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Nata

LumCAT: 3-2040-M
Luminaire: 92.70.131.00
Report No: NATA0100
Test No: GC2018091018
LampCAT: LUMINUS CXM-11-AC30
Lamp flux(lm): 2547.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 34.6000
Current(A): 0.5000
Power (W): 17.3000
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 2250.98
Efficiency(%): 88.38%
Lumens(lm)/Power(W): 130.74
Central intensity(cd): 11625.470
Maximum intensity(cd): 11625.470
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.2
 [C90/270]Total=19.2
Field angle(10%Imax): [C0/180]Total=41.8
 [C90/270]Total=41.8
Maximum s/h(1/2): C0_180=0.33 C90_270=0.33
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.80%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.154%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11625.469	11.125	11.125	.437%	.494%
2.0	11200.148	85.725	96.85	3.366%	4.303%
4.0	10135.828	155.063	251.913	6.088%	11.191%
6.0	8763.539	200.900	452.813	7.888%	20.116%
8.0	7176.797	219.054	671.867	8.600%	29.848%
10.0	5471.367	208.368	880.235	8.181%	39.104%
12.0	4057.031	184.992	1065.227	7.263%	47.323%
14.0	2871.141	152.333	1217.56	5.981%	54.090%
16.0	2039.203	123.272	1340.832	4.840%	59.567%
18.0	1555.031	105.387	1446.219	4.138%	64.248%
20.0	1243.659	93.286	1539.505	3.663%	68.393%
22.0	1058.498	86.962	1626.468	3.414%	72.256%
24.0	928.969	82.867	1709.334	3.253%	75.937%
26.0	852.230	81.934	1791.268	3.217%	79.577%
28.0	812.109	83.616	1874.884	3.283%	83.292%
30.0	784.983	86.079	1960.963	3.380%	87.116%
32.0	745.748	86.670	2047.633	3.403%	90.966%
34.0	599.358	73.504	2121.137	2.886%	94.232%
36.0	376.875	48.583	2169.72	1.907%	96.390%
38.0	176.119	23.780	2193.5	.934%	97.446%
40.0	31.465	4.436	2197.935	.174%	97.643%
42.0	21.741	3.190	2201.126	.125%	97.785%
44.0	16.664	2.539	2203.664	.100%	97.898%
46.0	13.240	2.089	2205.753	.082%	97.991%
48.0	12.684	2.067	2207.82	.081%	98.083%
50.0	12.206	2.051	2209.871	.081%	98.174%
52.0	11.827	2.044	2211.915	.080%	98.264%
54.0	11.440	2.030	2213.945	.080%	98.355%
56.0	11.081	2.015	2215.96	.079%	98.444%
58.0	10.856	2.019	2217.979	.079%	98.534%
60.0	10.709	2.034	2220.013	.080%	98.624%
62.0	10.554	2.044	2222.056	.080%	98.715%
64.0	10.477	2.065	2224.121	.081%	98.807%
66.0	10.385	2.081	2226.202	.082%	98.899%
68.0	10.301	2.095	2228.297	.082%	98.992%
70.0	10.230	2.108	2230.405	.083%	99.086%
72.0	10.167	2.121	2232.526	.083%	99.180%
74.0	10.146	2.139	2234.665	.084%	99.275%

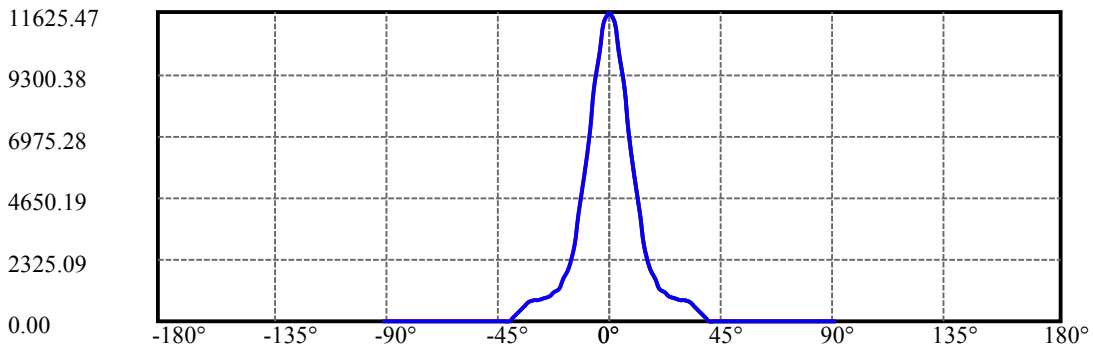
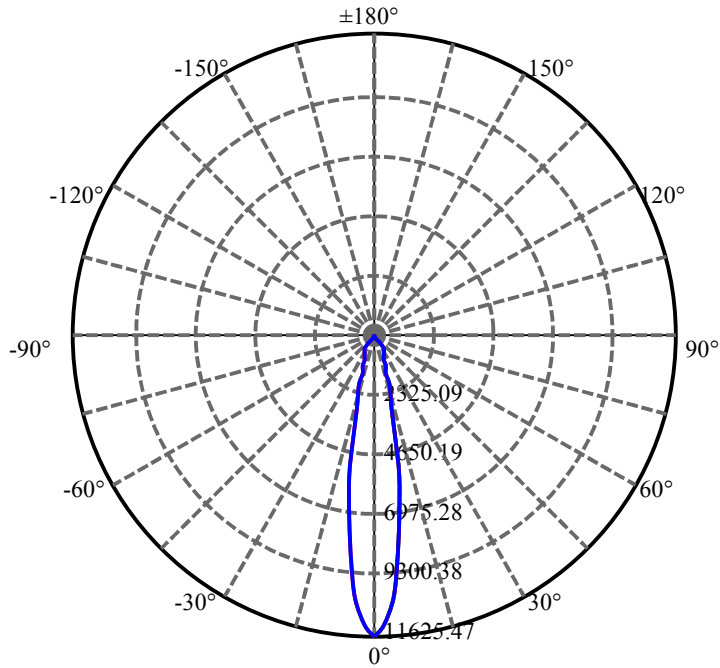
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.104	2.150	2236.815	.084%	99.371%
78.0	10.069	2.160	2238.975	.085%	99.467%
80.0	10.055	2.172	2241.146	.085%	99.563%
82.0	10.048	2.182	2243.328	.086%	99.660%
84.0	10.062	2.195	2245.523	.086%	99.757%
86.0	10.076	2.204	2247.727	.087%	99.855%
88.0	9.907	2.171	2249.899	.085%	99.952%
90.0	9.886	1.084	2250.983	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1960.96	76.99%	87.12%
0-40	2197.94	86.30%	97.64%
0-60	2220.01	87.16%	98.62%
0-90	2249.90	88.34%	99.95%
0-120	2249.90	88.34%	99.95%
0-180	2250.98	88.38%	100.00%
60-90	31.92	1.25%	1.42%
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%
0-26.23	1800.79	70.70%	80.00%

ZONAL LUMEN SUMMARY

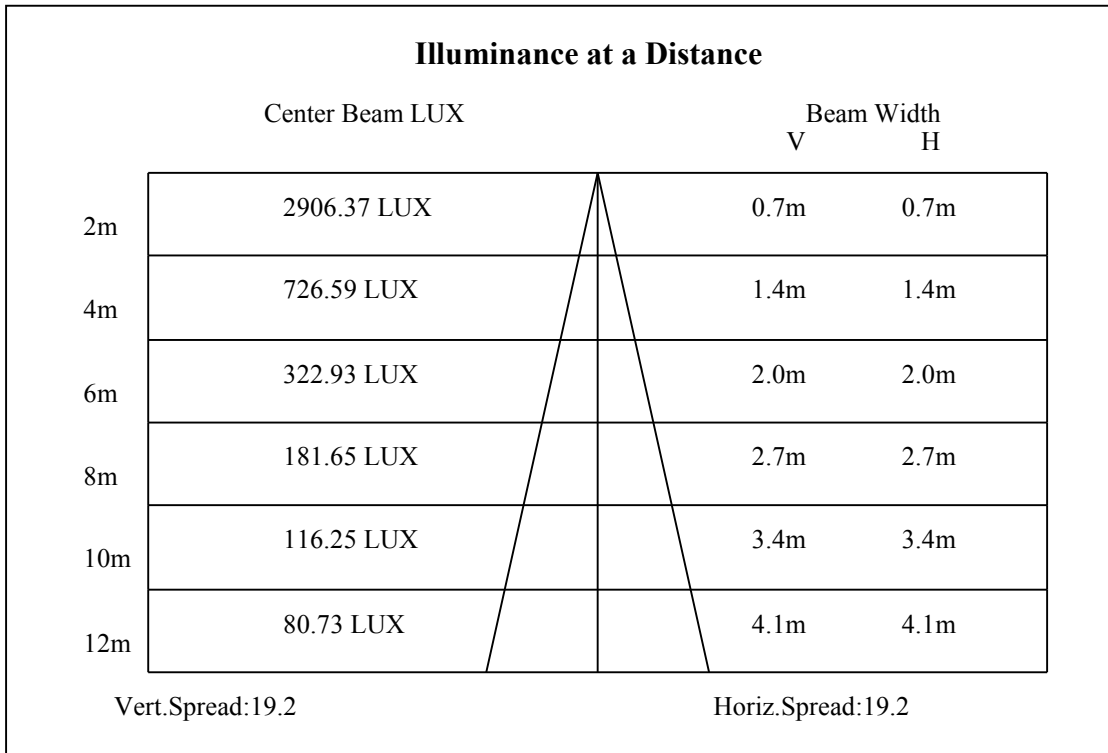
0-10	880.24
10-20	659.27
20-30	421.46
30-40	236.97
40-50	11.94
50-60	10.14
60-70	10.39
70-80	10.74
80-90	8.75
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

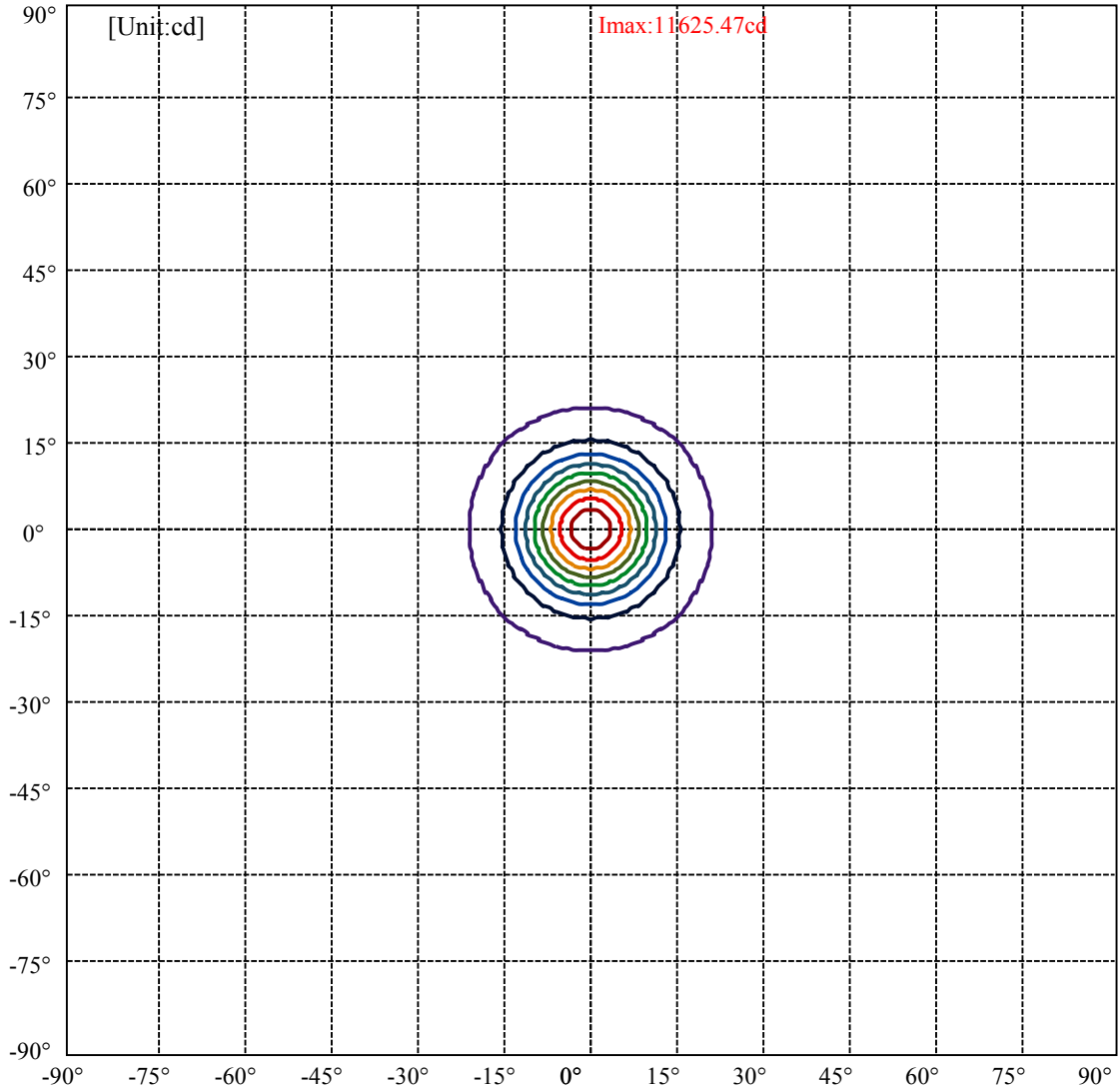


C0(Max): ———
C0/C180: ———
C90/C270: ———

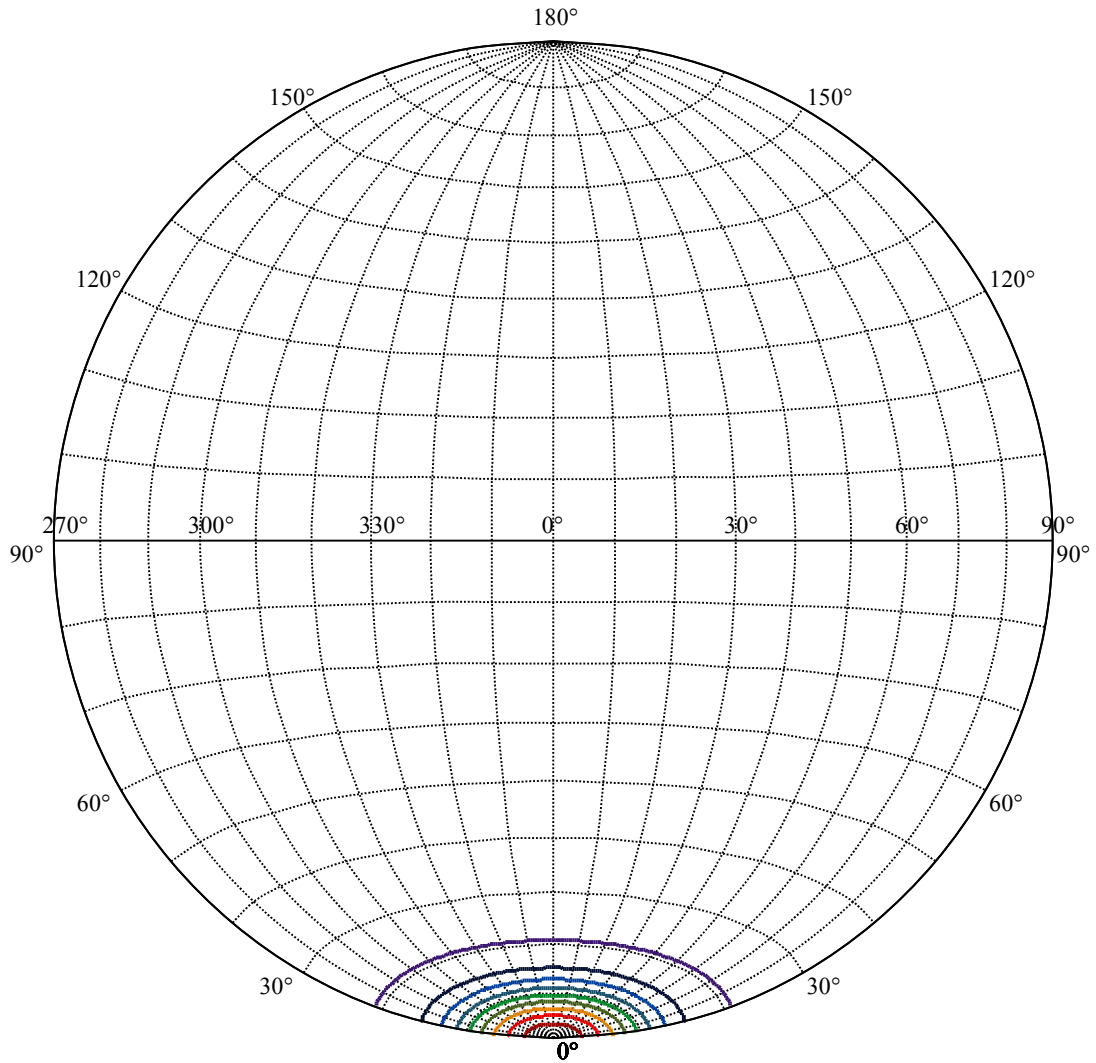
Field angle(10%Imax):C0/180Left:20.9 Right:20.9
:C90/270Left:20.9 Right:20.9

Beam Angle(50%Imax):C0/180Left:9.6 Right:9.6
:C90/270Left:9.6 Right:9.6





(10%Imax) 1162.55	—
(20%Imax) 2325.09	—
(30%Imax) 3487.64	—
(40%Imax) 4650.19	—
(50%Imax) 5812.73	—
(60%Imax) 6975.28	—
(70%Imax) 8137.83	—
(80%Imax) 9300.38	—
(90%Imax) 10462.9	—



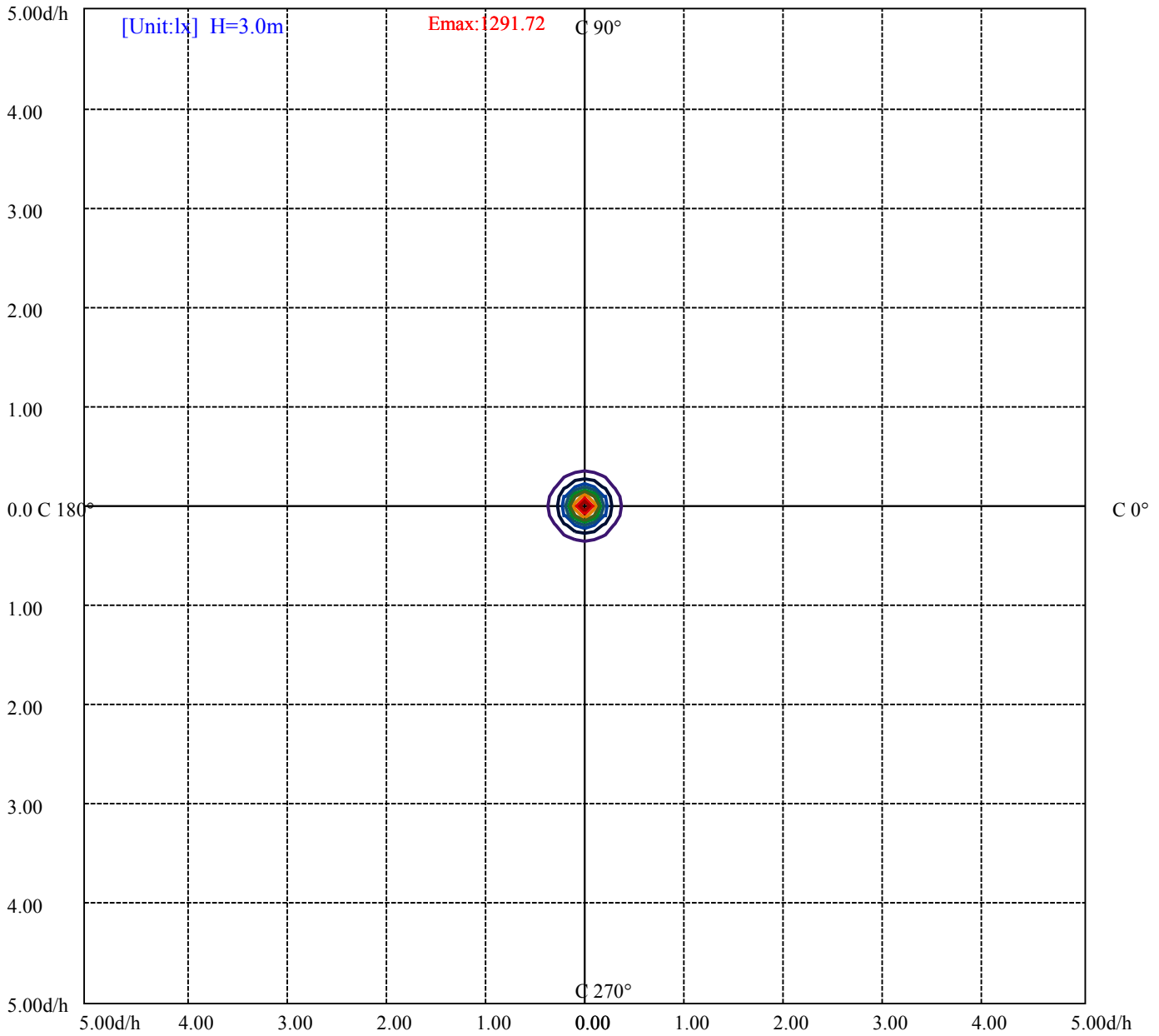
House

[Unit:cd]

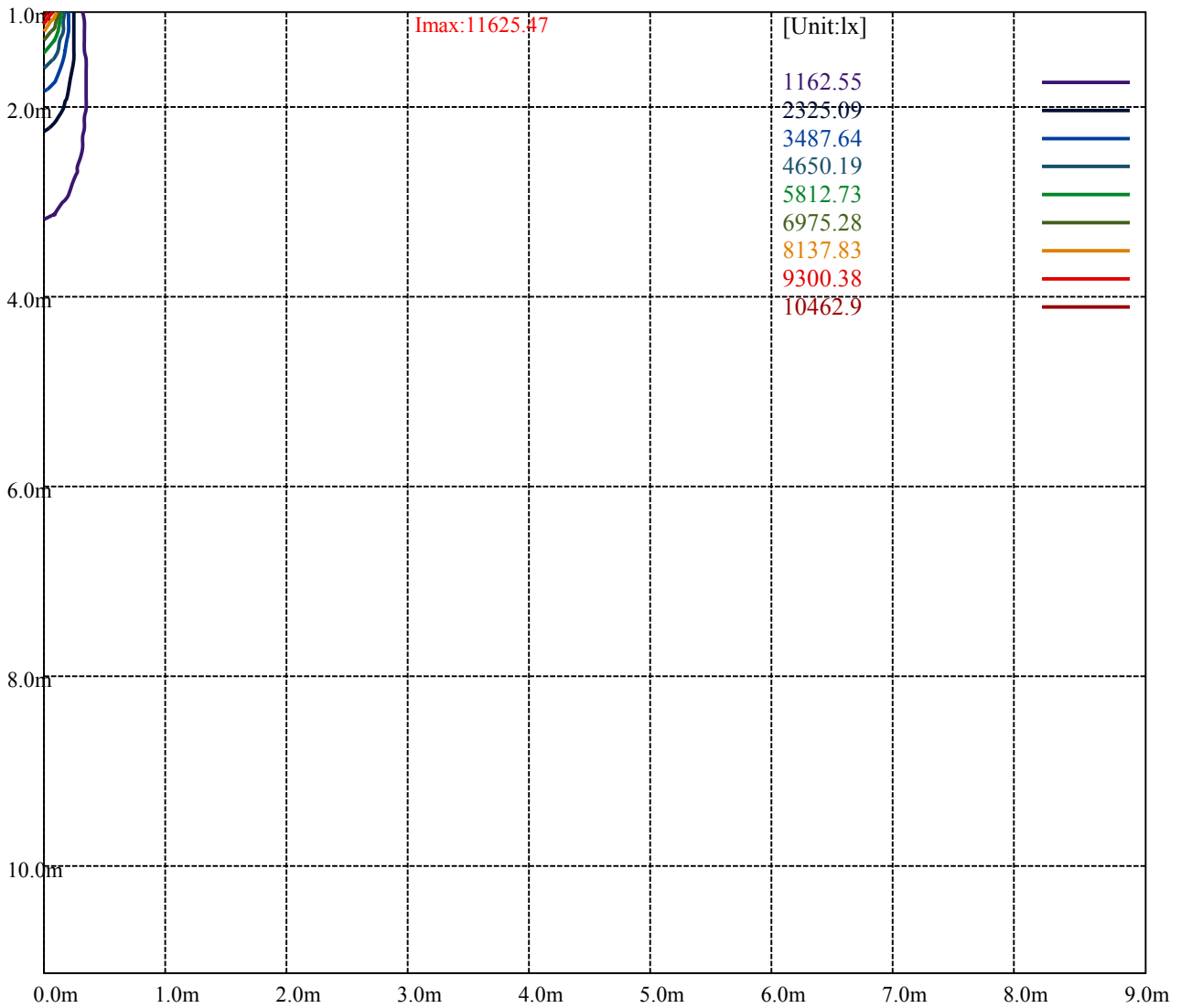
Road

Imax:11625.47

(10%Imax)	1162.55	—
(20%Imax)	2325.09	—
(30%Imax)	3487.64	—
(40%Imax)	4650.19	—
(50%Imax)	5812.73	—
(60%Imax)	6975.28	—
(70%Imax)	8137.83	—
(80%Imax)	9300.38	—
(90%Imax)	10462.9	—



(10%Emax) 129.1711	—
(20%Emax) 258.3434	—
(30%Emax) 387.5144	—
(40%Emax) 516.6855	—
(50%Emax) 645.8578	—
(60%Emax) 775.0289	—
(70%Emax) 904.2011	—
(80%Emax) 1033.372	—
(90%Emax) 1162.544	—



Luminance Table

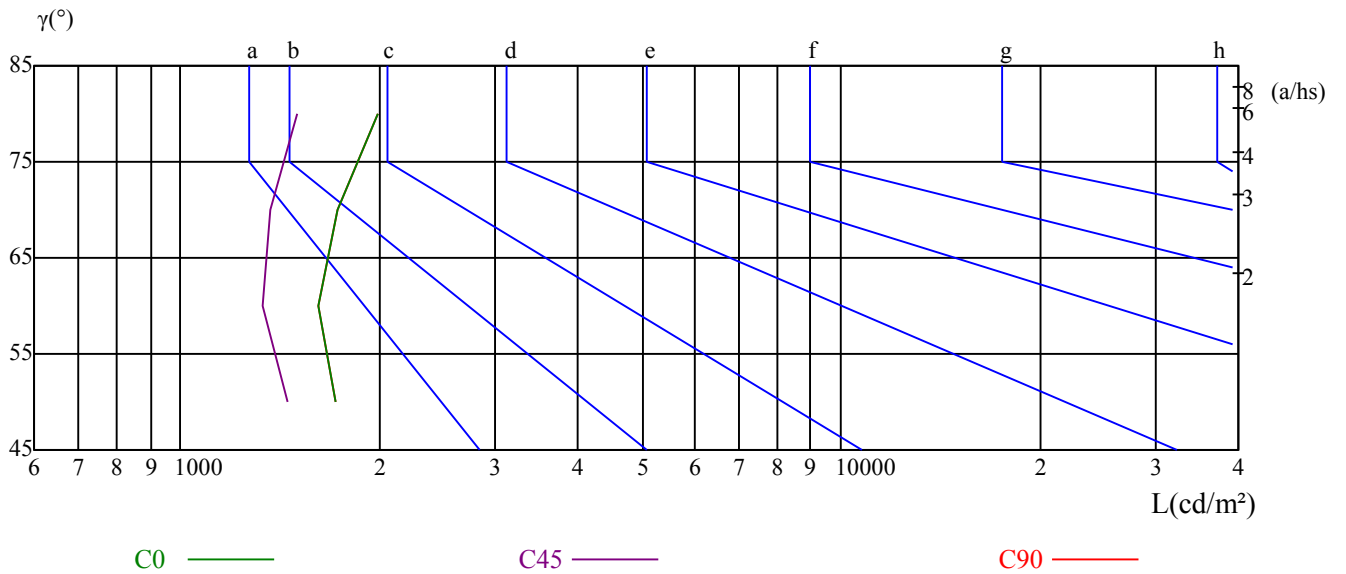
γ	45	50	55	60	65	70	75	80	85
C0	0	1720	0	1620	0	1728	0	1990	0
C45	0	1457	0	1329	0	1366	0	1502	0
C90	0	1720	0	1620	0	1728	0	1990	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4241	4241	4241	6473	6473	6473	18666	18666	18666

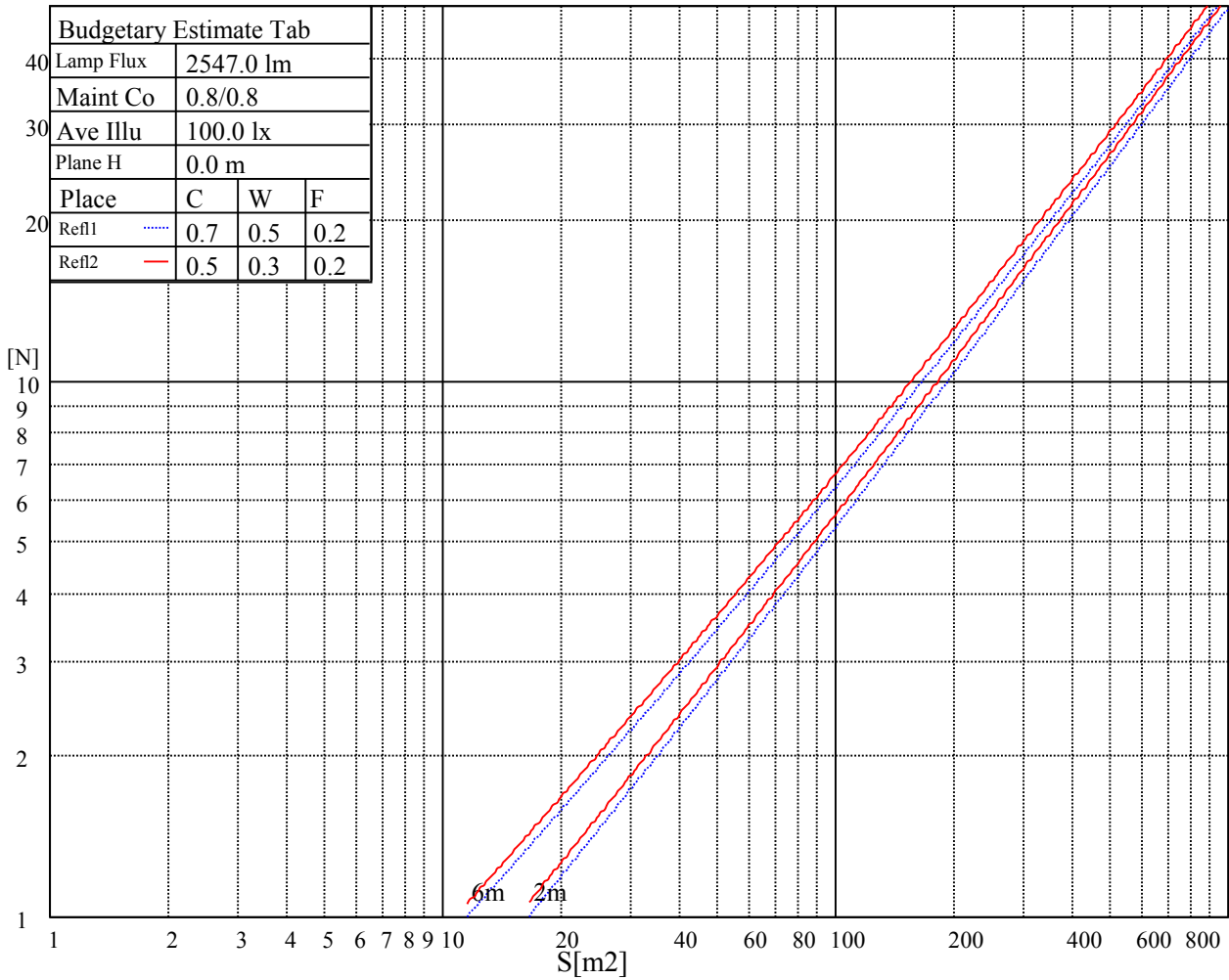
Glare Table

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

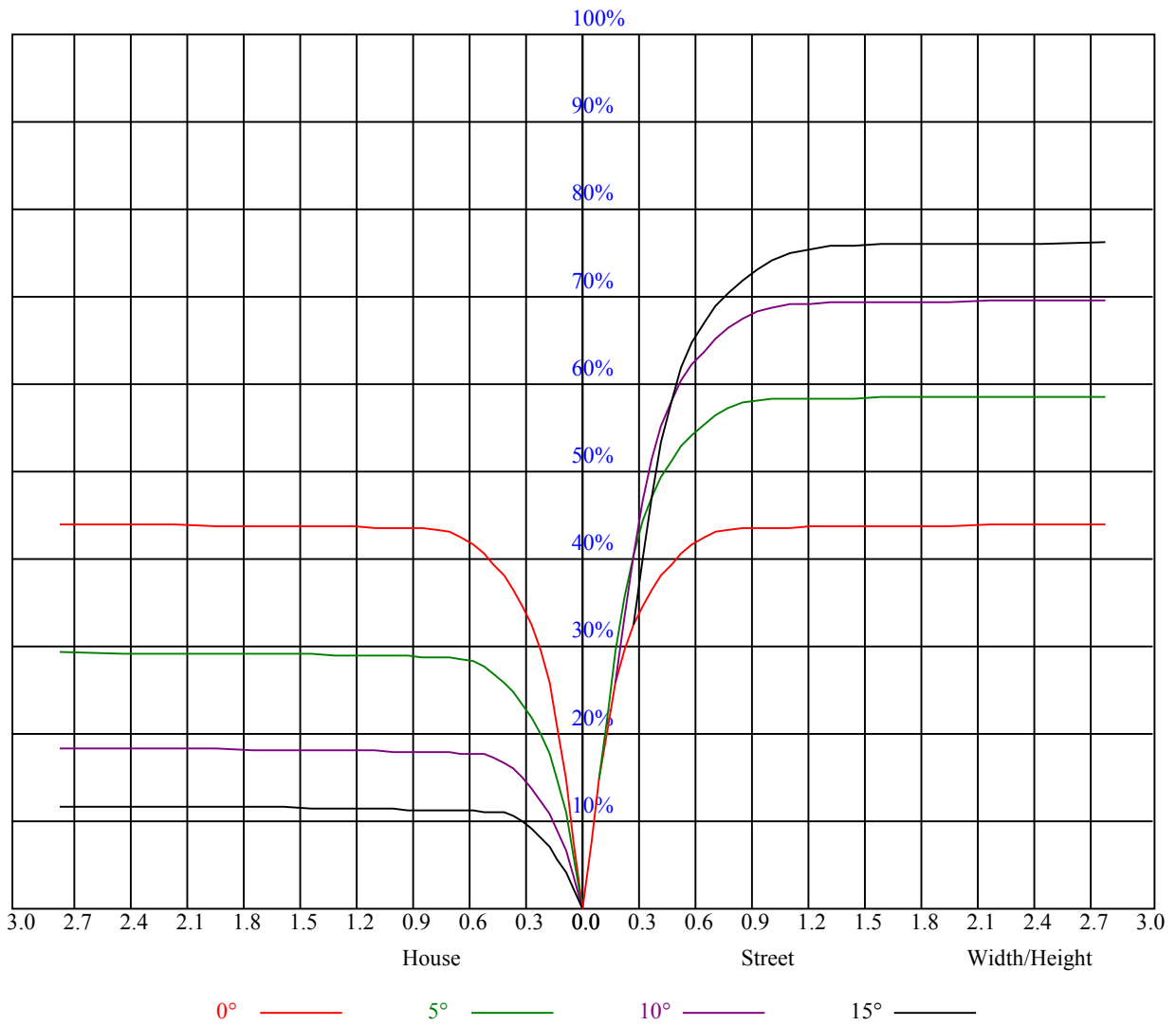
Luminance Limiting Curve



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	0.15	1.06	0.52	1.37	1.69	0.14	1.05	0.50	1.36	1.68
	3H	2.38	3.18	2.76	3.52	3.89	2.42	3.23	2.80	3.56	3.93
	4H	3.62	4.37	4.03	4.72	5.11	3.66	4.40	4.07	4.76	5.15
	6H	4.94	5.62	5.36	6.00	6.40	4.97	5.65	5.39	6.03	6.43
	8H	5.61	6.25	6.04	6.64	7.05	5.63	6.27	6.07	6.66	7.07
	12H	6.64	7.25	7.08	7.64	8.07	6.65	7.26	7.09	7.65	8.08
4H	2H	0.62	1.37	1.03	1.72	2.11	0.61	1.35	1.02	1.71	2.10
	3H	3.15	3.77	3.57	4.18	4.58	3.19	3.80	3.60	4.21	4.62
	4H	4.58	5.13	5.02	5.55	6.00	4.60	5.15	5.04	5.58	6.03
	6H	6.00	6.46	6.47	6.92	7.39	6.02	6.49	6.49	6.94	7.42
	8H	6.78	7.21	7.26	7.66	8.14	6.80	7.23	7.27	7.68	8.16
	12H	7.81	8.18	8.30	8.67	9.15	7.81	8.19	8.31	8.68	9.16
8H	4H	5.02	5.45	5.50	5.91	6.38	5.04	5.48	5.52	5.93	6.40
	6H	6.68	7.02	7.19	7.52	8.01	6.70	7.04	7.21	7.55	8.03
	8H	7.61	7.91	8.15	8.44	8.94	7.63	7.93	8.16	8.45	8.95
	12H	8.77	9.03	9.30	9.53	10.11	8.78	9.04	9.30	9.54	10.12
12H	4H	5.11	5.48	5.60	5.97	6.45	5.13	5.50	5.62	5.99	6.47
	6H	7.05	7.15	7.39	7.63	8.18	7.07	7.17	7.41	7.65	8.20
	8H	7.88	8.14	8.40	8.64	9.22	7.89	8.15	8.42	8.65	9.24
Variation with the observer position at spacings:											
S = 1.0H		5.9/-8.1					5.9/-8.1				
S = 1.5H		8.3/-6.3					8.3/-6.3				
S = 2.0H		10.0/-5.0					10.0/-5.0				
Standard tables:		BK1					BK1				
Uncorrected UGR		-3.2					-3.2				



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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	0.99	0.97	0.95	0.97	0.95	0.94	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.84
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.82	0.78	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
7	0.76	0.72	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
8	0.74	0.70	0.67	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
9	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
10	0.69	0.66	0.63	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62



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	11559.38	11154.38	10108.13	8836.88	7188.75	5518.13	4123.13	2885.63	2038.50
45.0	11570.63	11289.38	10338.75	8949.38	7492.50	5793.75	4280.63	3060.00	2210.06
90.0	11649.38	10960.31	9665.44	8254.69	6542.44	4856.06	3571.31	2490.19	1822.50
135.0	11722.50	11171.25	10046.25	8538.75	7020.00	5315.63	3926.25	2874.38	1892.81
180.0	11559.38	11226.94	10140.75	8829.00	7153.31	5396.63	3998.81	2758.50	1980.00
225.0	11570.63	11012.63	9749.25	8358.75	6756.75	4969.13	3720.94	2607.19	1928.25
270.0	11649.38	11570.63	10670.63	9247.50	7813.13	6120.00	4573.13	3290.63	2310.19
315.0	11722.50	11215.69	10367.44	9093.38	7447.50	5801.63	4262.06	3002.63	2131.31
360.0	11559.38	11154.38	10108.13	8836.88	7188.75	5518.13	4123.13	2885.63	2038.50
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1568.81	1250.44	1058.63	928.13	853.31	813.94	786.94	761.06	623.25
45.0	1629.00	1307.25	1101.38	943.88	866.81	819.00	792.00	764.44	646.88
90.0	1415.25	1118.03	1001.25	901.29	834.53	807.53	777.71	698.46	508.73
135.0	1466.44	1195.88	1024.31	906.19	844.88	811.13	786.94	744.75	559.13
180.0	1505.25	1234.69	1035.28	922.11	852.36	813.26	788.18	756.17	596.03
225.0	1470.94	1186.88	1031.12	904.61	840.77	803.36	774.06	724.39	552.66
270.0	1786.50	1374.75	1148.06	992.25	877.50	821.25	792.00	762.75	662.63
315.0	1598.06	1281.38	1067.96	933.30	847.69	807.41	782.04	753.98	645.58
360.0	1568.81	1250.44	1058.63	928.13	853.31	813.94	786.94	761.06	623.25
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	410.63	169.26	33.81	23.18	17.16	13.39	12.71	12.15	11.76
45.0	430.88	293.63	37.91	22.22	16.99	13.39	12.77	12.26	11.81
90.0	270.96	78.75	21.21	17.27	14.01	13.05	12.54	12.15	11.81
135.0	342.00	118.07	22.89	19.01	15.47	12.88	12.43	11.98	11.64
180.0	373.28	154.91	25.82	21.32	16.09	13.05	12.60	12.09	11.70
225.0	302.40	103.16	26.66	22.11	16.43	13.22	12.71	12.32	11.98
270.0	458.44	294.19	45.96	24.30	19.01	13.44	12.88	12.32	11.93
315.0	426.43	196.99	37.46	24.53	18.17	13.50	12.83	12.38	11.98
360.0	410.63	169.26	33.81	23.18	17.16	13.39	12.71	12.15	11.76
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	11.36	11.08	10.91	10.69	10.58	10.52	10.41	10.29	10.29
45.0	11.53	11.19	10.86	10.74	10.63	10.46	10.35	10.29	10.24
90.0	11.31	10.97	10.80	10.69	10.52	10.46	10.35	10.29	10.18
135.0	11.36	11.03	10.86	10.74	10.58	10.52	10.41	10.35	10.29
180.0	11.36	11.08	10.86	10.74	10.58	10.52	10.46	10.35	10.29
225.0	11.53	10.97	10.80	10.63	10.46	10.41	10.35	10.24	10.18
270.0	11.59	11.19	10.91	10.74	10.58	10.46	10.35	10.29	10.18
315.0	11.48	11.14	10.86	10.69	10.52	10.46	10.41	10.29	10.18
360.0	11.36	11.08	10.91	10.69	10.58	10.52	10.41	10.29	10.29
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	10.18	10.18	10.13	10.07	10.07	10.07	10.07	10.01	9.96
45.0	10.18	10.18	10.13	10.07	10.07	10.13	10.18	10.13	9.84
90.0	10.18	10.13	10.07	10.07	10.07	10.07	10.18	10.41	9.90
135.0	10.18	10.18	10.18	10.13	10.13	10.13	10.13	10.24	9.96
180.0	10.24	10.18	10.13	10.13	10.07	10.07	10.07	10.07	9.96
225.0	10.13	10.07	10.07	10.07	10.01	10.01	9.96	9.84	9.79
270.0	10.13	10.13	10.07	10.01	10.01	9.96	9.96	9.96	9.90
315.0	10.13	10.13	10.07	10.07	10.01	9.96	9.96	9.96	9.96
360.0	10.18	10.18	10.13	10.07	10.07	10.07	10.07	10.01	9.96

Intensity data(cd)

C/γ(°)	90.0
0.0	9.96
45.0	9.84
90.0	9.84
135.0	9.96
180.0	9.90
225.0	9.79
270.0	9.90
315.0	9.90
360.0	9.96