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Nata

LumCAT: 2-1120-A3

Luminaire: TE 2213407+92.76.365.00

Report No: 2017051300

Voltage(V): 35.1000

Test No: 2017051300-1

Current(A): 0.5100

LampCAT: CREE CXA2530

Power (W): 17.9010

Lamp flux(lm): 1717.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 71

Width(mm): 71

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1582.93

Efficiency(%): 92.19%

Lumens(lm)/Power(W): 88.37

Central intensity(cd): 6956.376

Maximum intensity(cd): 6964.635

Angle of maximum intensity: C=90.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.2

[C90/270]Total=20.1

Field angle(10%Imax): [C0/180]Total=48.1

[C90/270]Total=47.9

Maximum s/h(1/2): C0_180=0.35 C90_270=0.35

Maximum s/h(1/4): C0_180=0.34 C90_270=0.34

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.13%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.388%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6960.505	0.000	0	.000%	.000%
1.0	6946.741	6.654	6.654	.388%	.420%
2.0	6889.896	19.860	26.514	1.157%	1.675%
3.0	6787.766	32.712	59.226	1.905%	3.742%
4.0	6611.585	44.852	104.078	2.612%	6.575%
5.0	6271.337	55.422	159.5	3.228%	10.076%
6.0	5905.074	63.990	223.49	3.727%	14.119%
7.0	5400.069	70.171	293.661	4.087%	18.552%
8.0	4757.424	72.695	366.356	4.234%	23.144%
9.0	4149.326	72.184	438.541	4.204%	27.704%
10.0	3525.537	69.455	507.995	4.045%	32.092%
11.0	2900.234	64.207	572.202	3.739%	36.148%
12.0	2449.184	58.477	630.679	3.406%	39.843%
13.0	2050.851	53.404	684.083	3.110%	43.216%
14.0	1711.015	48.152	732.235	2.804%	46.258%
15.0	1488.450	43.924	776.158	2.558%	49.033%
16.0	1276.180	40.510	816.668	2.359%	51.592%
17.0	1151.436	37.804	854.472	2.202%	53.981%
18.0	1025.384	35.891	890.363	2.090%	56.248%
19.0	941.575	34.221	924.584	1.993%	58.410%
20.0	862.376	33.017	957.602	1.923%	60.496%
21.0	803.479	31.988	989.589	1.863%	62.516%
22.0	760.990	31.439	1021.028	1.831%	64.503%
23.0	723.937	31.158	1052.186	1.815%	66.471%
24.0	696.051	31.046	1083.232	1.808%	68.432%
25.0	673.477	31.140	1114.372	1.814%	70.399%
26.0	654.593	31.349	1145.721	1.826%	72.380%
27.0	637.209	31.604	1177.325	1.841%	74.377%
28.0	623.101	31.908	1209.234	1.858%	76.392%
29.0	607.781	32.203	1241.437	1.876%	78.427%
30.0	592.600	32.410	1273.847	1.888%	80.474%
31.0	573.509	32.451	1306.298	1.890%	82.524%
32.0	545.058	32.046	1338.344	1.866%	84.549%
33.0	507.248	31.001	1369.345	1.806%	86.507%
34.0	463.492	29.377	1398.723	1.711%	88.363%
35.0	416.350	27.325	1426.047	1.591%	90.089%
36.0	362.725	24.806	1450.853	1.445%	91.656%
37.0	313.753	22.063	1472.916	1.285%	93.050%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	262.371	19.230	1492.147	1.120%	94.265%
39.0	215.642	16.316	1508.462	.950%	95.296%
40.0	158.466	13.048	1521.51	.760%	96.120%
41.0	112.632	9.654	1531.164	.562%	96.730%
42.0	73.294	6.755	1537.919	.393%	97.157%
43.0	42.159	4.277	1542.195	.249%	97.427%
44.0	21.651	2.408	1544.604	.140%	97.579%
45.0	14.411	1.386	1545.99	.081%	97.667%
46.0	11.920	1.030	1547.019	.060%	97.732%
47.0	10.213	0.880	1547.9	.051%	97.787%
48.0	8.795	0.768	1548.668	.045%	97.836%
49.0	8.024	0.691	1549.359	.040%	97.879%
50.0	7.708	0.656	1550.015	.038%	97.921%
51.0	7.543	0.645	1550.66	.038%	97.962%
52.0	7.391	0.641	1551.301	.037%	98.002%
53.0	7.240	0.636	1551.937	.037%	98.042%
54.0	7.130	0.633	1552.571	.037%	98.082%
55.0	7.047	0.633	1553.203	.037%	98.122%
56.0	6.978	0.634	1553.837	.037%	98.162%
57.0	6.910	0.635	1554.472	.037%	98.202%
58.0	6.868	0.637	1555.109	.037%	98.243%
59.0	6.841	0.641	1555.75	.037%	98.283%
60.0	6.882	0.648	1556.399	.038%	98.324%
61.0	6.937	0.659	1557.058	.038%	98.366%
62.0	7.033	0.673	1557.731	.039%	98.408%
63.0	7.226	0.694	1558.425	.040%	98.452%
64.0	7.405	0.718	1559.143	.042%	98.497%
65.0	7.667	0.746	1559.889	.043%	98.545%
66.0	7.942	0.779	1560.667	.045%	98.594%
67.0	8.286	0.816	1561.483	.048%	98.645%
68.0	8.671	0.859	1562.342	.050%	98.700%
69.0	8.561	0.879	1563.221	.051%	98.755%
70.0	8.864	0.895	1564.116	.052%	98.812%
71.0	9.126	0.930	1565.046	.054%	98.870%
72.0	9.332	0.960	1566.006	.056%	98.931%
73.0	10.075	1.015	1567.021	.059%	98.995%
74.0	10.640	1.089	1568.11	.063%	99.064%
75.0	10.846	1.135	1569.245	.066%	99.136%

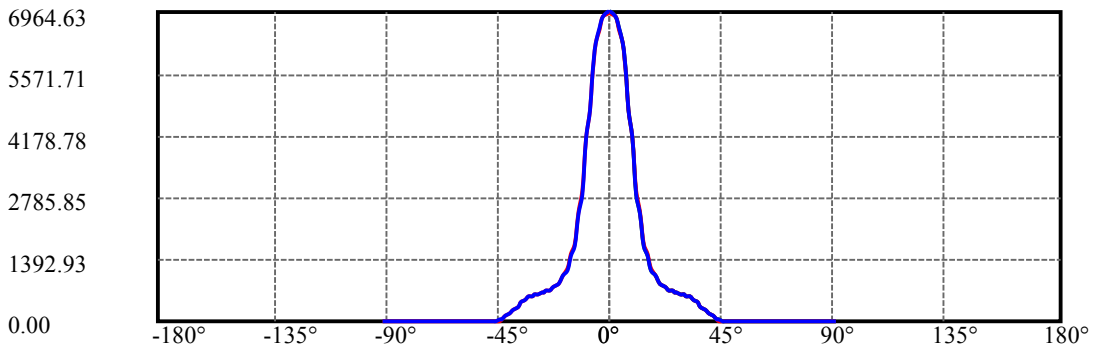
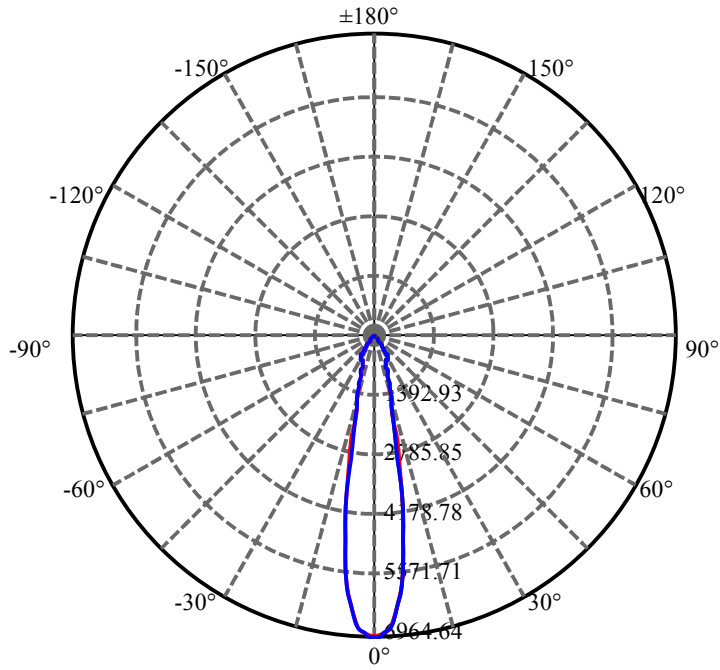
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.915	1.155	1570.4	.067%	99.209%
77.0	10.915	1.164	1571.564	.068%	99.282%
78.0	10.819	1.163	1572.728	.068%	99.356%
79.0	10.653	1.154	1573.881	.067%	99.429%
80.0	10.364	1.133	1575.014	.066%	99.500%
81.0	9.828	1.092	1576.106	.064%	99.569%
82.0	9.029	1.023	1577.129	.060%	99.634%
83.0	8.024	0.927	1578.056	.054%	99.692%
84.0	7.089	0.823	1578.879	.048%	99.744%
85.0	6.455	0.739	1579.618	.043%	99.791%
86.0	6.290	0.697	1580.315	.041%	99.835%
87.0	6.015	0.673	1580.989	.039%	99.878%
88.0	5.877	0.651	1581.64	.038%	99.919%
89.0	5.864	0.644	1582.284	.037%	99.959%
90.0	5.864	0.643	1582.927	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1273.85	74.19%	80.47%
0-40	1521.51	88.61%	96.12%
0-60	1556.40	90.65%	98.32%
0-90	1582.28	92.15%	99.96%
0-120	1582.28	92.15%	99.96%
0-180	1582.93	92.19%	100.00%
60-90	26.53	1.55%	1.68%
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%
0-29.77	1266.34	73.75%	80.00%

ZONAL LUMEN SUMMARY

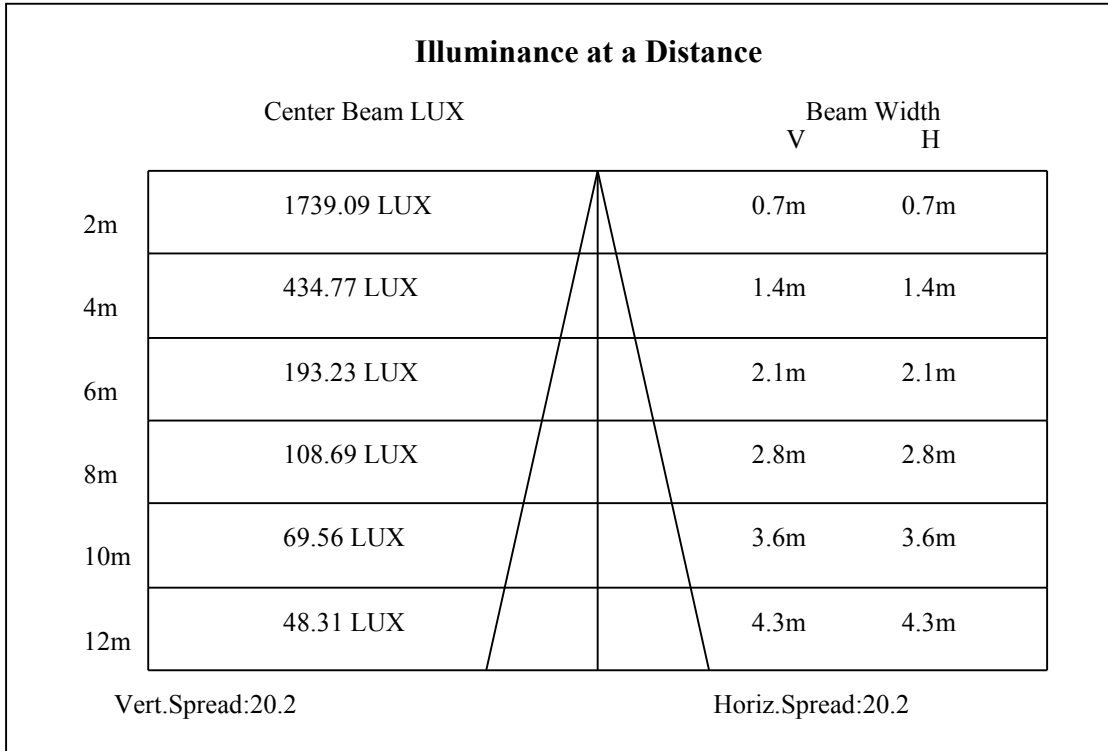
0-10	508.00
10-20	449.61
20-30	316.25
30-40	247.66
40-50	28.50
50-60	6.38
60-70	7.72
70-80	10.90
80-90	7.27
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

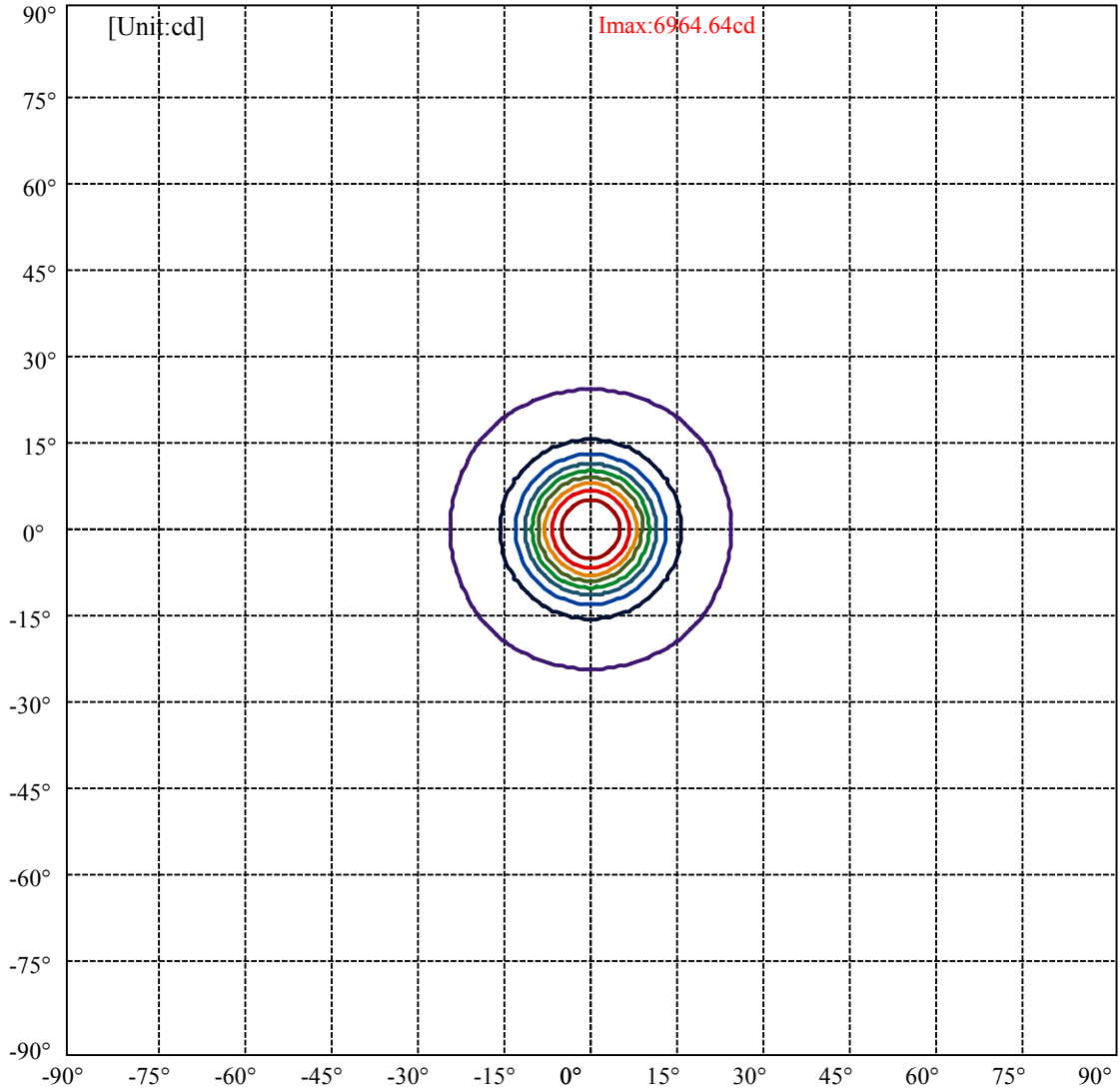


C90(Max): —————
 C0/C180: —————
 C90/C270: —————

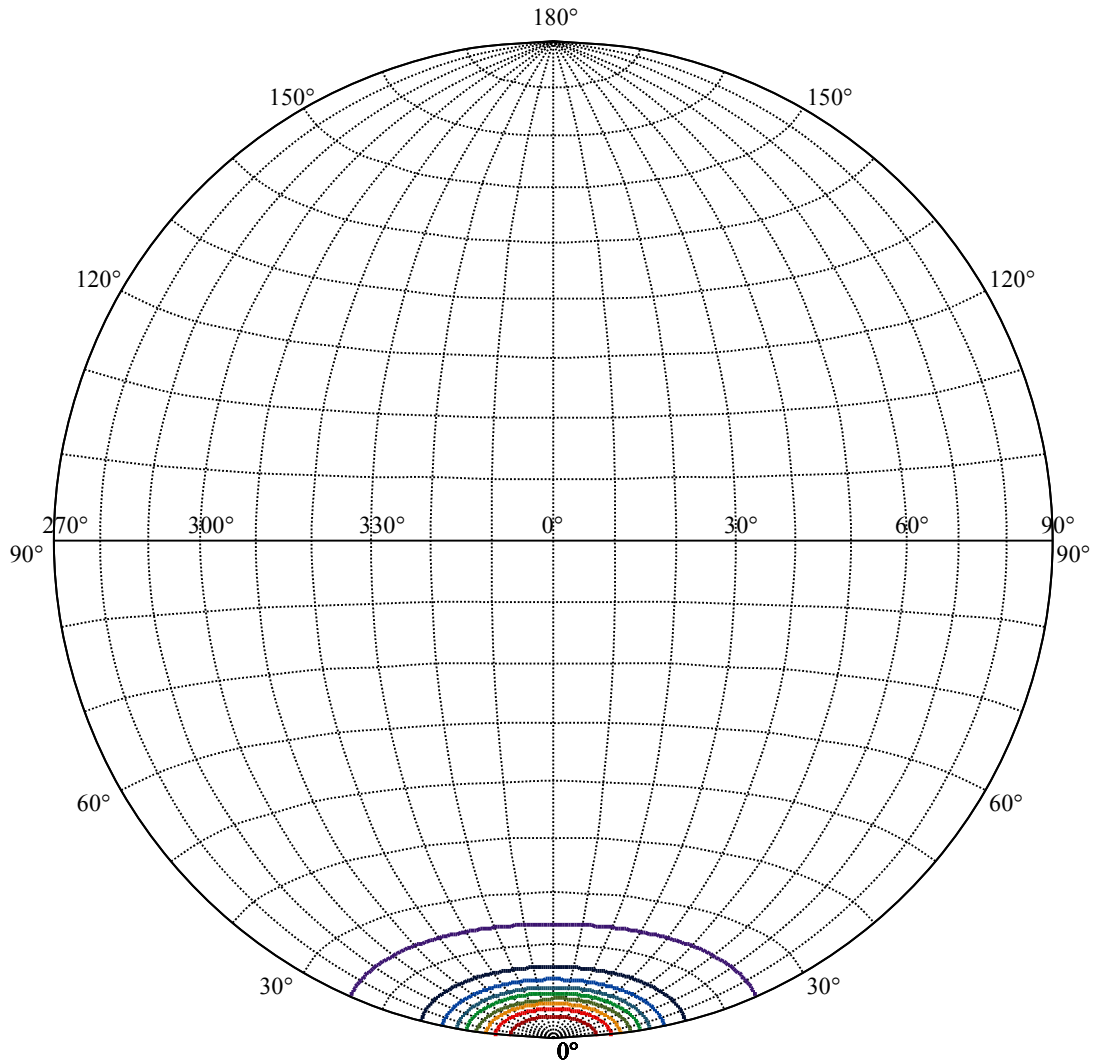
Field angle(10%Imax):C0/180Left:24.1 Right:24.1
 :C90/270Left:23.9 Right:23.9

Beam Angle(50%Imax):C0/180Left:10.1 Right:10.1
 :C90/270Left:10.1 Right:10.1





(10%Imax) 696.464	—
(20%Imax) 1392.93	—
(30%Imax) 2089.39	—
(40%Imax) 2785.85	—
(50%Imax) 3482.32	—
(60%Imax) 4178.78	—
(70%Imax) 4875.24	—
(80%Imax) 5571.71	—
(90%Imax) 6268.17	—



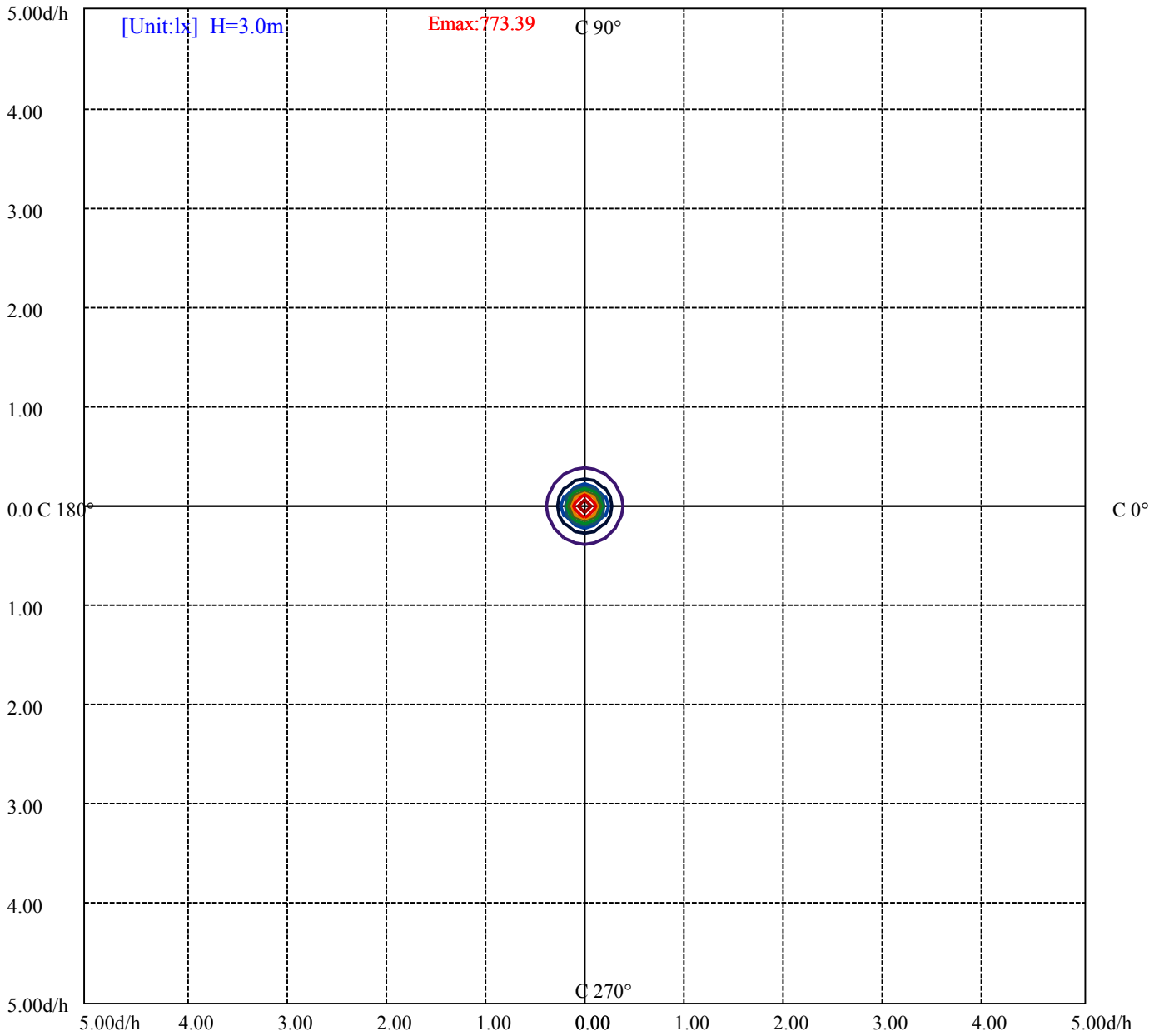
House

[Unit:cd]

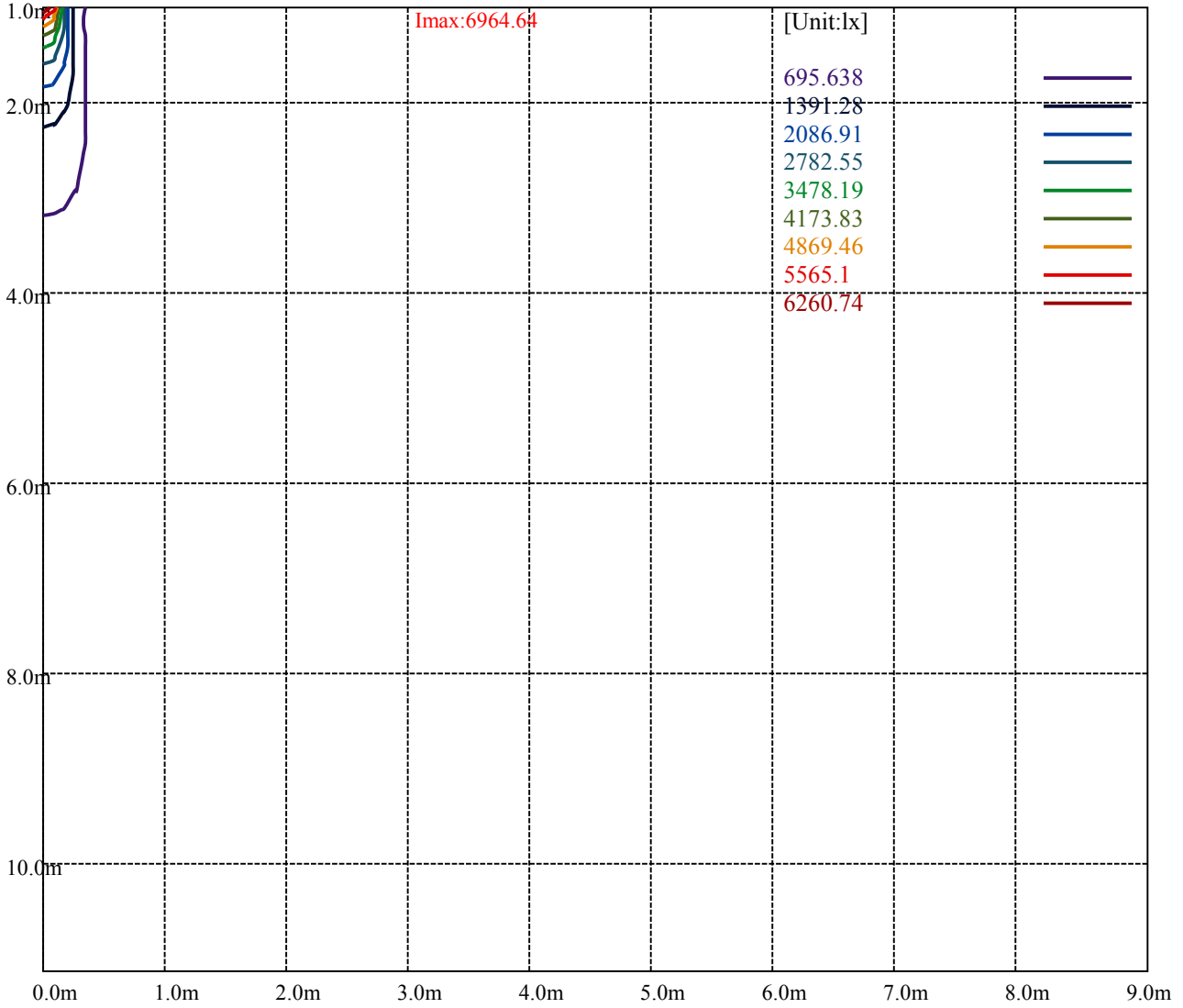
Road

Imax:6964.64

(10%Imax) 696.464	—
(20%Imax) 1392.93	—
(30%Imax) 2089.39	—
(40%Imax) 2785.85	—
(50%Imax) 3482.32	—
(60%Imax) 4178.78	—
(70%Imax) 4875.24	—
(80%Imax) 5571.71	—
(90%Imax) 6268.17	—



- (10%Emax) 77.33889
- (20%Emax) 154.6778
- (30%Emax) 232.0167
- (40%Emax) 309.3556
- (50%Emax) 386.6945
- (60%Emax) 464.0333
- (70%Emax) 541.3723
- (80%Emax) 618.7111
- (90%Emax) 696.05



Luminance Table

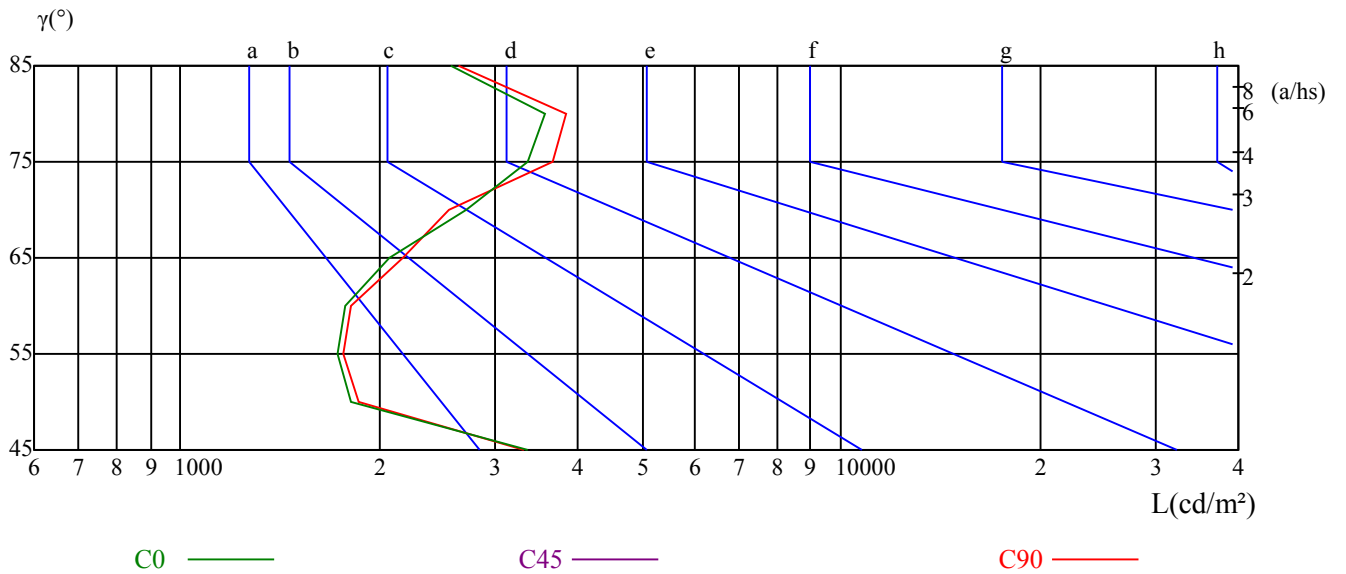
γ	45	50	55	60	65	70	75	80	85
C0	3357	1812	1728	1771	2069	2712	3352	3561	2564
C45	0	0	0	0	0	0	0	0	0
C90	3313	1865	1769	1814	2168	2548	3654	3846	2642

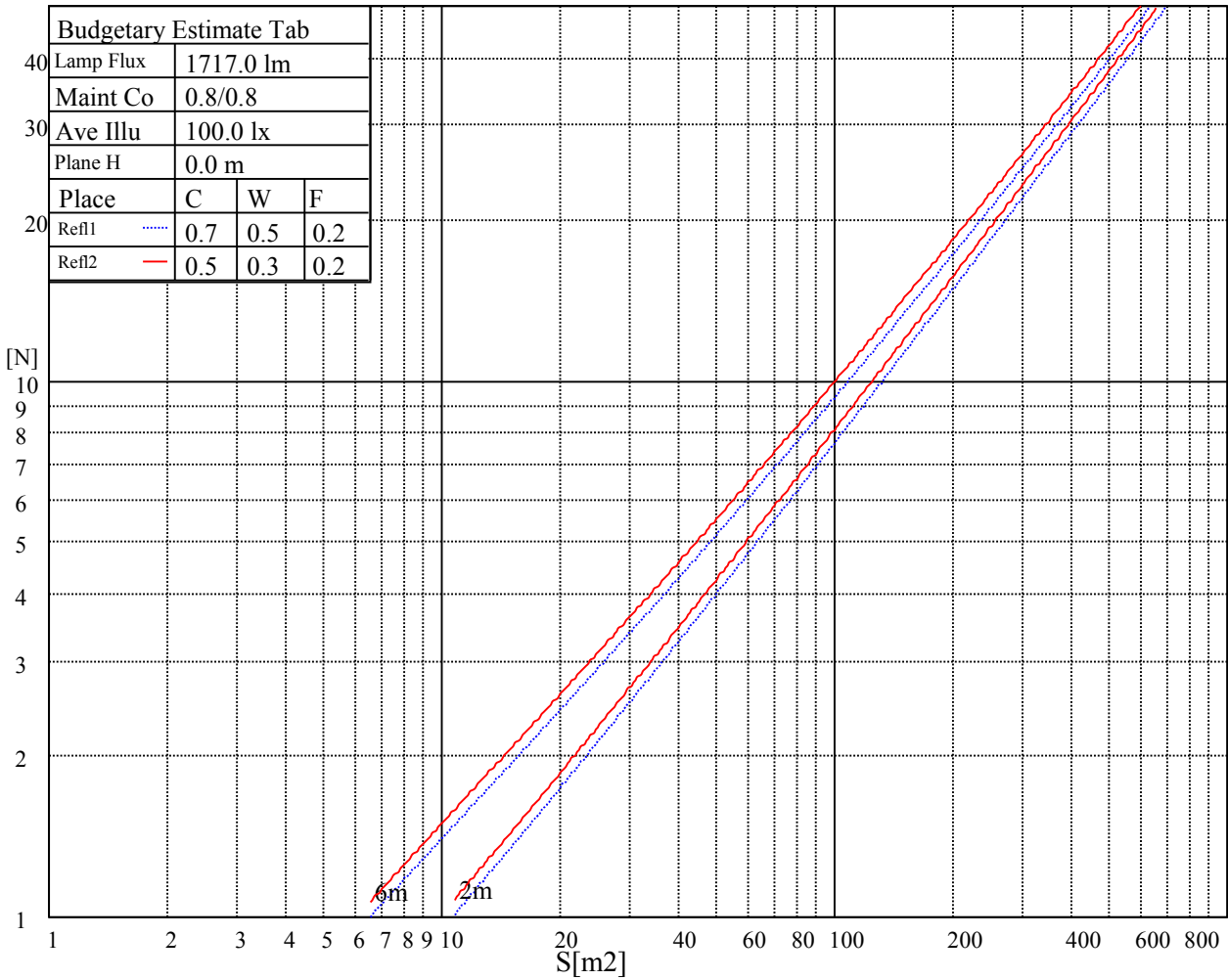
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4464	4677	0	10103	11014	0	18383	18940	0

Glare Table

Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
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	1.10	1.10	1.10	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.03	1.01	0.99	1.01	0.99	0.97	0.97	0.96	0.94	0.94	0.93	0.92	0.91	0.90	0.89	0.87
2	0.97	0.94	0.91	0.96	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.85	0.83
3	0.92	0.88	0.85	0.91	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.72
6	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.67
8	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.71	0.67	0.65	0.64
9	0.71	0.67	0.64	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60

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	6956.38	6922.79	6833.60	6679.44	6435.54	5991.24	5536.47	5000.77	4341.20
90.0	6964.63	6968.49	6938.21	6870.49	6738.35	6454.81	6116.77	5676.31	5085.56
180.0	6956.38	6958.03	6933.25	6869.94	6750.47	6535.19	6242.85	5784.78	5201.73
270.0	6964.63	6937.66	6854.52	6731.20	6521.98	6104.10	5724.21	5138.41	4401.21
360.0	6956.38	6922.79	6833.60	6679.44	6435.54	5991.24	5536.47	5000.77	4341.20
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3671.71	3112.34	2562.32	2160.96	1810.25	1570.76	1355.49	1185.36	1068.64
90.0	4434.79	3841.29	3193.27	2682.35	2211.62	1858.15	1613.15	1396.23	1225.56
180.0	4622.54	3943.69	3290.17	2768.24	2328.34	1900.00	1638.48	1431.47	1247.58
270.0	3868.26	3204.83	2555.17	2185.19	1853.20	1515.15	1346.68	1091.66	1063.96
360.0	3671.71	3112.34	2562.32	2160.96	1810.25	1570.76	1355.49	1185.36	1068.64
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	964.59	891.36	826.95	776.85	742.71	711.88	687.10	669.49	653.52
90.0	1103.88	1002.03	899.62	841.26	788.96	742.71	711.88	687.10	665.08
180.0	1085.82	996.14	902.48	829.53	780.26	737.37	707.20	680.06	657.87
270.0	947.25	876.77	820.45	766.27	732.03	703.79	678.02	657.26	641.90
360.0	964.59	891.36	826.95	776.85	742.71	711.88	687.10	669.49	653.52
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	635.35	621.04	607.82	591.86	565.98	534.05	489.45	439.35	399.16
90.0	646.36	632.60	616.63	602.87	588.00	565.98	534.60	491.10	441.55
180.0	640.75	625.72	607.99	593.29	579.08	554.86	523.81	486.26	434.45
270.0	626.38	613.05	598.68	582.39	560.97	525.35	481.14	437.26	390.24
360.0	635.35	621.04	607.82	591.86	565.98	534.05	489.45	439.35	399.16
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	336.95	287.39	248.85	174.09	129.82	90.68	49.28	25.99	16.41
90.0	394.20	343.00	284.09	278.59	184.88	135.49	92.05	57.42	27.80
180.0	389.25	342.23	282.88	234.82	187.52	131.86	97.61	58.58	26.15
270.0	330.50	282.38	233.66	175.08	131.64	92.49	54.23	26.65	16.24
360.0	336.95	287.39	248.85	174.09	129.82	90.68	49.28	25.99	16.41
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	13.05	11.23	9.52	8.09	7.82	7.60	7.43	7.27	7.21
90.0	15.42	12.55	11.01	9.41	8.09	7.82	7.65	7.54	7.38
180.0	15.97	12.44	10.52	9.41	8.20	7.60	7.43	7.27	7.10
270.0	13.21	11.45	9.80	8.26	7.98	7.82	7.65	7.49	7.27
360.0	13.05	11.23	9.52	8.09	7.82	7.60	7.43	7.27	7.21
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.10	6.99	6.94	6.88	6.83	6.88	6.99	7.05	7.05
90.0	7.27	7.21	7.10	6.99	6.94	6.88	6.88	6.88	6.99
180.0	6.99	6.94	6.88	6.83	6.72	6.66	6.61	6.66	6.83
270.0	7.16	7.05	6.99	6.94	6.99	6.94	7.05	7.16	7.27
360.0	7.10	6.99	6.94	6.88	6.83	6.88	6.99	7.05	7.05
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.16	7.27	7.38	7.49	7.71	7.98	8.31	8.48	8.70
90.0	7.21	7.38	7.65	7.93	8.31	8.70	6.66	6.61	6.61
180.0	7.05	7.27	7.60	7.93	8.31	8.75	9.36	9.80	10.08
270.0	7.49	7.71	8.04	8.42	8.81	9.25	9.91	10.57	11.12
360.0	7.16	7.27	7.38	7.49	7.71	7.98	8.31	8.48	8.70

Intensity data(cd)

C/ γ ($^{\circ}$)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.97	9.25	9.41	9.69	9.86	9.80	9.74	9.63	9.52
90.0	6.22	8.31	10.02	10.46	10.68	10.85	10.96	10.85	10.85
180.0	10.35	10.63	10.90	11.07	11.07	11.07	10.85	10.74	10.41
270.0	11.78	12.11	12.22	12.17	12.06	11.95	11.73	11.40	10.68
360.0	8.97	9.25	9.41	9.69	9.86	9.80	9.74	9.63	9.52
C/ γ ($^{\circ}$)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.25	8.37	7.27	6.44	6.22	6.17	5.89	5.89	5.84
90.0	10.46	10.13	9.14	7.82	6.66	6.33	6.17	5.89	5.84
180.0	9.97	8.97	7.76	7.16	6.50	6.33	6.06	5.84	5.89
270.0	9.63	8.64	7.93	6.94	6.44	6.33	5.95	5.89	5.89
360.0	9.25	8.37	7.27	6.44	6.22	6.17	5.89	5.89	5.84
C/ γ ($^{\circ}$)	90.0								
0.0	5.84								
90.0	5.84								
180.0	5.89								
270.0	5.89								
360.0	5.84								