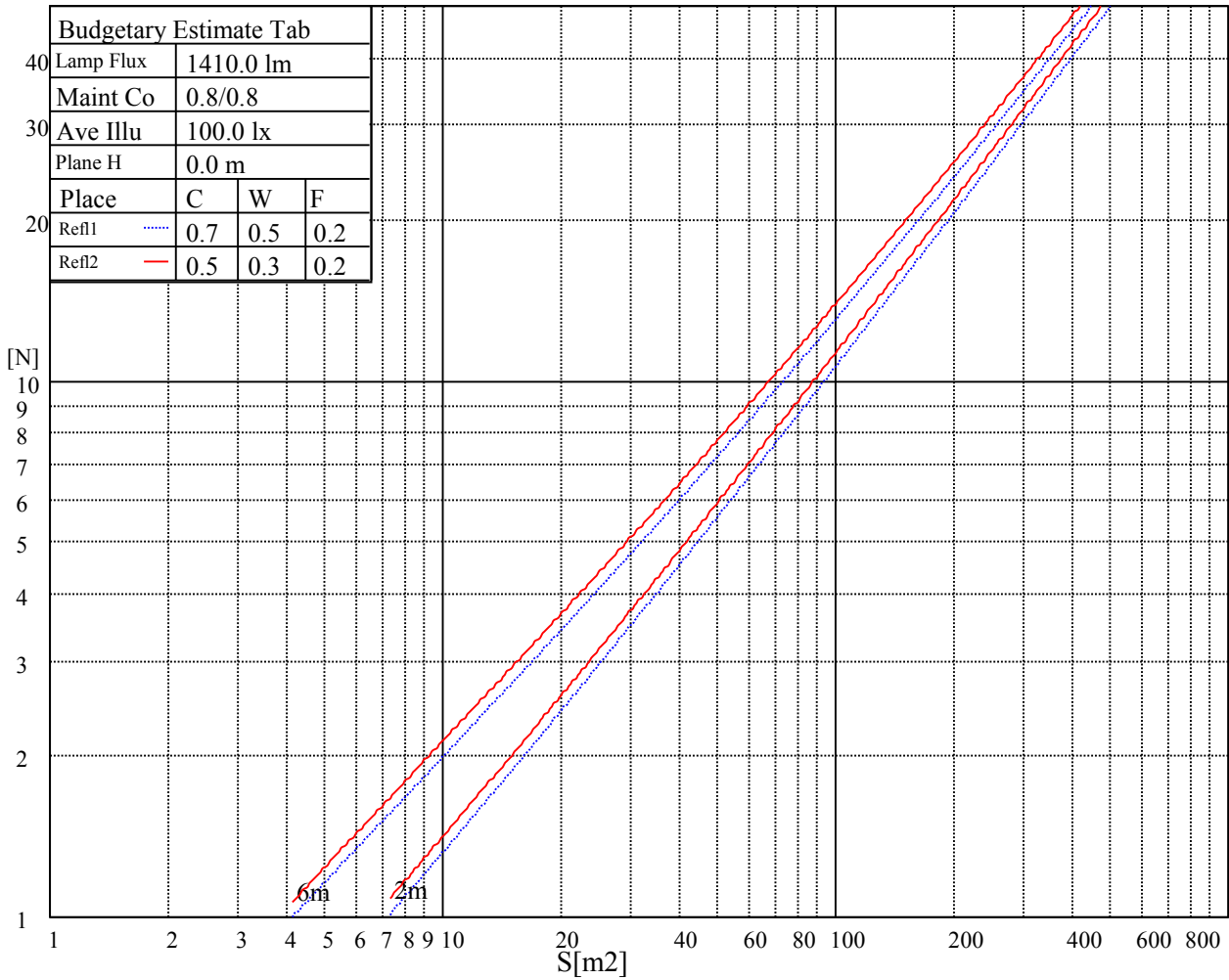
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

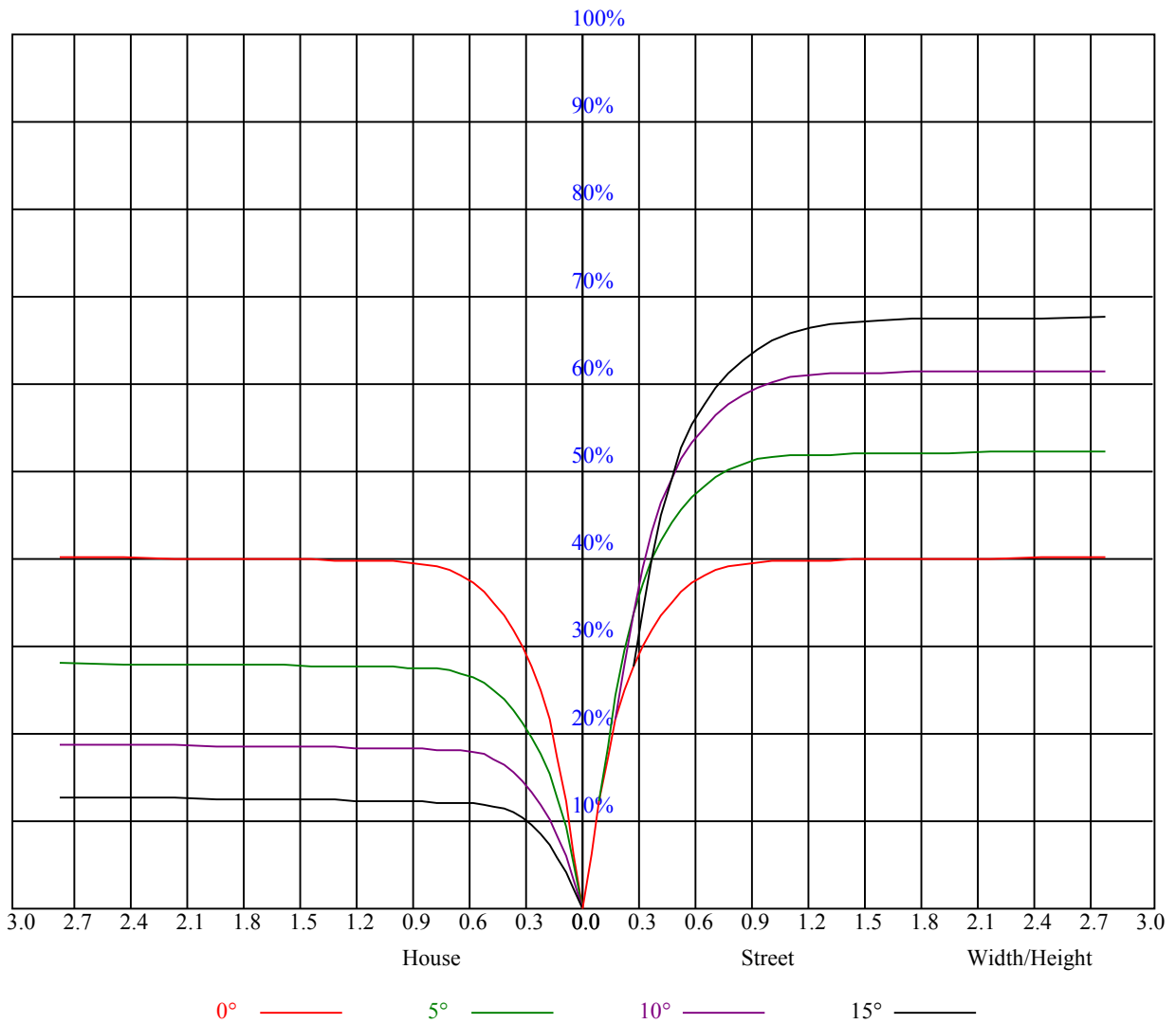
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.97	0.97	0.97	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.83	0.83	0.83	0.81
1	0.90	0.89	0.87	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.78	0.77
2	0.85	0.82	0.80	0.84	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.76	0.77	0.75	0.74	0.73
3	0.81	0.77	0.74	0.80	0.76	0.74	0.77	0.75	0.73	0.76	0.73	0.71	0.74	0.72	0.70	0.69
4	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.72	0.70	0.68	0.71	0.69	0.67	0.66
5	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.68	0.66	0.64	0.63
6	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.60
7	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.64	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	0.57	0.56
9	0.62	0.58	0.55	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.54
10	0.59	0.56	0.53	0.59	0.55	0.53	0.59	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.52



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	4928.63	4834.13	4662.56	4450.50	4190.06	3812.06	3484.69	3105.56	2771.44
45.0	4929.19	4839.75	4645.13	4434.19	4180.50	3811.50	3481.31	3133.69	2748.94
90.0	4899.38	4822.31	4666.50	4446.56	4200.19	3874.50	3548.25	3158.44	2772.56
135.0	4898.81	4916.25	4855.50	4739.63	4541.63	4278.38	4001.06	3652.88	3331.13
180.0	4928.63	4948.88	4910.06	4781.81	4614.75	4395.38	4092.75	3748.50	3423.94
225.0	4929.19	4960.13	4927.50	4824.56	4673.25	4440.38	4190.63	3867.75	3504.38
270.0	4899.38	4919.06	4863.38	4754.81	4590.56	4314.94	4048.88	3754.13	3398.63
315.0	4898.81	4818.94	4681.13	4435.88	4187.25	3901.50	3553.88	3191.63	2868.19
360.0	4928.63	4834.13	4662.56	4450.50	4190.06	3812.06	3484.69	3105.56	2771.44
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2415.94	2089.13	1825.88	1593.00	1351.13	1194.19	1065.38	933.75	848.81
45.0	2387.81	2091.38	1795.50	1569.94	1357.31	1185.19	1063.13	946.69	848.81
90.0	2446.31	2113.31	1822.50	1598.63	1405.69	1119.66	1073.53	963.28	859.44
135.0	2963.25	2595.94	2284.88	1994.06	1675.69	1461.94	1287.00	1111.50	997.88
180.0	3045.94	2670.19	2356.31	2033.44	1775.25	1526.63	1323.56	1107.39	1048.67
225.0	3163.50	2781.00	2417.63	2122.88	1859.06	1582.31	1397.81	1195.31	1080.68
270.0	3032.44	2710.13	2365.88	2085.19	1803.94	1561.50	1379.25	1205.44	1063.69
315.0	2511.56	2174.63	1895.63	1620.00	1415.25	1108.18	1077.53	968.96	879.30
360.0	2415.94	2089.13	1825.88	1593.00	1351.13	1194.19	1065.38	933.75	848.81
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	776.81	709.88	653.63	612.00	572.63	542.81	514.13	488.81	469.13
45.0	775.69	713.81	650.25	605.81	566.44	538.31	505.69	484.31	466.88
90.0	773.61	710.66	652.16	603.68	568.13	538.03	509.01	484.03	464.79
135.0	901.13	830.25	739.13	681.75	639.56	590.06	555.75	531.00	500.06
180.0	922.22	839.25	768.60	695.19	646.59	605.81	566.44	532.97	507.32
225.0	976.73	886.84	800.61	728.21	673.76	621.45	581.74	544.95	514.58
270.0	959.63	871.31	779.63	718.31	666.56	612.56	576.00	545.63	515.25
315.0	789.30	728.89	677.31	623.42	586.80	554.91	523.63	497.31	476.89
360.0	776.81	709.88	653.63	612.00	572.63	542.81	514.13	488.81	469.13
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	449.44	431.44	415.13	394.88	363.94	335.25	303.19	286.88	226.63
45.0	444.38	427.50	412.88	386.44	355.50	329.06	288.00	284.06	215.61
90.0	445.78	428.51	413.55	390.88	367.31	332.21	300.99	268.31	235.18
135.0	476.44	459.56	437.63	421.88	405.00	375.75	347.06	315.56	287.44
180.0	482.18	460.07	442.29	423.96	407.03	384.30	356.51	328.11	297.23
225.0	491.57	469.35	450.34	434.64	418.78	395.72	371.36	343.29	308.81
270.0	489.38	469.69	451.13	434.81	414.56	390.38	365.06	336.94	297.56
315.0	456.19	437.74	422.27	402.86	378.56	346.16	310.89	277.71	243.79
360.0	449.44	431.44	415.13	394.88	363.94	335.25	303.19	286.88	226.63
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	193.56	166.11	126.28	101.36	82.74	61.43	46.74	37.58	27.11
45.0	179.89	150.30	119.93	93.94	74.42	58.56	42.92	33.30	25.43
90.0	194.23	163.18	130.95	102.71	81.34	63.90	48.66	36.73	28.35
135.0	240.47	208.24	168.41	138.99	112.39	86.51	65.81	51.58	38.81
180.0	256.84	224.27	192.04	157.78	126.34	101.81	81.11	60.13	46.97
225.0	272.76	240.36	203.40	167.06	138.15	108.90	86.68	66.26	50.34
270.0	285.19	228.49	190.86	155.36	126.84	105.19	76.61	60.30	48.77
315.0	202.16	170.83	141.30	108.06	86.23	67.95	51.69	38.87	29.81
360.0	193.56	166.11	126.28	101.36	82.74	61.43	46.74	37.58	27.11

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	19.97	15.41	10.80	8.89	8.21	7.99	7.82	7.71	7.54
45.0	17.83	13.39	10.01	8.38	7.93	7.76	7.65	7.54	7.43
90.0	20.93	15.75	11.36	8.78	8.10	7.82	7.65	7.54	7.43
135.0	28.91	22.05	16.03	11.98	9.11	8.16	7.82	7.65	7.48
180.0	36.34	26.89	19.41	14.29	10.07	8.33	7.71	7.59	7.43
225.0	38.98	29.70	20.59	15.13	10.97	8.38	7.88	7.65	7.54
270.0	34.37	26.04	20.08	13.56	9.79	8.72	8.21	8.04	7.88
315.0	21.66	15.98	11.42	9.17	8.49	8.21	8.04	7.88	7.82
360.0	19.97	15.41	10.80	8.89	8.21	7.99	7.82	7.71	7.54
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.48	7.37	7.26	7.26	7.20	7.14	7.09	7.03	6.98
45.0	7.31	7.26	7.20	7.09	7.03	7.03	6.98	6.92	6.92
90.0	7.31	7.20	7.14	7.09	7.03	6.98	6.92	6.92	6.86
135.0	7.43	7.26	7.26	7.14	7.09	7.03	6.98	6.92	6.86
180.0	7.31	7.20	7.09	6.98	6.92	6.92	6.81	6.75	6.69
225.0	7.43	7.26	7.14	7.09	6.98	6.92	6.86	6.81	6.75
270.0	7.71	7.59	7.48	7.43	7.31	7.26	7.20	7.14	7.14
315.0	7.65	7.59	7.54	7.43	7.37	7.31	7.31	7.26	7.20
360.0	7.48	7.37	7.26	7.26	7.20	7.14	7.09	7.03	6.98
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.98	6.92	6.86	6.86	6.81	6.81	6.81	6.81	6.75
45.0	6.86	6.81	6.81	6.81	6.75	6.75	6.75	6.75	6.75
90.0	6.86	6.86	6.86	6.86	6.86	6.86	6.81	6.75	6.75
135.0	6.81	6.81	6.75	6.75	6.75	6.69	6.69	6.64	6.64
180.0	6.64	6.64	6.58	6.58	6.53	6.53	6.47	6.41	6.41
225.0	6.75	6.75	6.64	6.64	6.64	6.58	6.58	6.53	6.53
270.0	7.09	7.09	7.09	7.09	7.03	7.03	7.03	7.09	7.03
315.0	7.14	7.14	7.14	7.14	7.09	7.03	7.03	7.03	6.98
360.0	6.98	6.92	6.86	6.86	6.81	6.81	6.81	6.81	6.75
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.75	6.69	6.69	6.64	6.69	6.64	6.69	6.64	6.64
45.0	6.75	6.75	6.69	6.69	6.69	6.69	6.64	6.69	6.75
90.0	6.75	6.75	6.75	6.75	6.81	6.81	6.86	6.98	7.09
135.0	6.58	6.58	6.58	6.58	6.58	6.47	6.53	6.47	6.47
180.0	6.36	6.36	6.30	6.30	6.30	6.30	6.24	6.19	6.19
225.0	6.53	6.53	6.47	6.47	6.47	6.47	6.47	6.41	6.41
270.0	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03
315.0	6.98	6.92	6.92	6.92	6.92	6.92	6.98	7.03	7.20
360.0	6.75	6.69	6.69	6.64	6.69	6.64	6.69	6.64	6.64
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.64	6.69	6.69	6.69	6.69	6.64	5.46	5.06	5.01
45.0	6.75	6.92	7.09	7.31	7.54	6.58	5.29	5.12	5.06
90.0	7.09	7.09	7.14	8.10	9.23	6.02	5.23	5.06	5.06
135.0	6.58	6.81	7.37	8.89	11.31	12.99	5.46	5.18	5.01
180.0	6.19	6.08	6.13	6.08	6.02	5.91	5.29	5.06	5.01
225.0	6.41	6.36	6.36	6.47	6.58	7.20	5.74	5.18	5.06
270.0	7.14	7.26	7.54	8.49	9.68	10.74	7.26	5.34	5.12
315.0	7.26	7.48	8.33	10.74	14.12	17.04	5.68	5.18	5.06
360.0	6.64	6.69	6.69	6.69	6.69	6.64	5.46	5.06	5.01

Intensity data(cd)

C/γ(°)	90.0
0.0	5.01
45.0	5.06
90.0	5.06
135.0	5.06
180.0	5.01
225.0	5.06
270.0	5.06
315.0	5.06
360.0	5.01