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Nata

LumCAT: 3-2042-M
Luminaire: 92.70.135.00
Report No: NATA0100
Test No: GC2018070409
LampCAT: NICHIA NFCWD096B-V3
Lamp flux(lm): 2202.0
Number of Lamps: 1
Length(mm): 84
Phm Type: C

Voltage(V): 34.0000
Current(A): 0.5000
Power (W): 17.0000
PF: 0.0000
Ballast type: DC
Width(mm): 84
Height(mm): 0

Photometric Results

Lumens(lm): 1973.60
Efficiency(%): 89.63%
Lumens(lm)/Power(W): 116.09
Central intensity(cd): 20118.990
Maximum intensity(cd): 20118.990
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=12.8
[C90/270]Total=12.8
Field angle(10%Imax): [C0/180]Total=24.9
[C90/270]Total=24.9
Maximum s/h(1/2): C0_180=0.22 C90_270=0.22
Maximum s/h(1/4): C0_180=0.22 C90_270=0.22
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.49%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.755%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	20118.984	19.253	19.253	.874%	.976%
2.0	19197.506	146.936	166.189	6.673%	8.421%
4.0	15982.873	244.514	410.704	11.104%	20.810%
6.0	10888.504	249.613	660.317	11.336%	33.458%
8.0	6560.190	200.234	860.551	9.093%	43.603%
10.0	3475.050	132.342	992.892	6.010%	50.309%
12.0	2169.663	98.932	1091.824	4.493%	55.322%
14.0	1449.965	76.930	1168.755	3.494%	59.220%
16.0	1114.066	67.346	1236.101	3.058%	62.632%
18.0	961.230	65.144	1301.245	2.958%	65.933%
20.0	871.928	65.403	1366.648	2.970%	69.247%
22.0	812.027	66.713	1433.361	3.030%	72.627%
24.0	767.651	68.477	1501.838	3.110%	76.097%
26.0	735.168	70.680	1572.517	3.210%	79.678%
28.0	704.171	72.502	1645.02	3.293%	83.351%
30.0	682.479	74.838	1719.858	3.399%	87.143%
32.0	646.913	75.183	1795.042	3.414%	90.953%
34.0	523.586	64.212	1859.253	2.916%	94.206%
36.0	338.872	43.684	1902.937	1.984%	96.420%
38.0	161.921	21.863	1924.8	.993%	97.528%
40.0	35.787	5.045	1929.845	.229%	97.783%
42.0	18.224	2.674	1932.519	.121%	97.919%
44.0	12.498	1.904	1934.423	.086%	98.015%
46.0	10.626	1.676	1936.1	.076%	98.100%
48.0	10.240	1.669	1937.769	.076%	98.185%
50.0	9.910	1.665	1939.434	.076%	98.269%
52.0	9.635	1.665	1941.099	.076%	98.353%
54.0	9.415	1.670	1942.769	.076%	98.438%
56.0	9.194	1.672	1944.441	.076%	98.523%
58.0	9.084	1.690	1946.13	.077%	98.608%
60.0	8.919	1.694	1947.825	.077%	98.694%
62.0	8.864	1.716	1949.541	.078%	98.781%
64.0	8.754	1.726	1951.267	.078%	98.869%
66.0	8.644	1.732	1952.998	.079%	98.956%
68.0	8.589	1.746	1954.745	.079%	99.045%
70.0	8.534	1.759	1956.504	.080%	99.134%
72.0	8.479	1.768	1958.272	.080%	99.224%
74.0	8.424	1.776	1960.048	.081%	99.314%

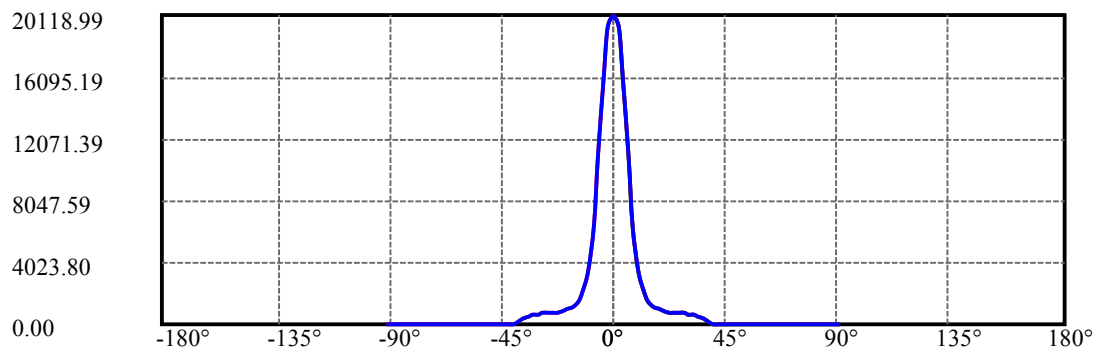
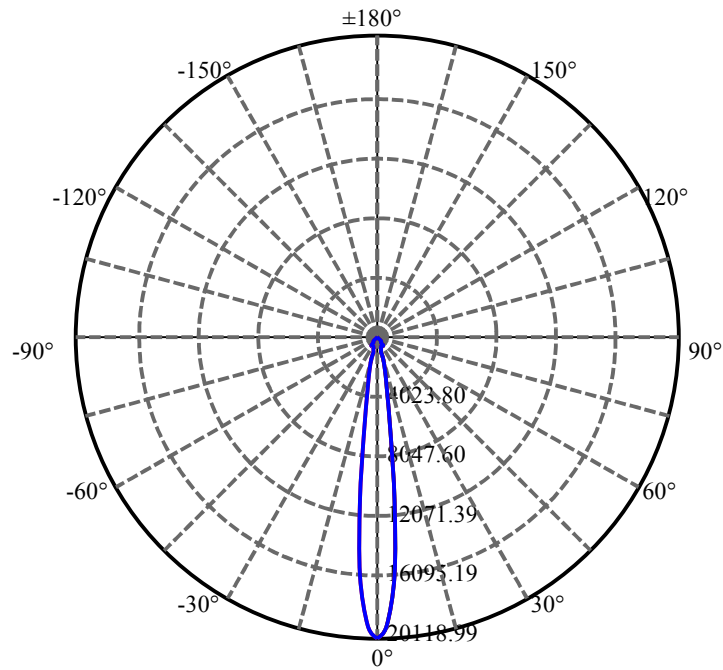
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.424	1.793	1961.84	.081%	99.404%
78.0	8.369	1.795	1963.636	.082%	99.495%
80.0	8.369	1.807	1965.443	.082%	99.587%
82.0	8.314	1.806	1967.249	.082%	99.678%
84.0	8.314	1.813	1969.062	.082%	99.770%
86.0	8.314	1.819	1970.881	.083%	99.862%
88.0	8.258	1.810	1972.691	.082%	99.954%
90.0	8.258	0.906	1973.596	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1719.86	78.10%	87.14%
0-40	1929.85	87.64%	97.78%
0-60	1947.82	88.46%	98.69%
0-90	1972.69	89.59%	99.95%
0-120	1972.69	89.59%	99.95%
0-180	1973.60	89.63%	100.00%
60-90	26.56	1.21%	1.35%
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%
0-26.18	1578.88	71.70%	80.00%

ZONAL LUMEN SUMMARY

0-10	992.89
10-20	373.76
20-30	353.21
30-40	209.99
40-50	9.59
50-60	8.39
60-70	8.68
70-80	8.94
80-90	7.25
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:

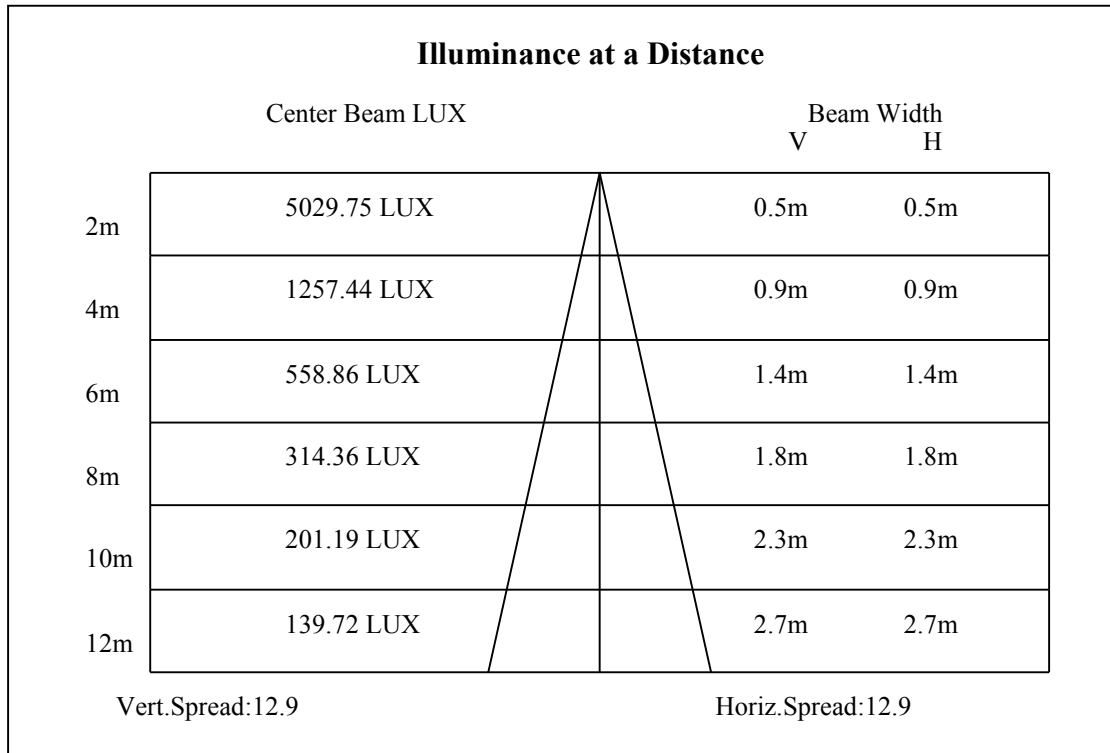
C90/C270:

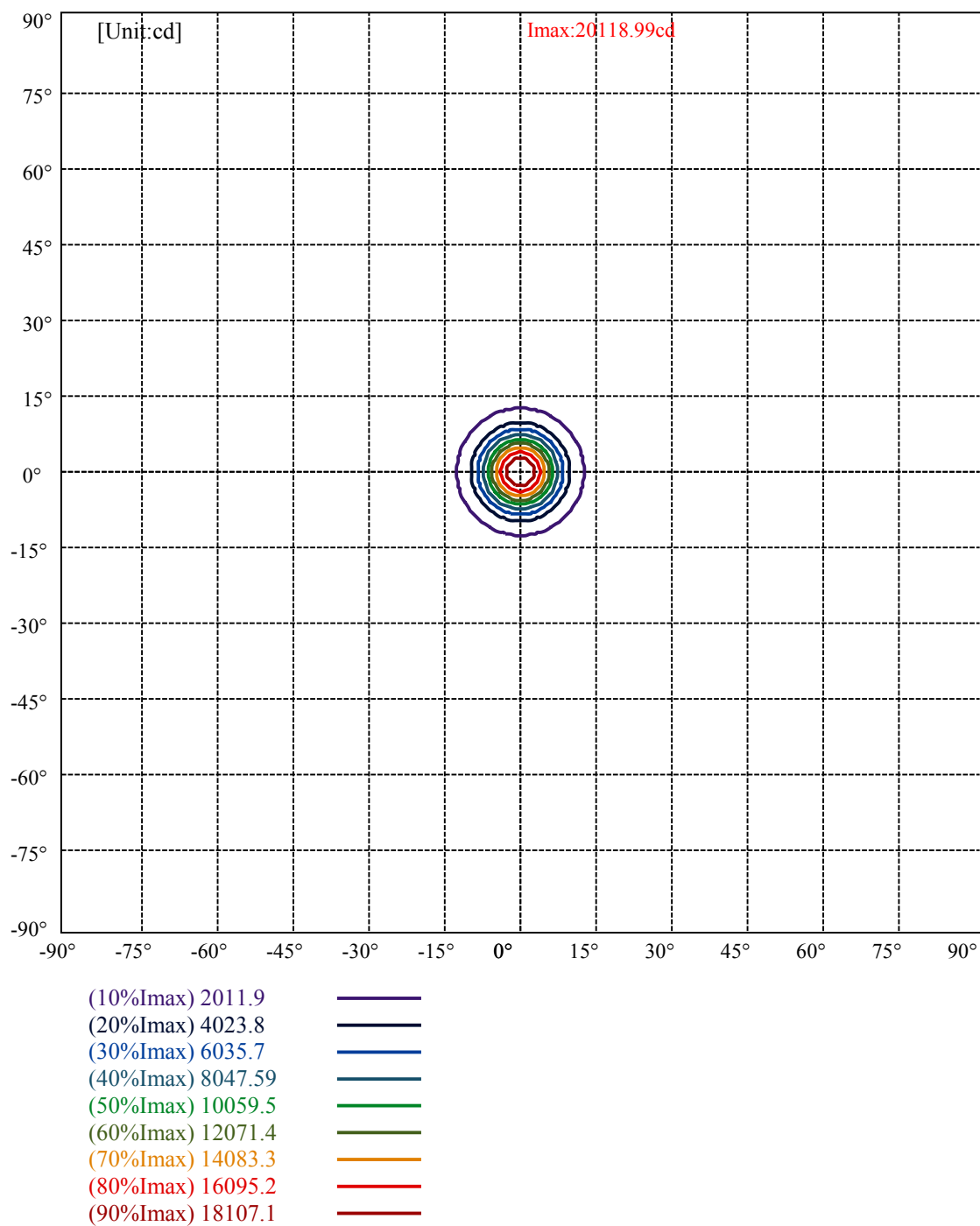
Field angle(10%Imax):C0/180Left:12.4 Right:12.4

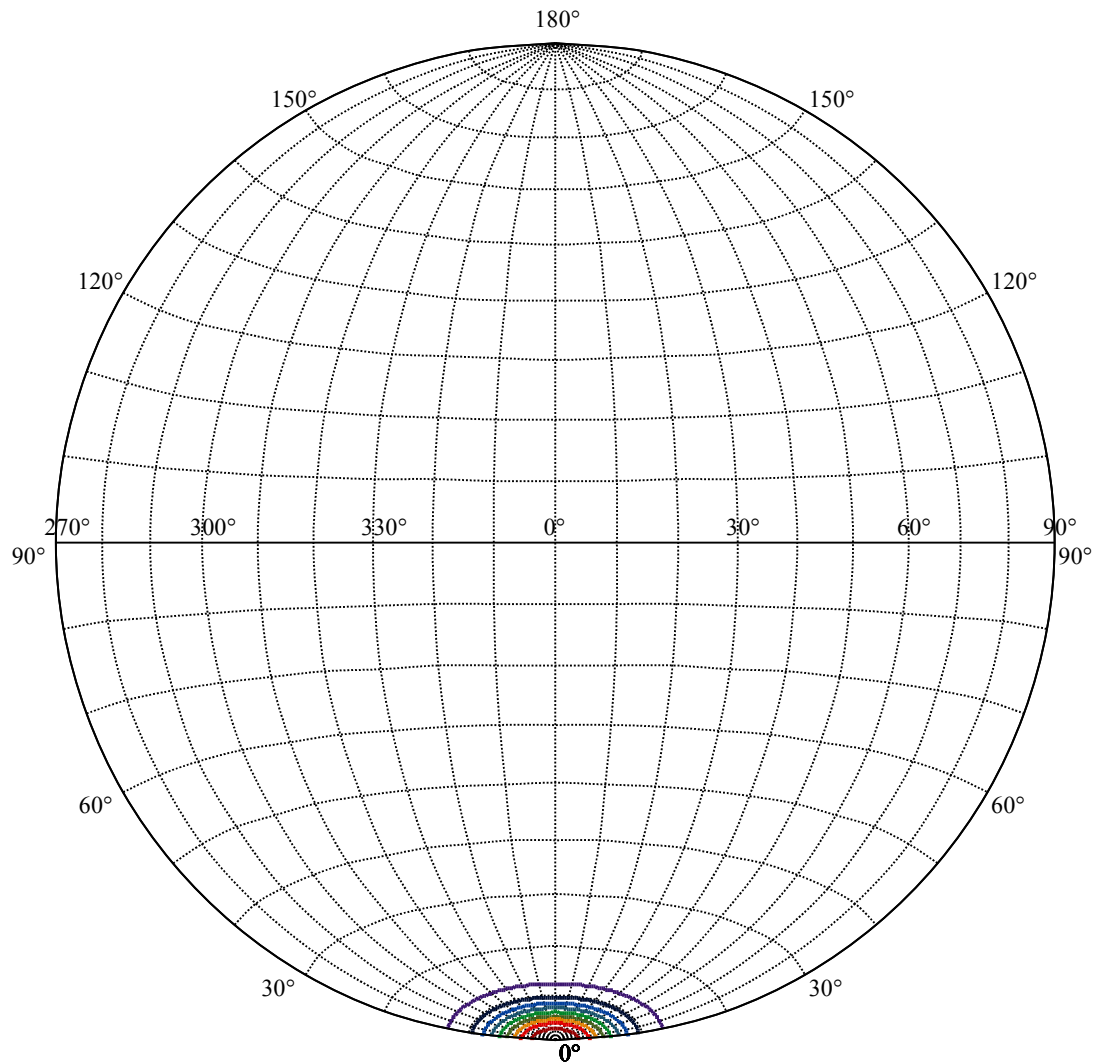
:C90/270Left:12.4 Right:12.4

Beam Angle(50%Imax):C0/180Left:6.4 Right:6.4

:C90/270Left:6.4 Right:6.4







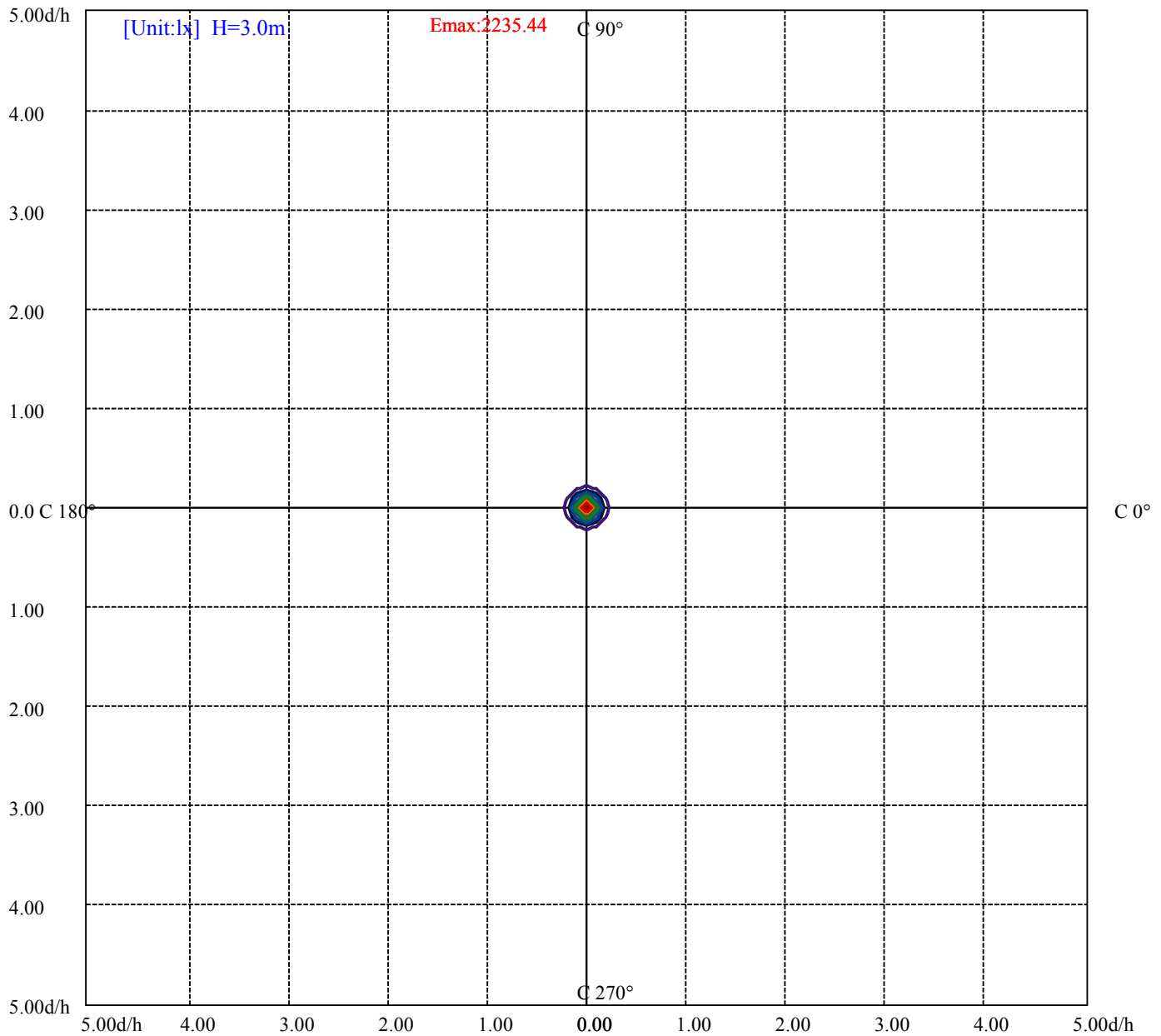
House

[Unit:cd]

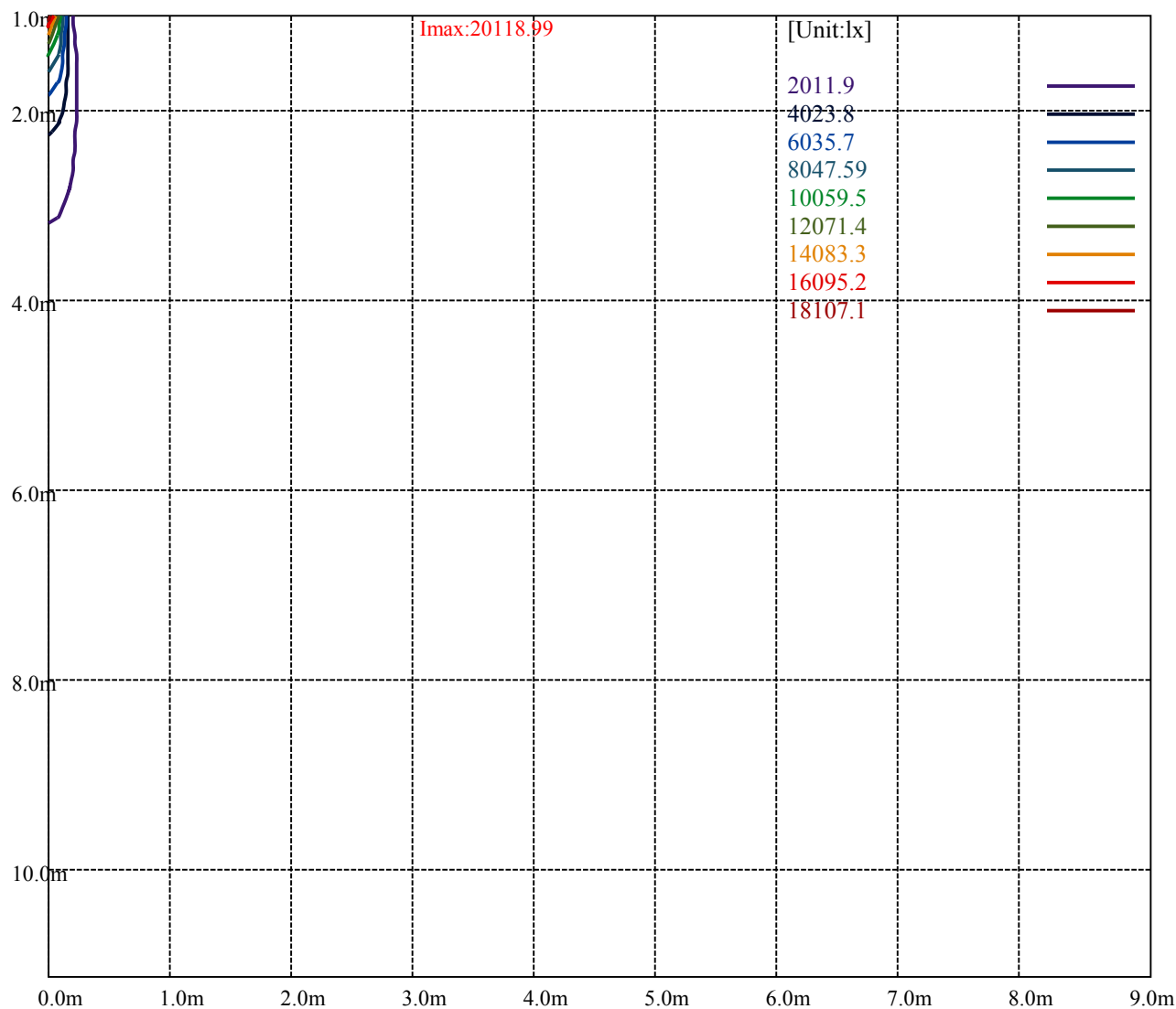
Road

Imax:20118.99

(10%Imax)	2011.9	—
(20%Imax)	4023.8	—
(30%Imax)	6035.7	—
(40%Imax)	8047.59	—
(50%Imax)	10059.5	—
(60%Imax)	12071.4	—
(70%Imax)	14083.3	—
(80%Imax)	16095.2	—
(90%Imax)	18107.1	—



(10%Emax)	223.5433	—
(20%Emax)	447.0867	—
(30%Emax)	670.63	—
(40%Emax)	894.1744	—
(50%Emax)	1117.722	—
(60%Emax)	1341.255	—
(70%Emax)	1564.8	—
(80%Emax)	1788.344	—
(90%Emax)	2011.889	—



Luminance Table

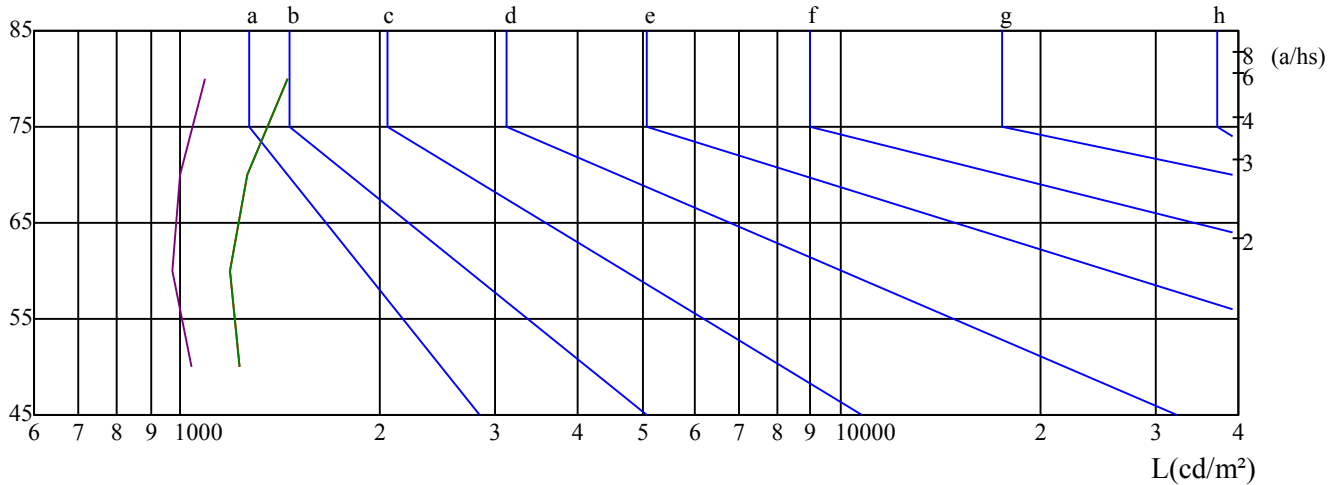
γ	45	50	55	60	65	70	75	80	85
C0	0	1227	0	1185	0	1263	0	1449	0
C45	0	1039	0	971	0	998	0	1093	0
C90	0	1227	0	1185	0	1263	0	1449	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3083	3083	3083	4793	4793	4793	13966	13966	13966

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

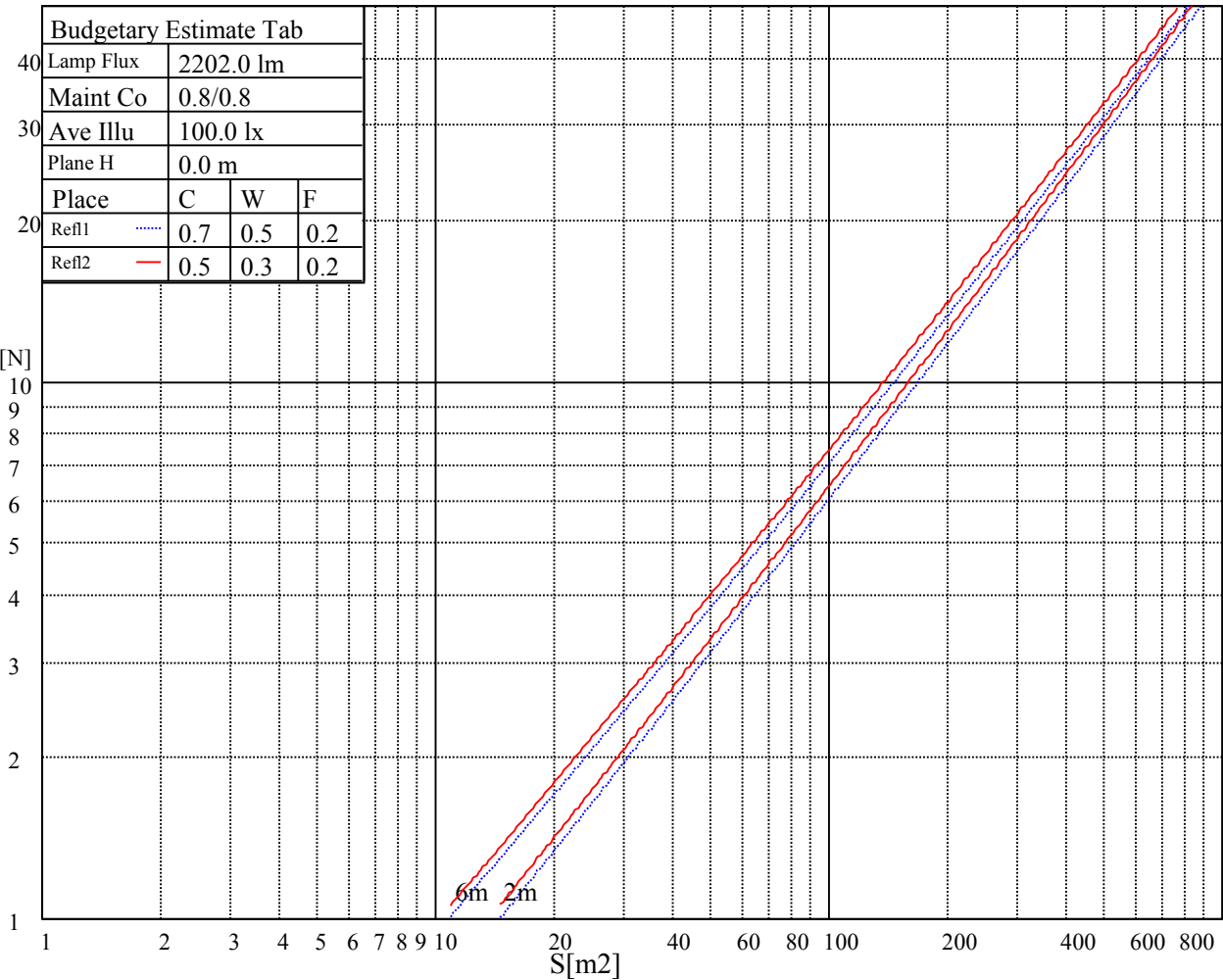
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

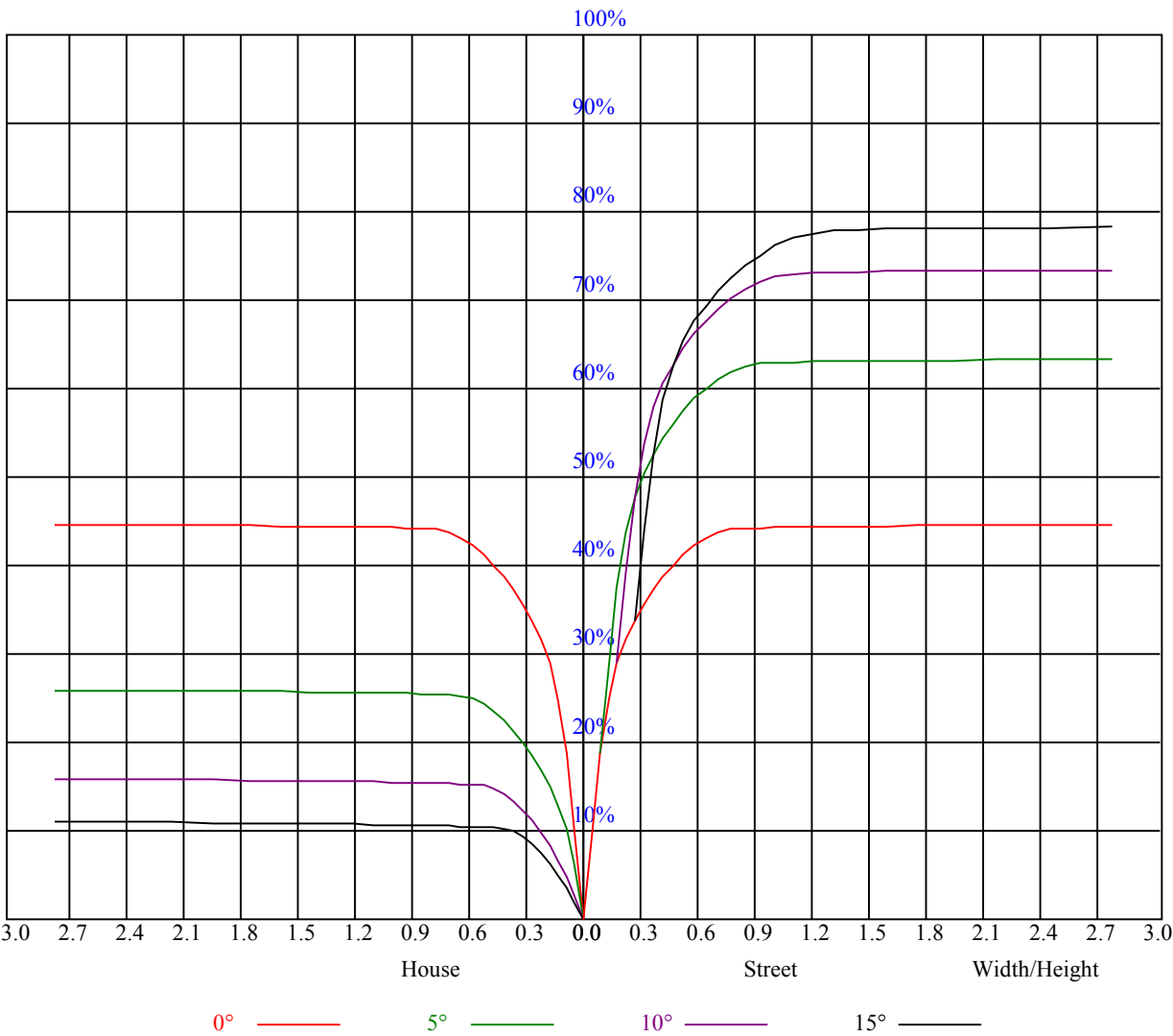
C0 ———

C45 ———

C90 ———



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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.96	0.93	0.90	0.94	0.92	0.89	0.91	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.84	0.82
3	0.92	0.88	0.85	0.90	0.87	0.85	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.79
4	0.88	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
5	0.85	0.81	0.78	0.84	0.80	0.78	0.83	0.79	0.77	0.81	0.78	0.76	0.80	0.78	0.76	0.75
6	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.73
7	0.79	0.75	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.71
8	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69
9	0.75	0.71	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.67
10	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.66



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	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
45.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
90.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
135.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
180.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
225.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
270.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
315.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07
360.0	20118.98	19197.51	15982.87	10888.50	6560.19	3475.05	2169.66	1449.97	1114.07

C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
45.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
90.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
135.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
180.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
225.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
270.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
315.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59
360.0	961.23	871.93	812.03	767.65	735.17	704.17	682.48	646.91	523.59

C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
45.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
90.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
135.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
180.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
225.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
270.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
315.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63
360.0	338.87	161.92	35.79	18.22	12.50	10.63	10.24	9.91	9.63

C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
45.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
90.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
135.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
180.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
225.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
270.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
315.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53
360.0	9.41	9.19	9.08	8.92	8.86	8.75	8.64	8.59	8.53

C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
45.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
90.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
135.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
180.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
225.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
270.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
315.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26
360.0	8.48	8.42	8.42	8.37	8.37	8.31	8.31	8.31	8.26

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	8.26
45.0	8.26
90.0	8.26
135.0	8.26
180.0	8.26
225.0	8.26
270.0	8.26
315.0	8.26
360.0	8.26