
Nata

LumCAT: 2-1283-N	
Luminaire: 92.70.046.00	
Report No: NT2017092302	Voltage(V): 36.1000
Test No: nata-0100	Current(A): 0.5200
LampCAT: CREE CXA1520	Power (W): 18.7000
Lamp flux(lm): 1756.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 57	Width(mm): 57
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1470.48
Efficiency(%): 83.74%
Lumens(lm)/Power(W): 78.74
Central intensity(cd): 8750.003
Maximum intensity(cd): 8750.003
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=14.4
[C90/270]Total=14.4
Field angle(10%Imax): [C0/180]Total=45.6
[C90/270]Total=45.6
Maximum s/h(1/2): C0_180=0.25 C90_270=0.25
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(%): 83.86%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.705%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8750.004	2.093	2.093	.119%	.142%
1.0	8642.699	16.541	18.634	.942%	1.267%
2.0	8324.197	31.858	50.492	1.814%	3.434%
3.0	7707.786	44.237	94.728	2.519%	6.442%
4.0	6930.995	53.019	147.747	3.019%	10.048%
5.0	6152.608	58.804	206.551	3.349%	14.047%
6.0	5247.481	60.150	266.702	3.425%	18.137%
7.0	4486.491	59.959	326.66	3.415%	22.215%
8.0	3873.658	59.119	385.78	3.367%	26.235%
9.0	3257.962	55.890	441.669	3.183%	30.036%
10.0	2791.084	53.149	494.818	3.027%	33.650%
11.0	2472.087	51.727	546.545	2.946%	37.168%
12.0	2184.363	49.803	596.348	2.836%	40.555%
13.0	1930.773	47.629	643.977	2.712%	43.794%
14.0	1749.197	46.405	690.382	2.643%	46.949%
15.0	1581.000	44.872	735.254	2.555%	50.001%
16.0	1441.982	43.586	778.84	2.482%	52.965%
17.0	1312.985	42.097	820.937	2.397%	55.828%
18.0	1206.451	40.883	861.82	2.328%	58.608%
19.0	1128.711	40.297	902.117	2.295%	61.349%
20.0	1047.613	39.292	941.41	2.238%	64.021%
21.0	971.140	38.165	979.574	2.173%	66.616%
22.0	917.295	37.682	1017.256	2.146%	69.179%
23.0	863.064	36.981	1054.237	2.106%	71.694%
24.0	810.485	36.150	1090.387	2.059%	74.152%
25.0	770.019	35.686	1126.073	2.032%	76.579%
26.0	730.874	35.135	1161.208	2.001%	78.968%
27.0	691.233	34.413	1195.621	1.960%	81.308%
28.0	646.472	33.282	1228.903	1.895%	83.572%
29.0	595.930	31.682	1260.586	1.804%	85.726%
30.0	537.901	29.493	1290.079	1.680%	87.732%
31.0	472.274	26.674	1316.753	1.519%	89.546%
32.0	399.049	23.189	1339.942	1.321%	91.123%
33.0	318.006	18.993	1358.935	1.082%	92.415%
34.0	249.736	15.314	1374.249	.872%	93.456%
35.0	177.392	11.158	1385.407	.635%	94.215%
36.0	128.171	8.262	1393.669	.470%	94.777%
37.0	85.448	5.639	1399.308	.321%	95.160%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	58.360	3.940	1403.248	.224%	95.428%
39.0	39.200	2.705	1405.953	.154%	95.612%
40.0	31.107	2.193	1408.146	.125%	95.761%
41.0	27.253	1.961	1410.107	.112%	95.894%
42.0	24.445	1.794	1411.9	.102%	96.016%
43.0	22.738	1.701	1413.601	.097%	96.132%
44.0	21.362	1.627	1415.228	.093%	96.243%
45.0	20.206	1.567	1416.795	.089%	96.349%
46.0	18.994	1.498	1418.293	.085%	96.451%
47.0	18.003	1.444	1419.737	.082%	96.549%
48.0	17.233	1.404	1421.142	.080%	96.645%
49.0	16.627	1.376	1422.518	.078%	96.738%
50.0	16.076	1.351	1423.868	.077%	96.830%
51.0	15.801	1.347	1425.215	.077%	96.922%
52.0	15.636	1.351	1426.566	.077%	97.014%
53.0	15.691	1.374	1427.94	.078%	97.107%
54.0	15.801	1.402	1429.342	.080%	97.203%
55.0	16.132	1.449	1430.791	.083%	97.301%
56.0	16.352	1.487	1432.278	.085%	97.402%
57.0	16.792	1.544	1433.822	.088%	97.507%
58.0	17.178	1.597	1435.419	.091%	97.616%
59.0	17.453	1.641	1437.06	.093%	97.727%
60.0	17.508	1.663	1438.723	.095%	97.841%
61.0	17.067	1.637	1440.36	.093%	97.952%
62.0	16.517	1.599	1441.959	.091%	98.061%
63.0	15.966	1.560	1443.519	.089%	98.167%
64.0	14.975	1.476	1444.995	.084%	98.267%
65.0	14.205	1.412	1446.407	.080%	98.363%
66.0	13.489	1.351	1447.758	.077%	98.455%
67.0	13.048	1.317	1449.075	.075%	98.545%
68.0	12.223	1.243	1450.318	.071%	98.629%
69.0	11.507	1.178	1451.496	.067%	98.709%
70.0	11.011	1.135	1452.631	.065%	98.786%
71.0	10.516	1.090	1453.721	.062%	98.860%
72.0	10.075	1.051	1454.772	.060%	98.932%
73.0	9.800	1.028	1455.799	.059%	99.002%
74.0	9.580	1.010	1456.809	.058%	99.070%
75.0	9.470	1.003	1457.812	.057%	99.139%

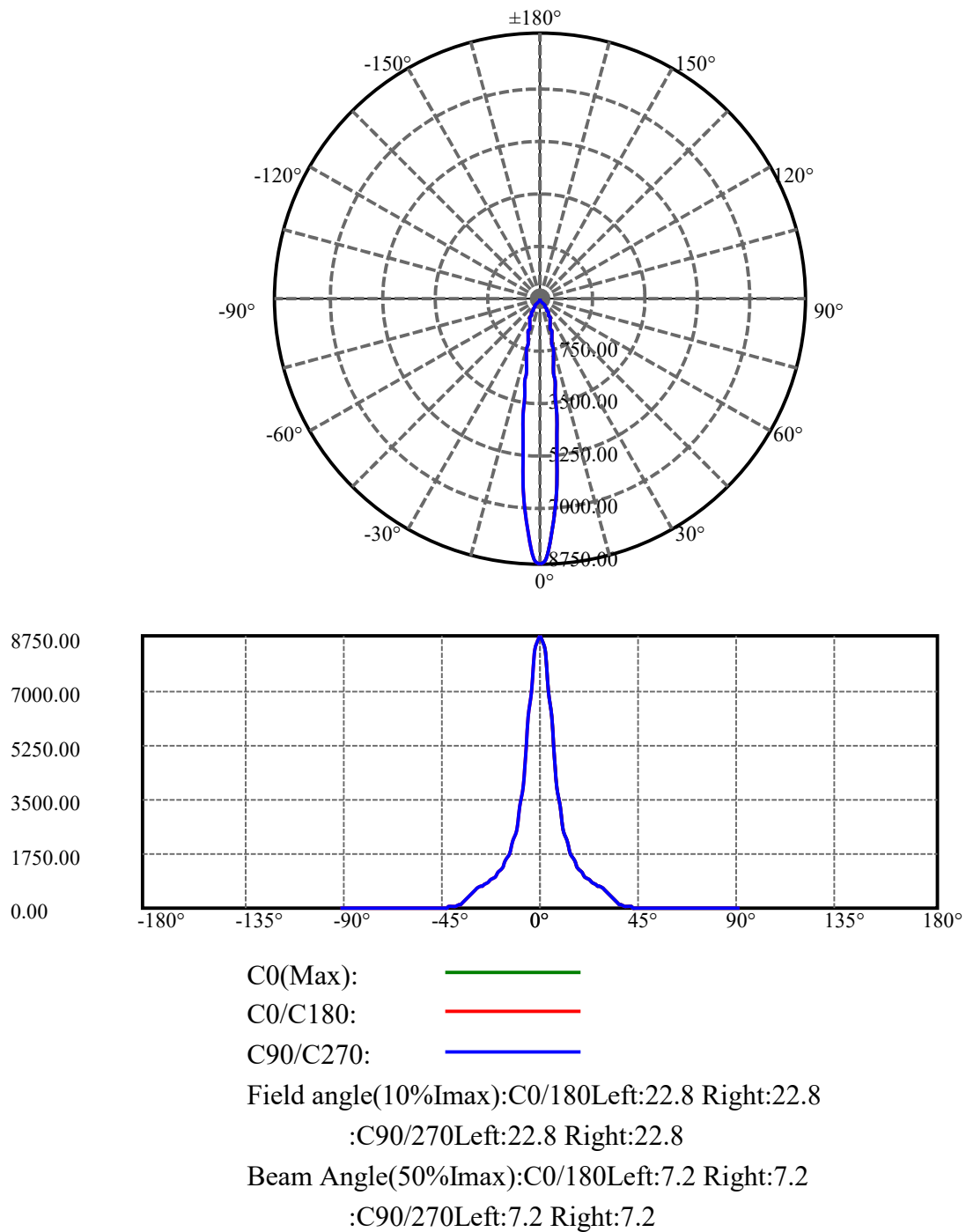
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.305	0.990	1458.802	.056%	99.206%
77.0	9.139	0.977	1459.779	.056%	99.272%
78.0	9.029	0.969	1460.748	.055%	99.338%
79.0	8.974	0.966	1461.714	.055%	99.404%
80.0	8.919	0.963	1462.677	.055%	99.470%
81.0	8.699	0.942	1463.619	.054%	99.534%
82.0	8.369	0.909	1464.528	.052%	99.595%
83.0	8.148	0.887	1465.415	.051%	99.656%
84.0	8.038	0.877	1466.291	.050%	99.715%
85.0	7.928	0.866	1467.157	.049%	99.774%
86.0	7.267	0.795	1467.952	.045%	99.828%
87.0	6.882	0.754	1468.706	.043%	99.880%
88.0	6.552	0.718	1469.424	.041%	99.928%
89.0	6.442	0.706	1470.13	.040%	99.976%
90.0	6.331	0.347	1470.478	.020%	100.000%

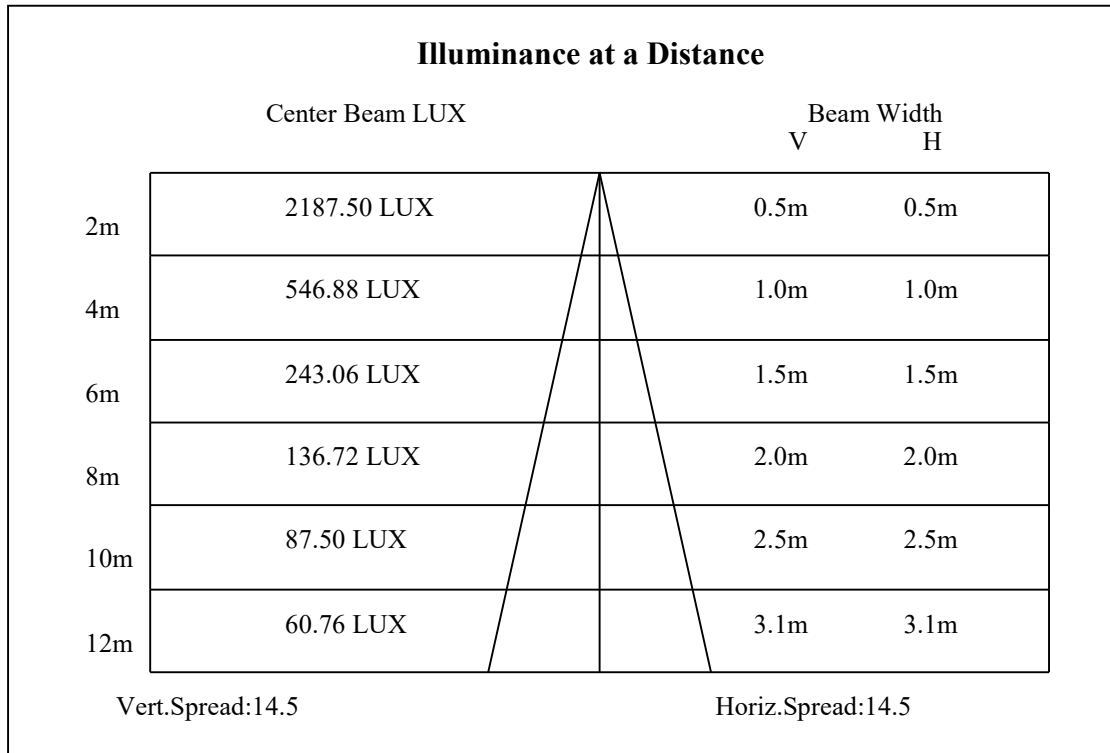
ZONAL LUMEN SUMMARY

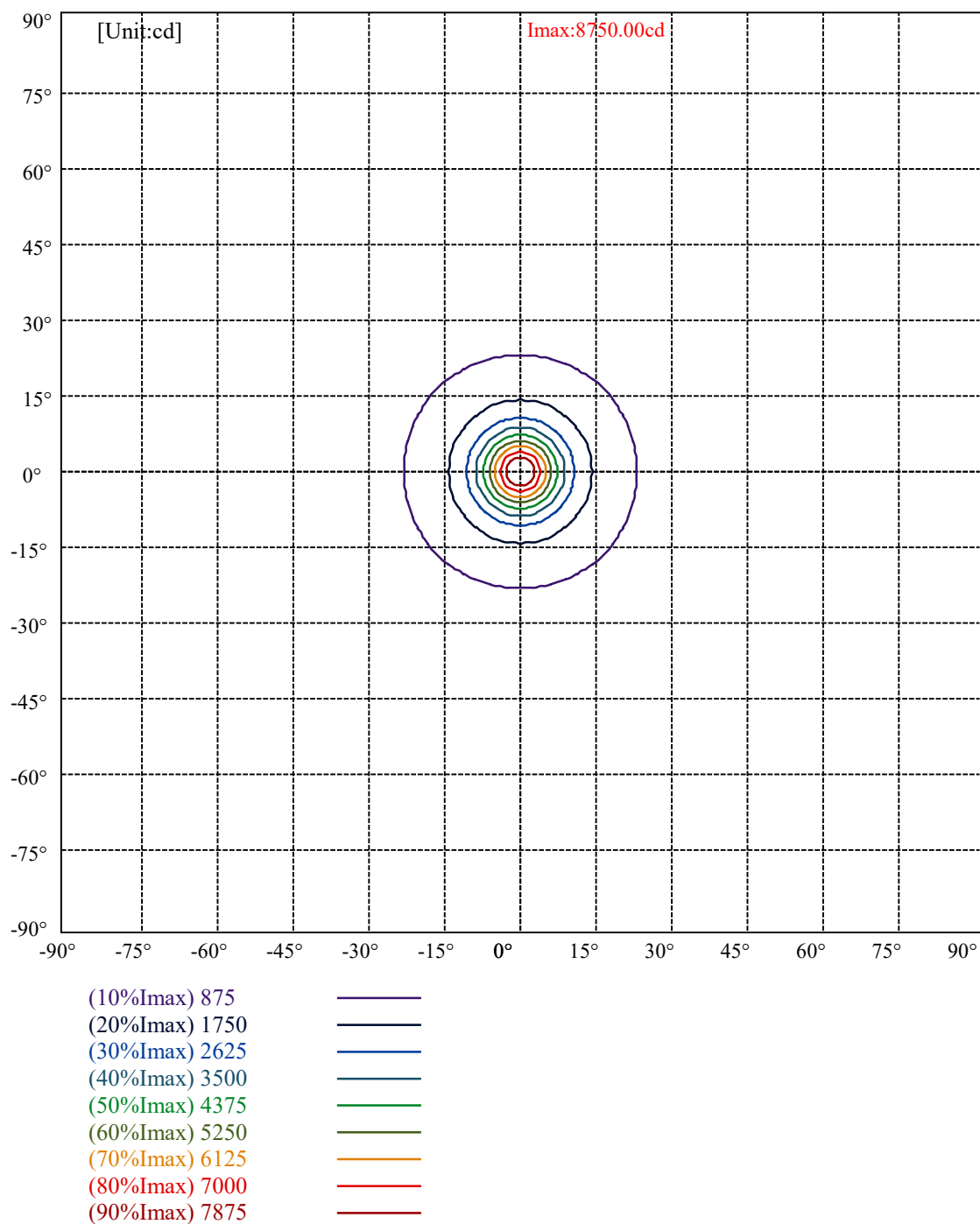
Zone	Lumens	%Lamp	%Fixt
0-30	1290.08	73.47%	87.73%
0-40	1408.15	80.19%	95.76%
0-60	1438.72	81.93%	97.84%
0-90	1470.13	83.72%	99.98%
0-120	1470.13	83.72%	99.98%
0-180	1470.48	83.74%	100.00%
60-90	33.07	1.88%	2.25%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.44	1176.38	66.99%	80.00%

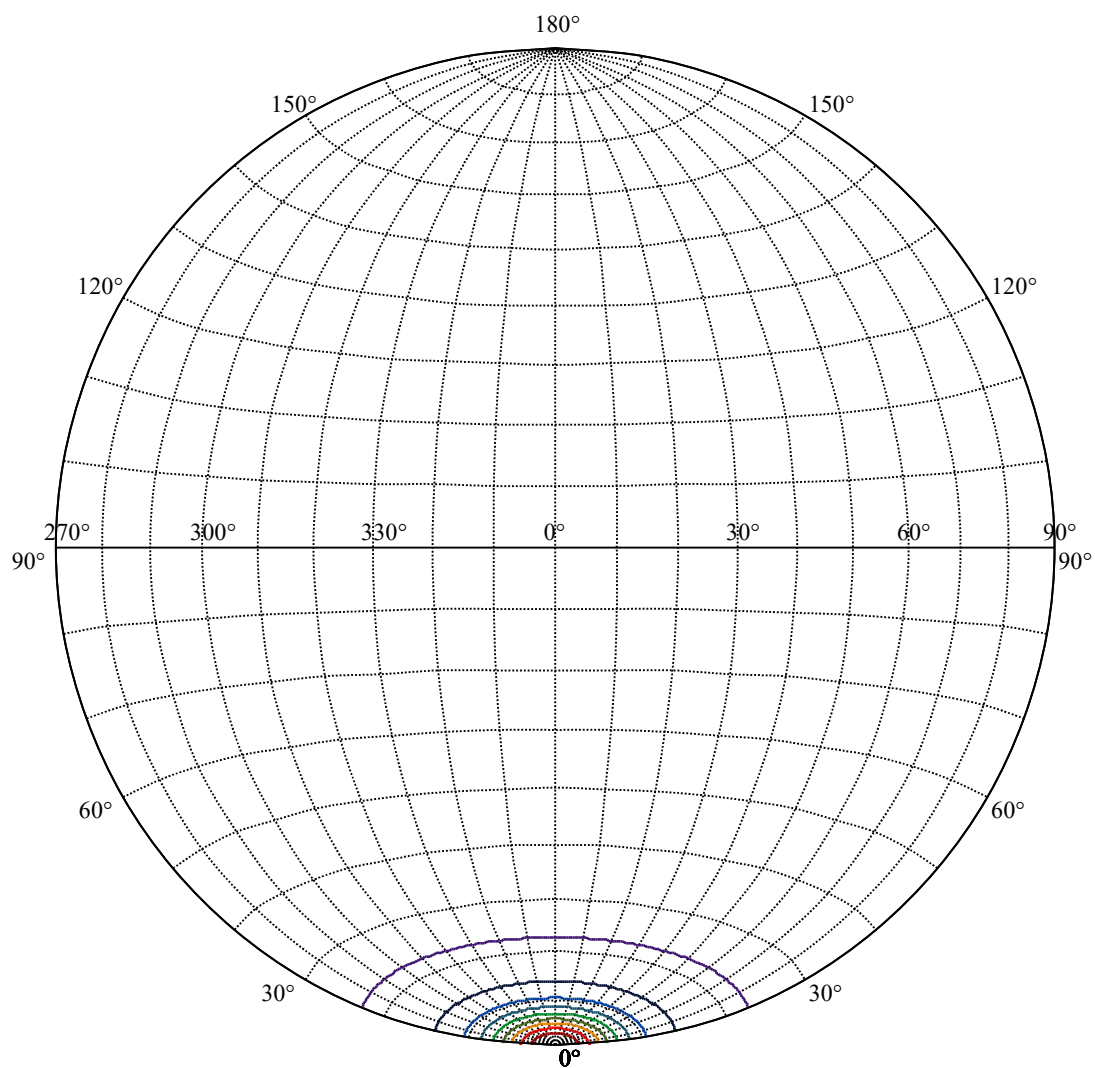
ZONAL LUMEN SUMMARY

0-10	494.82
10-20	446.59
20-30	348.67
30-40	118.07
40-50	15.72
50-60	14.85
60-70	13.91
70-80	10.05
80-90	7.45
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









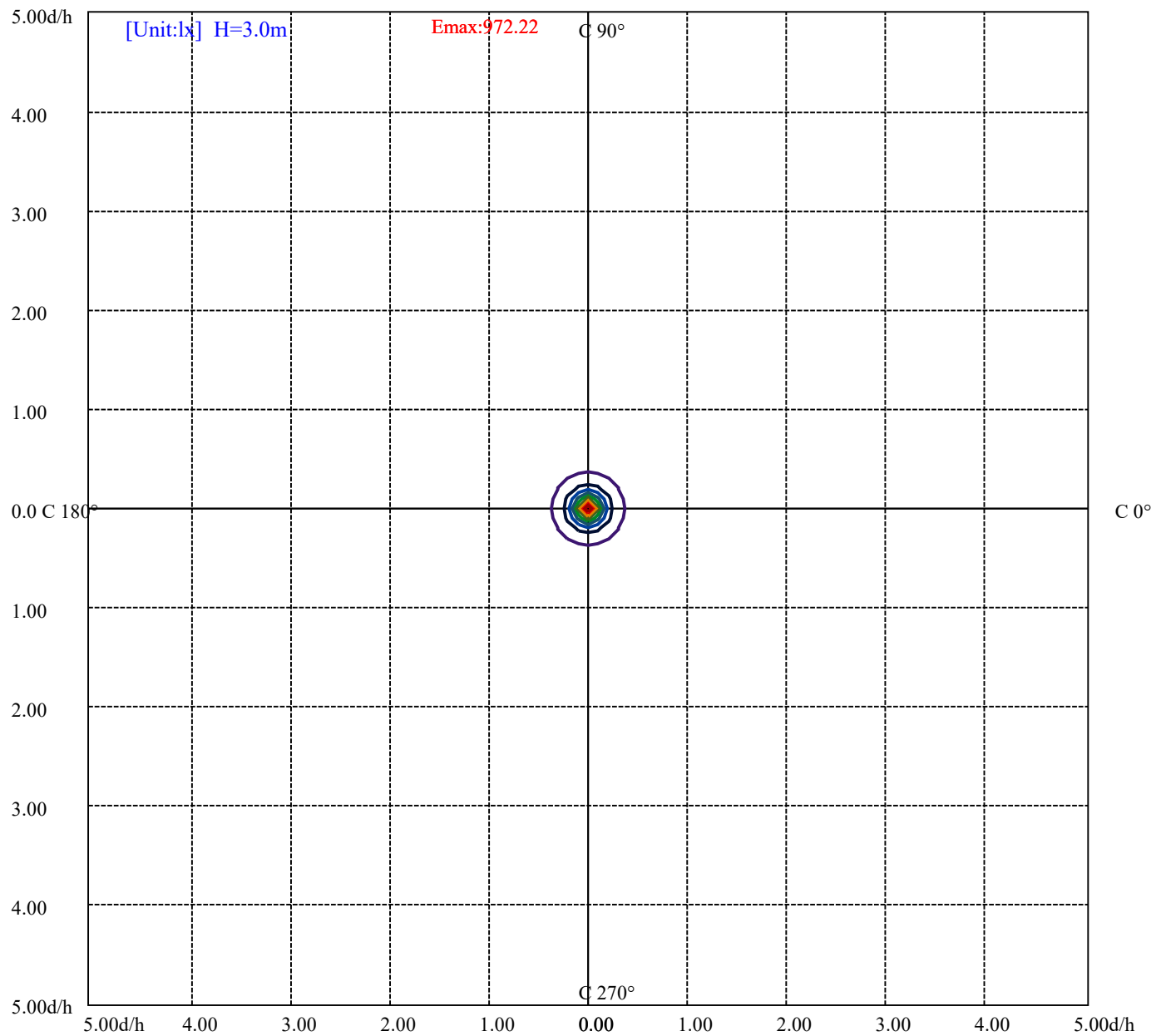
House

[Unit:cd]

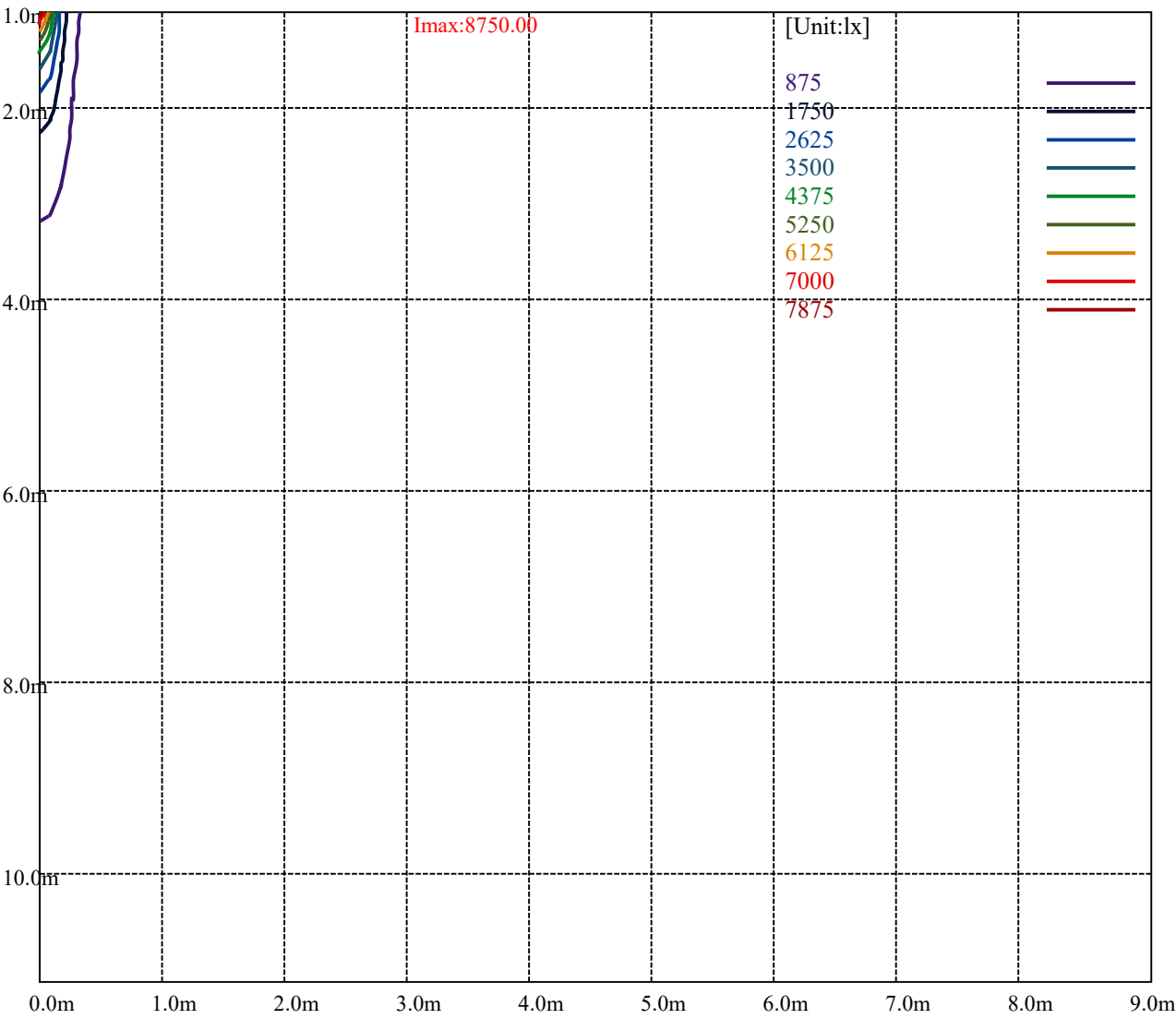
Road

Imax:8750.00

(10%Imax)	875	—
(20%Imax)	1750	—
(30%Imax)	2625	—
(40%Imax)	3500	—
(50%Imax)	4375	—
(60%Imax)	5250	—
(70%Imax)	6125	—
(80%Imax)	7000	—
(90%Imax)	7875	—



(10%Emax) 97.22211	—
(20%Emax) 194.4444	—
(30%Emax) 291.6667	—
(40%Emax) 388.8878	—
(50%Emax) 486.11	—
(60%Emax) 583.3323	—
(70%Emax) 680.5544	—
(80%Emax) 777.7767	—
(90%Emax) 874.9989	—



Luminance Table

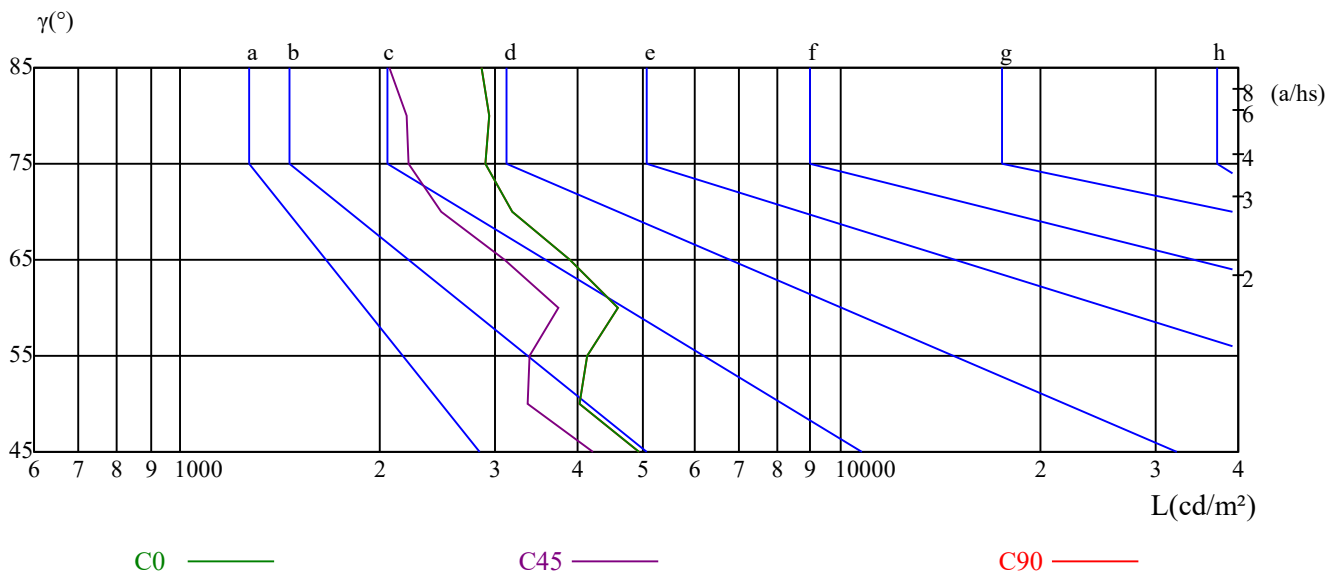
γ	45	50	55	60	65	70	75	80	85
C0	4964	4009	4117	4612	3896	3175	2902	2940	2850
C45	4205	3345	3383	3728	3096	2478	2219	2198	2077
C90	4964	4009	4117	4612	3896	3175	2902	2940	2850

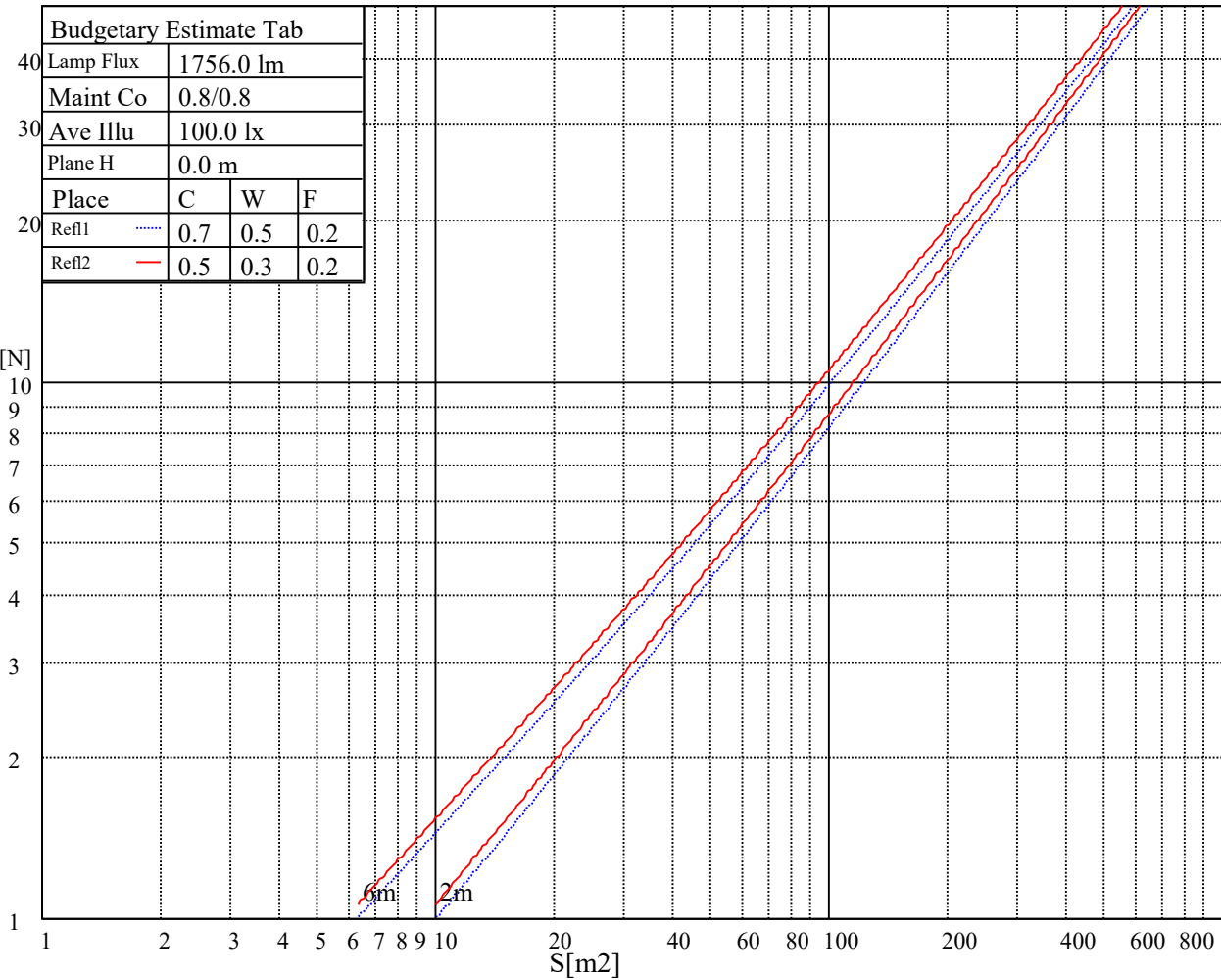
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10345	10345	10345	11261	11261	11261	27998	27998	27998

Glare Table

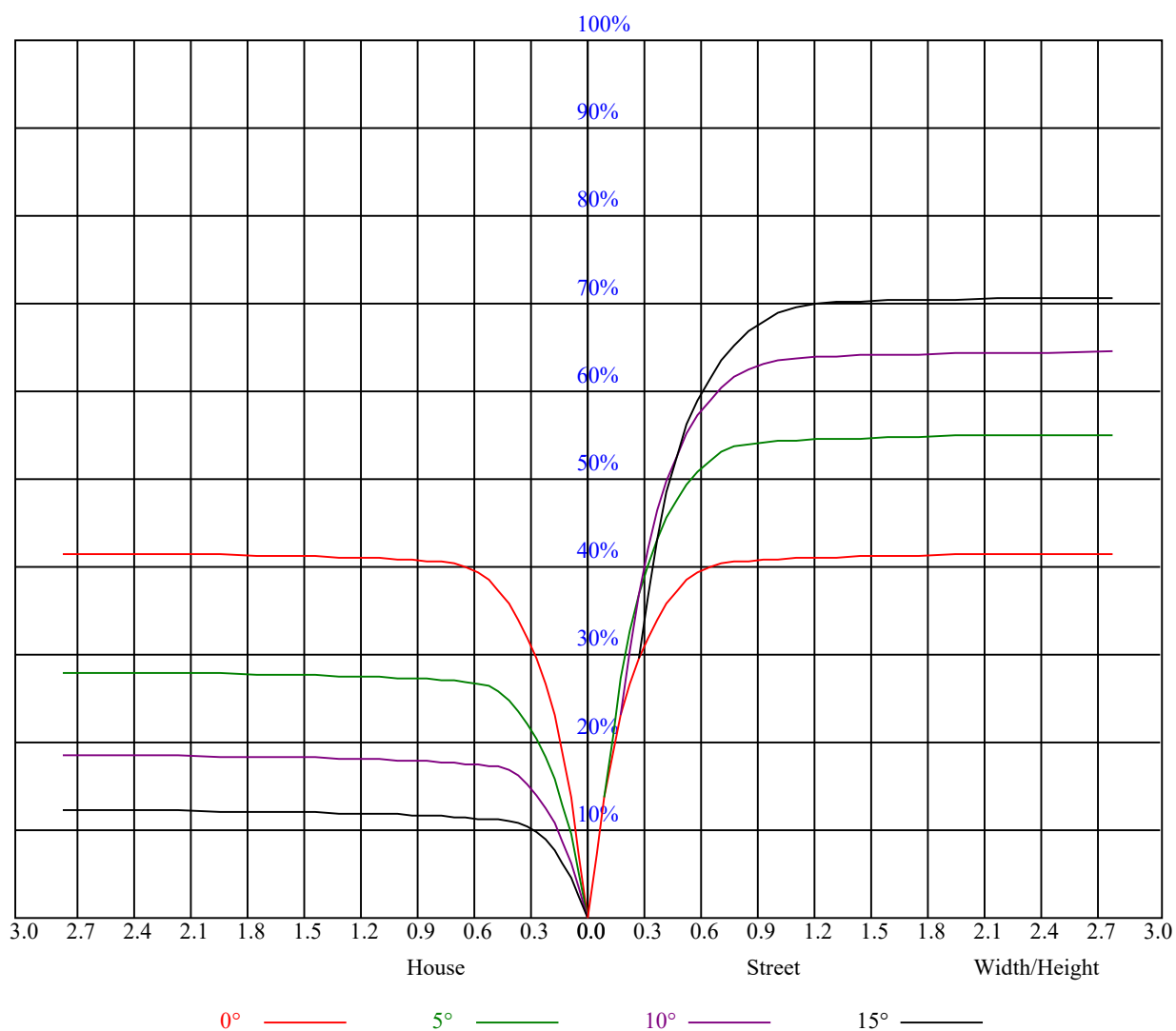
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.00	1.00	1.00	0.98	0.98	0.98	0.93	0.93	0.93	0.89	0.89	0.89	0.86	0.86	0.86	0.84
1	0.94	0.92	0.90	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.79
2	0.88	0.86	0.83	0.87	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.79	0.80	0.78	0.77	0.76
3	0.84	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.74	0.73
4	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.72	0.76	0.73	0.71	0.74	0.72	0.71	0.70
5	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.71	0.69	0.73	0.71	0.68	0.72	0.70	0.68	0.67
6	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
7	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.66	0.63	0.68	0.65	0.63	0.62
8	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.60
9	0.66	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.56



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	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
45.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
90.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
135.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
180.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
225.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
270.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
315.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
360.0	8750.00	8642.70	8324.20	7707.79	6931.00	6152.61	5247.48	4486.49	3873.66
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
45.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
90.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
135.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
180.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
225.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
270.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
315.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
360.0	3257.96	2791.08	2472.09	2184.36	1930.77	1749.20	1581.00	1441.98	1312.99
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
45.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
90.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
135.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
180.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
225.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
270.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
315.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
360.0	1206.45	1128.71	1047.61	971.14	917.29	863.06	810.49	770.02	730.87
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
45.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
90.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
135.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
180.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
225.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
270.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
315.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
360.0	691.23	646.47	595.93	537.90	472.27	399.05	318.01	249.74	177.39
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
45.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
90.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
135.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
180.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
225.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
270.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
315.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36
360.0	128.17	85.45	58.36	39.20	31.11	27.25	24.45	22.74	21.36

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	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
45.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
90.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
135.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
180.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
225.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
270.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
315.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
360.0	20.21	18.99	18.00	17.23	16.63	16.08	15.80	15.64	15.69
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
45.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
90.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
135.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
180.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
225.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
270.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
315.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
360.0	15.80	16.13	16.35	16.79	17.18	17.45	17.51	17.07	16.52
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
45.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
90.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
135.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
180.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
225.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
270.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
315.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
360.0	15.97	14.98	14.20	13.49	13.05	12.22	11.51	11.01	10.52
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
45.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
90.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
135.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
180.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
225.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
270.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
315.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
360.0	10.08	9.80	9.58	9.47	9.30	9.14	9.03	8.97	8.92
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
45.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
90.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
135.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
180.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
225.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
270.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
315.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44
360.0	8.70	8.37	8.15	8.04	7.93	7.27	6.88	6.55	6.44

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	6.33
45.0	6.33
90.0	6.33
135.0	6.33
180.0	6.33
225.0	6.33
270.0	6.33
315.0	6.33
360.0	6.33