



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 2-2181-M	
Luminaire: BJB 47.360.1010	
Report No: NATA0100	Voltage(V): 34.7500
Test No: GC2020021304	Current(A): 0.5970
LampCAT: BRIDGELUX V13B	Power (W): 20.7400
Lamp flux(lm): 2986.0	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): 2351.18
Efficiency(%): 78.74%
Lumens(lm)/Power(W): 113.36
Central intensity(cd): 10942.730
Maximum intensity(cd): 10942.730
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=24.3
[C90/270]Total=24.3
Field angle(10%Imax): [C0/180]Total=46.5
[C90/270]Total=46.5
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
Maximum s/h(1/4): C0_180=0.42 C90_270=0.42
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.74%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.986%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10942.734	0.000	0	.000%	.000%
1.0	10888.805	10.446	10.446	.350%	.444%
2.0	10743.117	31.048	41.494	1.040%	1.765%
3.0	10493.297	50.791	92.285	1.701%	3.925%
4.0	10176.258	69.188	161.472	2.317%	6.868%
5.0	9801.844	85.945	247.417	2.878%	10.523%
6.0	9269.086	100.223	347.64	3.356%	14.786%
7.0	8720.648	111.662	459.302	3.740%	19.535%
8.0	8159.766	120.810	580.112	4.046%	24.673%
9.0	7493.273	126.859	706.971	4.248%	30.069%
10.0	6798.727	129.337	836.308	4.331%	35.570%
11.0	6186.867	129.753	966.061	4.345%	41.088%
12.0	5569.734	128.516	1094.578	4.304%	46.554%
13.0	4903.313	124.289	1218.866	4.162%	51.841%
14.0	4388.344	118.932	1337.799	3.983%	56.899%
15.0	3897.984	113.758	1451.557	3.810%	61.738%
16.0	3423.375	107.278	1558.836	3.593%	66.300%
17.0	2985.328	99.801	1658.636	3.342%	70.545%
18.0	2622.656	92.464	1751.1	3.097%	74.478%
19.0	2278.477	85.270	1836.37	2.856%	78.104%
20.0	1973.953	77.831	1914.201	2.607%	81.415%
21.0	1692.070	70.395	1984.596	2.358%	84.409%
22.0	1419.223	62.523	2047.119	2.094%	87.068%
23.0	1146.157	53.829	2100.947	1.803%	89.357%
24.0	946.709	45.758	2146.705	1.532%	91.303%
25.0	714.094	37.763	2184.468	1.265%	92.910%
26.0	535.992	29.508	2213.976	.988%	94.165%
27.0	374.808	22.283	2236.259	.746%	95.112%
28.0	229.746	15.306	2251.565	.513%	95.763%
29.0	119.489	9.137	2260.702	.306%	96.152%
30.0	48.713	4.541	2265.244	.152%	96.345%
31.0	23.505	2.010	2267.253	.067%	96.431%
32.0	19.976	1.246	2268.499	.042%	96.484%
33.0	19.020	1.149	2269.648	.038%	96.532%
34.0	18.239	1.128	2270.775	.038%	96.580%
35.0	17.655	1.115	2271.89	.037%	96.628%
36.0	17.220	1.110	2273.001	.037%	96.675%
37.0	16.826	1.110	2274.111	.037%	96.722%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	16.538	1.114	2275.224	.037%	96.770%
39.0	16.298	1.121	2276.345	.038%	96.817%
40.0	16.102	1.130	2277.475	.038%	96.865%
41.0	15.926	1.140	2278.616	.038%	96.914%
42.0	15.785	1.152	2279.768	.039%	96.963%
43.0	15.666	1.165	2280.933	.039%	97.012%
44.0	15.581	1.179	2282.112	.039%	97.063%
45.0	15.504	1.195	2283.307	.040%	97.113%
46.0	15.398	1.209	2284.515	.040%	97.165%
47.0	15.356	1.223	2285.739	.041%	97.217%
48.0	15.363	1.242	2286.98	.042%	97.270%
49.0	15.384	1.263	2288.243	.042%	97.323%
50.0	15.398	1.283	2289.527	.043%	97.378%
51.0	15.434	1.304	2290.831	.044%	97.433%
52.0	15.511	1.328	2292.159	.044%	97.490%
53.0	15.539	1.351	2293.51	.045%	97.547%
54.0	15.652	1.375	2294.884	.046%	97.606%
55.0	15.771	1.403	2296.287	.047%	97.665%
56.0	15.940	1.433	2297.72	.048%	97.726%
57.0	16.137	1.467	2299.186	.049%	97.789%
58.0	16.376	1.503	2300.69	.050%	97.853%
59.0	16.629	1.543	2302.233	.052%	97.918%
60.0	16.917	1.585	2303.818	.053%	97.986%
61.0	17.262	1.631	2305.449	.055%	98.055%
62.0	17.543	1.677	2307.126	.056%	98.126%
63.0	17.845	1.721	2308.847	.058%	98.200%
64.0	18.190	1.768	2310.615	.059%	98.275%
65.0	18.506	1.816	2312.431	.061%	98.352%
66.0	18.823	1.862	2314.294	.062%	98.431%
67.0	19.266	1.915	2316.209	.064%	98.513%
68.0	19.849	1.981	2318.19	.066%	98.597%
69.0	20.229	2.045	2320.235	.068%	98.684%
70.0	20.264	2.080	2322.315	.070%	98.772%
71.0	20.067	2.085	2324.399	.070%	98.861%
72.0	19.702	2.068	2326.467	.069%	98.949%
73.0	18.675	2.007	2328.474	.067%	99.034%
74.0	17.445	1.899	2330.373	.064%	99.115%
75.0	15.954	1.765	2332.137	.059%	99.190%

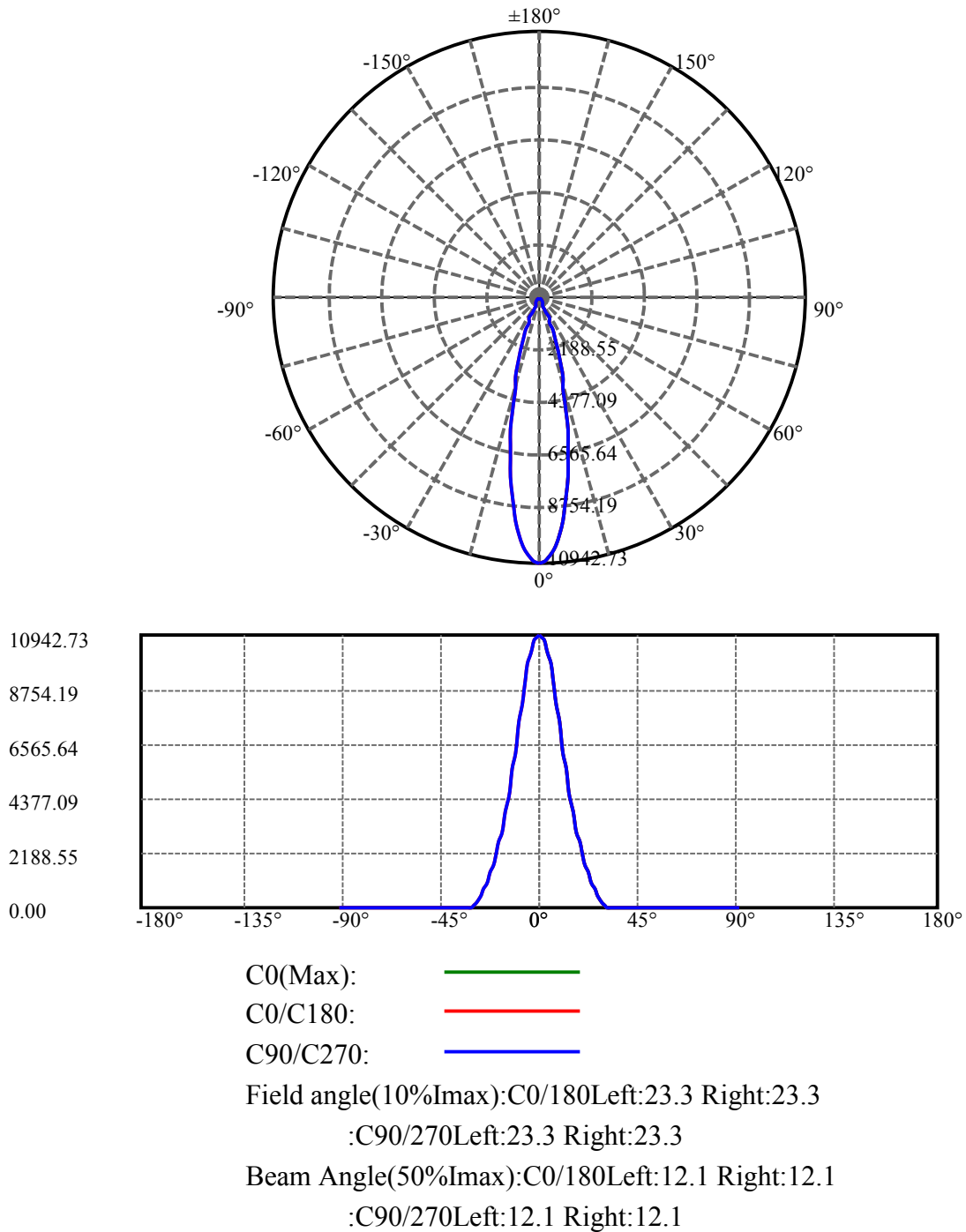
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	14.590	1.621	2333.759	.054%	99.259%
77.0	13.458	1.495	2335.254	.050%	99.323%
78.0	12.530	1.391	2336.645	.047%	99.382%
79.0	12.178	1.328	2337.973	.044%	99.438%
80.0	11.918	1.299	2339.272	.044%	99.494%
81.0	11.693	1.277	2340.549	.043%	99.548%
82.0	11.461	1.256	2341.804	.042%	99.601%
83.0	11.313	1.238	2343.042	.041%	99.654%
84.0	11.152	1.224	2344.266	.041%	99.706%
85.0	11.081	1.213	2345.48	.041%	99.758%
86.0	11.081	1.211	2346.691	.041%	99.809%
87.0	10.666	1.190	2347.881	.040%	99.860%
88.0	10.076	1.136	2349.018	.038%	99.908%
89.0	9.773	1.088	2350.106	.036%	99.954%
90.0	9.745	1.070	2351.176	.036%	100.000%

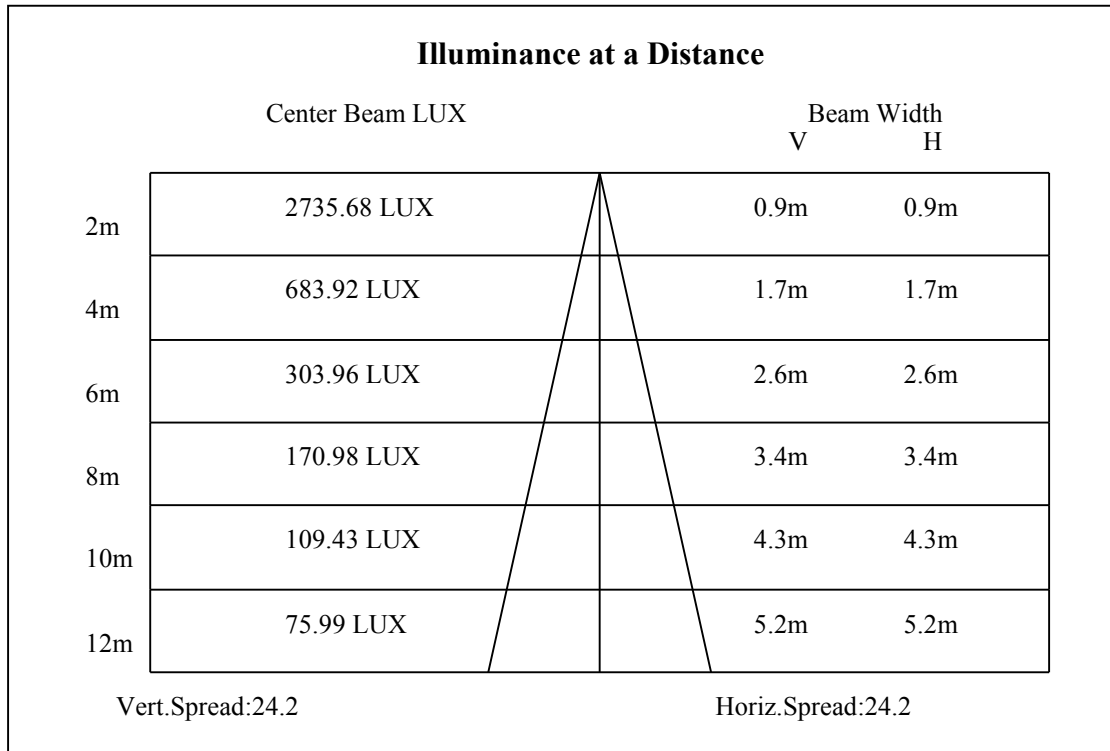
ZONAL LUMEN SUMMARY

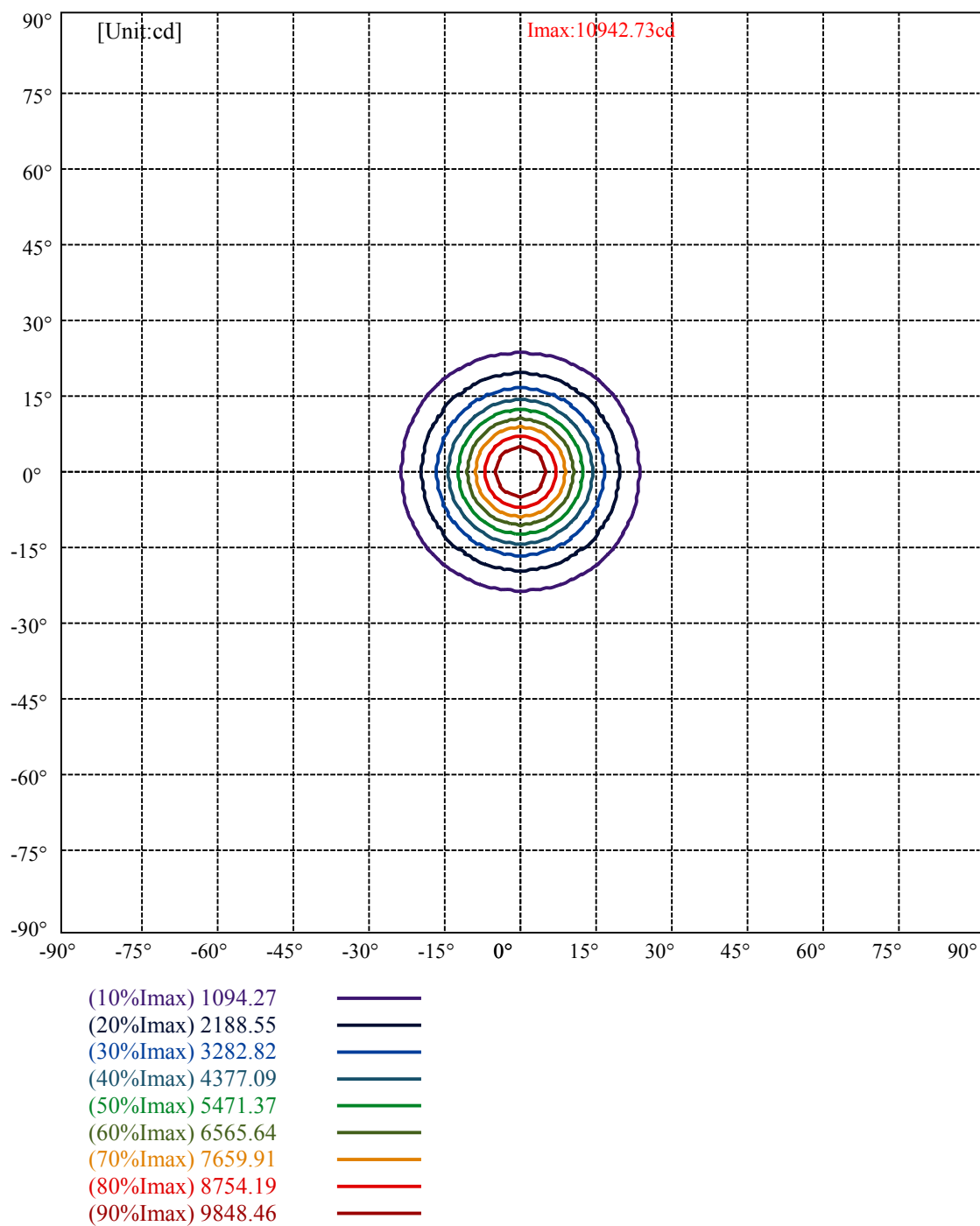
Zone	Lumens	%Lamp	%Fixt
0-30	2265.24	75.86%	96.35%
0-40	2277.48	76.27%	96.87%
0-60	2303.82	77.15%	97.99%
0-90	2350.11	78.70%	99.95%
0-120	2350.11	78.70%	99.95%
0-180	2351.18	78.74%	100.00%
60-90	47.87	1.60%	2.04%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-19.57	1880.94	62.99%	80.00%

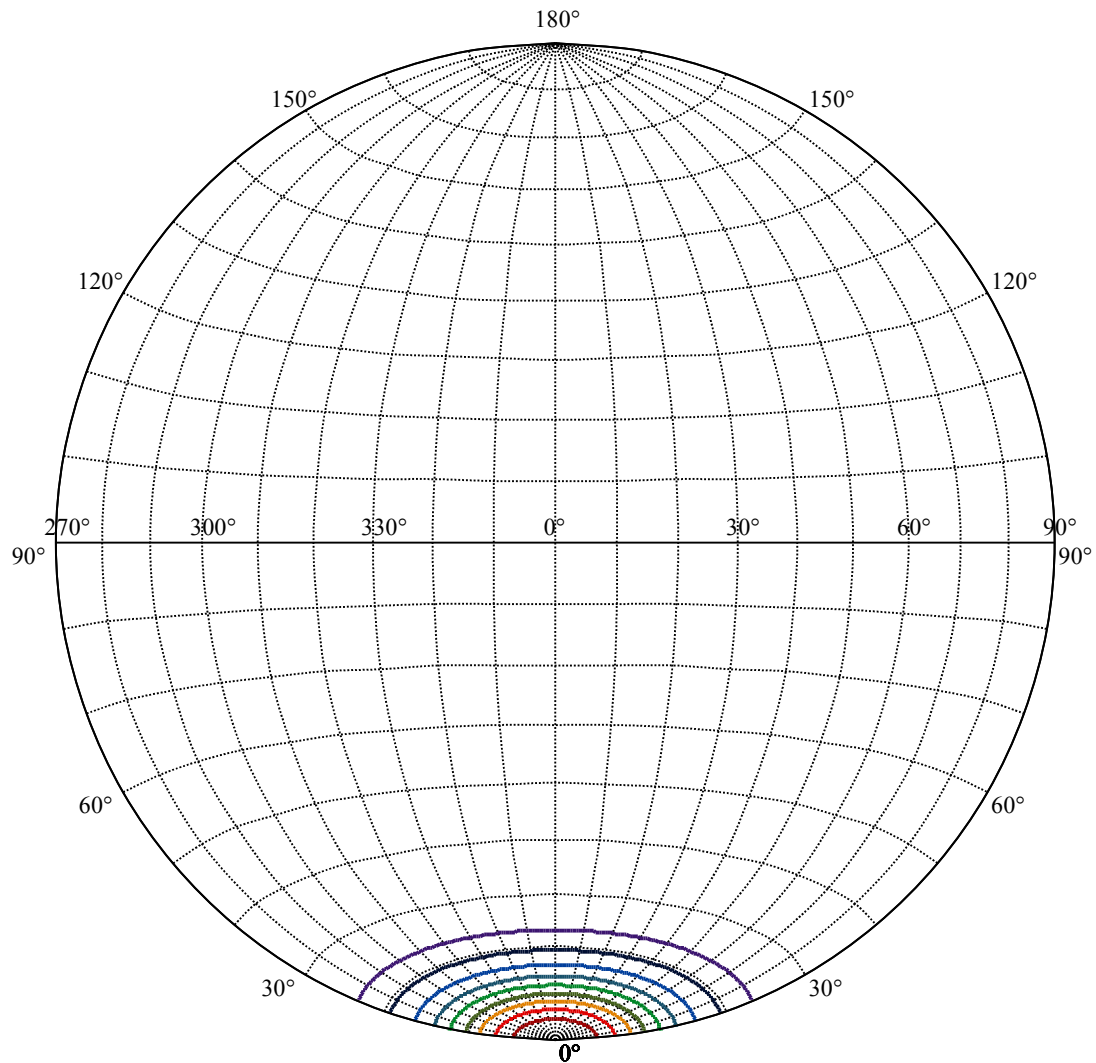
ZONAL LUMEN SUMMARY

0-10	836.31
10-20	1077.89
20-30	351.04
30-40	12.23
40-50	12.05
50-60	14.29
60-70	18.50
70-80	16.96
80-90	10.83
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









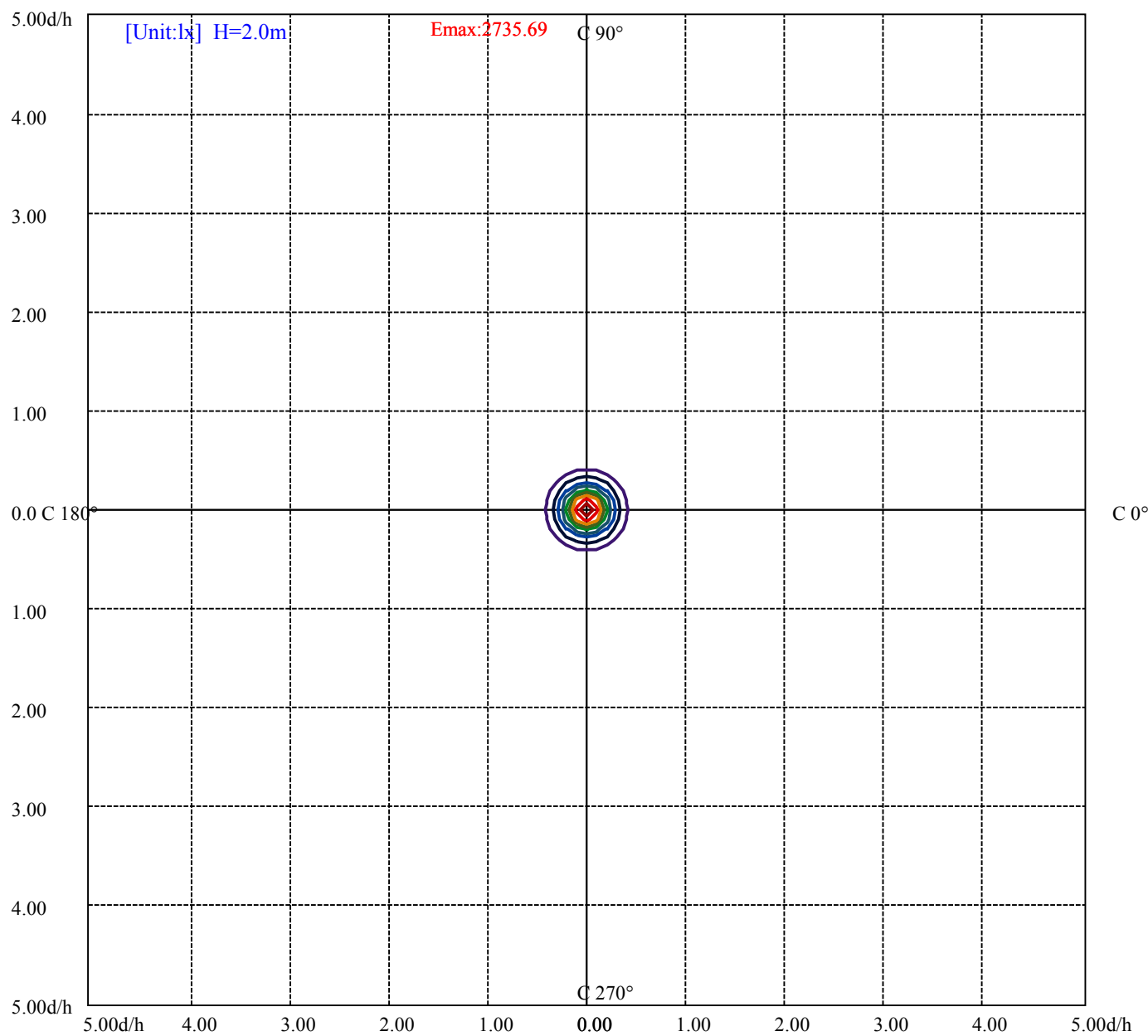
House

[Unit:cd]

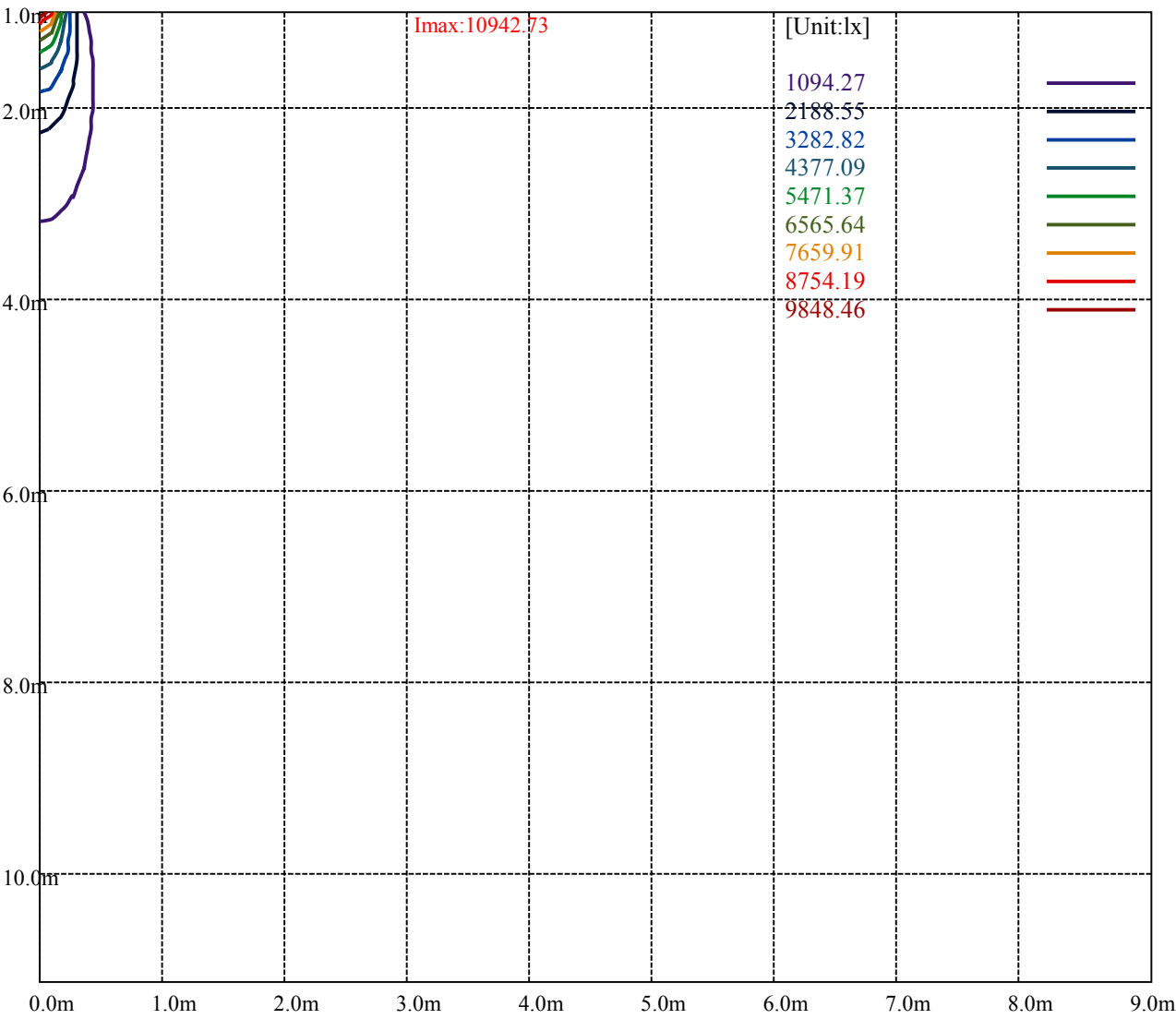
Road

Imax:10942.73

(10%Imax)	1094.27	—
(20%Imax)	2188.55	—
(30%Imax)	3282.82	—
(40%Imax)	4377.09	—
(50%Imax)	5471.37	—
(60%Imax)	6565.64	—
(70%Imax)	7659.91	—
(80%Imax)	8754.19	—
(90%Imax)	9848.46	—



(10%Emax)	273.5675	—
(20%Emax)	547.1375	—
(30%Emax)	820.705	—
(40%Emax)	1094.272	—
(50%Emax)	1367.84	—
(60%Emax)	1641.41	—
(70%Emax)	1914.978	—
(80%Emax)	2188.545	—
(90%Emax)	2462.113	—



Luminance Table

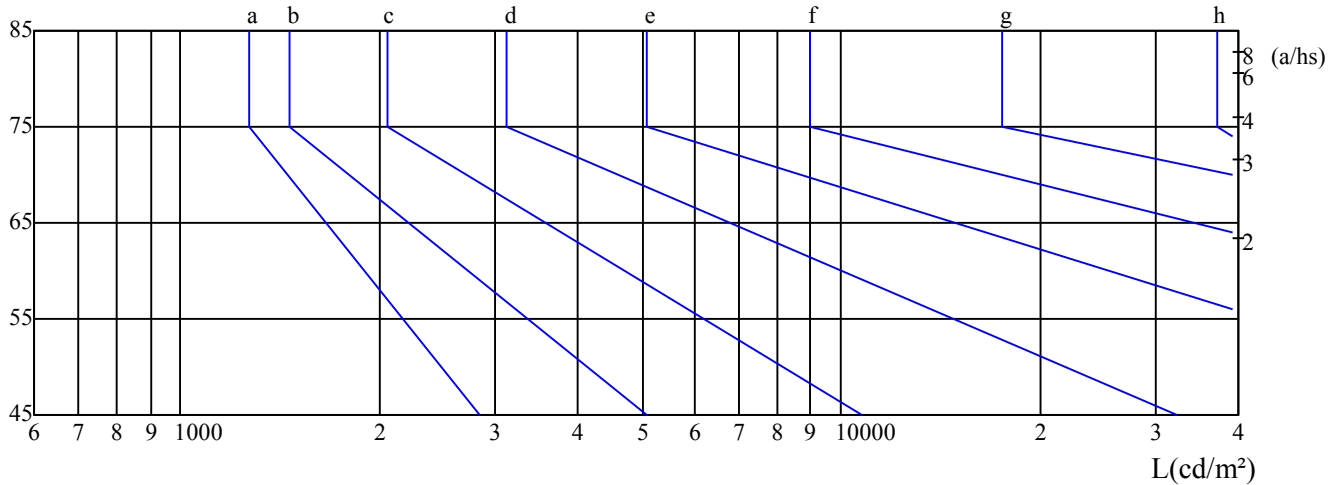
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

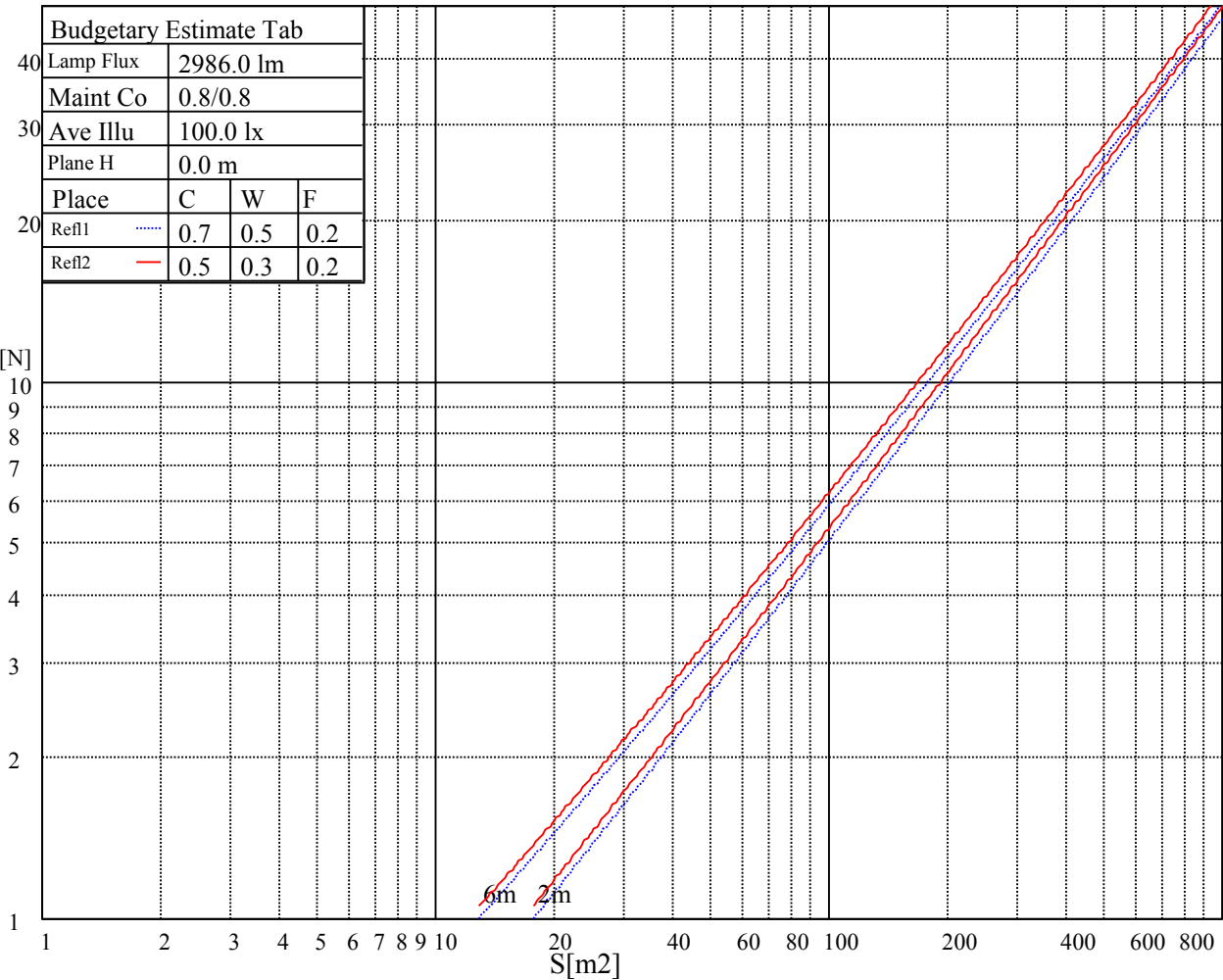
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

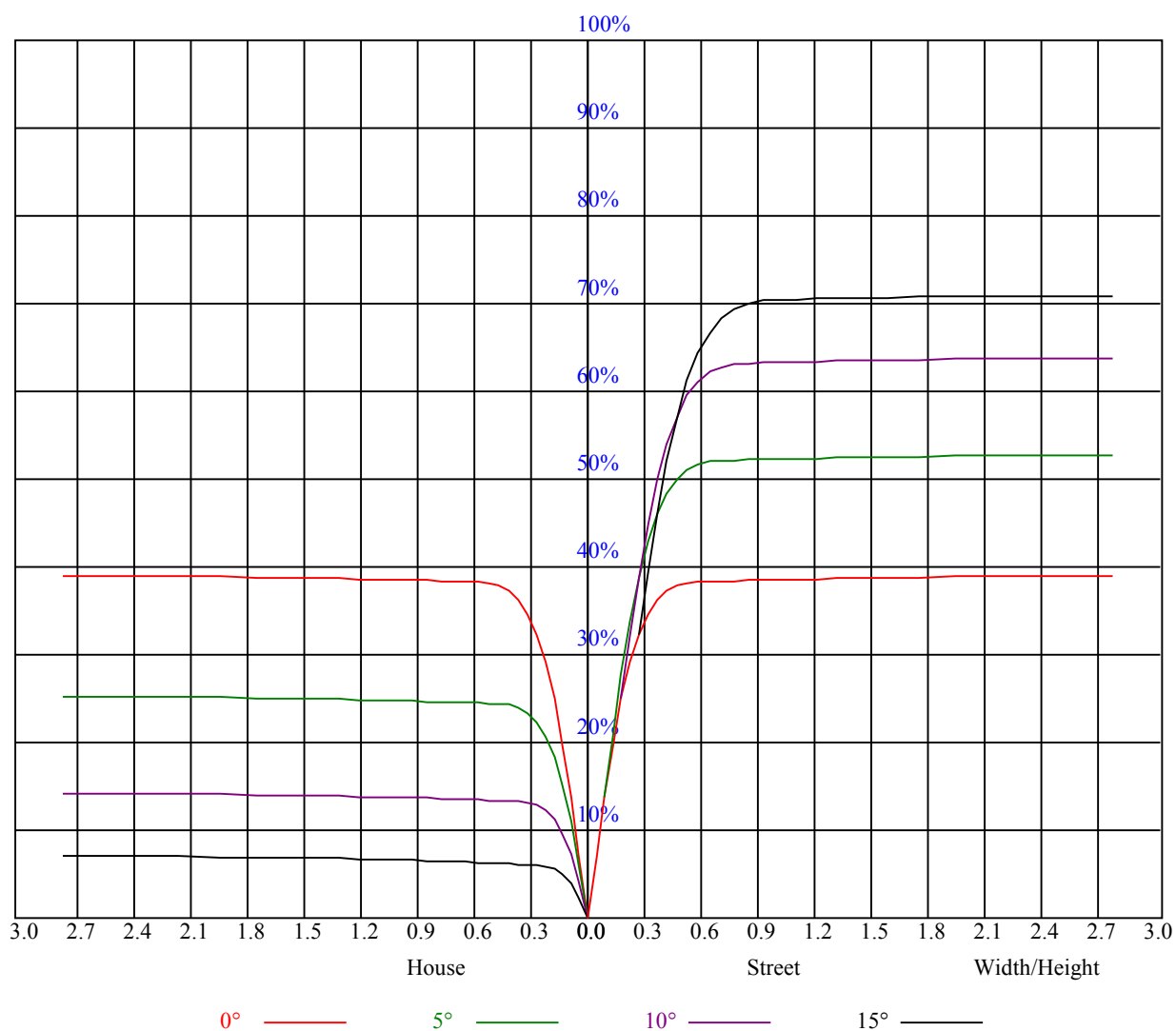
C0 ———

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	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.84	0.84	0.84	0.80	0.80	0.80	0.79
1	0.89	0.87	0.85	0.87	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76
2	0.84	0.82	0.80	0.83	0.81	0.79	0.80	0.79	0.77	0.78	0.77	0.76	0.76	0.75	0.74	0.73
3	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.75	0.74	0.76	0.74	0.73	0.74	0.73	0.71	0.70
4	0.78	0.74	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.69	0.68
5	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.69	0.68	0.71	0.69	0.67	0.66
6	0.72	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.66	0.69	0.67	0.65	0.64
7	0.70	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.63
8	0.68	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.63	0.62	0.61
9	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59
10	0.64	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.58



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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	10949.63	10857.94	10668.38	10374.19	10037.81	9627.19	9015.19	8478.00	7905.38
45.0	10944.56	10891.69	10735.31	10474.31	10172.81	9791.44	9222.19	8692.31	8126.44
90.0	10954.13	10908.56	10782.00	10545.75	10220.06	9849.38	9352.13	8764.31	8186.63
135.0	10922.63	10979.44	10920.38	10750.50	10528.88	10234.13	9767.25	9304.88	8787.94
180.0	10949.63	10934.44	10823.63	10615.50	10317.38	9978.19	9502.88	8946.00	8391.94
225.0	10944.56	10886.06	10752.75	10514.25	10185.19	9810.56	9313.31	8745.19	8192.81
270.0	10954.13	10887.19	10720.13	10458.00	10152.00	9774.00	9204.19	8689.50	8133.75
315.0	10922.63	10765.13	10542.38	10213.88	9795.94	9349.88	8775.56	8145.00	7553.25
360.0	10949.63	10857.94	10668.38	10374.19	10037.81	9627.19	9015.19	8478.00	7905.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7158.94	6547.50	5951.81	5310.00	4708.13	4205.25	3688.31	3269.25	2848.50
45.0	7383.38	6761.81	6139.13	5541.19	4848.19	4335.75	3863.81	3385.13	2960.44
90.0	7572.38	6782.63	6165.00	5574.38	4883.06	4369.50	3894.19	3410.44	2977.31
135.0	8086.50	7471.13	6836.06	6131.81	5459.63	4896.56	4316.06	3845.81	3369.94
180.0	7801.31	7029.56	6412.50	5813.44	5108.63	4582.69	4091.63	3586.50	3128.06
225.0	7604.44	6837.19	6227.44	5637.38	4939.88	4429.13	3956.06	3460.50	3015.56
270.0	7402.50	6791.06	6185.25	5527.13	4908.38	4393.69	3914.44	3416.63	2971.13
315.0	6936.75	6168.94	5577.75	5022.56	4370.63	3894.19	3459.38	3012.75	2611.69
360.0	7158.94	6547.50	5951.81	5310.00	4708.13	4205.25	3688.31	3269.25	2848.50
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2475.56	2178.00	1871.44	1584.56	1353.94	1124.44	851.63	649.13	469.13
45.0	2612.81	2257.31	1928.81	1682.44	1405.13	1171.13	937.13	709.88	523.69
90.0	2629.69	2275.31	1991.25	1697.63	1429.31	1116.68	957.15	705.32	549.17
135.0	2930.63	2584.13	2226.94	1929.38	1663.31	1419.19	1171.69	924.75	716.63
180.0	2756.81	2384.44	2092.50	1796.06	1517.63	1094.85	1039.67	803.48	611.10
225.0	2662.88	2306.81	2019.94	1722.38	1447.31	1103.23	962.89	729.00	543.99
270.0	2617.31	2266.88	1949.06	1686.38	1419.75	1190.81	938.25	704.25	520.88
315.0	2295.56	1974.94	1711.69	1437.75	1117.41	948.94	715.28	486.96	353.36
360.0	2475.56	2178.00	1871.44	1584.56	1353.94	1124.44	851.63	649.13	469.13
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	294.75	152.72	65.19	28.58	18.84	17.66	16.82	15.86	15.19
45.0	380.25	293.06	99.23	38.08	21.15	20.03	19.35	18.73	18.28
90.0	391.22	209.03	116.10	46.29	23.29	20.76	20.03	19.24	18.73
135.0	533.81	339.19	287.44	109.63	30.38	19.80	17.89	17.04	16.48
180.0	440.61	260.78	147.32	62.04	25.20	17.83	16.88	16.20	15.47
225.0	379.24	210.71	111.49	45.39	25.03	22.28	21.32	20.42	19.80
270.0	359.44	289.13	93.54	37.46	24.58	22.84	21.99	21.09	20.42
315.0	219.15	83.36	35.61	22.22	19.58	18.62	17.89	17.33	16.88
360.0	294.75	152.72	65.19	28.58	18.84	17.66	16.82	15.86	15.19
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.79	14.29	13.95	13.73	13.50	13.39	13.28	13.16	13.16
45.0	17.89	17.61	17.33	17.04	16.88	16.65	16.48	16.37	16.26
90.0	18.23	17.83	17.55	17.33	17.04	16.82	16.65	16.54	16.37
135.0	16.03	15.58	15.24	15.08	14.91	14.74	14.57	14.46	14.40
180.0	15.02	14.63	14.29	14.12	14.01	13.84	13.73	13.67	13.61
225.0	19.29	18.84	18.56	18.28	18.00	17.83	17.66	17.44	17.38
270.0	19.97	19.52	19.24	18.90	18.68	18.45	18.34	18.17	18.06
315.0	16.54	16.31	16.14	15.92	15.81	15.69	15.58	15.53	15.41
360.0	14.79	14.29	13.95	13.73	13.50	13.39	13.28	13.16	13.16

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	13.11	12.99	12.99	12.99	12.94	12.94	12.83	12.88	12.77
45.0	16.14	16.03	15.86	15.75	15.64	15.53	15.36	15.30	15.13
90.0	16.26	16.20	16.09	16.03	16.03	15.81	15.69	15.69	15.58
135.0	14.29	14.12	14.12	14.06	14.01	13.89	13.89	13.78	13.73
180.0	13.61	13.61	13.56	13.56	13.56	13.50	13.56	13.50	13.44
225.0	17.27	17.16	17.16	17.10	16.99	17.16	17.44	17.83	18.06
270.0	18.00	17.83	17.89	18.23	18.79	19.29	19.63	20.08	20.64
315.0	15.36	15.24	15.19	15.19	15.13	15.08	15.08	15.02	14.96
360.0	13.11	12.99	12.99	12.99	12.94	12.94	12.83	12.88	12.77
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.77	12.71	12.66	12.66	12.60	12.54	12.54	12.49	12.43
45.0	14.96	14.85	14.85	14.91	15.02	15.13	15.41	15.69	16.03
90.0	15.75	15.92	16.26	16.59	16.99	17.55	18.17	19.01	19.80
135.0	13.67	13.61	13.61	13.56	13.61	13.56	13.67	13.61	13.61
180.0	13.44	13.33	13.33	13.22	13.22	13.16	13.11	13.11	12.99
225.0	18.34	18.62	18.90	19.24	19.58	20.08	20.48	21.21	21.66
270.0	21.38	22.22	23.12	24.19	25.26	26.27	27.23	28.24	29.14
315.0	14.91	14.91	14.79	14.74	14.74	14.74	14.74	14.74	14.68
360.0	12.77	12.71	12.66	12.66	12.60	12.54	12.54	12.49	12.43
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	12.38	12.38	12.32	12.32	12.32	12.32	12.32	12.32	12.38
45.0	16.37	16.82	17.21	17.49	17.83	18.28	18.62	18.68	18.39
90.0	20.70	21.54	22.78	23.63	24.47	24.75	24.36	23.63	22.39
135.0	13.56	13.44	13.44	13.33	13.61	14.74	15.64	16.65	17.66
180.0	12.94	12.94	12.77	12.83	12.77	12.71	12.66	12.60	12.54
225.0	22.16	22.56	22.95	23.18	23.46	23.79	24.08	24.02	23.57
270.0	30.04	31.16	32.06	33.02	33.81	34.14	34.09	33.24	31.50
315.0	14.63	14.68	14.51	14.79	15.86	18.06	20.08	20.98	22.11
360.0	12.38	12.38	12.32	12.32	12.32	12.32	12.32	12.32	12.38
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.32	12.32	12.32	12.21	12.04	11.87	11.53	11.25	11.03
45.0	18.06	17.21	15.92	14.01	12.83	12.38	12.15	11.81	11.53
90.0	20.64	18.62	16.14	14.06	12.66	12.38	12.15	11.98	11.64
135.0	18.51	19.18	19.29	19.18	18.00	15.92	12.88	11.81	11.53
180.0	12.43	12.38	12.38	12.21	12.09	11.98	11.87	11.59	11.36
225.0	22.95	21.83	19.97	17.66	15.64	13.89	13.16	12.88	12.54
270.0	29.25	25.76	22.78	18.90	15.41	13.84	13.50	13.33	13.22
315.0	23.46	22.11	20.76	19.41	18.06	15.41	12.99	12.77	12.49
360.0	12.32	12.32	12.32	12.21	12.04	11.87	11.53	11.25	11.03
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.86	10.69	10.63	10.46	10.35	10.29	9.96	9.68	9.62
45.0	11.31	11.14	10.97	10.86	10.74	10.63	10.01	9.84	9.84
90.0	11.48	11.19	11.14	11.03	11.03	11.14	10.07	9.90	9.73
135.0	11.42	11.31	11.03	10.91	10.91	10.97	11.31	10.07	9.79
180.0	11.19	11.08	10.97	10.86	10.69	10.63	10.52	9.84	9.68
225.0	12.26	11.98	11.76	11.53	11.36	11.14	11.08	10.69	9.96
270.0	12.94	12.43	12.15	11.98	11.87	11.98	12.15	10.69	9.90
315.0	12.09	11.87	11.87	11.59	11.70	11.87	10.24	9.90	9.68
360.0	10.86	10.69	10.63	10.46	10.35	10.29	9.96	9.68	9.62

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	9.68
45.0	9.84
90.0	9.79
135.0	9.62
180.0	9.68
225.0	9.90
270.0	9.79
315.0	9.68
360.0	9.68