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Nata

LumCAT: 2-1299-N
Luminaire: 92.70.065.00+92.70.059.00
Report No: NATA0100
Test No: GC2018091119
LampCAT: LUMINUS CXM-11-AC30
Lamp flux(lm): 2557.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 34.7000
Current(A): 0.5000
Power (W): 17.3500
PF: 0.0000
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 2001.45
Efficiency(%): 78.27%
Lumens(lm)/Power(W): 115.90
Central intensity(cd): 10230.610
Maximum intensity(cd): 10230.610
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=20.0
 [C90/270]Total=20.0
Field angle(10%Imax): [C0/180]Total=39.7
 [C90/270]Total=39.7
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.64%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.250%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10230.609	9.790	9.79	.383%	.489%
2.0	9937.969	76.064	85.855	2.975%	4.290%
4.0	9081.281	138.930	224.785	5.433%	11.231%
6.0	7858.406	180.150	404.935	7.045%	20.232%
8.0	6504.609	198.537	603.472	7.764%	30.152%
10.0	5109.609	194.591	798.063	7.610%	39.874%
12.0	3848.344	175.476	973.539	6.863%	48.642%
14.0	2731.359	144.917	1118.456	5.667%	55.882%
16.0	1904.133	115.107	1233.563	4.502%	61.634%
18.0	1312.418	88.945	1322.508	3.478%	66.078%
20.0	1002.389	75.189	1397.696	2.941%	69.834%
22.0	799.636	65.695	1463.392	2.569%	73.117%
24.0	667.322	59.527	1522.919	2.328%	76.091%
26.0	566.205	54.435	1577.354	2.129%	78.811%
28.0	476.972	49.110	1626.464	1.921%	81.264%
30.0	403.411	44.237	1670.7	1.730%	83.475%
32.0	340.791	39.606	1710.306	1.549%	85.454%
34.0	290.377	35.611	1745.918	1.393%	87.233%
36.0	246.853	31.822	1777.739	1.244%	88.823%
38.0	212.456	28.686	1806.426	1.122%	90.256%
40.0	182.595	25.741	1832.167	1.007%	91.542%
42.0	150.694	22.114	1854.281	.865%	92.647%
44.0	125.677	19.147	1873.427	.749%	93.604%
46.0	105.054	16.573	1890.001	.648%	94.432%
48.0	87.180	14.209	1904.21	.556%	95.142%
50.0	72.464	12.174	1916.384	.476%	95.750%
52.0	60.975	10.538	1926.922	.412%	96.276%
54.0	50.456	8.952	1935.874	.350%	96.724%
56.0	42.117	7.658	1943.532	.299%	97.106%
58.0	35.149	6.537	1950.069	.256%	97.433%
60.0	29.306	5.566	1955.635	.218%	97.711%
62.0	24.630	4.769	1960.405	.187%	97.949%
64.0	21.452	4.229	1964.633	.165%	98.161%
66.0	19.730	3.953	1968.586	.155%	98.358%
68.0	18.513	3.765	1972.351	.147%	98.546%
70.0	17.487	3.604	1975.955	.141%	98.726%
72.0	16.509	3.444	1979.398	.135%	98.898%
74.0	15.623	3.294	1982.692	.129%	99.063%

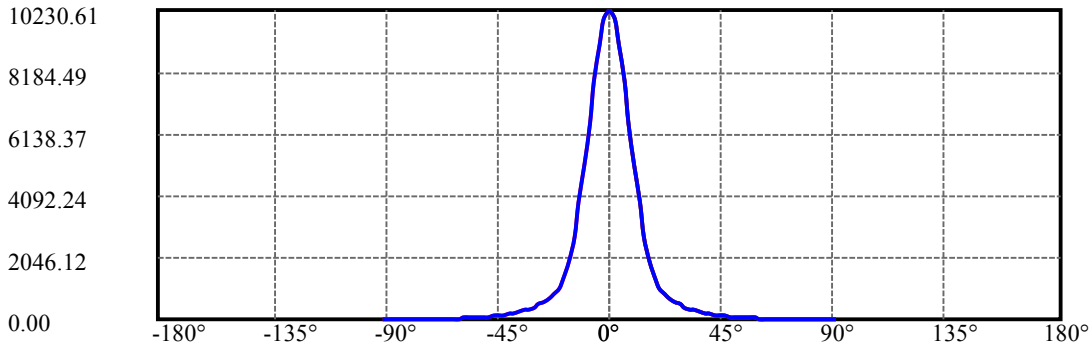
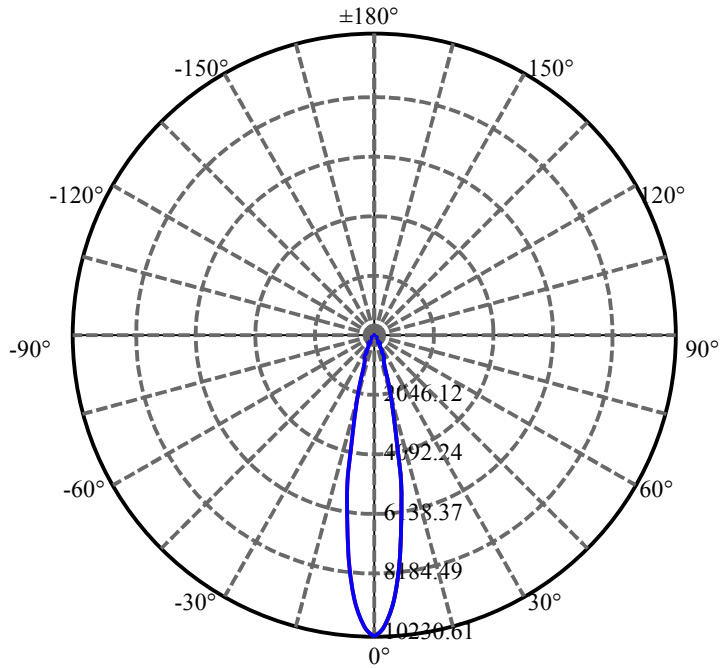
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	14.660	3.120	1985.811	.122%	99.219%
78.0	13.704	2.940	1988.751	.115%	99.366%
80.0	12.727	2.749	1991.5	.107%	99.503%
82.0	11.714	2.544	1994.044	.099%	99.630%
84.0	10.751	2.345	1996.389	.092%	99.747%
86.0	9.795	2.143	1998.532	.084%	99.854%
88.0	8.986	1.970	2000.501	.077%	99.953%
90.0	8.620	0.945	2001.446	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1670.70	65.34%	83.47%
0-40	1832.17	71.65%	91.54%
0-60	1955.64	76.48%	97.71%
0-90	2000.50	78.24%	99.95%
0-120	2000.50	78.24%	99.95%
0-180	2001.45	78.27%	100.00%
60-90	50.43	1.97%	2.52%
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%
0-26.97	1601.16	62.62%	80.00%

ZONAL LUMEN SUMMARY

0-10	798.06
10-20	599.63
20-30	273.00
30-40	161.47
40-50	84.22
50-60	39.25
60-70	20.32
70-80	15.55
80-90	9.00
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: —————

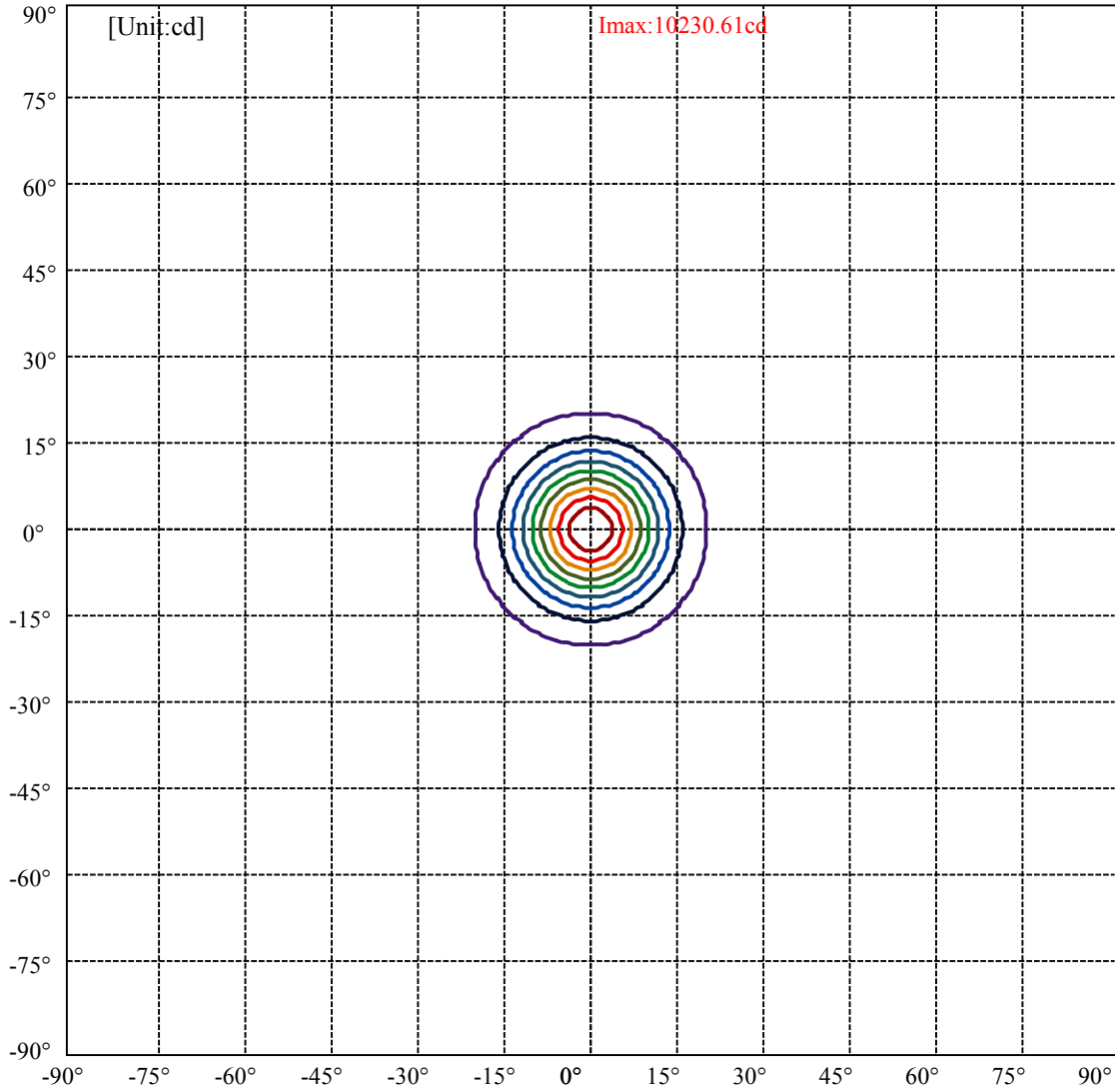
C90/C270: —————

Field angle(10%Imax):C0/180Left:19.9 Right:19.9

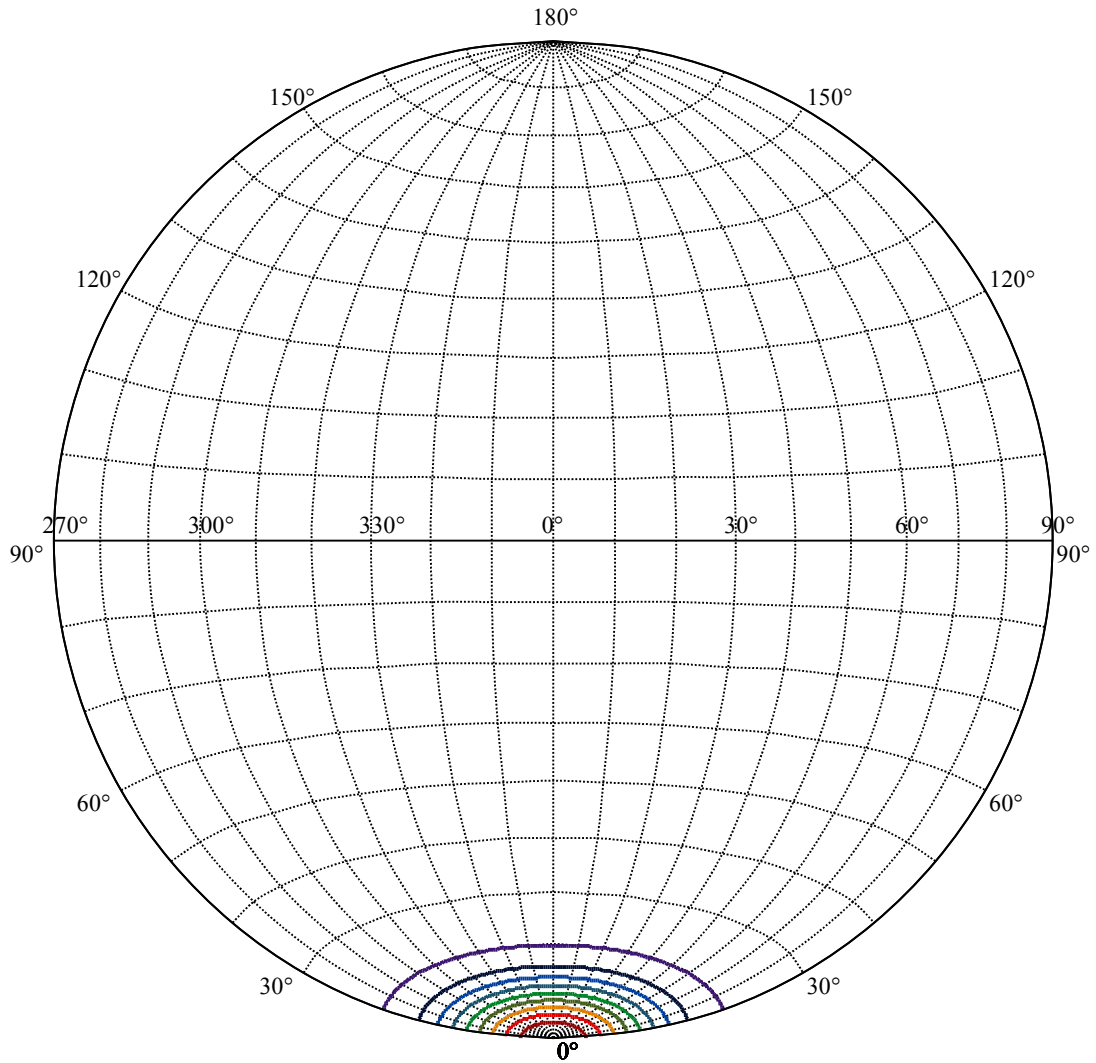
:C90/270Left:19.9 Right:19.9

Beam Angle(50%Imax):C0/180Left:10.0 Right:10.0

:C90/270Left:10.0 Right:10.0



(10%Imax) 1023.06	—
(20%Imax) 2046.12	—
(30%Imax) 3069.18	—
(40%Imax) 4092.24	—
(50%Imax) 5115.3	—
(60%Imax) 6138.37	—
(70%Imax) 7161.43	—
(80%Imax) 8184.49	—
(90%Imax) 9207.55	—



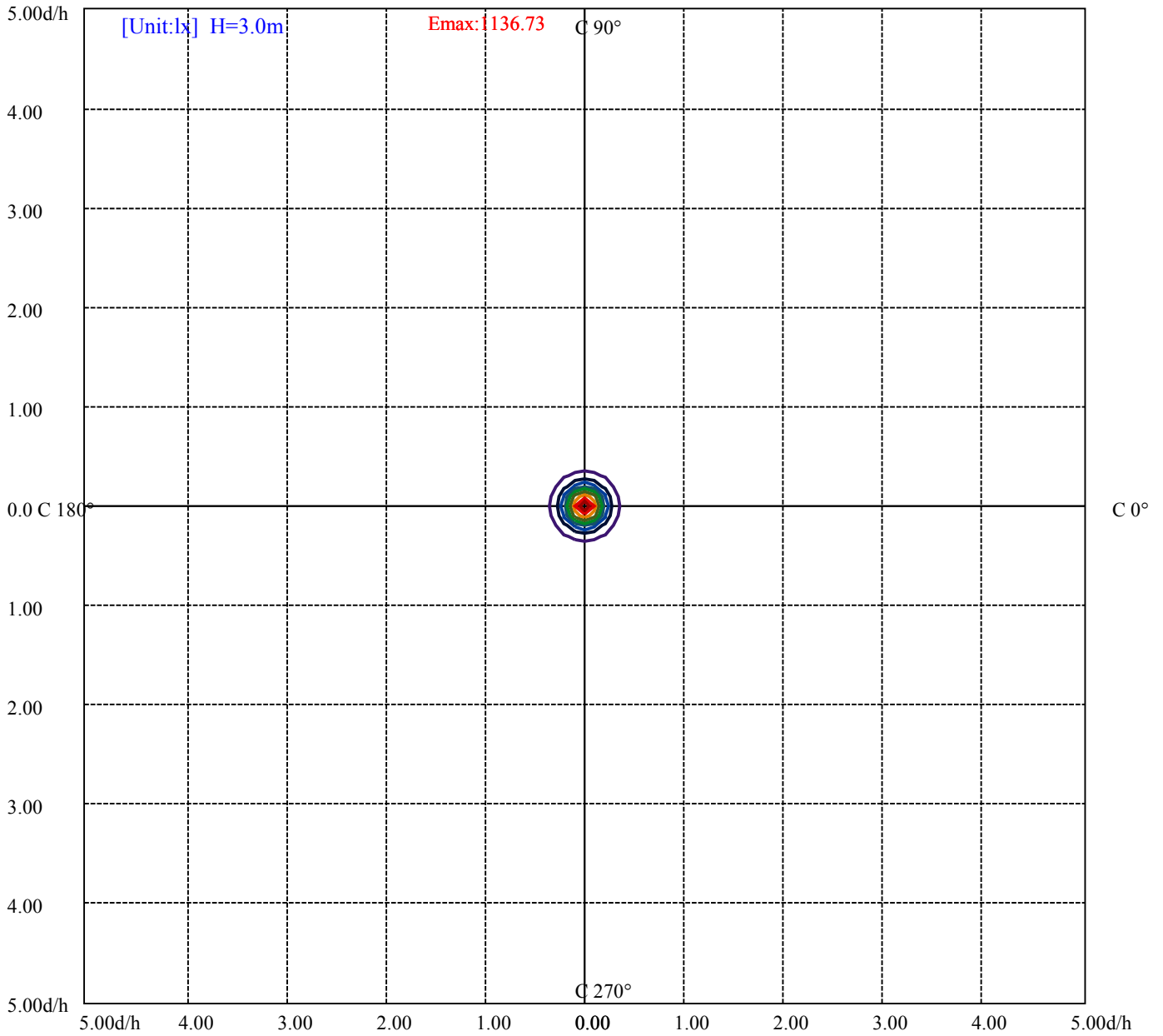
House

[Unit:cd]

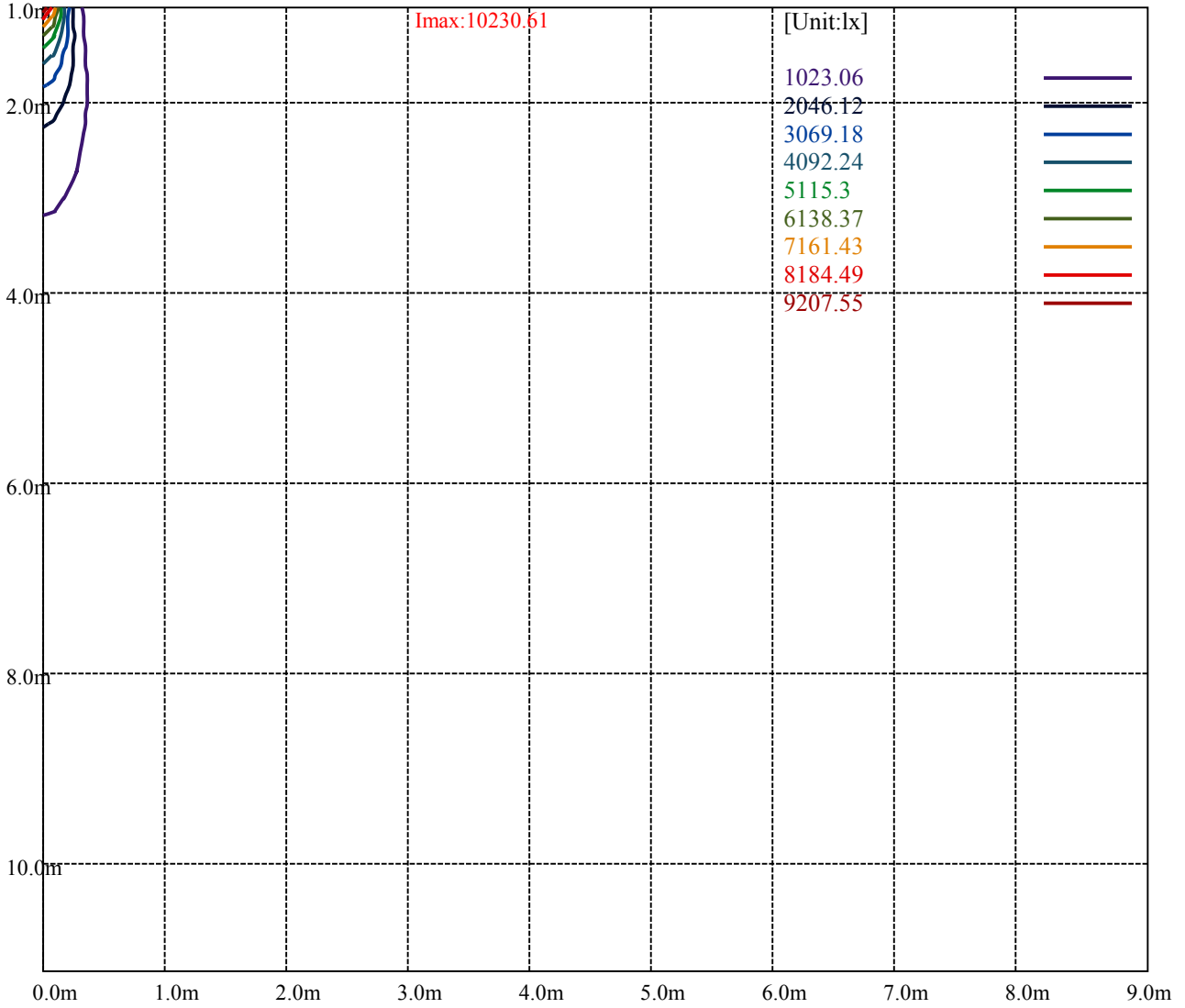
Road

Imax:10230.61

(10%Imax)	1023.06	—
(20%Imax)	2046.12	—
(30%Imax)	3069.18	—
(40%Imax)	4092.24	—
(50%Imax)	5115.3	—
(60%Imax)	6138.37	—
(70%Imax)	7161.43	—
(80%Imax)	8184.49	—
(90%Imax)	9207.55	—



(10%E _{max}) 113.6733	—
(20%E _{max}) 227.3467	—
(30%E _{max}) 341.02	—
(40%E _{max}) 454.6922	—
(50%E _{max}) 568.3655	—
(60%E _{max}) 682.0389	—
(70%E _{max}) 795.7122	—
(80%E _{max}) 909.3856	—
(90%E _{max}) 1023.059	—



Luminance Table

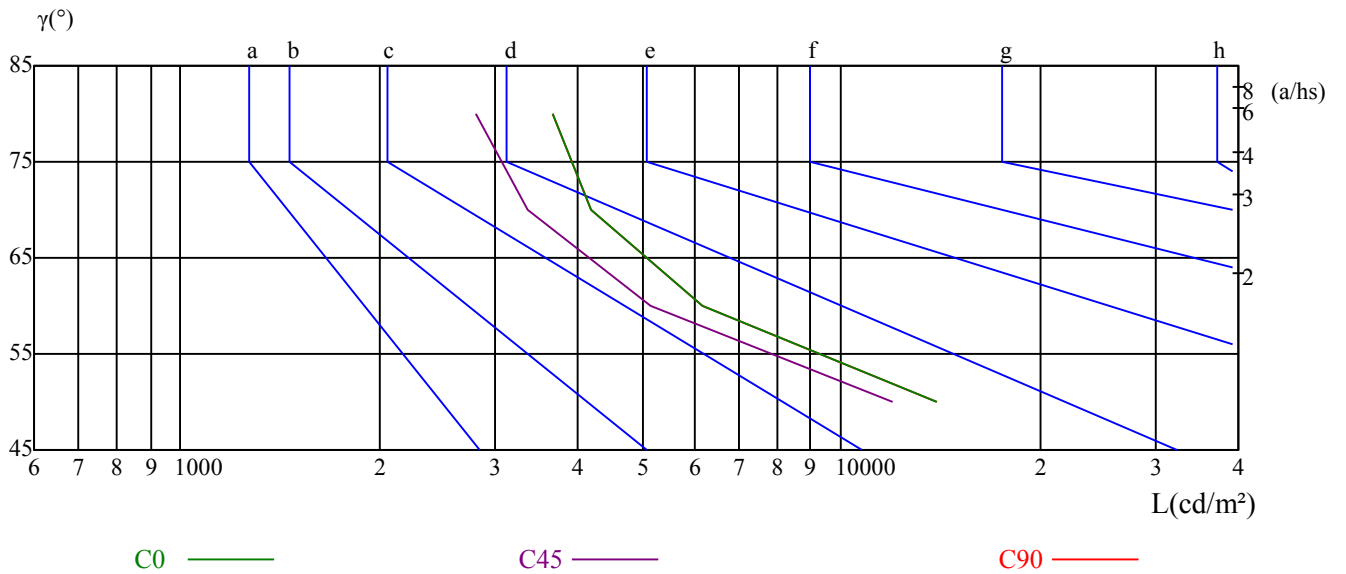
γ	45	50	55	60	65	70	75	80	85
C0	0	13969	0	6165	0	4188	0	3667	0
C45	0	12015	0	5134	0	3356	0	2794	0
C90	0	13969	0	6165	0	4188	0	3667	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
9371	9371	9371	11538	11538	11538	23840	23840	23840

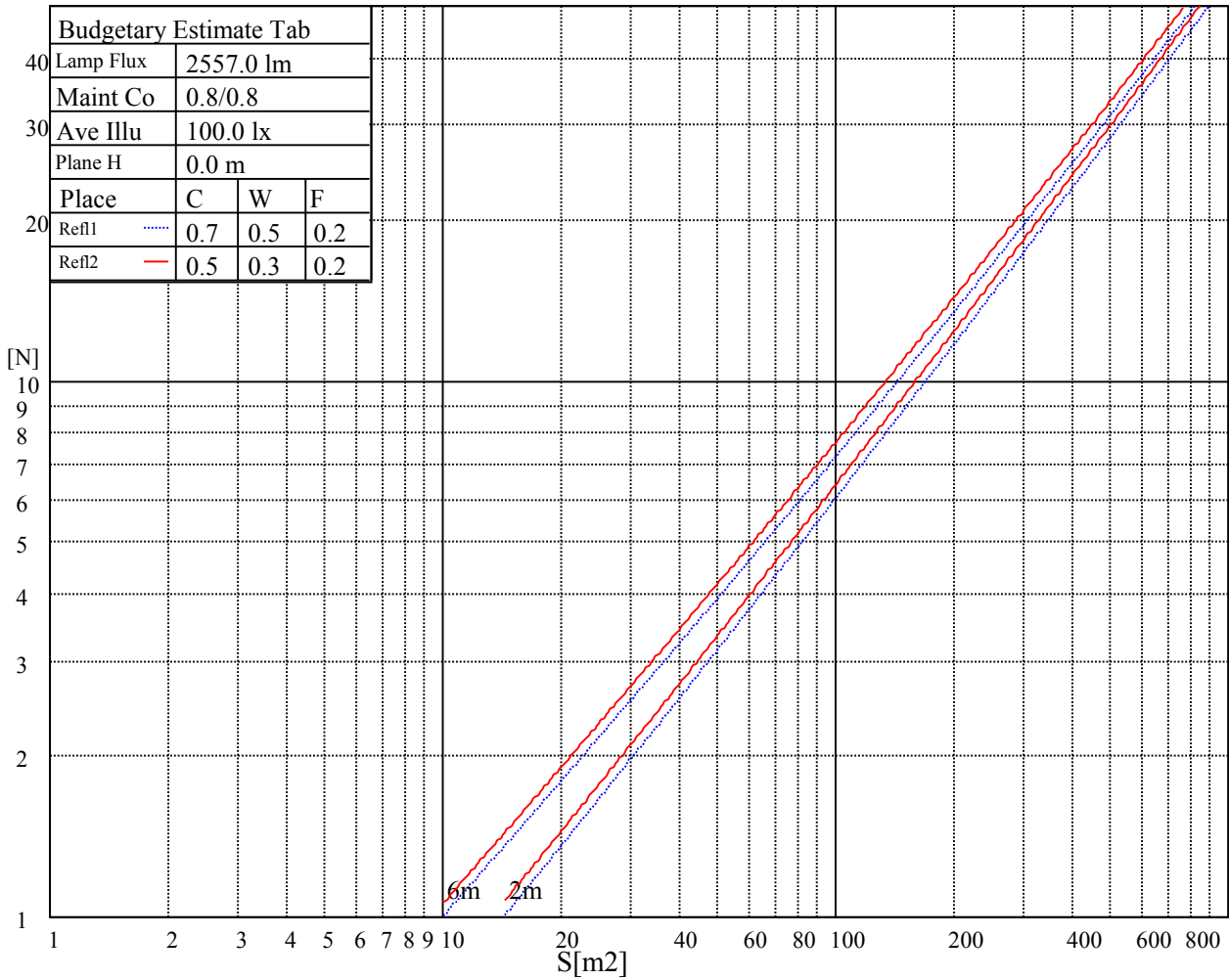
Glare Table

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

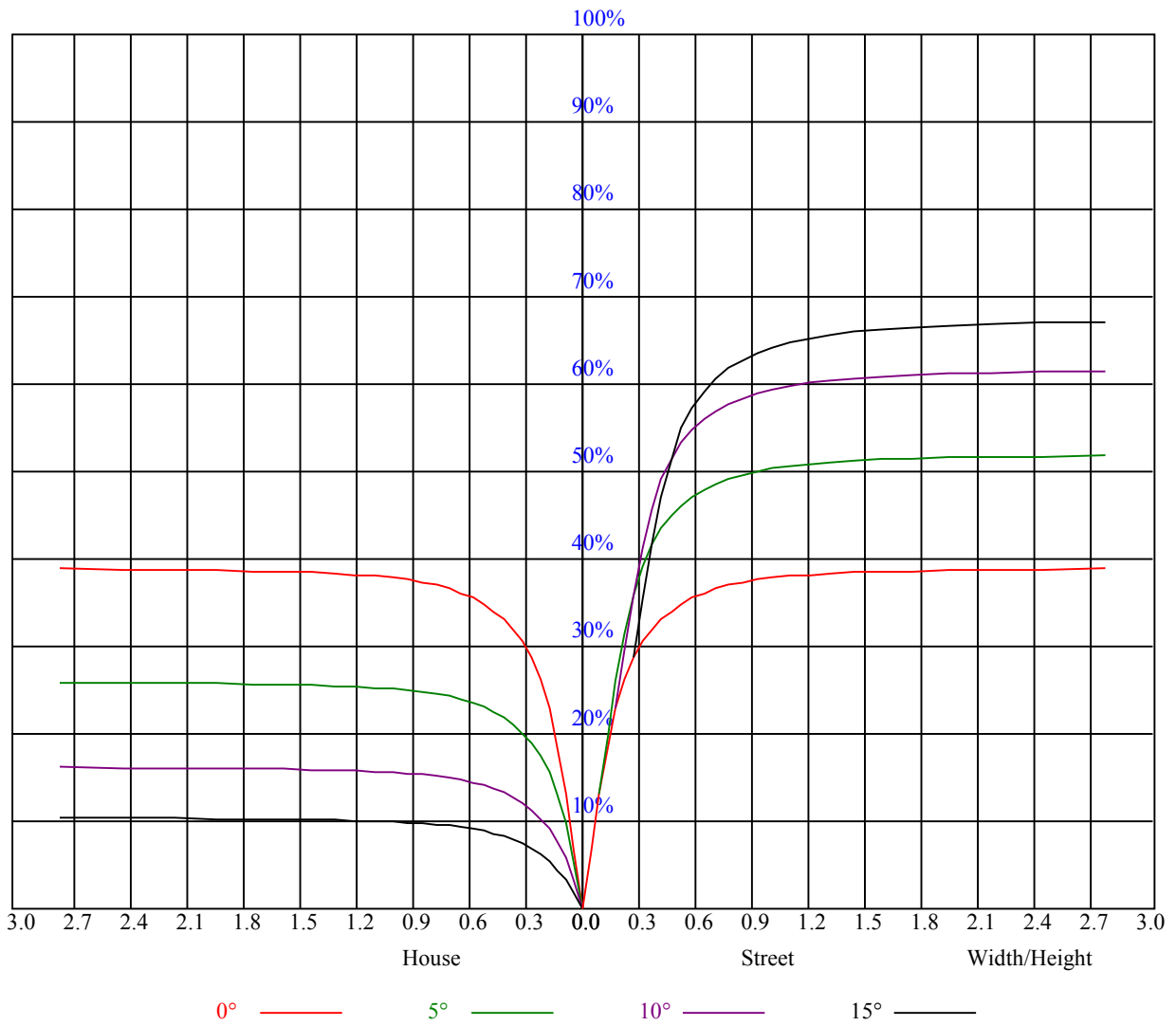
Luminance Limiting Curve



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	10.36	11.36	10.72	11.67	11.99	10.45	11.45	10.81	11.76	12.08
	3H	11.07	11.96	11.46	12.29	12.66	11.16	12.05	11.54	12.38	12.75
	4H	11.49	12.31	11.89	12.66	13.05	11.57	12.39	11.98	12.74	13.13
	6H	11.92	12.67	12.34	13.05	13.44	12.00	12.75	12.41	13.12	13.52
	8H	12.12	12.83	12.56	13.22	13.63	12.20	12.90	12.63	13.30	13.71
	12H	12.45	13.13	12.89	13.51	13.94	12.53	13.20	12.96	13.58	14.02
4H	2H	10.37	11.19	10.78	11.55	11.94	10.46	11.28	10.86	11.63	12.02
	3H	11.32	11.99	11.73	12.40	12.80	11.39	12.07	11.81	12.48	12.88
	4H	11.88	12.48	12.32	12.91	13.35	11.95	12.55	12.39	12.98	13.42
	6H	12.39	12.90	12.86	13.35	13.83	12.45	12.97	12.92	13.42	13.89
	8H	12.68	13.16	13.16	13.61	14.09	12.74	13.22	13.22	13.67	14.15
	12H	13.08	13.49	13.57	13.98	14.46	13.14	13.55	13.63	14.04	14.52
8H	4H	12.01	12.49	12.48	12.94	13.41	12.07	12.55	12.55	13.00	13.48
	6H	12.68	13.07	13.19	13.57	14.05	12.74	13.12	13.25	13.62	14.11
	8H	13.09	13.43	13.62	13.95	14.45	13.14	13.48	13.67	14.00	14.50
	12H	13.67	13.96	14.19	14.46	15.04	13.72	14.01	14.24	14.51	15.09
12H	4H	12.01	12.42	12.50	12.91	13.39	12.07	12.49	12.56	12.97	13.45
	6H	13.02	13.08	13.27	13.55	14.10	13.07	13.13	13.32	13.60	14.15
	8H	13.21	13.50	13.73	14.00	14.58	13.25	13.55	13.77	14.05	14.63
Variation with the observer position at spacings:											
S = 1.0H	1.8/-2.2					1.8/-2.2					
S = 1.5H	3.3/-2.7					3.3/-2.7					
S = 2.0H	4.9/-2.6					4.9/-2.6					
Standard tables:	BK3					BK3					
Uncorrected UGR	-0.9					-0.9					



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	0.94	0.94	0.94	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.80	0.80	0.80	0.79
1	0.87	0.86	0.84	0.86	0.84	0.83	0.83	0.81	0.80	0.80	0.79	0.78	0.77	0.76	0.75	0.74
2	0.83	0.80	0.78	0.81	0.79	0.77	0.79	0.77	0.75	0.77	0.75	0.73	0.74	0.73	0.72	0.71
3	0.79	0.75	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	0.68	0.71	0.69	0.67	0.70	0.68	0.66	0.65
5	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.68	0.65	0.64	0.63
6	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.60
7	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.59
8	0.65	0.61	0.58	0.64	0.61	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.58	0.57
9	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55
10	0.61	0.57	0.55	0.60	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.59	0.56	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	10244.25	9816.75	8845.88	7625.25	6283.69	4885.31	3720.38	2602.69	1776.94
45.0	10204.31	10108.13	9522.00	8306.44	6976.13	5612.63	4287.38	3046.50	2143.13
90.0	10257.75	10010.81	9162.56	7961.06	6572.25	5100.19	3819.94	2725.88	1893.38
135.0	10216.13	10110.38	9433.69	8302.50	6973.31	5612.06	4285.13	3037.50	2079.00
180.0	10244.25	10069.31	9277.88	8113.50	6776.44	5312.81	4025.81	2909.81	2046.94
225.0	10204.31	9698.63	8642.25	7374.94	5954.63	4611.94	3393.00	2406.94	1679.63
270.0	10257.75	9922.50	9055.13	7736.63	6393.38	5055.19	3792.94	2656.69	1886.06
315.0	10216.13	9767.25	8710.88	7446.94	6107.06	4686.75	3462.19	2464.88	1728.00
360.0	10244.25	9816.75	8845.88	7625.25	6283.69	4885.31	3720.38	2602.69	1776.94
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1308.38	975.38	792.56	663.19	561.38	466.31	396.56	333.56	286.31
45.0	1506.94	1085.06	852.75	698.06	590.06	502.88	426.38	360.00	303.75
90.0	1234.69	975.38	777.83	655.99	556.26	467.49	394.37	334.01	284.68
135.0	1490.06	1064.81	830.25	691.31	588.94	501.19	424.13	357.19	304.88
180.0	1415.81	1054.41	815.68	687.77	577.97	486.23	411.75	345.60	295.09
225.0	1111.61	925.65	746.27	625.05	531.68	446.51	379.35	323.10	276.24
270.0	1321.88	984.38	812.25	676.69	572.06	483.19	408.38	342.56	291.94
315.0	1109.98	954.06	769.50	640.52	551.31	461.98	386.38	330.30	280.13
360.0	1308.38	975.38	792.56	663.19	561.38	466.31	396.56	333.56	286.31
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	239.40	203.79	177.02	145.41	122.12	103.33	85.67	70.65	59.91
45.0	259.71	221.51	192.54	157.05	131.12	109.63	91.69	76.05	64.18
90.0	243.00	212.51	182.59	148.84	124.54	104.18	85.11	72.11	60.24
135.0	260.49	221.23	192.54	158.57	132.53	109.86	91.74	76.05	64.35
180.0	253.07	217.63	186.13	156.54	128.98	107.94	90.39	75.15	63.00
225.0	236.08	204.58	171.73	142.82	118.69	98.89	81.79	68.23	57.26
270.0	248.06	212.63	185.85	151.93	126.90	105.92	87.81	72.17	60.81
315.0	235.01	205.76	172.35	144.39	120.54	100.69	83.25	69.30	58.05
360.0	239.40	203.79	177.02	145.41	122.12	103.33	85.67	70.65	59.91
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	49.56	40.95	34.48	28.46	23.96	21.09	19.58	18.39	17.44
45.0	53.16	43.88	37.18	30.43	25.54	21.83	19.74	18.45	17.44
90.0	49.22	42.02	34.76	29.19	24.64	21.32	19.58	18.39	17.33
135.0	53.21	43.99	37.29	30.88	25.88	22.28	20.25	18.90	17.89
180.0	52.82	44.21	36.62	30.99	25.82	22.11	20.14	18.90	17.78
225.0	47.42	39.99	32.85	27.62	23.34	20.64	19.18	18.11	17.16
270.0	50.29	41.57	34.99	28.91	24.47	21.43	19.86	18.62	17.61
315.0	47.98	40.33	33.02	27.96	23.40	20.93	19.52	18.34	17.27
360.0	49.56	40.95	34.48	28.46	23.96	21.09	19.58	18.39	17.44
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	16.43	15.53	14.57	13.56	12.54	11.48	10.52	9.51	8.89
45.0	16.43	15.58	14.63	13.67	12.77	11.76	10.80	9.90	9.06
90.0	16.37	15.53	14.57	13.67	12.71	11.64	10.69	9.79	8.94
135.0	16.88	15.98	15.02	14.06	13.11	12.09	11.03	10.07	9.17
180.0	16.88	15.98	14.96	14.06	13.05	12.09	11.14	10.24	9.17
225.0	16.20	15.36	14.40	13.39	12.49	11.53	10.63	9.56	8.89
270.0	16.59	15.64	14.74	13.73	12.71	11.76	10.80	9.79	8.94
315.0	16.31	15.41	14.40	13.50	12.43	11.36	10.41	9.51	8.83
360.0	16.43	15.53	14.57	13.56	12.54	11.48	10.52	9.51	8.89

Intensity data(cd)

C/ γ (°)	90.0
0.0	8.66
45.0	8.61
90.0	8.61
135.0	8.61
180.0	8.66
225.0	8.61
270.0	8.61
315.0	8.61
360.0	8.66