
AFX

Client:

LumCAT: ELZV3602LAJD4BK

Luminaire: LED Lamp

Report No:

Ballast type:

Test No:

Voltage(V): 119.990

LampCAT:

Current(A): 0.167

Lamp flux(lm): 1754.4

Power (W): 19.730

Number of Lamps: 1

PF: 0.984

Length(mm): 900

Width(mm): 15

Phm Type: C

Height(mm): 10

Photometric Results

Lumens(lm): 1754.39, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 88.92

Central intensity(cd): 456.815, Maximum intensity(cd): 494.808

Angle of maximum intensity: C=90.0 γ =20.0

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

[C90/270]Total=128.7

Field angle(10%Imax): [C0/180]Total=158.8

[C90/270]Total=237.0

Maximum s/h(1/2): C0_180=1.24 C90_270=1.59

Maximum s/h(1/4): C0_180=1.36 C90_270=1.71

Up flux rate of lamp(%): 13.13%

Down flux rate of lamp(%): 86.87%

Up flux rate of LUM(%): 13.13%

Down flux rate of LUM(%): 86.87%

CIE Type : Semidirect lighting

Output flux ratio in π solid angle : 59.478%

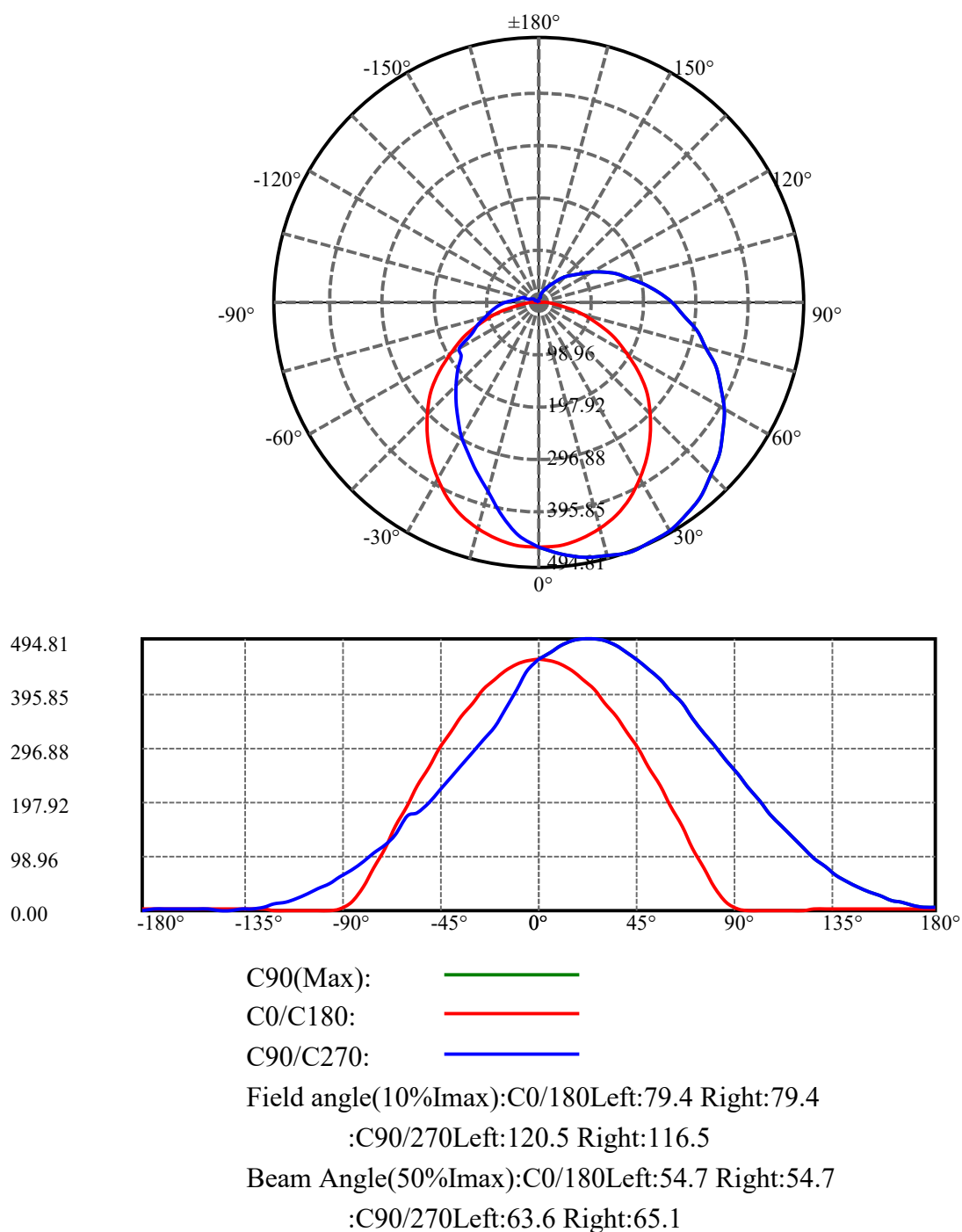
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	456.815	0.000	0	0.00%	0.00%
5.0	453.423	10.882	10.882	0.62%	0.62%
10.0	444.116	32.108	42.989	1.83%	2.45%
15.0	430.885	51.904	94.894	2.96%	5.41%
20.0	416.344	69.824	164.717	3.98%	9.39%
25.0	398.070	85.417	250.134	4.87%	14.26%
30.0	378.931	98.330	348.465	5.60%	19.86%
35.0	357.922	108.507	456.971	6.18%	26.05%
40.0	335.719	115.729	572.7	6.60%	32.64%
45.0	310.112	119.581	692.281	6.82%	39.46%
50.0	284.657	120.182	812.463	6.85%	46.31%
55.0	257.893	117.968	930.431	6.72%	53.03%
60.0	231.207	113.054	1043.485	6.44%	59.48%
65.0	203.651	105.715	1149.2	6.03%	65.50%
70.0	176.733	96.316	1245.516	5.49%	70.99%
75.0	151.348	85.755	1331.271	4.89%	75.88%
80.0	128.473	74.872	1406.143	4.27%	80.15%
85.0	107.124	64.017	1470.16	3.65%	83.80%
90.0	89.553	53.852	1524.012	3.07%	86.87%
95.0	75.497	45.192	1569.204	2.58%	89.44%
100.0	64.170	37.951	1607.155	2.16%	91.61%
105.0	53.888	31.589	1638.744	1.80%	93.41%
110.0	45.400	25.952	1664.696	1.48%	94.89%
115.0	37.848	21.079	1685.775	1.20%	96.09%
120.0	31.714	16.911	1702.685	0.96%	97.05%
125.0	26.106	13.365	1716.05	0.76%	97.81%
130.0	21.542	10.360	1726.41	0.59%	98.41%
135.0	17.652	7.920	1734.33	0.45%	98.86%
140.0	14.547	5.962	1740.292	0.34%	99.20%
145.0	12.154	4.455	1744.747	0.25%	99.45%
150.0	10.508	3.337	1748.084	0.19%	99.64%
155.0	8.675	2.428	1750.512	0.14%	99.78%
160.0	7.104	1.655	1752.167	0.09%	99.87%
165.0	6.131	1.091	1753.258	0.06%	99.94%
170.0	5.309	0.679	1753.936	0.04%	99.97%
175.0	4.935	0.366	1754.303	0.02%	99.99%
180.0	2.467	0.088	1754.391	0.01%	100.00%

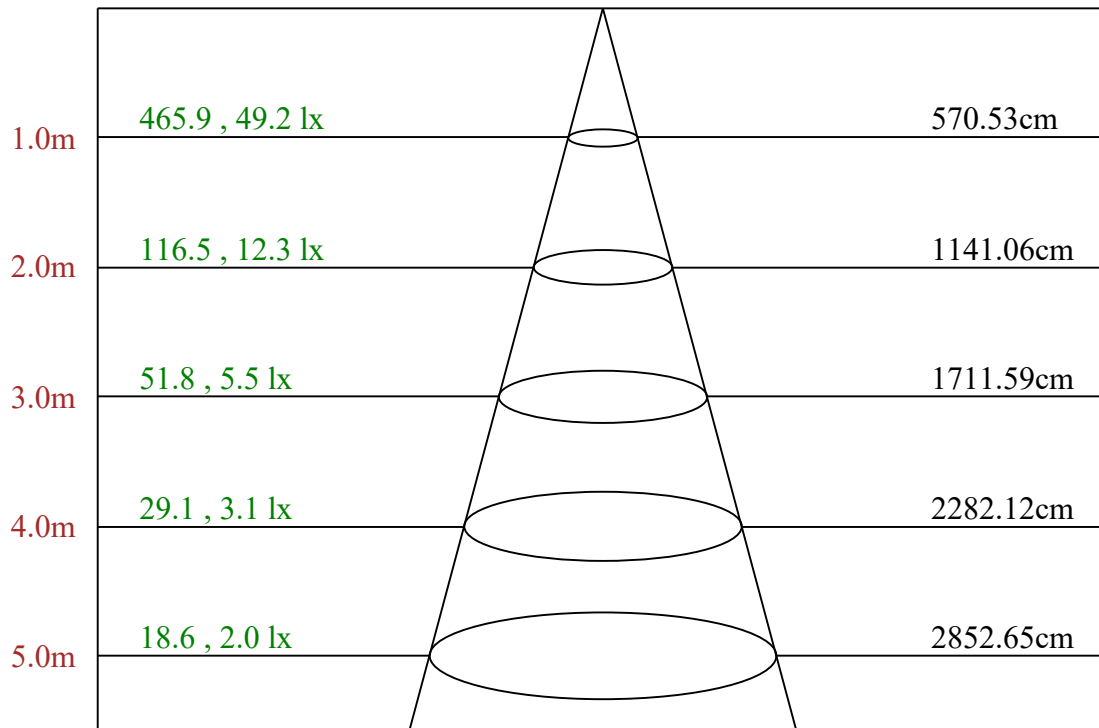
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	348.46	19.86%	19.86%
0-40	572.70	32.64%	32.64%
0-60	1043.49	59.48%	59.48%
0-90	1524.01	86.87%	86.87%
0-120	1702.69	97.05%	97.05%
0-180	1754.39	100.00%	100.00%
60-90	480.53	27.39%	27.39%
90-120	178.67	10.18%	10.18%
90-130	202.40	11.54%	11.54%
90-150	224.07	12.77%	12.77%
90-180	230.29	13.13%	13.13%
0-79.82	1403.51	80.00%	80.00%

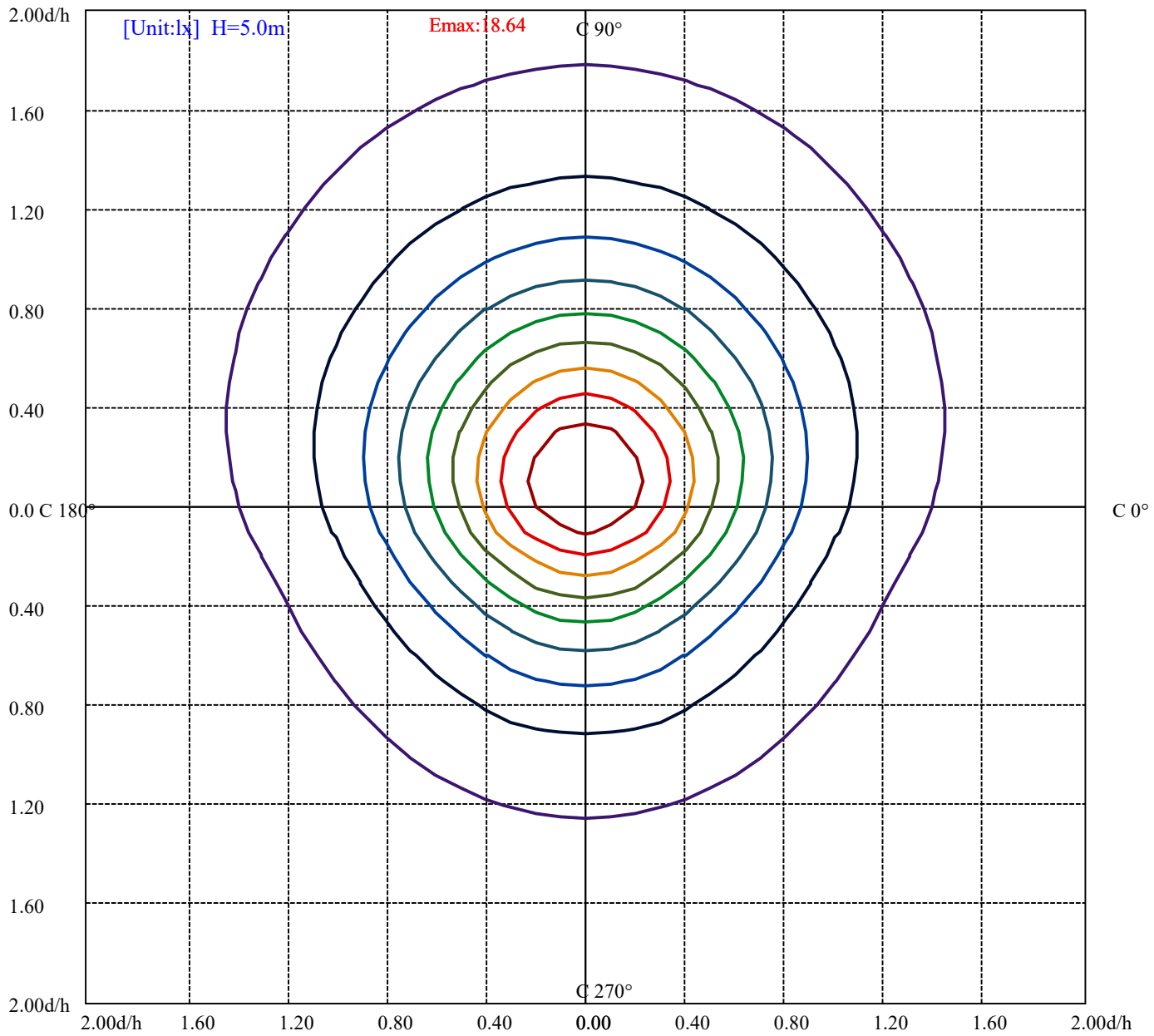
ZONAL LUMEN SUMMARY

0-10	42.99
10-20	121.73
20-30	183.75
30-40	224.24
40-50	239.76
50-60	231.02
60-70	202.03
70-80	160.63
80-90	117.87
90-100	83.14
100-110	57.54
110-120	37.99
120-130	23.73
130-140	13.88
140-150	7.79
150-160	4.08
160-170	1.77
170-180	0.37

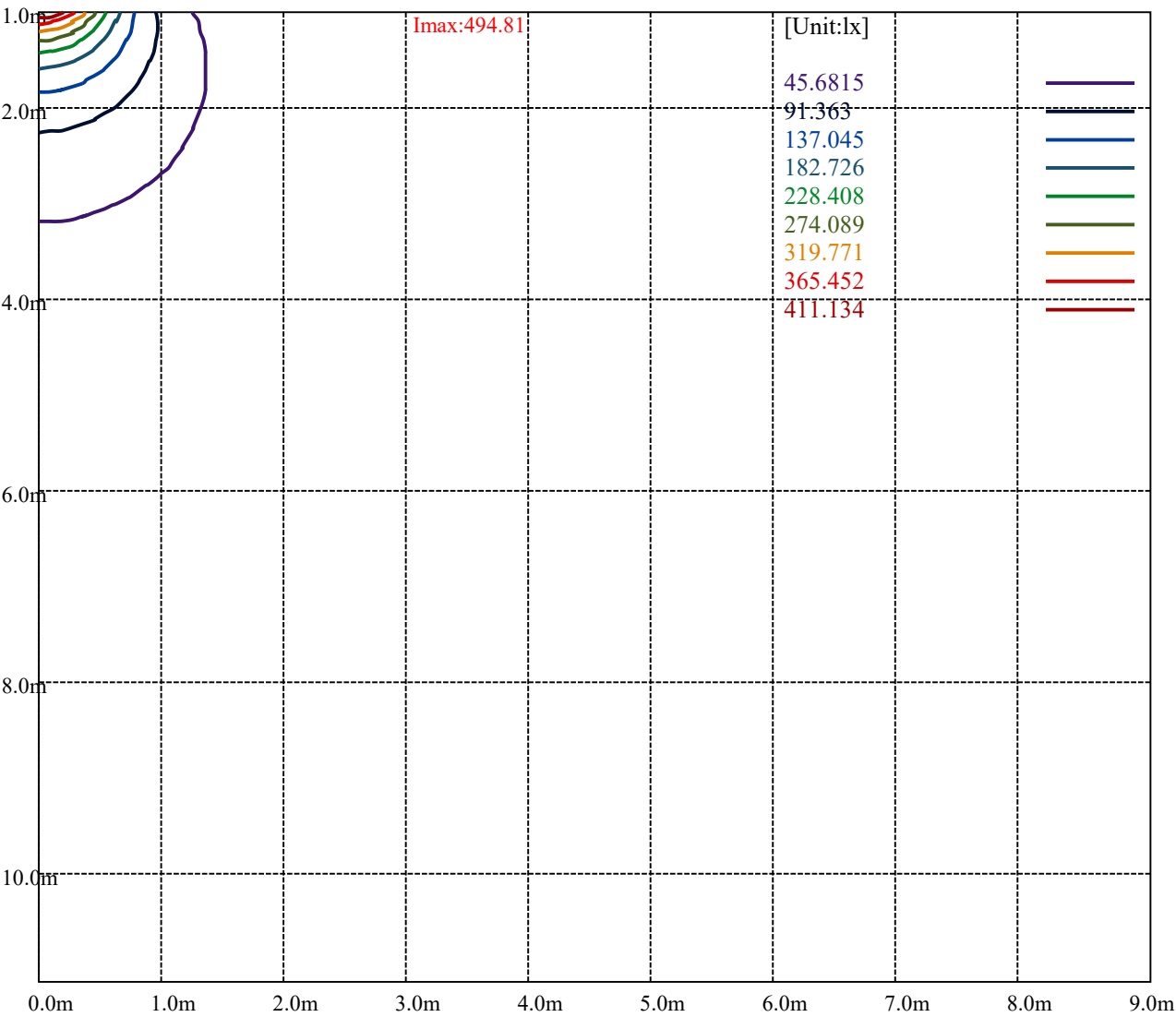




Max , Ave Beam angle of C90 plane 141.36



(10%Emax) 1.863812	—
(20%Emax) 3.727624	—
(30%Emax) 5.59144	—
(40%Emax) 7.45524	—
(50%Emax) 9.31904	—
(60%Emax) 11.18288	—
(70%Emax) 13.04668	—
(80%Emax) 14.91048	—
(90%Emax) 16.77432	—



Luminance Table

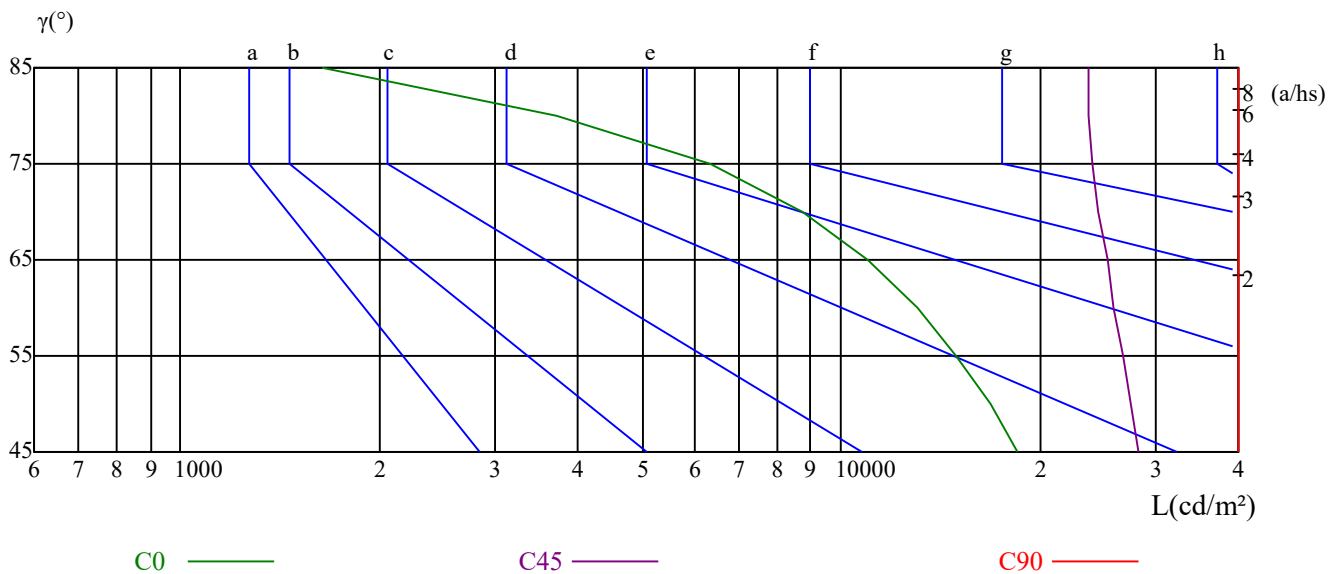
γ	45	50	55	60	65	70	75	80	85
C0	18466	16825	14992	13087	11017	8735	6357	3716	1634
C45	28268	27518	26755	25947	25284	24563	24047	23720	23801
C90	47235	50103	53474	58247	64577	73763	88993	120516	206017

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
26768	45266	35681	22175	61228	44782	14084	147996	97671

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	1.16	1.16	1.16	1.12	1.12	1.12	1.04	1.04	1.04	0.97	0.97	0.97	0.90	0.90	0.90	0.87
1	0.97	0.92	0.88	0.94	0.89	0.85	0.87	0.83	0.80	0.81	0.78	0.75	0.75	0.73	0.70	0.67
2	0.84	0.76	0.69	0.81	0.74	0.68	0.75	0.69	0.64	0.69	0.65	0.61	0.65	0.61	0.57	0.54
3	0.73	0.64	0.57	0.70	0.62	0.55	0.65	0.58	0.53	0.61	0.55	0.50	0.56	0.52	0.48	0.45
4	0.64	0.55	0.48	0.62	0.53	0.46	0.58	0.50	0.44	0.54	0.47	0.42	0.50	0.45	0.40	0.38
5	0.57	0.48	0.41	0.55	0.46	0.40	0.51	0.44	0.38	0.48	0.42	0.36	0.45	0.39	0.35	0.32
6	0.51	0.42	0.35	0.49	0.41	0.34	0.46	0.39	0.33	0.43	0.37	0.32	0.41	0.35	0.30	0.28
7	0.46	0.37	0.31	0.45	0.36	0.30	0.42	0.35	0.29	0.39	0.33	0.28	0.37	0.31	0.27	0.25
8	0.42	0.33	0.27	0.41	0.33	0.27	0.38	0.31	0.26	0.36	0.30	0.25	0.34	0.28	0.24	0.22
9	0.38	0.30	0.24	0.37	0.29	0.24	0.35	0.28	0.23	0.33	0.27	0.22	0.31	0.26	0.22	0.20
10	0.35	0.27	0.22	0.34	0.27	0.22	0.33	0.26	0.21	0.31	0.25	0.20	0.29	0.24	0.20	0.18

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	456.82	457.71	453.23	444.28	431.74	414.72	393.22	369.04	343.96
15.0	456.82	462.21	462.21	457.71	448.72	436.13	419.05	399.26	374.08
30.0	456.82	465.79	469.38	468.48	464.00	455.02	442.46	424.51	402.97
45.0	456.82	467.61	474.80	478.40	476.60	472.10	462.21	448.72	431.64
60.0	456.82	471.20	481.09	486.49	488.29	485.59	479.30	468.51	454.12
75.0	456.82	471.23	482.94	490.15	492.86	492.86	487.45	479.34	467.63
90.0	456.82	471.29	483.05	490.28	494.81	494.81	490.28	481.24	471.29
105.0	456.82	470.25	480.10	488.17	490.85	489.96	482.79	475.63	462.19
120.0	456.82	470.22	478.27	482.74	482.74	478.27	470.22	457.71	443.41
135.0	456.82	460.33	464.72	465.60	462.96	455.94	444.52	429.58	409.38
150.0	456.82	462.23	464.04	460.43	454.11	443.27	428.83	410.77	389.11
165.0	456.82	459.51	455.92	449.62	437.93	423.54	404.66	382.18	355.20
180.0	456.82	451.44	442.48	428.15	410.24	389.64	364.56	337.69	306.33
195.0	456.82	448.72	434.33	416.35	394.77	365.09	336.32	303.94	268.87
210.0	456.82	444.25	424.51	398.48	367.97	335.66	302.45	271.94	243.22
225.0	456.82	439.73	411.85	381.28	348.91	317.43	291.35	264.38	236.50
240.0	456.82	435.23	403.76	368.69	336.32	308.44	284.16	258.98	235.60
255.0	456.82	433.39	399.15	364.01	335.18	309.95	284.72	262.20	237.87
270.0	456.82	435.11	401.64	366.36	336.51	310.27	287.66	263.23	241.52
285.0	456.82	433.53	402.18	368.14	337.69	313.50	288.42	265.13	260.65
300.0	456.82	438.94	408.54	376.36	368.31	318.25	291.43	266.40	242.26
315.0	456.82	435.73	412.01	381.27	348.76	318.89	293.42	267.06	240.71
330.0	456.82	445.98	429.73	405.36	377.37	346.67	314.17	283.48	253.69
345.0	456.82	450.52	438.83	424.44	404.66	377.68	350.70	319.23	285.06
360.0	456.82	457.71	453.23	444.28	431.74	414.72	393.22	369.04	343.96
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	311.71	282.15	247.22	212.28	174.66	136.15	99.42	60.01	28.66
15.0	347.11	317.43	284.16	249.99	214.92	178.05	140.28	104.31	73.74
30.0	378.73	354.50	323.99	292.58	258.47	225.27	192.06	162.44	133.72
45.0	410.05	385.78	360.60	331.82	303.04	273.37	244.59	215.82	190.64
60.0	436.13	413.65	392.07	367.79	341.71	314.73	287.76	261.68	234.70
75.0	453.21	435.19	414.47	391.94	367.61	343.29	316.26	290.13	264.00
90.0	455.91	440.53	420.63	400.73	377.21	350.98	323.84	300.32	273.18
105.0	446.07	428.15	406.66	384.26	360.97	335.89	309.02	283.05	257.97
120.0	425.53	403.18	380.83	354.01	328.08	301.27	275.34	249.42	224.38
135.0	388.29	364.57	337.34	309.23	282.00	252.13	224.02	197.66	172.18
150.0	363.83	337.65	305.15	274.45	241.05	206.74	175.14	146.25	119.17
165.0	327.32	297.65	264.38	229.31	194.24	155.57	121.40	86.33	57.55
180.0	275.88	241.84	206.01	168.39	130.77	92.26	55.53	23.29	4.48
195.0	232.00	196.03	163.66	128.59	98.02	67.44	43.16	26.08	14.39
210.0	212.70	184.88	156.16	127.44	101.41	78.98	61.03	44.87	31.41
225.0	210.42	183.45	158.27	134.89	112.41	94.42	77.33	62.05	47.66
240.0	210.42	187.94	165.46	143.88	124.99	107.01	90.82	76.44	62.05
255.0	215.34	193.72	173.00	152.27	134.25	117.13	100.91	97.31	71.18
270.0	218.00	198.10	177.30	171.87	139.31	121.21	104.03	89.55	75.08
285.0	218.55	196.16	174.66	154.96	135.25	117.34	100.32	85.99	71.66
300.0	218.13	193.10	171.64	148.40	128.73	110.85	92.97	77.77	63.47
315.0	214.35	188.88	162.52	139.68	116.84	97.51	79.94	63.25	49.20
330.0	223.89	195.00	167.02	138.13	111.04	86.67	65.90	48.75	34.31
345.0	249.09	212.22	176.25	142.08	110.61	77.33	51.26	30.57	16.19
360.0	311.71	282.15	247.22	212.28	174.66	136.15	99.42	60.01	28.66

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	5.37	0.90	0.90	0.90	0.90	0.90	0.90	1.79	1.79
15.0	50.36	32.37	23.38	17.09	13.49	11.69	9.89	8.99	8.09
30.0	109.49	88.85	71.80	58.34	48.46	39.49	33.21	26.92	22.44
45.0	165.46	142.98	122.30	104.31	88.13	73.74	62.05	52.16	43.16
60.0	210.42	186.14	162.76	142.08	123.20	105.21	89.03	74.64	62.95
75.0	239.67	214.44	191.02	167.59	145.96	125.24	108.12	90.10	75.69
90.0	247.86	223.43	199.91	174.58	153.78	133.88	113.07	95.89	79.60
105.0	231.99	209.60	184.52	163.02	141.52	121.82	104.80	88.68	74.34
120.0	199.35	176.11	154.66	134.99	117.11	99.23	84.93	71.52	59.90
135.0	149.34	128.26	110.69	94.00	79.94	67.64	57.10	46.56	39.53
150.0	95.70	77.64	63.20	51.46	42.43	35.21	28.89	24.38	20.76
165.0	35.97	24.28	17.09	13.49	10.79	8.99	8.09	7.19	7.19
180.0	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
195.0	6.29	2.70	1.80	1.80	0.90	0.90	0.90	0.90	0.90
210.0	20.64	12.56	8.08	5.38	3.59	1.79	1.79	0.90	0.90
225.0	36.87	26.98	18.88	13.49	8.99	6.29	5.40	1.80	0.90
240.0	49.46	38.67	35.97	22.48	16.19	10.79	7.19	4.50	1.80
255.0	58.57	47.75	36.94	27.93	20.72	14.42	9.91	6.31	3.60
270.0	62.42	50.66	39.80	30.76	22.61	16.28	10.86	7.24	3.62
285.0	58.22	45.68	36.72	27.77	20.60	14.33	9.85	6.27	3.58
300.0	50.06	37.55	29.50	21.46	15.20	10.73	7.15	4.47	1.79
315.0	36.90	26.35	18.45	12.30	8.78	5.27	3.51	1.76	0.88
330.0	20.76	13.54	8.13	5.42	3.61	1.81	1.81	0.90	0.90
345.0	6.29	2.70	1.80	0.90	0.90	0.90	0.90	0.90	0.90
360.0	5.37	0.90	0.90	0.90	0.90	0.90	0.90	1.79	1.79
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	1.79	2.69	3.58	3.58	4.48	4.48	4.48	4.48	4.48
15.0	7.19	7.19	7.19	7.19	7.19	6.29	5.40	5.40	4.50
30.0	19.74	16.15	14.36	12.56	10.77	8.97	7.18	6.28	5.38
45.0	35.07	28.78	24.28	19.78	16.19	12.59	9.89	7.19	5.40
60.0	50.36	41.37	33.27	26.98	20.68	16.19	12.59	8.99	6.29
75.0	62.17	50.46	40.55	32.44	24.33	18.92	13.52	9.91	7.21
90.0	66.03	52.47	42.52	33.47	26.23	19.00	14.47	9.95	7.24
105.0	60.91	49.26	39.41	31.35	24.18	17.91	13.44	9.85	7.17
120.0	49.17	40.23	32.18	25.92	20.56	15.20	12.52	8.94	7.15
135.0	32.50	27.23	21.96	18.45	14.93	12.30	9.66	7.91	6.15
150.0	18.06	15.35	13.54	11.74	9.93	9.03	8.13	6.32	5.42
165.0	6.29	6.29	6.29	6.29	6.29	6.29	6.29	5.40	5.40
180.0	1.79	1.79	2.69	2.69	2.69	2.69	3.58	3.58	4.48
195.0	0.90	0.90	0.90	1.80	1.80	1.80	2.70	3.60	4.50
210.0	0.90	0.90	0.90	1.79	1.79	1.79	2.69	3.59	3.59
225.0	0.90	0.90	0.90	1.80	1.80	1.80	2.70	2.70	3.60
240.0	0.90	0.90	0.90	1.80	1.80	1.80	1.80	2.70	3.60
255.0	1.80	0.90	0.90	1.80	1.80	1.80	1.80	2.70	3.60
270.0	1.81	0.90	0.90	1.81	1.81	1.81	1.81	2.71	3.62
285.0	1.79	0.90	0.90	1.79	1.79	1.79	1.79	2.69	3.58
300.0	0.89	0.89	0.89	1.79	1.79	1.79	2.68	2.68	3.58
315.0	0.88	0.88	0.88	1.76	1.76	1.76	2.64	2.64	3.51
330.0	0.90	0.90	0.90	1.81	1.81	1.81	2.71	3.61	4.51
345.0	0.90	0.90	0.90	1.80	1.80	2.70	2.70	3.60	4.50
360.0	1.79	2.69	3.58	3.58	4.48	4.48	4.48	4.48	4.48

Intensity data(cd)

C/ γ (°)	180.0
0.0	4.48
15.0	4.50
30.0	4.49
45.0	4.50
60.0	4.50
75.0	4.51
90.0	5.43
105.0	5.37
120.0	5.36
135.0	5.27
150.0	5.42
165.0	5.40
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	4.48