
NATA

LumCAT: 1-0871-A	
Luminaire: 92.70.043.00	
Report No:	Voltage(V): 36.4000
Test No: GC2018120405	Current(A): 0.1500
LampCAT: CITIZEN CLU7A2	Power (W): 5.4600
Lamp flux(lm): 629.5	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 45	Width(mm): 45
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 556.99
Efficiency(%): 88.48%
Lumens(lm)/Power(W): 102.01
Central intensity(cd): 10674.000
Maximum intensity(cd): 10674.000
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=8.4
[C90/270]Total=8.4
Field angle(10%Imax): [C0/180]Total=15.8
[C90/270]Total=15.8
Maximum s/h(1/2): C0_180=0.15 C90_270=0.15
Maximum s/h(1/4): C0_180=0.14 C90_270=0.14
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.48%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.395%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10674.000	0.000	0	.000%	.000%
0.5	10589.836	2.544	2.544	.404%	.457%
1.0	10337.203	7.510	10.053	1.193%	1.805%
1.5	9828.422	12.060	22.114	1.916%	3.970%
2.0	9105.117	15.852	37.966	2.518%	6.816%
2.5	8278.594	18.711	56.676	2.972%	10.176%
3.0	7428.094	20.660	77.336	3.282%	13.885%
3.5	6553.125	21.730	99.066	3.452%	17.786%
4.0	5682.094	21.938	121.005	3.485%	21.725%
4.5	4711.570	21.117	142.122	3.354%	25.516%
5.0	3841.031	19.416	161.538	3.084%	29.002%
5.5	3081.354	17.365	178.903	2.758%	32.120%
6.0	2454.335	15.205	194.108	2.415%	34.850%
6.5	1968.778	13.201	207.31	2.097%	37.220%
7.0	1632.614	11.605	218.915	1.843%	39.303%
7.5	1246.184	9.960	228.875	1.582%	41.092%
8.0	1008.759	8.337	237.211	1.324%	42.588%
8.5	870.666	7.394	244.605	1.174%	43.916%
9.0	735.926	6.700	251.305	1.064%	45.119%
9.5	623.658	5.991	257.297	.952%	46.195%
10.0	547.172	5.436	262.732	.864%	47.170%
10.5	485.220	5.036	267.769	.800%	48.075%
11.0	443.967	4.752	272.52	.755%	48.928%
11.5	410.435	4.570	277.09	.726%	49.748%
12.0	389.306	4.465	281.555	.709%	50.550%
12.5	373.324	4.436	285.991	.705%	51.346%
13.0	359.536	4.434	290.425	.704%	52.142%
13.5	349.980	4.458	294.884	.708%	52.943%
14.0	343.589	4.519	299.403	.718%	53.754%
14.5	337.823	4.598	304.002	.730%	54.580%
15.0	333.408	4.685	308.687	.744%	55.421%
15.5	328.908	4.776	313.463	.759%	56.279%
16.0	324.492	4.862	318.325	.772%	57.152%
16.5	319.528	4.941	323.266	.785%	58.039%
17.0	315.668	5.019	328.285	.797%	58.940%
17.5	312.272	5.105	333.39	.811%	59.856%
18.0	310.015	5.201	338.591	.826%	60.790%
18.5	307.779	5.304	343.895	.843%	61.742%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
19.0	303.813	5.390	349.285	.856%	62.710%
19.5	299.777	5.456	354.74	.867%	63.689%
20.0	295.088	5.511	360.251	.875%	64.679%
20.5	290.011	5.552	365.803	.882%	65.676%
21.0	285.645	5.591	371.394	.888%	66.679%
21.5	282.206	5.642	377.037	.896%	67.692%
22.0	277.397	5.685	382.722	.903%	68.713%
22.5	272.918	5.713	388.435	.907%	69.739%
23.0	269.023	5.746	394.18	.913%	70.770%
23.5	263.616	5.764	399.944	.916%	71.805%
24.0	258.757	5.768	405.712	.916%	72.841%
24.5	252.991	5.762	411.475	.915%	73.875%
25.0	248.730	5.759	417.233	.915%	74.909%
25.5	244.962	5.774	423.007	.917%	75.946%
26.0	241.088	5.789	428.796	.920%	76.985%
26.5	236.623	5.793	434.588	.920%	78.025%
27.0	232.896	5.794	440.382	.920%	79.065%
27.5	228.600	5.793	446.175	.920%	80.105%
28.0	224.536	5.784	451.959	.919%	81.144%
28.5	220.296	5.772	457.732	.917%	82.180%
29.0	216.633	5.762	463.493	.915%	83.215%
29.5	212.998	5.755	469.249	.914%	84.248%
30.0	209.559	5.748	474.997	.913%	85.280%
30.5	206.002	5.739	480.736	.912%	86.310%
31.0	201.748	5.716	486.452	.908%	87.337%
31.5	196.678	5.667	492.119	.900%	88.354%
32.0	190.027	5.579	497.697	.886%	89.356%
32.5	181.814	5.440	503.137	.864%	90.332%
33.0	171.738	5.244	508.381	.833%	91.274%
33.5	160.186	4.989	513.37	.793%	92.169%
34.0	145.877	4.662	518.032	.741%	93.006%
34.5	128.545	4.234	522.266	.673%	93.767%
35.0	108.401	3.703	525.969	.588%	94.431%
35.5	89.466	3.131	529.099	.497%	94.993%
36.0	72.105	2.588	531.687	.411%	95.458%
36.5	56.841	2.090	533.778	.332%	95.833%
37.0	42.645	1.632	535.41	.259%	96.126%
37.5	31.036	1.223	536.632	.194%	96.346%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	21.206	0.877	537.509	.139%	96.503%
38.5	13.563	0.590	538.099	.094%	96.609%
39.0	9.759	0.400	538.5	.064%	96.681%
39.5	8.177	0.311	538.811	.049%	96.737%
40.0	7.418	0.273	539.084	.043%	96.786%
40.5	7.010	0.256	539.34	.041%	96.832%
41.0	6.750	0.246	539.586	.039%	96.876%
41.5	6.532	0.240	539.826	.038%	96.919%
42.0	6.413	0.236	540.062	.038%	96.962%
42.5	6.363	0.235	540.298	.037%	97.004%
43.0	6.321	0.236	540.534	.037%	97.046%
43.5	6.286	0.237	540.771	.038%	97.089%
44.0	6.265	0.238	541.009	.038%	97.132%
44.5	6.223	0.239	541.247	.038%	97.174%
45.0	6.251	0.241	541.488	.038%	97.218%
45.5	6.223	0.243	541.731	.039%	97.261%
46.0	6.202	0.244	541.975	.039%	97.305%
46.5	6.180	0.245	542.22	.039%	97.349%
47.0	6.166	0.247	542.467	.039%	97.393%
47.5	6.096	0.247	542.714	.039%	97.438%
48.0	6.075	0.247	542.961	.039%	97.482%
48.5	5.991	0.247	543.207	.039%	97.526%
49.0	5.885	0.245	543.452	.039%	97.570%
49.5	5.794	0.243	543.695	.039%	97.614%
50.0	5.653	0.240	543.934	.038%	97.657%
50.5	5.477	0.235	544.169	.037%	97.699%
51.0	5.365	0.230	544.399	.037%	97.740%
51.5	5.224	0.226	544.626	.036%	97.781%
52.0	5.098	0.222	544.848	.035%	97.821%
52.5	4.985	0.219	545.066	.035%	97.860%
53.0	4.859	0.215	545.281	.034%	97.899%
53.5	4.739	0.211	545.492	.033%	97.937%
54.0	4.605	0.207	545.699	.033%	97.974%
54.5	4.528	0.203	545.902	.032%	98.010%
55.0	4.479	0.202	546.103	.032%	98.046%
55.5	4.437	0.201	546.304	.032%	98.082%
56.0	4.395	0.200	546.504	.032%	98.118%
56.5	4.352	0.199	546.704	.032%	98.154%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
57.0	4.282	0.198	546.902	.031%	98.190%
57.5	4.233	0.196	547.098	.031%	98.225%
58.0	4.177	0.195	547.293	.031%	98.260%
58.5	4.071	0.192	547.485	.031%	98.294%
59.0	3.987	0.189	547.674	.030%	98.328%
59.5	3.945	0.187	547.861	.030%	98.362%
60.0	3.895	0.186	548.047	.029%	98.395%
60.5	3.916	0.186	548.233	.030%	98.429%
61.0	3.945	0.188	548.421	.030%	98.462%
61.5	3.980	0.190	548.611	.030%	98.497%
62.0	4.113	0.195	548.807	.031%	98.532%
62.5	4.184	0.201	549.008	.032%	98.568%
63.0	4.219	0.205	549.213	.033%	98.605%
63.5	4.205	0.206	549.419	.033%	98.642%
64.0	4.163	0.206	549.625	.033%	98.679%
64.5	4.099	0.204	549.829	.032%	98.715%
65.0	3.895	0.198	550.027	.031%	98.751%
65.5	3.713	0.189	550.216	.030%	98.785%
66.0	3.509	0.181	550.397	.029%	98.817%
66.5	3.333	0.172	550.568	.027%	98.848%
67.0	3.164	0.164	550.732	.026%	98.877%
67.5	3.052	0.157	550.889	.025%	98.906%
68.0	2.904	0.151	551.04	.024%	98.933%
68.5	2.834	0.146	551.186	.023%	98.959%
69.0	2.763	0.143	551.329	.023%	98.985%
69.5	2.742	0.141	551.471	.022%	99.010%
70.0	2.728	0.141	551.611	.022%	99.035%
70.5	2.728	0.141	551.752	.022%	99.060%
71.0	2.707	0.141	551.893	.022%	99.086%
71.5	2.679	0.140	552.033	.022%	99.111%
72.0	2.672	0.139	552.172	.022%	99.136%
72.5	2.686	0.140	552.312	.022%	99.161%
73.0	2.679	0.140	552.452	.022%	99.186%
73.5	2.651	0.140	552.592	.022%	99.211%
74.0	2.644	0.139	552.732	.022%	99.236%
74.5	2.623	0.139	552.871	.022%	99.261%
75.0	2.623	0.139	553.009	.022%	99.286%
75.5	2.616	0.139	553.148	.022%	99.311%

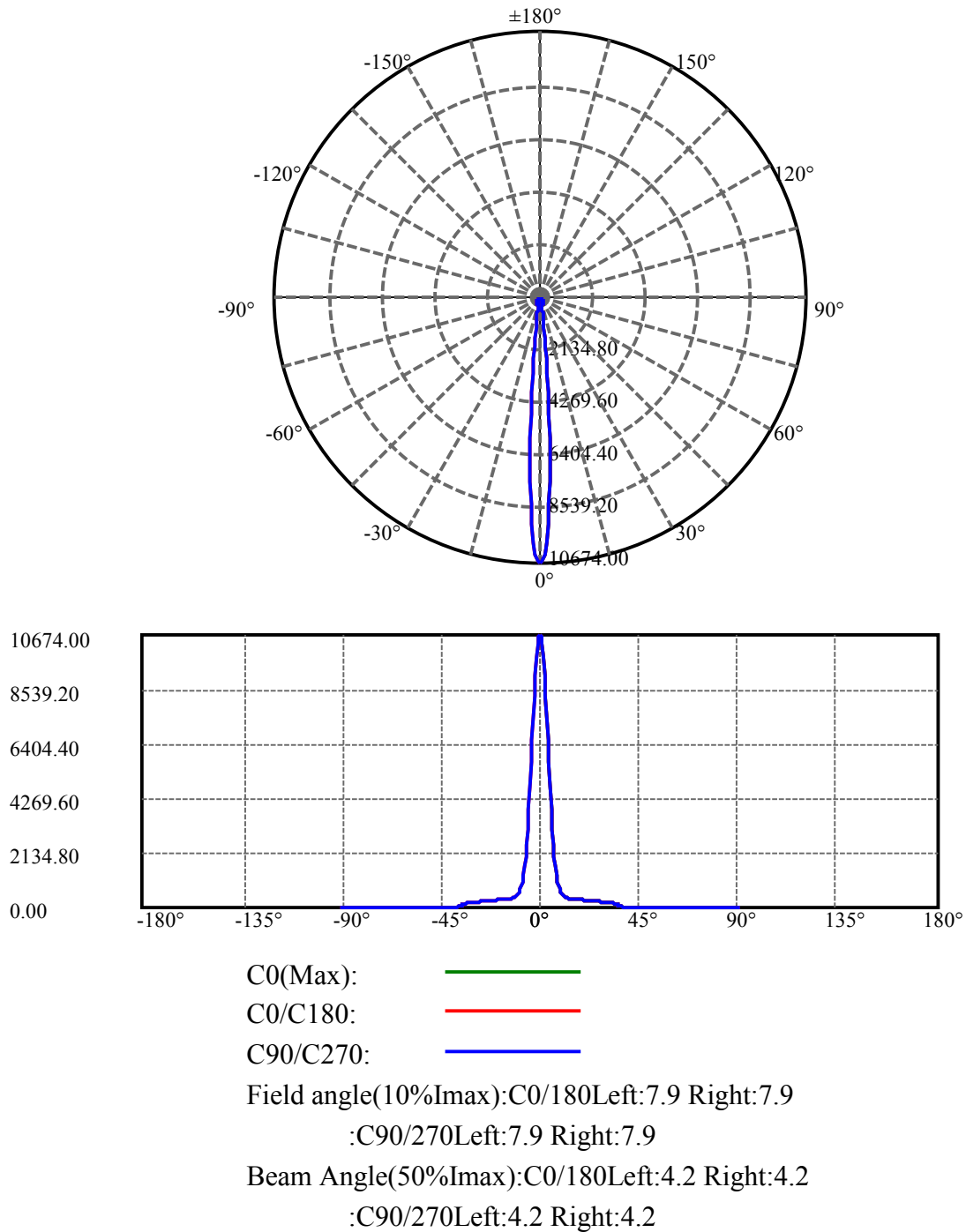
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.588	0.138	553.286	.022%	99.336%
76.5	2.580	0.138	553.424	.022%	99.361%
77.0	2.580	0.138	553.562	.022%	99.385%
77.5	2.559	0.137	553.699	.022%	99.410%
78.0	2.545	0.137	553.836	.022%	99.435%
78.5	2.538	0.136	553.972	.022%	99.459%
79.0	2.517	0.136	554.108	.022%	99.484%
79.5	2.510	0.135	554.244	.022%	99.508%
80.0	2.496	0.135	554.379	.021%	99.532%
80.5	2.482	0.135	554.513	.021%	99.556%
81.0	2.468	0.134	554.647	.021%	99.580%
81.5	2.461	0.134	554.781	.021%	99.604%
82.0	2.447	0.133	554.914	.021%	99.628%
82.5	2.426	0.132	555.046	.021%	99.652%
83.0	2.426	0.132	555.178	.021%	99.676%
83.5	2.398	0.131	555.31	.021%	99.699%
84.0	2.405	0.131	555.44	.021%	99.723%
84.5	2.384	0.131	555.571	.021%	99.746%
85.0	2.377	0.130	555.701	.021%	99.769%
85.5	2.377	0.130	555.831	.021%	99.793%
86.0	2.370	0.130	555.961	.021%	99.816%
86.5	2.355	0.129	556.09	.021%	99.839%
87.0	2.363	0.129	556.219	.021%	99.862%
87.5	2.348	0.129	556.348	.020%	99.886%
88.0	2.334	0.128	556.476	.020%	99.909%
88.5	2.341	0.128	556.604	.020%	99.932%
89.0	2.313	0.128	556.732	.020%	99.955%
89.5	2.306	0.127	556.859	.020%	99.977%
90.0	2.306	0.126	556.985	.020%	100.000%

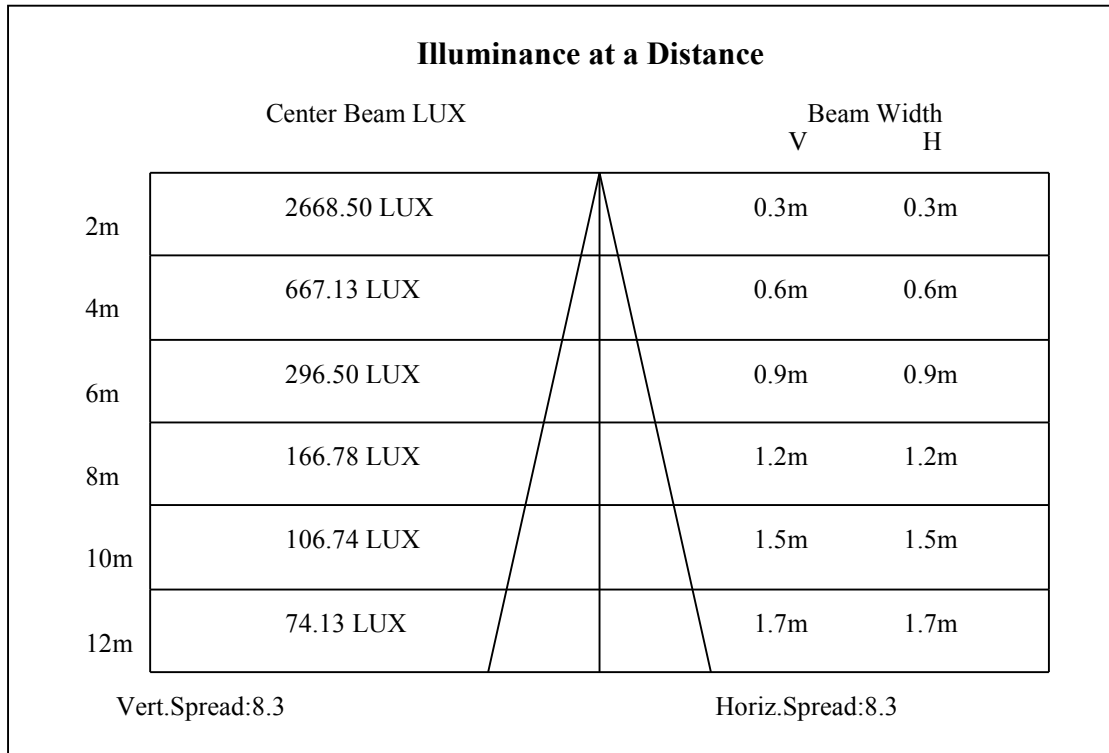
ZONAL LUMEN SUMMARY

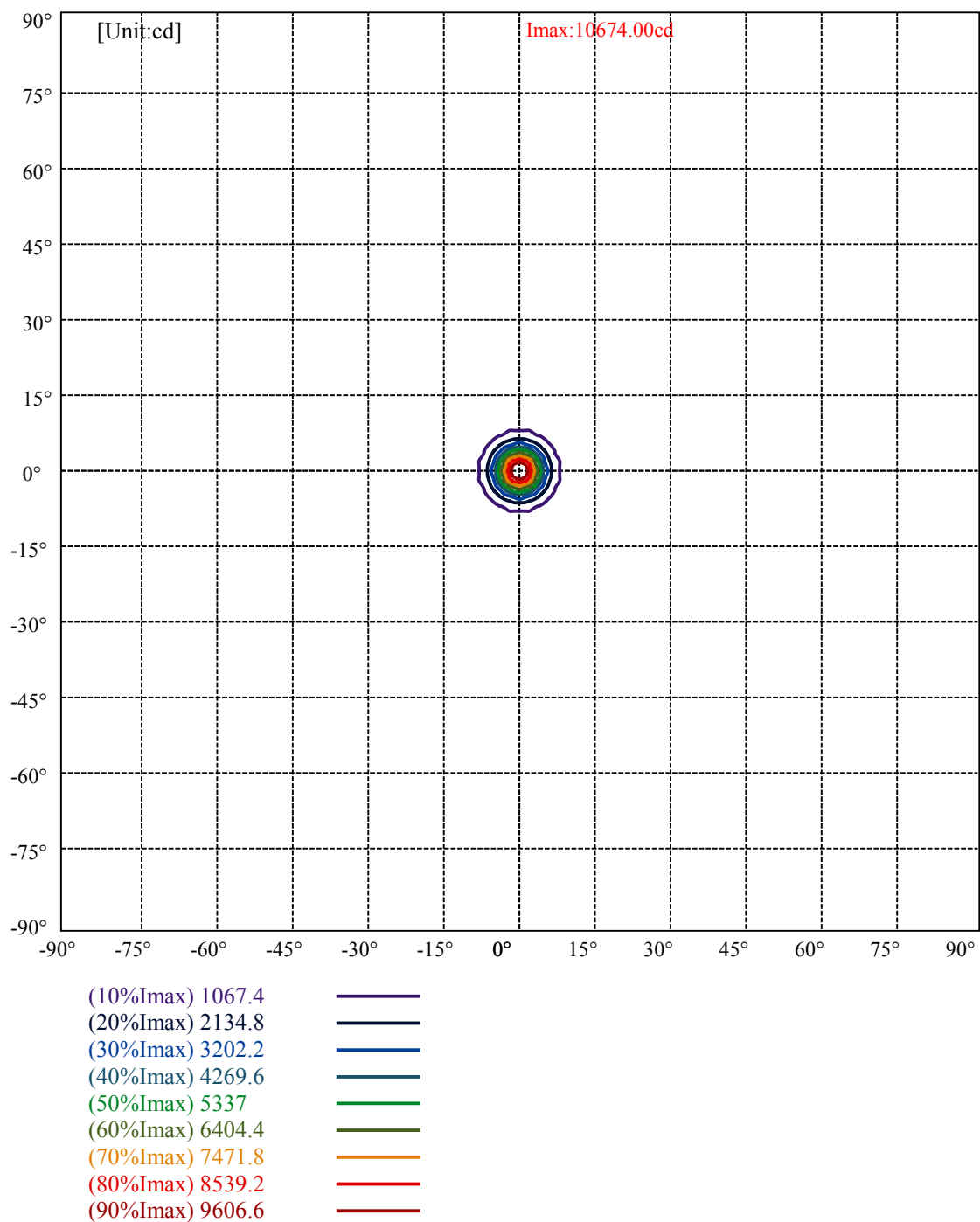
Zone	Lumens	%Lamp	%Fixt
0-30	475.00	75.45%	85.28%
0-40	539.08	85.63%	96.79%
0-60	548.05	87.06%	98.40%
0-90	556.86	88.46%	99.98%
0-120	556.86	88.46%	99.98%
0-180	556.99	88.48%	100.00%
60-90	9.00	1.43%	1.62%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.45	445.59	70.78%	80.00%

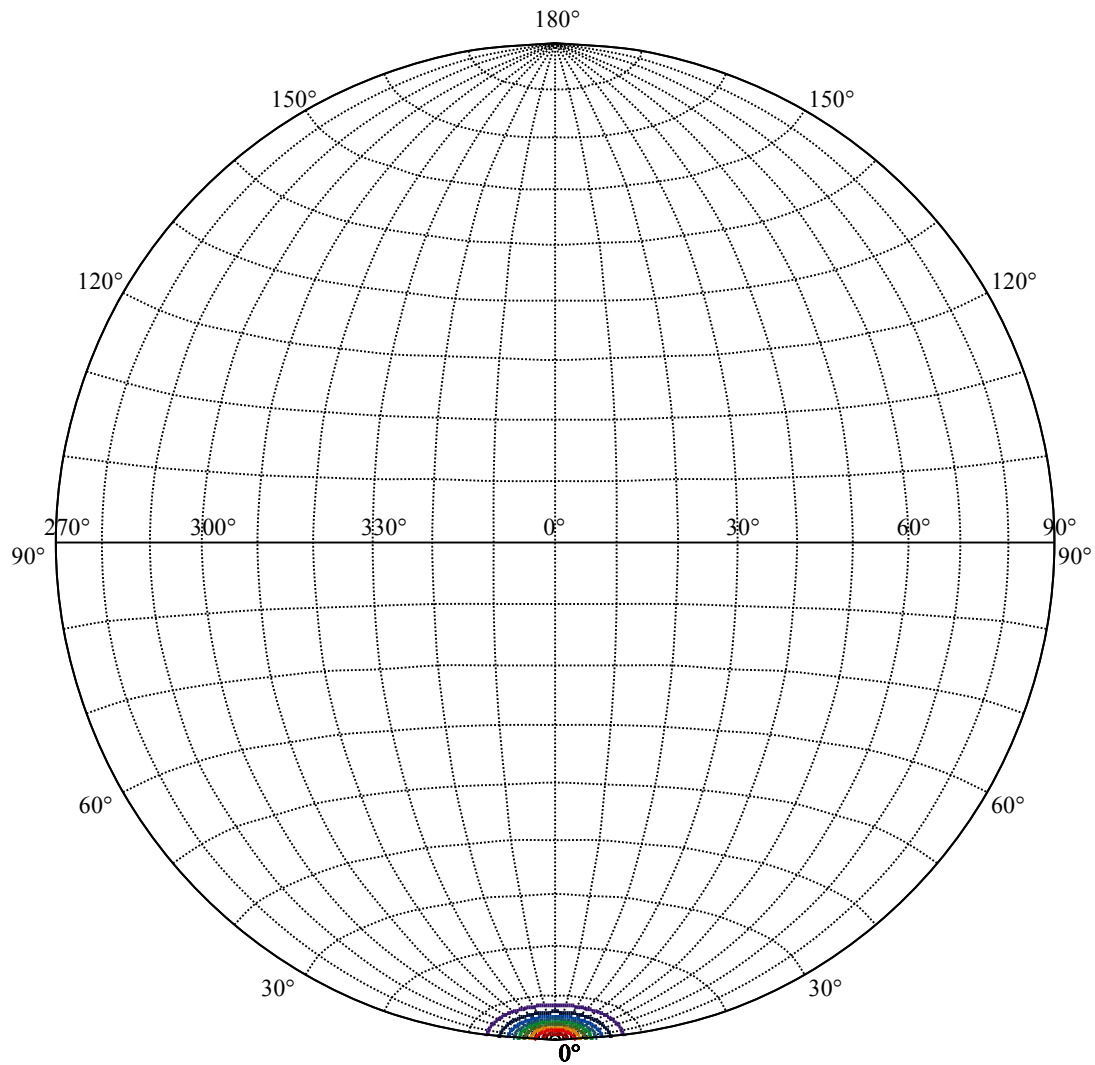
ZONAL LUMEN SUMMARY

0-10	262.73
10-20	97.52
20-30	114.75
30-40	64.09
40-50	4.85
50-60	4.11
60-70	3.56
70-80	2.77
80-90	2.48
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









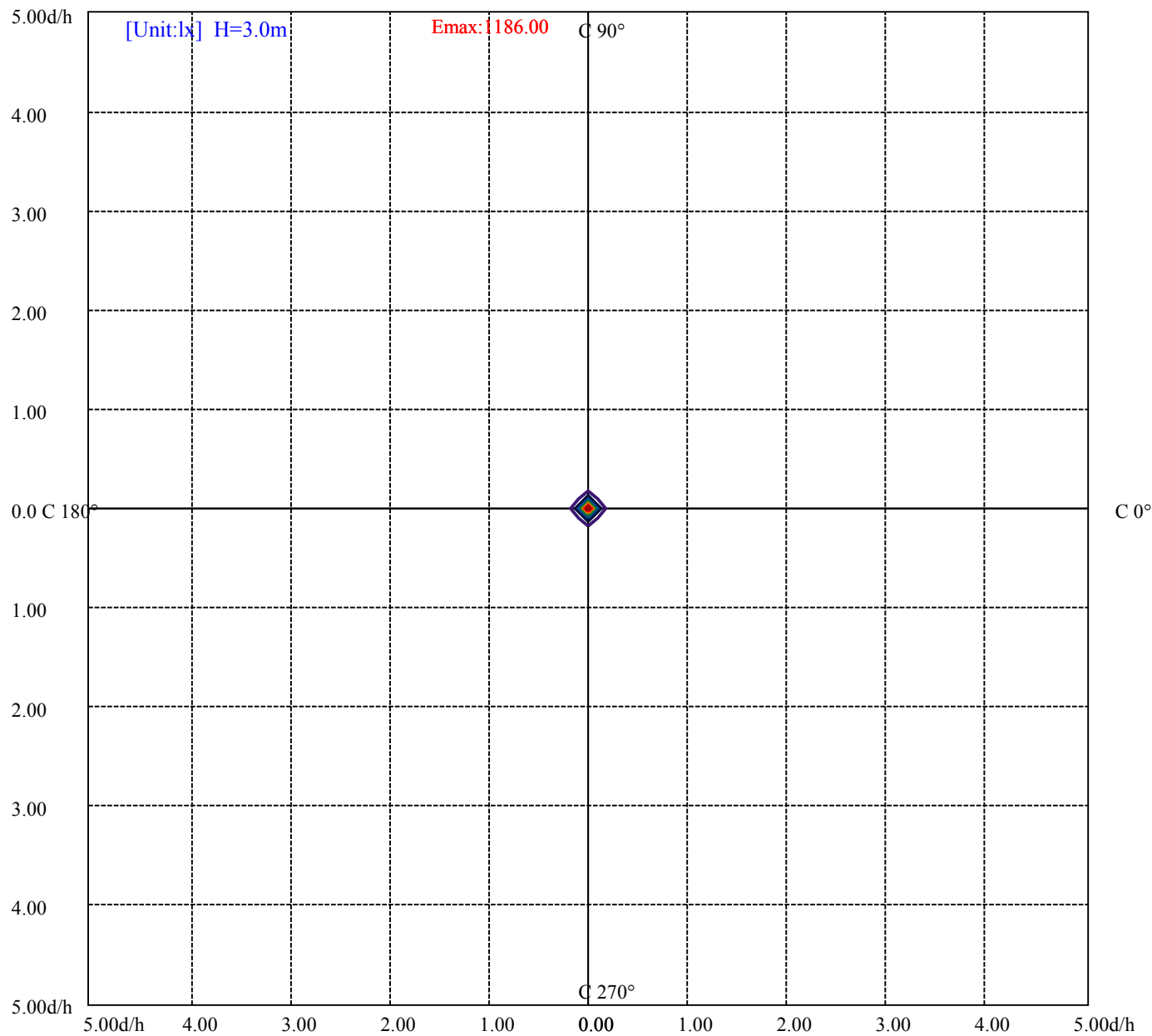
House

[Unit:cd]

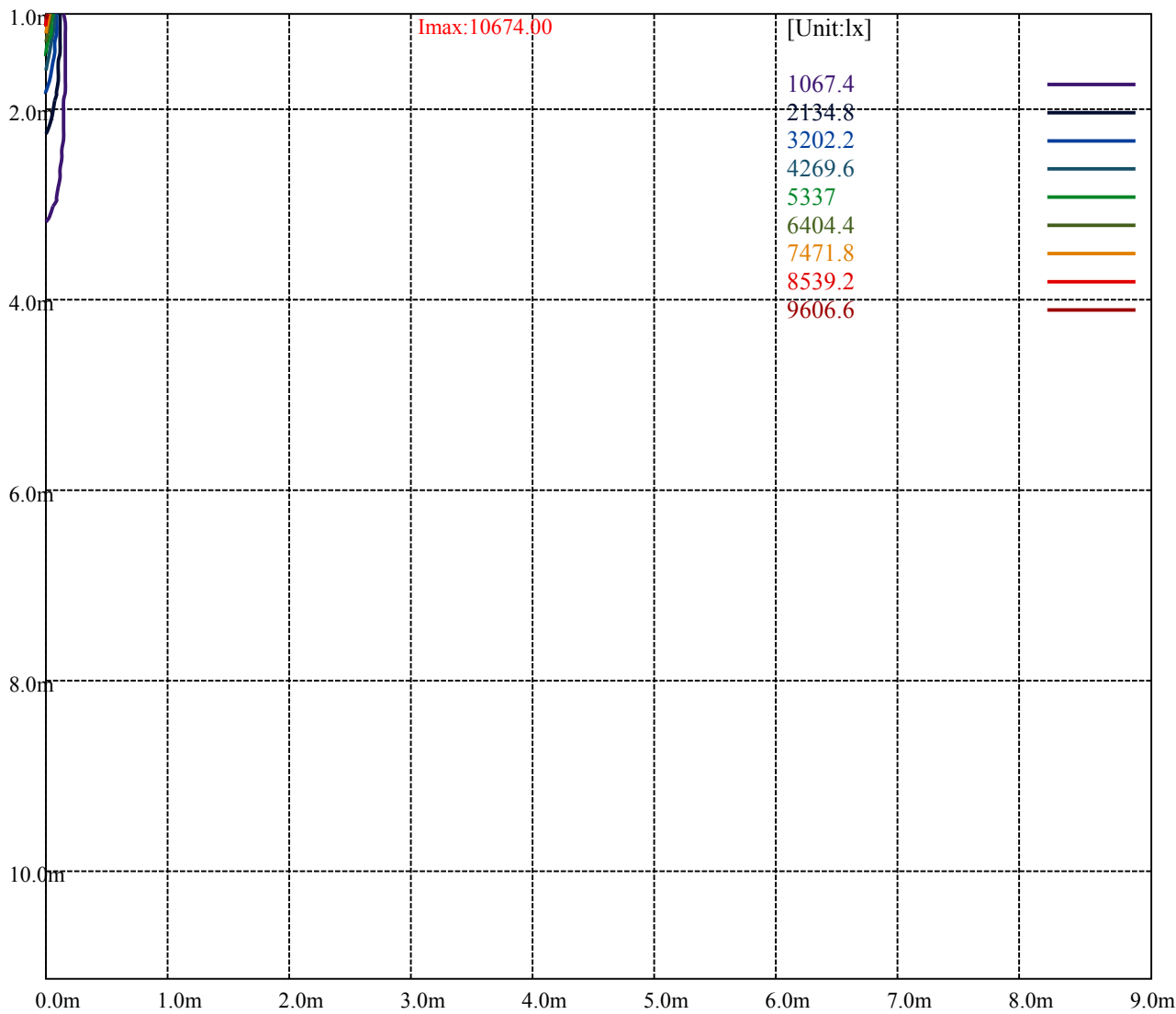
Road

Imax:10674.00

(10%Imax)	1067.4	—
(20%Imax)	2134.8	—
(30%Imax)	3202.2	—
(40%Imax)	4269.6	—
(50%Imax)	5337	—
(60%Imax)	6404.4	—
(70%Imax)	7471.8	—
(80%Imax)	8539.2	—
(90%Imax)	9606.6	—



(10%E _{max}) 118.6	—
(20%E _{max}) 237.1989	—
(30%E _{max}) 355.7989	—
(40%E _{max}) 474.3989	—
(50%E _{max}) 592.9989	—
(60%E _{max}) 711.5978	—
(70%E _{max}) 830.1978	—
(80%E _{max}) 948.7977	—
(90%E _{max}) 1067.398	—



Luminance Table

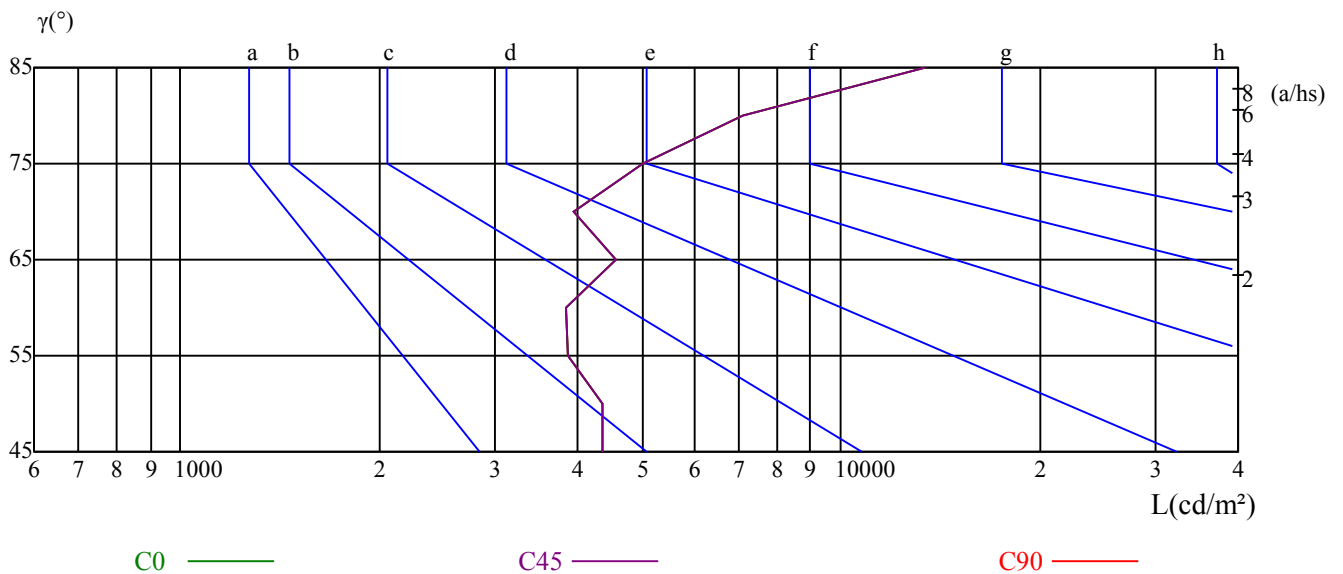
γ	45	50	55	60	65	70	75	80	85
C0	4365	4343	3856	3847	4552	3939	5004	7098	13466
C45	4365	4343	3856	3847	4552	3939	5004	7098	13466
C90	4365	4343	3856	3847	4552	3939	5004	7098	13466

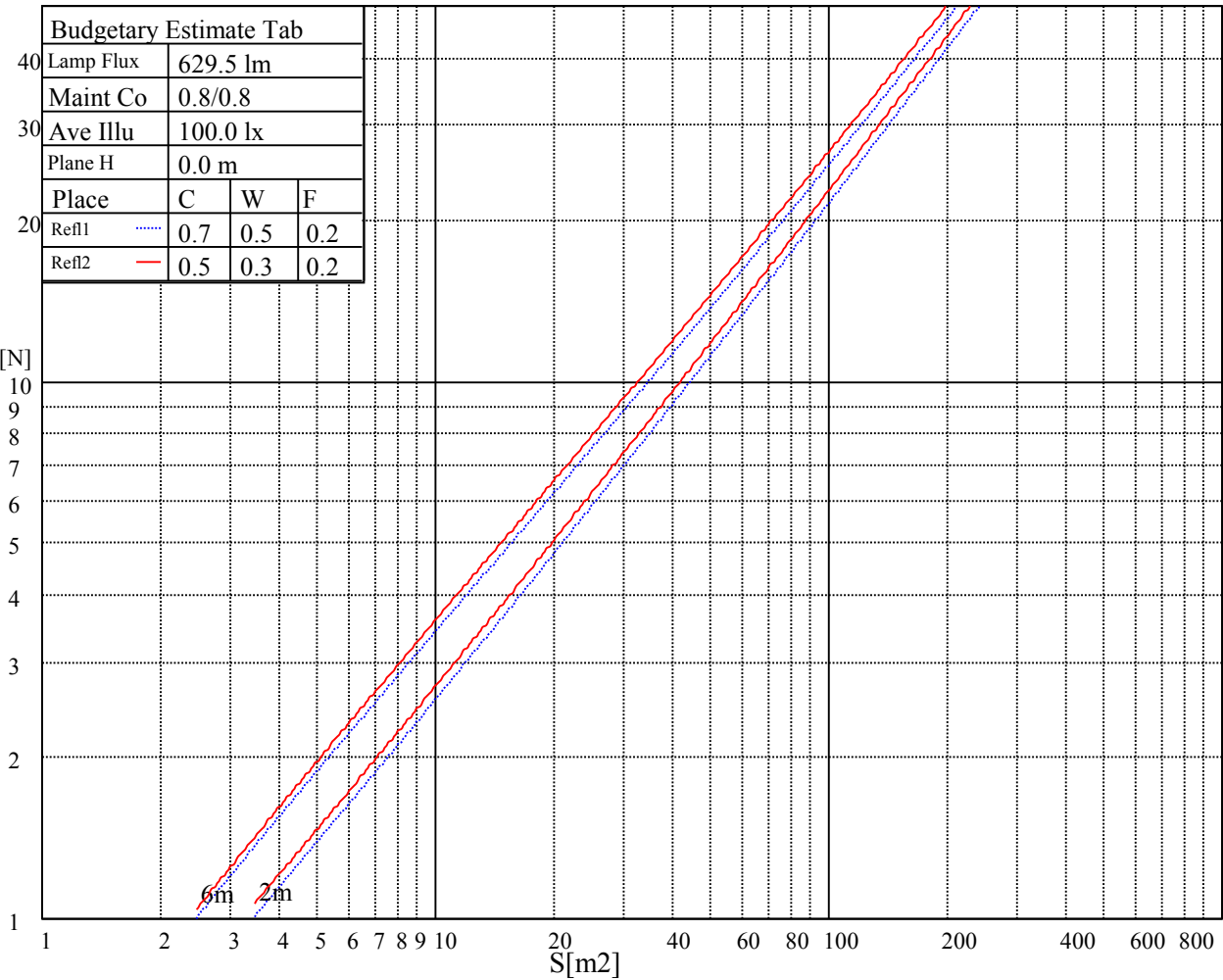
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4552	4552	4552	5004	5004	5004	13466	13466	13466

Glare Table

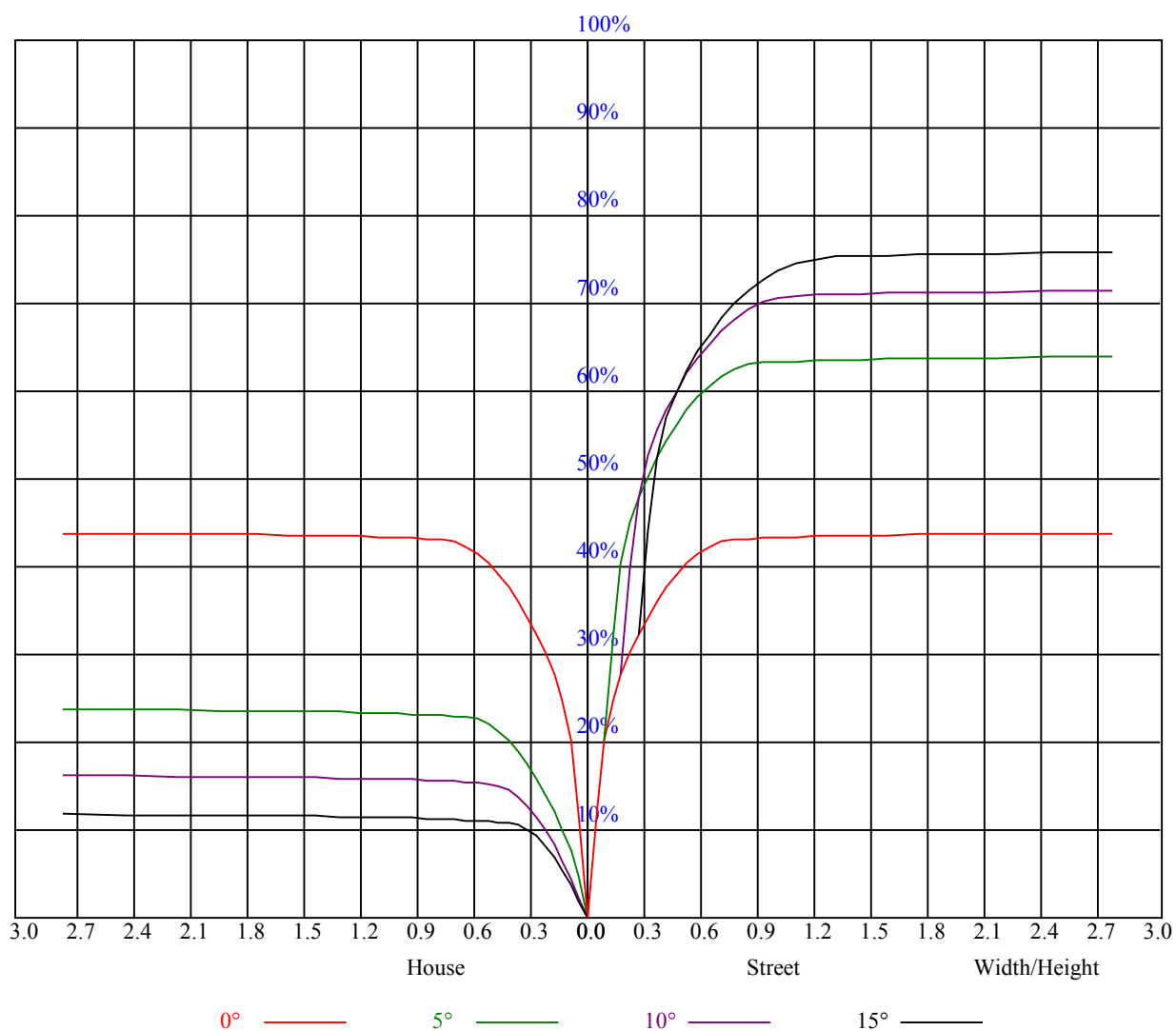
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.98	0.96	0.97	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.83	0.81
3	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.82	0.81	0.83	0.81	0.79	0.78
4	0.86	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.77	0.76
5	0.83	0.79	0.76	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.70	0.69
8	0.75	0.71	0.68	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
9	0.73	0.69	0.67	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63



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Intensity data(cd)										Appendix Page: 18 Total:22	
C/γ(°)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0		
0.0	10794.94	10547.44	9995.06	9176.06	8366.63	7439.63	6452.44	5464.13	4315.50		
45.0	10681.31	10663.31	10464.75	9976.50	9260.44	8552.25	7741.13	6847.31	5942.25		
90.0	10825.31	10913.63	10850.63	10614.38	10117.69	9420.19	8735.06	7934.63	7075.69		
135.0	10394.44	10830.94	11116.69	11178.56	11026.13	10733.06	10294.31	9706.50	9000.00		
180.0	10794.94	10872.56	10805.06	10587.94	10087.31	9496.13	8565.75	7702.31	6798.38		
225.0	10681.31	10541.81	10217.25	9711.56	8672.63	7807.50	6874.88	5910.19	4961.81		
270.0	10825.31	10575.00	10260.56	9316.13	8260.31	7286.06	6242.63	5210.44	4469.06		
315.0	10394.44	9774.00	8987.63	8066.25	7049.81	5493.94	4518.56	3649.50	2894.06		
360.0	10794.94	10547.44	9995.06	9176.06	8366.63	7439.63	6452.44	5464.13	4315.50		
C/γ(°)	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5		
0.0	3309.75	2634.75	2095.31	1682.44	1368.00	1128.38	905.06	772.88	649.13		
45.0	4843.13	4006.13	3084.19	2455.31	1963.13	1588.50	1305.56	1044.00	885.38		
90.0	6189.75	5093.44	4267.69	3323.81	2685.38	2159.44	1745.44	1118.87	1118.87		
135.0	7973.44	7082.44	5965.88	5082.75	4249.69	3495.38	2696.63	2174.63	1750.50		
180.0	5874.75	4753.13	3931.88	3202.31	2423.25	1920.94	1090.18	1090.18	930.77		
225.0	4066.88	2921.06	2444.06	1479.38	1116.28	1116.28	895.78	710.94	609.08		
270.0	3169.13	2465.44	1787.06	1386.00	1095.19	931.50	705.94	606.38	536.06		
315.0	2265.75	1771.88	1074.77	1022.68	849.32	720.51	624.88	552.21	485.55		
360.0	3309.75	2634.75	2095.31	1682.44	1368.00	1128.38	905.06	772.88	649.13		
C/γ(°)	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0		
0.0	574.88	518.06	460.69	425.25	399.38	379.69	361.69	350.44	342.56		
45.0	735.75	645.75	575.44	511.31	470.25	439.88	417.38	402.75	387.56		
90.0	933.30	756.56	649.58	567.56	505.74	439.09	414.90	391.22	369.73		
135.0	1414.69	1096.31	903.38	723.94	619.88	542.81	483.75	439.88	402.75		
180.0	770.29	650.64	547.48	487.41	444.54	405.84	384.36	368.89	356.57		
225.0	540.51	480.77	446.34	420.86	397.24	383.51	373.95	366.64	359.66		
270.0	472.50	435.38	413.44	382.50	366.75	357.19	349.31	342.56	336.94		
315.0	445.50	405.79	381.04	362.93	347.96	335.48	329.12	324.23	320.51		
360.0	574.88	518.06	460.69	425.25	399.38	379.69	361.69	350.44	342.56		
C/γ(°)	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5		
0.0	335.81	332.44	328.50	325.69	322.88	320.63	319.50	318.38	317.25		
45.0	378.00	371.25	366.75	363.38	358.88	354.38	347.63	342.56	339.75		
90.0	358.20	349.54	341.21	338.85	334.80	332.33	330.58	328.33	324.84		
135.0	377.44	363.94	352.69	340.88	330.19	318.38	302.06	294.75	288.56		
180.0	347.85	341.33	336.83	333.62	330.92	328.11	324.39	319.84	315.62		
225.0	357.08	353.31	350.10	347.12	342.00	336.38	330.92	325.46	322.31		
270.0	328.50	324.00	318.94	314.44	313.31	311.06	309.94	308.81	306.56		
315.0	316.97	312.92	307.58	303.30	298.29	294.69	291.21	287.21	283.28		
360.0	335.81	332.44	328.50	325.69	322.88	320.63	319.50	318.38	317.25		
C/γ(°)	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0		
0.0	316.69	313.88	311.06	307.13	303.75	300.38	296.44	293.63	290.81		
45.0	338.06	335.81	332.44	326.81	318.94	314.44	309.38	304.88	300.38		
90.0	323.10	320.91	317.48	313.82	309.66	302.85	299.19	294.02	289.91		
135.0	284.06	284.06	271.69	267.41	262.41	258.02	255.60	254.98	255.54		
180.0	313.31	309.83	308.25	306.23	303.02	299.36	292.73	287.44	282.71		
225.0	319.28	318.54	317.19	313.59	308.42	300.54	293.91	288.17	282.32		
270.0	305.44	304.31	302.06	297.56	293.06	288.00	284.63	284.63	270.39		
315.0	280.18	274.89	270.34	265.67	261.45	256.50	253.29	249.92	247.11		
360.0	316.69	313.88	311.06	307.13	303.75	300.38	296.44	293.63	290.81		

Intensity data(cd)

C/ γ (°)	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5
0.0	284.06	284.06	272.14	266.96	262.86	260.33	257.68	253.63	247.89
45.0	294.75	289.13	284.06	284.06	272.59	267.81	262.86	257.74	253.58
90.0	285.41	281.42	277.93	274.05	270.23	266.29	261.84	257.57	252.34
135.0	256.84	257.51	256.39	253.13	245.93	239.06	234.73	231.86	228.83
180.0	277.71	272.48	267.92	262.74	258.36	254.19	250.26	247.39	244.46
225.0	275.96	270.34	263.36	256.50	251.27	245.76	241.09	236.70	231.47
270.0	265.33	259.03	253.91	246.94	242.16	239.29	236.53	232.09	227.93
315.0	243.28	238.22	233.21	225.68	220.56	217.13	214.71	211.73	206.49
360.0	284.06	284.06	272.14	266.96	262.86	260.33	257.68	253.63	247.89
C/ γ (°)	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0
0.0	243.56	239.23	235.29	230.29	226.63	223.31	219.71	214.20	209.70
45.0	249.58	244.46	240.30	236.48	231.92	227.76	223.59	219.88	215.16
90.0	248.57	244.91	240.30	236.53	233.10	228.32	224.83	221.29	217.91
135.0	227.25	222.64	218.98	214.03	210.21	206.61	203.40	200.64	196.14
180.0	240.08	236.19	232.20	227.31	223.43	219.71	215.04	211.73	208.41
225.0	227.19	223.14	218.36	214.48	211.33	207.45	204.81	202.11	197.61
270.0	223.88	219.04	215.44	211.78	207.73	204.69	202.22	198.39	193.89
315.0	203.06	199.18	195.41	191.48	188.72	186.13	182.87	179.78	175.16
360.0	243.56	239.23	235.29	230.29	226.63	223.31	219.71	214.20	209.70
C/ γ (°)	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5
0.0	205.93	200.42	190.41	176.63	160.76	137.42	112.50	92.59	73.46
45.0	209.76	203.68	200.25	196.26	188.78	174.99	155.70	131.91	112.28
90.0	213.92	209.25	204.19	200.53	197.27	191.19	180.23	161.89	140.12
135.0	191.81	189.28	186.41	182.64	178.99	176.06	170.33	157.28	141.86
180.0	204.75	198.34	194.06	189.51	179.72	165.83	149.46	131.57	112.61
225.0	193.28	189.11	178.54	164.98	148.44	130.50	111.09	86.34	63.28
270.0	190.52	179.55	165.60	149.12	130.61	111.15	86.29	62.89	46.18
315.0	163.46	150.58	135.06	114.24	96.92	79.88	62.78	42.75	25.93
360.0	205.93	200.42	190.41	176.63	160.76	137.42	112.50	92.59	73.46
C/ γ (°)	36.0	36.5	37.0	37.5	38.0	38.5	39.0	39.5	40.0
0.0	55.74	39.43	25.43	12.77	8.38	7.48	7.26	7.14	7.09
45.0	94.78	76.22	55.80	39.32	21.38	11.59	8.44	7.82	7.54
90.0	120.94	100.63	80.38	61.03	43.31	21.60	12.15	9.06	7.93
135.0	127.52	111.49	91.63	74.76	53.44	34.99	22.67	14.79	10.80
180.0	84.26	66.04	48.94	33.30	20.87	11.93	7.20	6.69	6.36
225.0	46.13	30.94	19.18	11.25	7.82	7.14	6.92	6.81	6.69
270.0	31.28	19.29	10.97	7.65	6.53	6.24	6.13	5.96	5.91
315.0	16.20	10.69	8.83	8.21	7.93	7.54	7.31	7.14	7.03
360.0	55.74	39.43	25.43	12.77	8.38	7.48	7.26	7.14	7.09
C/ γ (°)	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5
0.0	6.98	6.75	6.53	6.41	6.30	6.19	6.08	5.85	5.68
45.0	6.92	6.47	6.08	5.79	5.63	5.46	5.29	5.12	4.95
90.0	7.48	7.09	6.47	6.30	6.19	6.19	6.08	6.02	5.85
135.0	8.94	8.21	7.82	7.37	7.26	7.09	7.03	7.03	7.09
180.0	6.24	6.08	6.02	5.96	5.96	5.91	5.91	5.91	5.91
225.0	6.64	6.53	6.47	6.47	6.47	6.47	6.47	6.47	6.36
270.0	5.85	5.85	5.79	5.79	5.79	5.85	5.85	6.02	6.08
315.0	7.03	7.03	7.09	7.20	7.31	7.43	7.59	7.71	7.88
360.0	6.98	6.75	6.53	6.41	6.30	6.19	6.08	5.85	5.68

Intensity data(cd)

C/ γ (°)	45.0	45.5	46.0	46.5	47.0	47.5	48.0	48.5	49.0
0.0	5.51	5.34	5.18	5.01	4.78	4.56	4.39	4.16	3.94
45.0	4.78	4.56	4.39	4.22	4.05	3.83	3.66	3.49	3.38
90.0	5.79	5.68	5.57	5.40	5.23	5.01	4.84	4.61	4.39
135.0	7.26	7.31	7.43	7.54	7.71	7.82	7.93	7.99	8.04
180.0	6.02	6.02	5.96	6.02	6.08	6.13	6.08	6.02	5.96
225.0	6.36	6.30	6.30	6.30	6.24	6.19	6.13	6.02	5.74
270.0	6.19	6.36	6.47	6.53	6.64	6.58	6.64	6.64	6.53
315.0	8.10	8.21	8.33	8.44	8.61	8.66	8.94	9.00	9.11
360.0	5.51	5.34	5.18	5.01	4.78	4.56	4.39	4.16	3.94
C/ γ (°)	49.5	50.0	50.5	51.0	51.5	52.0	52.5	53.0	53.5
0.0	3.83	3.66	3.49	3.43	3.38	3.26	3.21	3.21	3.21
45.0	3.26	3.15	3.09	3.04	3.04	2.98	2.98	2.93	2.93
90.0	4.11	3.94	3.71	3.60	3.43	3.32	3.26	3.21	3.09
135.0	8.10	8.21	8.38	8.49	8.61	8.83	8.94	9.11	9.17
180.0	6.02	6.02	5.91	5.79	5.63	5.34	4.89	4.50	4.11
225.0	5.34	4.89	4.22	3.88	3.54	3.32	3.15	3.09	3.04
270.0	6.41	5.96	5.57	5.12	4.61	4.11	3.77	3.32	3.21
315.0	9.28	9.39	9.45	9.56	9.56	9.62	9.68	9.51	9.17
360.0	3.83	3.66	3.49	3.43	3.38	3.26	3.21	3.21	3.21
C/ γ (°)	54.0	54.5	55.0	55.5	56.0	56.5	57.0	57.5	58.0
0.0	3.21	3.21	3.26	3.26	3.32	3.43	3.49	3.66	3.77
45.0	2.93	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87
90.0	3.09	3.09	3.04	3.04	3.04	3.04	2.98	2.98	3.04
135.0	9.28	9.45	9.62	9.84	9.96	9.96	9.79	9.45	9.00
180.0	3.66	3.43	3.32	3.21	3.15	3.09	3.04	3.04	3.04
225.0	3.04	2.98	2.98	2.98	2.98	2.93	2.98	2.93	2.98
270.0	3.09	3.04	2.98	2.98	2.93	2.93	2.93	2.93	2.93
315.0	8.55	8.16	7.76	7.31	6.92	6.58	6.19	6.02	5.79
360.0	3.21	3.21	3.26	3.26	3.32	3.43	3.49	3.66	3.77
C/ γ (°)	58.5	59.0	59.5	60.0	60.5	61.0	61.5	62.0	62.5
0.0	3.88	4.16	4.44	4.73	5.18	5.79	6.30	7.48	7.99
45.0	2.87	2.87	2.87	2.93	2.93	2.93	2.93	2.93	2.93
90.0	3.04	3.15	3.21	3.38	3.66	3.88	4.05	4.33	4.61
135.0	8.38	7.48	6.81	6.13	5.57	5.12	4.78	4.44	4.28
180.0	3.04	3.09	3.15	3.21	3.32	3.38	3.49	3.66	3.88
225.0	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
270.0	2.87	2.87	2.87	2.81	2.81	2.81	2.87	2.87	2.87
315.0	5.57	5.34	5.29	5.06	4.95	4.73	4.50	4.28	3.99
360.0	3.88	4.16	4.44	4.73	5.18	5.79	6.30	7.48	7.99
C/ γ (°)	63.0	63.5	64.0	64.5	65.0	65.5	66.0	66.5	67.0
0.0	8.16	7.99	7.43	6.92	5.68	4.89	4.22	3.71	3.26
45.0	2.87	2.87	2.87	2.87	2.87	2.81	2.81	2.81	2.81
90.0	4.78	4.89	5.06	5.06	5.01	4.95	4.73	4.39	4.05
135.0	4.11	4.05	3.99	4.05	4.05	4.05	4.05	3.88	3.66
180.0	4.50	4.84	5.12	5.23	5.01	4.61	3.94	3.60	3.26
225.0	2.87	2.87	2.87	2.87	2.87	2.81	2.87	2.81	2.81
270.0	2.87	2.87	2.87	2.81	2.76	2.70	2.64	2.64	2.64
315.0	3.60	3.26	3.09	2.98	2.93	2.87	2.81	2.81	2.81
360.0	8.16	7.99	7.43	6.92	5.68	4.89	4.22	3.71	3.26

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Intensity data(cd)										Appendix Page: 21 Total:22	
C/ γ (°)	67.5	68.0	68.5	69.0	69.5	70.0	70.5	71.0	71.5		
0.0	3.09	2.81	2.76	2.70	2.76	2.76	2.70	2.70	2.70		
45.0	2.81	2.81	2.81	2.76	2.76	2.76	2.76	2.76	2.70		
90.0	3.71	3.38	3.15	2.93	2.81	2.76	2.76	2.70	2.70		
135.0	3.49	3.09	2.93	2.87	2.81	2.81	2.81	2.81	2.76		
180.0	3.04	2.87	2.76	2.64	2.64	2.64	2.64	2.64	2.59		
225.0	2.81	2.81	2.81	2.76	2.76	2.70	2.70	2.70	2.70		
270.0	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.59	2.53		
315.0	2.81	2.81	2.81	2.81	2.76	2.76	2.81	2.76	2.76		
360.0	3.09	2.81	2.76	2.70	2.76	2.76	2.70	2.70	2.70		
C/ γ (°)	72.0	72.5	73.0	73.5	74.0	74.5	75.0	75.5	76.0		
0.0	2.70	2.70	2.70	2.64	2.64	2.64	2.64	2.59	2.59		
45.0	2.70	2.70	2.70	2.70	2.70	2.64	2.64	2.64	2.64		
90.0	2.70	2.70	2.70	2.64	2.64	2.64	2.59	2.59	2.59		
135.0	2.76	2.76	2.76	2.76	2.76	2.70	2.76	2.76	2.70		
180.0	2.59	2.59	2.59	2.53	2.53	2.53	2.53	2.53	2.48		
225.0	2.70	2.70	2.70	2.64	2.64	2.59	2.59	2.59	2.59		
270.0	2.53	2.59	2.53	2.53	2.53	2.53	2.53	2.53	2.48		
315.0	2.70	2.76	2.76	2.76	2.70	2.70	2.70	2.70	2.64		
360.0	2.70	2.70	2.70	2.64	2.64	2.64	2.64	2.59	2.59		
C/ γ (°)	76.5	77.0	77.5	78.0	78.5	79.0	79.5	80.0	80.5		
0.0	2.59	2.59	2.59	2.53	2.53	2.48	2.48	2.48	2.48		
45.0	2.59	2.59	2.59	2.59	2.59	2.53	2.53	2.53	2.48		
90.0	2.59	2.59	2.59	2.53	2.53	2.53	2.48	2.48	2.48		
135.0	2.70	2.76	2.76	2.76	2.70	2.70	2.70	2.64	2.64		
180.0	2.48	2.48	2.42	2.42	2.42	2.42	2.42	2.42	2.42		
225.0	2.53	2.53	2.48	2.48	2.48	2.48	2.48	2.48	2.48		
270.0	2.48	2.48	2.42	2.42	2.42	2.42	2.42	2.42	2.36		
315.0	2.70	2.64	2.64	2.64	2.64	2.59	2.59	2.53	2.53		
360.0	2.59	2.59	2.59	2.53	2.53	2.48	2.48	2.48	2.48		
C/ γ (°)	81.0	81.5	82.0	82.5	83.0	83.5	84.0	84.5	85.0		
0.0	2.48	2.42	2.42	2.36	2.36	2.36	2.31	2.31	2.31		
45.0	2.48	2.48	2.42	2.42	2.42	2.36	2.42	2.42	2.42		
90.0	2.48	2.48	2.48	2.42	2.36	2.36	2.36	2.36	2.31		
135.0	2.64	2.64	2.59	2.59	2.59	2.53	2.53	2.48	2.42		
180.0	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36		
225.0	2.48	2.48	2.48	2.48	2.48	2.48	2.53	2.48	2.48		
270.0	2.36	2.36	2.36	2.36	2.42	2.36	2.36	2.36	2.42		
315.0	2.48	2.48	2.48	2.42	2.42	2.36	2.36	2.31	2.31		
360.0	2.48	2.42	2.42	2.36	2.36	2.36	2.31	2.31	2.31		
C/ γ (°)	85.5	86.0	86.5	87.0	87.5	88.0	88.5	89.0	89.5		
0.0	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.25		
45.0	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.36	2.36		
90.0	2.36	2.36	2.36	2.36	2.31	2.31	2.31	2.31	2.36		
135.0	2.42	2.42	2.36	2.36	2.31	2.31	2.31	2.25	2.25		
180.0	2.36	2.36	2.31	2.36	2.36	2.31	2.36	2.31	2.31		
225.0	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.42		
270.0	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.31	2.31		
315.0	2.31	2.25	2.25	2.25	2.25	2.19	2.19	2.19	2.19		
360.0	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.25		

Intensity data(cd)

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C/ γ (°)	90.0
0.0	2.25
45.0	2.36
90.0	2.31
135.0	2.25
180.0	2.31
225.0	2.42
270.0	2.31
315.0	2.25
360.0	2.25