
Client:

LumCAT: M14618WHCL

Luminaire: LED

Report No:

Ballast type:

Test No: LCZP22030125

LampCAT:

Lamp flux(lm): 2149.1

Number of Lamps: 1

Length(mm): -440

Phm Type: C

Voltage(V): 119.930

Current(A): 0.394

Power (W): 40.470

PF: 0.856

Width(mm): -440

Height(mm): 0

Photometric Results

Lumens(lm): 2149.09, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 53.10

Central intensity(cd): 463.625, Maximum intensity(cd): 464.560

Angle of maximum intensity: C=90.0 γ =5.0

Beam Angle(50%Imax): [C0/180]Total=135.4

[C90/270]Total=134.6

Field angle(10%Imax): [C0/180]Total=275.2

[C90/270]Total=273.6

Maximum s/h(1/2): C0_180=1.38 C90_270=1.38

Maximum s/h(1/4): C0_180=1.52 C90_270=1.51

Up flux rate of lamp(%): 17.62%

Down flux rate of lamp(%): 82.38%

Up flux rate of LUM(%): 17.62%

Down flux rate of LUM(%): 82.38%

CIE Type : Semidirect lighting

Output flux ratio in π solid angle : 56.159%

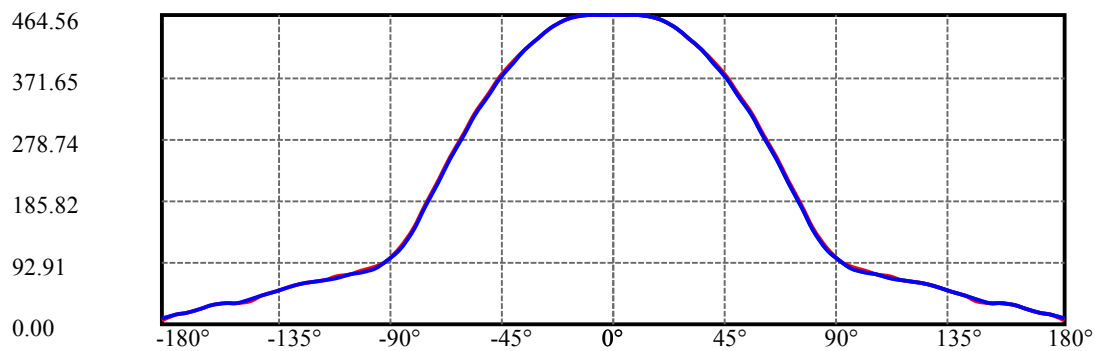
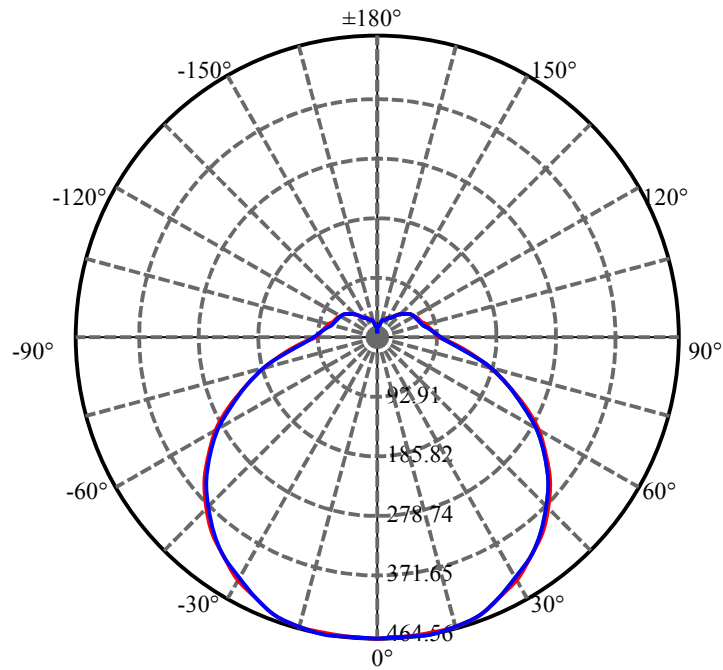
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	463.625	0.000	0	0.00%	0.00%
5.0	464.278	11.093	11.093	0.52%	0.52%
10.0	464.112	33.211	44.304	1.55%	2.06%
15.0	461.538	54.909	99.213	2.55%	4.62%
20.0	455.445	75.572	174.785	3.52%	8.13%
25.0	443.708	94.305	269.09	4.39%	12.52%
30.0	429.287	110.478	379.568	5.14%	17.66%
35.0	412.659	123.982	503.551	5.77%	23.43%
40.0	393.193	134.450	638.001	6.26%	29.69%
45.0	371.090	141.513	779.514	6.58%	36.27%
50.0	344.961	144.689	924.203	6.73%	43.00%
55.0	316.360	143.793	1067.996	6.69%	49.70%
60.0	284.571	138.904	1206.9	6.46%	56.16%
65.0	250.049	129.967	1336.867	6.05%	62.21%
70.0	213.904	117.476	1454.343	5.47%	67.67%
75.0	178.639	102.604	1556.947	4.77%	72.45%
80.0	143.568	86.214	1643.16	4.01%	76.46%
85.0	114.020	69.993	1713.153	3.26%	79.72%
90.0	95.074	57.252	1770.405	2.66%	82.38%
95.0	85.956	49.567	1819.972	2.31%	84.69%
100.0	79.506	44.960	1864.932	2.09%	86.78%
105.0	75.052	41.355	1906.288	1.92%	88.70%
110.0	70.793	38.122	1944.409	1.77%	90.48%
115.0	67.266	34.957	1979.367	1.63%	92.10%
120.0	64.232	31.967	2011.334	1.49%	93.59%
125.0	60.325	28.791	2040.125	1.34%	94.93%
130.0	55.523	25.189	2065.314	1.17%	96.10%
135.0	49.720	21.266	2086.58	0.99%	97.09%
140.0	42.262	17.031	2103.611	0.79%	97.88%
145.0	36.110	13.076	2116.687	0.61%	98.49%
150.0	32.542	10.109	2126.796	0.47%	98.96%
155.0	30.535	7.982	2134.779	0.37%	99.33%
160.0	27.771	6.115	2140.894	0.28%	99.62%
165.0	23.534	4.228	2145.122	0.20%	99.82%
170.0	18.438	2.490	2147.612	0.12%	99.93%
175.0	15.400	1.210	2148.823	0.06%	99.99%
180.0	7.324	0.272	2149.094	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	379.57	17.66%	17.66%
0-40	638.00	29.69%	29.69%
0-60	1206.90	56.16%	56.16%
0-90	1770.40	82.38%	82.38%
0-120	2011.33	93.59%	93.59%
0-180	2149.09	100.00%	100.00%
60-90	563.51	26.22%	26.22%
90-120	240.93	11.21%	11.21%
90-130	294.91	13.72%	13.72%
90-150	356.39	16.58%	16.58%
90-180	378.42	17.61%	17.61%
0-85.53	1719.28	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	44.30
10-20	130.48
20-30	204.78
30-40	258.43
40-50	286.20
50-60	282.70
60-70	247.44
70-80	188.82
80-90	127.24
90-100	94.53
100-110	79.48
110-120	66.92
120-130	53.98
130-140	38.30
140-150	23.19
150-160	14.10
160-170	6.72
170-180	1.21



C90(Max): ———

C0/C180: ———

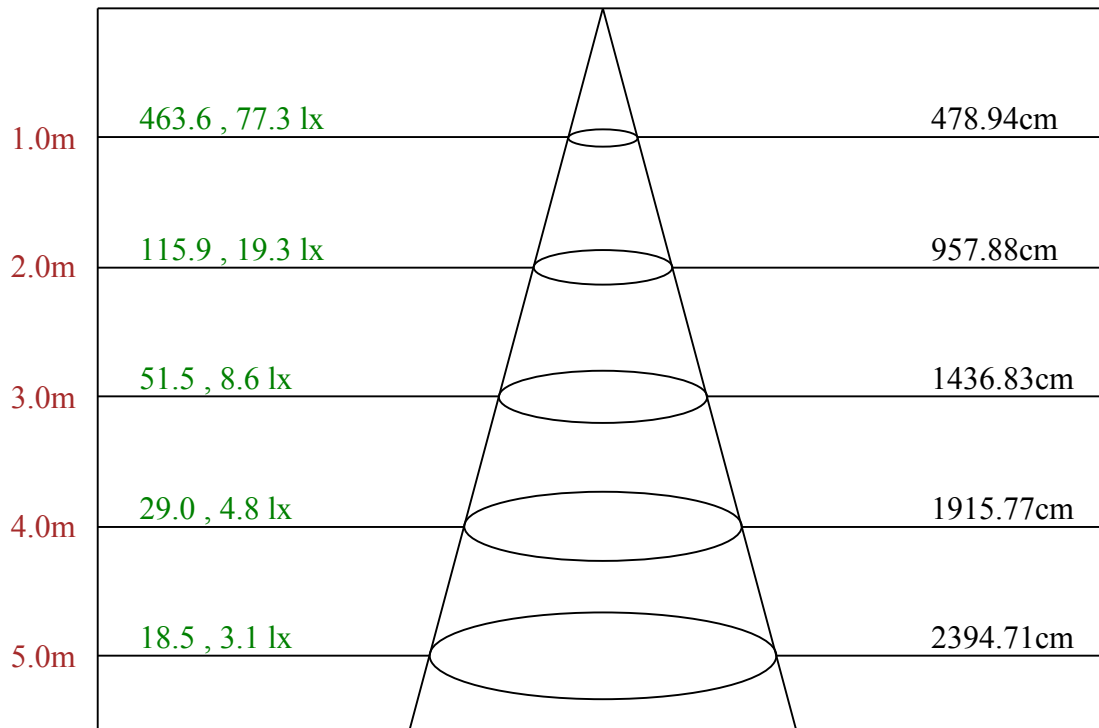
C90/C270: ———

Field angle(10%Imax):C0/180Left:142.6 Right:132.6

:C90/270Left:141.8 Right:131.8

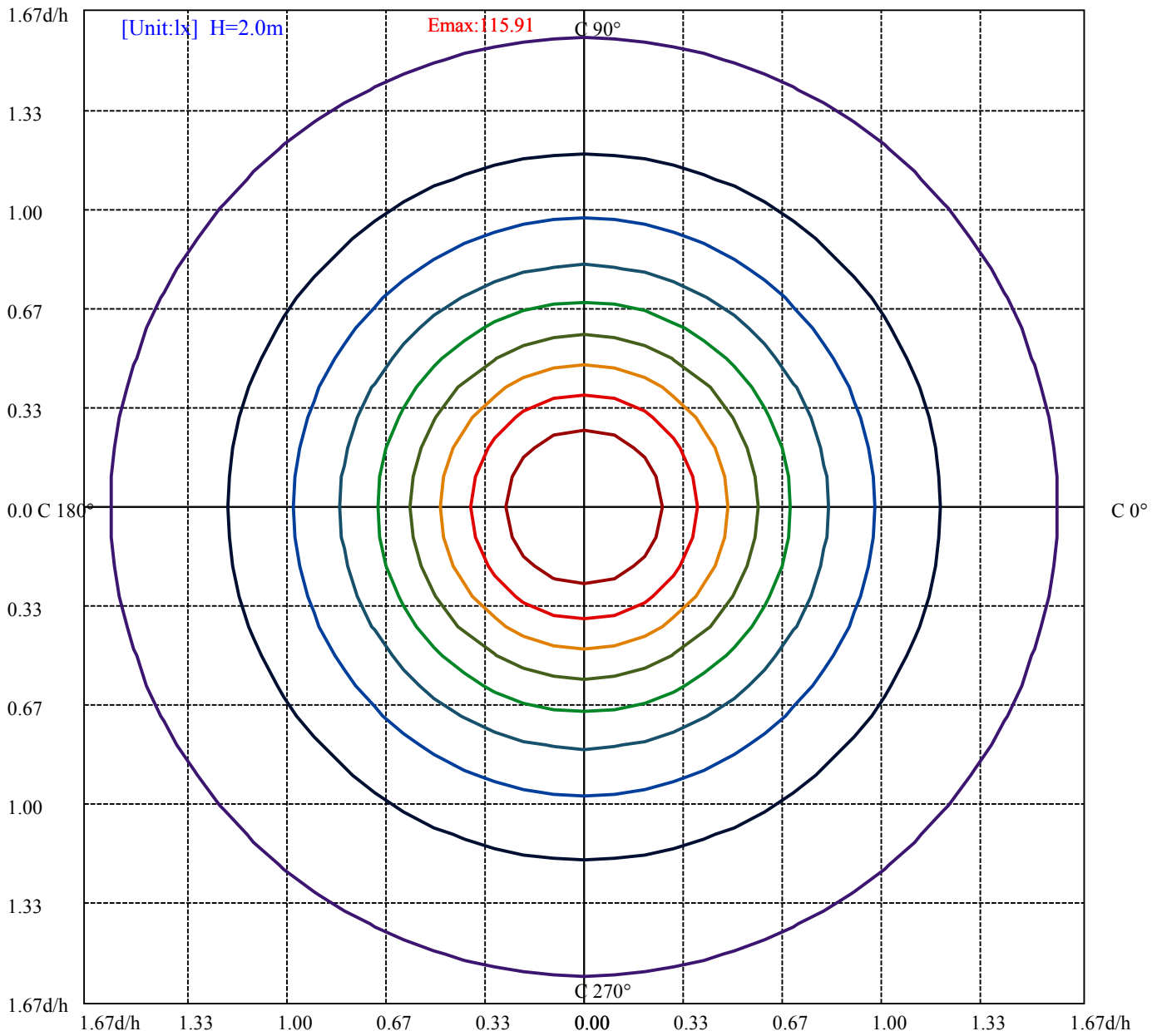
Beam Angle(50%Imax):C0/180Left:72.7 Right:62.7

:C90/270Left:72.3 Right:62.3

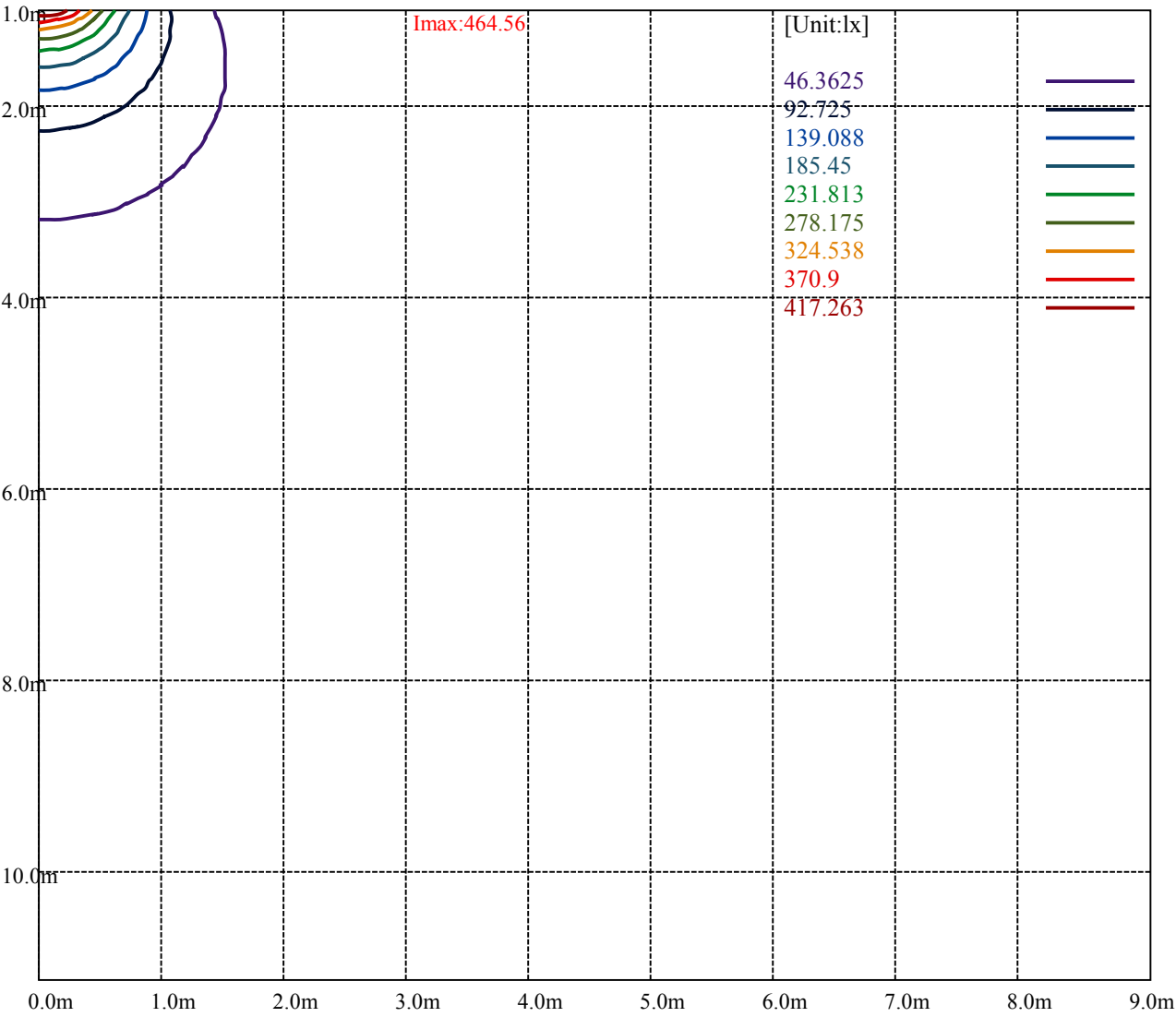


Max , Ave

Beam angle of C90 plane 134.67



(10%Emax) 11.59062	—
(20%Emax) 23.18125	—
(30%Emax) 34.772	—
(40%Emax) 46.3625	—
(50%Emax) 57.95325	—
(60%Emax) 69.54375	—
(70%Emax) 81.1345	—
(80%Emax) 92.725	—
(90%Emax) 104.3158	—



Luminance Table

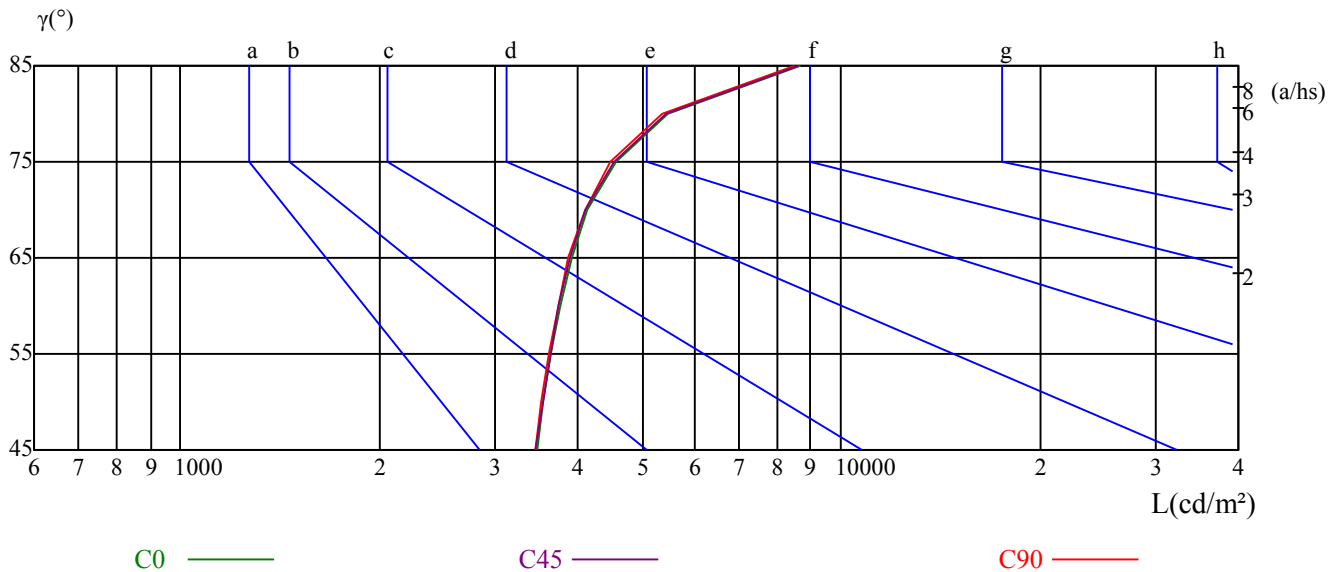
γ	45	50	55	60	65	70	75	80	85
C0	3460	3541	3644	3761	3916	4135	4555	5476	8673
C45	3447	3532	3627	3746	3888	4116	4525	5442	8620
C90	3437	3520	3623	3729	3870	4107	4485	5376	8511

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3916	3870	3888	4555	4485	4525	8673	8511	8620

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	1.15	1.15	1.15	1.10	1.10	1.10	1.01	1.01	1.01	0.93	0.93	0.93	0.86	0.86	0.86	0.82
1	0.97	0.92	0.87	0.93	0.88	0.84	0.85	0.81	0.78	0.78	0.75	0.72	0.72	0.69	0.67	0.64
2	0.83	0.75	0.69	0.79	0.73	0.67	0.73	0.67	0.62	0.67	0.62	0.58	0.61	0.58	0.55	0.51
3	0.72	0.63	0.56	0.69	0.61	0.54	0.63	0.57	0.51	0.58	0.53	0.48	0.54	0.49	0.45	0.42
4	0.63	0.54	0.47	0.61	0.52	0.45	0.56	0.49	0.43	0.51	0.45	0.40	0.47	0.42	0.38	0.35
5	0.56	0.47	0.40	0.54	0.45	0.39	0.50	0.42	0.37	0.46	0.40	0.35	0.42	0.37	0.33	0.30
6	0.50	0.41	0.34	0.48	0.40	0.33	0.45	0.37	0.32	0.41	0.35	0.30	0.38	0.33	0.28	0.26
7	0.45	0.36	0.30	0.44	0.35	0.29	0.40	0.33	0.28	0.37	0.31	0.26	0.35	0.29	0.25	0.23
8	0.41	0.32	0.26	0.40	0.31	0.26	0.37	0.30	0.25	0.34	0.28	0.23	0.32	0.26	0.22	0.20
9	0.38	0.29	0.24	0.36	0.28	0.23	0.34	0.27	0.22	0.31	0.25	0.21	0.29	0.24	0.20	0.18
10	0.34	0.26	0.21	0.33	0.26	0.21	0.31	0.24	0.20	0.29	0.23	0.19	0.27	0.22	0.18	0.16

M14618WHCL

Intensity data(cd)

Appendix Page: 10 Total:12

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	463.63	463.71	464.06	462.16	457.84	448.00	432.88	416.65	399.21
15.0	463.63	463.89	464.24	462.14	457.43	448.17	432.20	416.49	397.98
30.0	463.63	464.24	464.24	462.13	457.03	447.27	432.49	416.66	398.18
45.0	463.63	463.98	464.69	462.39	457.44	446.92	432.33	416.77	398.55
60.0	463.63	464.87	465.13	462.92	457.95	447.56	432.92	417.74	399.10
75.0	463.63	464.51	464.87	463.18	457.58	447.09	432.60	417.66	398.37
90.0	463.63	464.43	464.87	463.00	458.28	446.80	433.27	417.78	399.53
105.0	463.63	463.89	464.34	462.91	458.11	447.43	433.27	418.32	400.34
120.0	463.63	464.43	465.05	463.45	459.26	448.48	434.75	419.78	401.25
135.0	463.63	464.25	465.05	463.54	459.44	448.83	435.02	420.14	402.68
150.0	463.63	463.71	464.52	463.27	459.44	450.08	436.09	421.48	403.39
165.0	463.63	463.89	464.52	463.89	459.79	450.96	437.15	422.70	405.14
180.0	463.63	464.83	464.14	460.95	453.52	440.57	425.98	409.31	389.10
195.0	463.63	464.15	463.89	460.66	453.85	440.40	426.52	408.89	398.16
210.0	463.63	464.59	463.98	461.25	453.51	440.93	427.12	409.36	388.60
225.0	463.63	464.33	463.98	460.80	453.72	440.64	426.58	409.69	388.65
240.0	463.63	464.60	463.98	460.61	453.42	440.73	426.44	408.78	388.37
255.0	463.63	464.43	463.80	460.42	453.05	440.24	425.31	407.79	386.72
270.0	463.63	464.69	463.71	459.80	452.76	440.57	424.28	407.27	385.64
285.0	463.63	464.07	462.91	459.26	451.79	438.70	423.48	405.51	385.03
300.0	463.63	464.25	463.27	459.26	451.86	438.50	422.99	405.17	384.05
315.0	463.63	464.43	463.18	459.17	451.51	437.61	428.52	403.39	383.52
330.0	463.63	464.25	463.18	461.04	451.06	436.54	420.68	403.66	382.09
345.0	463.63	464.25	463.09	458.72	451.05	435.99	420.03	402.82	381.96
360.0	463.63	463.71	464.06	462.16	457.84	448.00	432.88	416.65	399.21
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	377.96	353.18	325.89	294.63	261.82	225.12	189.28	153.19	121.32
15.0	377.03	351.97	324.83	293.57	260.75	224.09	188.47	153.47	120.73
30.0	376.46	351.74	324.21	294.22	259.92	223.50	188.14	152.87	120.33
45.0	376.81	352.23	324.73	293.70	259.31	223.94	188.58	151.98	120.59
60.0	377.45	352.33	325.18	293.23	259.86	223.56	188.06	151.58	120.08
75.0	377.30	352.85	324.58	293.02	259.42	223.32	187.49	152.38	120.91
90.0	377.72	353.15	326.09	294.48	260.12	224.87	189.35	152.94	121.25
105.0	378.89	354.42	326.74	295.76	261.85	225.63	190.38	155.05	122.47
120.0	380.49	356.43	328.36	296.91	263.85	227.13	191.85	156.56	124.75
135.0	382.18	357.68	330.77	299.67	265.72	230.34	194.70	158.17	126.27
150.0	383.96	358.92	331.39	301.45	268.30	231.06	196.21	159.77	127.33
165.0	384.18	360.11	333.28	302.43	269.62	233.33	197.04	161.47	128.12
180.0	366.05	339.02	309.75	277.28	241.44	204.91	169.25	136.00	108.54
195.0	365.51	338.53	309.46	277.51	242.16	205.75	168.39	135.48	107.90
210.0	364.94	338.46	309.35	276.45	241.18	204.59	168.18	135.19	107.48
225.0	364.34	338.26	307.93	276.28	240.65	204.41	167.89	134.65	106.89
240.0	364.23	337.69	307.78	274.68	240.33	204.12	166.32	133.21	106.32
255.0	362.81	335.96	306.27	274.62	238.17	202.96	165.62	132.46	105.08
270.0	361.43	334.99	305.79	272.58	237.24	202.26	163.62	130.95	104.33
285.0	360.38	332.97	303.68	271.82	236.22	200.08	183.17	130.75	103.51
300.0	370.95	332.73	303.23	270.26	234.80	198.62	162.80	130.54	103.72
315.0	359.01	332.55	301.81	269.64	233.73	197.46	161.11	130.01	103.19
330.0	358.48	331.92	301.27	267.77	233.28	197.11	160.75	128.67	102.74
345.0	357.62	330.96	300.29	267.74	231.46	195.53	160.66	128.30	102.62
360.0	377.96	353.18	325.89	294.63	261.82	225.12	189.28	153.19	121.32

M14618WHCL

Intensity data(cd)

Appendix Page: 11 Total:12

C/ γ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	98.01	87.65	80.65	75.82	71.67	67.96	64.94	61.57	57.51
15.0	97.95	87.99	80.40	75.77	71.32	67.65	64.25	61.28	57.18
30.0	98.42	88.31	80.31	75.73	71.42	67.64	64.21	60.95	56.82
45.0	98.14	88.23	80.19	75.68	70.99	67.10	64.10	60.56	56.41
60.0	97.36	88.31	80.05	75.44	70.91	67.01	64.08	60.79	56.62
75.0	98.33	88.19	80.10	75.39	71.03	67.39	64.72	61.16	56.72
90.0	98.81	88.58	80.39	75.67	71.40	67.75	65.43	61.43	57.33
105.0	99.60	89.00	81.08	76.10	71.65	68.71	65.86	61.95	57.85
120.0	100.69	89.82	81.53	76.81	72.00	68.97	66.65	62.73	58.45
135.0	102.12	90.35	82.25	77.26	72.62	69.24	66.74	62.73	58.54
150.0	102.83	90.35	82.78	77.70	72.89	69.15	66.38	62.91	58.28
165.0	103.78	90.59	82.92	77.84	73.02	69.19	65.89	62.95	58.22
180.0	93.09	85.58	80.05	75.21	70.98	67.27	63.90	59.93	54.40
195.0	92.71	84.94	79.44	74.90	70.53	66.61	63.46	59.36	54.21
210.0	91.39	84.09	78.81	74.24	69.84	65.88	62.71	59.11	53.83
225.0	90.53	82.84	78.07	73.56	69.58	65.60	62.06	58.70	53.58
240.0	89.81	82.00	77.30	73.31	69.05	65.32	63.37	58.13	52.81
255.0	89.35	81.79	77.17	74.59	68.99	65.34	62.05	58.14	52.72
270.0	94.27	81.28	76.83	72.82	69.17	65.70	62.32	58.22	52.79
285.0	88.38	81.80	77.08	73.34	69.78	66.31	63.10	58.48	52.96
300.0	88.84	82.42	77.52	73.51	70.22	67.10	63.98	59.08	53.55
315.0	88.84	82.87	77.70	73.60	70.13	67.28	63.98	59.35	53.82
330.0	89.02	82.87	77.70	73.51	69.95	67.28	63.80	59.26	54.00
345.0	89.52	83.10	77.84	73.47	69.90	66.96	63.57	59.02	53.94
360.0	98.01	87.65	80.65	75.82	71.67	67.96	64.94	61.57	57.51
C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	52.50	45.42	36.96	32.90	31.17	29.01	25.13	20.03	16.23
15.0	52.03	45.48	37.28	32.65	30.99	28.72	24.88	19.82	16.06
30.0	51.72	45.30	37.65	32.28	30.79	28.50	24.72	19.61	15.74
45.0	51.37	45.18	37.40	32.09	30.50	28.29	24.67	19.72	15.47
60.0	51.47	45.00	37.36	32.04	30.44	28.22	24.76	19.79	15.18
75.0	51.74	45.34	37.43	32.27	30.58	28.45	25.07	19.91	15.11
90.0	51.99	45.76	38.01	32.40	30.89	28.40	25.19	20.03	15.31
105.0	52.51	45.84	38.36	32.49	30.97	28.75	25.54	20.38	15.58
120.0	53.11	46.60	38.67	33.15	31.19	29.05	25.75	20.76	15.68
135.0	53.38	47.05	39.21	33.15	31.45	29.32	26.29	21.03	16.04
150.0	53.38	47.14	39.65	33.42	31.54	29.32	26.46	21.30	16.57
165.0	53.14	47.08	39.41	33.61	31.65	29.51	26.57	21.67	16.76
180.0	48.01	40.59	34.11	32.04	29.88	27.11	22.19	17.36	14.94
195.0	47.93	40.42	34.05	32.12	29.94	27.24	24.27	17.20	14.93
210.0	47.59	39.84	34.04	32.72	30.17	27.27	22.17	17.06	14.86
225.0	50.13	39.08	33.95	32.27	30.24	27.14	22.10	17.15	14.94
240.0	46.95	38.61	34.26	32.57	30.44	27.42	21.74	16.86	15.00
255.0	46.32	38.41	34.23	32.80	30.58	27.47	21.69	16.62	15.11
270.0	46.02	37.92	34.45	33.03	30.62	26.88	21.54	16.38	15.04
285.0	45.75	37.47	34.36	32.75	30.26	26.61	21.09	16.29	15.04
300.0	45.89	37.07	34.40	32.61	29.94	26.38	20.85	15.95	14.97
315.0	46.42	37.43	34.40	32.17	29.58	26.02	20.67	15.86	15.06
330.0	46.96	38.05	33.77	31.90	29.58	25.93	20.67	15.86	14.97
345.0	46.99	38.25	33.26	31.56	29.42	25.50	20.77	15.87	14.98
360.0	52.50	45.42	36.96	32.90	31.17	29.01	25.13	20.03	16.23

Intensity data(cd)

Appendix Page: 12 Total:12

C/ γ (°)	180.0
0.0	14.25
15.0	14.58
30.0	14.60
45.0	14.68
60.0	14.73
75.0	14.67
90.0	14.69
105.0	14.69
120.0	14.70
135.0	14.61
150.0	14.70
165.0	14.89
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	14.25