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## Nata

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LumCAT: 3-2116-N	
Luminaire: 92.70.135.00	
Report No: NATA0100	Voltage(V): 34.3000
Test No: GC2018062716	Current(A): 0.5100
LampCAT: NICHIA NFCWD096B-V3	Power (W): 17.4930
Lamp flux(lm): 2274.7	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 80	Width(mm): 80
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 1934.00  
Efficiency(%): 85.02%  
Lumens(lm)/Power(W): 110.56  
Central intensity(cd): 7900.043  
Maximum intensity(cd): 7900.043  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=24.2  
                                  [C90/270]Total=24.2  
Field angle(10%Imax): [C0/180]Total=52.8  
                                  [C90/270]Total=52.8  
Maximum s/h(1/2): C0\_180=0.41 C90\_270=0.41  
Maximum s/h(1/4): C0\_180=0.41 C90\_270=0.41  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 85.34%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.686%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7900.043	7.560	7.56	.332%	.391%
2.0	7789.655	59.621	67.181	2.621%	3.474%
4.0	7458.380	114.102	181.284	5.016%	9.373%
6.0	6871.039	157.515	338.799	6.925%	17.518%
8.0	6063.361	185.069	523.868	8.136%	27.087%
10.0	5049.993	192.321	716.189	8.455%	37.031%
12.0	3994.947	182.161	898.35	8.008%	46.450%
14.0	2990.829	158.684	1057.033	6.976%	54.655%
16.0	2232.592	134.962	1191.996	5.933%	61.634%
18.0	1673.604	113.423	1305.418	4.986%	67.498%
20.0	1326.804	99.523	1404.941	4.375%	72.644%
22.0	1095.898	90.035	1494.976	3.958%	77.300%
24.0	944.768	84.276	1579.252	3.705%	81.657%
26.0	822.818	79.106	1658.358	3.478%	85.747%
28.0	664.586	68.427	1726.785	3.008%	89.286%
30.0	462.364	50.701	1777.486	2.229%	91.907%
32.0	273.080	31.737	1809.223	1.395%	93.548%
34.0	117.050	14.355	1823.578	.631%	94.290%
36.0	65.682	8.467	1832.045	.372%	94.728%
38.0	54.891	7.412	1839.457	.326%	95.111%
40.0	48.780	6.877	1846.333	.302%	95.467%
42.0	44.320	6.504	1852.837	.286%	95.803%
44.0	40.577	6.182	1859.019	.272%	96.123%
46.0	36.998	5.837	1864.856	.257%	96.425%
48.0	33.529	5.465	1870.321	.240%	96.707%
50.0	30.391	5.106	1875.426	.224%	96.971%
52.0	27.583	4.767	1880.193	.210%	97.218%
54.0	24.775	4.396	1884.589	.193%	97.445%
56.0	22.738	4.134	1888.723	.182%	97.659%
58.0	20.976	3.901	1892.625	.172%	97.861%
60.0	19.600	3.723	1896.347	.164%	98.053%
62.0	18.499	3.582	1899.93	.157%	98.238%
64.0	17.453	3.440	1903.37	.151%	98.416%
66.0	15.251	3.056	1906.425	.134%	98.574%
68.0	13.324	2.709	1909.135	.119%	98.714%
70.0	12.828	2.644	1911.778	.116%	98.851%
72.0	12.388	2.584	1914.362	.114%	98.984%
74.0	12.112	2.554	1916.916	.112%	99.117%

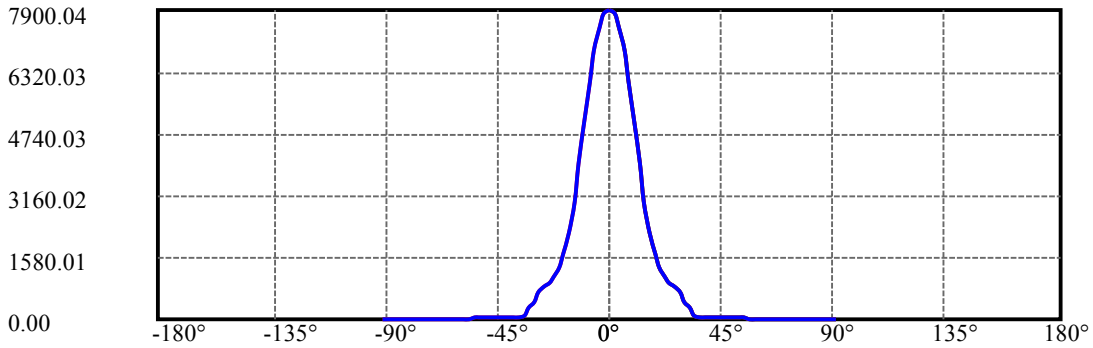
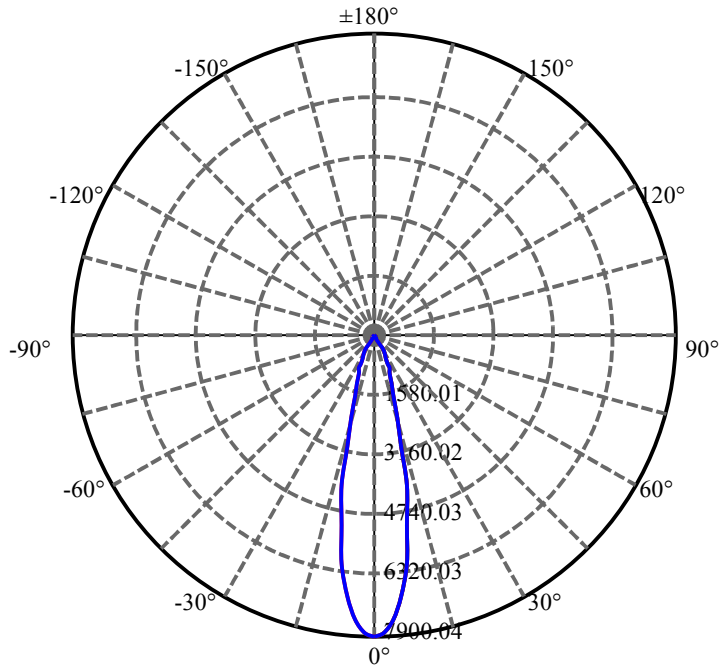
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.727	2.495	1919.411	.110%	99.246%
78.0	11.342	2.433	1921.844	.107%	99.371%
80.0	11.066	2.390	1924.234	.105%	99.495%
82.0	10.901	2.368	1926.602	.104%	99.617%
84.0	10.571	2.306	1928.908	.101%	99.737%
86.0	9.855	2.156	1931.064	.095%	99.848%
88.0	9.029	1.979	1933.043	.087%	99.950%
90.0	8.754	0.960	1934.003	.042%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1777.49	78.14%	91.91%
0-40	1846.33	81.17%	95.47%
0-60	1896.35	83.37%	98.05%
0-90	1933.04	84.98%	99.95%
0-120	1933.04	84.98%	99.95%
0-180	1934.00	85.02%	100.00%
60-90	40.42	1.78%	2.09%
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%
0-23.24	1547.20	68.02%	80.00%

ZONAL LUMEN SUMMARY

0-10	716.19
10-20	688.75
20-30	372.55
30-40	68.85
40-50	29.09
50-60	20.92
60-70	15.43
70-80	12.46
80-90	8.81
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: —————

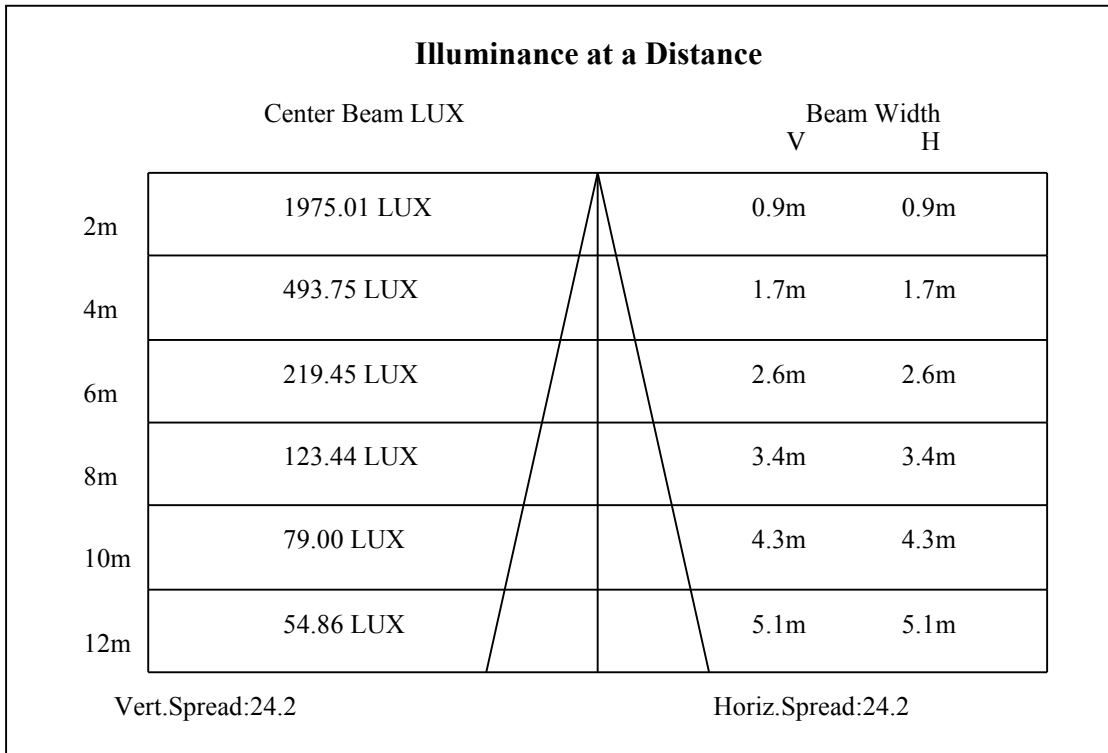
C90/C270: —————

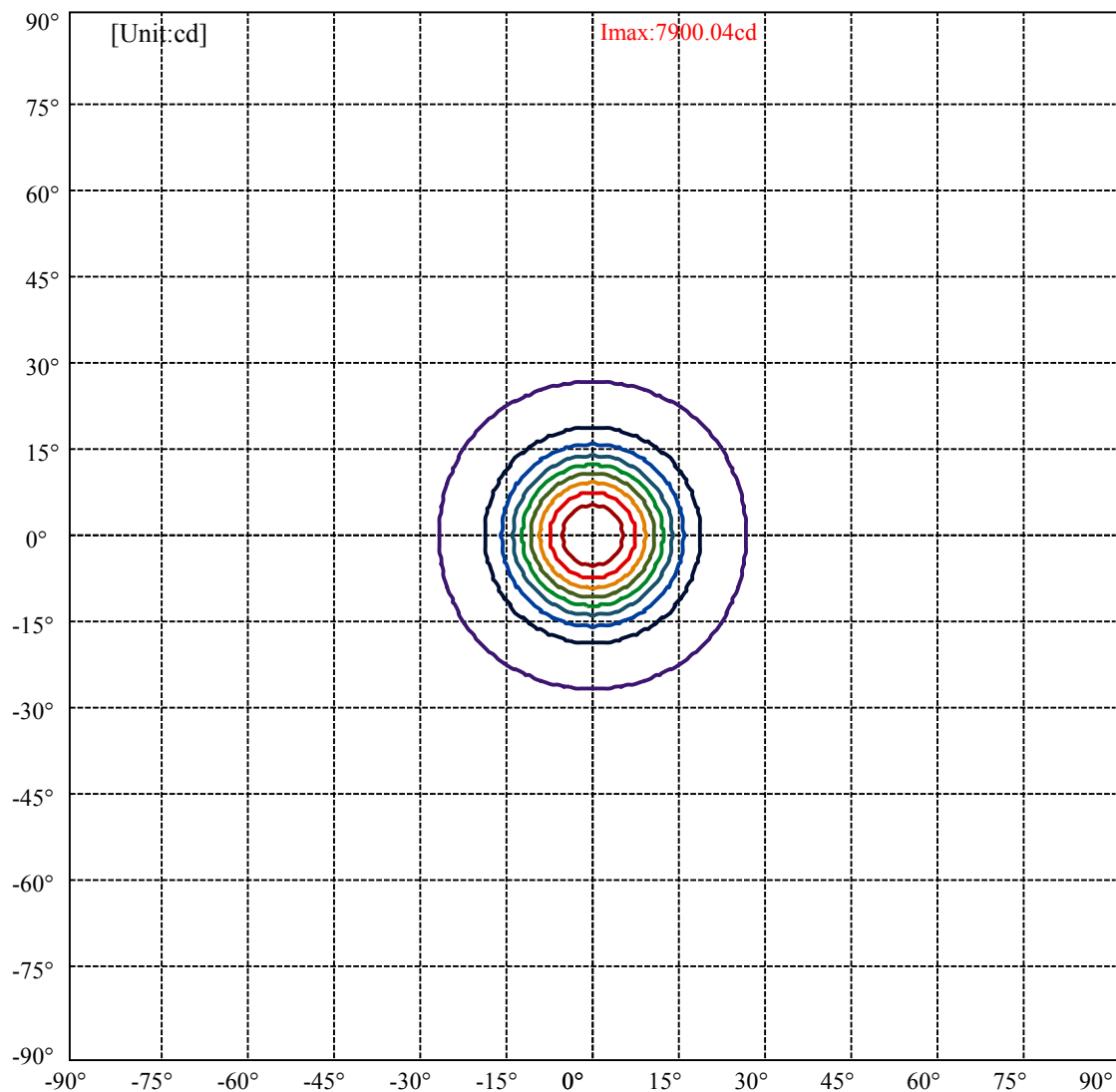
Field angle(10%Imax):C0/180Left:26.4 Right:26.4

:C90/270Left:26.4 Right:26.4

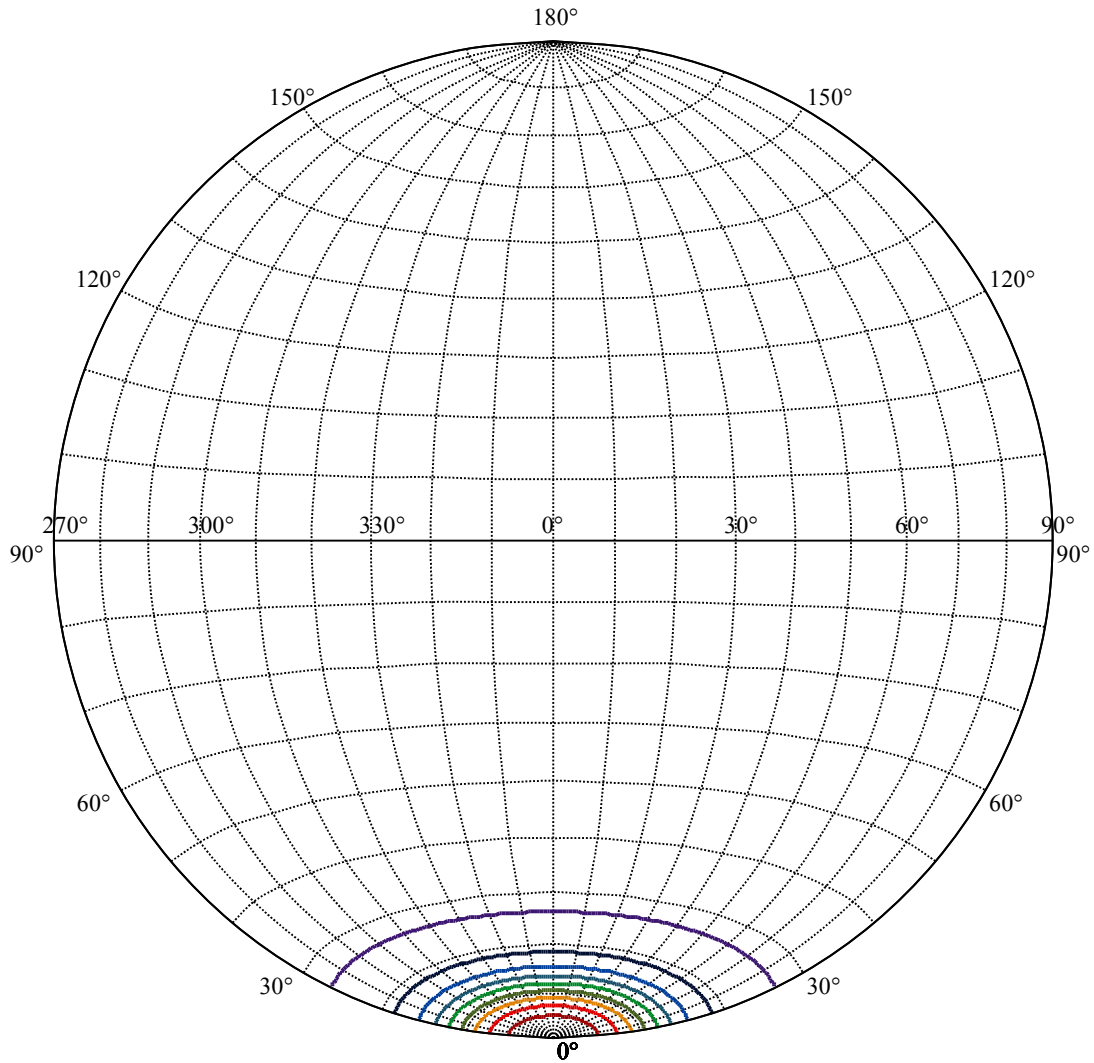
Beam Angle(50%Imax):C0/180Left:12.1 Right:12.1

:C90/270Left:12.1 Right:12.1





(10%Imax) 790.004	—
(20%Imax) 1580.01	—
(30%Imax) 2370.01	—
(40%Imax) 3160.02	—
(50%Imax) 3950.02	—
(60%Imax) 4740.03	—
(70%Imax) 5530.03	—
(80%Imax) 6320.03	—
(90%Imax) 7110.04	—



House

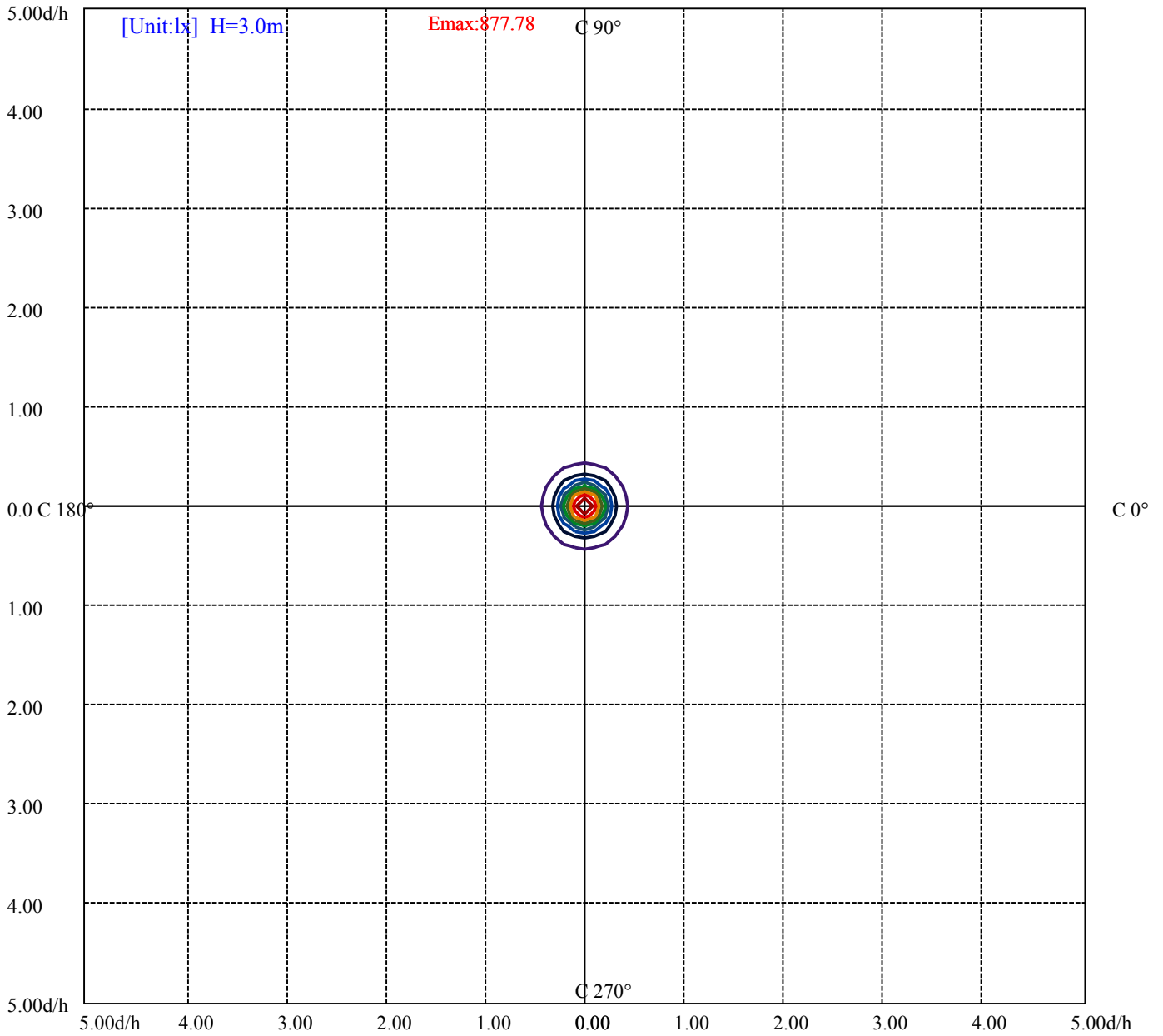
[Unit:cd]

Road

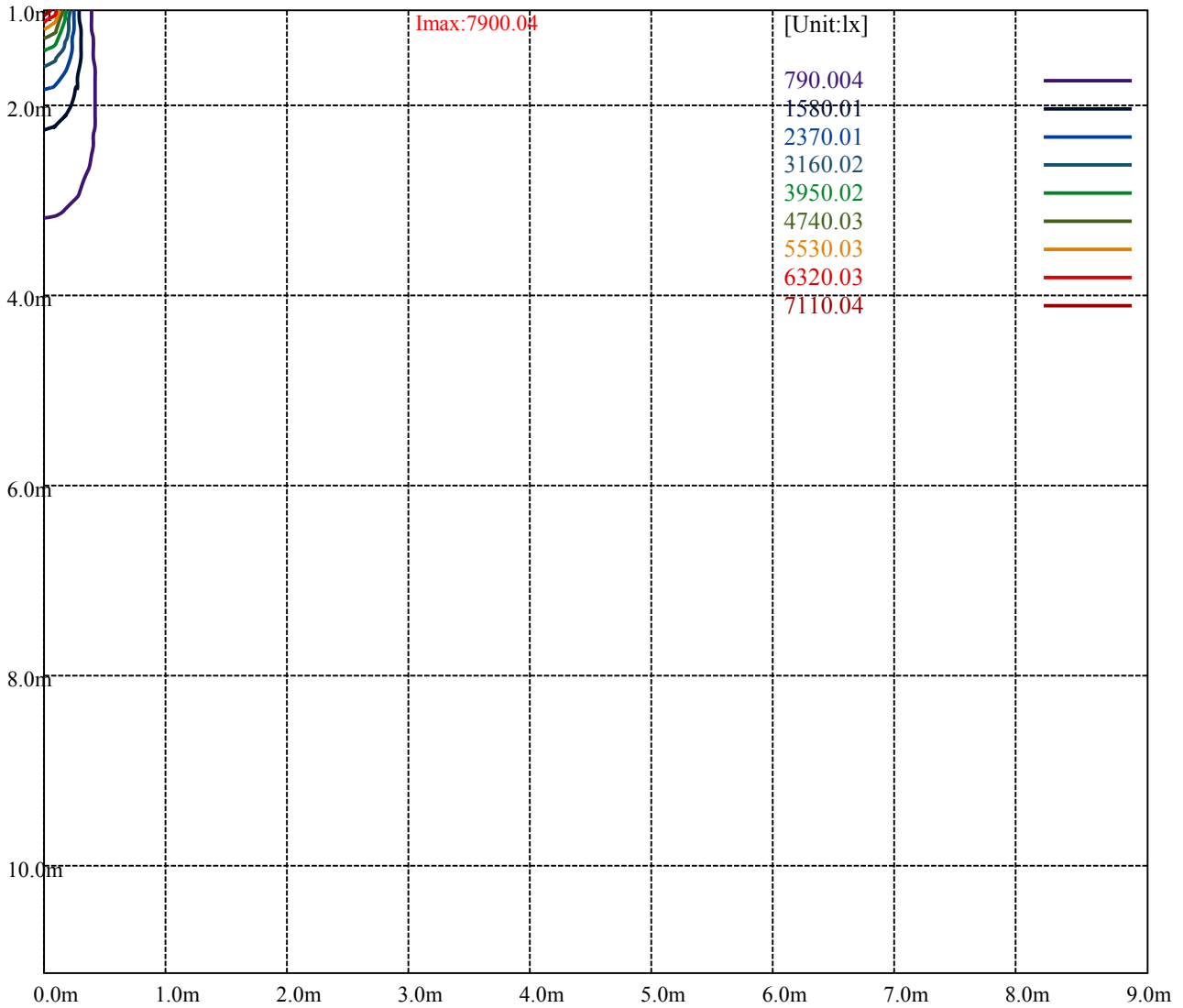
Imax:7900.04

(10%Imax) 790.004	—
(20%Imax) 1580.01	—
(30%Imax) 2370.01	—
(40%Imax) 3160.02	—
(50%Imax) 3950.02	—
(60%Imax) 4740.03	—
(70%Imax) 5530.03	—
(80%Imax) 6320.03	—
(90%Imax) 7110.04	—





- (10%Emax) 87.77811
- (20%Emax) 175.5567
- (30%Emax) 263.3344
- (40%Emax) 351.1122
- (50%Emax) 438.8911
- (60%Emax) 526.6689
- (70%Emax) 614.4467
- (80%Emax) 702.2255
- (90%Emax) 790.0033



Luminance Table

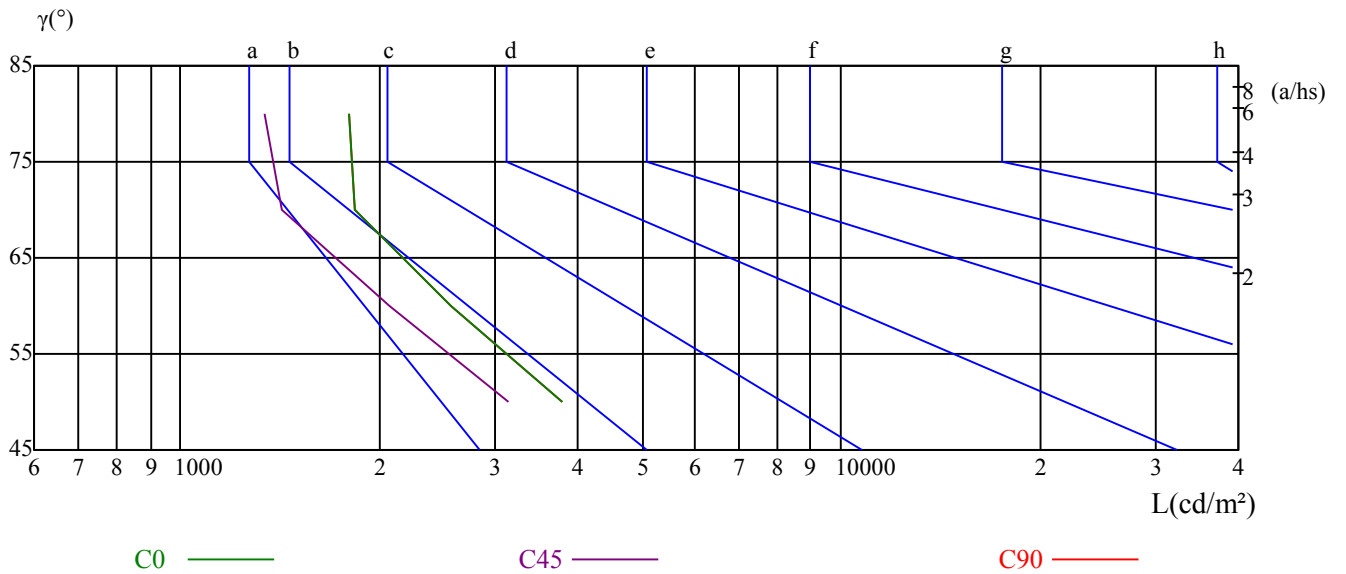
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	3782	0	2567	0	1833	0	1798	0
C45	0	3146	0	2070	0	1426	0	1343	0
C90	0	3782	0	2567	0	1833	0	1798	0

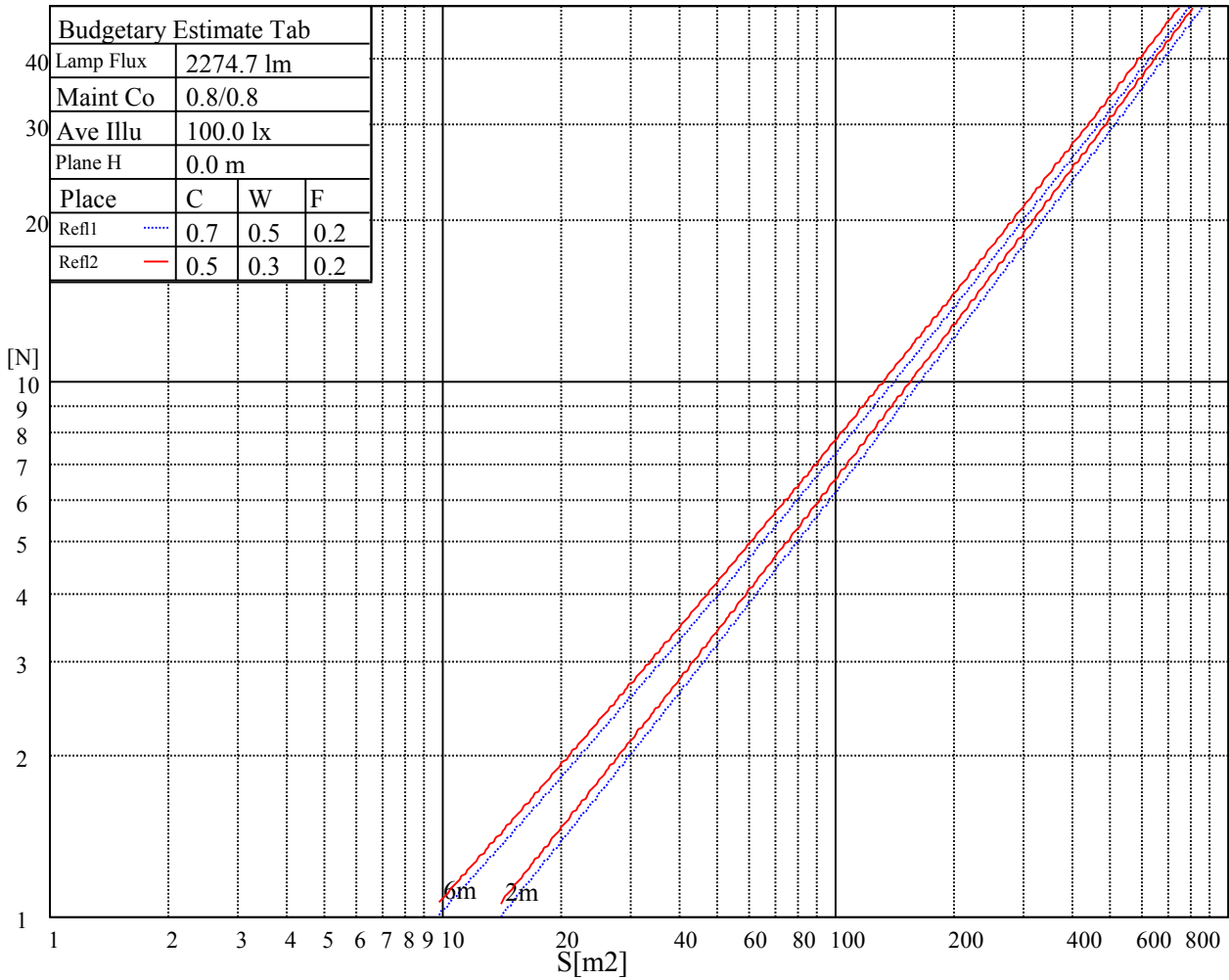
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4733	4702	4733	6515	6498	6506	16286	16187	16261

Glare Table

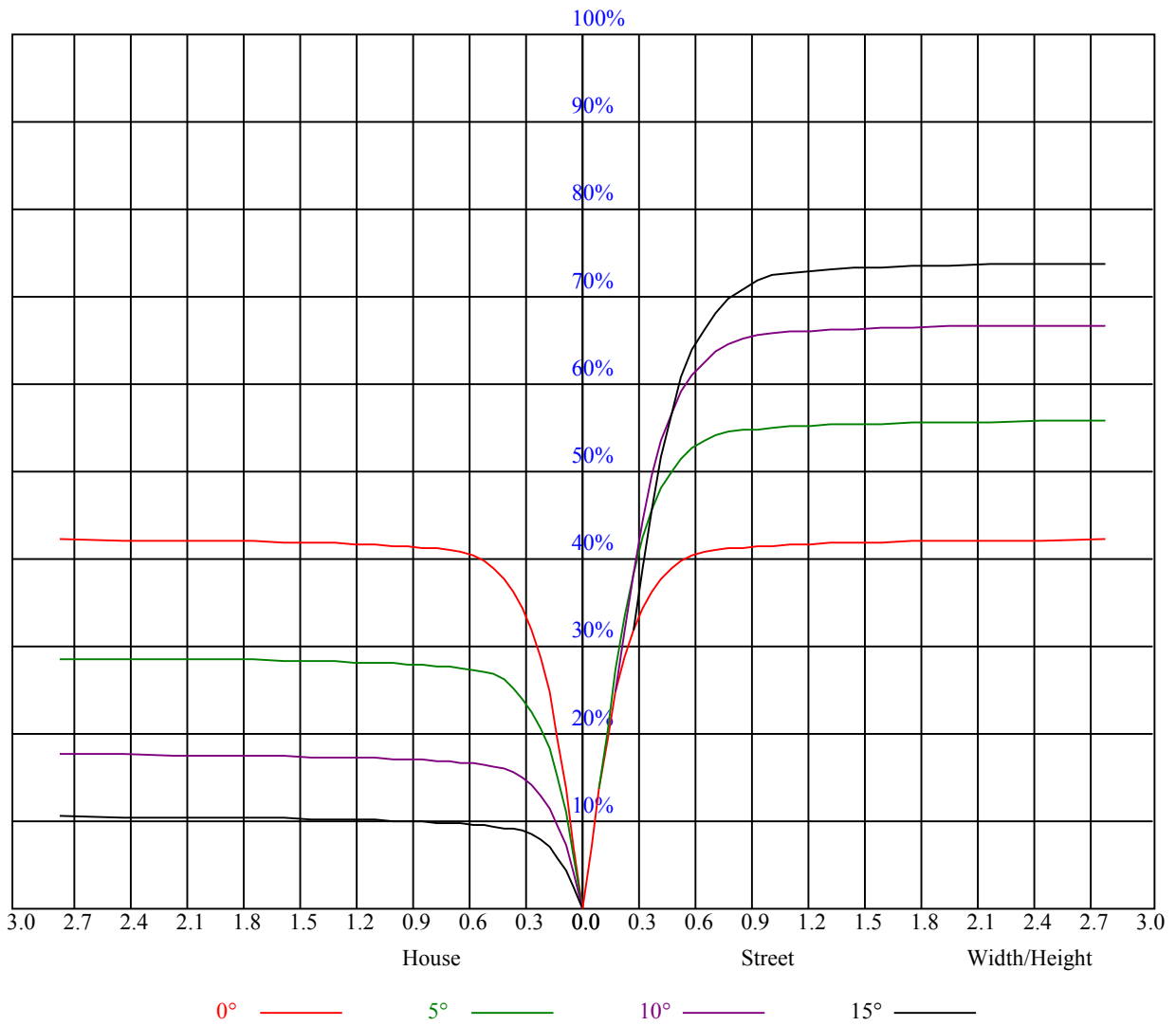
Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300

Luminance Limiting Curve





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	1.02	1.02	1.02	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.85
1	0.95	0.93	0.92	0.93	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.81
2	0.90	0.88	0.85	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.81	0.82	0.80	0.79	0.78
3	0.86	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.79	0.77	0.76	0.75
4	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.77	0.75	0.73	0.72
5	0.79	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.72	0.71	0.70
6	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
7	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
8	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.64
9	0.69	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.63	0.62
10	0.67	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.60



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	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
45.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
90.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
135.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
180.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
225.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
270.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
315.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
360.0	7900.04	7789.65	7458.38	6871.04	6063.36	5049.99	3994.95	2990.83	2232.59
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
45.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
90.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
135.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
180.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
225.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
270.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
315.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
360.0	1673.60	1326.80	1095.90	944.77	822.82	664.59	462.36	273.08	117.05
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
45.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
90.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
135.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
180.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
225.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
270.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
315.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
360.0	65.68	54.89	48.78	44.32	40.58	37.00	33.53	30.39	27.58
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
45.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
90.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
135.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
180.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
225.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
270.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
315.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
360.0	24.78	22.74	20.98	19.60	18.50	17.45	15.25	13.32	12.83
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
45.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
90.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
135.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
180.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
225.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
270.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
315.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03
360.0	12.39	12.11	11.73	11.34	11.07	10.90	10.57	9.86	9.03

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>8.75</b>
<b>45.0</b>	<b>8.75</b>
<b>90.0</b>	<b>8.75</b>
<b>135.0</b>	<b>8.75</b>
<b>180.0</b>	<b>8.75</b>
<b>225.0</b>	<b>8.75</b>
<b>270.0</b>	<b>8.75</b>
<b>315.0</b>	<b>8.75</b>
<b>360.0</b>	<b>8.75</b>