



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440228 KAI 20.8W 4000K 2500lm

Luminaire:

Report No:

Voltage(V): 230.1300

Test No: KYZ-A251011059-01-002

Current(A): 0.0967

LampCAT: LED

Power (W): 20.8000

Lamp flux(lm): -1.0

PF: 0.9364

Number of Lamps: 1

Ballast type:

Length(mm): -249

Width(mm): -249

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2500.00

Efficiency(%): 100.00%

Lumens(lm)/Power(W): 120.19

Central intensity(cd): 1234.761

Maximum intensity(cd): 1247.827

Angle of maximum intensity: $C=67.5$ $\gamma=5.0$

Beam Angle(50%Imax): [C0/180]Total=84.5

[C90/270]Total=84.8

Field angle(10%Imax): [C0/180]Total=145.4

[C90/270]Total=145.3

Maximum s/h(1/2): C0_180=1.13 C90_270=1.10

Maximum s/h(1/4): C0_180=1.18 C90_270=1.16

Up flux rate of lamp(%): 0.55%

Down flux rate of lamp(%): 99.45%

Up flux rate of LUM(%): 0.55%

Down flux rate of LUM(%): 99.45%

CIE Type : Direct lighting

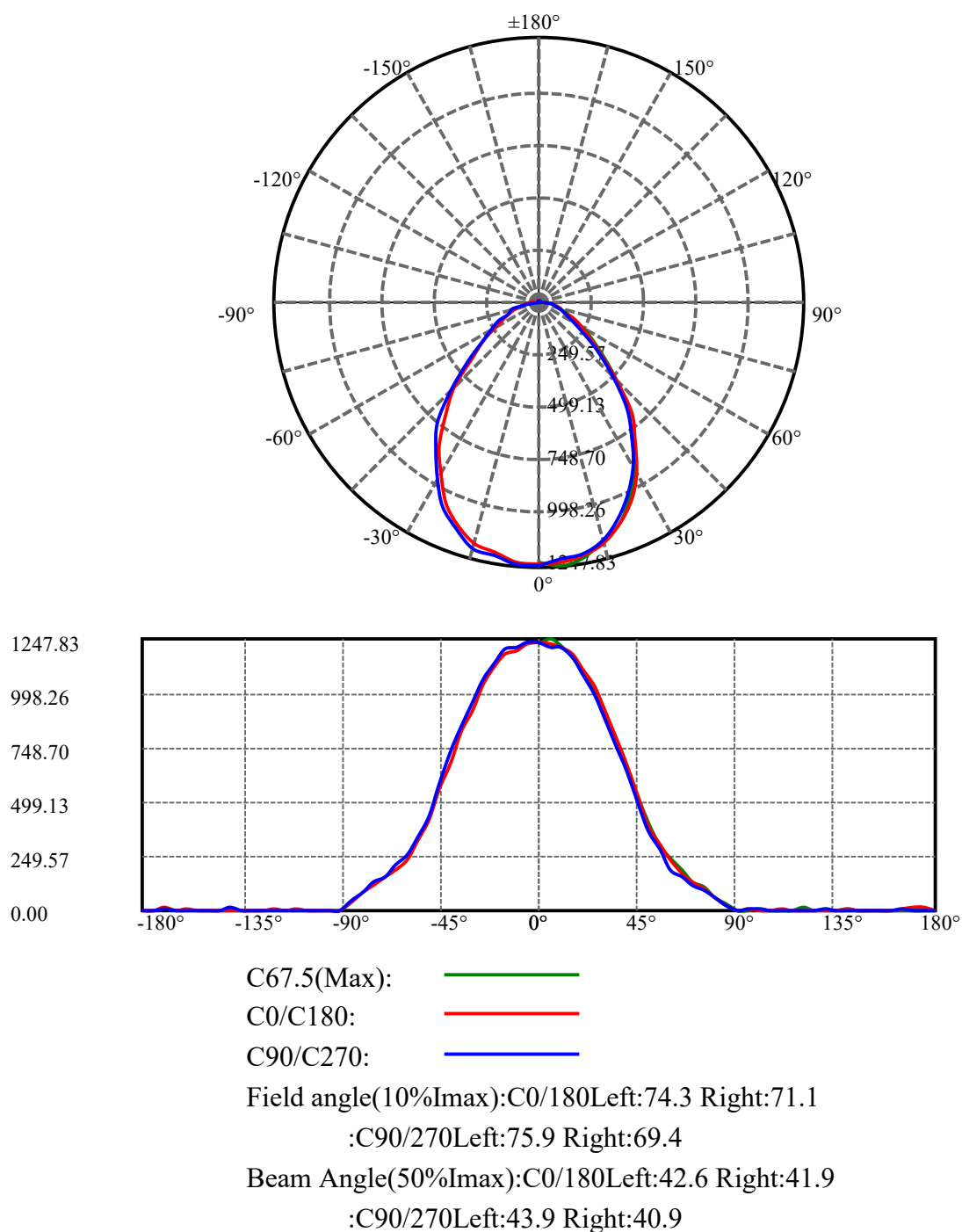
Output flux ratio in π solid angle : 85.389%

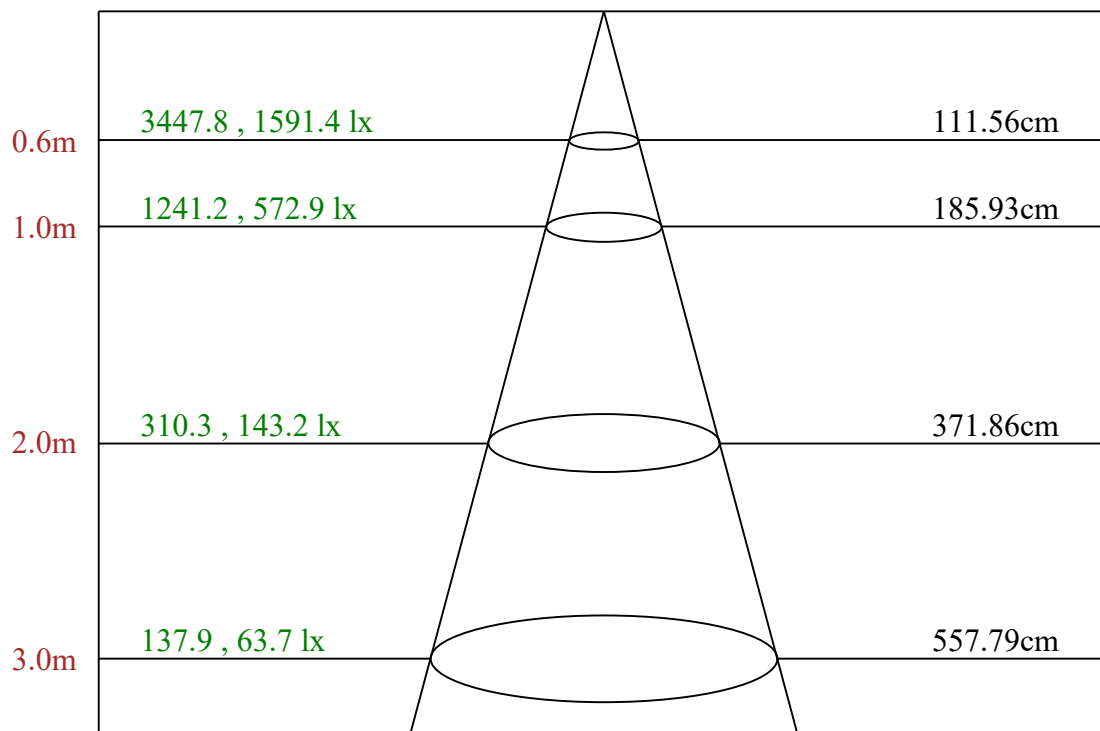
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1228.662	0.000	0	.000%	.000%
5.0	1226.164	29.421	29.421	.000%	1.177%
10.0	1206.451	87.242	116.663	.000%	4.667%
15.0	1175.932	141.678	258.341	.000%	10.334%
20.0	1109.190	188.802	447.143	.000%	17.886%
25.0	1030.474	224.978	672.122	.000%	26.885%
30.0	918.496	247.267	919.389	.000%	36.776%
35.0	804.020	254.293	1173.682	.000%	46.947%
40.0	684.195	248.925	1422.607	.000%	56.904%
45.0	544.576	228.092	1650.698	.000%	66.028%
50.0	415.084	194.403	1845.102	.000%	73.804%
55.0	319.262	160.075	2005.176	.000%	80.207%
60.0	239.813	129.555	2134.732	.000%	85.389%
65.0	188.087	104.286	2239.018	.000%	89.561%
70.0	147.358	85.151	2324.169	.000%	92.967%
75.0	111.571	67.851	2392.02	.000%	95.681%
80.0	78.797	51.066	2443.086	.000%	97.724%
85.0	38.584	31.976	2475.062	.000%	99.003%
90.0	2.362	11.240	2486.302	.000%	99.452%
95.0	2.580	1.357	2487.658	.000%	99.506%
100.0	1.439	1.095	2488.753	.000%	99.550%
105.0	2.145	0.961	2489.714	.000%	99.589%
110.0	1.086	0.847	2490.561	.000%	99.623%
115.0	1.466	0.648	2491.209	.000%	99.648%
120.0	2.824	1.046	2492.254	.000%	99.690%
125.0	1.140	0.919	2493.173	.000%	99.727%
130.0	3.937	1.107	2494.28	.000%	99.771%
135.0	2.254	1.254	2495.534	.000%	99.821%
140.0	5.159	1.376	2496.91	.000%	99.877%
145.0	1.005	1.031	2497.941	.000%	99.918%
150.0	0.950	0.289	2498.23	.000%	99.929%
155.0	1.575	0.320	2498.55	.000%	99.942%
160.0	1.629	0.337	2498.887	.000%	99.956%
165.0	3.123	0.393	2499.279	.000%	99.971%
170.0	4.426	0.449	2499.728	.000%	99.989%
175.0	1.738	0.221	2499.949	.000%	99.998%
180.0	2.227	0.048	2499.997	.000%	100.000%

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	919.39	N.A.	36.78%
0-40	1422.61	N.A.	56.90%
0-60	2134.73	N.A.	85.39%
0-90	2486.30	N.A.	99.45%
0-120	2492.25	N.A.	99.69%
0-180	2500.00	N.A.	100.00%
60-90	481.13	N.A.	19.25%
90-120	17.19	N.A.	0.69%
90-130	19.22	N.A.	0.77%
90-150	23.17	N.A.	0.93%
90-180	24.89	N.A.	1.00%
0-54.84	2000.00	N.A.	80.00%

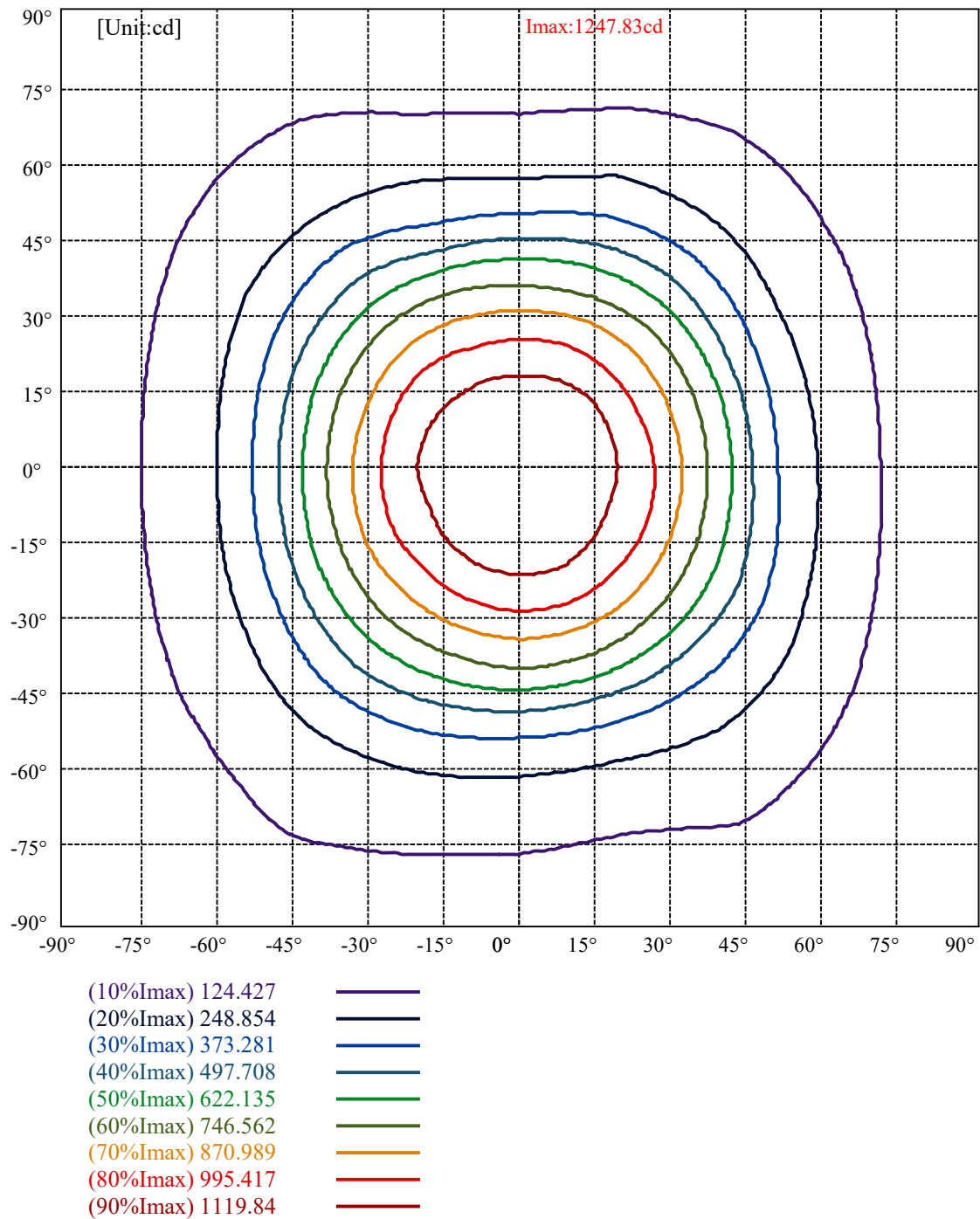
ZONAL LUMEN SUMMARY

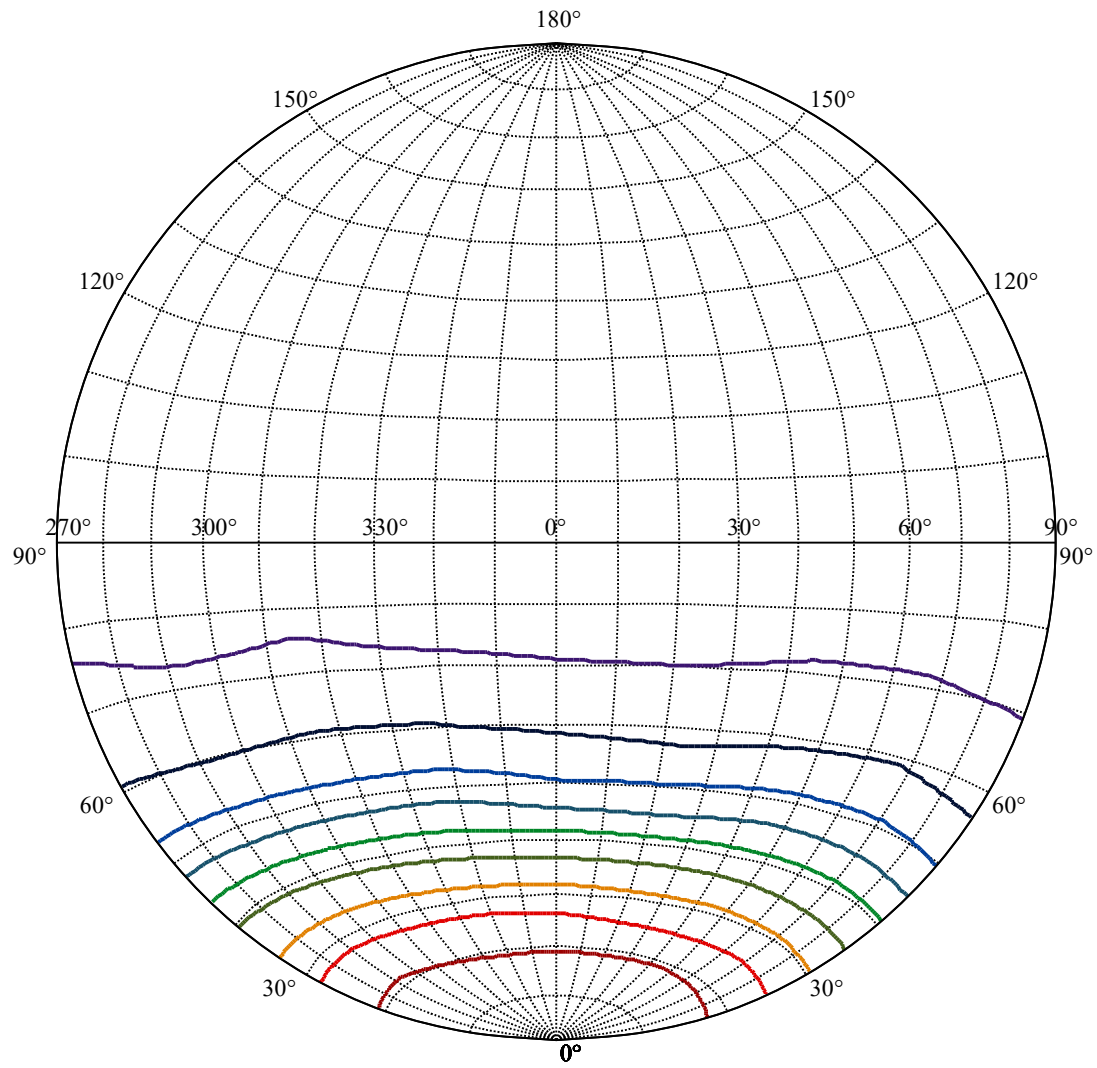
0-10	116.66
10-20	330.48
20-30	472.25
30-40	503.22
40-50	422.49
50-60	289.63
60-70	189.44
70-80	118.92
80-90	43.22
90-100	2.45
100-110	1.81
110-120	1.69
120-130	2.03
130-140	2.63
140-150	1.32
150-160	0.66
160-170	0.84
170-180	0.22





Max , Ave Beam angle of C67.5 plane 85.82



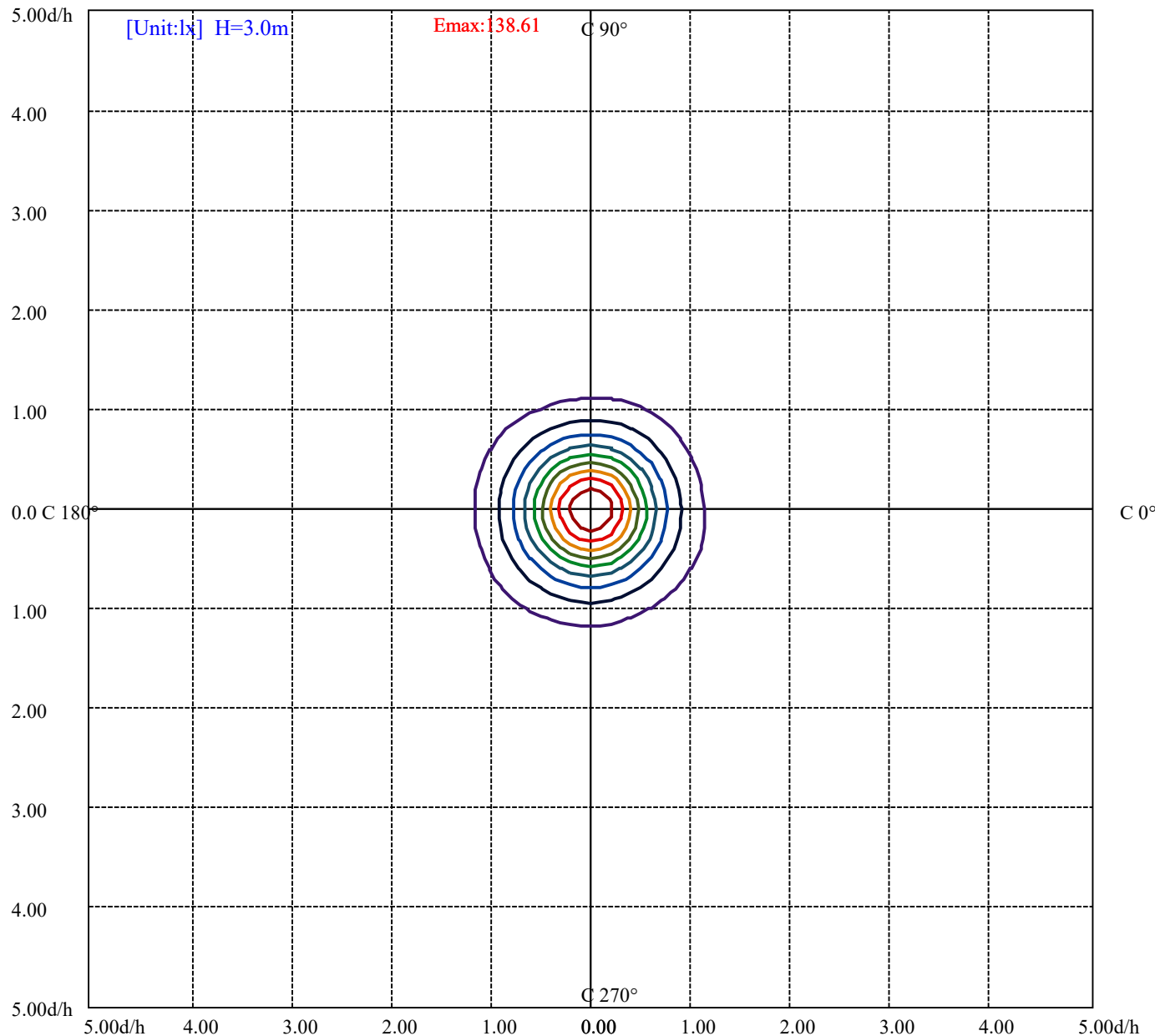


House

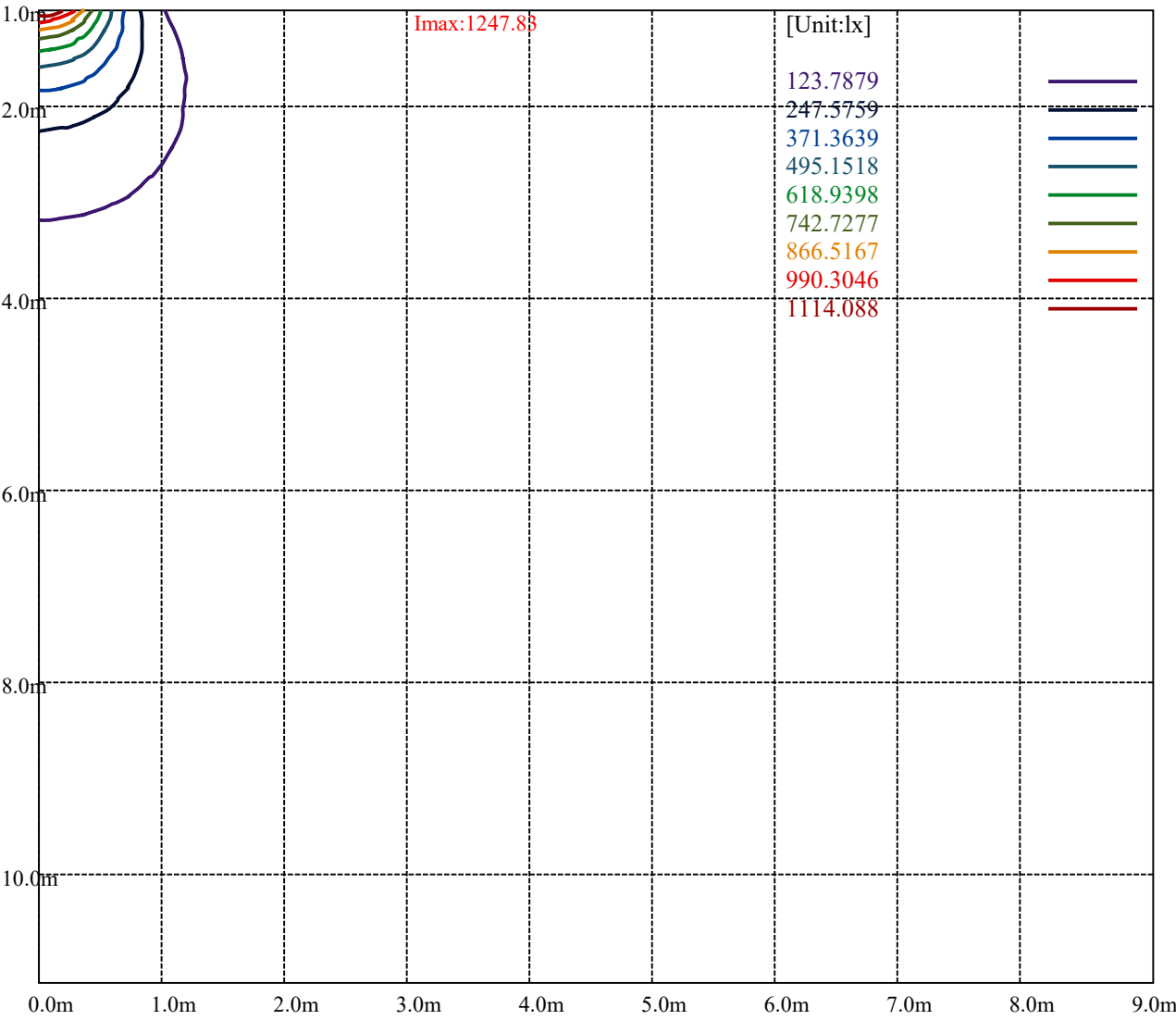
[Unit:cd]

Road

Imax:1247.83	
(10%Imax) 125.0592	
(20%Imax) 250.1183	
(30%Imax) 375.1775	
(40%Imax) 500.2366	
(50%Imax) 625.2957	
(60%Imax) 750.3549	
(70%Imax) 875.4141	
(80%Imax) 1000.473	
(90%Imax) 1125.536	



(10%Emax)	13.86093	—
(20%Emax)	27.72186	—
(30%Emax)	41.58279	—
(40%Emax)	55.44372	—
(50%Emax)	69.30465	—
(60%Emax)	83.16558	—
(70%Emax)	97.02651	—
(80%Emax)	110.8874	—
(90%Emax)	124.7488	—



Luminance Table

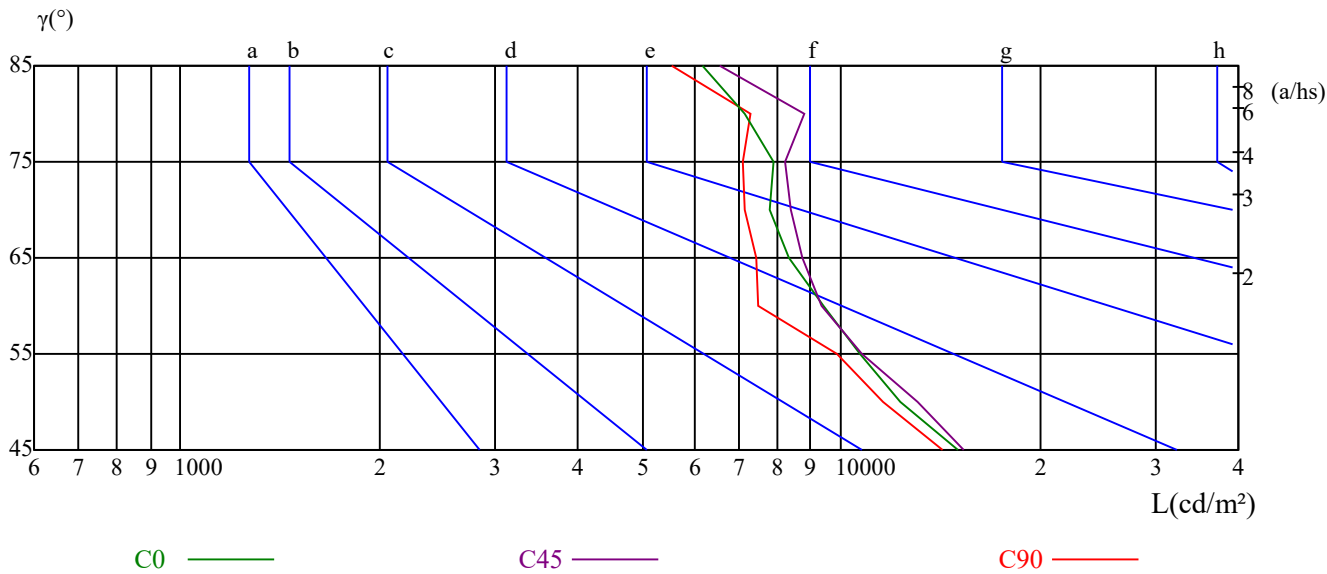
γ	45	50	55	60	65	70	75	80	85
C0	15027	12287	10713	9427	8360	7819	7914	7160	6157
C45	15356	13052	10775	9356	8719	8421	8259	8808	6568
C90	14243	11605	9886	7495	7450	7165	7119	7314	5542

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8698	8751	9476	8674	8829	9763	7492	8159	8749

Glare Table

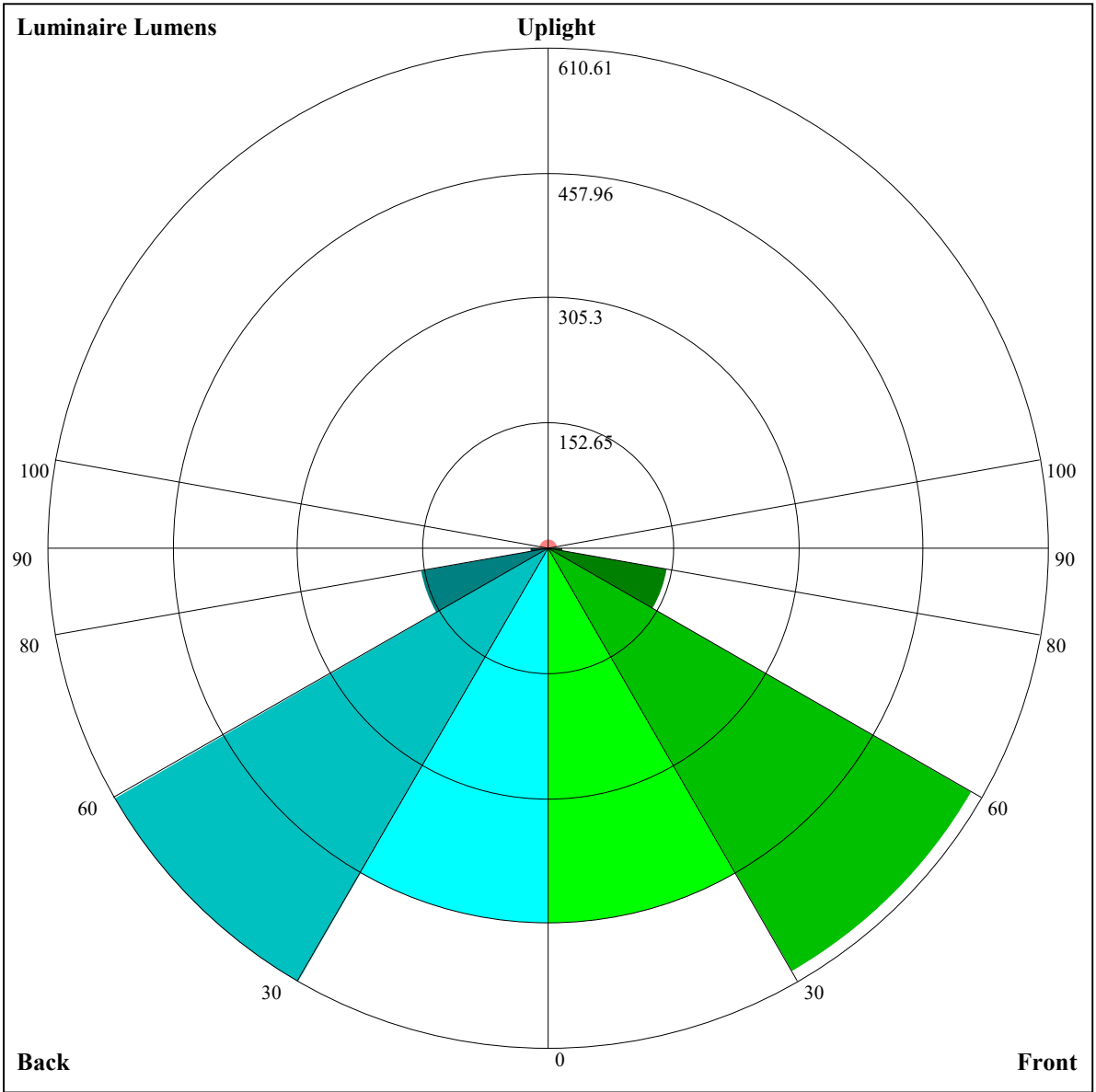
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve



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	14.97	16.44	15.34	16.76	17.09	15.02	16.49	15.39	16.81	17.14
	3H	16.03	17.35	16.42	17.70	18.06	16.06	17.39	16.45	17.74	18.09
	4H	16.50	17.74	16.90	18.10	18.48	16.55	17.79	16.95	18.15	18.53
	6H	16.94	18.08	17.35	18.46	18.87	16.98	18.13	17.40	18.51	18.91
	8H	17.06	18.17	17.49	18.56	18.97	17.10	18.21	17.52	18.60	19.01
	12H	17.13	18.19	17.56	18.59	19.01	17.16	18.22	17.59	18.62	19.04
4H	2H	15.44	16.68	15.84	17.04	17.42	15.49	16.73	15.89	17.09	17.46
	3H	16.68	17.73	17.11	18.13	18.55	16.76	17.81	17.19	18.21	18.63
	4H	17.29	18.22	17.73	18.64	19.10	17.48	18.40	17.92	18.83	19.28
	6H	17.83	18.66	18.30	19.11	19.56	18.00	18.83	18.47	19.28	19.74
	8H	18.04	18.82	18.53	19.27	19.75	18.20	18.97	18.68	19.43	19.91
	12H	18.18	18.89	18.66	19.34	19.86	18.32	19.04	18.81	19.49	20.01
8H	4H	17.56	18.34	18.05	18.79	19.27	17.73	18.50	18.22	18.96	19.44
	6H	18.27	18.91	18.77	19.39	19.90	18.41	19.06	18.91	19.53	20.05
	8H	18.61	19.17	19.13	19.69	20.19	18.73	19.30	19.26	19.82	20.32
	12H	18.79	19.26	19.32	19.78	20.30	18.92	19.40	19.46	19.92	20.44
12H	4H	17.60	18.31	18.09	18.77	19.28	17.76	18.48	18.25	18.93	19.45
	6H	18.40	18.96	18.92	19.48	19.98	18.53	19.10	19.06	19.62	20.12
	8H	18.73	19.21	19.27	19.73	20.25	18.86	19.33	19.39	19.85	20.37
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.7					0.3/-0.7				
S = 1.5H		0.7/-1.1					0.8/-1.0				
S = 2.0H		1.3/-1.3					1.5/-1.1				
Standard tables:		BK3					BK3				
Uncorrected UGR		5.0					4.9				

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



Luminaire Lumens:

FL=458.16,FM=597.09,FH=147.91,FVH=19.11

BL=457.54,BM=610.61,BH=157.51,BVH=23.49

UL=2.45,UH=11.21

BUG Rating:B1-U2-G1

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	1234.76	1226.49	1207.32	1174.66	1110.63	1027.88	925.09	789.20	676.40
22.5	1224.31	1232.58	1223.00	1181.19	1105.40	1005.23	903.75	783.54	668.56
45.0	1244.34	1230.41	1196.00	1177.27	1109.32	1000.88	906.80	781.36	665.94
67.5	1227.36	1247.83	1215.60	1160.28	1104.10	1006.97	901.14	764.81	658.54
90.0	1236.07	1209.06	1206.45	1162.03	1086.68	995.21	885.46	755.23	645.04
112.5	1227.36	1212.98	1196.43	1165.51	1091.03	995.65	892.86	782.67	652.01
135.0	1229.10	1221.69	1188.59	1165.95	1096.69	1028.75	908.10	801.83	673.35
157.5	1230.84	1222.56	1206.02	1190.77	1107.58	1040.94	908.98	805.32	684.67
180.0	1234.76	1225.18	1196.43	1177.70	1120.21	1040.51	925.96	820.12	683.80
202.5	1224.31	1241.73	1210.37	1170.74	1110.63	1044.43	941.64	827.96	689.46
225.0	1244.34	1224.74	1199.05	1187.72	1118.47	1041.82	922.91	831.01	713.42
247.5	1227.36	1223.00	1216.03	1190.34	1131.97	1054.88	946.87	827.53	719.08
270.0	1236.07	1233.89	1212.11	1200.35	1135.46	1063.59	960.37	842.34	737.37
292.5	1227.36	1236.94	1222.13	1189.03	1137.63	1074.05	952.53	838.42	723.87
315.0	1229.10	1238.25	1233.45	1190.34	1119.34	1059.24	925.09	834.93	699.04
337.5	1230.84	1240.86	1223.00	1178.58	1106.71	1049.22	925.53	810.54	684.24
360.0	1234.76	1226.49	1207.32	1174.66	1110.63	1027.88	925.09	789.20	676.40
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	517.42	384.58	299.22	229.53	172.04	130.23	99.74	60.54	26.13
22.5	501.74	383.28	283.10	203.40	165.07	126.31	81.01	67.07	21.34
45.0	528.75	408.54	300.96	227.79	179.44	140.24	104.09	74.48	27.87
67.5	516.12	402.01	297.04	239.11	187.72	132.84	109.76	61.85	28.31
90.0	490.42	363.24	276.13	182.49	153.31	119.34	89.72	61.85	23.52
112.5	485.63	368.03	287.02	227.79	155.92	127.61	94.51	72.74	22.65
135.0	547.48	427.27	334.06	239.98	181.19	170.73	114.11	80.58	34.84
157.5	547.91	430.32	334.06	254.36	197.74	155.49	111.50	82.75	46.60
180.0	557.93	416.81	319.69	234.32	185.98	153.31	118.90	81.45	37.46
202.5	579.27	426.40	335.80	247.82	201.66	166.38	102.79	89.29	54.01
225.0	588.42	470.39	362.81	272.65	206.01	165.51	145.04	104.97	54.88
247.5	590.16	459.06	357.58	273.96	202.53	177.27	140.68	100.61	67.51
270.0	584.50	437.72	333.62	256.10	206.88	153.31	132.84	83.62	45.73
292.5	568.38	419.43	331.88	243.03	190.77	153.31	107.14	84.06	49.22
315.0	567.51	420.73	335.37	258.71	213.42	146.34	128.92	87.98	30.92
337.5	563.59	440.33	332.75	255.66	217.34	145.47	108.89	70.12	47.91
360.0	517.42	384.58	299.22	229.53	172.04	130.23	99.74	60.54	26.13
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.48	3.92	0.00	0.00	4.79	0.00	0.00	2.61	0.00
22.5	0.00	6.97	3.92	1.31	0.00	0.00	0.00	1.74	0.00
45.0	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.47
67.5	0.00	0.00	10.02	0.00	0.00	2.61	16.99	0.00	5.23
90.0	2.18	7.40	4.35	0.00	0.00	0.00	3.48	0.00	9.15
112.5	0.87	8.71	0.00	3.92	1.74	1.31	9.58	7.40	14.81
135.0	1.74	0.00	0.00	0.00	0.00	8.27	0.87	0.00	3.05
157.5	0.00	0.00	0.00	1.74	2.18	0.00	0.00	0.00	0.00
180.0	0.00	3.05	0.00	0.00	8.71	0.00	4.35	0.00	0.00
202.5	11.32	0.00	3.48	2.61	0.00	9.58	0.00	2.18	0.00
225.0	0.44	3.05	0.00	10.45	0.00	0.44	0.00	0.00	0.00
247.5	9.15	6.10	0.00	0.00	0.00	0.00	10.02	4.35	0.00
270.0	0.00	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
292.5	0.00	0.44	1.31	0.00	0.00	0.00	0.00	0.00	5.23
315.0	2.18	0.00	0.00	14.37	0.00	1.31	0.00	0.00	5.23
337.5	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
360.0	3.48	3.92	0.00	0.00	4.79	0.00	0.00	2.61	0.00

Intensity data(cd)

Appendix Page: 14 Total:14

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.00	4.35	2.18	0.00	0.00	0.00	9.58	12.19	14.37
22.5	0.00	0.00	0.87	0.87	0.00	0.00	0.00	0.00	0.44
45.0	2.18	14.81	0.00	0.00	1.31	0.87	10.02	0.00	0.00
67.5	0.00	7.40	0.00	0.00	0.00	3.48	0.00	3.05	0.44
90.0	2.18	0.00	0.00	2.18	0.44	0.00	7.84	2.18	0.00
112.5	10.02	0.44	0.00	0.00	5.66	7.84	2.18	0.00	0.00
135.0	6.10	10.89	5.23	3.48	12.63	0.00	10.89	0.00	1.31
157.5	2.18	0.00	3.05	0.00	1.31	0.00	0.00	10.02	2.18
180.0	3.05	2.18	0.00	0.00	0.00	6.10	0.00	15.24	0.00
202.5	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	5.23
225.0	7.40	0.00	0.00	1.31	3.48	0.00	0.00	0.00	3.92
247.5	0.00	0.00	0.00	0.00	0.00	6.53	0.00	0.87	0.00
270.0	0.00	14.81	0.00	0.00	0.00	0.00	0.00	10.02	0.00
292.5	0.00	17.86	2.61	6.97	0.00	0.00	8.71	0.00	0.00
315.0	3.05	10.02	2.18	0.00	0.44	1.31	0.00	0.87	0.00
337.5	0.00	0.00	0.00	0.44	0.00	0.00	0.00	16.55	0.00
360.0	0.00	4.35	2.18	0.00	0.00	0.00	9.58	12.19	14.37

C/γ(°)	180.0
0.0	0.87
22.5	0.00
45.0	0.00
67.5	0.00
90.0	1.74
112.5	5.23
135.0	7.40
157.5	2.61
180.0	0.87
202.5	0.00
225.0	0.00
247.5	0.00
270.0	1.74
292.5	5.23
315.0	7.40
337.5	2.61
360.0	0.87