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AFX

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Client:

LumCAT: ELZV2402LAJD4LB

Luminaire: LED Lamp

Report No:

Ballast type:

Test No: LCZP25070005

Voltage(V): 119.990

LampCAT:

Current(A): 0.139

Lamp flux(lm): 1295.5

Power (W): 16.430

Number of Lamps: 1

PF: 0.985

Length(mm): 600

Width(mm): 15

Phm Type: C

Height(mm): 10

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Photometric Results

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Lumens(lm): 1295.54, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 78.85

Central intensity(cd): 315.464, Maximum intensity(cd): 372.237

Angle of maximum intensity: C=90.0  $\gamma$ =30.0

Beam Angle(50%Imax): [C0/180]Total=108.4

[C90/270]Total=121.6

Field angle(10%Imax): [C0/180]Total=159.8

[C90/270]Total=233.3

Maximum s/h(1/2): C0\_180=1.23 C90\_270=1.74

Maximum s/h(1/4): C0\_180=1.35 C90\_270=1.84

Up flux rate of lamp(%): 15.80%

Down flux rate of lamp(%): 84.20%

Up flux rate of LUM(%): 15.80%

Down flux rate of LUM(%): 84.20%

CIE Type : Semidirect lighting

Output flux ratio in  $\pi$  solid angle : 56.426%

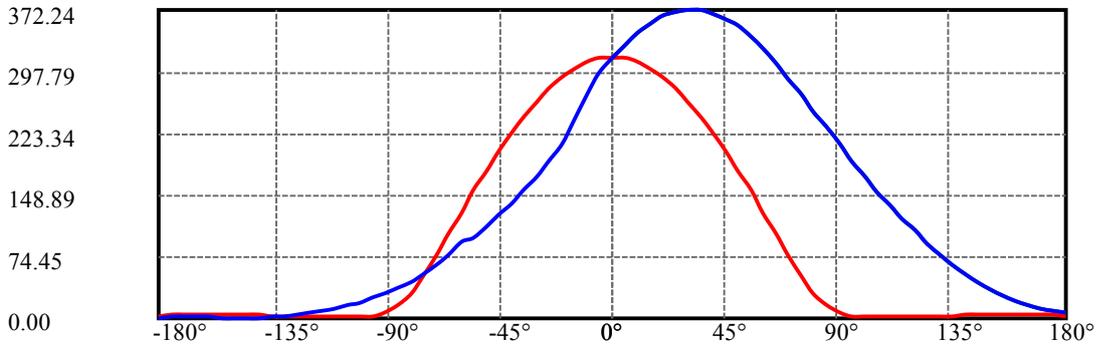
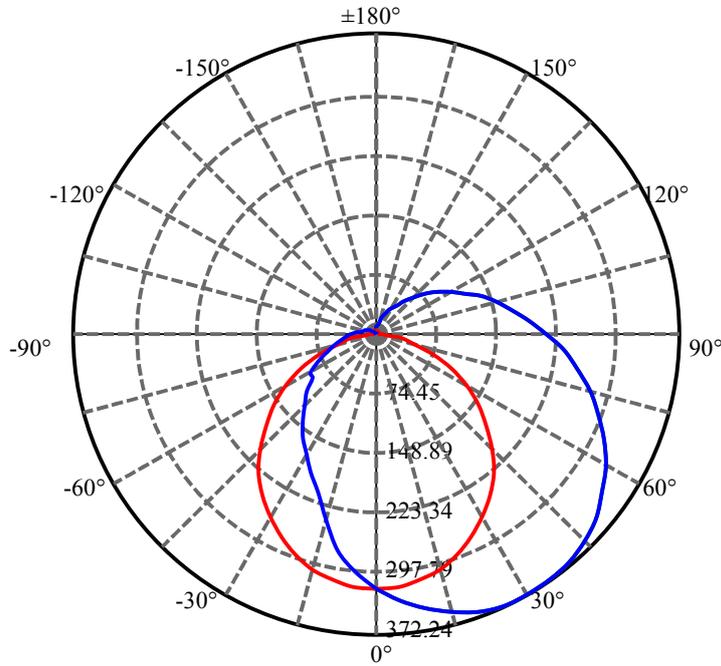
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	315.464	0.000	0	0.00%	0.00%
5.0	313.322	7.517	7.517	0.58%	0.58%
10.0	308.021	22.227	29.744	1.72%	2.30%
15.0	299.037	36.010	65.755	2.78%	5.08%
20.0	288.511	48.422	114.177	3.74%	8.81%
25.0	275.784	59.184	173.361	4.57%	13.38%
30.0	262.874	68.168	241.528	5.26%	18.64%
35.0	249.035	75.382	316.911	5.82%	24.46%
40.0	234.649	80.699	397.61	6.23%	30.69%
45.0	218.207	83.850	481.46	6.47%	37.16%
50.0	201.485	84.805	566.265	6.55%	43.71%
55.0	183.832	83.781	650.045	6.47%	50.18%
60.0	166.526	80.984	731.03	6.25%	56.43%
65.0	148.339	76.544	807.574	5.91%	62.33%
70.0	130.729	70.662	878.236	5.45%	67.79%
75.0	113.598	63.863	942.099	4.93%	72.72%
80.0	97.924	56.597	998.696	4.37%	77.09%
85.0	84.068	49.452	1048.148	3.82%	80.90%
90.0	71.756	42.666	1090.814	3.29%	84.20%
95.0	61.657	36.529	1127.343	2.82%	87.02%
100.0	53.641	31.329	1158.672	2.42%	89.44%
105.0	46.452	26.782	1185.454	2.07%	91.50%
110.0	40.234	22.658	1208.112	1.75%	93.25%
115.0	34.693	18.972	1227.084	1.46%	94.72%
120.0	29.916	15.707	1242.791	1.21%	95.93%
125.0	25.494	12.808	1255.598	0.99%	96.92%
130.0	21.619	10.244	1265.842	0.79%	97.71%
135.0	18.230	8.052	1273.894	0.62%	98.33%
140.0	15.328	6.214	1280.108	0.48%	98.81%
145.0	13.048	4.734	1284.842	0.37%	99.17%
150.0	11.158	3.565	1288.407	0.28%	99.45%
155.0	9.586	2.625	1291.032	0.20%	99.65%
160.0	8.262	1.872	1292.904	0.14%	99.80%
165.0	7.262	1.279	1294.183	0.10%	99.89%
170.0	6.429	0.812	1294.995	0.06%	99.96%
175.0	5.930	0.442	1295.438	0.03%	99.99%
180.0	3.044	0.107	1295.545	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	241.53	18.64%	18.64%
0-40	397.61	30.69%	30.69%
0-60	731.03	56.43%	56.43%
0-90	1090.81	84.20%	84.20%
0-120	1242.79	95.93%	95.93%
0-180	1295.54	100.00%	100.00%
60-90	359.78	27.77%	27.77%
90-120	151.98	11.73%	11.73%
90-130	175.03	13.51%	13.51%
90-150	197.59	15.25%	15.25%
90-180	204.62	15.79%	15.79%
0-83.82	1036.44	80.00%	80.00%

ZONAL LUMEN SUMMARY

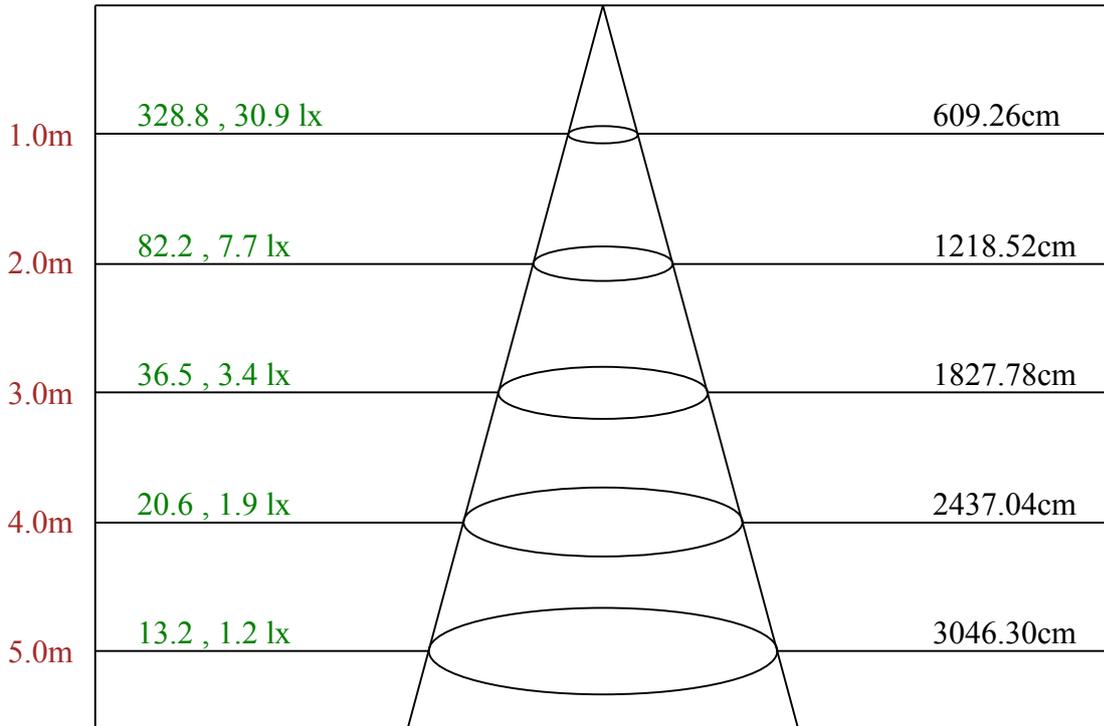
0-10	29.74
10-20	84.43
20-30	127.35
30-40	156.08
40-50	168.66
50-60	164.77
60-70	147.21
70-80	120.46
80-90	92.12
90-100	67.86
100-110	49.44
110-120	34.68
120-130	23.05
130-140	14.27
140-150	8.30
150-160	4.50
160-170	2.09
170-180	0.44



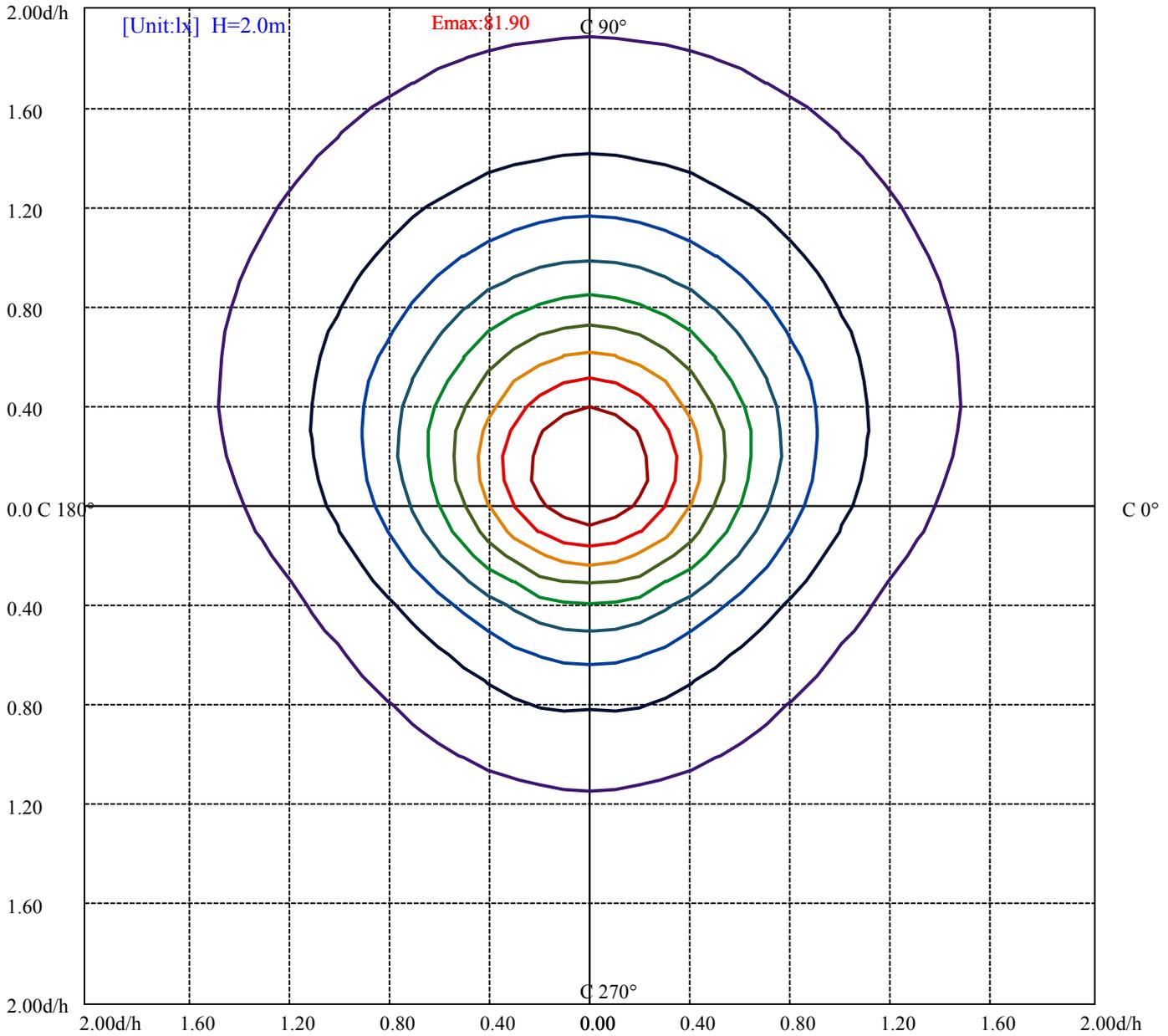
C90(Max): ———  
 C0/C180: ———  
 C90/C270: ———

Field angle(10%Imax):C0/180Left:79.9 Right:79.9  
 :C90/270Left:114.6 Right:118.7

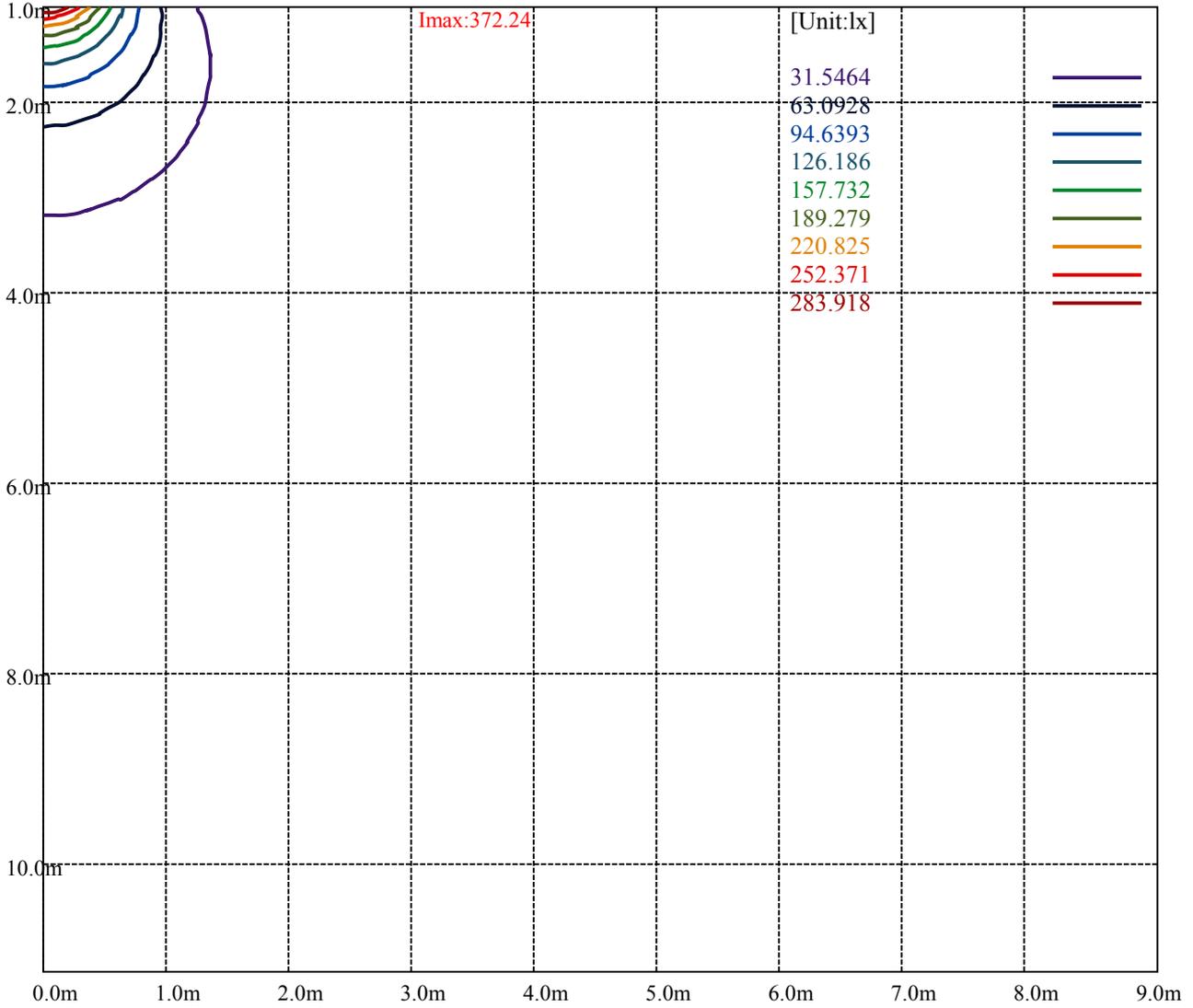
Beam Angle(50%Imax):C0/180Left:54.2 Right:54.2  
 :C90/270Left:55.9 Right:65.7



Max , Ave      Beam angle of C90 plane 143.65



- (10%Emax) 8.189625
- (20%Emax) 16.37925
- (30%Emax) 24.56887
- (40%Emax) 32.7585
- (50%Emax) 40.948
- (60%Emax) 49.13775
- (70%Emax) 57.32725
- (80%Emax) 65.517
- (90%Emax) 73.7065



Luminance Table

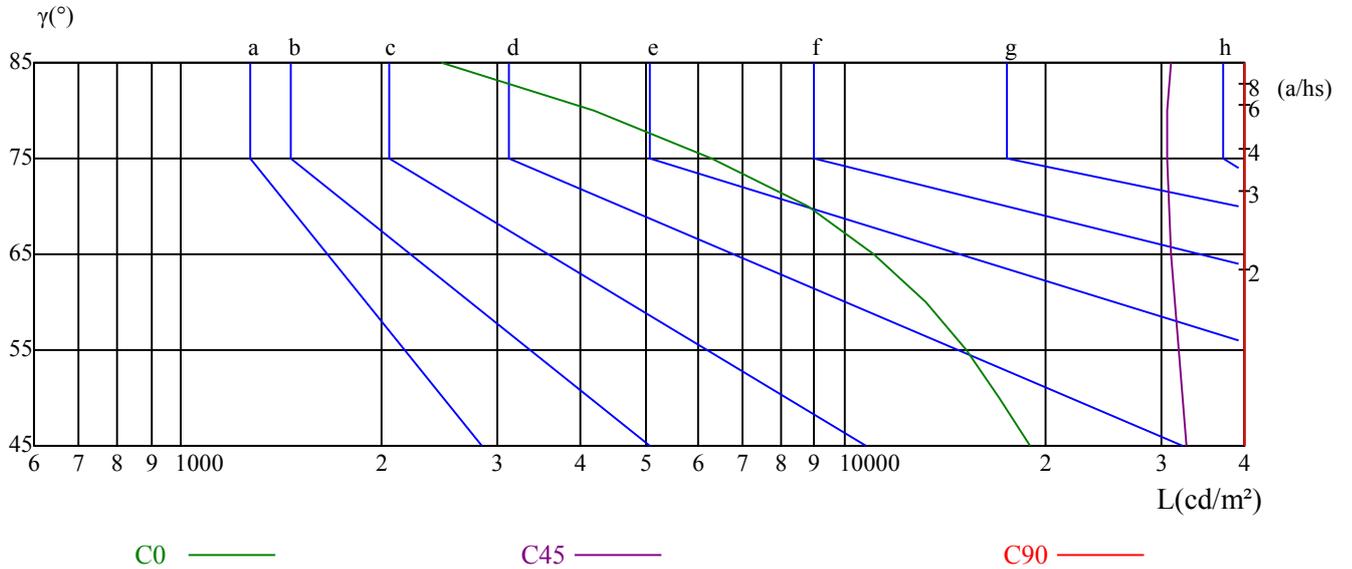
$\gamma$	45	50	55	60	65	70	75	80	85
C0	18958	17119	15273	13221	11031	8775	6282	4173	2470
C45	32692	32250	31824	31358	30995	30743	30538	30600	30985
C90	55909	59822	64333	70248	78284	89924	109640	146521	247545

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
26802	50492	39374	21910	69639	51180	21292	170727	115486

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	1.15	1.15	1.15	1.11	1.11	1.11	1.02	1.02	1.02	0.95	0.95	0.95	0.88	0.88	0.88	0.84
1	0.96	0.91	0.86	0.93	0.88	0.84	0.85	0.82	0.78	0.79	0.76	0.73	0.73	0.70	0.68	0.65
2	0.83	0.75	0.68	0.79	0.72	0.66	0.73	0.67	0.62	0.67	0.63	0.59	0.62	0.58	0.55	0.52
3	0.72	0.63	0.56	0.69	0.61	0.54	0.64	0.57	0.51	0.59	0.53	0.48	0.54	0.50	0.46	0.43
4	0.63	0.54	0.47	0.61	0.52	0.45	0.56	0.49	0.43	0.52	0.46	0.41	0.48	0.43	0.39	0.36
5	0.56	0.47	0.40	0.54	0.45	0.39	0.50	0.43	0.37	0.46	0.40	0.35	0.43	0.38	0.33	0.31
6	0.50	0.41	0.34	0.49	0.40	0.34	0.45	0.38	0.32	0.42	0.35	0.30	0.39	0.33	0.29	0.27
7	0.45	0.36	0.30	0.44	0.35	0.29	0.41	0.33	0.28	0.38	0.32	0.27	0.35	0.30	0.26	0.23
8	0.41	0.33	0.27	0.40	0.32	0.26	0.37	0.30	0.25	0.35	0.29	0.24	0.32	0.27	0.23	0.21
9	0.38	0.29	0.24	0.37	0.29	0.23	0.34	0.27	0.22	0.32	0.26	0.21	0.30	0.25	0.21	0.19
10	0.35	0.27	0.21	0.34	0.26	0.21	0.32	0.25	0.20	0.30	0.24	0.19	0.28	0.22	0.19	0.17

## Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	315.46	317.60	316.53	311.47	303.83	293.34	280.11	265.27	246.08
15.0	315.46	321.64	324.15	323.79	321.37	315.46	306.60	294.15	280.36
30.0	315.46	325.25	332.25	337.46	339.07	337.28	332.43	323.63	313.13
45.0	315.46	327.38	338.23	347.19	351.94	352.75	350.33	345.58	337.33
60.0	315.46	329.26	343.42	353.72	361.25	364.56	364.47	361.43	356.14
75.0	315.46	329.72	344.42	356.06	364.36	369.14	371.30	370.40	366.34
90.0	315.46	330.49	344.26	356.39	365.72	370.70	372.24	371.33	367.89
105.0	315.46	328.48	342.68	353.17	359.95	363.66	364.20	362.12	356.78
120.0	315.46	326.45	337.07	344.72	349.86	351.12	349.05	343.37	335.90
135.0	315.46	316.96	324.02	327.81	329.31	327.02	321.99	314.14	304.35
150.0	315.46	321.06	322.78	322.96	315.55	314.02	304.99	293.89	279.62
165.0	315.46	316.72	314.57	309.64	301.31	290.92	277.57	262.69	243.43
180.0	315.46	310.84	301.96	291.39	276.91	260.83	241.73	221.21	200.42
195.0	315.46	306.96	295.05	279.56	261.02	240.43	215.44	190.19	162.16
210.0	315.46	303.34	287.10	264.83	241.85	213.57	184.22	159.71	138.07
225.0	315.46	300.77	278.99	252.10	222.35	193.67	172.52	151.64	133.98
240.0	315.46	297.63	272.28	241.73	209.29	186.45	167.45	149.62	133.14
255.0	315.46	297.42	269.37	237.70	207.21	187.64	168.69	153.18	136.85
270.0	315.46	296.27	271.01	237.23	209.52	189.15	171.86	155.11	138.72
285.0	315.46	298.19	273.42	243.31	212.66	191.59	174.32	157.42	153.53
300.0	315.46	300.34	279.18	252.26	244.52	196.44	177.36	159.26	142.52
315.0	315.46	298.17	280.27	259.89	234.39	207.13	182.26	162.32	144.32
330.0	315.46	307.16	295.60	278.72	260.75	238.27	213.53	186.17	159.72
345.0	315.46	311.61	303.91	293.78	280.25	263.68	244.33	223.00	200.78
360.0	315.46	317.60	316.53	311.47	303.83	293.34	280.11	265.27	246.08
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	226.80	205.22	182.12	157.60	132.28	107.49	81.20	55.44	31.63
15.0	263.80	244.90	224.04	203.53	179.72	154.37	128.59	103.33	80.95
30.0	298.77	282.16	264.47	243.47	222.73	198.94	177.57	154.23	132.69
45.0	326.31	312.69	296.82	279.53	260.62	240.18	218.85	198.60	176.28
60.0	347.81	336.43	322.18	305.52	287.69	269.41	250.51	229.09	208.31
75.0	360.30	350.20	337.57	323.31	306.26	288.85	269.10	248.53	228.14
90.0	361.73	352.95	340.00	325.24	308.40	289.48	271.28	250.63	231.17
105.0	348.47	338.07	324.14	309.86	293.67	275.95	255.16	236.98	215.82
120.0	324.65	312.49	297.82	281.70	262.71	243.80	225.25	204.28	185.46
135.0	290.85	275.33	258.48	238.89	219.48	200.34	179.96	159.14	140.79
150.0	263.28	244.23	224.27	202.88	179.94	157.46	134.17	112.86	92.45
165.0	224.97	204.64	183.67	158.49	134.48	107.78	81.53	57.16	38.08
180.0	175.37	150.23	125.71	98.79	71.60	45.49	20.88	6.93	1.78
195.0	133.69	108.53	86.41	65.19	45.58	29.64	18.27	9.85	5.82
210.0	118.68	98.12	81.42	64.55	49.82	37.97	28.01	20.74	14.81
225.0	116.33	99.30	83.80	70.17	58.16	46.87	38.18	30.20	23.48
240.0	117.64	103.21	88.25	76.96	65.31	55.19	46.14	38.17	30.91
255.0	121.87	108.34	93.73	83.35	71.90	61.97	50.88	48.26	35.27
270.0	124.86	110.56	96.34	93.53	75.70	63.93	53.15	42.92	36.67
285.0	125.23	111.30	94.40	85.90	73.60	60.94	49.64	40.78	34.72
300.0	126.22	110.29	94.26	79.32	69.32	57.98	45.37	36.46	29.35
315.0	126.06	109.21	92.63	76.13	60.78	50.99	39.87	28.49	21.79
330.0	137.60	117.37	97.42	78.64	60.94	44.42	33.59	23.20	14.63
345.0	175.70	149.89	122.03	94.07	69.44	48.02	29.21	13.89	6.63
360.0	226.80	205.22	182.12	157.60	132.28	107.49	81.20	55.44	31.63

## Intensity data(cd)

C/ $\gamma$ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	11.82	2.31	1.51	1.51	2.04	2.13	2.67	3.11	3.46
15.0	59.91	43.43	32.33	24.89	19.88	16.83	14.51	12.98	11.64
30.0	111.86	93.45	79.27	66.43	55.57	46.50	39.41	33.04	28.28
45.0	155.76	136.31	119.28	104.41	90.88	77.34	66.41	56.37	47.32
60.0	187.25	167.63	149.53	133.41	116.92	102.41	88.43	75.98	64.06
75.0	207.03	185.92	167.79	148.85	133.15	117.54	102.84	88.41	74.42
90.0	209.80	188.88	169.96	153.39	136.18	119.79	105.49	90.09	77.15
105.0	195.57	175.95	158.23	141.23	125.14	110.49	96.02	82.64	70.34
120.0	165.92	148.46	131.26	116.86	102.36	89.58	77.16	66.26	56.72
135.0	123.59	107.10	93.25	80.63	70.31	59.90	51.87	44.28	37.58
150.0	75.66	62.03	51.92	43.34	36.57	31.24	26.82	23.47	20.40
165.0	23.21	16.13	12.27	10.12	9.05	8.42	8.06	7.97	7.79
180.0	1.15	1.07	1.24	1.33	1.60	1.95	2.22	2.40	2.84
195.0	3.13	2.06	1.61	1.25	0.98	0.90	0.81	0.72	0.63
210.0	9.79	6.91	4.85	3.59	2.60	1.98	1.35	0.81	0.63
225.0	17.57	13.35	10.31	7.53	5.56	4.03	3.94	2.06	1.17
240.0	24.19	19.44	18.19	11.65	8.69	6.36	4.57	3.14	2.06
255.0	28.87	23.36	18.58	14.34	10.92	8.03	5.77	4.15	2.71
270.0	30.06	24.45	19.47	15.30	11.77	8.60	6.25	4.44	2.81
285.0	28.03	22.97	18.08	13.92	10.58	7.78	5.61	3.89	2.62
300.0	23.23	18.82	14.49	10.98	8.01	5.58	4.05	2.79	1.80
315.0	16.58	12.53	9.09	6.44	4.32	3.26	2.29	1.50	0.88
330.0	9.12	5.69	3.79	2.62	1.90	1.35	0.90	0.63	0.54
345.0	3.05	1.52	1.08	0.81	0.63	0.63	0.54	0.72	0.99
360.0	11.82	2.31	1.51	1.51	2.04	2.13	2.67	3.11	3.46
C/ $\gamma$ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	3.82	4.26	4.89	5.51	5.95	6.22	5.69	5.06	5.06
15.0	10.75	10.12	9.76	9.31	9.13	8.60	7.52	6.18	5.55
30.0	23.70	20.38	17.69	15.44	13.47	11.94	10.32	7.63	5.93
45.0	39.43	32.71	27.60	22.76	18.73	15.41	12.64	10.13	6.54
60.0	53.58	44.17	36.20	29.57	23.65	18.55	14.60	11.20	8.60
75.0	62.61	52.14	42.49	34.01	26.79	20.75	16.15	12.18	9.11
90.0	65.01	53.42	43.64	34.86	27.89	21.55	16.39	12.22	9.15
105.0	59.49	48.83	40.33	32.46	25.77	20.16	15.73	12.03	9.13
120.0	47.36	39.43	32.50	26.92	21.79	17.47	13.86	10.98	8.64
135.0	31.76	26.99	22.58	19.32	16.32	13.76	11.47	9.62	8.03
150.0	18.06	15.98	14.36	12.91	11.74	10.65	9.57	8.49	7.58
165.0	7.71	7.62	7.62	7.71	7.71	7.71	7.62	7.26	6.90
180.0	3.11	3.46	3.91	4.35	4.62	4.44	4.26	4.71	5.06
195.0	0.81	1.16	1.52	1.97	2.33	2.42	3.22	4.12	4.84
210.0	0.54	0.54	0.63	1.17	1.89	2.15	2.69	3.68	4.58
225.0	0.63	0.54	0.63	0.81	1.25	2.06	2.69	3.32	4.21
240.0	1.16	0.72	0.72	0.81	0.99	1.61	2.60	3.23	3.40
255.0	1.62	0.81	0.72	0.99	0.99	1.35	2.26	3.07	2.98
270.0	1.72	0.91	0.72	0.81	1.00	1.18	2.17	2.35	3.08
285.0	1.54	0.72	0.63	0.81	0.99	1.36	2.08	2.62	4.07
300.0	0.99	0.54	0.63	0.81	0.99	1.62	2.07	2.79	4.50
315.0	0.53	0.53	0.62	0.71	1.32	1.76	2.29	3.18	4.59
330.0	0.45	0.36	0.81	1.35	1.90	2.17	2.71	3.79	5.15
345.0	1.16	1.52	1.97	2.42	2.87	3.40	3.67	4.48	5.64
360.0	3.82	4.26	4.89	5.51	5.95	6.22	5.69	5.06	5.06

Intensity data(cd)

C/ $\gamma$ (°)	180.0
0.0	5.15
15.0	5.28
30.0	5.30
45.0	5.11
60.0	4.75
75.0	6.86
90.0	6.97
105.0	7.05
120.0	6.93
135.0	6.62
150.0	6.68
165.0	6.36
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	5.15