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Nata

LumCAT: 1-1061-N
Luminaire: 92.70.361.000
Report No: 220517-B006
Test No: 220517-C006
LampCAT: CREE CMA1516
Lamp flux(lm): 1756.1
Number of Lamps: 1
Length(mm): 43
Phm Type: C

Voltage(V): 35.4800
Current(A): 0.3600
Power (W): 12.7720
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 1516.02
Efficiency(%): 86.33%
Lumens(lm)/Power(W): 118.70
Central intensity(cd): 6793.904
Maximum intensity(cd): 6793.904
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=22.5
[C90/270]Total=22.5
Field angle(10%Imax): [C0/180]Total=49.4
[C90/270]Total=49.4
Maximum s/h(1/2): C0_180=0.38 C90_270=0.38
Maximum s/h(1/4): C0_180=0.40 C90_270=0.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 86.33%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.214%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6793.905	0.000	0	.000%	.000%
1.0	6759.846	6.485	6.485	.369%	.428%
2.0	6653.336	19.252	25.737	1.096%	1.698%
3.0	6471.613	31.391	57.128	1.788%	3.768%
4.0	6226.700	42.505	99.633	2.420%	6.572%
5.0	5939.513	52.338	151.971	2.980%	10.024%
6.0	5557.991	60.422	212.394	3.441%	14.010%
7.0	5156.227	66.503	278.897	3.787%	18.397%
8.0	4769.850	71.039	349.936	4.045%	23.083%
9.0	4328.724	73.739	423.675	4.199%	27.947%
10.0	3878.262	74.270	497.945	4.229%	32.846%
11.0	3493.229	73.656	571.601	4.194%	37.704%
12.0	3105.358	72.132	643.733	4.108%	42.462%
13.0	2705.686	68.962	712.696	3.927%	47.011%
14.0	2389.967	65.224	777.92	3.714%	51.313%
15.0	2108.456	61.756	839.676	3.517%	55.387%
16.0	1850.174	58.005	897.681	3.303%	59.213%
17.0	1632.001	54.227	951.908	3.088%	62.790%
18.0	1441.778	50.680	1002.588	2.886%	66.133%
19.0	1302.912	47.752	1050.34	2.719%	69.283%
20.0	1151.304	44.919	1095.259	2.558%	72.246%
21.0	1047.752	42.226	1137.485	2.405%	75.031%
22.0	935.999	39.864	1177.349	2.270%	77.661%
23.0	842.493	37.318	1214.667	2.125%	80.122%
24.0	742.012	34.643	1249.31	1.973%	82.407%
25.0	650.761	31.669	1280.979	1.803%	84.496%
26.0	572.463	28.874	1309.853	1.644%	86.401%
27.0	494.351	26.100	1335.953	1.486%	88.123%
28.0	400.994	22.668	1358.621	1.291%	89.618%
29.0	340.621	19.403	1378.024	1.105%	90.898%
30.0	270.516	16.501	1394.524	.940%	91.986%
31.0	206.342	13.270	1407.795	.756%	92.862%
32.0	156.134	10.385	1418.179	.591%	93.547%
33.0	116.653	8.036	1426.216	.458%	94.077%
34.0	88.419	6.206	1432.422	.353%	94.486%
35.0	71.614	4.970	1437.392	.283%	94.814%
36.0	63.129	4.290	1441.682	.244%	95.097%
37.0	56.317	3.896	1445.578	.222%	95.354%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	50.865	3.578	1449.155	.204%	95.590%
39.0	45.606	3.293	1452.448	.188%	95.807%
40.0	40.968	3.019	1455.467	.172%	96.006%
41.0	37.413	2.791	1458.259	.159%	96.190%
42.0	34.104	2.598	1460.857	.148%	96.362%
43.0	30.862	2.407	1463.263	.137%	96.520%
44.0	28.405	2.237	1465.5	.127%	96.668%
45.0	26.187	2.098	1467.598	.119%	96.806%
46.0	23.819	1.956	1469.554	.111%	96.935%
47.0	22.064	1.825	1471.379	.104%	97.056%
48.0	20.585	1.724	1473.103	.098%	97.169%
49.0	19.046	1.627	1474.73	.093%	97.277%
50.0	17.791	1.536	1476.266	.087%	97.378%
51.0	16.761	1.462	1477.728	.083%	97.474%
52.0	15.820	1.398	1479.126	.080%	97.567%
53.0	15.020	1.342	1480.468	.076%	97.655%
54.0	14.356	1.295	1481.762	.074%	97.741%
55.0	13.795	1.257	1483.019	.072%	97.823%
56.0	13.340	1.226	1484.245	.070%	97.904%
57.0	12.922	1.201	1485.446	.068%	97.984%
58.0	12.556	1.178	1486.624	.067%	98.061%
59.0	12.317	1.163	1487.787	.066%	98.138%
60.0	12.055	1.151	1488.938	.066%	98.214%
61.0	11.779	1.137	1490.076	.065%	98.289%
62.0	11.547	1.124	1491.2	.064%	98.363%
63.0	11.278	1.110	1492.31	.063%	98.436%
64.0	11.009	1.094	1493.404	.062%	98.508%
65.0	10.726	1.076	1494.479	.061%	98.579%
66.0	10.457	1.057	1495.536	.060%	98.649%
67.0	10.158	1.037	1496.573	.059%	98.718%
68.0	9.882	1.015	1497.588	.058%	98.784%
69.0	9.620	0.995	1498.583	.057%	98.850%
70.0	9.381	0.976	1499.559	.056%	98.914%
71.0	9.165	0.959	1500.517	.055%	98.978%
72.0	8.933	0.941	1501.458	.054%	99.040%
73.0	8.731	0.924	1502.382	.053%	99.101%
74.0	8.560	0.909	1503.291	.052%	99.161%
75.0	8.350	0.893	1504.184	.051%	99.220%

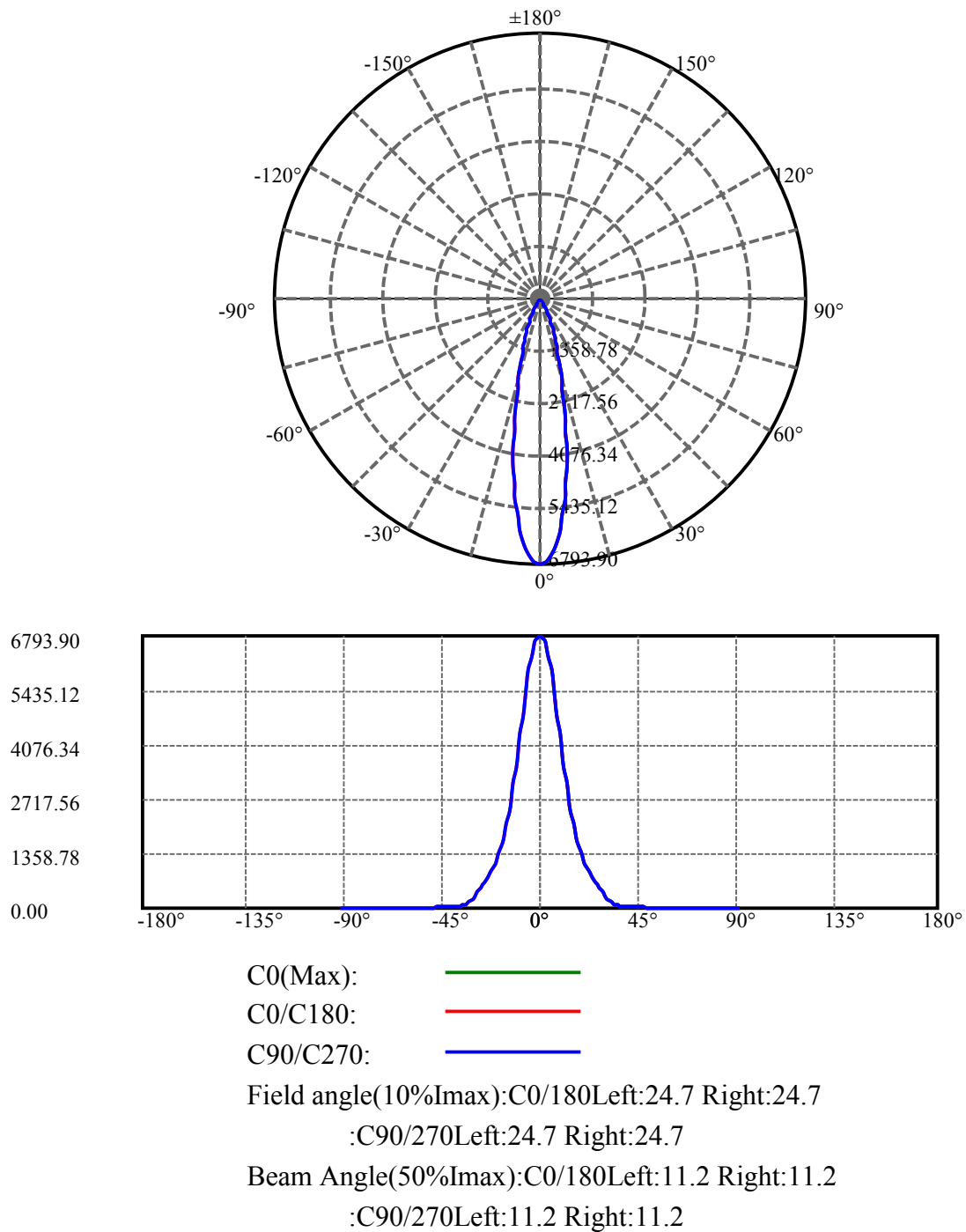
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.179	0.877	1505.062	.050%	99.277%
77.0	8.029	0.864	1505.926	.049%	99.334%
78.0	7.872	0.851	1506.777	.048%	99.391%
79.0	7.701	0.837	1507.614	.048%	99.446%
80.0	7.566	0.823	1508.437	.047%	99.500%
81.0	7.454	0.812	1509.249	.046%	99.554%
82.0	7.335	0.802	1510.051	.046%	99.607%
83.0	7.208	0.791	1510.842	.045%	99.659%
84.0	7.088	0.779	1511.621	.044%	99.710%
85.0	6.954	0.766	1512.387	.044%	99.761%
86.0	6.819	0.753	1513.14	.043%	99.810%
87.0	6.677	0.739	1513.878	.042%	99.859%
88.0	6.550	0.725	1514.603	.041%	99.907%
89.0	6.431	0.712	1515.315	.041%	99.954%
90.0	6.349	0.701	1516.015	.040%	100.000%

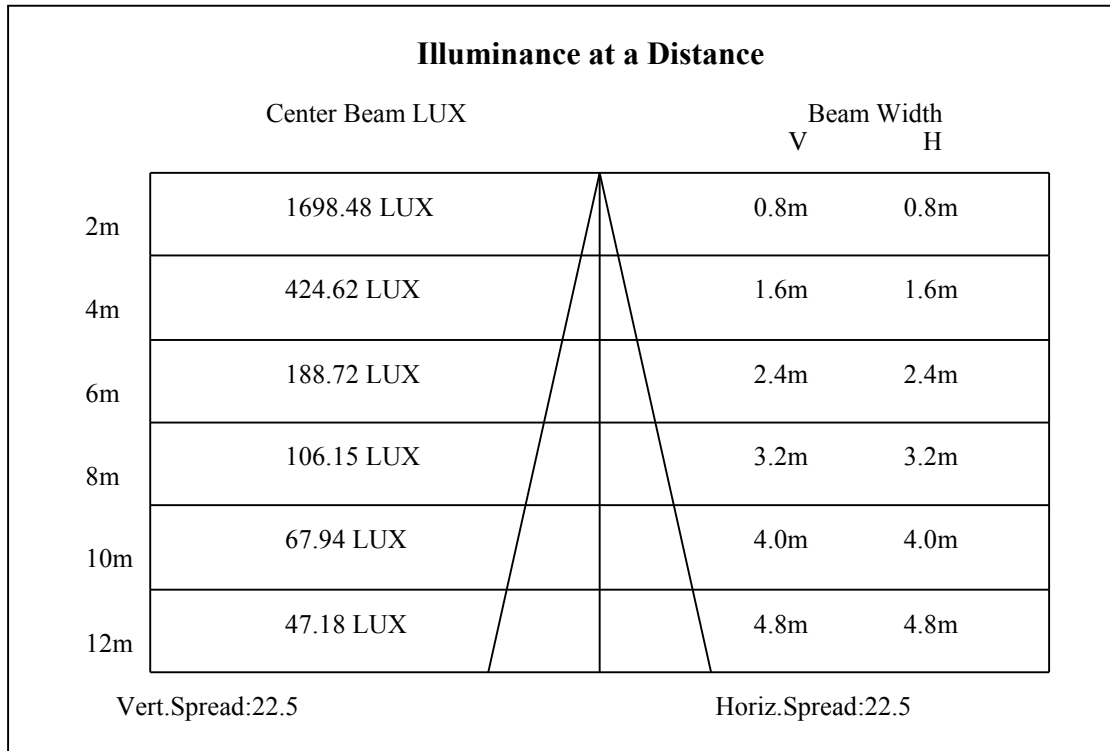
ZONAL LUMEN SUMMARY

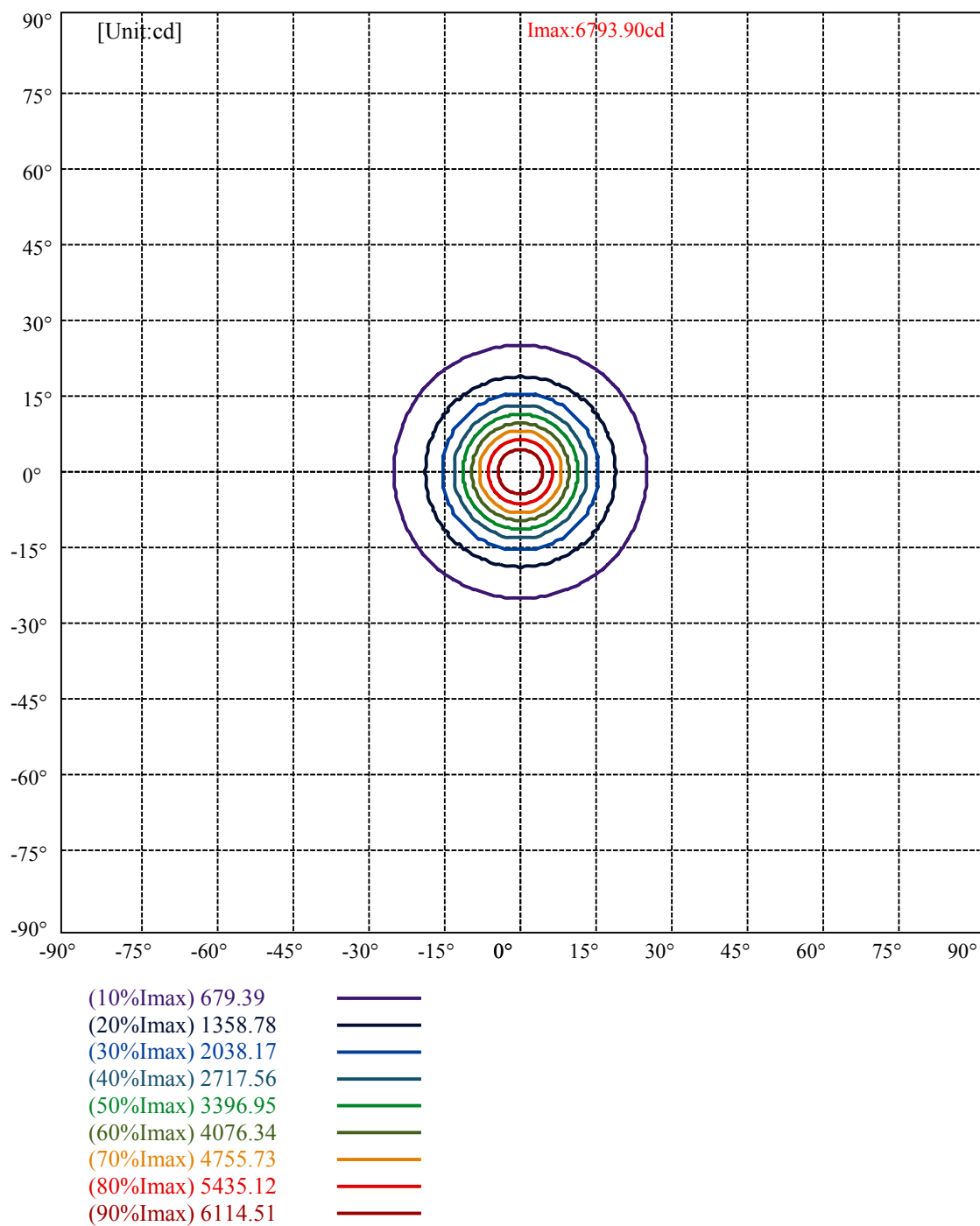
Zone	Lumens	%Lamp	%Fixt
0-30	1394.52	79.41%	91.99%
0-40	1455.47	82.88%	96.01%
0-60	1488.94	84.79%	98.21%
0-90	1515.31	86.29%	99.95%
0-120	1515.31	86.29%	99.95%
0-180	1516.02	86.33%	100.00%
60-90	27.53	1.57%	1.82%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-22.95	1212.81	69.06%	80.00%

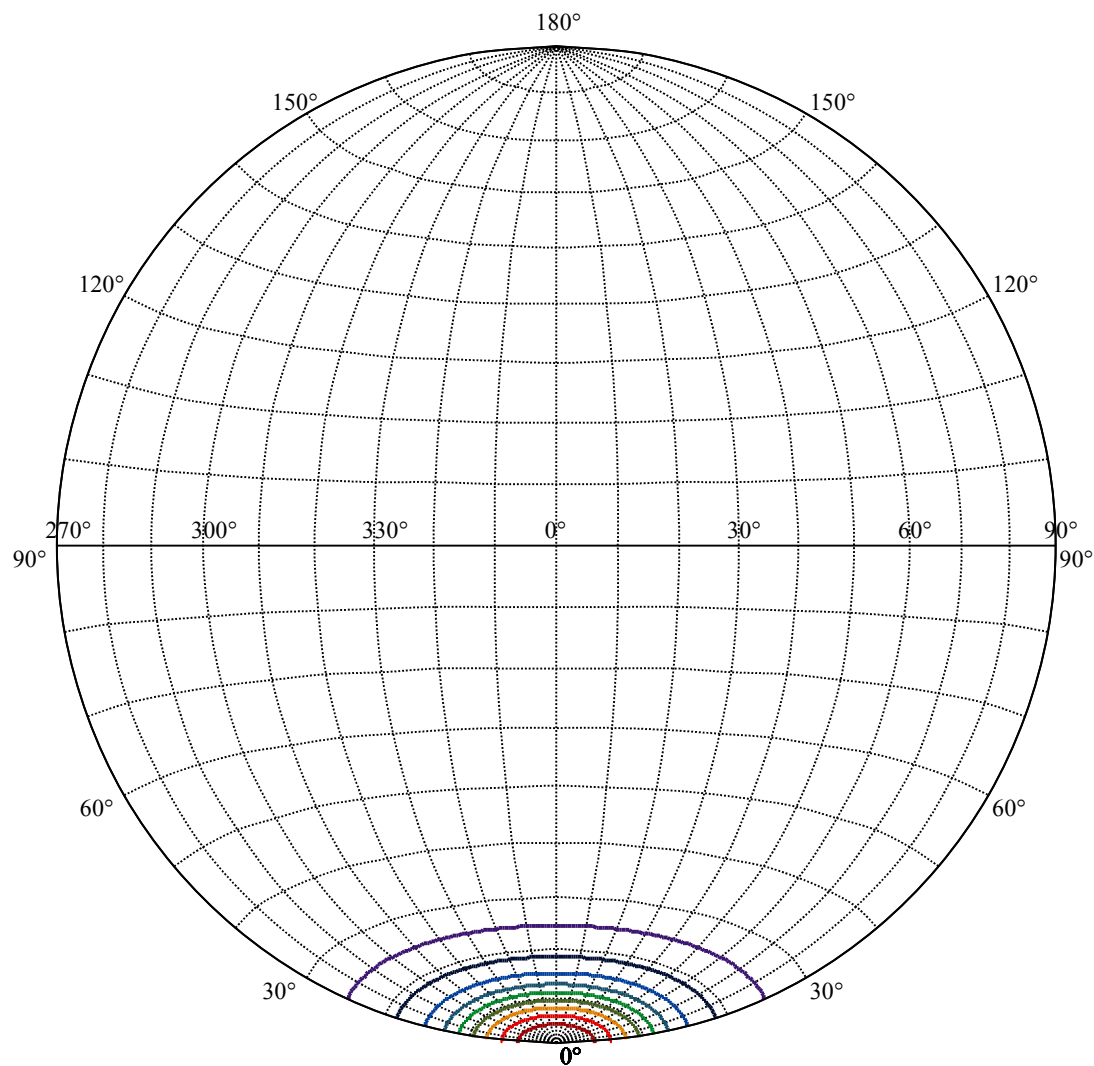
ZONAL LUMEN SUMMARY

0-10	497.95
10-20	597.31
20-30	299.27
30-40	60.94
40-50	20.80
50-60	12.67
60-70	10.62
70-80	8.88
80-90	6.88
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







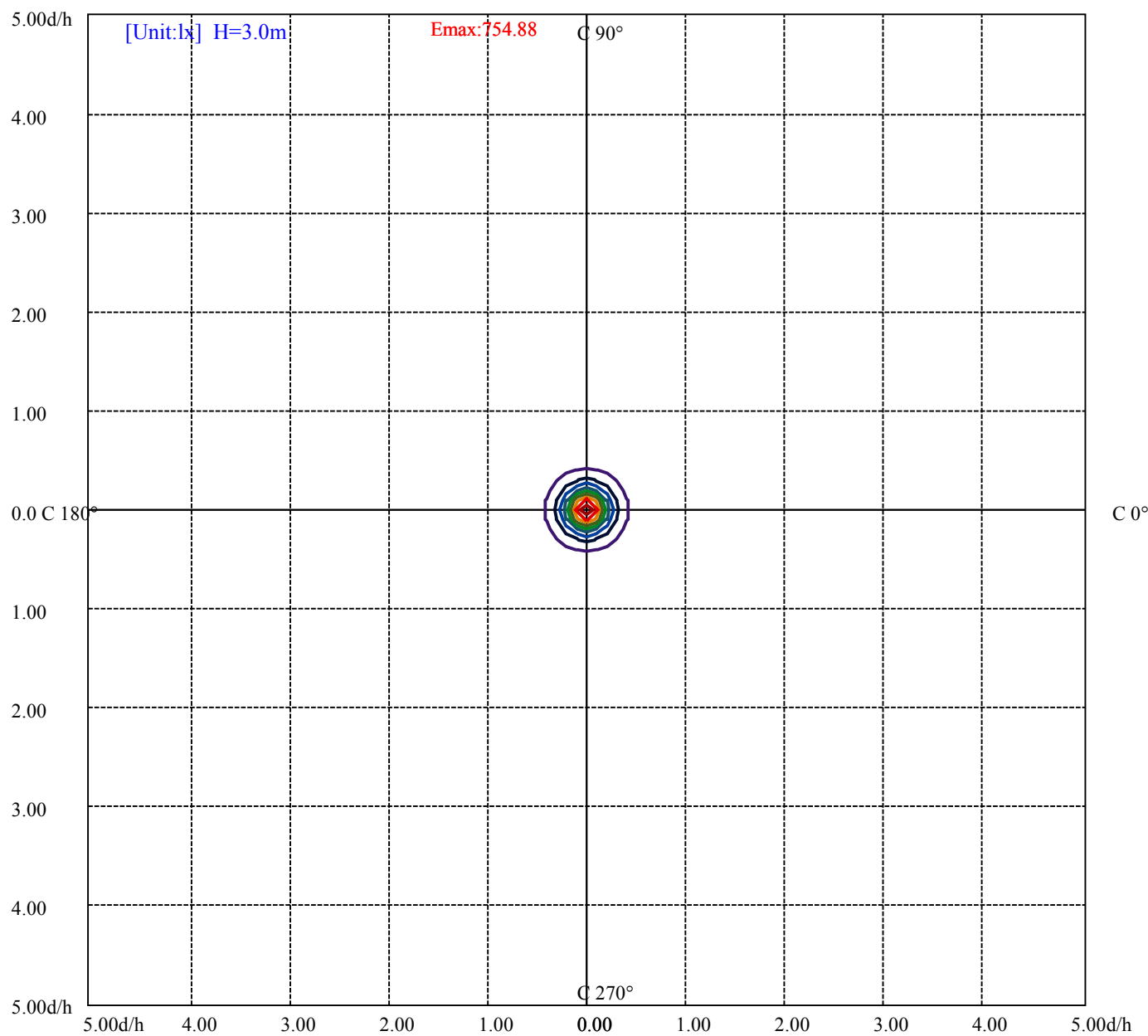


House

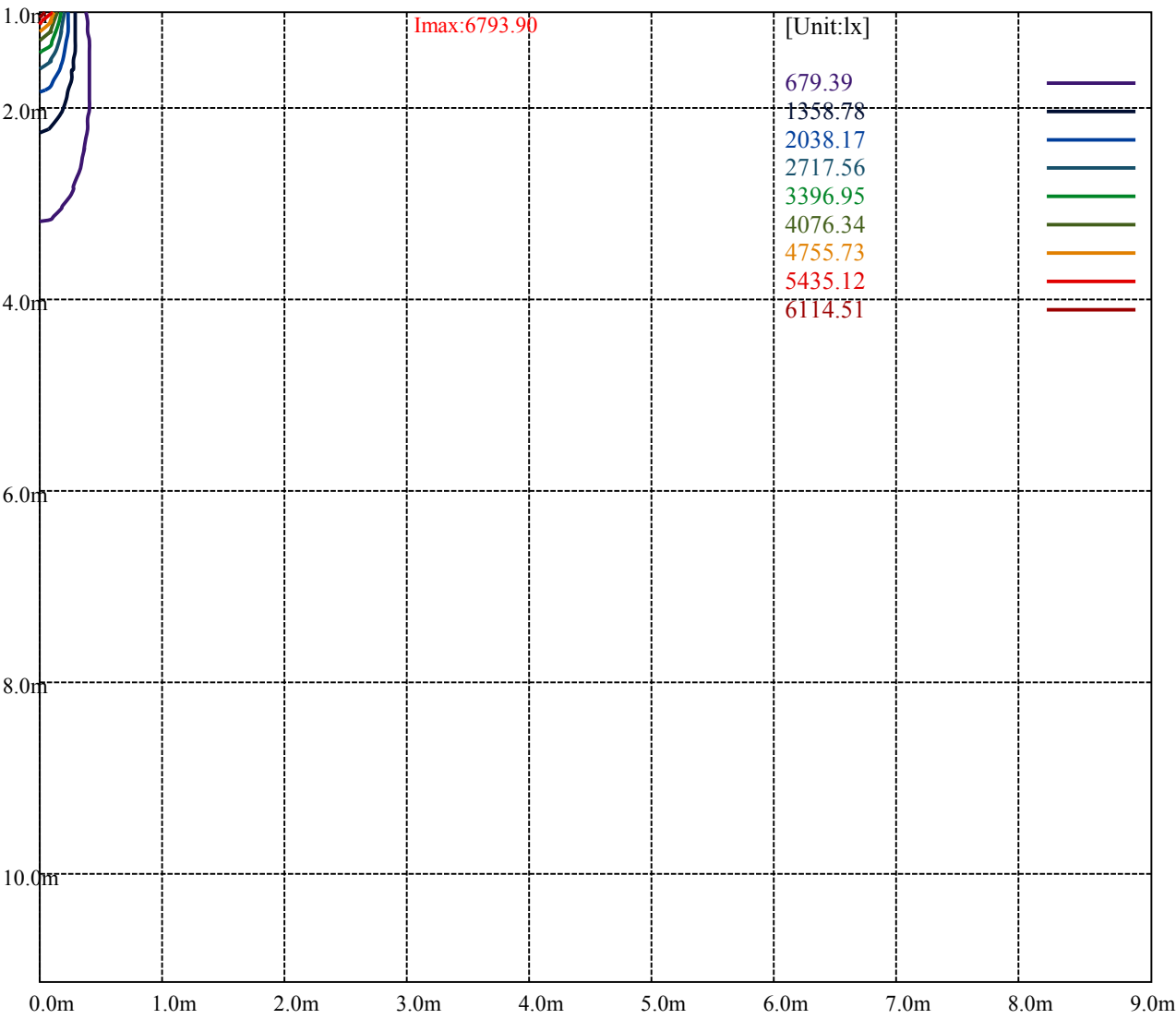
[Unit:cd]

Road

Imax:6793.90	
(10%Imax) 679.39	
(20%Imax) 1358.78	
(30%Imax) 2038.17	
(40%Imax) 2717.56	
(50%Imax) 3396.95	
(60%Imax) 4076.34	
(70%Imax) 4755.73	
(80%Imax) 5435.12	
(90%Imax) 6114.51	



(10%Emax)	75.48778	
(20%Emax)	150.9756	
(30%Emax)	226.4633	
(40%Emax)	301.9511	
(50%Emax)	377.4389	
(60%Emax)	452.9267	
(70%Emax)	528.4144	
(80%Emax)	603.9022	
(90%Emax)	679.39	



Luminance Table

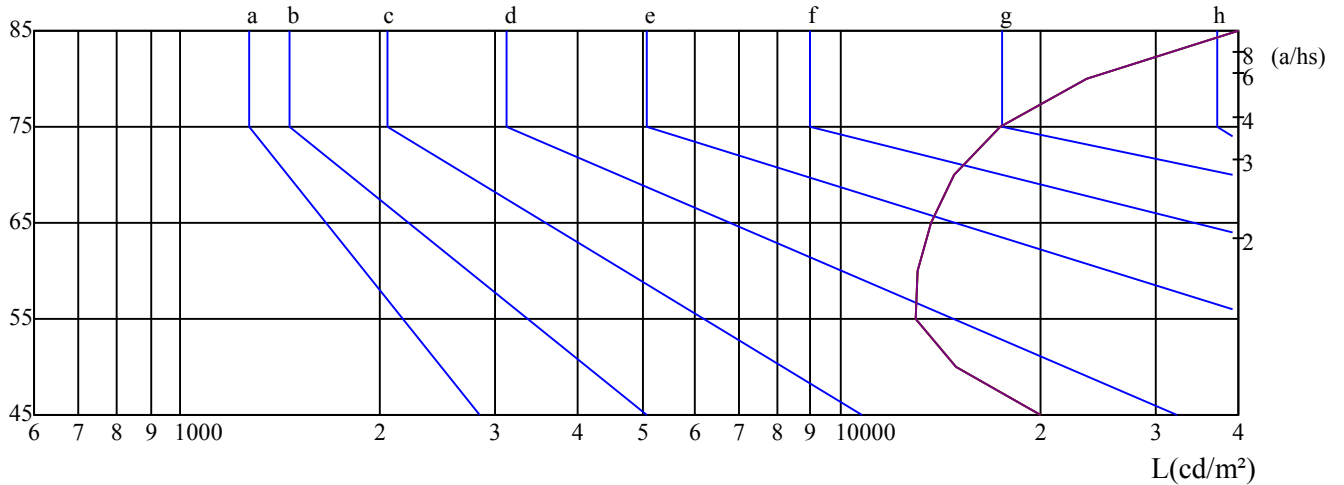
γ	45	50	55	60	65	70	75	80	85
C0	20029	14969	13008	13040	13726	14834	17449	23565	43150
C45	20029	14969	13008	13040	13726	14834	17449	23565	43150
C90	20029	14969	13008	13040	13726	14834	17449	23565	43150

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
13726	13726	13726	17449	17449	17449	43150	43150	43150

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

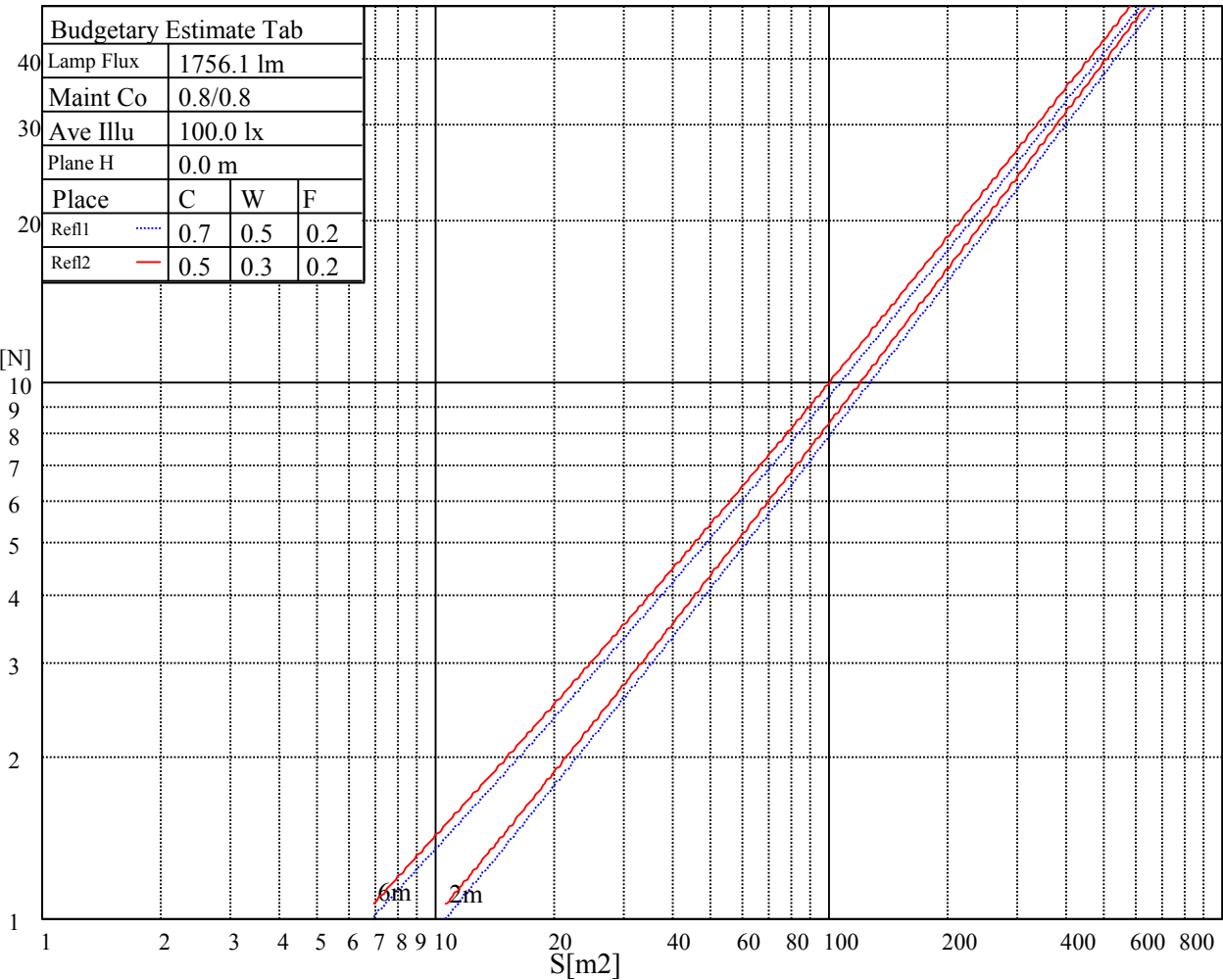
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

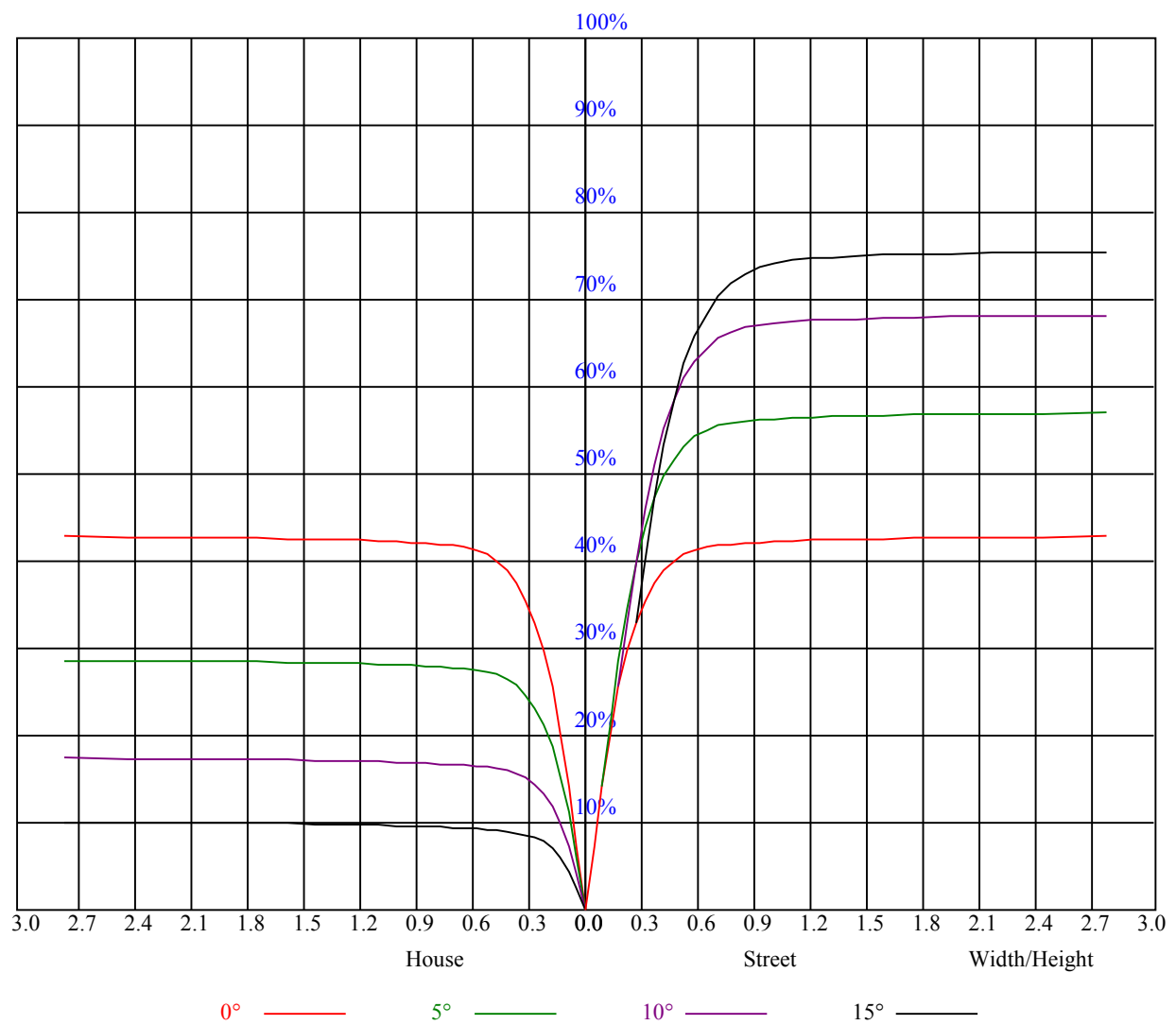
C0 ———

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	1.03	1.03	1.03	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.86
1	0.97	0.95	0.93	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.84	0.82
2	0.92	0.89	0.87	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.83	0.82	0.83	0.81	0.80	0.79
3	0.87	0.84	0.81	0.86	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.80	0.79	0.77	0.76
4	0.84	0.80	0.77	0.83	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.72	0.71
6	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.66
8	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
9	0.70	0.66	0.64	0.69	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
10	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.61	0.66	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	6755.07	6844.10	6863.82	6799.28	6675.59	6490.96	6171.28	5859.37	5514.60
45.0	6844.10	6778.97	6637.35	6447.94	6167.10	5868.93	5475.76	5043.14	4644.00
90.0	6772.39	6644.52	6459.29	6148.57	5844.43	5497.27	5009.09	4599.18	4189.87
135.0	6804.06	6685.15	6480.20	6241.19	5912.55	5523.56	5128.59	4672.08	4270.54
180.0	6755.07	6585.96	6372.65	6072.69	5707.60	5334.14	4878.23	4416.93	4015.99
225.0	6844.10	6830.95	6739.53	6568.64	6356.51	6087.63	5676.53	5312.03	4916.47
270.0	6772.39	6845.89	6833.34	6755.66	6585.96	6368.46	6058.35	5689.07	5322.19
315.0	6804.06	6863.22	6840.51	6738.93	6563.86	6345.16	6066.11	5658.00	5285.14
360.0	6755.07	6844.10	6863.82	6799.28	6675.59	6490.96	6171.28	5859.37	5514.60
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5038.36	4638.02	4228.71	3770.41	3329.43	2961.35	2575.95	2273.60	1974.24
45.0	4184.50	3726.19	3334.81	2963.15	2539.50	2244.92	1987.38	1740.00	1532.66
90.0	3739.34	3308.52	2949.40	2578.34	2248.50	1993.36	1749.56	1564.33	1391.05
135.0	3825.38	3387.39	3021.70	2722.94	2301.68	2039.37	1841.58	1585.24	1331.08
180.0	3618.64	3150.77	2806.59	2487.51	2170.23	1899.54	1699.97	1508.76	1347.43
225.0	4459.96	4013.60	3618.04	3189.61	2789.27	2468.39	2147.52	1904.32	1673.08
270.0	4878.23	4425.30	4021.97	3624.61	3147.19	2792.85	2464.21	2139.15	1862.50
315.0	4885.40	4376.30	3964.60	3506.30	3119.70	2719.95	2401.47	2085.97	1843.97
360.0	5038.36	4638.02	4228.71	3770.41	3329.43	2961.35	2575.95	2273.60	1974.24
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1725.66	1545.21	1374.32	1232.70	1117.98	1008.03	878.97	794.71	720.02
45.0	1377.90	1233.90	1103.64	990.11	874.18	789.93	699.11	606.49	530.01
90.0	1179.76	1123.24	1013.23	895.88	795.67	720.92	629.86	538.73	462.01
135.0	1313.37	1168.17	1045.08	950.07	834.15	755.87	665.65	559.29	481.01
180.0	1190.76	1091.80	982.16	866.42	778.22	697.38	599.86	506.05	429.15
225.0	1486.05	1346.83	1179.22	1082.60	974.15	869.05	770.69	690.39	606.31
270.0	1661.73	1475.90	1321.73	1201.63	1075.55	966.80	856.86	772.01	691.34
315.0	1598.99	1438.25	1191.05	1162.61	1038.09	931.97	835.11	738.43	659.85
360.0	1725.66	1545.21	1374.32	1232.70	1117.98	1008.03	878.97	794.71	720.02
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	636.97	533.00	456.51	387.20	306.53	268.47	187.33	132.89	93.93
45.0	449.94	360.91	305.34	236.02	168.92	119.80	86.88	70.45	62.20
90.0	392.16	310.72	249.17	192.23	137.67	98.17	77.62	67.82	59.99
135.0	408.71	318.48	303.54	192.40	131.28	97.94	78.87	69.55	62.74
180.0	359.95	278.51	217.50	162.41	109.29	84.25	73.44	64.89	58.92
225.0	523.61	426.81	358.22	293.92	225.03	163.54	118.19	84.79	72.12
270.0	605.89	501.92	427.83	359.11	302.35	213.86	160.14	111.80	82.16
315.0	577.57	477.60	406.86	340.83	269.66	203.04	150.76	105.17	80.85
360.0	636.97	533.00	456.51	387.20	306.53	268.47	187.33	132.89	93.93
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	76.42	68.06	61.01	54.20	48.04	43.56	39.32	35.49	32.63
45.0	55.63	50.43	45.17	40.63	37.35	33.82	30.89	28.62	26.23
90.0	53.72	47.62	43.08	38.60	34.78	31.85	29.22	26.41	24.44
135.0	56.65	50.49	45.17	41.11	36.99	33.70	30.59	27.90	25.63
180.0	53.48	47.44	43.62	39.38	35.13	32.63	29.94	26.77	24.86
225.0	65.43	58.50	53.12	47.50	42.78	39.08	35.79	32.15	29.52
270.0	72.90	64.77	58.44	52.16	46.73	42.66	38.60	35.02	32.15
315.0	70.81	63.22	57.30	51.27	45.95	42.01	38.48	34.54	31.79
360.0	76.42	68.06	61.01	54.20	48.04	43.56	39.32	35.49	32.63

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Intensity data(cd)										Appendix Page: 17 Total:18	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	30.06	27.01	24.92	23.12	21.15	19.72	18.46	17.21	16.25		
45.0	24.20	22.47	20.73	19.42	18.16	16.97	16.13	15.42	14.52		
90.0	22.65	20.73	19.42	18.22	17.03	16.01	15.18	14.46	13.86		
135.0	23.48	21.57	19.96	18.76	17.33	16.37	15.48	14.70	13.98		
180.0	23.06	20.79	19.66	18.40	17.33	16.13	15.30	14.58	13.98		
225.0	27.19	24.56	22.71	21.09	19.54	18.16	17.09	16.07	15.30		
270.0	29.64	26.83	24.80	23.06	20.97	19.60	18.34	17.15	16.13		
315.0	29.22	26.59	24.32	22.59	20.85	19.36	18.11	16.97	16.13		
360.0	30.06	27.01	24.92	23.12	21.15	19.72	18.46	17.21	16.25		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	15.42	14.76	14.16	13.56	13.09	12.79	12.49	12.19	11.95		
45.0	13.98	13.56	13.03	12.67	12.43	12.13	11.83	11.65	11.29		
90.0	13.32	12.91	12.61	12.31	11.95	11.77	11.59	11.29	11.05		
135.0	13.50	13.03	12.67	12.37	12.07	11.89	11.71	11.41	11.29		
180.0	13.50	13.03	12.73	12.37	12.13	12.01	11.77	11.53	11.29		
225.0	14.52	13.92	13.50	13.03	12.73	12.43	12.19	11.95	11.77		
270.0	15.36	14.64	14.10	13.56	13.09	12.85	12.43	12.19	11.95		
315.0	15.24	14.52	13.92	13.50	12.97	12.67	12.43	12.01	11.77		
360.0	15.42	14.76	14.16	13.56	13.09	12.79	12.49	12.19	11.95		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	11.71	11.41	11.17	10.93	10.58	10.34	10.10	9.86	9.62		
45.0	11.11	10.93	10.46	10.28	10.04	9.68	9.50	9.26	9.02		
90.0	10.82	10.52	10.28	10.04	9.74	9.50	9.26	9.08	8.84		
135.0	10.99	10.64	10.40	10.16	9.80	9.56	9.32	9.02	8.90		
180.0	10.99	10.76	10.40	10.04	9.80	9.56	9.26	9.08	8.84		
225.0	11.47	11.29	10.93	10.70	10.40	9.98	9.74	9.50	9.26		
270.0	11.59	11.35	11.17	10.82	10.58	10.28	9.92	9.68	9.44		
315.0	11.53	11.17	10.99	10.70	10.34	10.16	9.86	9.56	9.38		
360.0	11.71	11.41	11.17	10.93	10.58	10.34	10.10	9.86	9.62		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	9.32	9.08	8.90	8.72	8.48	8.37	8.19	7.95	7.77		
45.0	8.84	8.66	8.43	8.25	8.07	7.89	7.77	7.59	7.41		
90.0	8.66	8.43	8.31	8.13	7.95	7.77	7.65	7.47	7.35		
135.0	8.66	8.48	8.37	8.13	7.95	7.83	7.65	7.53	7.41		
180.0	8.60	8.43	8.25	8.07	7.95	7.83	7.71	7.59	7.47		
225.0	9.02	8.84	8.60	8.43	8.31	8.13	7.95	7.77	7.71		
270.0	9.20	9.02	8.84	8.54	8.43	8.25	8.07	7.89	7.77		
315.0	9.14	8.90	8.78	8.54	8.31	8.19	8.01	7.83	7.65		
360.0	9.32	9.08	8.90	8.72	8.48	8.37	8.19	7.95	7.77		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	7.65	7.53	7.35	7.17	7.05	6.93	6.81	6.75	6.63		
45.0	7.29	7.17	6.99	6.93	6.75	6.63	6.57	6.45	6.27		
90.0	7.23	7.05	6.99	6.81	6.69	6.63	6.45	6.27	6.21		
135.0	7.29	7.17	7.05	6.93	6.87	6.69	6.51	6.39	6.27		
180.0	7.41	7.35	7.23	7.11	6.87	6.69	6.51	6.33	6.33		
225.0	7.59	7.47	7.41	7.35	7.23	7.05	6.87	6.69	6.51		
270.0	7.65	7.53	7.41	7.29	7.17	7.05	6.93	6.81	6.63		
315.0	7.53	7.41	7.23	7.11	6.99	6.87	6.75	6.69	6.57		
360.0	7.65	7.53	7.35	7.17	7.05	6.93	6.81	6.75	6.63		

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	6.51
45.0	6.21
90.0	6.21
135.0	6.27
180.0	6.33
225.0	6.33
270.0	6.45
315.0	6.45
360.0	6.51