
ZhongShan Halcon Lighting & Electrical Co., Ltd

Client:

LumCAT: HG-L203-404F-40W

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.000

LampCAT:

Current(A): 0.317

Lamp flux(lm): 5307.9

Power (W): 37.240

Number of Lamps: 1

PF: 0.978

Length(mm): 1160

Width(mm): 170

Phm Type: C

Height(mm): 70

Photometric Results

Lumens(lm): 5307.86, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 142.53

Central intensity(cd): 8162.932, Maximum intensity(cd): 8162.932

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=45.2

[C90/270]Total=34.2

Field angle(10%Imax): [C0/180]Total=87.4

[C90/270]Total=66.8

Maximum s/h(1/2): C0_180=0.71 C90_270=0.56

Maximum s/h(1/4): C0_180=0.75 C90_270=0.58

Up flux rate of lamp(%): 2.81%

Down flux rate of lamp(%): 97.19%

Up flux rate of LUM(%): 2.81%

Down flux rate of LUM(%): 97.19%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 90.037%

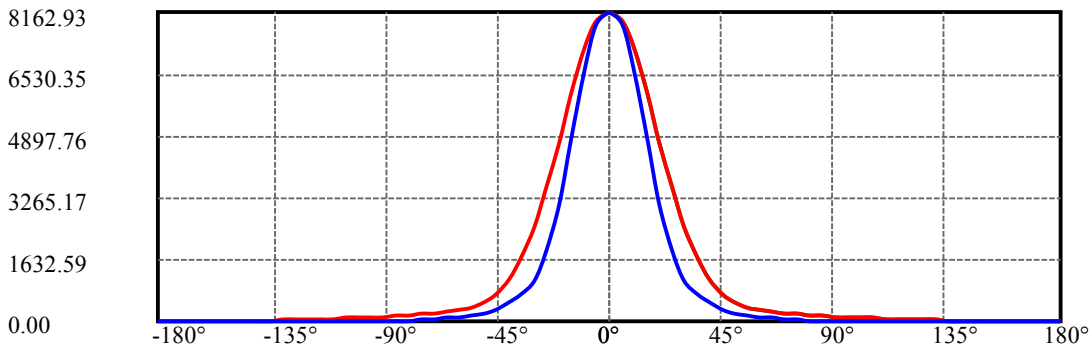
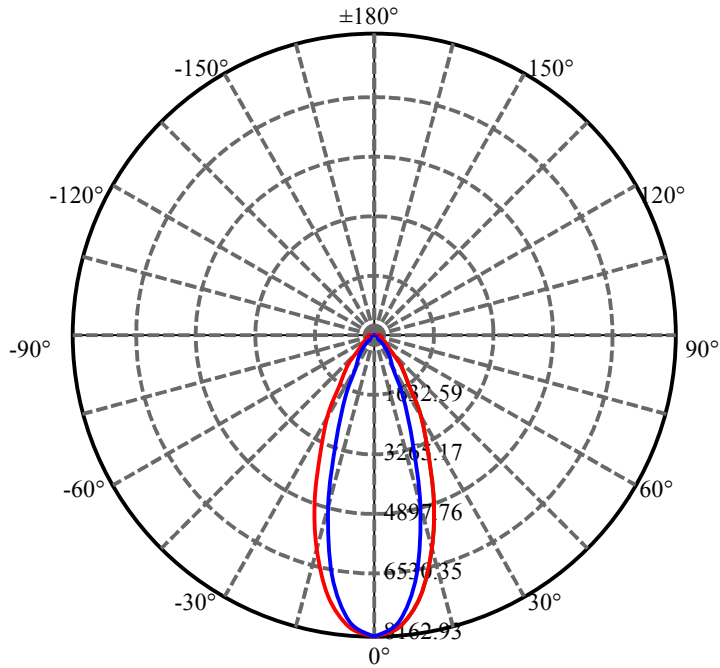
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8162.932	0.000	0	0.00%	0.00%
5.0	7823.583	191.114	191.114	3.60%	3.60%
10.0	6845.831	524.771	715.885	9.89%	13.49%
15.0	5401.409	726.498	1442.383	13.69%	27.17%
20.0	3886.019	765.414	2207.798	14.42%	41.59%
25.0	2583.941	678.579	2886.377	12.78%	54.38%
30.0	1689.328	540.786	3427.163	10.19%	64.57%
35.0	1081.163	407.974	3835.137	7.69%	72.25%
40.0	719.380	300.407	4135.544	5.66%	77.91%
45.0	496.797	225.185	4360.729	4.24%	82.16%
50.0	354.857	172.089	4532.818	3.24%	85.40%
55.0	267.397	135.299	4668.117	2.55%	87.95%
60.0	212.552	110.939	4779.056	2.09%	90.04%
65.0	175.073	94.233	4873.289	1.78%	91.81%
70.0	143.856	80.755	4954.044	1.52%	93.33%
75.0	115.084	67.683	5021.727	1.28%	94.61%
80.0	91.038	55.153	5076.879	1.04%	95.65%
85.0	74.001	44.845	5121.725	0.84%	96.49%
90.0	60.840	36.921	5158.645	0.70%	97.19%
95.0	52.072	30.916	5189.562	0.58%	97.77%
100.0	42.924	25.813	5215.375	0.49%	98.26%
105.0	31.946	20.033	5235.408	0.38%	98.63%
110.0	23.605	14.520	5249.928	0.27%	98.91%
115.0	19.707	10.967	5260.895	0.21%	99.12%
120.0	17.443	9.031	5269.926	0.17%	99.29%
125.0	14.610	7.409	5277.335	0.14%	99.42%
130.0	11.639	5.708	5283.043	0.11%	99.53%
135.0	9.139	4.199	5287.241	0.08%	99.61%
140.0	8.695	3.302	5290.543	0.06%	99.67%
145.0	9.801	3.086	5293.629	0.06%	99.73%
150.0	11.200	3.093	5296.722	0.06%	99.79%
155.0	12.864	3.045	5299.767	0.06%	99.85%
160.0	13.898	2.807	5302.574	0.05%	99.90%
165.0	14.122	2.309	5304.883	0.04%	99.94%
170.0	14.235	1.682	5306.565	0.03%	99.98%
175.0	14.605	1.032	5307.597	0.02%	100.00%
180.0	7.487	0.264	5307.861	0.00%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	3427.16	64.57%	64.57%
0-40	4135.54	77.91%	77.91%
0-60	4779.06	90.04%	90.04%
0-90	5158.65	97.19%	97.19%
0-120	5269.93	99.29%	99.29%
0-180	5307.86	100.00%	100.00%
60-90	379.59	7.15%	7.15%
90-120	111.28	2.10%	2.10%
90-130	124.40	2.34%	2.34%
90-150	138.08	2.60%	2.60%
90-180	148.95	2.81%	2.81%
0-42.46	4246.29	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	715.89
10-20	1491.91
20-30	1219.37
30-40	708.38
40-50	397.27
50-60	246.24
60-70	174.99
70-80	122.84
80-90	81.77
90-100	56.73
100-110	34.55
110-120	20.00
120-130	13.12
130-140	7.50
140-150	6.18
150-160	5.85
160-170	3.99
170-180	1.03



C0(Max): ———

C0/C180: ———

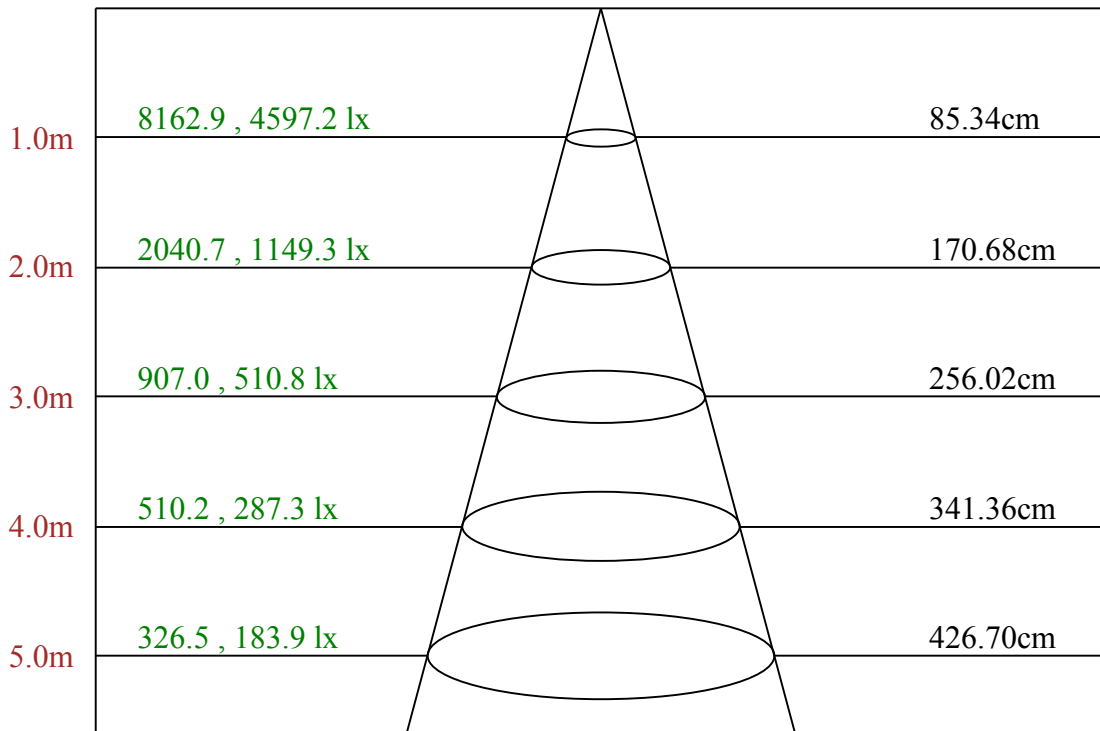
C90/C270: ———

Field angle(10%Imax):C0/180Left:43.7 Right:43.7

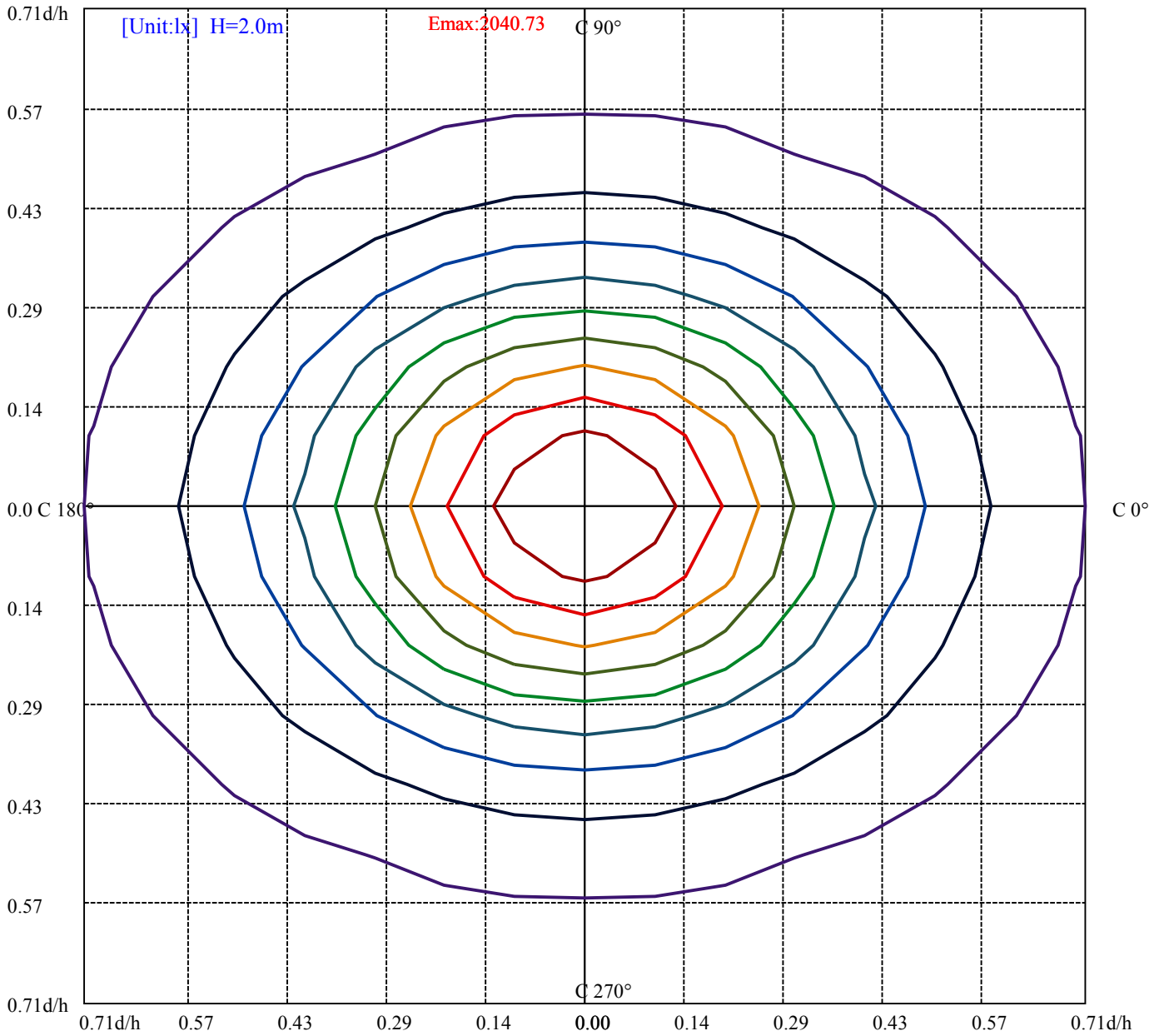
:C90/270Left:33.4 Right:33.4

Beam Angle(50%Imax):C0/180Left:22.6 Right:22.6

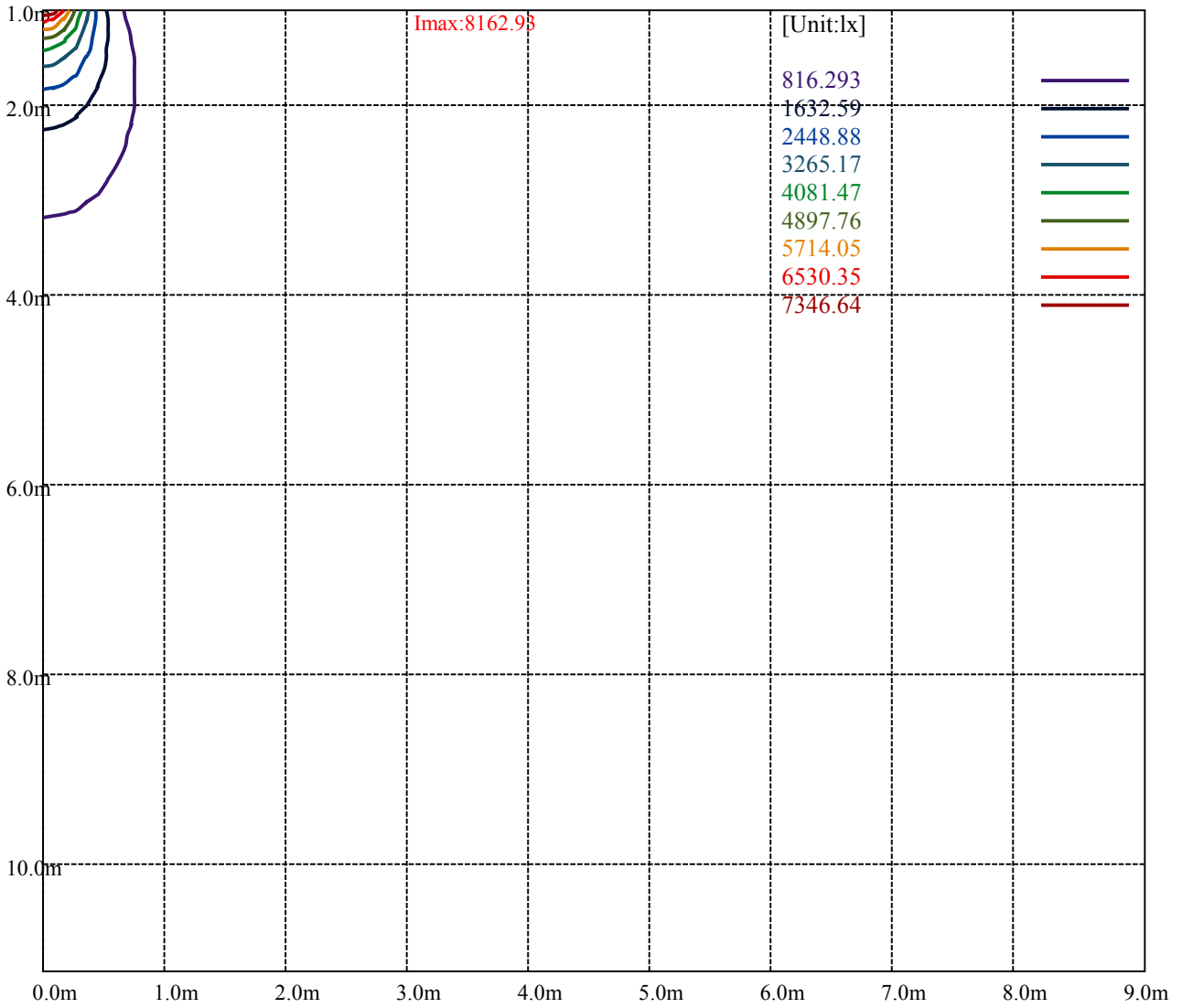
:C90/270Left:17.1 Right:17.1



Max , Ave Beam angle of C0 plane 46.22



(10%Emax) 204.073	
(20%Emax) 408.145	
(30%Emax) 612.22	
(40%Emax) 816.2925	
(50%Emax) 1020.365	
(60%Emax) 1224.438	
(70%Emax) 1428.51	
(80%Emax) 1632.585	
(90%Emax) 1836.657	



Luminance Table

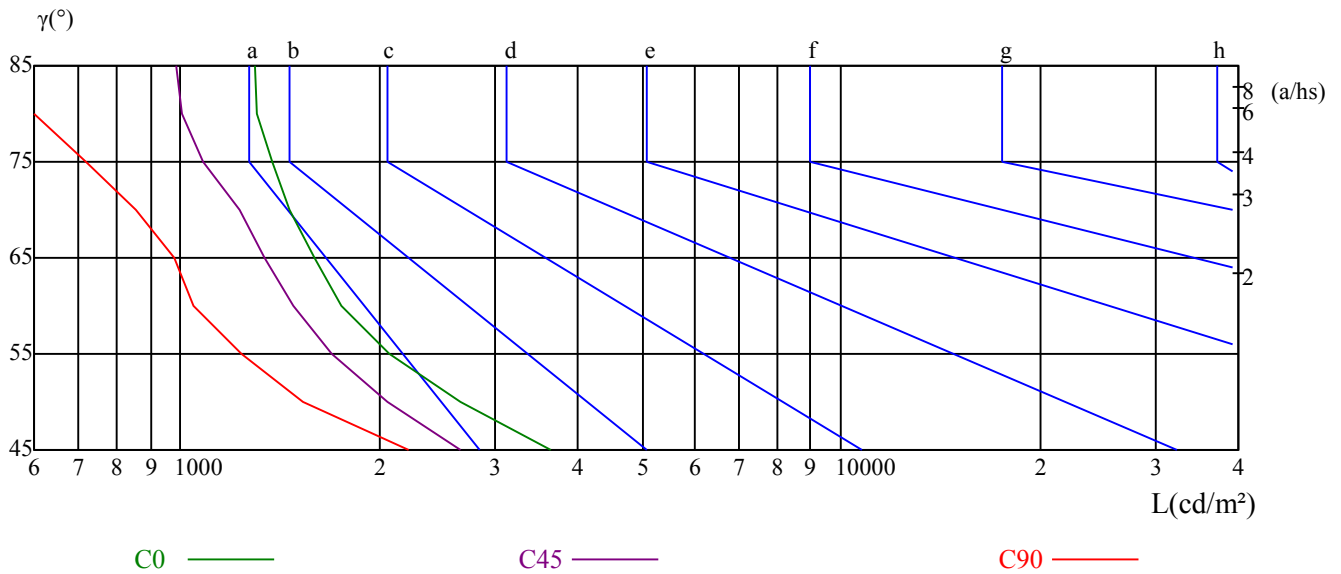
γ	45	50	55	60	65	70	75	80	85
C0	3635	2663	2076	1751	1595	1458	1378	1304	1296
C45	2662	2064	1693	1483	1339	1228	1083	1005	987
C90	2214	1536	1238	1048	976	856	720	504	338

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3003	1102	2298	3496	882	2432	7397	571	4754

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	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.04	1.04	1.04	0.99	0.99	0.99	0.97
1	1.08	1.05	1.02	1.06	1.03	1.00	1.01	0.99	0.97	0.97	0.95	0.93	0.93	0.91	0.90	0.88
2	0.99	0.95	0.91	0.97	0.93	0.89	0.94	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.81
3	0.92	0.86	0.82	0.90	0.85	0.81	0.87	0.83	0.79	0.84	0.81	0.78	0.82	0.79	0.76	0.74
4	0.85	0.79	0.75	0.84	0.78	0.74	0.82	0.77	0.73	0.79	0.75	0.72	0.77	0.73	0.71	0.69
5	0.80	0.73	0.69	0.79	0.73	0.68	0.77	0.71	0.67	0.75	0.70	0.67	0.73	0.69	0.66	0.64
6	0.75	0.68	0.64	0.74	0.68	0.64	0.72	0.67	0.63	0.70	0.66	0.62	0.69	0.65	0.62	0.60
7	0.71	0.64	0.60	0.70	0.64	0.59	0.68	0.63	0.59	0.67	0.62	0.58	0.65	0.61	0.58	0.56
8	0.67	0.60	0.56	0.66	0.60	0.56	0.65	0.59	0.55	0.63	0.59	0.55	0.62	0.58	0.55	0.53
9	0.63	0.57	0.53	0.63	0.57	0.53	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.50
10	0.60	0.54	0.50	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.49	0.57	0.52	0.49	0.48

ZhongShan Halcon Lighting & Electrical Co., Ltd HG-L203-404F-40W

Appendix Page: 10 Total:12

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	8162.93	8733.89	8577.77	7735.60	6523.21	5063.69	3613.10	2433.71	1560.32
15.0	8162.93	8678.10	8448.74	7501.73	6301.16	4810.32	3475.36	2281.07	1432.61
30.0	8162.93	8589.59	8204.16	7121.39	5888.03	4153.62	2863.79	1842.87	1146.41
45.0	8162.93	8455.42	7848.97	6696.00	5034.97	3526.00	2154.78	1313.98	828.28
60.0	8162.93	8291.83	7545.13	6089.98	4377.03	2764.53	1628.50	983.14	664.91
75.0	8162.93	8139.65	7283.50	5688.53	3832.06	2315.00	1332.58	839.13	585.69
90.0	8162.93	8016.67	7030.31	5319.77	3578.92	2110.96	1212.89	787.49	552.94
105.0	8162.93	7879.31	6807.76	5138.84	3455.73	2121.83	1216.02	808.32	561.04
120.0	8162.93	7749.61	6650.92	5163.48	3507.55	2257.93	1344.40	852.10	585.32
135.0	8162.93	7652.42	6548.50	5146.12	3648.62	2373.66	1518.44	956.44	660.61
150.0	8162.93	7599.34	6519.92	5242.51	3775.79	2567.85	1649.95	1104.60	718.16
165.0	8162.93	7536.81	6463.08	5235.83	3799.88	2603.69	1730.90	1172.91	798.61
180.0	8162.93	7121.82	5818.43	4217.96	2948.47	1924.31	1369.41	901.94	642.33
195.0	8162.93	7118.26	5829.00	4270.06	2970.95	1844.75	1392.29	914.76	632.54
210.0	8162.93	7191.30	5856.66	4365.16	3026.03	1856.31	1264.73	833.59	602.34
225.0	8162.93	7212.11	5907.97	4393.64	2831.00	1809.51	1114.51	758.51	520.58
240.0	8162.93	7272.24	5939.75	4128.13	2719.20	1636.50	988.48	663.13	473.79
255.0	8162.93	7459.93	6018.99	4074.75	2580.97	1512.58	906.30	634.05	454.04
270.0	8162.93	7554.70	6125.99	4222.82	2643.39	1522.36	901.64	619.82	433.43
285.0	8162.93	7710.91	6408.03	4528.17	2927.49	1694.63	982.92	641.69	457.34
300.0	8162.93	7806.65	6786.94	5073.97	3353.98	2099.97	1225.93	752.93	528.28
315.0	8162.93	7868.84	7119.22	5629.58	4048.30	2607.53	1638.87	1009.68	650.14
330.0	8162.93	8030.94	7245.04	6223.80	4613.79	3221.75	2574.80	1306.07	827.58
345.0	8162.93	8095.66	7315.16	6425.99	4877.92	3615.32	2443.27	1535.99	947.81
360.0	8162.93	8733.89	8577.77	7735.60	6523.21	5063.69	3613.10	2433.71	1560.32
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	951.00	623.59	435.36	328.30	274.77	228.38	196.27	158.80	130.25
15.0	888.77	576.99	410.34	319.85	266.99	223.99	204.27	161.27	134.39
30.0	737.68	491.19	378.25	287.72	237.53	201.68	167.61	130.87	110.25
45.0	574.25	423.08	326.48	258.50	216.46	178.00	138.64	108.23	89.45
60.0	472.02	338.68	249.79	186.67	151.12	117.34	87.11	69.34	53.34
75.0	403.89	261.50	181.80	134.33	108.36	84.18	60.00	41.20	26.87
90.0	372.79	235.44	166.77	122.18	100.78	74.91	50.83	28.54	12.49
105.0	397.07	271.21	193.22	144.47	112.56	85.97	60.27	41.66	26.59
120.0	450.18	324.69	252.73	195.69	157.08	123.73	93.02	71.96	56.16
135.0	486.95	375.25	289.73	235.62	194.60	162.32	130.03	104.72	85.52
150.0	509.75	391.65	313.49	257.91	211.02	177.15	146.76	116.37	97.26
165.0	563.17	463.99	347.56	274.25	234.58	201.81	173.35	144.89	126.78
180.0	479.96	382.72	310.46	263.18	225.71	190.91	160.58	139.17	124.01
195.0	481.12	377.19	301.04	248.18	218.61	187.25	155.00	135.29	115.58
210.0	445.48	345.09	271.59	226.77	184.65	154.17	124.59	102.18	85.15
225.0	392.67	316.64	245.98	207.52	169.95	139.54	108.23	86.76	71.56
240.0	359.12	263.12	205.34	159.12	125.34	94.23	71.11	54.22	42.67
255.0	305.38	207.77	152.24	115.53	92.24	64.48	42.99	27.76	15.22
270.0	281.82	181.93	137.34	106.13	82.94	59.75	39.24	17.84	7.13
285.0	316.41	214.49	153.33	120.54	97.49	72.68	59.38	36.34	24.82
300.0	390.51	293.98	217.63	193.06	137.77	106.18	82.49	65.82	52.65
315.0	526.22	348.19	268.78	221.66	185.01	155.33	119.56	98.61	80.29
330.0	535.80	388.17	290.04	236.20	198.86	170.21	131.13	110.29	92.92
345.0	601.12	420.01	318.24	257.87	217.33	198.36	159.55	132.81	114.70
360.0	951.00	623.59	435.36	328.30	274.77	228.38	196.27	158.80	130.25

Intensity data(cd)									
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	111.52	108.84	100.81	78.51	57.10	50.85	49.07	49.07	41.04
15.0	115.58	106.62	95.87	73.47	45.69	38.53	34.05	34.94	29.57
30.0	91.43	74.40	68.12	45.71	25.10	18.82	15.24	15.24	13.45
45.0	73.35	62.61	51.88	41.15	20.57	13.42	9.84	8.94	8.05
60.0	41.78	33.78	28.45	22.22	13.33	7.11	5.33	5.33	5.33
75.0	14.33	8.96	5.37	5.37	5.37	2.69	2.69	3.58	3.58
90.0	3.57	0.89	0.89	0.89	0.89	0.89	0.89	1.78	2.68
105.0	15.95	10.64	7.09	5.32	5.32	3.55	3.55	4.43	4.43
120.0	43.00	34.22	28.08	21.94	12.29	7.90	7.02	7.02	7.02
135.0	69.81	54.98	43.63	30.54	18.33	13.09	11.34	10.47	9.60
150.0	77.29	62.52	49.50	33.87	26.92	23.45	22.58	18.24	13.89
165.0	109.53	96.59	81.93	63.82	55.20	51.75	48.30	36.22	24.15
180.0	115.98	104.38	89.21	82.08	79.40	75.83	57.99	33.90	22.30
195.0	100.35	86.91	67.20	56.44	51.96	48.38	39.42	25.09	17.02
210.0	66.33	52.88	36.75	26.89	22.41	20.62	17.03	13.45	10.76
225.0	56.35	45.62	34.88	20.57	13.42	10.73	9.84	8.05	7.16
240.0	32.00	25.78	20.45	14.22	8.00	7.11	6.22	5.33	5.33
255.0	8.06	5.37	4.48	4.48	3.58	3.58	3.58	3.58	3.58
270.0	3.57	0.89	0.89	1.78	1.78	1.78	1.78	1.78	1.78
285.0	15.95	10.64	8.86	8.86	5.32	3.55	3.55	2.66	2.66
300.0	43.88	36.86	31.59	22.82	10.53	6.14	6.14	5.27	5.27
315.0	69.81	56.72	48.00	27.93	17.45	10.47	9.60	8.73	6.98
330.0	76.42	68.60	49.50	28.66	23.45	17.37	17.37	15.63	12.16
345.0	104.35	100.04	76.76	49.16	43.12	35.36	36.22	31.91	21.56
360.0	111.52	108.84	100.81	78.51	57.10	50.85	49.07	49.07	41.04
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	24.98	15.17	13.38	14.27	16.06	16.95	16.95	16.06	14.27
15.0	18.81	12.54	12.54	13.44	15.23	17.02	17.02	15.23	14.34
30.0	10.76	8.96	9.86	11.65	14.34	16.13	16.13	15.24	15.24
45.0	7.16	7.16	8.05	10.73	12.52	14.31	15.21	15.21	15.21
60.0	4.44	5.33	7.11	8.89	11.56	13.33	14.22	14.22	15.11
75.0	3.58	4.48	6.27	8.06	10.75	12.54	13.43	14.33	15.22
90.0	2.68	3.57	5.35	8.03	10.70	12.49	13.38	14.27	15.16
105.0	4.43	5.32	7.09	8.86	11.52	13.29	14.18	15.07	15.07
120.0	6.14	7.02	8.78	10.53	12.29	14.04	14.92	14.92	14.92
135.0	8.73	9.60	10.47	13.09	14.84	15.71	15.71	14.84	14.84
150.0	12.16	12.16	13.89	15.63	16.50	17.37	16.50	15.63	14.76
165.0	16.39	15.52	16.39	18.11	18.11	18.11	17.25	16.39	15.52
180.0	16.95	16.95	16.95	16.95	16.95	16.06	15.17	14.27	15.17
195.0	15.23	15.23	16.13	16.13	16.13	16.13	15.23	14.34	14.34
210.0	10.76	11.65	12.55	12.55	14.34	14.34	13.45	13.45	14.34
225.0	7.16	8.05	9.84	10.73	12.52	12.52	12.52	13.42	14.31
240.0	5.33	6.22	7.11	8.89	10.67	11.56	12.44	13.33	14.22
255.0	3.58	4.48	6.27	7.16	8.96	10.75	11.64	13.43	14.33
270.0	2.68	3.57	5.35	7.13	8.92	9.81	11.59	13.38	14.27
285.0	3.55	4.43	6.20	7.09	8.86	10.64	11.52	12.41	14.18
300.0	5.27	5.27	7.02	7.90	10.53	11.41	12.29	13.16	14.04
315.0	6.11	6.98	7.85	9.60	11.34	12.22	12.22	13.09	13.96
330.0	9.55	8.68	9.55	11.29	12.16	13.03	13.03	13.03	13.89
345.0	12.94	10.35	11.21	12.07	12.94	13.80	12.94	12.94	13.80
360.0	24.98	15.17	13.38	14.27	16.06	16.95	16.95	16.06	14.27

Intensity data(cd)

C/γ(°)	180.0
0.0	15.17
15.0	14.34
30.0	15.24
45.0	15.21
60.0	15.11
75.0	15.22
90.0	15.16
105.0	15.07
120.0	14.92
135.0	14.84
150.0	14.76
165.0	14.66
180.0	0.00
195.0	0.00
210.0	0.00
225.0	0.00
240.0	0.00
255.0	0.00
270.0	0.00
285.0	0.00
300.0	0.00
315.0	0.00
330.0	0.00
345.0	0.00
360.0	15.17