



Shenzhen Belling Efficiency Testing Laboratory Co.,Ltd.  
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Client:

LumCAT:

Luminaire:

Report No:

Ballast type:

Test No:

Voltage(V): 119.99

LampCAT:

Current(A): 0.2310

Lamp flux(lm): -1.0

Power (W): 27.61

Number of Lamps: 1

PF: 0.9972

Length(mm): 1150

Width(mm): 230

Phm Type: C

Height(mm): 0

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#### Photometric Results

Lumens(lm): 3457.61, Efficiency(%): 0.00% , Luminous Efficacy(lm/W): 125.21

Central intensity(cd): 1191.585, Maximum intensity(cd): 1227.585

Angle of maximum intensity: C=90.0  $\gamma$ =5.0

Beam Angle(50%Imax): [C0/180]Total=109.4

[C90/270]Total=113.1

Field angle(10%Imax): [C0/180]Total=161.9

[C90/270]Total=163.7

Maximum s/h(1/2): C0\_180=1.22 C90\_270=1.32

Maximum s/h(1/4): C0\_180=1.35 C90\_270=1.42

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 0.00%

Up flux rate of LUM(%): 0.14%

Down flux rate of LUM(%): 99.86%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 78.074%

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Equipment: GMS-3000  
Temperature(°C): 25

Date:  
Humidity(%): 59%

Operator: jarvis

## Zonal flux distribution table

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$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1191.585	0.000	0	0.00%	0.00%
5.0	1190.654	28.479	28.479	0.00%	0.82%
10.0	1176.385	84.676	113.155	0.00%	3.27%
15.0	1150.833	138.049	251.204	0.00%	7.27%
20.0	1114.611	186.704	437.909	0.00%	12.67%
25.0	1068.732	228.992	666.901	0.00%	19.29%
30.0	1013.878	263.556	930.457	0.00%	26.91%
35.0	949.561	289.130	1219.587	0.00%	35.27%
40.0	878.534	305.004	1524.591	0.00%	44.09%
45.0	799.726	310.743	1835.335	0.00%	53.08%
50.0	714.540	305.979	2141.314	0.00%	61.93%
55.0	624.533	291.159	2432.473	0.00%	70.35%
60.0	530.691	267.027	2699.5	0.00%	78.07%
65.0	432.917	234.255	2933.755	0.00%	84.85%
70.0	334.602	194.341	3128.095	0.00%	90.47%
75.0	238.064	149.686	3277.781	0.00%	94.80%
80.0	145.126	102.531	3380.312	0.00%	97.76%
85.0	59.287	55.544	3435.856	0.00%	99.37%
90.0	2.348	16.876	3452.732	0.00%	99.86%
95.0	0.181	0.692	3453.424	0.00%	99.88%
100.0	0.208	0.106	3453.53	0.00%	99.88%
105.0	0.320	0.141	3453.671	0.00%	99.89%
110.0	0.389	0.185	3453.857	0.00%	99.89%
115.0	0.500	0.225	3454.082	0.00%	99.90%
120.0	0.611	0.270	3454.352	0.00%	99.91%
125.0	0.723	0.308	3454.66	0.00%	99.91%
130.0	0.889	0.350	3455.011	0.00%	99.92%
135.0	1.014	0.385	3455.395	0.00%	99.94%
140.0	1.056	0.383	3455.779	0.00%	99.95%
145.0	1.181	0.373	3456.152	0.00%	99.96%
150.0	1.251	0.358	3456.51	0.00%	99.97%
155.0	1.306	0.324	3456.834	0.00%	99.98%
160.0	1.348	0.278	3457.112	0.00%	99.99%
165.0	1.320	0.220	3457.332	0.00%	99.99%
170.0	1.265	0.153	3457.485	0.00%	100.00%
175.0	1.292	0.091	3457.577	0.00%	100.00%
180.0	1.439	0.033	3457.609	0.00%	100.00%

Equipment: GMS-3000  
Temperature( $^{\circ}\text{C}$ ): 25

Date:  
Humidity(%): 59%

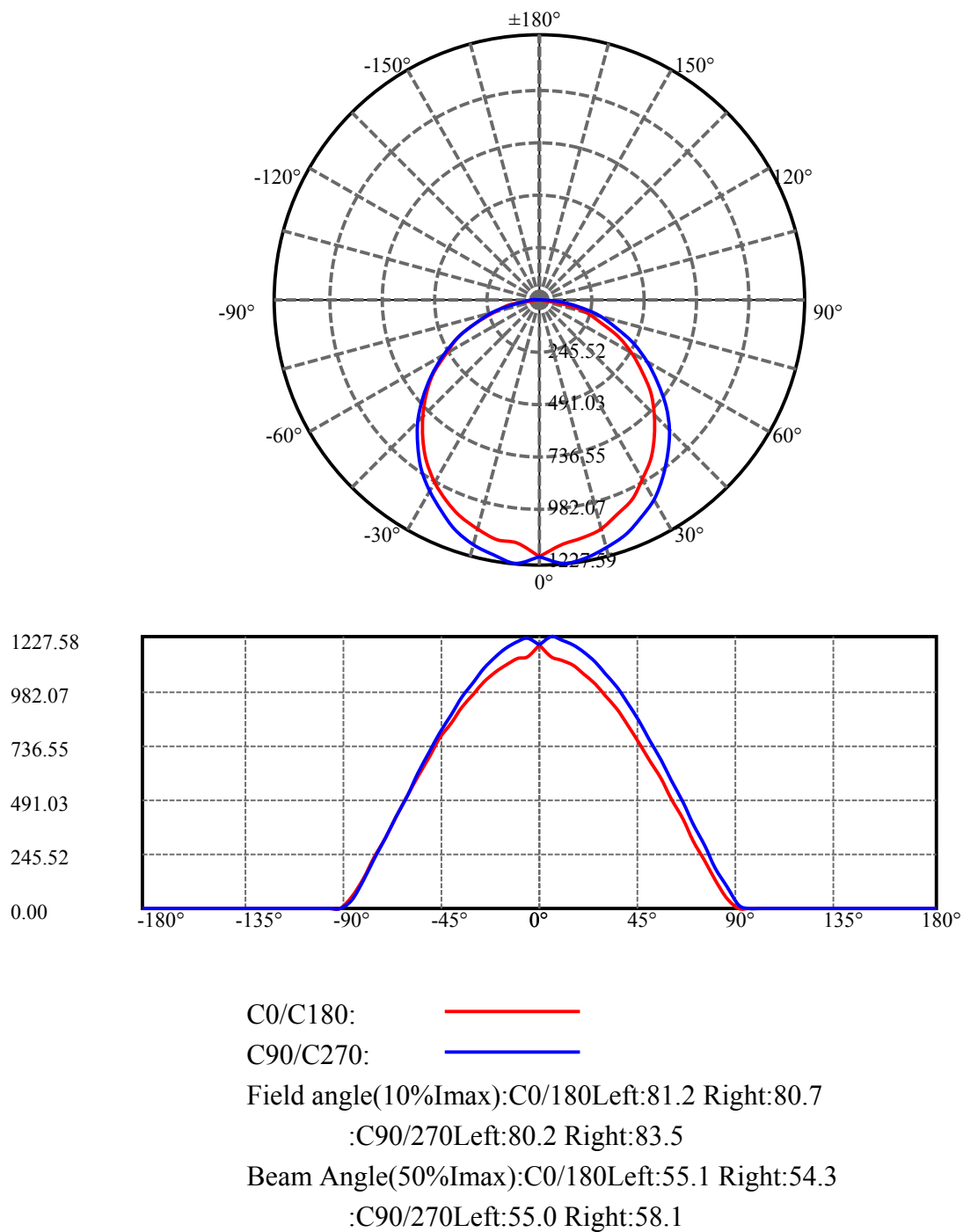
Operator: jarvis

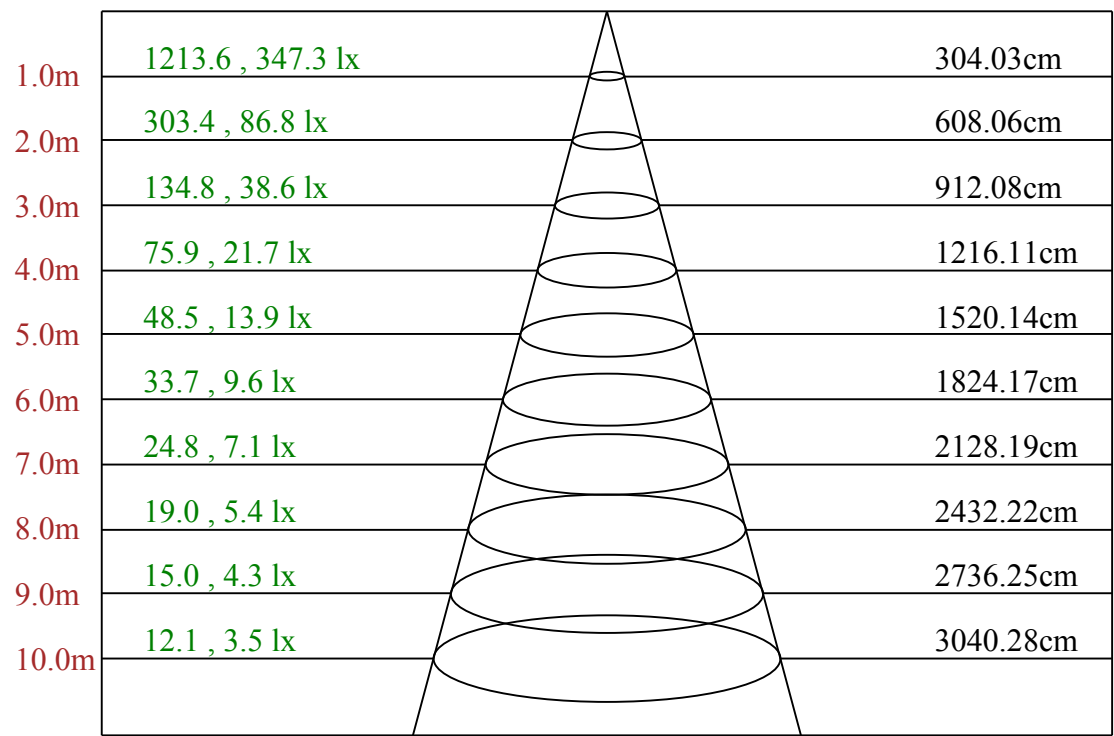
## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	930.46	N.A.	26.91%
0-40	1524.59	N.A.	44.09%
0-60	2699.50	N.A.	78.07%
0-90	3452.73	N.A.	99.86%
0-120	3454.35	N.A.	99.91%
0-180	3457.61	N.A.	100.00%
60-90	753.23	N.A.	21.78%
90-120	1.62	N.A.	0.05%
90-130	2.28	N.A.	0.07%
90-150	3.78	N.A.	0.11%
90-180	4.84	N.A.	0.14%
0-61.42	2766.09	N.A.	80.00%

## ZONAL LUMEN SUMMARY

0-10	113.16
10-20	324.75
20-30	492.55
30-40	594.13
40-50	616.72
50-60	558.19
60-70	428.60
70-80	252.22
80-90	72.42
90-100	0.80
100-110	0.33
110-120	0.50
120-130	0.66
130-140	0.77
140-150	0.73
150-160	0.60
160-170	0.37
170-180	0.09





Max , Ave      Beam angle of C90 plane 113.32

# Luminance Limiting Curve(no luminous side)

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Luminance Table

$\gamma$	45	50	55	60	65	70	75	80	85
C0	4012	3933	3851	3772	3610	3413	3166	2846	1967
C45	4297	4218	4145	4026	3872	3669	3452	3069	2257
C90	4535	4498	4434	4359	4300	4217	4131	4042	4185

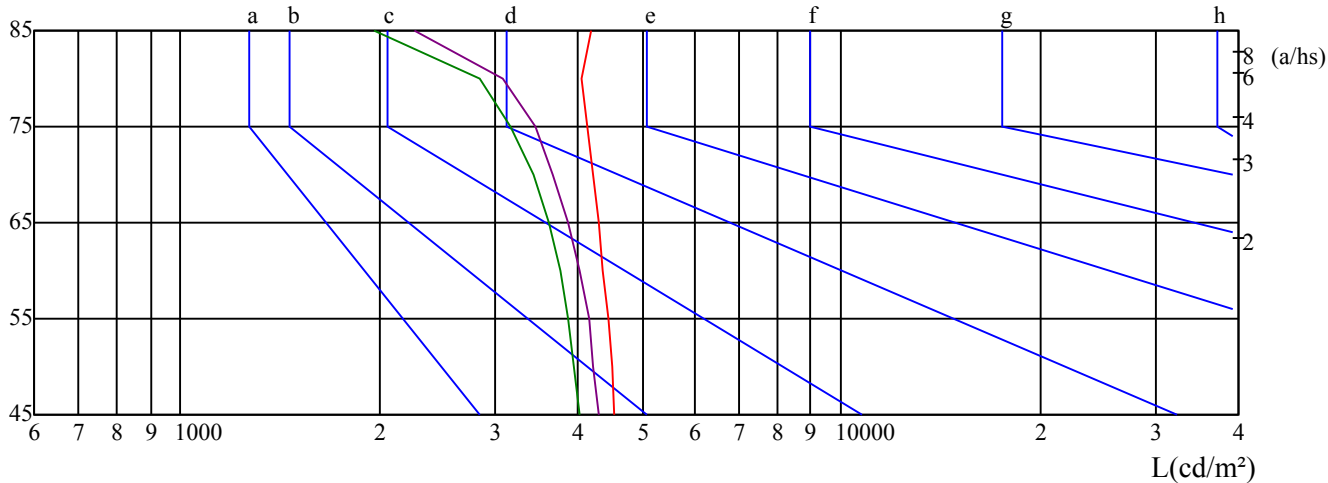
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3655	4005	3927	3255	3678	3506	2208	2970	2553

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 ———

Equipment: GMS-3000  
Temperature( $^{\circ}$ C): 25

Date:  
Humidity(%): 59%

Operator: jarvis

Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	16.82	18.46	17.18	18.78	19.10	17.19	18.84	17.56	19.16	19.48
	3H	18.58	20.08	18.96	20.42	20.76	19.15	20.65	19.53	20.99	21.33
	4H	19.25	20.66	19.64	21.01	21.37	19.96	21.37	20.35	21.72	22.09
	6H	19.75	21.06	20.16	21.43	21.83	20.64	21.96	21.05	22.32	22.72
	8H	19.89	21.15	20.30	21.53	21.93	20.90	22.16	21.31	22.54	22.94
	12H	19.94	21.16	20.36	21.54	21.95	21.08	22.30	21.50	22.68	23.10
4H	2H	17.50	18.91	17.90	19.26	19.63	17.80	19.21	18.19	19.56	19.92
	3H	19.47	20.67	19.89	21.06	21.47	19.92	21.12	20.33	21.51	21.92
	4H	20.32	21.38	20.75	21.80	22.24	20.87	21.94	21.30	22.35	22.79
	6H	20.89	21.85	21.35	22.29	22.73	21.62	22.57	22.08	23.01	23.46
	8H	21.10	21.99	21.57	22.44	22.90	21.94	22.84	22.42	23.28	23.75
	12H	21.21	22.04	21.69	22.48	22.98	22.21	23.04	22.69	23.48	23.98
8H	4H	20.64	21.53	21.11	21.98	22.44	21.13	22.02	21.60	22.47	22.93
	6H	21.34	22.09	21.83	22.56	23.06	21.98	22.73	22.47	23.20	23.70
	8H	21.67	22.32	22.18	22.83	23.32	22.42	23.07	22.93	23.58	24.07
	12H	21.83	22.39	22.35	22.90	23.41	22.74	23.30	23.26	23.81	24.31
12H	4H	20.68	21.51	21.16	21.95	22.45	21.16	21.99	21.63	22.43	22.93
	6H	21.47	22.12	21.98	22.63	23.12	22.08	22.74	22.59	23.25	23.74
	8H	21.78	22.34	22.30	22.85	23.36	22.50	23.06	23.02	23.57	24.08
Variation with the observer position at spacings:											
S = 1.0H		0.2/-0.7					0.3/-0.6				
S = 1.5H		0.6/-0.5					0.6/-0.6				
S = 2.0H		0.8/-0.6					0.7/-0.8				
Standard tables:		BK3					BK4				
Uncorrected UGR		3.6					3.5				

UGR calculation is based on CIE Publ. 117 ,S/H = 1

## Intensity data(cd)

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C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	1191.59	1135.33	1122.66	1097.76	1060.19	1016.17	958.37	897.90	828.54
22.5	1191.59	1162.67	1148.44	1119.77	1083.53	1036.40	982.82	919.47	849.22
45.0	1191.59	1207.58	1189.57	1162.89	1125.32	1077.31	1023.28	957.93	885.23
67.5	1191.59	1204.24	1187.57	1160.00	1122.43	1074.86	1018.17	949.92	880.79
90.0	1191.59	1227.59	1214.25	1191.57	1158.00	1113.99	1062.19	999.28	927.47
112.5	1191.59	1224.03	1210.47	1186.24	1151.11	1107.32	1052.85	988.83	916.35
135.0	1191.59	1214.69	1200.24	1175.79	1141.77	1095.53	1040.40	975.93	907.46
157.5	1191.59	1165.56	1150.22	1125.99	1093.31	1050.63	995.50	934.14	865.00
180.0	1191.59	1133.77	1126.88	1100.43	1065.52	1023.28	971.71	908.13	840.55
202.5	1191.59	1155.78	1149.11	1129.33	1093.98	1051.52	1000.16	936.36	867.67
225.0	1191.59	1207.13	1190.68	1169.12	1133.10	1086.86	1032.18	970.38	897.68
247.5	1191.59	1206.24	1191.57	1164.67	1129.77	1084.64	1029.73	966.37	896.35
270.0	1191.59	1221.58	1202.02	1172.23	1132.44	1082.20	1024.17	955.48	878.78
292.5	1191.59	1218.69	1199.80	1170.01	1129.99	1080.42	1020.84	956.15	880.56
315.0	1191.59	1208.69	1193.35	1164.67	1127.99	1079.31	1022.17	954.37	882.79
337.5	1191.59	1156.89	1145.33	1122.88	1085.31	1039.29	987.49	922.36	852.11
360.0	1191.59	1135.33	1122.66	1097.76	1060.19	1016.17	958.37	897.90	828.54
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	750.29	668.70	584.23	498.86	403.49	308.79	216.75	130.72	45.35
22.5	771.63	687.38	602.90	510.86	417.05	319.68	224.31	132.50	49.58
45.0	803.64	717.17	628.91	532.43	432.83	331.91	236.31	140.94	52.02
67.5	800.09	713.39	624.69	528.20	430.17	331.46	233.65	142.72	54.69
90.0	848.11	764.74	672.70	576.45	480.63	381.48	282.78	185.63	96.48
112.5	839.21	752.96	661.59	568.00	471.29	368.14	271.44	174.51	84.26
135.0	827.88	742.51	652.47	555.77	456.40	354.36	256.77	161.17	72.47
157.5	789.42	704.94	619.13	523.98	430.39	333.24	236.76	146.06	63.58
180.0	766.74	683.82	597.79	509.09	413.72	320.12	228.98	139.39	56.47
202.5	790.97	707.61	616.46	525.09	426.61	329.68	236.31	144.28	60.47
225.0	817.65	733.39	640.47	543.54	442.62	343.69	243.65	149.39	65.36
247.5	818.32	733.84	642.92	550.21	452.18	351.91	251.88	159.40	74.03
270.0	795.42	708.27	612.90	514.64	414.83	318.57	220.75	126.72	40.46
292.5	798.09	709.39	615.35	519.09	415.94	319.46	223.42	128.94	43.13
315.0	800.75	713.16	618.68	523.98	424.16	323.01	223.42	128.94	45.57
337.5	777.41	691.38	601.34	510.86	414.38	318.12	221.86	130.72	44.68
360.0	750.29	668.70	584.23	498.86	403.49	308.79	216.75	130.72	45.35
C/ $\gamma$ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.45	0.22	0.22	0.45	0.45	0.67	0.67	0.89	0.67
22.5	0.67	0.22	0.45	0.45	0.45	0.45	0.67	0.67	0.89
45.0	0.45	0.45	0.22	0.45	0.89	0.89	0.89	0.89	1.33
67.5	1.11	0.45	0.67	0.67	0.67	0.67	0.89	1.11	1.11
90.0	13.56	0.22	0.00	0.22	0.22	0.45	0.67	0.67	0.89
112.5	6.89	0.00	0.00	0.00	0.45	0.22	0.45	0.67	0.67
135.0	4.22	0.00	0.00	0.00	0.22	0.45	0.22	0.45	0.67
157.5	1.56	0.00	0.00	0.00	0.00	0.22	0.45	0.45	0.67
180.0	0.45	0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.67
202.5	1.11	0.00	0.00	0.22	0.22	0.22	0.45	0.45	0.45
225.0	1.78	0.00	0.00	0.00	0.00	0.22	0.45	0.45	0.67
247.5	2.67	0.00	0.00	0.22	0.22	0.45	0.22	0.89	0.89
270.0	0.89	0.67	0.67	0.89	1.11	1.11	1.33	1.33	1.78
292.5	0.45	0.22	0.67	0.45	0.45	0.89	0.67	0.89	1.33
315.0	0.67	0.22	0.22	0.67	0.45	0.67	0.67	0.67	0.89
337.5	0.67	0.22	0.22	0.45	0.45	0.45	0.67	0.67	0.67
360.0	0.45	0.22	0.22	0.45	0.45	0.67	0.67	0.89	0.67

Intensity data(cd)									Appendix Page: 9 Total:9
C/ $\gamma$ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.67	1.11	1.11	0.89	1.11	1.11	0.89	1.11	1.11
22.5	1.11	1.11	0.89	1.33	1.33	1.33	1.33	1.33	1.11
45.0	1.33	1.33	1.33	1.56	1.56	1.56	1.33	1.33	1.33
67.5	1.33	1.33	1.33	1.56	1.56	1.33	1.56	1.56	1.33
90.0	1.11	1.33	1.11	1.33	1.33	1.56	1.56	1.33	1.56
112.5	0.67	0.89	1.11	1.33	1.33	1.56	1.33	1.11	1.33
135.0	0.89	0.89	1.11	1.33	1.33	1.11	1.33	1.11	1.11
157.5	0.89	0.89	1.11	1.11	1.11	1.11	1.11	1.33	1.33
180.0	0.67	0.67	1.11	0.89	1.11	1.11	1.11	1.11	1.11
202.5	0.89	0.89	0.89	1.11	0.89	1.11	1.11	1.11	1.11
225.0	0.89	0.89	1.11	0.89	1.11	1.11	1.11	1.33	1.33
247.5	1.11	0.89	1.11	1.11	1.11	1.11	1.33	1.33	1.33
270.0	1.56	1.56	1.56	1.78	2.00	2.00	2.00	1.78	1.78
292.5	1.11	1.11	1.33	1.11	1.56	1.33	1.56	1.11	1.11
315.0	1.11	1.11	1.33	1.33	1.33	1.56	1.11	0.89	1.33
337.5	0.89	0.89	1.33	1.33	1.11	1.56	1.33	1.33	1.33
360.0	0.67	1.11	1.11	0.89	1.11	1.11	0.89	1.11	1.11
C/ $\gamma$ (°)	180.0								
0.0	1.44								
22.5	1.44								
45.0	1.44								
67.5	1.44								
90.0	1.44								
112.5	1.44								
135.0	1.44								
157.5	1.44								
180.0	1.44								
202.5	1.44								
225.0	1.44								
247.5	1.44								
270.0	1.44								
292.5	1.44								
315.0	1.44								
337.5	1.44								
360.0	1.44								