



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 2-1283-N
Luminaire: 92.70.064.00
Report No: NATA0100
Test No: GC2018092709
LampCAT: CITIZEN CLU028-1203C4
Lamp flux(lm): 1506.0
Number of Lamps: 1
Length(mm): 57
Phm Type: C

Voltage(V): 36.4000
Current(A): 0.4000
Power (W): 14.5600
PF: 0.0000
Ballast type: DC
Width(mm): 57
Height(mm): 0

Photometric Results

Lumens(lm): 1229.54
Efficiency(%): 81.64%
Lumens(lm)/Power(W): 84.88
Central intensity(cd): 6786.703
Maximum intensity(cd): 6786.703
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=14.5
 [C90/270]Total=14.5
Field angle(10%Imax): [C0/180]Total=50.5
 [C90/270]Total=50.5
Maximum s/h(1/2): C0_180=0.25 C90_270=0.25
Maximum s/h(1/4): C0_180=0.29 C90_270=0.29
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.026%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6786.703	6.495	6.495	.431%	.528%
2.0	6332.977	48.472	54.967	3.219%	4.471%
4.0	5395.289	82.540	137.507	5.481%	11.184%
6.0	4106.320	94.135	231.642	6.251%	18.840%
8.0	2974.992	90.804	322.446	6.030%	26.225%
10.0	2198.039	83.709	406.155	5.558%	33.033%
12.0	1723.289	78.578	484.733	5.218%	39.424%
14.0	1401.539	74.361	559.094	4.938%	45.472%
16.0	1195.137	72.247	631.342	4.797%	51.348%
18.0	1028.468	69.701	701.042	4.628%	57.017%
20.0	901.448	67.617	768.66	4.490%	62.516%
22.0	807.525	66.343	835.003	4.405%	67.912%
24.0	721.146	64.328	899.331	4.271%	73.144%
26.0	652.648	62.746	962.077	4.166%	78.247%
28.0	577.448	59.455	1021.532	3.948%	83.083%
30.0	478.603	52.482	1074.014	3.485%	87.351%
32.0	347.041	40.333	1114.347	2.678%	90.632%
34.0	216.197	26.514	1140.861	1.761%	92.788%
36.0	100.610	12.970	1153.83	.861%	93.843%
38.0	48.804	6.590	1160.42	.438%	94.379%
40.0	31.191	4.397	1164.817	.292%	94.736%
42.0	26.191	3.844	1168.661	.255%	95.049%
44.0	23.766	3.621	1172.281	.240%	95.343%
46.0	21.698	3.423	1175.704	.227%	95.622%
48.0	20.391	3.323	1179.028	.221%	95.892%
50.0	19.308	3.244	1182.271	.215%	96.156%
52.0	18.591	3.213	1185.484	.213%	96.417%
54.0	18.422	3.269	1188.753	.217%	96.683%
56.0	18.506	3.365	1192.118	.223%	96.957%
58.0	18.548	3.450	1195.567	.229%	97.237%
60.0	18.534	3.520	1199.088	.234%	97.524%
62.0	17.311	3.352	1202.44	.223%	97.796%
64.0	15.237	3.003	1205.443	.199%	98.041%
66.0	13.627	2.730	1208.173	.181%	98.263%
68.0	12.466	2.535	1210.708	.168%	98.469%
70.0	11.194	2.307	1213.015	.153%	98.656%
72.0	9.977	2.081	1215.096	.138%	98.826%
74.0	9.499	2.003	1217.099	.133%	98.989%

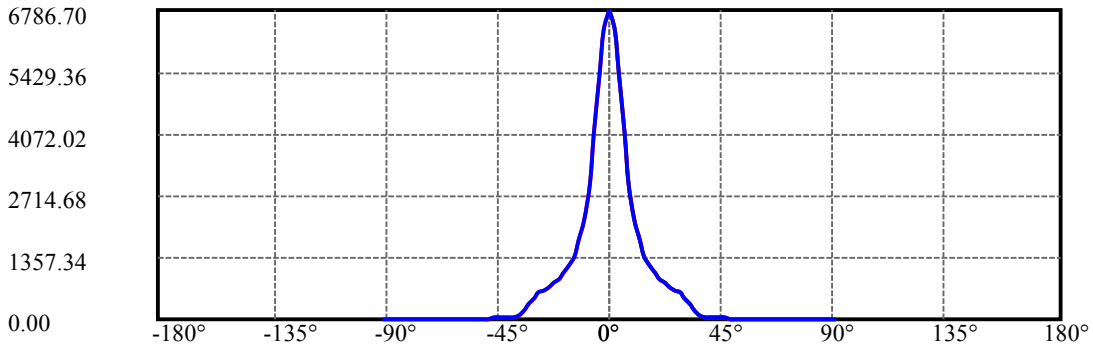
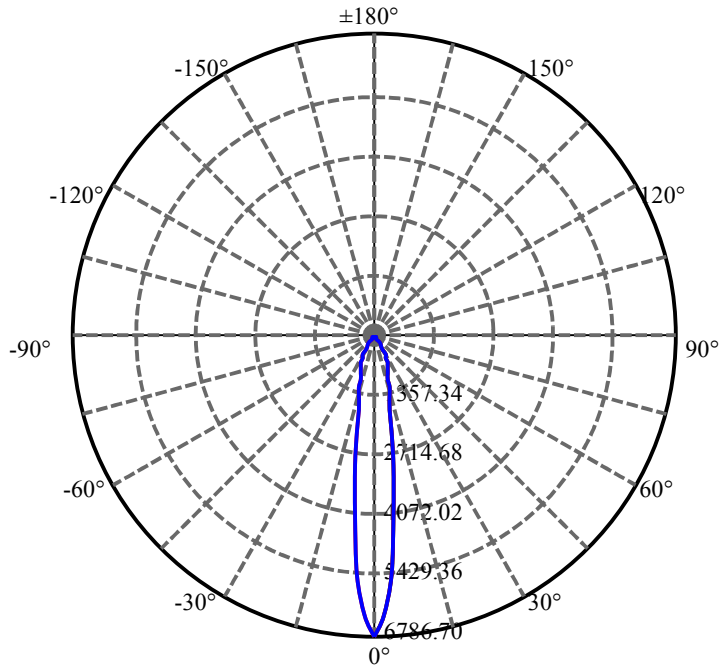
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.070	1.930	1219.029	.128%	99.146%
78.0	8.803	1.888	1220.918	.125%	99.299%
80.0	8.487	1.833	1222.75	.122%	99.448%
82.0	7.980	1.733	1224.484	.115%	99.589%
84.0	7.355	1.604	1226.088	.107%	99.720%
86.0	6.975	1.526	1227.614	.101%	99.844%
88.0	5.927	1.299	1228.913	.086%	99.949%
90.0	5.674	0.622	1229.535	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1074.01	71.32%	87.35%
0-40	1164.82	77.35%	94.74%
0-60	1199.09	79.62%	97.52%
0-90	1228.91	81.60%	99.95%
0-120	1228.91	81.60%	99.95%
0-180	1229.54	81.64%	100.00%
60-90	33.35	2.21%	2.71%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.72	983.63	65.31%	80.00%

ZONAL LUMEN SUMMARY

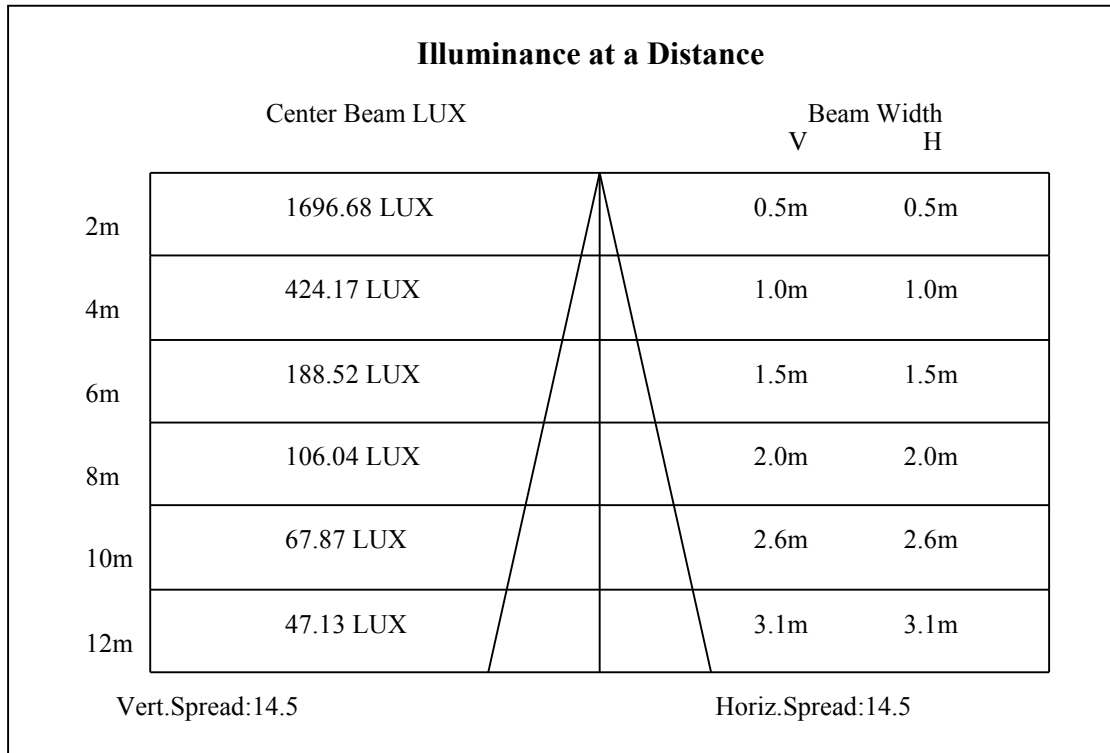
0-10	406.16
10-20	362.50
20-30	305.35
30-40	90.80
40-50	17.45
50-60	16.82
60-70	13.93
70-80	9.74
80-90	6.16
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

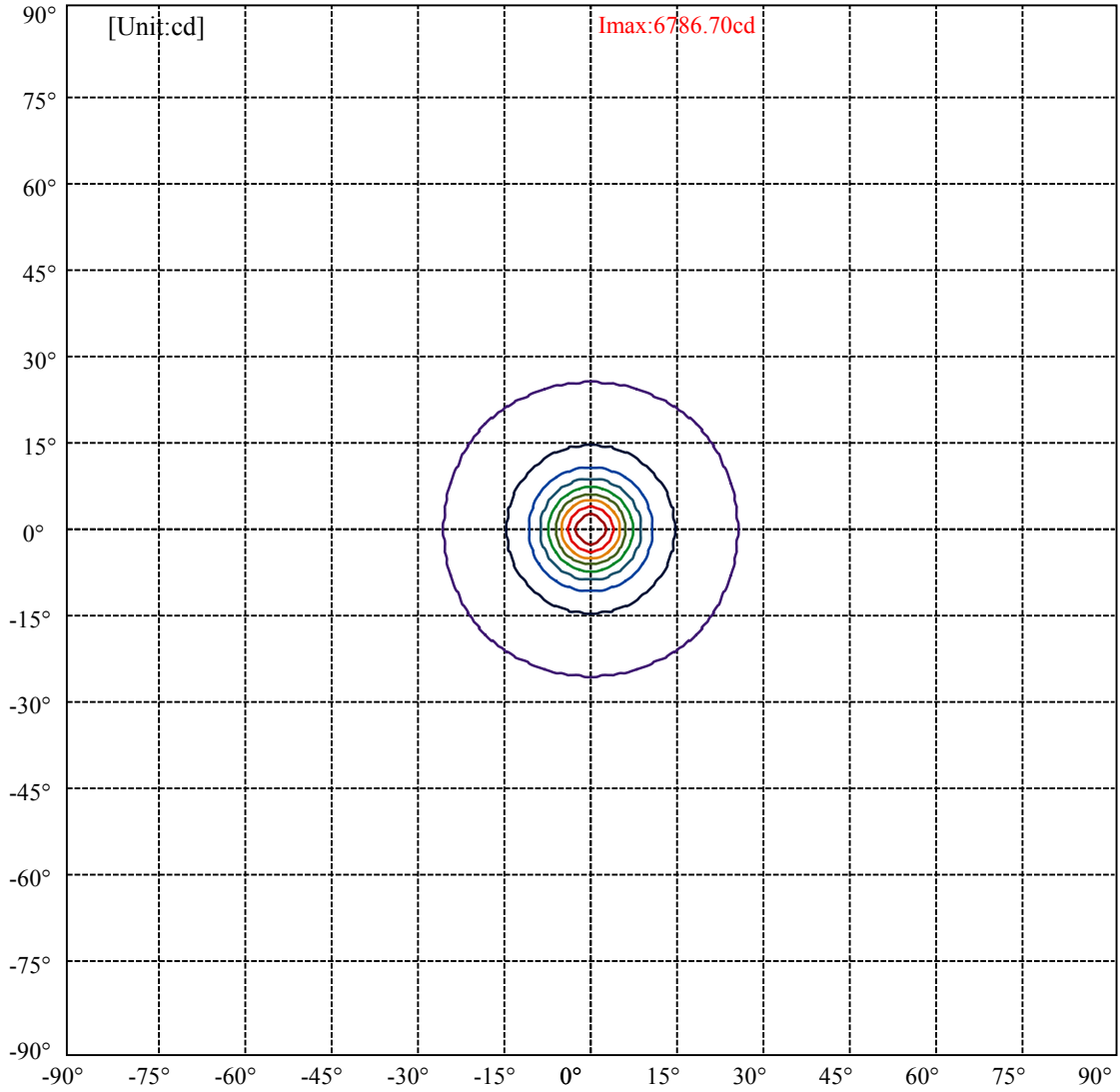


C0(Max): —————
C0/C180: —————
C90/C270: —————

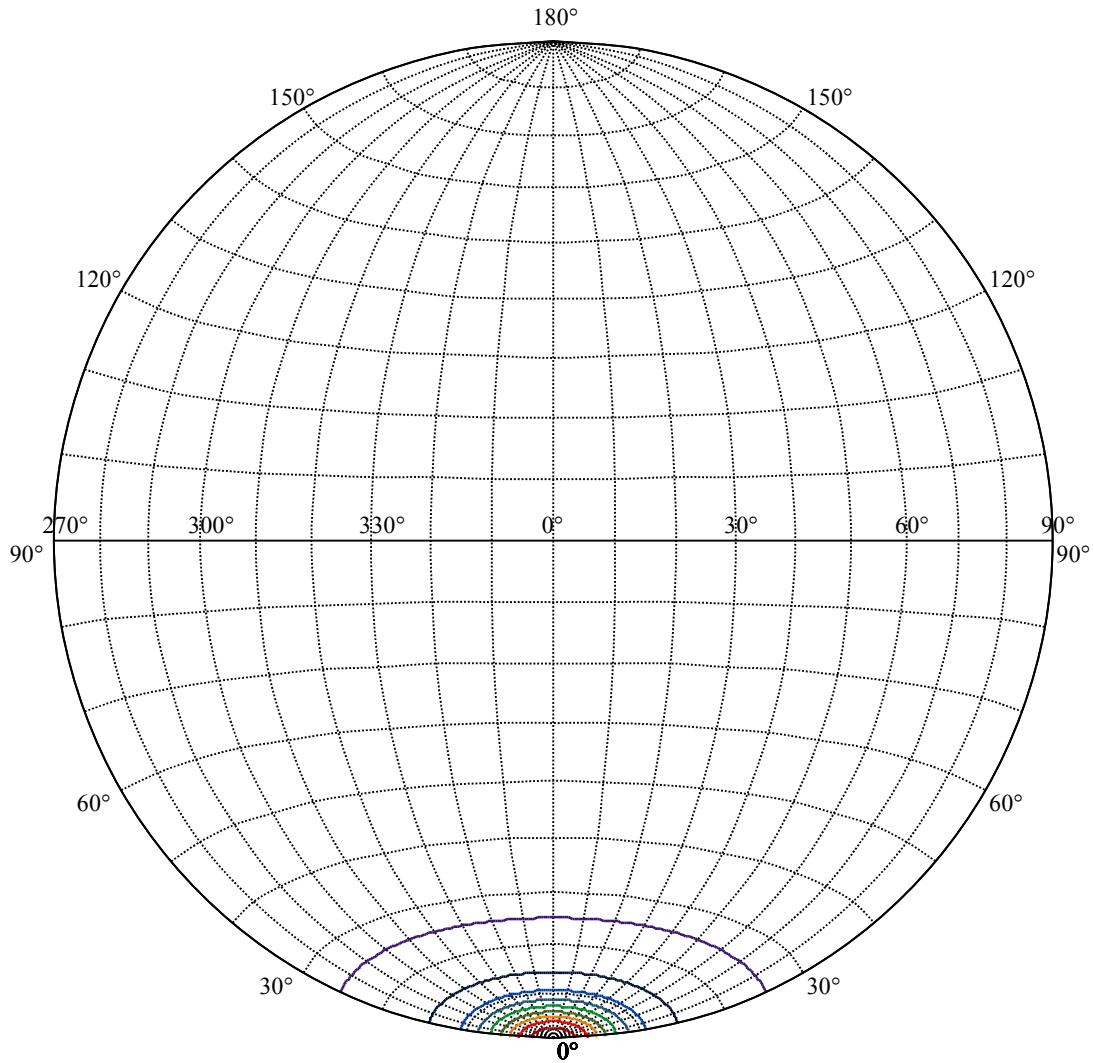
Field angle(10%Imax):C0/180Left:25.2 Right:25.2
:C90/270Left:25.2 Right:25.2

Beam Angle(50%Imax):C0/180Left:7.3 Right:7.3
:C90/270Left:7.3 Right:7.3





(10%Imax) 678.67	—
(20%Imax) 1357.34	—
(30%Imax) 2036.01	—
(40%Imax) 2714.68	—
(50%Imax) 3393.35	—
(60%Imax) 4072.02	—
(70%Imax) 4750.69	—
(80%Imax) 5429.36	—
(90%Imax) 6108.03	—



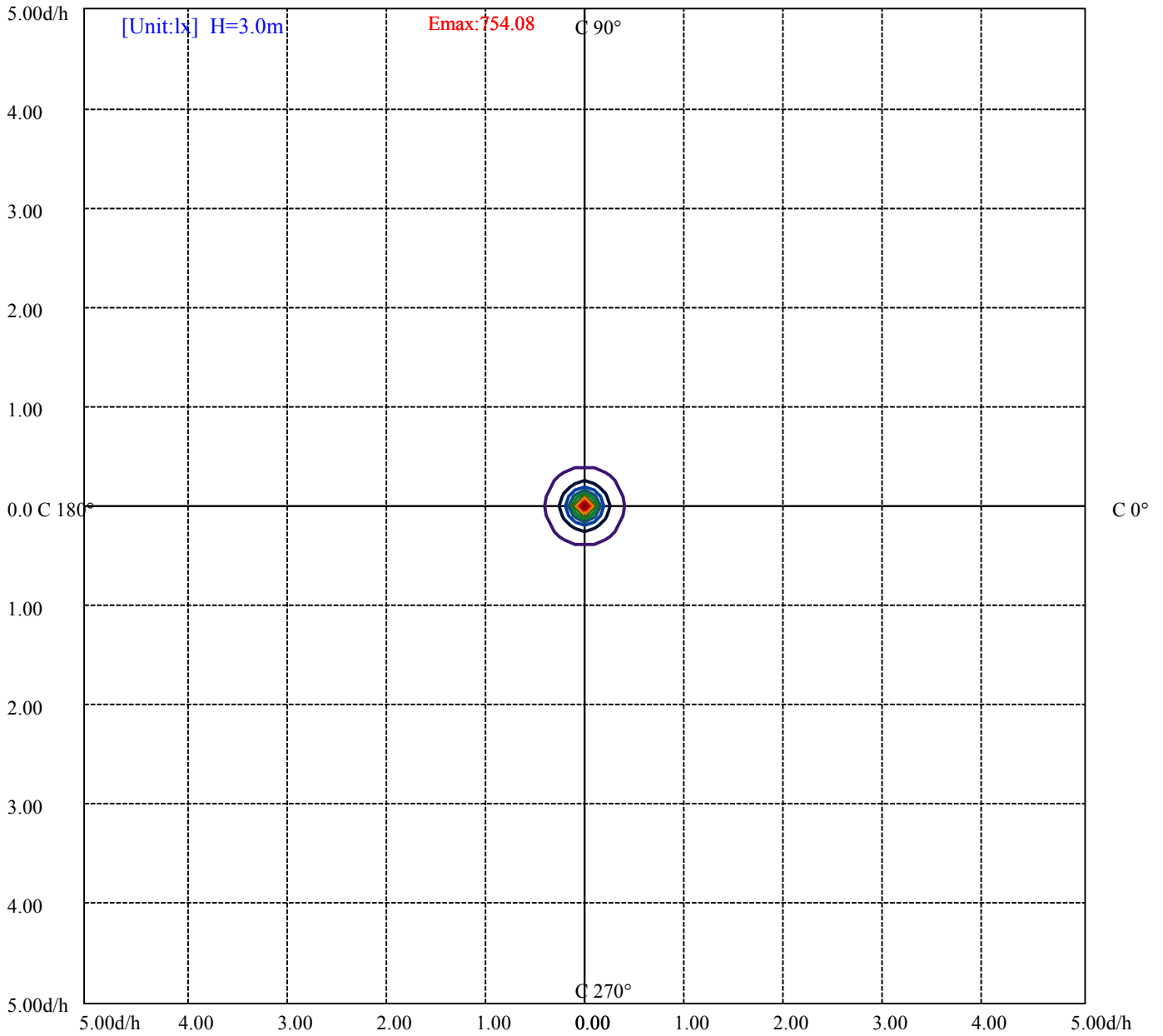
House

[Unit:cd]

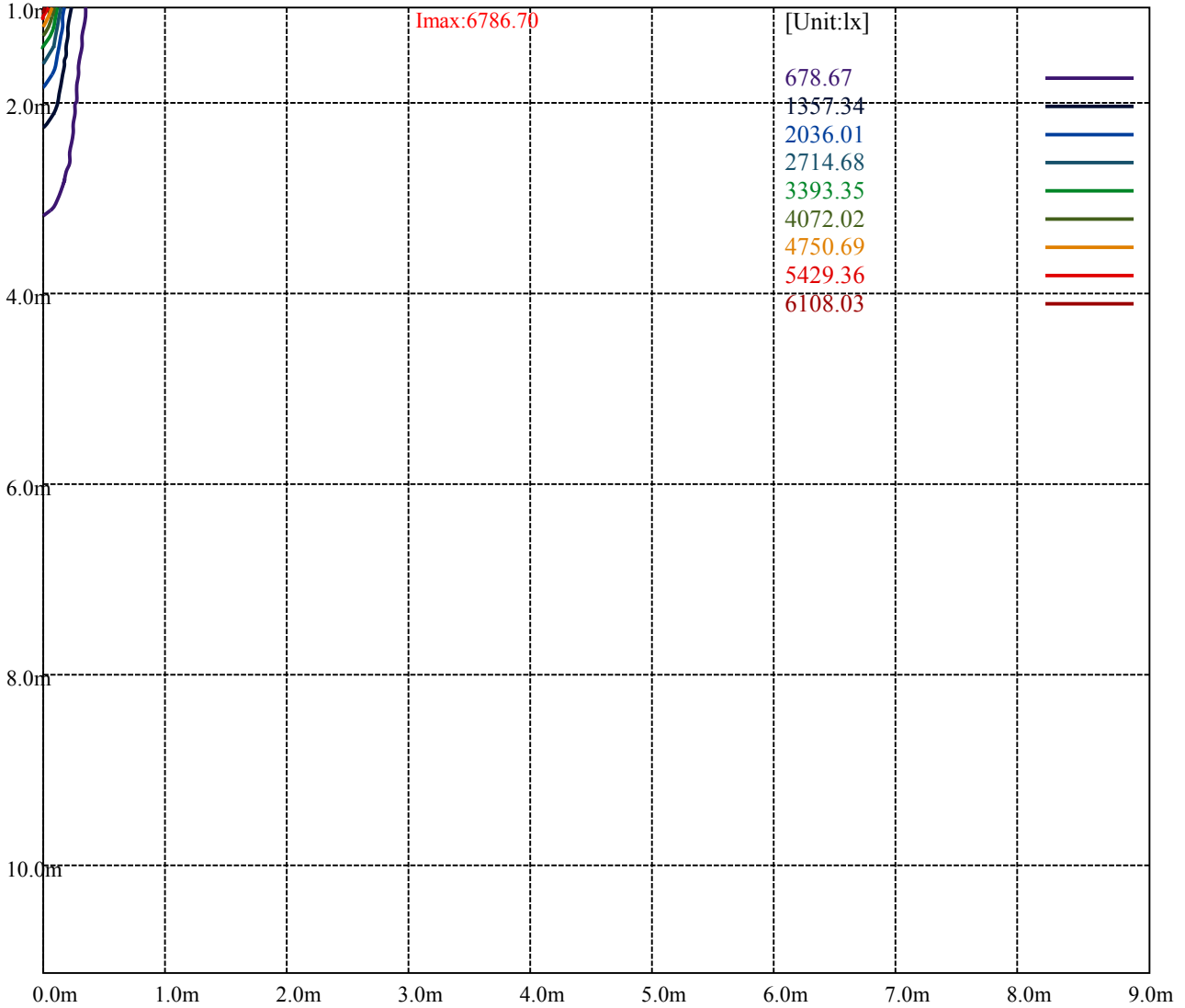
Road

Imax:6786.70

(10%Imax) 678.67	—
(20%Imax) 1357.34	—
(30%Imax) 2036.01	—
(40%Imax) 2714.68	—
(50%Imax) 3393.35	—
(60%Imax) 4072.02	—
(70%Imax) 4750.69	—
(80%Imax) 5429.36	—
(90%Imax) 6108.03	—



- (10%Emax) 75.40744
- (20%Emax) 150.8144
- (30%Emax) 226.2222
- (40%Emax) 301.63
- (50%Emax) 377.0367
- (60%Emax) 452.4445
- (70%Emax) 527.8522
- (80%Emax) 603.2589
- (90%Emax) 678.6667



Luminance Table

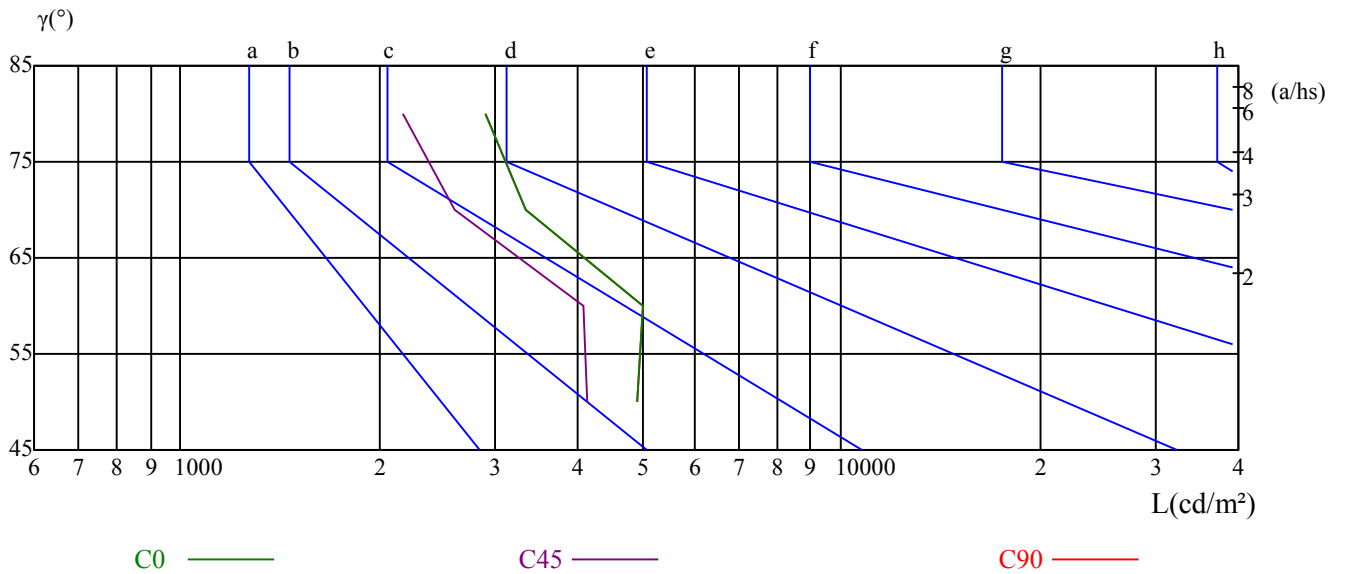
γ	45	50	55	60	65	70	75	80	85
C0	0	4923	0	5012	0	3331	0	2905	0
C45	0	4124	0	4068	0	2608	0	2177	0
C90	0	4923	0	5012	0	3331	0	2905	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
46865	46886	46794	16690	17927	17526	9734	9634	9684

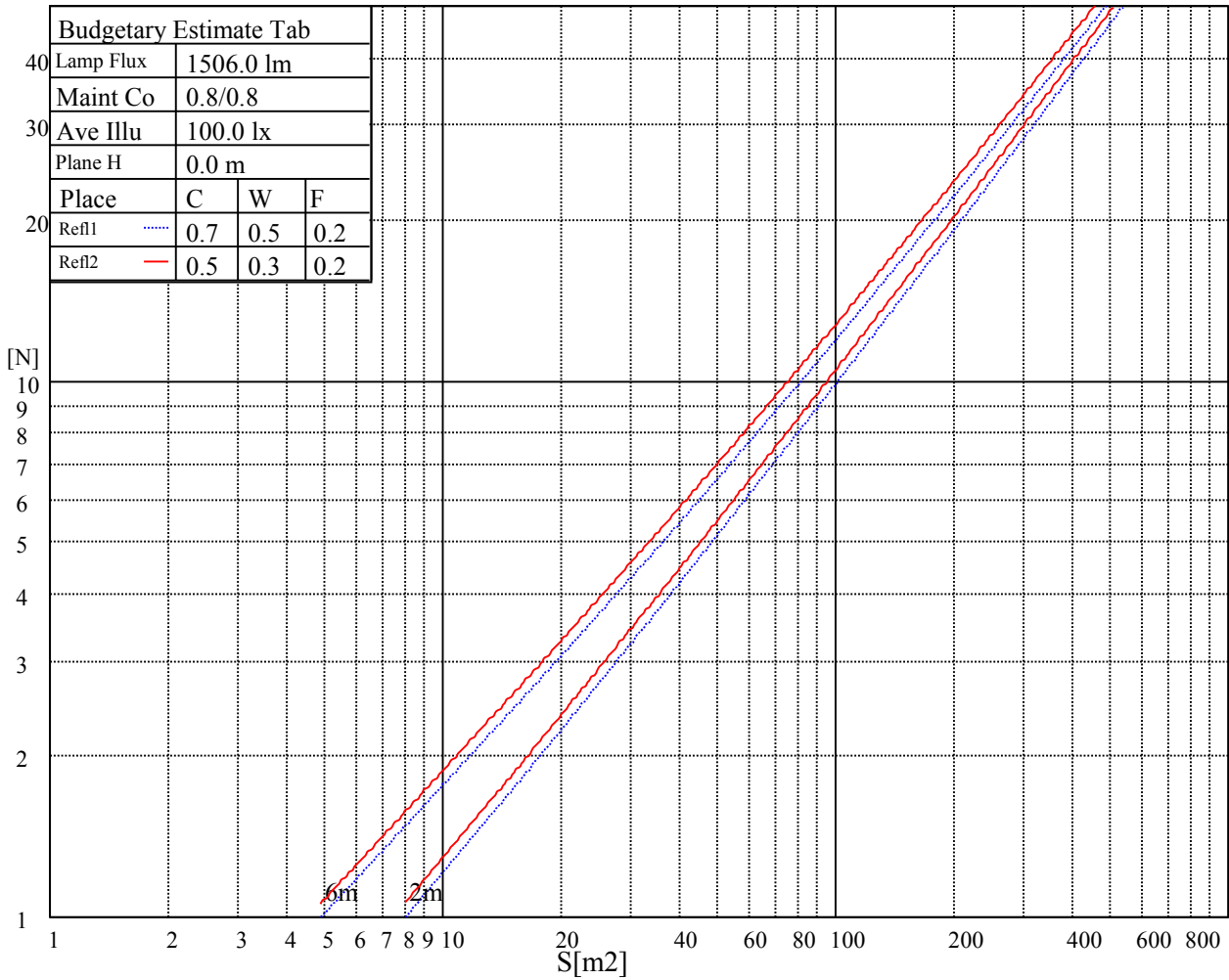
Glare Table

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

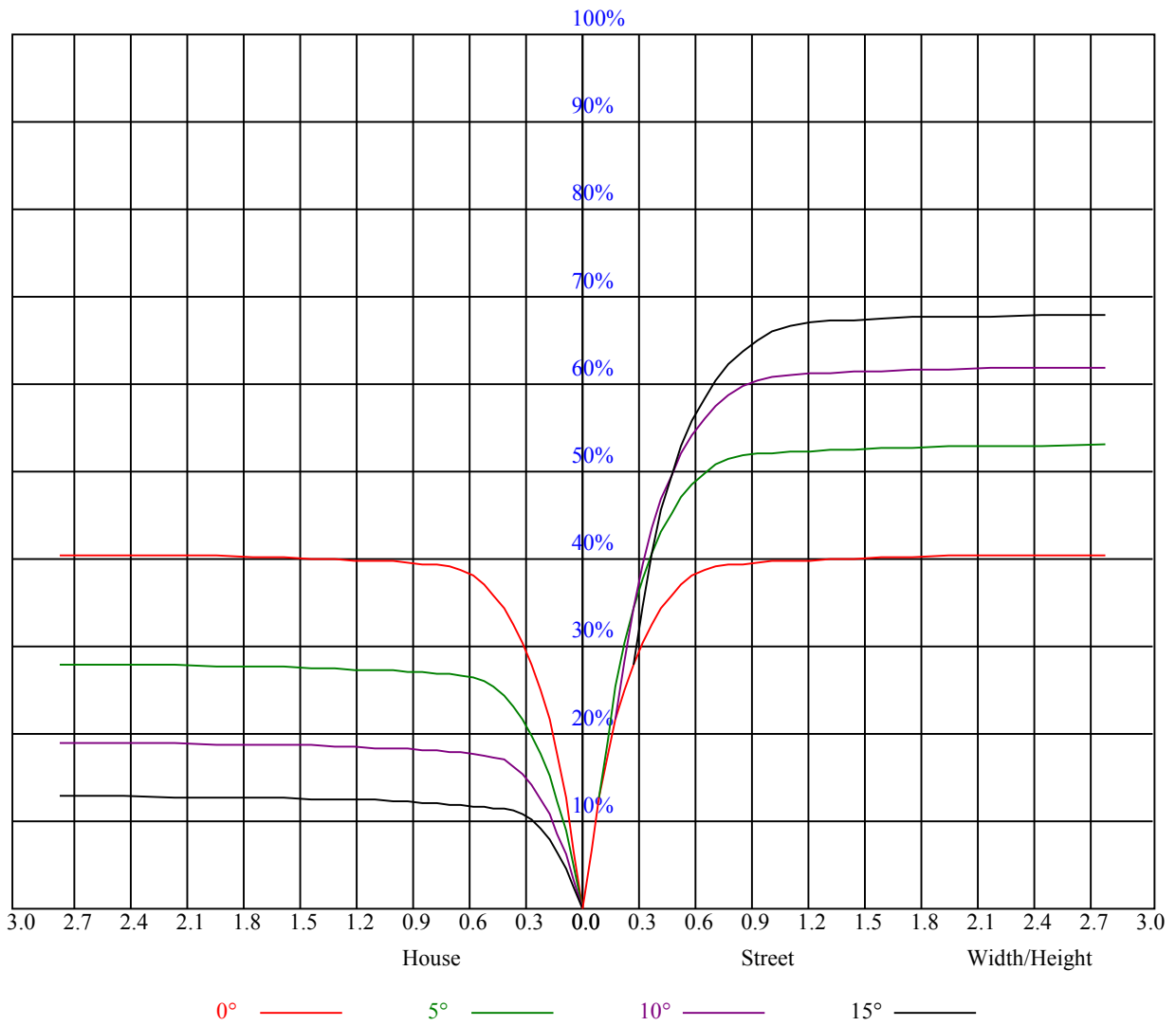
Luminance Limiting Curve



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	10.18	11.14	10.55	11.45	11.76	9.76	10.71	10.12	11.02	11.34
	3H	11.31	12.15	11.69	12.49	12.86	10.98	11.83	11.36	12.16	12.53
	4H	11.81	12.59	12.21	12.95	13.34	11.52	12.30	11.93	12.66	13.05
	6H	12.40	13.12	12.82	13.49	13.89	12.08	12.80	12.50	13.17	13.57
	8H	12.69	13.36	13.13	13.76	14.17	12.35	13.03	12.79	13.42	13.83
	12H	13.13	13.78	13.57	14.16	14.59	12.80	13.45	13.24	13.83	14.26
4H	2H	10.41	11.19	10.82	11.55	11.94	10.05	10.84	10.46	11.19	11.58
	3H	11.73	12.38	12.15	12.78	13.19	11.46	12.11	11.88	12.51	12.92
	4H	12.36	12.94	12.80	13.36	13.81	12.13	12.70	12.56	13.13	13.58
	6H	12.99	13.49	13.47	13.94	14.41	12.74	13.23	13.21	13.68	14.16
	8H	13.39	13.85	13.86	14.30	14.77	13.11	13.57	13.58	14.02	14.49
	12H	13.89	14.28	14.38	14.77	15.25	13.61	14.01	14.10	14.50	14.98
8H	4H	12.51	12.97	12.99	13.42	13.90	12.30	12.76	12.78	13.21	13.69
	6H	13.34	13.71	13.85	14.21	14.70	13.11	13.47	13.62	13.98	14.46
	8H	13.86	14.18	14.39	14.71	15.20	13.60	13.93	14.14	14.45	14.95
	12H	14.56	14.84	15.09	15.34	15.92	14.32	14.60	14.84	15.09	15.68
12H	4H	12.52	12.92	13.01	13.40	13.88	12.32	12.71	12.81	13.20	13.68
	6H	13.66	13.73	13.94	14.20	14.75	13.43	13.51	13.72	13.98	14.53
	8H	14.00	14.28	14.52	14.78	15.36	13.76	14.04	14.28	14.54	15.12
Variation with the observer position at spacings:											
S = 1.0H	4.7/-2.7					4.7/-2.7					
S = 1.5H	6.4/-2.3					6.4/-2.3					
S = 2.0H	7.8/-2.0					7.8/-2.0					
Standard tables:	BK3					BK3					
Uncorrected UGR	-2.4					-2.4					



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	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.91	0.89	0.87	0.89	0.88	0.86	0.86	0.85	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77
2	0.86	0.83	0.80	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.76	0.77	0.76	0.75	0.73
3	0.82	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.70
4	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
6	0.71	0.67	0.64	0.71	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.62
7	0.68	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.60
8	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.63	0.60	0.58	0.58
9	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56
10	0.61	0.58	0.55	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.54



Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	6830.44	6282.56	5333.06	3998.81	2888.44	2196.56	1748.25	1453.50	1253.25
45.0	6753.94	6689.81	5959.13	4748.63	3560.63	2530.69	1959.19	1577.25	1317.94
90.0	6833.25	6727.50	5898.94	4611.38	3353.63	2383.31	1823.63	1443.94	1227.38
135.0	6729.19	6748.31	6063.75	4825.13	3531.38	2504.81	1883.25	1470.38	1238.63
180.0	6830.44	6406.88	5461.31	4171.50	2967.19	2199.94	1737.00	1427.63	1238.63
225.0	6753.94	5964.19	4813.88	3557.81	2512.69	1946.81	1573.31	1314.00	1121.96
270.0	6833.25	6033.38	4919.06	3551.06	2539.13	1935.56	1543.50	1269.00	1085.63
315.0	6729.19	5811.19	4713.19	3386.25	2446.88	1886.63	1518.19	1256.63	1077.69
360.0	6830.44	6282.56	5333.06	3998.81	2888.44	2196.56	1748.25	1453.50	1253.25
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1077.75	940.50	840.38	748.13	676.13	600.75	502.31	355.50	245.19
45.0	1134.00	988.31	874.13	771.75	701.44	622.13	536.63	431.44	284.06
90.0	1041.86	895.95	800.55	710.33	644.01	579.94	503.49	372.71	240.36
135.0	1046.81	907.31	814.50	729.56	667.13	610.88	542.25	417.38	290.25
180.0	1067.96	944.21	840.77	751.95	684.68	607.50	499.22	353.98	210.43
225.0	987.64	882.23	799.93	722.14	644.96	564.24	437.34	283.61	160.14
270.0	937.69	816.75	732.38	647.44	575.44	488.25	382.50	288.56	149.57
315.0	934.03	836.33	757.58	687.88	627.41	545.91	425.08	273.15	149.57
360.0	1077.75	940.50	840.38	748.13	676.13	600.75	502.31	355.50	245.19
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	101.87	46.80	28.35	23.46	21.21	18.96	17.38	16.20	15.41
45.0	139.89	63.51	32.40	25.03	22.73	20.59	18.96	17.66	16.65
90.0	121.50	54.39	32.57	26.94	24.36	22.44	21.15	20.14	19.29
135.0	136.41	61.99	33.92	27.23	24.86	22.39	21.26	20.76	19.80
180.0	95.18	46.18	30.26	25.99	23.63	21.83	20.87	19.80	19.07
225.0	70.14	36.06	28.58	25.54	23.74	22.73	21.77	20.14	19.52
270.0	74.42	44.33	34.65	30.04	26.89	23.96	22.11	21.09	20.76
315.0	65.48	37.18	28.80	25.31	22.73	20.70	19.63	18.68	18.23
360.0	101.87	46.80	28.35	23.46	21.21	18.96	17.38	16.20	15.41
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	15.53	16.09	16.76	17.55	16.65	14.46	12.99	11.93	10.86
45.0	16.31	16.54	16.99	17.55	17.78	16.20	14.57	13.16	11.76
90.0	19.58	19.97	19.63	19.24	18.00	15.64	13.78	12.49	11.59
135.0	19.46	19.52	19.46	19.58	18.90	16.48	14.40	12.66	12.38
180.0	18.90	18.56	18.28	18.23	17.04	15.02	13.73	12.77	11.14
225.0	18.96	18.39	17.89	17.55	15.75	14.12	12.83	11.87	10.13
270.0	20.53	20.25	19.74	18.84	16.88	14.85	13.33	12.32	11.03
315.0	18.11	18.73	19.63	19.74	17.49	15.13	13.39	12.54	10.69
360.0	15.53	16.09	16.76	17.55	16.65	14.46	12.99	11.93	10.86
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	9.45	9.06	8.61	8.27	7.82	7.43	7.03	6.69	5.96
45.0	9.90	9.34	8.78	8.33	7.93	7.54	7.14	6.75	6.19
90.0	9.68	9.06	8.55	8.16	7.71	7.26	6.81	6.41	5.85
135.0	10.01	9.51	9.00	8.66	8.16	7.65	7.14	6.69	6.13
180.0	10.18	9.79	9.39	8.89	8.49	8.04	7.48	6.98	6.13
225.0	9.73	9.28	9.00	8.61	8.27	7.99	7.59	7.20	5.91
270.0	10.46	10.07	9.68	9.96	10.35	9.84	7.88	7.65	5.63
315.0	10.41	9.90	9.56	9.56	9.17	8.10	7.76	7.43	5.63
360.0	9.45	9.06	8.61	8.27	7.82	7.43	7.03	6.69	5.96

Intensity data(cd)

C/ γ (°)	90.0
0.0	5.57
45.0	5.79
90.0	5.63
135.0	5.79
180.0	6.02
225.0	5.68
270.0	5.46
315.0	5.46
360.0	5.57