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Nata

LumCAT: 1-1009-M	
Luminaire: BJB 47.360.1020	
Report No: NATA0100	Voltage(V): 34.5900
Test No: GC2019102417	Current(A): 0.2970
LampCAT: SAMSUNG LC009D	Power (W): 10.2700
Lamp flux(lm): 1482.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1066.69
Efficiency(%): 71.98%
Lumens(lm)/Power(W): 103.86
Central intensity(cd): 5221.407
Maximum intensity(cd): 5221.407
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=26.2
 [C90/270]Total=26.2
Field angle(10%Imax): [C0/180]Total=42.2
 [C90/270]Total=42.2
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 71.98%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.514%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5221.406	0.000	0	.000%	.000%
1.0	5207.133	4.990	4.99	.337%	.468%
2.0	5155.945	14.874	19.864	1.004%	1.862%
3.0	5074.031	24.467	44.331	1.651%	4.156%
4.0	4958.086	33.581	77.911	2.266%	7.304%
5.0	4786.945	41.923	119.834	2.829%	11.234%
6.0	4611.164	49.390	169.224	3.333%	15.864%
7.0	4391.789	55.881	225.105	3.771%	21.103%
8.0	4140.984	61.067	286.172	4.121%	26.828%
9.0	3871.898	64.940	351.112	4.382%	32.916%
10.0	3588.891	67.517	418.63	4.556%	39.246%
11.0	3273.188	68.566	487.196	4.627%	45.674%
12.0	2958.328	68.119	555.315	4.596%	52.060%
13.0	2651.273	66.572	621.887	4.492%	58.301%
14.0	2319.891	63.630	685.518	4.294%	64.266%
15.0	2022.188	59.610	745.128	4.022%	69.854%
16.0	1728.000	54.951	800.078	3.708%	75.006%
17.0	1410.645	48.877	848.955	3.298%	79.588%
18.0	1150.024	42.220	891.175	2.849%	83.546%
19.0	959.948	36.709	927.885	2.477%	86.987%
20.0	739.209	31.099	958.984	2.098%	89.903%
21.0	540.155	24.566	983.55	1.658%	92.206%
22.0	380.327	18.497	1002.048	1.248%	93.940%
23.0	253.343	13.296	1015.344	.897%	95.186%
24.0	151.995	8.862	1024.206	.598%	96.017%
25.0	68.906	5.023	1029.229	.339%	96.488%
26.0	33.272	2.412	1031.641	.163%	96.714%
27.0	20.623	1.319	1032.959	.089%	96.838%
28.0	16.552	0.941	1033.9	.064%	96.926%
29.0	14.280	0.807	1034.707	.054%	97.002%
30.0	12.797	0.731	1035.438	.049%	97.070%
31.0	11.651	0.680	1036.118	.046%	97.134%
32.0	10.659	0.639	1036.758	.043%	97.194%
33.0	9.865	0.605	1037.362	.041%	97.251%
34.0	9.218	0.578	1037.94	.039%	97.305%
35.0	8.684	0.556	1038.496	.038%	97.357%
36.0	8.191	0.537	1039.033	.036%	97.407%
37.0	7.833	0.523	1039.556	.035%	97.456%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.481	0.511	1040.067	.034%	97.504%
39.0	7.193	0.501	1040.568	.034%	97.551%
40.0	6.975	0.494	1041.062	.033%	97.597%
41.0	6.771	0.489	1041.551	.033%	97.643%
42.0	6.588	0.485	1042.037	.033%	97.689%
43.0	6.448	0.483	1042.52	.033%	97.734%
44.0	6.321	0.482	1043.001	.033%	97.779%
45.0	6.173	0.480	1043.482	.032%	97.824%
46.0	6.103	0.480	1043.962	.032%	97.869%
47.0	5.984	0.481	1044.443	.032%	97.914%
48.0	5.920	0.481	1044.924	.032%	97.959%
49.0	5.843	0.483	1045.407	.033%	98.005%
50.0	5.759	0.484	1045.89	.033%	98.050%
51.0	5.702	0.485	1046.375	.033%	98.095%
52.0	5.646	0.487	1046.862	.033%	98.141%
53.0	5.611	0.490	1047.352	.033%	98.187%
54.0	5.548	0.492	1047.844	.033%	98.233%
55.0	5.505	0.493	1048.337	.033%	98.279%
56.0	5.456	0.495	1048.833	.033%	98.326%
57.0	5.414	0.497	1049.33	.034%	98.372%
58.0	5.386	0.499	1049.829	.034%	98.419%
59.0	5.372	0.503	1050.332	.034%	98.466%
60.0	5.330	0.506	1050.838	.034%	98.514%
61.0	5.309	0.508	1051.345	.034%	98.561%
62.0	5.273	0.510	1051.855	.034%	98.609%
63.0	5.252	0.512	1052.367	.035%	98.657%
64.0	5.238	0.515	1052.882	.035%	98.705%
65.0	5.217	0.517	1053.399	.035%	98.754%
66.0	5.189	0.519	1053.918	.035%	98.803%
67.0	5.189	0.522	1054.44	.035%	98.852%
68.0	5.161	0.524	1054.965	.035%	98.901%
69.0	5.154	0.526	1055.491	.036%	98.950%
70.0	5.133	0.528	1056.019	.036%	99.000%
71.0	5.105	0.529	1056.548	.036%	99.049%
72.0	5.105	0.531	1057.079	.036%	99.099%
73.0	5.098	0.534	1057.613	.036%	99.149%
74.0	5.084	0.535	1058.148	.036%	99.199%
75.0	5.063	0.536	1058.684	.036%	99.249%

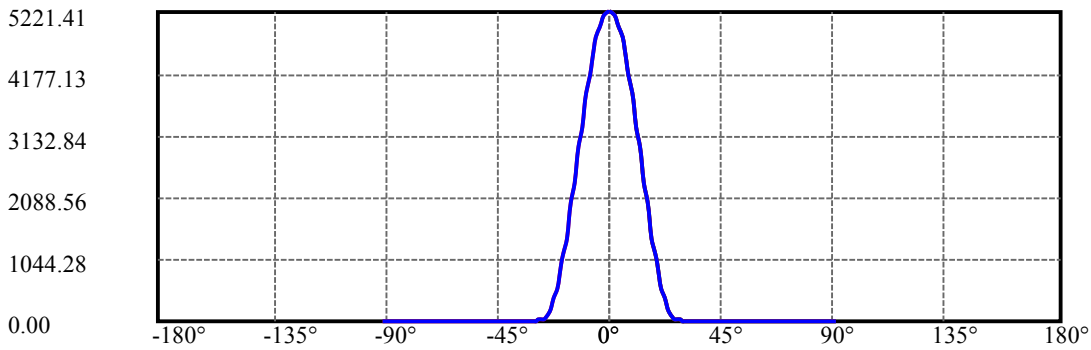
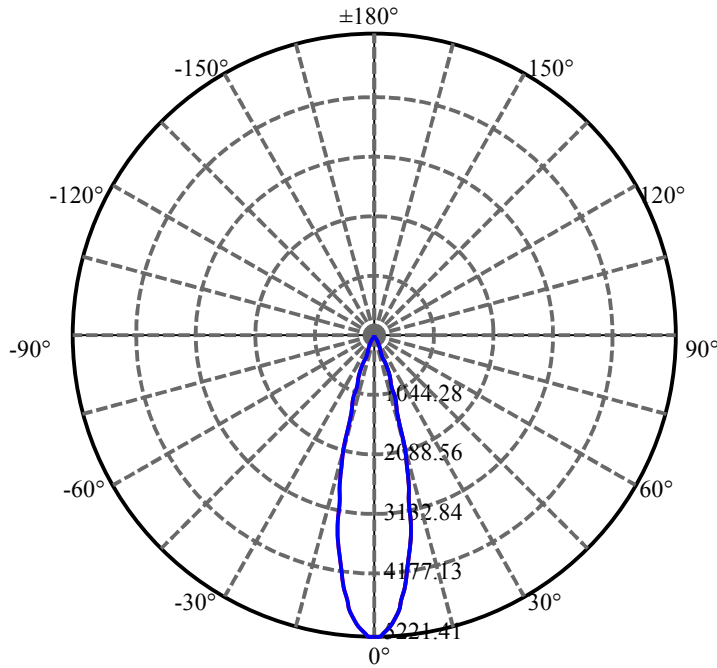
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.048	0.537	1059.221	.036%	99.300%
77.0	5.048	0.538	1059.759	.036%	99.350%
78.0	5.013	0.539	1060.298	.036%	99.401%
79.0	4.985	0.537	1060.835	.036%	99.451%
80.0	4.978	0.537	1061.372	.036%	99.501%
81.0	4.929	0.536	1061.908	.036%	99.552%
82.0	4.915	0.534	1062.442	.036%	99.602%
83.0	4.908	0.534	1062.976	.036%	99.652%
84.0	4.880	0.533	1063.509	.036%	99.702%
85.0	4.859	0.531	1064.04	.036%	99.752%
86.0	4.866	0.532	1064.572	.036%	99.801%
87.0	4.845	0.531	1065.103	.036%	99.851%
88.0	4.830	0.530	1065.633	.036%	99.901%
89.0	4.816	0.529	1066.162	.036%	99.950%
90.0	4.830	0.529	1066.691	.036%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1035.44	69.87%	97.07%
0-40	1041.06	70.25%	97.60%
0-60	1050.84	70.91%	98.51%
0-90	1066.16	71.94%	99.95%
0-120	1066.16	71.94%	99.95%
0-180	1066.69	71.98%	100.00%
60-90	15.83	1.07%	1.48%
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%
0-17.10	853.35	57.58%	80.00%

ZONAL LUMEN SUMMARY

0-10	418.63
10-20	540.35
20-30	76.45
30-40	5.62
40-50	4.83
50-60	4.95
60-70	5.18
70-80	5.35
80-90	4.79
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



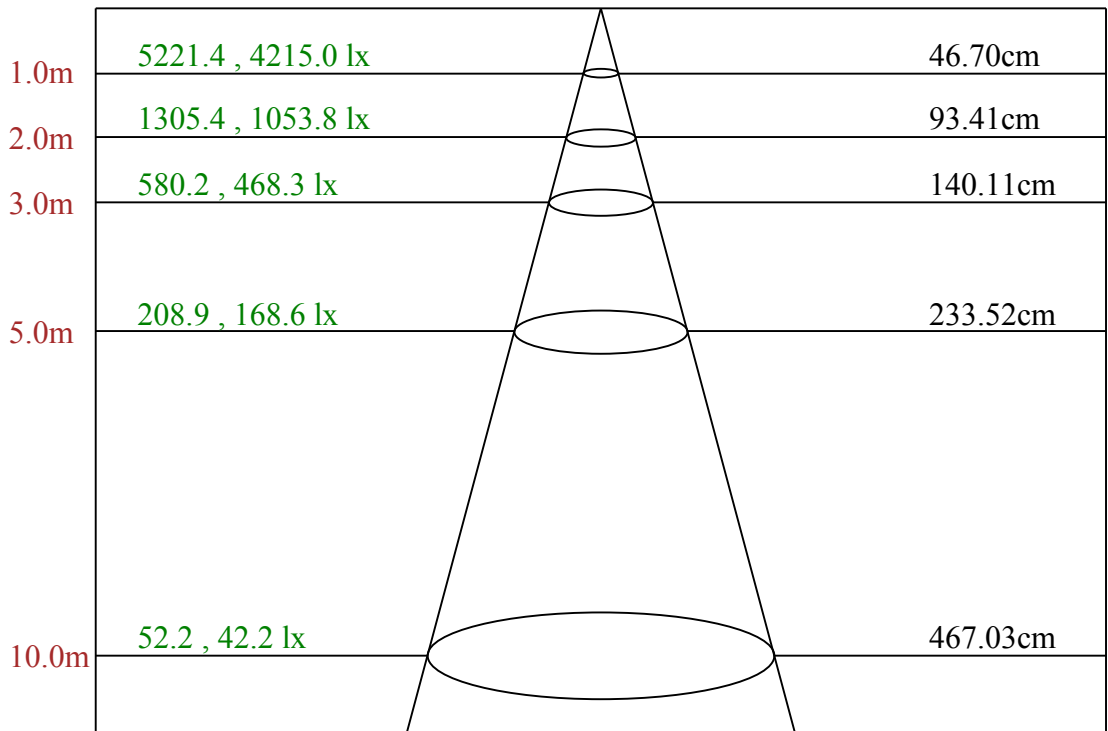
C0(Max): —————

C0/C180: —————

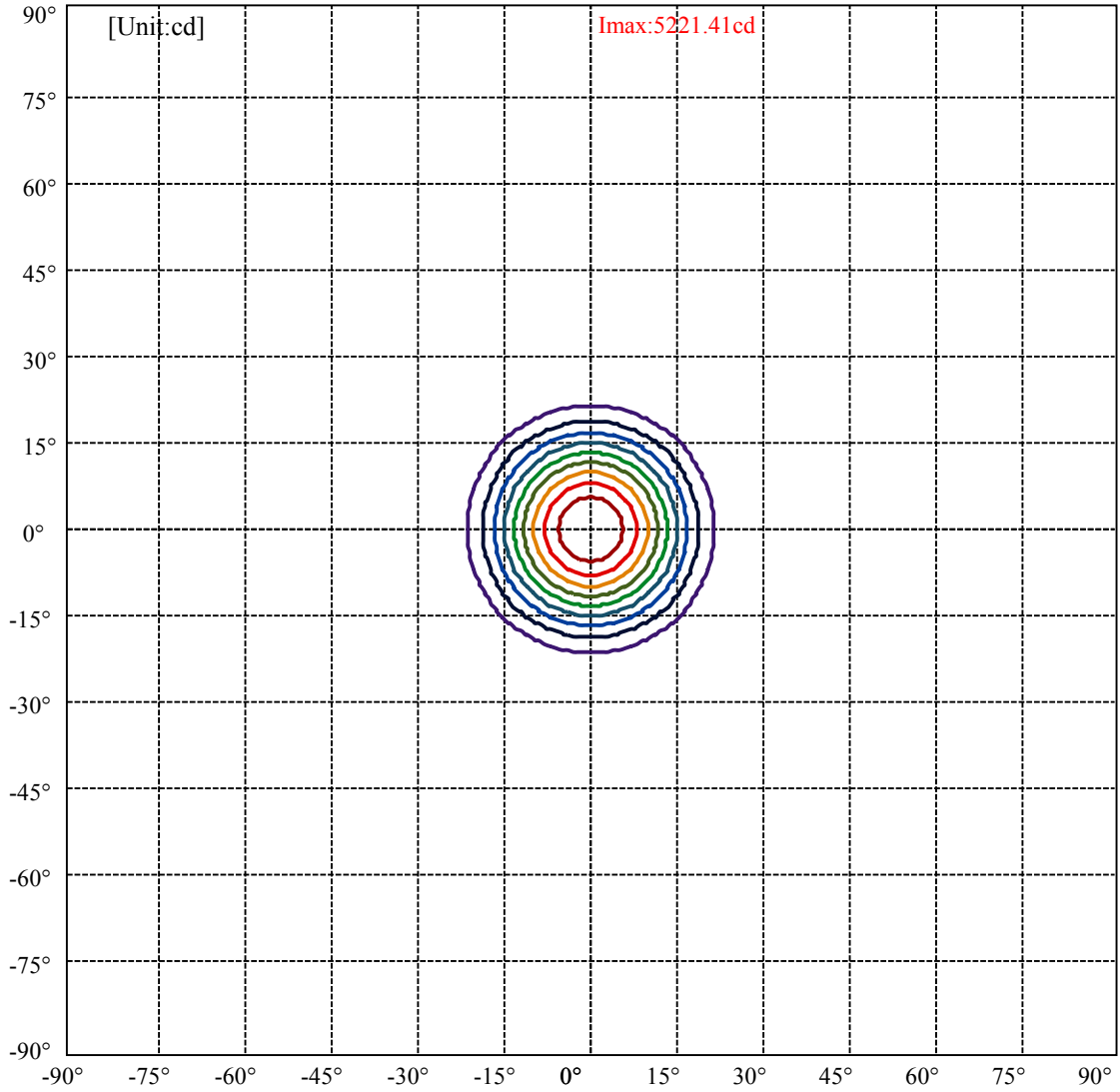
C90/C270: —————

Field angle(10%Imax):C0/180Left:21.1 Right:21.1
:C90/270Left:21.1 Right:21.1

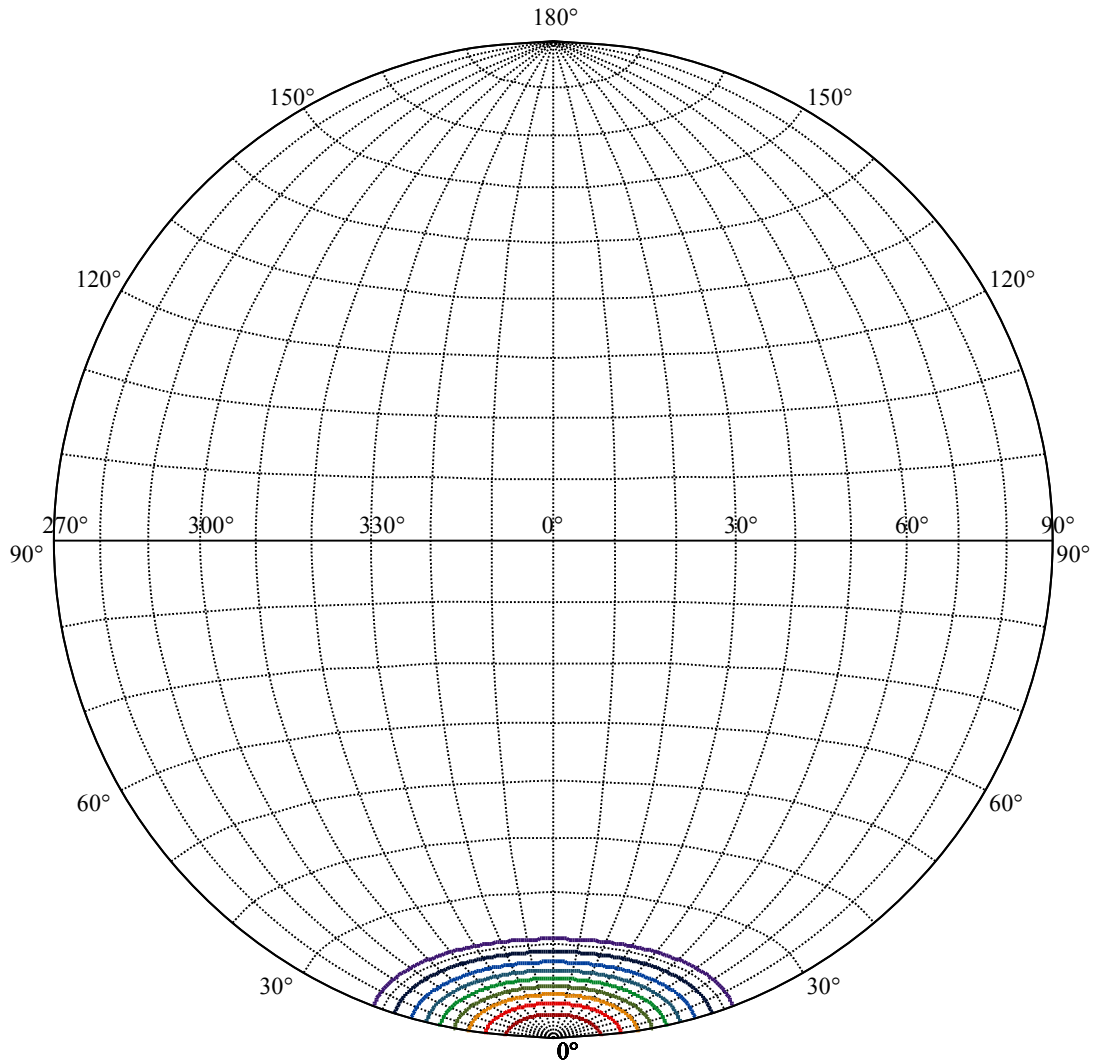
Beam Angle(50%Imax):C0/180Left:13.1 Right:13.1
:C90/270Left:13.1 Right:13.1



Max , Ave Beam angle of C0 plane 26.29



(10%Imax) 522.141	—
(20%Imax) 1044.28	—
(30%Imax) 1566.42	—
(40%Imax) 2088.56	—
(50%Imax) 2610.7	—
(60%Imax) 3132.84	—
(70%Imax) 3654.98	—
(80%Imax) 4177.13	—
(90%Imax) 4699.27	—



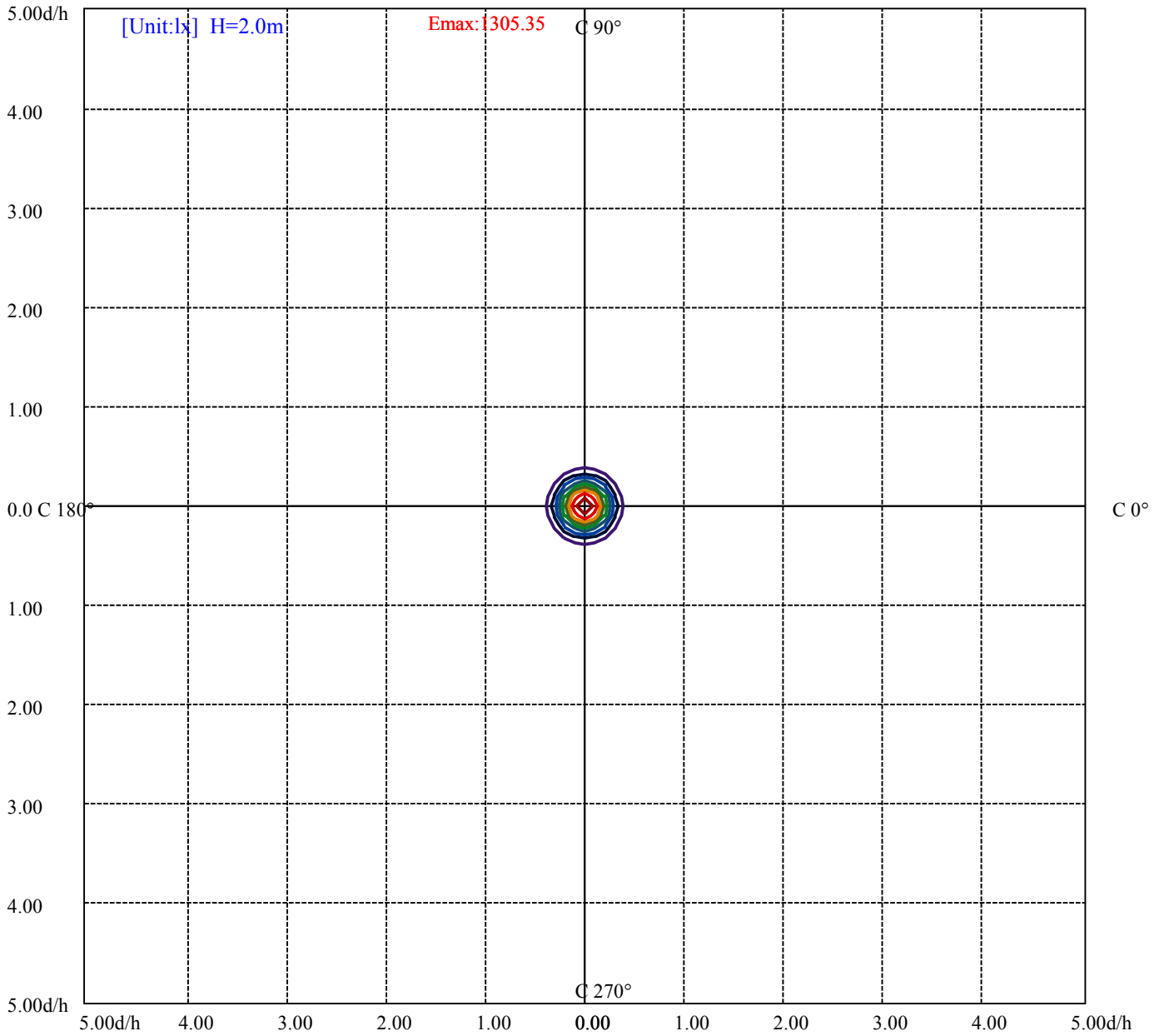
House

[Unit:cd]

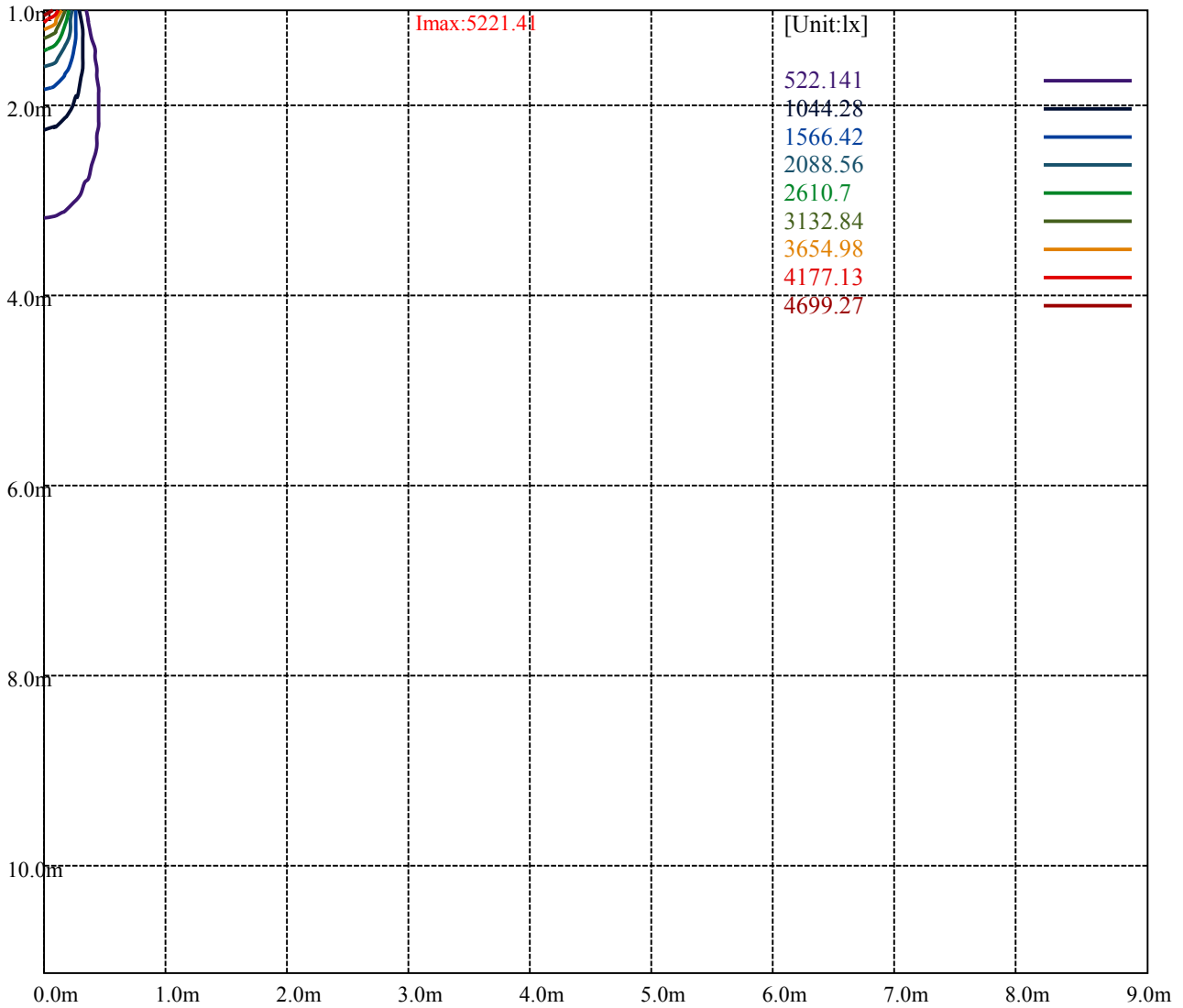
Road

Imax:5221.41

(10%Imax) 522.141	—
(20%Imax) 1044.28	—
(30%Imax) 1566.42	—
(40%Imax) 2088.56	—
(50%Imax) 2610.7	—
(60%Imax) 3132.84	—
(70%Imax) 3654.98	—
(80%Imax) 4177.13	—
(90%Imax) 4699.27	—



- (10%Emax) 130.5352
- (20%Emax) 261.07
- (30%Emax) 391.605
- (40%Emax) 522.14
- (50%Emax) 652.675
- (60%Emax) 783.21
- (70%Emax) 913.745
- (80%Emax) 1044.28
- (90%Emax) 1174.815



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

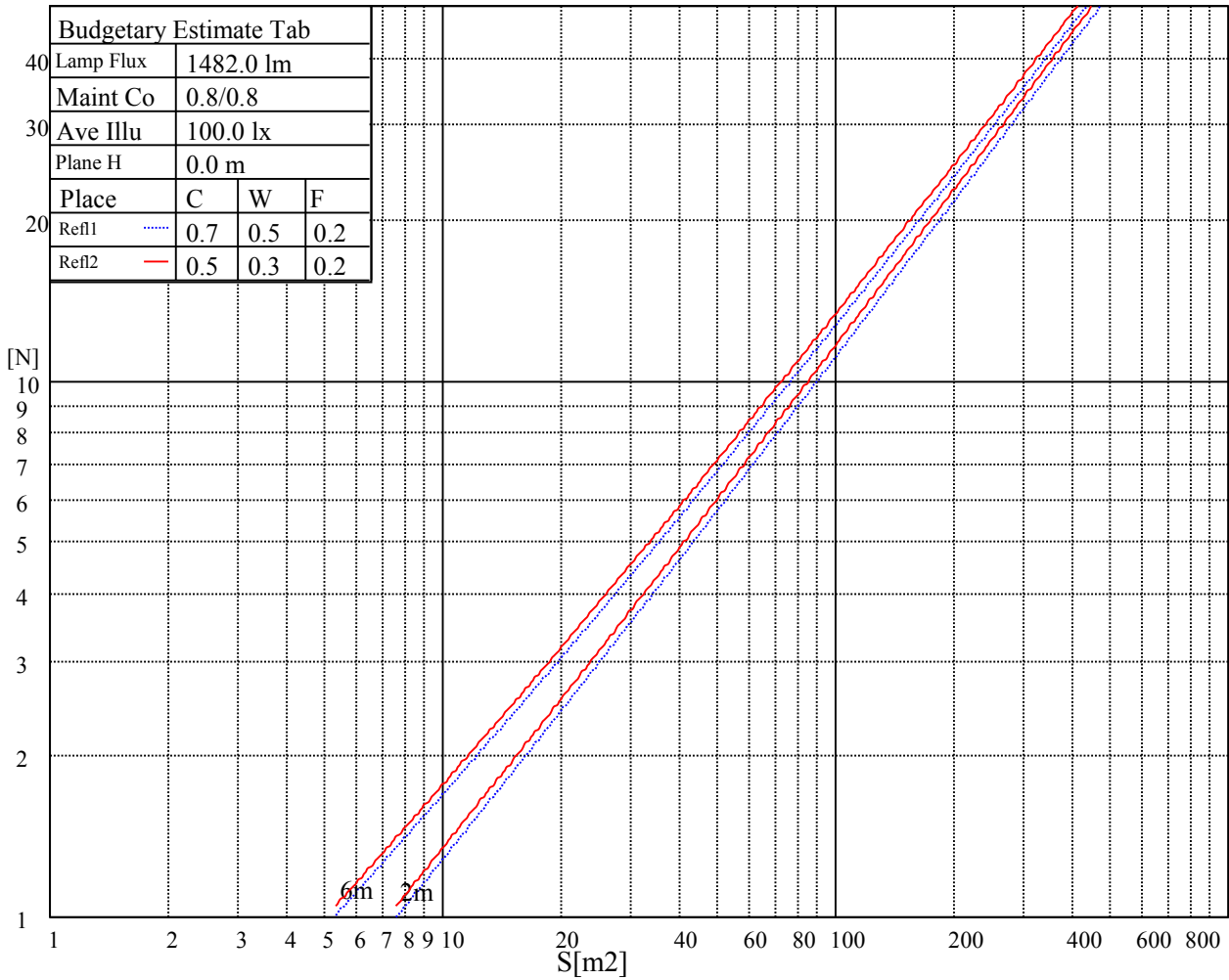
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

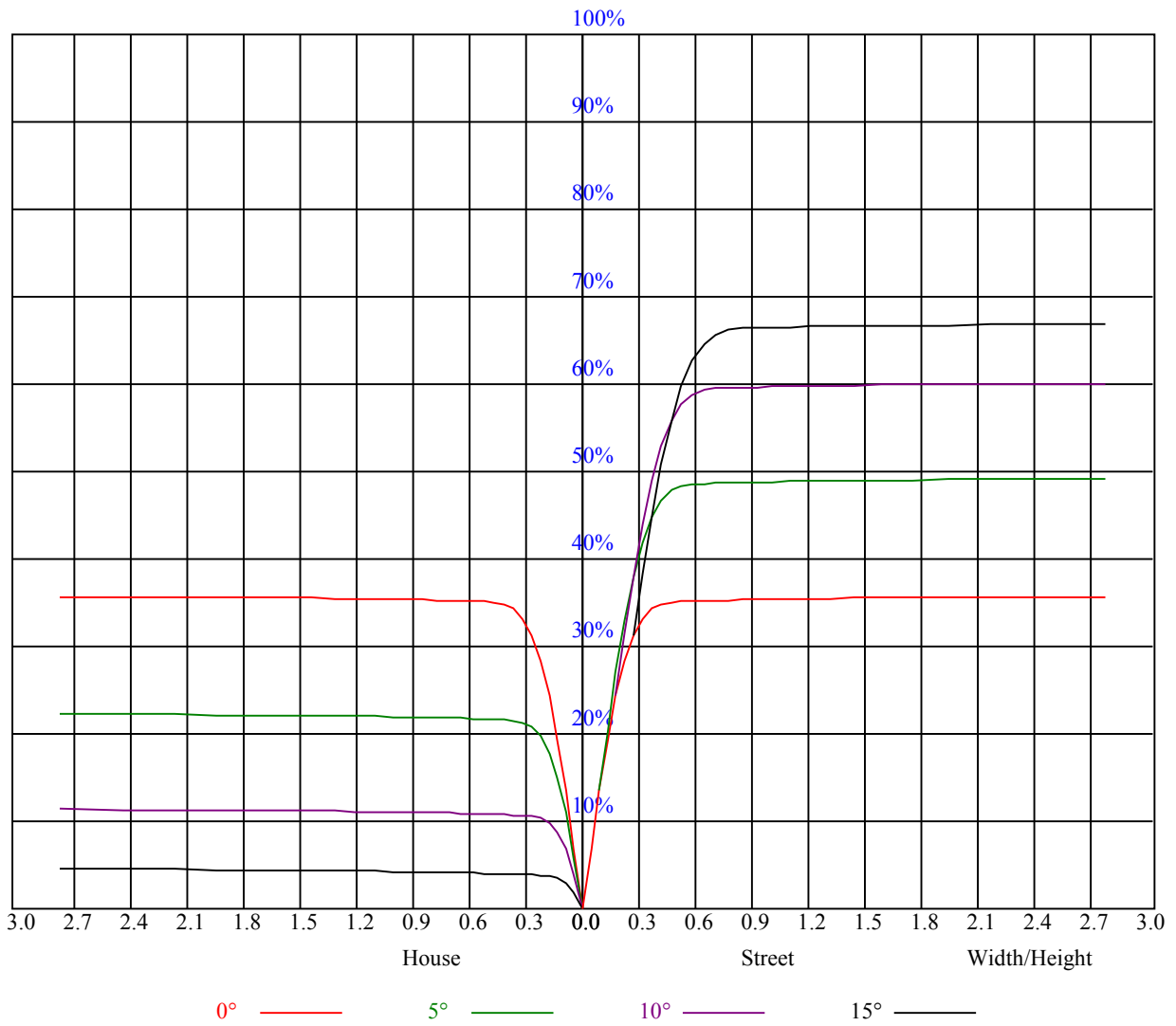
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.86	0.86	0.86	0.84	0.84	0.84	0.80	0.80	0.80	0.77	0.77	0.77	0.73	0.73	0.73	0.72
1	0.81	0.80	0.79	0.80	0.78	0.77	0.77	0.76	0.75	0.74	0.73	0.73	0.72	0.71	0.71	0.69
2	0.78	0.75	0.74	0.76	0.74	0.73	0.74	0.73	0.71	0.72	0.71	0.70	0.70	0.69	0.68	0.67
3	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.69	0.67	0.66	0.65
4	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.68	0.67	0.65	0.67	0.66	0.65	0.64
5	0.70	0.67	0.65	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.66	0.64	0.63	0.62
6	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.64	0.63	0.61	0.61
7	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.59
8	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.62	0.60	0.59	0.62	0.60	0.59	0.58
9	0.62	0.60	0.58	0.62	0.59	0.58	0.62	0.59	0.58	0.61	0.59	0.57	0.61	0.59	0.57	0.57
10	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.60	0.58	0.56	0.59	0.57	0.56	0.55



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	5221.13	5222.25	5188.50	5129.44	5034.38	4874.06	4714.31	4532.06	4325.63
45.0	5225.63	5208.19	5148.00	5066.44	4952.25	4767.75	4587.75	4380.19	4122.00
90.0	5213.25	5169.94	5069.81	4955.06	4810.50	4587.19	4406.63	4145.63	3825.56
135.0	5225.63	5198.06	5140.13	5034.38	4887.56	4726.69	4515.75	4269.94	4026.94
180.0	5221.13	5190.19	5121.56	5010.75	4878.00	4692.38	4500.00	4252.50	3971.25
225.0	5225.63	5216.06	5172.75	5090.06	4979.25	4815.00	4641.19	4415.06	4159.69
270.0	5213.25	5229.56	5214.94	5172.75	5096.25	4952.81	4801.50	4625.44	4395.94
315.0	5225.63	5222.81	5191.88	5133.38	5026.50	4879.69	4722.19	4513.50	4300.88
360.0	5221.13	5222.25	5188.50	5129.44	5034.38	4874.06	4714.31	4532.06	4325.63
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4030.88	3767.06	3489.75	3165.75	2832.19	2530.69	2196.56	1877.06	1612.13
45.0	3840.19	3569.06	3243.94	2912.63	2611.69	2279.25	2001.94	1705.50	1416.38
90.0	3586.50	3266.44	2937.38	2642.63	2348.44	1998.56	1733.06	1478.25	1068.47
135.0	3733.31	3452.63	3123.00	2791.13	2490.19	2196.56	1852.31	1591.88	1342.69
180.0	3700.69	3384.00	3060.00	2768.63	2472.75	2111.06	1835.44	1573.88	1114.88
225.0	3913.31	3649.50	3294.56	3000.94	2702.81	2331.56	2043.56	1765.13	1470.38
270.0	4140.56	3893.06	3593.25	3272.06	2977.31	2636.44	2334.38	2004.19	1695.38
315.0	4029.75	3729.38	3443.63	3112.88	2774.81	2475.00	2180.25	1828.13	1564.88
360.0	4030.88	3767.06	3489.75	3165.75	2832.19	2530.69	2196.56	1877.06	1612.13
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1332.00	1101.38	859.50	640.13	474.19	295.31	222.41	101.08	47.98
45.0	1173.38	960.75	711.00	532.69	370.69	302.63	119.48	59.23	30.09
90.0	961.26	757.52	574.54	375.53	248.06	147.99	71.16	31.50	20.31
135.0	1049.63	844.31	656.44	465.75	299.25	227.81	100.58	42.81	21.66
180.0	1027.80	819.96	606.21	422.83	288.23	169.09	92.42	38.81	21.43
225.0	1109.19	971.27	743.23	539.49	382.11	237.49	140.18	63.84	29.64
270.0	1435.50	1195.88	947.25	719.44	540.56	366.19	297.56	126.34	56.76
315.0	1111.44	1028.53	815.51	625.39	439.54	280.24	172.18	87.64	38.31
360.0	1332.00	1101.38	859.50	640.13	474.19	295.31	222.41	101.08	47.98
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	23.57	18.56	15.86	13.89	12.49	11.42	10.46	9.68	9.11
45.0	19.58	16.43	14.34	12.83	11.53	10.74	9.90	9.28	8.72
90.0	16.20	14.01	12.66	11.42	10.58	9.73	9.06	8.61	8.16
135.0	17.16	14.46	12.77	11.64	10.63	9.96	9.17	8.66	8.21
180.0	17.04	14.57	12.77	11.70	10.80	9.84	9.23	8.72	8.27
225.0	20.76	17.04	14.51	13.16	12.09	10.86	10.07	9.45	8.83
270.0	27.68	19.80	16.14	14.34	12.88	11.64	10.74	9.90	9.28
315.0	23.01	17.55	15.19	13.39	12.21	11.08	10.29	9.45	8.89
360.0	23.57	18.56	15.86	13.89	12.49	11.42	10.46	9.68	9.11
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.55	8.16	7.71	7.37	7.14	6.92	6.69	6.53	6.41
45.0	8.21	7.88	7.54	7.26	7.03	6.86	6.64	6.47	6.41
90.0	7.71	7.43	7.20	6.92	6.75	6.58	6.41	6.30	6.19
135.0	7.76	7.48	7.20	6.98	6.75	6.58	6.47	6.30	6.19
180.0	7.88	7.54	7.26	7.03	6.81	6.64	6.47	6.36	6.19
225.0	8.33	7.93	7.59	7.26	7.03	6.81	6.64	6.53	6.36
270.0	8.72	8.27	7.82	7.48	7.26	6.98	6.75	6.58	6.47
315.0	8.38	7.99	7.54	7.26	7.03	6.81	6.64	6.53	6.36
360.0	8.55	8.16	7.71	7.37	7.14	6.92	6.69	6.53	6.41

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	6.24	6.13	6.02	5.96	5.91	5.79	5.74	5.68	5.63
45.0	6.24	6.13	6.02	5.96	5.91	5.79	5.74	5.68	5.63
90.0	6.08	6.02	5.91	5.85	5.74	5.68	5.63	5.57	5.57
135.0	6.08	6.02	5.91	5.85	5.74	5.68	5.63	5.57	5.57
180.0	6.08	6.02	5.91	5.85	5.79	5.68	5.63	5.63	5.57
225.0	6.19	6.13	6.02	5.91	5.85	5.79	5.74	5.68	5.63
270.0	6.30	6.24	6.13	6.08	5.96	5.85	5.79	5.74	5.68
315.0	6.19	6.13	5.96	5.91	5.85	5.79	5.74	5.63	5.63
360.0	6.24	6.13	6.02	5.96	5.91	5.79	5.74	5.68	5.63
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.57	5.51	5.46	5.40	5.34	5.34	5.34	5.29	5.23
45.0	5.57	5.51	5.46	5.46	5.40	5.40	5.34	5.34	5.29
90.0	5.51	5.46	5.46	5.40	5.40	5.34	5.34	5.29	5.29
135.0	5.46	5.46	5.40	5.34	5.34	5.34	5.29	5.23	5.23
180.0	5.51	5.46	5.40	5.40	5.34	5.34	5.29	5.29	5.23
225.0	5.57	5.51	5.46	5.40	5.40	5.40	5.34	5.34	5.29
270.0	5.63	5.63	5.57	5.51	5.51	5.46	5.40	5.40	5.34
315.0	5.57	5.51	5.46	5.40	5.34	5.34	5.29	5.29	5.29
360.0	5.57	5.51	5.46	5.40	5.34	5.34	5.34	5.29	5.23
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.23	5.23	5.23	5.18	5.18	5.12	5.12	5.06	5.06
45.0	5.29	5.29	5.23	5.23	5.23	5.18	5.18	5.18	5.18
90.0	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.18
135.0	5.18	5.18	5.12	5.12	5.12	5.12	5.12	5.12	5.06
180.0	5.23	5.23	5.18	5.18	5.18	5.12	5.12	5.06	5.06
225.0	5.29	5.23	5.23	5.18	5.18	5.18	5.18	5.12	5.12
270.0	5.34	5.34	5.34	5.29	5.29	5.23	5.23	5.23	5.18
315.0	5.23	5.18	5.18	5.12	5.12	5.12	5.06	5.06	5.01
360.0	5.23	5.23	5.23	5.18	5.18	5.12	5.12	5.06	5.06
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.06	5.06	5.06	5.01	5.01	5.01	5.01	4.95	5.01
45.0	5.18	5.18	5.18	5.12	5.12	5.12	5.06	5.06	5.01
90.0	5.12	5.18	5.12	5.12	5.12	5.12	5.01	4.95	4.89
135.0	5.06	5.01	5.01	5.01	5.01	5.01	5.01	4.95	4.95
180.0	5.06	5.06	5.06	5.01	5.01	5.01	4.95	4.95	5.01
225.0	5.12	5.12	5.06	5.06	5.06	5.06	5.01	5.01	4.95
270.0	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.06	5.06
315.0	5.06	5.01	5.01	5.01	4.95	4.95	4.95	4.95	4.95
360.0	5.06	5.06	5.06	5.01	5.01	5.01	5.01	4.95	5.01
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.95	4.95	4.95	4.95	4.89	4.95	4.95	4.89	4.89
45.0	4.89	4.84	4.84	4.84	4.84	4.84	4.84	4.78	4.78
90.0	4.89	4.89	4.89	4.84	4.84	4.84	4.84	4.84	4.78
135.0	4.95	5.01	4.95	4.89	4.89	4.89	4.84	4.84	4.84
180.0	4.95	4.95	4.95	4.95	4.89	4.89	4.84	4.84	4.84
225.0	4.89	4.84	4.84	4.84	4.78	4.78	4.78	4.78	4.78
270.0	4.95	4.89	4.89	4.84	4.84	4.84	4.84	4.84	4.78
315.0	4.95	4.95	4.95	4.89	4.89	4.89	4.84	4.84	4.84
360.0	4.95	4.95	4.95	4.95	4.89	4.95	4.95	4.89	4.89

Intensity data(cd)

C/ γ (°)	90.0
0.0	4.89
45.0	4.78
90.0	4.78
135.0	4.84
180.0	4.89
225.0	4.78
270.0	4.84
315.0	4.84
360.0	4.89