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Nata

LumCAT: 1-0918-M
Luminaire: 99.02.73.179+92.76.853.00
Report No: 220606-B007
Test No: 220606-C007
LampCAT: CREE CXA1512
Lamp flux(lm): 1404.6
Number of Lamps: 1
Length(mm): 43
Phm Type: C

Voltage(V): 38.0900
Current(A): 0.3610
Power (W): 13.7500
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 1024.79
Efficiency(%): 72.96%
Lumens(lm)/Power(W): 74.53
Central intensity(cd): 9126.658
Maximum intensity(cd): 9126.658
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=35.8
[C90/270]Total=35.8
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.29 C90_270=0.29
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 72.96%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.583%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9126.658	0.000	0	.000%	.000%
1.0	9037.253	8.691	8.691	.619%	.848%
2.0	8757.012	25.540	34.231	1.818%	3.340%
3.0	8237.535	40.645	74.876	2.894%	7.307%
4.0	7522.890	52.755	127.632	3.756%	12.454%
5.0	6728.177	61.307	188.939	4.365%	18.437%
6.0	5891.038	66.317	255.256	4.721%	24.908%
7.0	5029.551	67.784	323.04	4.826%	31.523%
8.0	4334.475	67.017	390.057	4.771%	38.062%
9.0	3658.073	64.775	454.832	4.612%	44.383%
10.0	3102.595	61.182	516.014	4.356%	50.353%
11.0	2685.594	57.836	573.85	4.117%	55.997%
12.0	2314.305	54.656	628.506	3.891%	61.330%
13.0	1974.161	50.893	679.399	3.623%	66.297%
14.0	1708.485	47.138	726.536	3.356%	70.896%
15.0	1451.988	43.388	769.925	3.089%	75.130%
16.0	1221.491	39.174	809.099	2.789%	78.953%
17.0	1069.495	35.677	844.776	2.540%	82.434%
18.0	894.874	32.388	877.164	2.306%	85.595%
19.0	734.886	28.354	905.518	2.019%	88.362%
20.0	587.505	24.203	929.722	1.723%	90.724%
21.0	449.491	19.912	949.634	1.418%	92.667%
22.0	327.700	15.618	965.252	1.112%	94.191%
23.0	231.841	11.741	976.993	.836%	95.336%
24.0	151.011	8.371	985.363	.596%	96.153%
25.0	74.997	5.139	990.502	.366%	96.655%
26.0	40.132	2.718	993.22	.193%	96.920%
27.0	21.787	1.515	994.735	.108%	97.068%
28.0	14.587	0.921	995.656	.066%	97.157%
29.0	11.555	0.684	996.34	.049%	97.224%
30.0	10.270	0.589	996.929	.042%	97.282%
31.0	9.381	0.547	997.476	.039%	97.335%
32.0	8.739	0.519	997.995	.037%	97.386%
33.0	8.231	0.500	998.495	.036%	97.435%
34.0	7.723	0.483	998.978	.034%	97.482%
35.0	7.342	0.468	999.445	.033%	97.527%
36.0	7.013	0.457	999.903	.033%	97.572%
37.0	6.722	0.448	1000.351	.032%	97.616%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	6.461	0.440	1000.791	.031%	97.659%
39.0	6.274	0.435	1001.225	.031%	97.701%
40.0	6.057	0.430	1001.655	.031%	97.743%
41.0	5.908	0.426	1002.081	.030%	97.785%
42.0	5.781	0.425	1002.506	.030%	97.826%
43.0	5.647	0.423	1002.929	.030%	97.867%
44.0	5.542	0.422	1003.352	.030%	97.908%
45.0	5.430	0.422	1003.773	.030%	97.950%
46.0	5.355	0.422	1004.195	.030%	97.991%
47.0	5.281	0.423	1004.618	.030%	98.032%
48.0	5.221	0.425	1005.043	.030%	98.073%
49.0	5.139	0.425	1005.468	.030%	98.115%
50.0	5.079	0.426	1005.894	.030%	98.157%
51.0	5.034	0.428	1006.322	.030%	98.198%
52.0	4.982	0.430	1006.752	.031%	98.240%
53.0	4.937	0.431	1007.183	.031%	98.282%
54.0	4.907	0.434	1007.617	.031%	98.325%
55.0	4.862	0.436	1008.053	.031%	98.367%
56.0	4.833	0.438	1008.491	.031%	98.410%
57.0	4.795	0.440	1008.932	.031%	98.453%
58.0	4.773	0.442	1009.374	.031%	98.496%
59.0	4.750	0.445	1009.819	.032%	98.540%
60.0	4.735	0.448	1010.267	.032%	98.583%
61.0	4.691	0.450	1010.717	.032%	98.627%
62.0	4.683	0.452	1011.169	.032%	98.671%
63.0	4.661	0.454	1011.623	.032%	98.716%
64.0	4.653	0.457	1012.08	.033%	98.760%
65.0	4.646	0.460	1012.541	.033%	98.805%
66.0	4.646	0.464	1013.004	.033%	98.850%
67.0	4.623	0.466	1013.47	.033%	98.896%
68.0	4.616	0.468	1013.938	.033%	98.942%
69.0	4.608	0.471	1014.409	.034%	98.987%
70.0	4.608	0.473	1014.882	.034%	99.034%
71.0	4.608	0.476	1015.359	.034%	99.080%
72.0	4.594	0.478	1015.837	.034%	99.127%
73.0	4.616	0.482	1016.319	.034%	99.174%
74.0	4.638	0.487	1016.805	.035%	99.221%
75.0	4.638	0.490	1017.295	.035%	99.269%

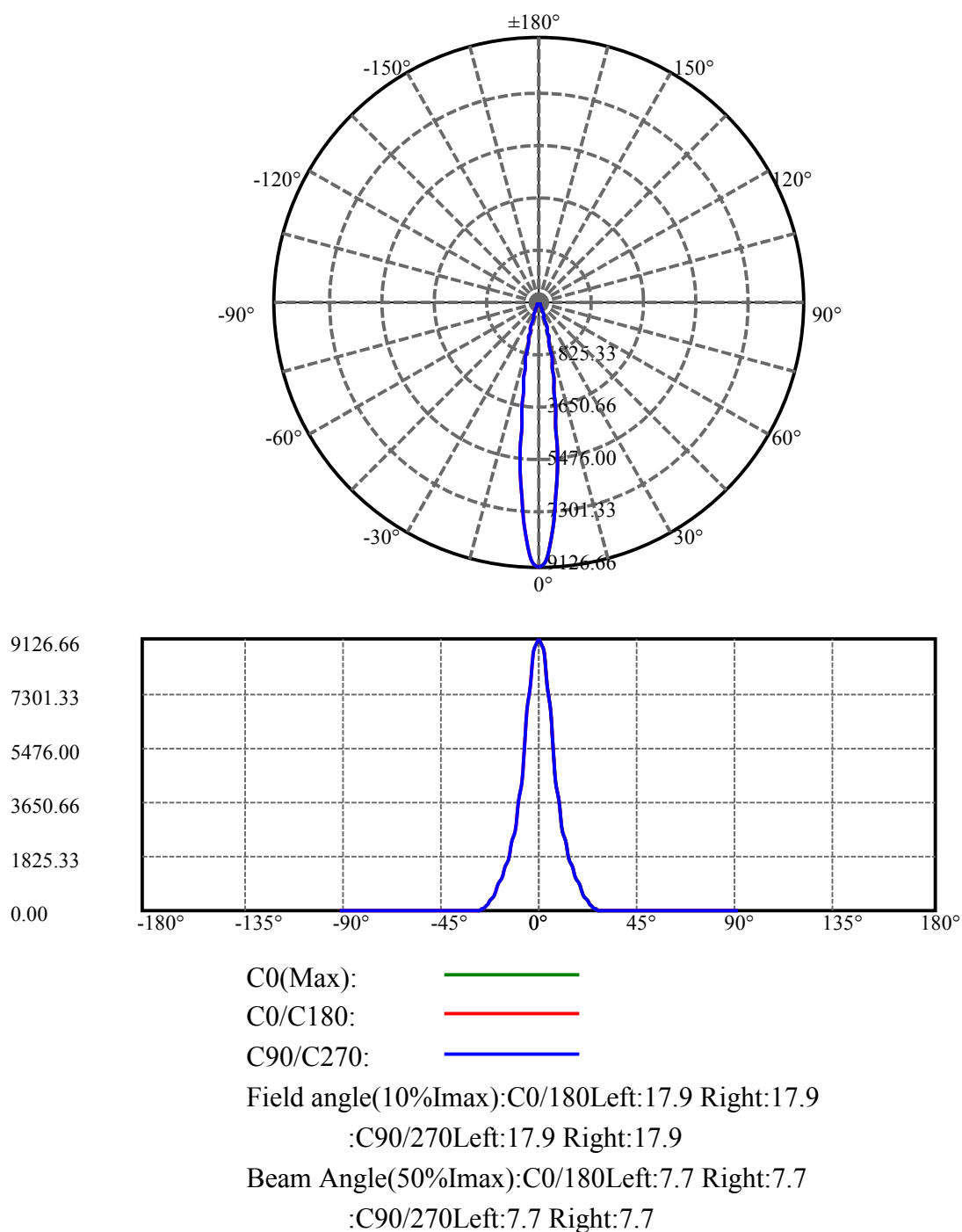
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.638	0.492	1017.788	.035%	99.317%
77.0	4.653	0.495	1018.283	.035%	99.365%
78.0	4.638	0.497	1018.78	.035%	99.414%
79.0	4.631	0.498	1019.279	.035%	99.463%
80.0	4.631	0.499	1019.778	.036%	99.511%
81.0	4.661	0.502	1020.28	.036%	99.560%
82.0	4.706	0.508	1020.788	.036%	99.610%
83.0	4.750	0.514	1021.302	.037%	99.660%
84.0	4.795	0.520	1021.822	.037%	99.711%
85.0	4.780	0.523	1022.345	.037%	99.762%
86.0	4.743	0.521	1022.865	.037%	99.813%
87.0	4.369	0.499	1023.364	.036%	99.861%
88.0	4.317	0.476	1023.84	.034%	99.908%
89.0	4.310	0.473	1024.313	.034%	99.954%
90.0	4.310	0.473	1024.785	.034%	100.000%

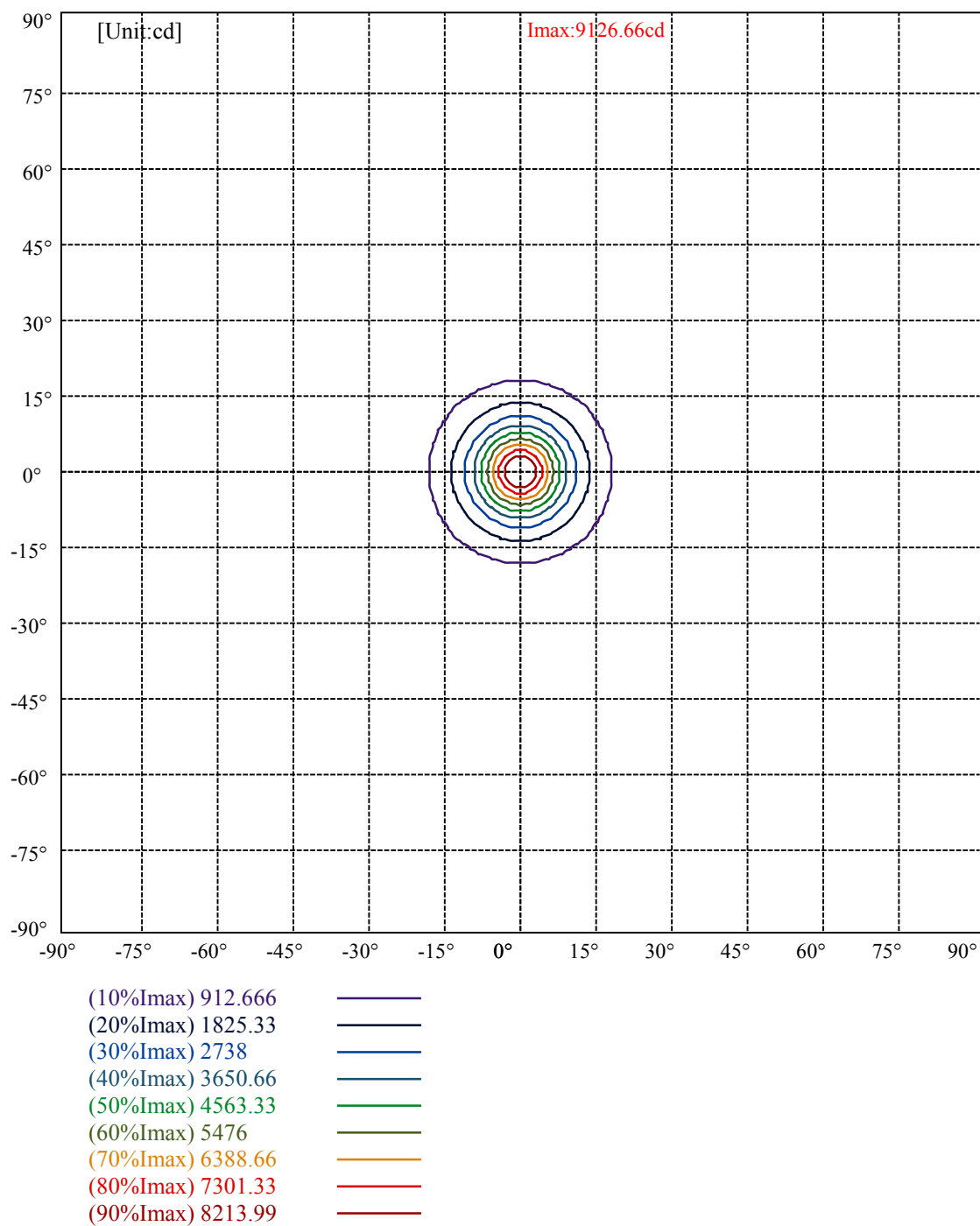
ZONAL LUMEN SUMMARY

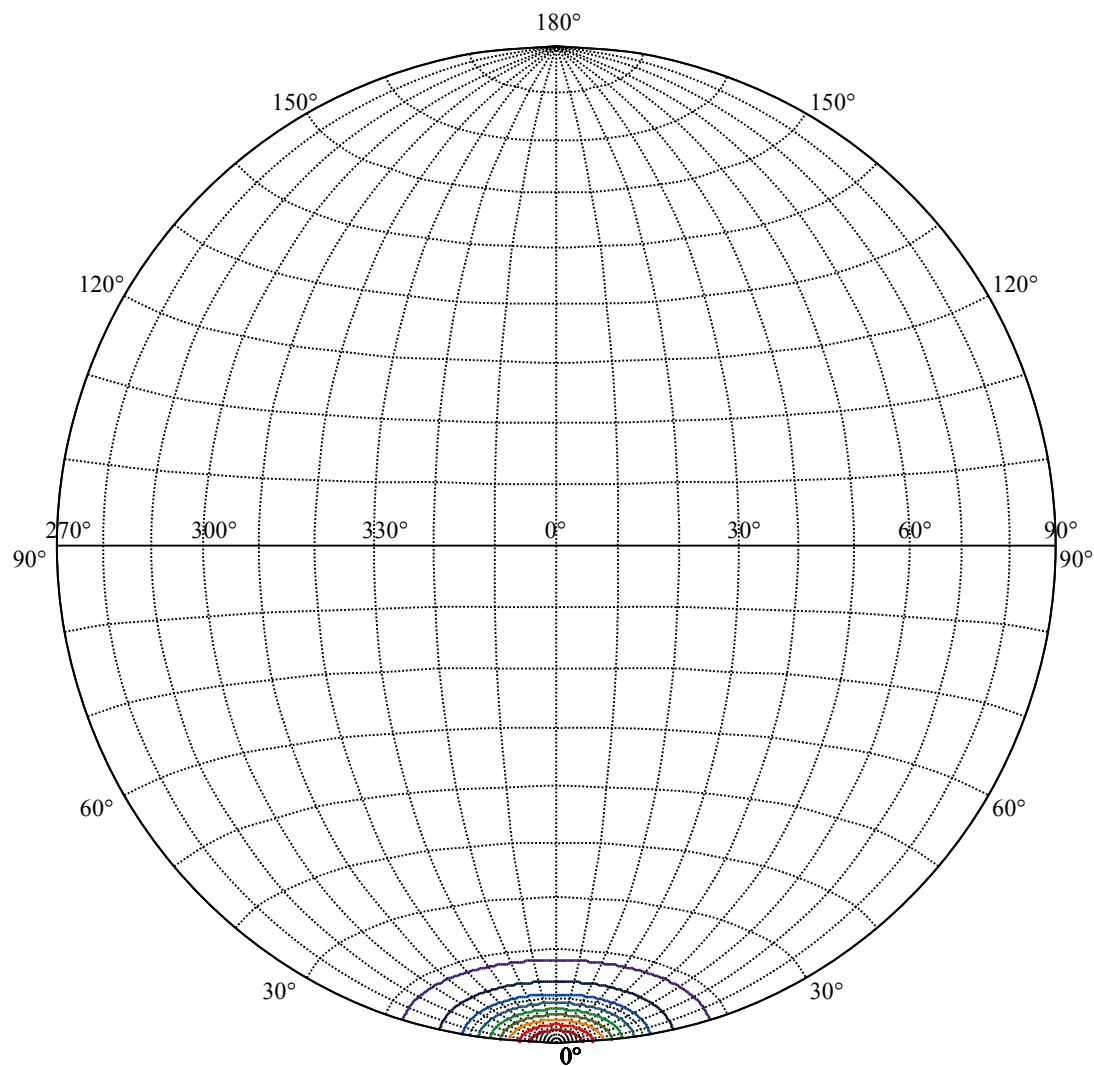
Zone	Lumens	%Lamp	%Fixt
0-30	996.93	70.97%	97.28%
0-40	1001.66	71.31%	97.74%
0-60	1010.27	71.92%	98.58%
0-90	1024.31	72.92%	99.95%
0-120	1024.31	72.92%	99.95%
0-180	1024.79	72.96%	100.00%
60-90	14.49	1.03%	1.41%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.30	819.83	58.37%	80.00%

ZONAL LUMEN SUMMARY

0-10	516.01
10-20	413.71
20-30	67.21
30-40	4.73
40-50	4.24
50-60	4.37
60-70	4.61
70-80	4.90
80-90	4.53
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





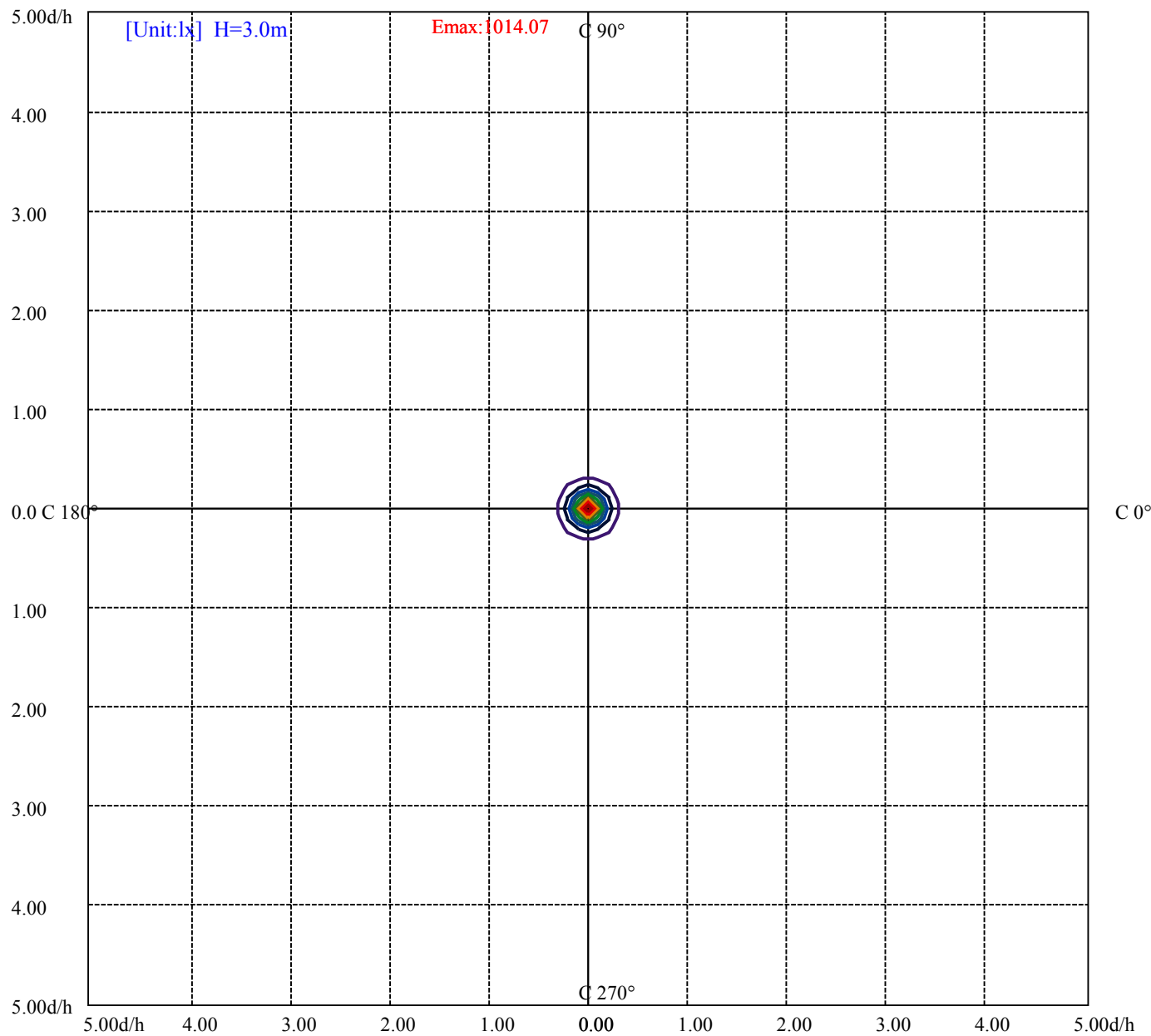


House

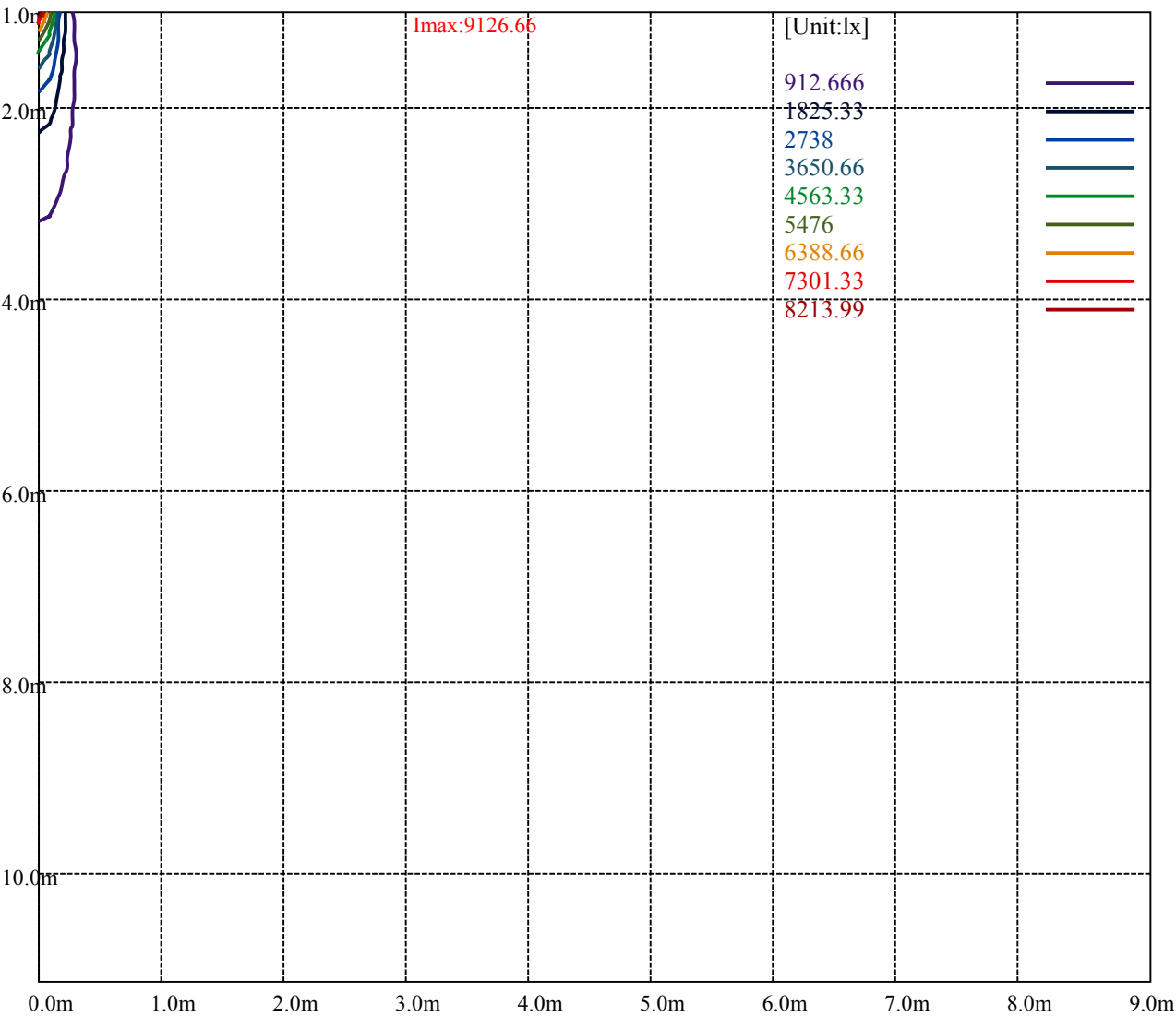
[Unit:cd]

Road

Imax:9126.66	
(10%Imax) 912.666	_____
(20%Imax) 1825.33	_____
(30%Imax) 2738	_____
(40%Imax) 3650.66	_____
(50%Imax) 4563.33	_____
(60%Imax) 5476	_____
(70%Imax) 6388.66	_____
(80%Imax) 7301.33	_____
(90%Imax) 8213.99	_____



(10%E _{max}) 101.4071	—
(20%E _{max}) 202.8144	—
(30%E _{max}) 304.2211	—
(40%E _{max}) 405.6289	—
(50%E _{max}) 507.0355	—
(60%E _{max}) 608.4434	—
(70%E _{max}) 709.85	—
(80%E _{max}) 811.2578	—
(90%E _{max}) 912.6645	—



Luminance Table

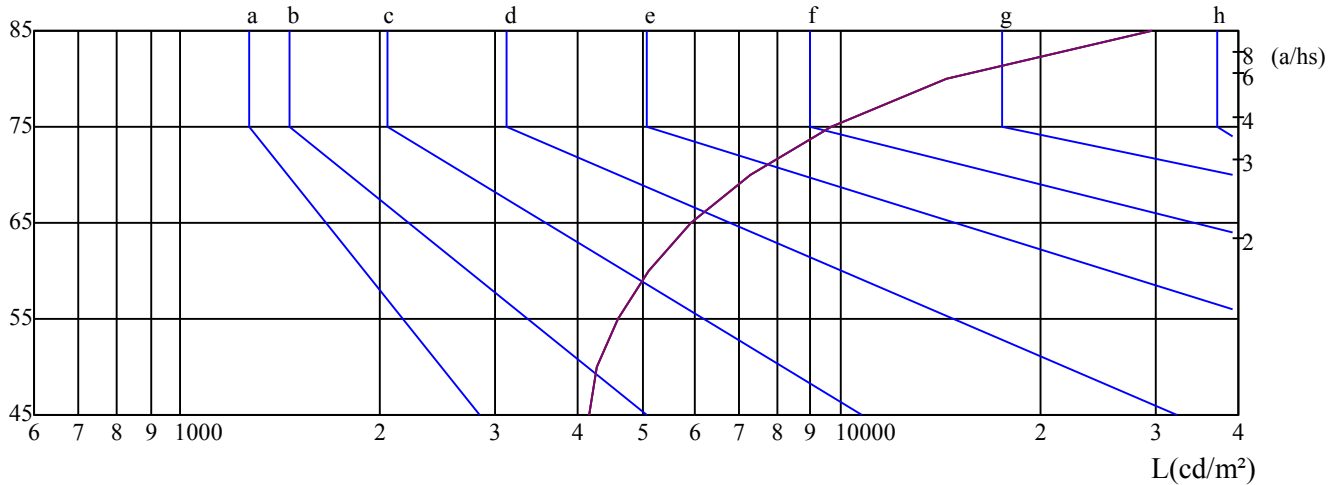
γ	45	50	55	60	65	70	75	80	85
C0	4153	4273	4585	5122	5945	7287	9692	14423	29663
C45	4153	4273	4585	5122	5945	7287	9692	14423	29663
C90	4153	4273	4585	5122	5945	7287	9692	14423	29663

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5945	5945	5945	9692	9692	9692	29663	29663	29663

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

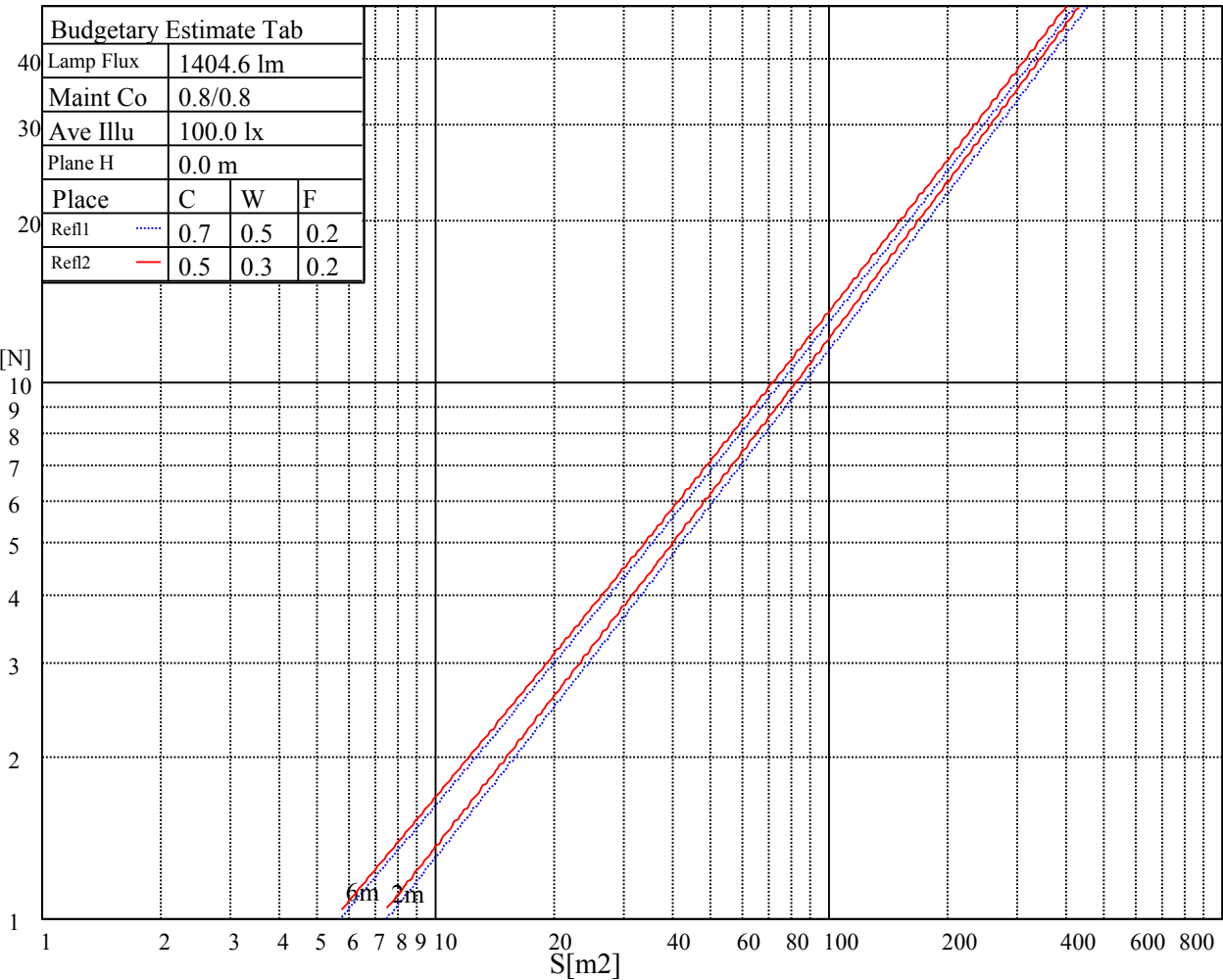
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

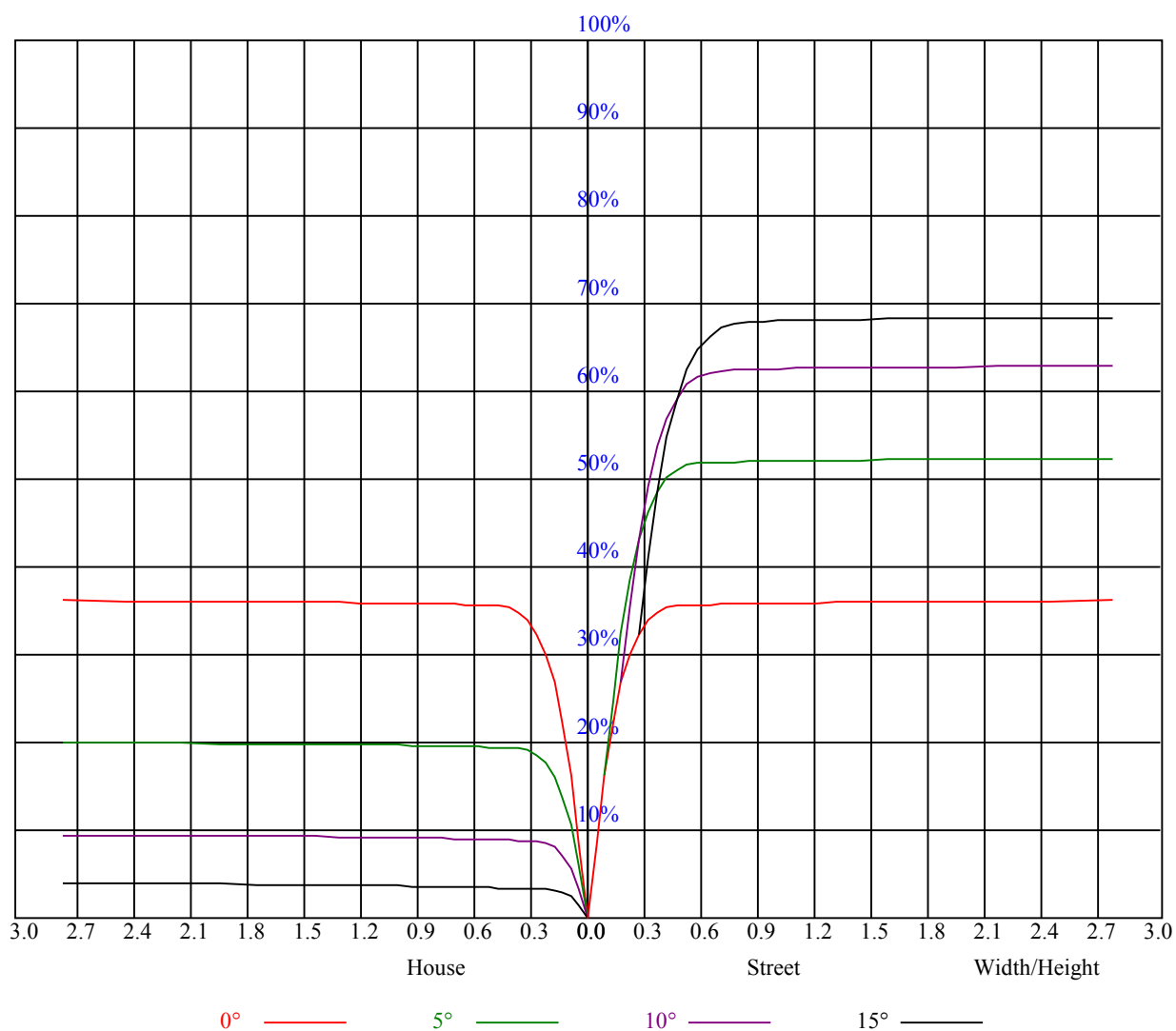
C0 ———

C45 ———

C90 ———



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	0.87	0.87	0.87	0.85	0.85	0.85	0.81	0.81	0.81	0.78	0.78	0.78	0.74	0.74	0.74	0.73
1	0.83	0.81	0.80	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.72	0.72	0.71
2	0.79	0.77	0.75	0.78	0.76	0.75	0.76	0.74	0.73	0.74	0.72	0.71	0.72	0.71	0.70	0.69
3	0.76	0.74	0.72	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.69	0.70	0.69	0.68	0.67
4	0.74	0.71	0.69	0.73	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.69	0.68	0.67	0.66
5	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.68	0.67	0.65	0.65
6	0.70	0.67	0.65	0.69	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.67	0.65	0.64	0.63
7	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.66	0.65	0.63	0.66	0.64	0.63	0.62
8	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.65	0.63	0.62	0.61
9	0.65	0.63	0.61	0.65	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.61	0.64	0.62	0.61	0.60
10	0.64	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.63	0.61	0.60	0.63	0.61	0.60	0.59



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Intensity data(cd)									Appendix Page: 16 Total:18
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	9069.89	9118.89	9017.31	8663.57	8127.59	7336.46	6487.97	5726.72	4985.78
45.0	9143.99	9023.88	8659.39	8131.77	7359.17	6506.49	5714.17	4851.34	4171.95
90.0	9135.62	8976.08	8631.90	8012.27	7220.54	6451.52	5647.25	4672.68	3994.48
135.0	9157.13	9093.20	8802.20	8284.74	7631.04	6791.51	5885.06	5094.53	4375.70
180.0	9069.89	8805.78	8347.48	7642.40	6820.79	6036.84	5234.95	4312.96	3692.73
225.0	9143.99	9102.16	8893.62	8358.83	7717.09	6976.75	5990.83	5218.82	4497.60
270.0	9135.62	9128.45	8939.03	8612.78	7860.49	7027.54	6249.56	5378.36	4649.97
315.0	9157.13	9049.58	8765.15	8193.92	7446.41	6698.30	5918.52	4981.00	4307.59
360.0	9069.89	9118.89	9017.31	8663.57	8127.59	7336.46	6487.97	5726.72	4985.78
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4162.98	3604.29	3125.67	2669.16	2283.16	1988.58	1709.53	1464.54	1264.37
45.0	3521.84	2978.08	2576.55	2237.75	1881.62	1645.59	1435.86	1196.85	1019.38
90.0	3354.53	2828.10	2442.70	2077.61	1807.53	1549.99	1178.45	1131.78	962.44
135.0	3601.90	3084.44	2647.65	2283.16	1903.13	1654.56	1440.04	1200.44	1022.97
180.0	3162.72	2620.76	2273.00	1970.65	1689.21	1447.22	1181.73	1049.92	891.57
225.0	3794.31	3215.30	2778.51	2362.63	2052.51	1759.72	1506.97	1184.66	1115.59
270.0	3938.91	3360.50	2918.33	2538.90	2140.35	1870.27	1631.85	1364.16	1170.56
315.0	3727.39	3129.26	2722.34	2374.58	2035.78	1751.96	1531.47	1179.58	1109.07
360.0	4162.98	3604.29	3125.67	2669.16	2283.16	1988.58	1709.53	1464.54	1264.37
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1063.00	908.84	745.72	588.57	459.50	328.64	302.35	138.09	78.75
45.0	866.42	699.71	546.14	416.48	310.12	185.95	116.70	57.72	29.46
90.0	795.25	637.80	503.72	370.41	257.36	173.88	106.96	49.00	25.93
135.0	868.81	703.29	550.32	421.86	305.34	241.40	119.33	60.59	31.55
180.0	723.91	569.03	439.72	314.60	208.60	133.91	76.24	33.52	20.14
225.0	914.28	766.21	625.73	477.01	345.13	243.25	149.50	80.07	40.87
270.0	998.47	829.37	668.63	532.40	391.98	308.92	178.54	101.88	53.66
315.0	928.86	764.84	620.06	474.62	343.58	238.77	158.46	79.11	40.69
360.0	1063.00	908.84	745.72	588.57	459.50	328.64	302.35	138.09	78.75
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	36.87	20.02	14.58	11.89	10.34	9.62	9.08	8.37	7.89
45.0	17.99	13.03	10.88	9.92	9.14	8.54	8.07	7.53	7.17
90.0	18.22	12.79	10.46	9.62	8.90	8.25	7.77	7.41	7.05
135.0	18.88	13.62	10.70	9.62	8.84	8.37	7.89	7.41	7.05
180.0	15.00	10.99	9.62	8.96	8.43	7.83	7.41	7.05	6.75
225.0	20.55	15.36	11.83	10.58	9.68	8.96	8.43	7.95	7.59
270.0	25.10	16.49	12.61	11.05	10.04	9.38	8.84	8.19	7.77
315.0	21.69	14.40	11.77	10.52	9.68	8.96	8.37	7.89	7.47
360.0	36.87	20.02	14.58	11.89	10.34	9.62	9.08	8.37	7.89
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	7.47	7.05	6.69	6.45	6.15	5.98	5.80	5.68	5.56
45.0	6.87	6.63	6.33	6.15	5.98	5.86	5.74	5.56	5.50
90.0	6.75	6.51	6.27	6.15	5.92	5.80	5.68	5.56	5.44
135.0	6.81	6.57	6.33	6.15	5.92	5.80	5.68	5.56	5.44
180.0	6.51	6.27	6.09	5.92	5.80	5.62	5.56	5.38	5.32
225.0	7.17	6.87	6.63	6.45	6.15	6.04	5.92	5.80	5.68
270.0	7.47	7.11	6.81	6.63	6.45	6.27	6.09	5.98	5.86
315.0	7.05	6.75	6.51	6.27	6.09	5.92	5.80	5.68	5.56
360.0	7.47	7.05	6.69	6.45	6.15	5.98	5.80	5.68	5.56

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	5.44	5.32	5.26	5.14	5.08	5.02	4.96	4.90	4.90
45.0	5.38	5.32	5.26	5.20	5.14	5.08	5.02	4.96	4.90
90.0	5.32	5.26	5.20	5.14	5.08	5.02	4.96	4.90	4.84
135.0	5.38	5.26	5.20	5.14	5.02	4.96	4.96	4.90	4.84
180.0	5.20	5.14	5.08	5.02	4.96	4.90	4.84	4.78	4.78
225.0	5.56	5.44	5.32	5.26	5.20	5.14	5.08	5.02	4.96
270.0	5.74	5.68	5.62	5.56	5.44	5.38	5.38	5.32	5.26
315.0	5.44	5.44	5.32	5.32	5.20	5.14	5.08	5.08	5.02
360.0	5.44	5.32	5.26	5.14	5.08	5.02	4.96	4.90	4.90
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.84	4.78	4.72	4.72	4.72	4.66	4.66	4.60	4.60
45.0	4.84	4.84	4.78	4.78	4.72	4.72	4.72	4.66	4.66
90.0	4.84	4.78	4.78	4.72	4.72	4.66	4.66	4.60	4.60
135.0	4.84	4.78	4.72	4.72	4.66	4.66	4.66	4.60	4.60
180.0	4.72	4.66	4.66	4.60	4.60	4.60	4.60	4.48	4.48
225.0	4.96	4.90	4.90	4.84	4.78	4.78	4.72	4.72	4.66
270.0	5.20	5.20	5.14	5.08	5.08	5.08	5.02	5.02	5.02
315.0	5.02	4.96	4.96	4.90	4.90	4.84	4.84	4.84	4.84
360.0	4.84	4.78	4.72	4.72	4.72	4.66	4.66	4.60	4.60
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.60	4.54	4.54	4.54	4.48	4.48	4.48	4.48	4.48
45.0	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.54
90.0	4.54	4.54	4.54	4.54	4.54	4.48	4.48	4.48	4.48
135.0	4.54	4.60	4.54	4.54	4.48	4.48	4.48	4.48	4.48
180.0	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.42	4.42
225.0	4.72	4.66	4.66	4.66	4.60	4.60	4.54	4.60	4.60
270.0	5.02	5.02	5.02	5.02	5.02	4.96	5.02	5.02	5.08
315.0	4.78	4.78	4.78	4.78	4.78	4.84	4.78	4.78	4.78
360.0	4.60	4.54	4.54	4.54	4.48	4.48	4.48	4.48	4.48
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.48
45.0	4.54	4.54	4.60	4.60	4.60	4.60	4.60	4.60	4.60
90.0	4.48	4.48	4.48	4.48	4.48	4.54	4.48	4.54	4.54
135.0	4.48	4.48	4.48	4.48	4.48	4.42	4.42	4.48	4.48
180.0	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.36	4.42
225.0	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.48	4.48
270.0	5.08	5.20	5.32	5.32	5.32	5.44	5.32	5.26	5.14
315.0	4.78	4.84	4.84	4.84	4.84	4.84	4.90	4.90	4.90
360.0	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.48
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.48	4.48	4.54	4.54	4.60	4.60	4.60	4.30	4.24
45.0	4.66	4.66	4.72	4.78	4.72	4.36	4.36	4.36	4.36
90.0	4.54	4.54	4.60	4.60	4.36	4.30	4.30	4.30	4.36
135.0	4.54	4.54	4.48	4.54	4.42	4.30	4.30	4.24	4.30
180.0	4.42	4.48	4.48	4.48	4.30	4.30	4.24	4.30	4.24
225.0	4.48	4.54	4.48	4.48	4.54	4.54	4.36	4.36	4.36
270.0	5.26	5.44	5.62	5.74	5.80	5.74	4.48	4.36	4.30
315.0	4.90	4.96	5.08	5.20	5.50	5.80	4.30	4.30	4.30
360.0	4.48	4.48	4.54	4.54	4.60	4.60	4.60	4.30	4.24

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	4.30
45.0	4.36
90.0	4.30
135.0	4.30
180.0	4.30
225.0	4.36
270.0	4.30
315.0	4.24
360.0	4.30