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Nata

LumCAT: 3-1742-N
Luminaire: 92.70.065.00+92.70.061.00
Report No: NATA0100
Test No: GC2018091111
LampCAT: LUMINUS CXM-11-AC30
Lamp flux(lm): 2557.0
Number of Lamps: 1
Length(mm): 86
Phm Type: C

Voltage(V): 34.7000
Current(A): 0.5000
Power (W): 17.3500
PF: 0.0000
Ballast type: DC
Width(mm): 86
Height(mm): 0

Photometric Results

Lumens(lm): 2027.79
Efficiency(%): 79.30%
Lumens(lm)/Power(W): 117.32
Central intensity(cd): 8406.844
Maximum intensity(cd): 8406.844
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=22.9
 [C90/270]Total=22.9
Field angle(10%Imax): [C0/180]Total=45.1
 [C90/270]Total=45.1
Maximum s/h(1/2): C0_180=0.39 C90_270=0.39
Maximum s/h(1/4): C0_180=0.39 C90_270=0.39
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 79.61%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.065%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8406.844	8.045	8.045	.315%	.397%
2.0	8209.898	62.838	70.883	2.457%	3.496%
4.0	7655.273	117.114	187.997	4.580%	9.271%
6.0	6902.156	158.228	346.226	6.188%	17.074%
8.0	6010.875	183.467	529.693	7.175%	26.122%
10.0	4926.938	187.634	717.327	7.338%	35.375%
12.0	3918.164	178.660	895.987	6.987%	44.185%
14.0	2913.328	154.572	1050.559	6.045%	51.808%
16.0	2103.328	127.148	1177.707	4.973%	58.078%
18.0	1489.451	100.942	1278.649	3.948%	63.056%
20.0	1107.626	83.083	1361.732	3.249%	67.153%
22.0	883.730	72.604	1434.336	2.839%	70.734%
24.0	726.870	64.839	1499.175	2.536%	73.931%
26.0	605.714	58.234	1557.408	2.277%	76.803%
28.0	506.995	52.201	1609.609	2.041%	79.377%
30.0	433.948	47.585	1657.195	1.861%	81.724%
32.0	366.448	42.588	1699.783	1.666%	83.824%
34.0	313.826	38.487	1738.27	1.505%	85.722%
36.0	273.284	35.229	1773.498	1.378%	87.460%
38.0	234.415	31.651	1805.15	1.238%	89.020%
40.0	204.560	28.837	1833.987	1.128%	90.442%
42.0	176.913	25.962	1859.949	1.015%	91.723%
44.0	148.113	22.565	1882.514	.882%	92.836%
46.0	122.688	19.355	1901.869	.757%	93.790%
48.0	101.355	16.519	1918.388	.646%	94.605%
50.0	82.680	13.891	1932.279	.543%	95.290%
52.0	68.386	11.819	1944.097	.462%	95.873%
54.0	56.060	9.947	1954.044	.389%	96.363%
56.0	46.146	8.390	1962.434	.328%	96.777%
58.0	38.468	7.155	1969.589	.280%	97.130%
60.0	32.583	6.188	1975.777	.242%	97.435%
62.0	28.195	5.460	1981.237	.214%	97.704%
64.0	25.629	5.052	1986.289	.198%	97.953%
66.0	23.864	4.781	1991.07	.187%	98.189%
68.0	22.191	4.512	1995.583	.176%	98.412%
70.0	20.742	4.275	1999.857	.167%	98.622%
72.0	19.287	4.023	2003.88	.157%	98.821%
74.0	17.944	3.783	2007.663	.148%	99.007%

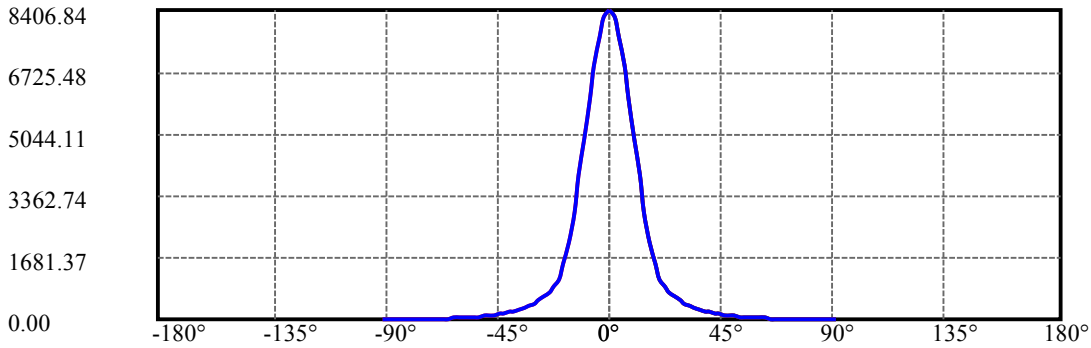
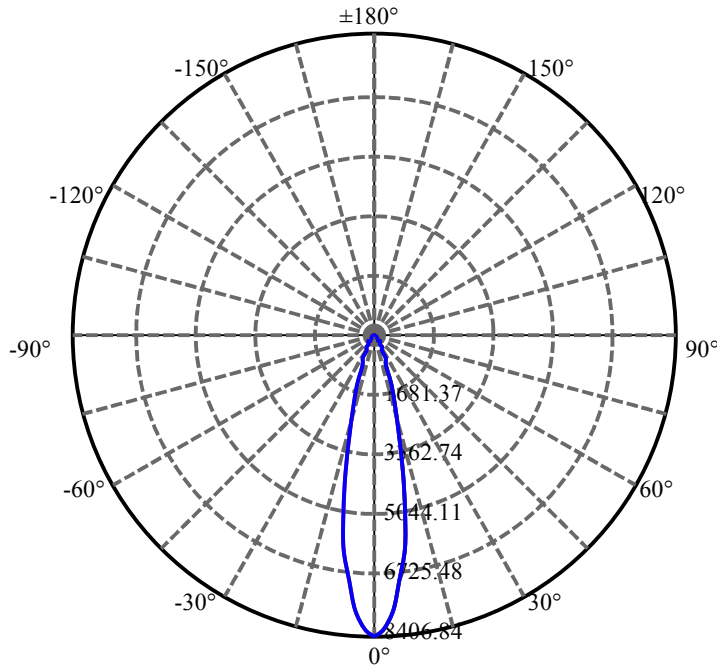
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	16.601	3.533	2011.196	.138%	99.181%
78.0	15.265	3.275	2014.47	.128%	99.343%
80.0	13.845	2.990	2017.46	.117%	99.490%
82.0	12.558	2.727	2020.188	.107%	99.625%
84.0	11.243	2.452	2022.64	.096%	99.746%
86.0	10.062	2.201	2024.841	.086%	99.854%
88.0	9.113	1.997	2026.838	.078%	99.953%
90.0	8.712	0.955	2027.794	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1657.19	64.81%	81.72%
0-40	1833.99	71.72%	90.44%
0-60	1975.78	77.27%	97.43%
0-90	2026.84	79.27%	99.95%
0-120	2026.84	79.27%	99.95%
0-180	2027.79	79.30%	100.00%
60-90	57.25	2.24%	2.82%
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%
0-28.53	1622.24	63.44%	80.00%

ZONAL LUMEN SUMMARY

0-10	717.33
10-20	644.40
20-30	295.46
30-40	176.79
40-50	98.29
50-60	43.50
60-70	24.08
70-80	17.60
80-90	9.38
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



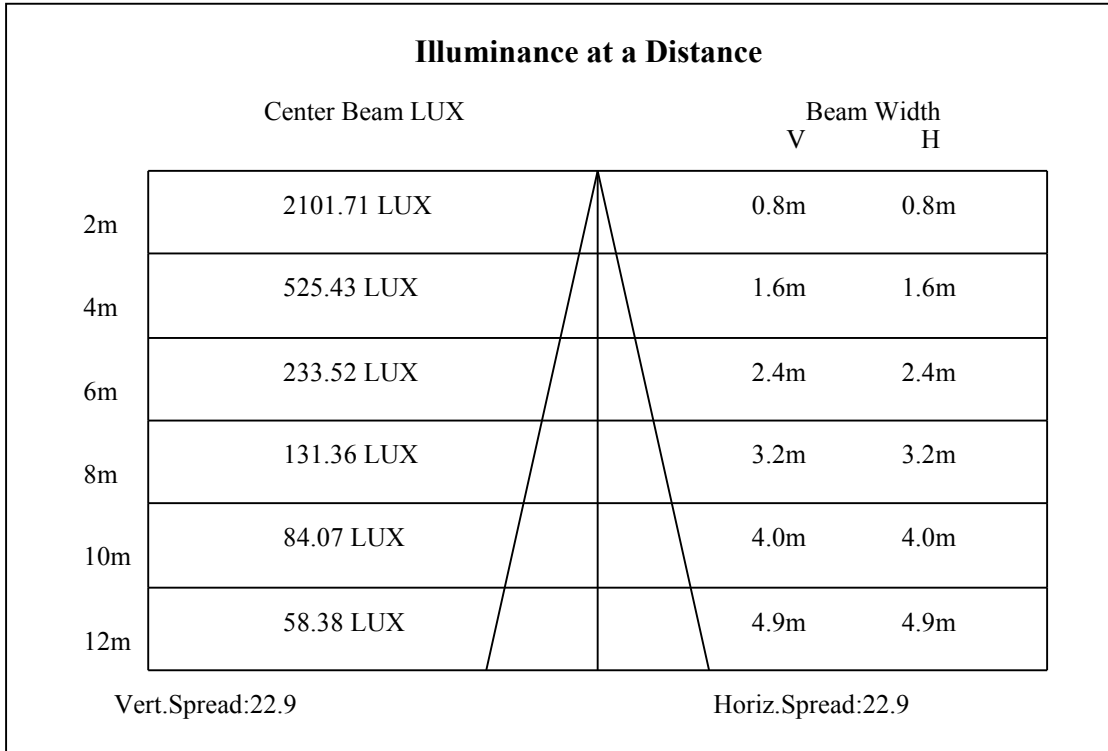
C0(Max): —————

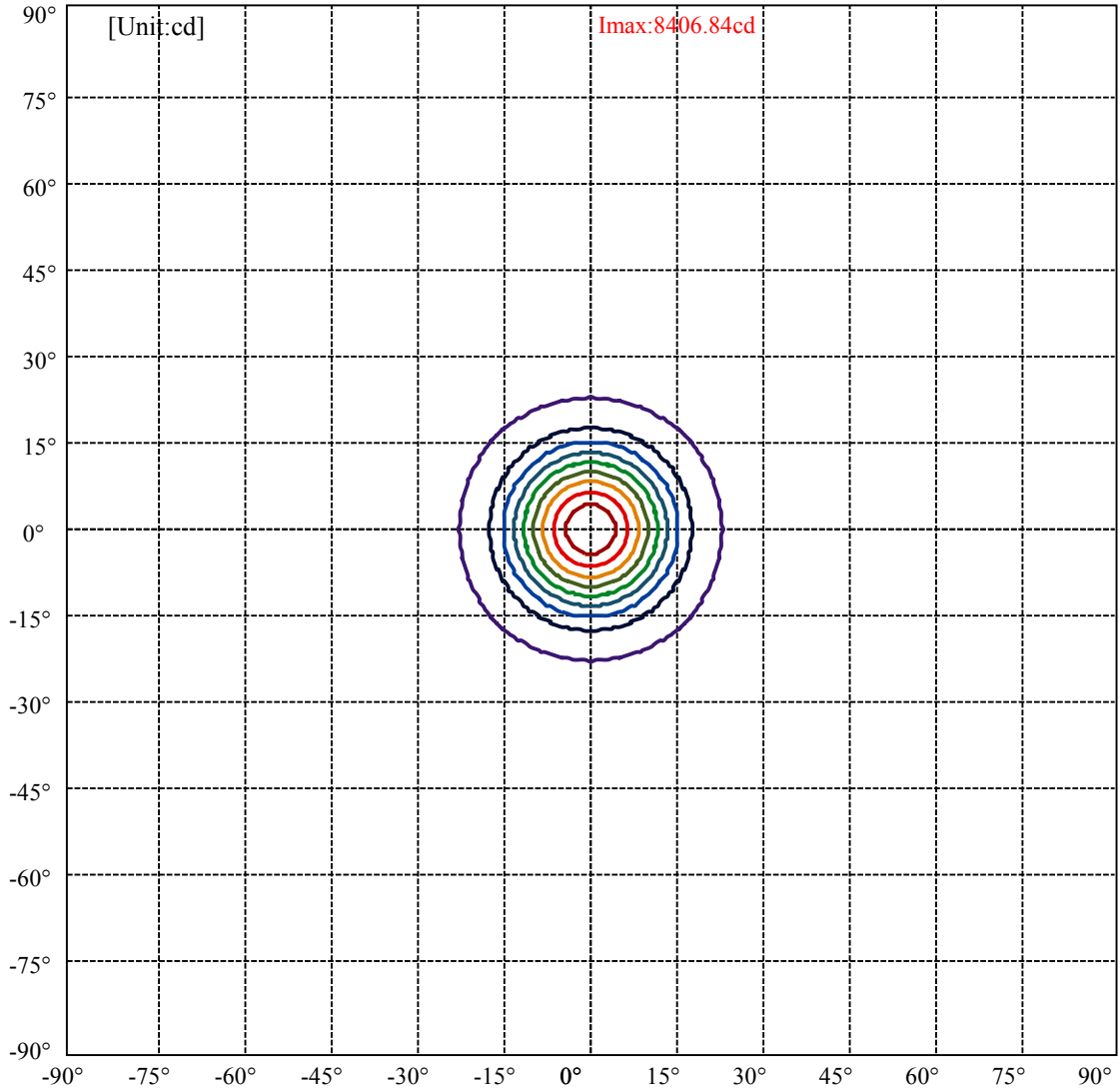
C0/C180: —————

C90/C270: —————

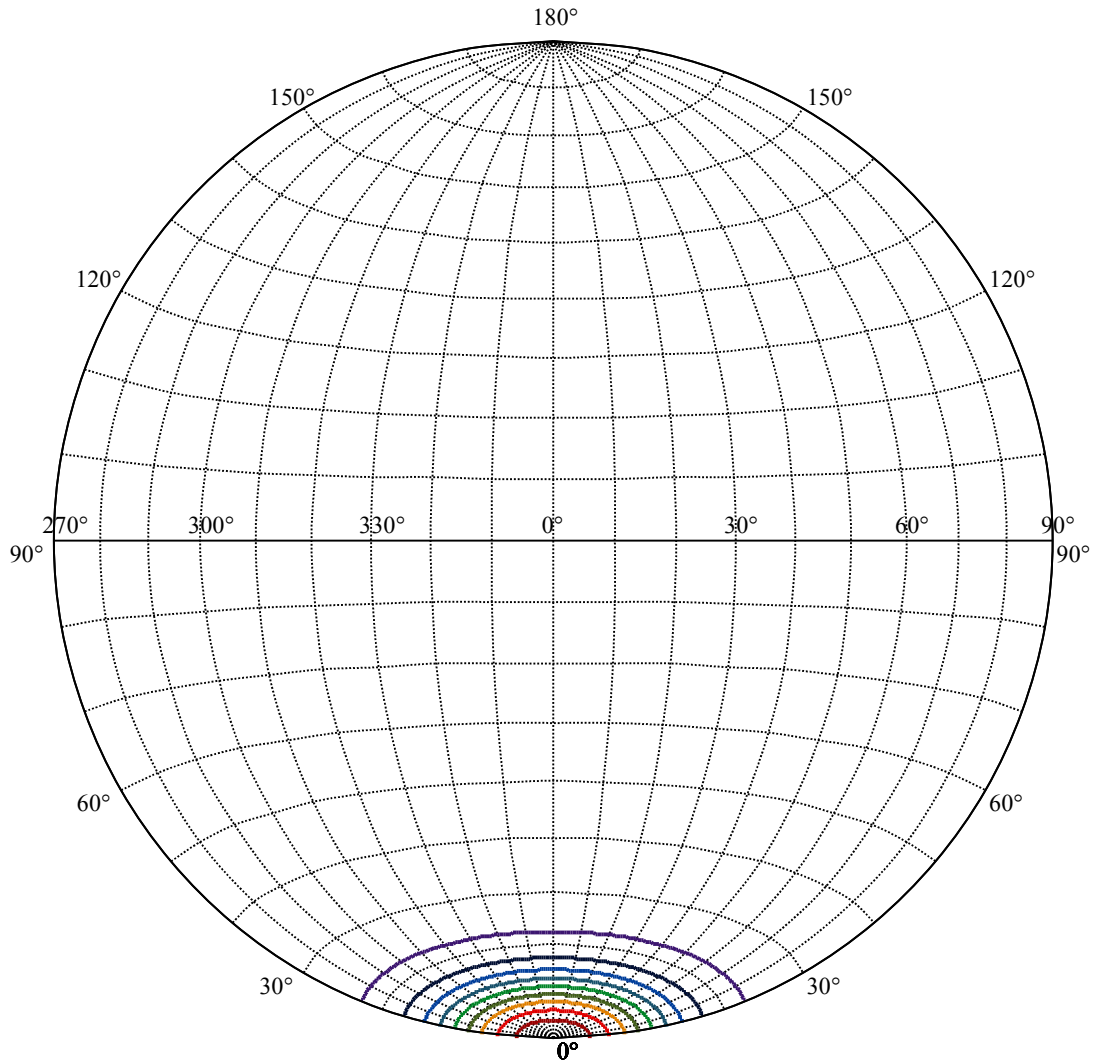
Field angle(10%Imax):C0/180Left:22.5 Right:22.5
:C90/270Left:22.5 Right:22.5

Beam Angle(50%Imax):C0/180Left:11.4 Right:11.4
:C90/270Left:11.4 Right:11.4





(10%Imax) 840.684	—
(20%Imax) 1681.37	—
(30%Imax) 2522.05	—
(40%Imax) 3362.74	—
(50%Imax) 4203.42	—
(60%Imax) 5044.11	—
(70%Imax) 5884.79	—
(80%Imax) 6725.48	—
(90%Imax) 7566.16	—



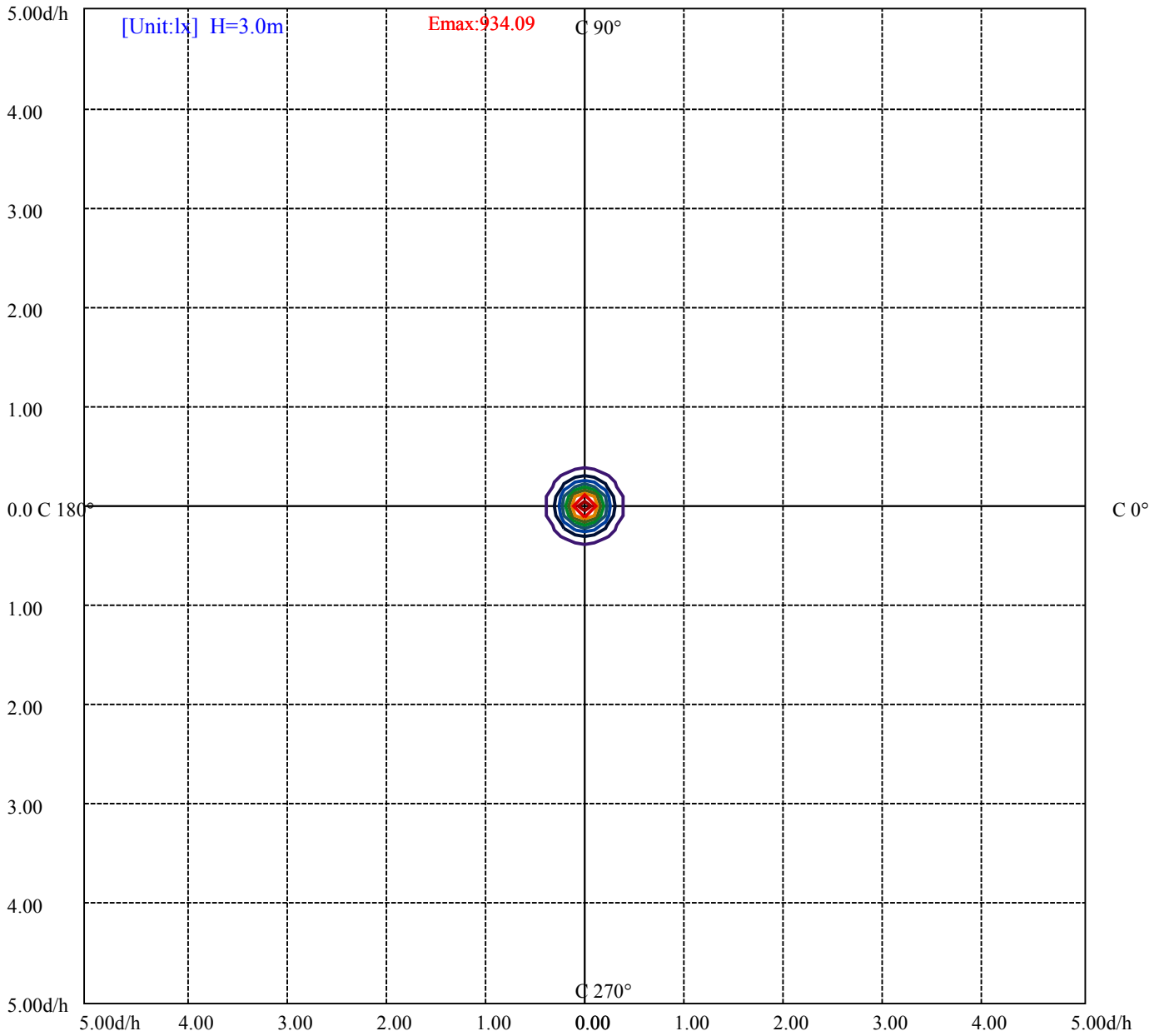
House

[Unit:cd]

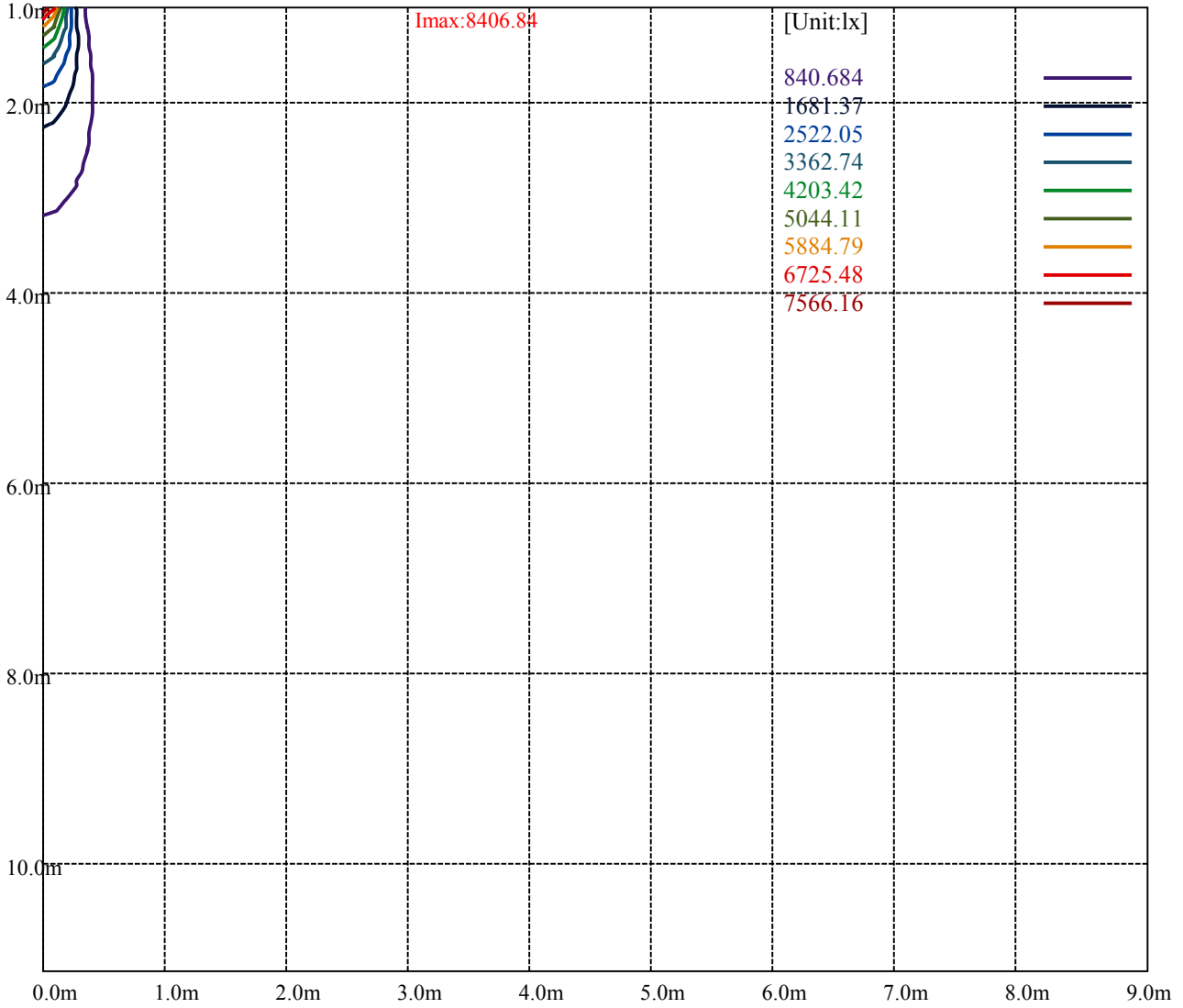
Road

Imax:8406.84

(10%Imax) 840.684	—
(20%Imax) 1681.37	—
(30%Imax) 2522.05	—
(40%Imax) 3362.74	—
(50%Imax) 4203.42	—
(60%Imax) 5044.11	—
(70%Imax) 5884.79	—
(80%Imax) 6725.48	—
(90%Imax) 7566.16	—



(10%Emax) 93.40922	—
(20%Emax) 186.8189	—
(30%Emax) 280.2278	—
(40%Emax) 373.6367	—
(50%Emax) 467.0456	—
(60%Emax) 560.4556	—
(70%Emax) 653.8644	—
(80%Emax) 747.2733	—
(90%Emax) 840.6833	—



Luminance Table

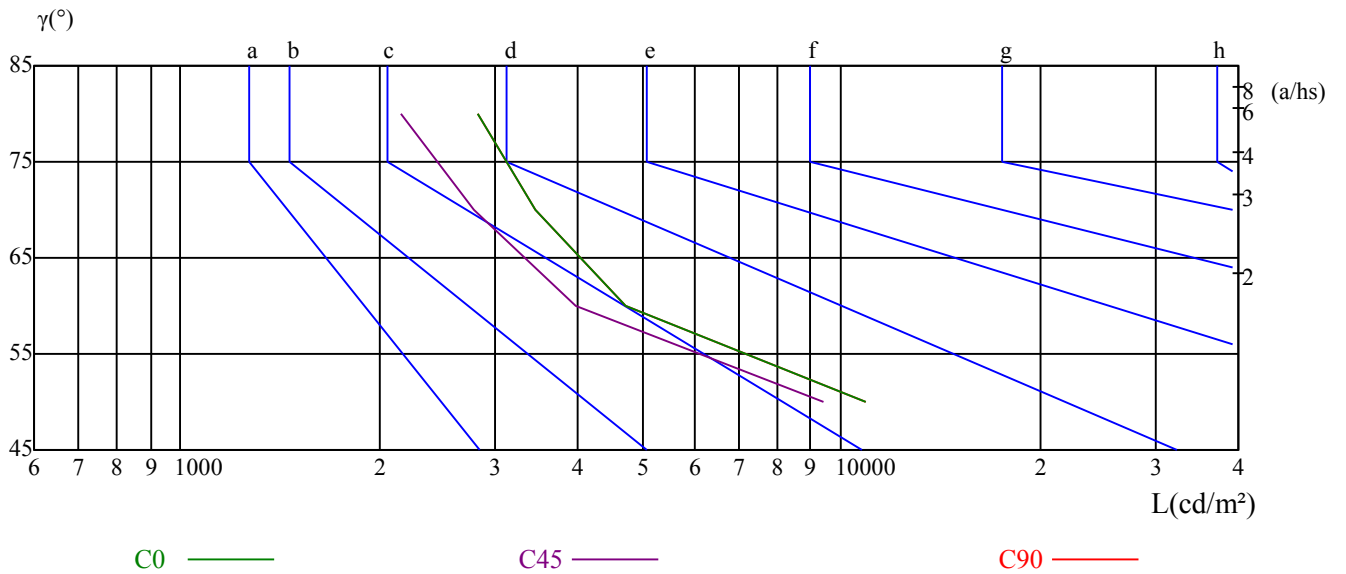
γ	45	50	55	60	65	70	75	80	85
C0	0	10898	0	4722	0	3454	0	2810	0
C45	0	9438	0	3960	0	2786	0	2152	0
C90	0	10898	0	4722	0	3454	0	2810	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7536	7536	7536	8610	8610	8610	16634	16634	16634

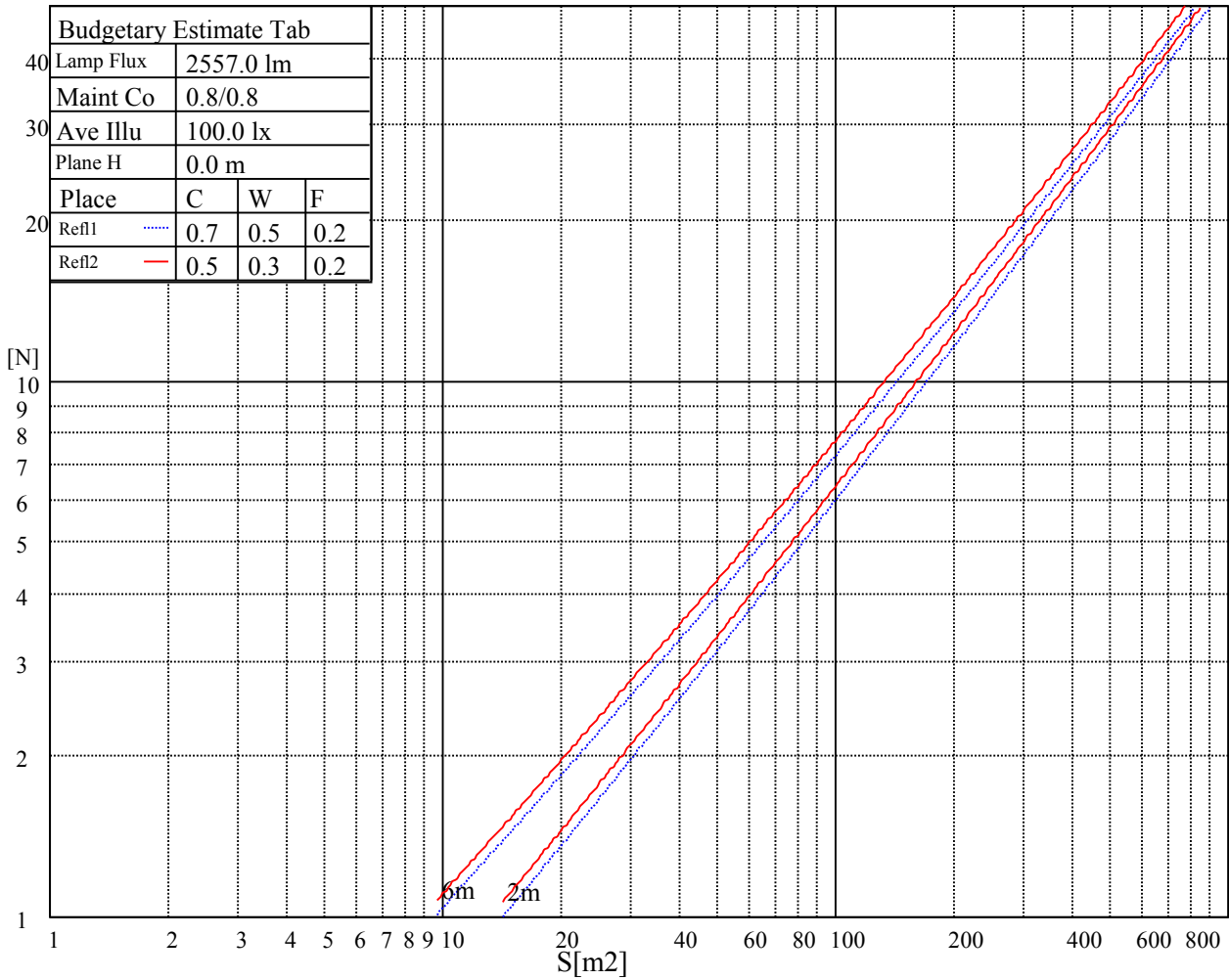
Glare Table

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

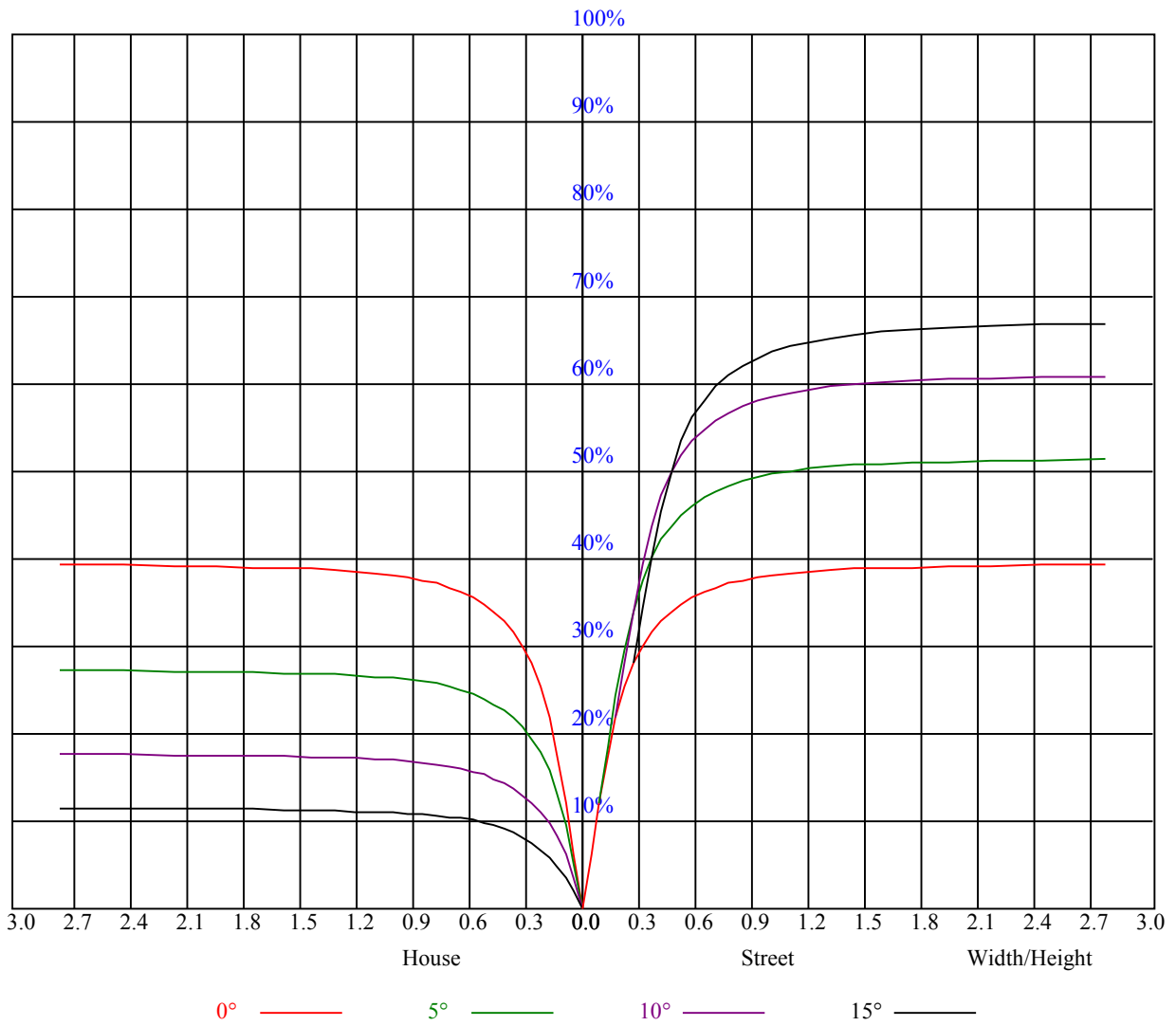
Luminance Limiting Curve



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	9.62	10.64	9.99	10.96	11.27	9.75	10.77	10.12	11.09	11.40
	3H	10.47	11.38	10.86	11.71	12.08	10.60	11.50	10.98	11.83	12.20
	4H	10.91	11.75	11.32	12.10	12.49	11.04	11.87	11.44	12.23	12.62
	6H	11.34	12.10	11.75	12.48	12.87	11.45	12.22	11.87	12.59	12.99
	8H	11.52	12.24	11.96	12.63	13.04	11.64	12.36	12.07	12.75	13.16
	12H	11.82	12.50	12.25	12.89	13.32	11.93	12.62	12.36	13.00	13.43
4H	2H	9.70	10.54	10.11	10.90	11.28	9.82	10.66	10.23	11.01	11.40
	3H	10.79	11.48	11.21	11.89	12.29	10.90	11.59	11.32	12.00	12.40
	4H	11.37	11.99	11.81	12.41	12.86	11.48	12.09	11.92	12.52	12.97
	6H	11.85	12.38	12.32	12.83	13.30	11.96	12.48	12.43	12.93	13.40
	8H	12.12	12.61	12.59	13.06	13.53	12.22	12.71	12.69	13.16	13.63
	12H	12.47	12.89	12.96	13.38	13.86	12.56	12.99	13.06	13.48	13.95
8H	4H	11.51	12.00	11.99	12.45	12.93	11.61	12.10	12.09	12.55	13.03
	6H	12.15	12.54	12.66	13.04	13.53	12.24	12.63	12.75	13.13	13.62
	8H	12.51	12.86	13.05	13.38	13.88	12.60	12.95	13.13	13.47	13.97
	12H	13.05	13.35	13.57	13.85	14.43	13.14	13.44	13.66	13.94	14.52
12H	4H	11.51	11.93	12.00	12.42	12.90	11.61	12.03	12.10	12.52	13.00
	6H	12.50	12.54	12.73	13.01	13.56	12.59	12.63	12.81	13.10	13.65
	8H	12.62	12.92	13.14	13.42	14.00	12.70	13.01	13.23	13.51	14.08
Variation with the observer position at spacings:											
S = 1.0H	1.6/-2.2					1.6/-2.2					
S = 1.5H	3.0/-2.7					3.0/-2.7					
S = 2.0H	4.6/-2.5					4.6/-2.5					
Standard tables:	BK2					BK2					
Uncorrected UGR	-1.8					-1.8					



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	0.95	0.95	0.95	0.93	0.93	0.93	0.88	0.88	0.88	0.85	0.85	0.85	0.81	0.81	0.81	0.80
1	0.88	0.87	0.85	0.87	0.85	0.83	0.83	0.82	0.81	0.81	0.79	0.78	0.78	0.77	0.76	0.75
2	0.83	0.80	0.78	0.82	0.79	0.77	0.79	0.77	0.75	0.77	0.75	0.74	0.75	0.74	0.72	0.71
3	0.79	0.76	0.73	0.78	0.75	0.72	0.76	0.73	0.71	0.74	0.72	0.70	0.72	0.70	0.69	0.68
4	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
5	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.67	0.65	0.63	0.62
6	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.65	0.63	0.61	0.60
7	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58
8	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56
9	0.62	0.58	0.56	0.61	0.58	0.55	0.61	0.58	0.55	0.60	0.57	0.55	0.60	0.57	0.55	0.54
10	0.60	0.56	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.53	0.58	0.55	0.53	0.52



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	8448.19	8244.56	7712.44	7036.88	6068.81	4973.63	3957.75	2903.63	2092.50
45.0	8326.69	8396.44	8010.56	7333.88	6473.81	5436.56	4430.81	3322.13	2373.75
90.0	8421.19	8276.06	7742.25	6986.81	6081.19	4995.00	3949.88	2962.13	2170.69
135.0	8431.31	8318.25	7836.75	7119.00	6262.88	5198.06	4199.06	3095.44	2230.88
180.0	8448.19	8232.19	7644.38	6841.69	6000.19	4910.06	3923.44	2892.38	2093.06
225.0	8326.69	7912.69	7185.38	6343.88	5384.81	4281.75	3278.25	2432.25	1753.88
270.0	8421.19	8140.50	7546.50	6807.38	5916.38	4849.31	3889.69	2903.06	2090.25
315.0	8431.31	8158.50	7563.94	6747.75	5898.94	4771.13	3716.44	2795.63	2021.63
360.0	8448.19	8244.56	7712.44	7036.88	6068.81	4973.63	3957.75	2903.63	2092.50
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1494.56	1094.06	882.00	729.56	609.75	510.75	440.44	370.69	318.38
45.0	1747.13	1240.31	975.38	784.13	647.44	536.06	457.88	385.31	329.06
90.0	1519.31	1108.01	876.88	727.43	593.33	497.19	420.75	355.28	302.57
135.0	1604.81	1137.38	894.38	729.00	605.81	502.88	428.63	358.88	306.56
180.0	1472.63	1064.87	841.84	700.82	586.41	492.41	424.80	358.26	307.58
225.0	1115.61	991.86	802.35	655.31	554.74	469.91	398.87	343.29	298.07
270.0	1541.25	1132.31	918.56	759.38	633.38	530.44	458.44	388.69	330.19
315.0	1420.31	1092.21	878.46	729.34	614.87	516.32	441.79	371.19	318.21
360.0	1494.56	1094.06	882.00	729.56	609.75	510.75	440.44	370.69	318.38
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	284.06	235.46	202.67	173.59	145.46	119.25	99.11	80.55	66.49
45.0	285.75	239.91	210.09	180.90	153.06	127.29	105.30	86.18	72.11
90.0	258.64	223.88	193.95	170.66	141.98	118.52	98.55	80.83	66.99
135.0	272.31	230.57	202.05	177.69	150.36	126.23	104.68	85.89	71.16
180.0	268.20	235.97	207.62	183.43	153.84	127.41	106.88	87.30	71.78
225.0	257.29	228.15	200.19	170.94	143.16	118.35	96.02	78.69	64.58
270.0	286.31	244.63	215.78	183.60	153.39	127.86	103.33	83.31	69.02
315.0	273.71	236.76	204.13	174.49	143.66	116.61	96.98	78.69	64.97
360.0	284.06	235.46	202.67	173.59	145.46	119.25	99.11	80.55	66.49
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	55.24	45.90	38.25	32.40	27.96	25.48	23.74	22.05	20.59
45.0	59.06	48.21	40.89	34.31	29.48	26.10	24.24	22.56	21.15
90.0	55.41	45.73	37.97	32.63	28.01	25.37	23.63	22.11	20.59
135.0	58.78	48.54	40.50	34.20	29.42	26.38	24.58	22.84	21.49
180.0	58.78	48.21	39.71	33.92	29.03	26.27	24.53	22.78	21.32
225.0	52.14	43.43	36.00	30.60	27.28	25.20	23.40	21.77	20.25
270.0	55.80	45.39	38.03	31.50	27.39	25.31	23.51	21.83	20.42
315.0	53.27	43.76	36.39	31.11	27.00	24.92	23.29	21.60	20.14
360.0	55.24	45.90	38.25	32.40	27.96	25.48	23.74	22.05	20.59
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	19.07	17.66	16.37	15.02	13.61	12.32	10.97	9.84	9.06
45.0	19.74	18.39	17.10	15.69	14.34	12.94	11.64	10.41	9.39
90.0	19.24	17.94	16.65	15.41	13.95	12.71	11.36	10.24	9.23
135.0	19.97	18.68	17.38	15.92	14.40	13.28	11.81	10.58	9.45
180.0	19.91	18.51	17.10	15.75	14.23	12.88	11.70	10.41	9.28
225.0	18.73	17.44	15.98	14.68	13.33	12.09	10.74	9.62	8.78
270.0	18.90	17.55	16.26	14.91	13.61	12.32	10.97	9.79	8.89
315.0	18.73	17.38	15.98	14.74	13.28	11.93	10.74	9.62	8.83
360.0	19.07	17.66	16.37	15.02	13.61	12.32	10.97	9.84	9.06

Intensity data(cd)

C/γ(°)	90.0
0.0	8.78
45.0	8.66
90.0	8.66
135.0	8.78
180.0	8.72
225.0	8.66
270.0	8.72
315.0	8.72
360.0	8.78