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## Nata

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LumCAT: 3-2042-M  
Luminaire: 92.70.135.00  
Report No: GC2017122802  
Test No: NT-0010  
LampCAT: NICHIA NVEWJ048Z-V1  
Lamp flux(lm): 3051.0  
Number of Lamps: 1  
Length(mm): 84  
Phm Type: C

Voltage(V): 43.4000  
Current(A): 0.5000  
Power (W): 21.7000  
PF: 0.0000  
Ballast type: DC  
Width(mm): 84  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 2721.10  
Efficiency(%): 89.19%  
Lumens(lm)/Power(W): 125.40  
Central intensity(cd): 9718.831  
Maximum intensity(cd): 9718.831  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=25.5  
                                  [C90/270]Total=25.5  
Field angle(10%Imax): [C0/180]Total=59.6  
                                  [C90/270]Total=59.6  
Maximum s/h(1/2): C0\_180=0.43 C90\_270=0.43  
Maximum s/h(1/4): C0\_180=0.42 C90\_270=0.42  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 89.19%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.411%

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Equipment: GMS1980  
Temperature(°C): 25.0

Date: 2017/12/28  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.42

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9718.831	0.000	0	.000%	.000%
1.0	9704.310	9.294	9.294	.305%	.342%
2.0	9645.124	27.772	37.066	.910%	1.362%
3.0	9524.000	45.846	82.912	1.503%	3.047%
4.0	9345.617	63.163	146.075	2.070%	5.368%
5.0	9058.429	79.173	225.248	2.595%	8.278%
6.0	8712.675	93.392	318.64	3.061%	11.710%
7.0	8283.579	105.495	424.135	3.458%	15.587%
8.0	7763.503	114.846	538.981	3.764%	19.807%
9.0	7201.790	121.286	660.267	3.975%	24.265%
10.0	6602.088	124.920	785.187	4.094%	28.855%
11.0	5948.775	125.409	910.596	4.110%	33.464%
12.0	5343.292	123.438	1034.034	4.046%	38.001%
13.0	4698.720	119.173	1153.208	3.906%	42.380%
14.0	4067.842	112.211	1265.419	3.678%	46.504%
15.0	3540.058	104.445	1369.863	3.423%	50.342%
16.0	3068.775	96.838	1466.701	3.174%	53.901%
17.0	2617.863	88.556	1555.258	2.903%	57.155%
18.0	2250.843	80.274	1635.532	2.631%	60.105%
19.0	1975.905	73.537	1709.069	2.410%	62.808%
20.0	1708.813	67.441	1776.509	2.210%	65.286%
21.0	1505.724	61.726	1838.235	2.023%	67.555%
22.0	1362.715	57.642	1895.877	1.889%	69.673%
23.0	1241.384	54.641	1950.518	1.791%	71.681%
24.0	1160.692	52.518	2003.036	1.721%	73.611%
25.0	1105.388	51.526	2054.562	1.689%	75.505%
26.0	1064.873	51.229	2105.791	1.679%	77.387%
27.0	1031.998	51.300	2157.092	1.681%	79.273%
28.0	1008.406	51.659	2208.751	1.693%	81.171%
29.0	987.375	52.215	2260.966	1.711%	83.090%
30.0	967.492	52.781	2313.747	1.730%	85.030%
31.0	938.629	53.045	2366.791	1.739%	86.979%
32.0	877.193	52.021	2418.813	1.705%	88.891%
33.0	787.768	49.050	2467.863	1.608%	90.693%
34.0	680.869	44.445	2512.308	1.457%	92.327%
35.0	555.292	38.391	2550.699	1.258%	93.738%
36.0	427.059	31.278	2581.977	1.025%	94.887%
37.0	321.846	24.425	2606.402	.801%	95.785%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	211.437	17.800	2624.202	.583%	96.439%
39.0	113.815	11.102	2635.304	.364%	96.847%
40.0	60.596	6.083	2641.387	.199%	97.070%
41.0	40.996	3.618	2645.005	.119%	97.203%
42.0	33.020	2.689	2647.694	.088%	97.302%
43.0	27.900	2.257	2649.95	.074%	97.385%
44.0	24.321	1.971	2651.921	.065%	97.458%
45.0	22.195	1.788	2653.709	.059%	97.523%
46.0	21.500	1.709	2655.418	.056%	97.586%
47.0	20.935	1.688	2657.106	.055%	97.648%
48.0	20.412	1.671	2658.777	.055%	97.709%
49.0	19.944	1.657	2660.434	.054%	97.770%
50.0	19.476	1.644	2662.078	.054%	97.831%
51.0	19.036	1.629	2663.707	.053%	97.891%
52.0	18.685	1.619	2665.326	.053%	97.950%
53.0	18.272	1.608	2666.934	.053%	98.009%
54.0	17.886	1.594	2668.527	.052%	98.068%
55.0	17.570	1.583	2670.11	.052%	98.126%
56.0	17.226	1.572	2671.682	.052%	98.184%
57.0	16.909	1.561	2673.243	.051%	98.241%
58.0	16.627	1.551	2674.794	.051%	98.298%
59.0	16.372	1.543	2676.337	.051%	98.355%
60.0	16.097	1.534	2677.871	.050%	98.411%
61.0	15.849	1.525	2679.395	.050%	98.467%
62.0	15.629	1.517	2680.912	.050%	98.523%
63.0	15.395	1.509	2682.421	.049%	98.578%
64.0	15.189	1.501	2683.922	.049%	98.634%
65.0	14.989	1.493	2685.415	.049%	98.688%
66.0	14.796	1.486	2686.901	.049%	98.743%
67.0	14.617	1.479	2688.38	.048%	98.797%
68.0	14.445	1.472	2689.852	.048%	98.851%
69.0	14.273	1.465	2691.317	.048%	98.905%
70.0	14.115	1.458	2692.775	.048%	98.959%
71.0	13.991	1.453	2694.228	.048%	99.012%
72.0	13.833	1.447	2695.675	.047%	99.065%
73.0	13.730	1.441	2697.116	.047%	99.118%
74.0	13.613	1.437	2698.554	.047%	99.171%
75.0	13.482	1.432	2699.985	.047%	99.224%

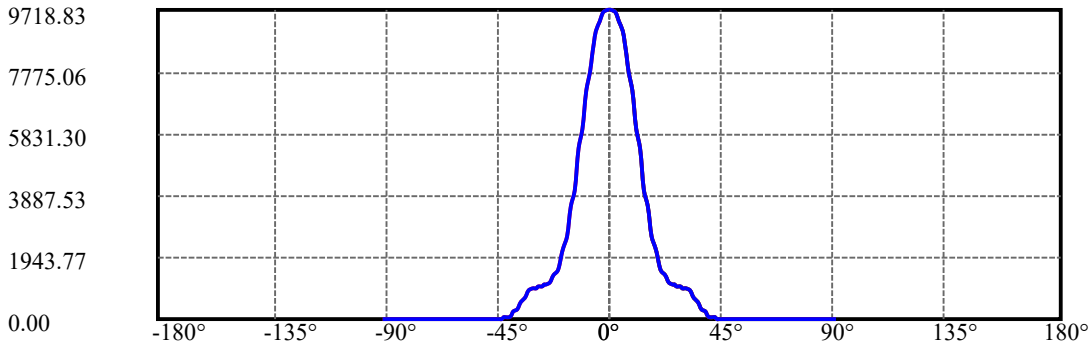
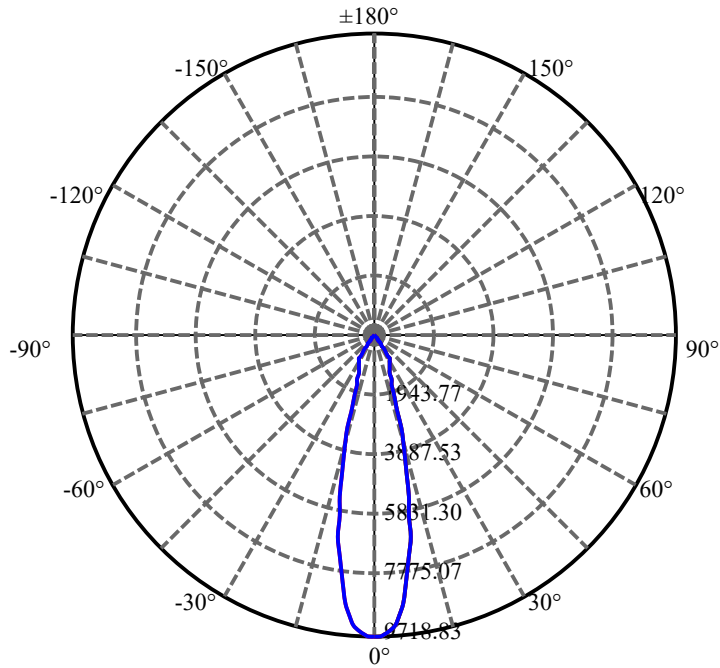
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.406	1.427	2701.413	.047%	99.276%
77.0	13.303	1.424	2702.837	.047%	99.329%
78.0	13.220	1.420	2704.256	.047%	99.381%
79.0	13.158	1.417	2705.674	.046%	99.433%
80.0	13.083	1.415	2707.088	.046%	99.485%
81.0	13.028	1.412	2708.5	.046%	99.537%
82.0	12.966	1.410	2709.91	.046%	99.589%
83.0	12.911	1.407	2711.317	.046%	99.640%
84.0	12.869	1.404	2712.721	.046%	99.692%
85.0	12.849	1.404	2714.125	.046%	99.743%
86.0	12.787	1.401	2715.526	.046%	99.795%
87.0	12.746	1.397	2716.923	.046%	99.846%
88.0	12.725	1.395	2718.319	.046%	99.898%
89.0	12.704	1.394	2719.712	.046%	99.949%
90.0	12.691	1.392	2721.105	.046%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2313.75	75.84%	85.03%
0-40	2641.39	86.57%	97.07%
0-60	2677.87	87.77%	98.41%
0-90	2719.71	89.14%	99.95%
0-120	2719.71	89.14%	99.95%
0-180	2721.10	89.19%	100.00%
60-90	43.38	1.42%	1.59%
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%
0-27.38	2176.88	71.35%	80.00%

ZONAL LUMEN SUMMARY

0-10	785.19
10-20	991.32
20-30	537.24
30-40	327.64
40-50	20.69
50-60	15.79
60-70	14.90
70-80	14.31
80-90	12.62
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: —————

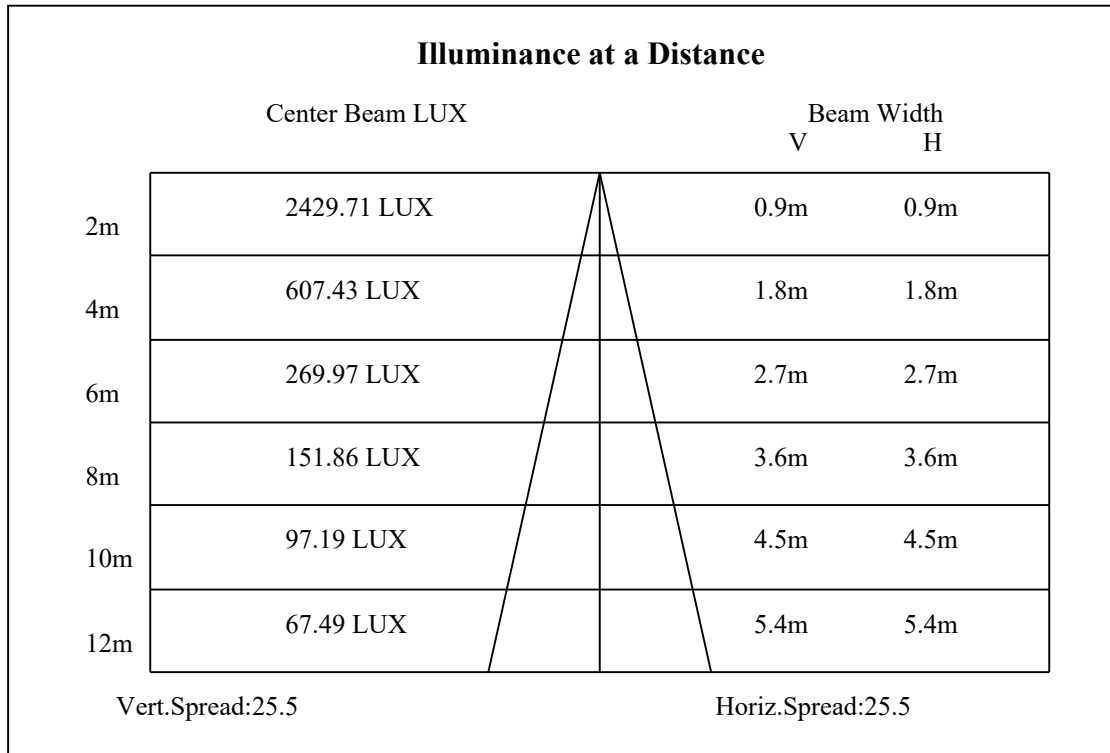
C90/C270: —————

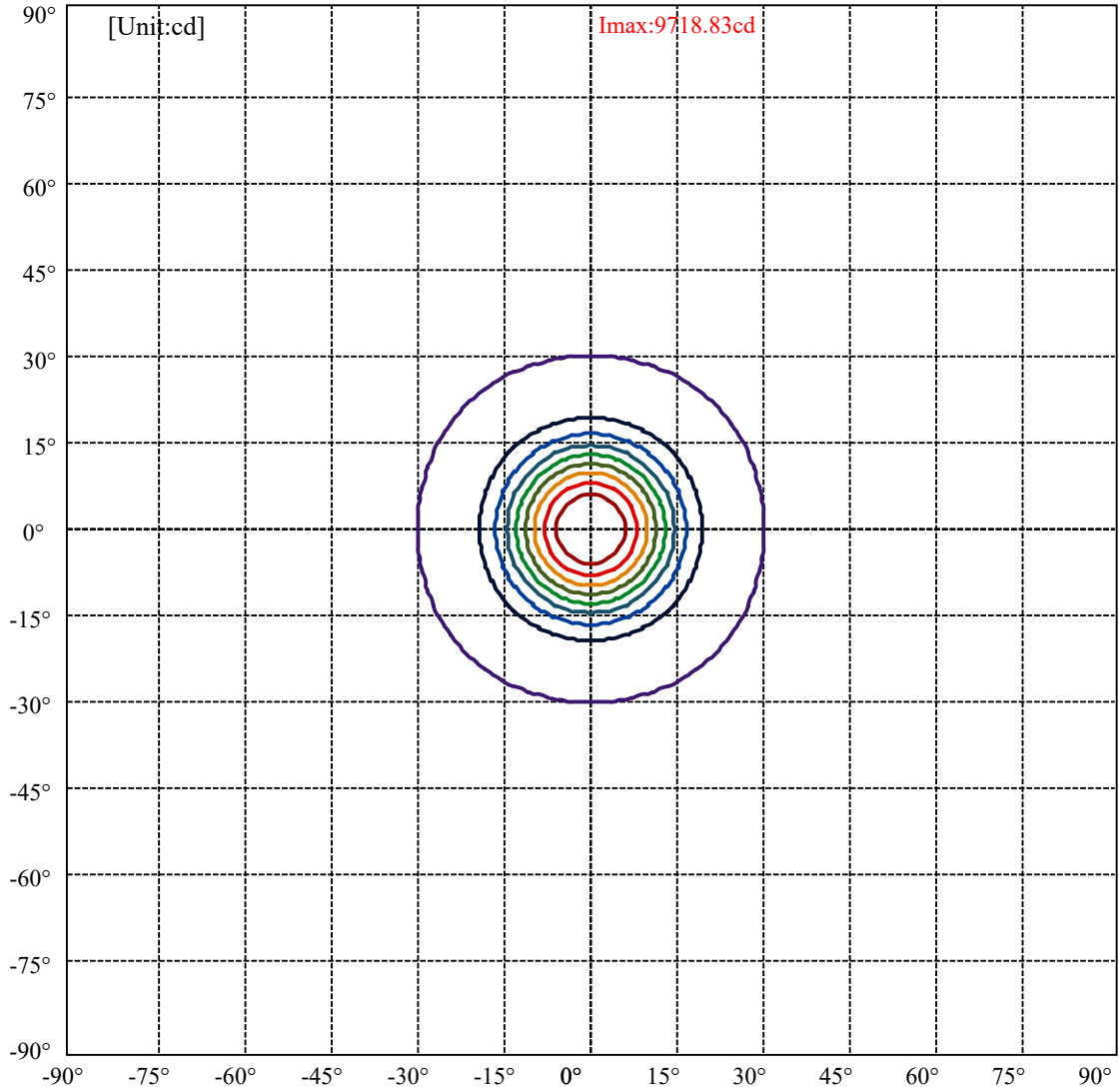
Field angle(10%Imax):C0/180Left:29.8 Right:29.8

:C90/270Left:29.8 Right:29.8

Beam Angle(50%Imax):C0/180Left:12.8 Right:12.8

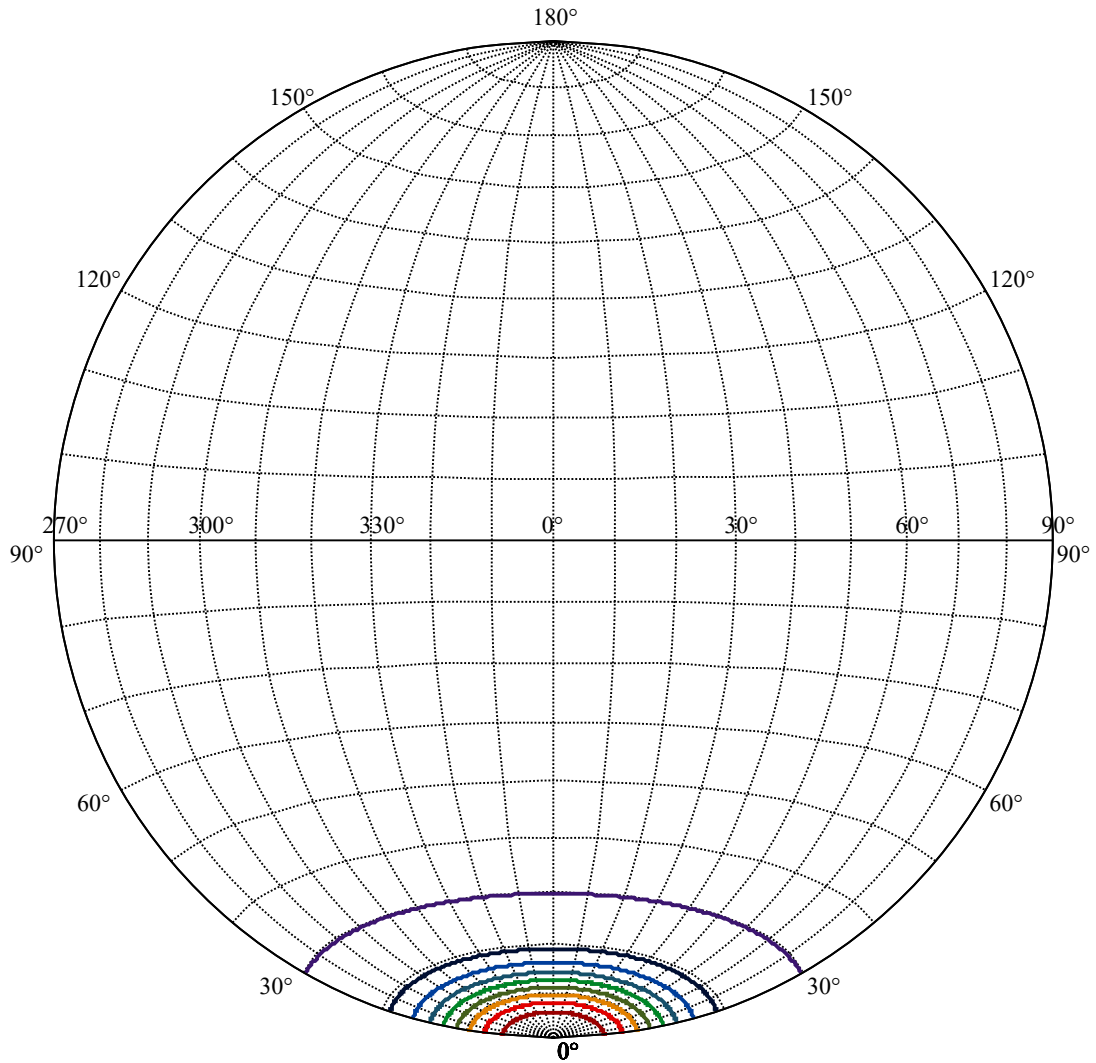
:C90/270Left:12.8 Right:12.8





(10%Imax) 971.883	—
(20%Imax) 1943.77	—
(30%Imax) 2915.65	—
(40%Imax) 3887.53	—
(50%Imax) 4859.42	—
(60%Imax) 5831.3	—
(70%Imax) 6803.18	—
(80%Imax) 7775.06	—
(90%Imax) 8746.95	—





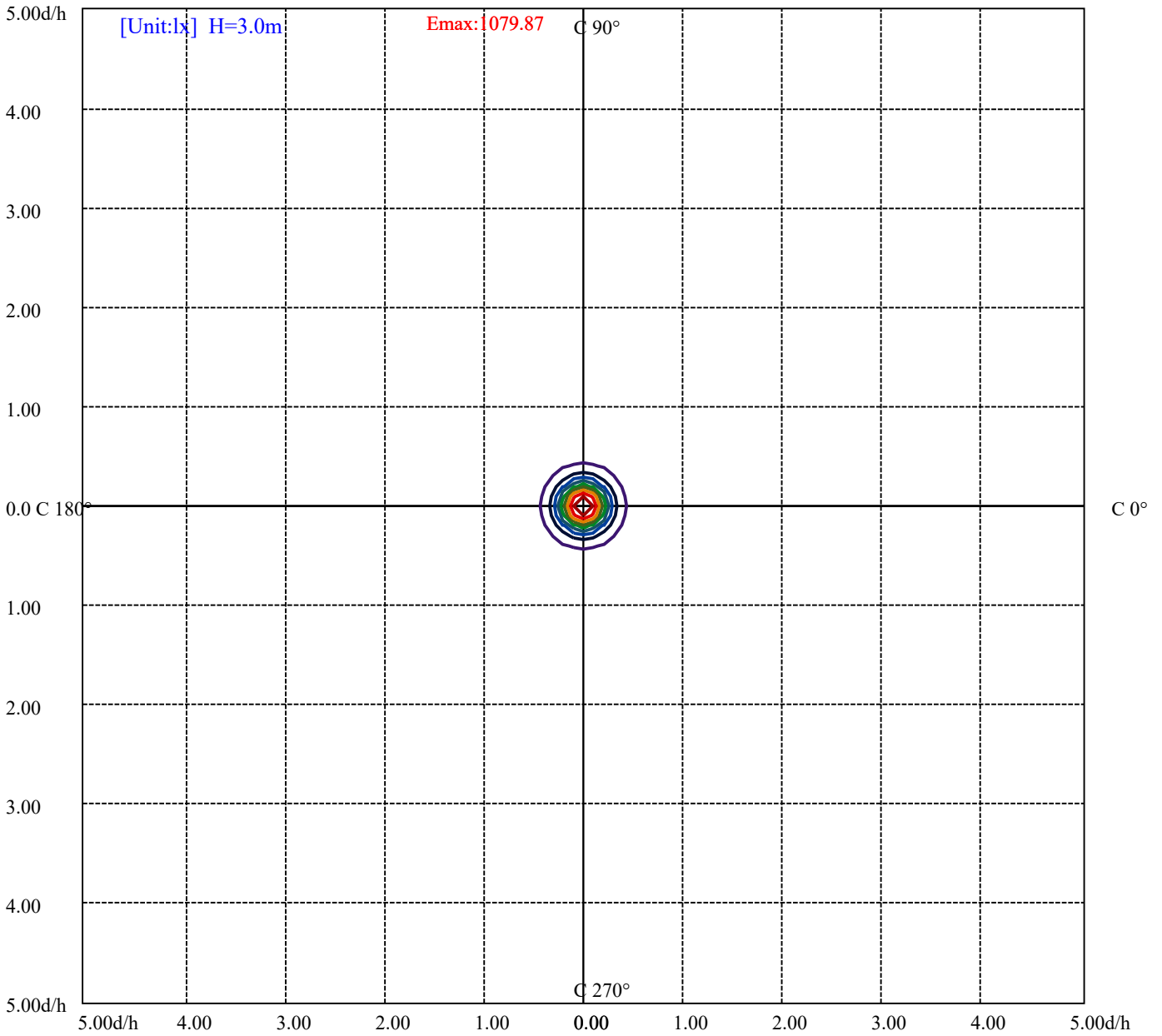
House

[Unit:cd]

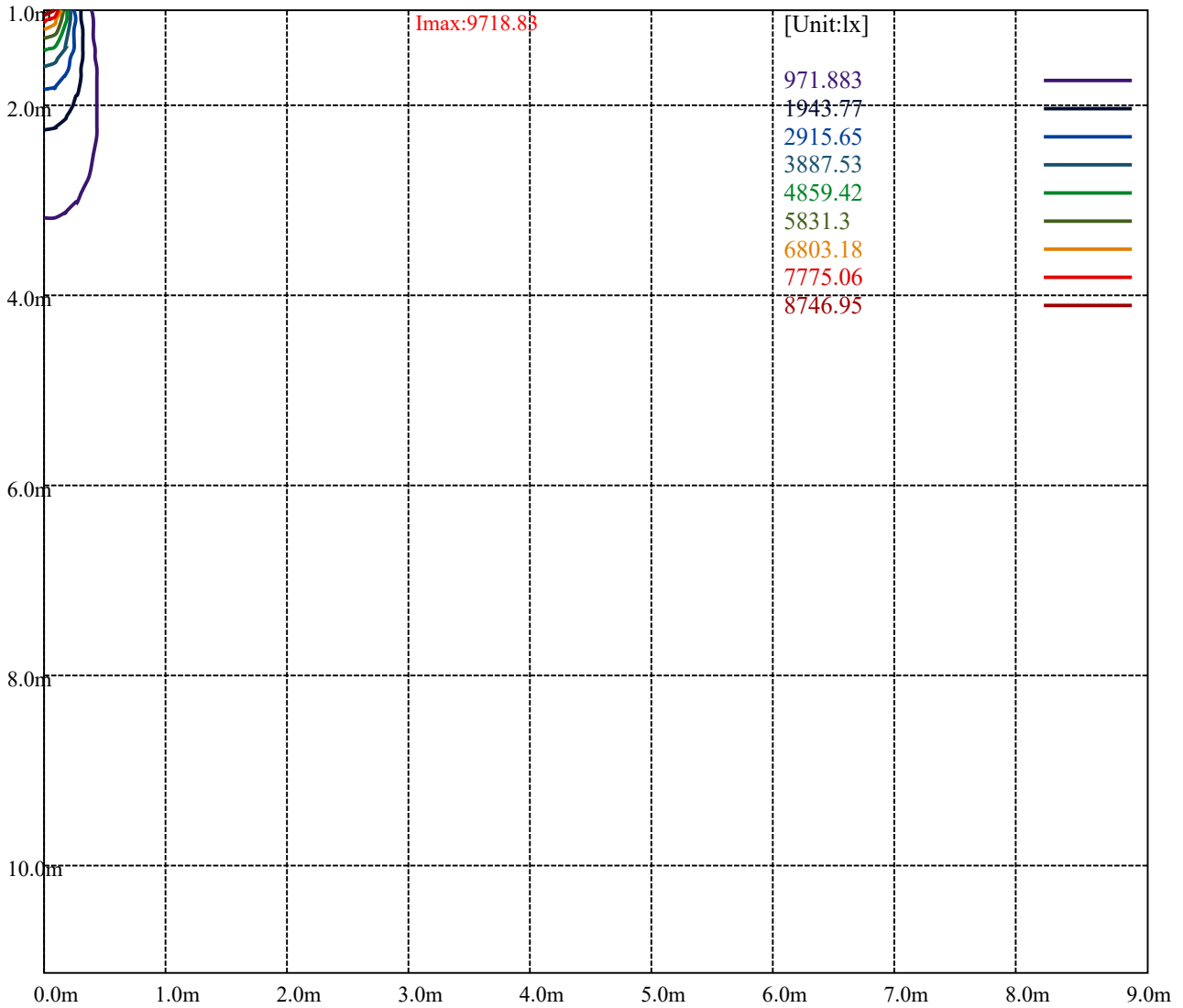
Road

Imax:9718.83

(10%Imax) 971.883	—
(20%Imax) 1943.77	—
(30%Imax) 2915.65	—
(40%Imax) 3887.53	—
(50%Imax) 4859.42	—
(60%Imax) 5831.3	—
(70%Imax) 6803.18	—
(80%Imax) 7775.06	—
(90%Imax) 8746.95	—



- (10%Emax) 107.987
- (20%Emax) 215.9744
- (30%Emax) 323.9611
- (40%Emax) 431.9478
- (50%Emax) 539.9344
- (60%Emax) 647.9222
- (70%Emax) 755.9089
- (80%Emax) 863.8956
- (90%Emax) 971.8834



Luminance Table

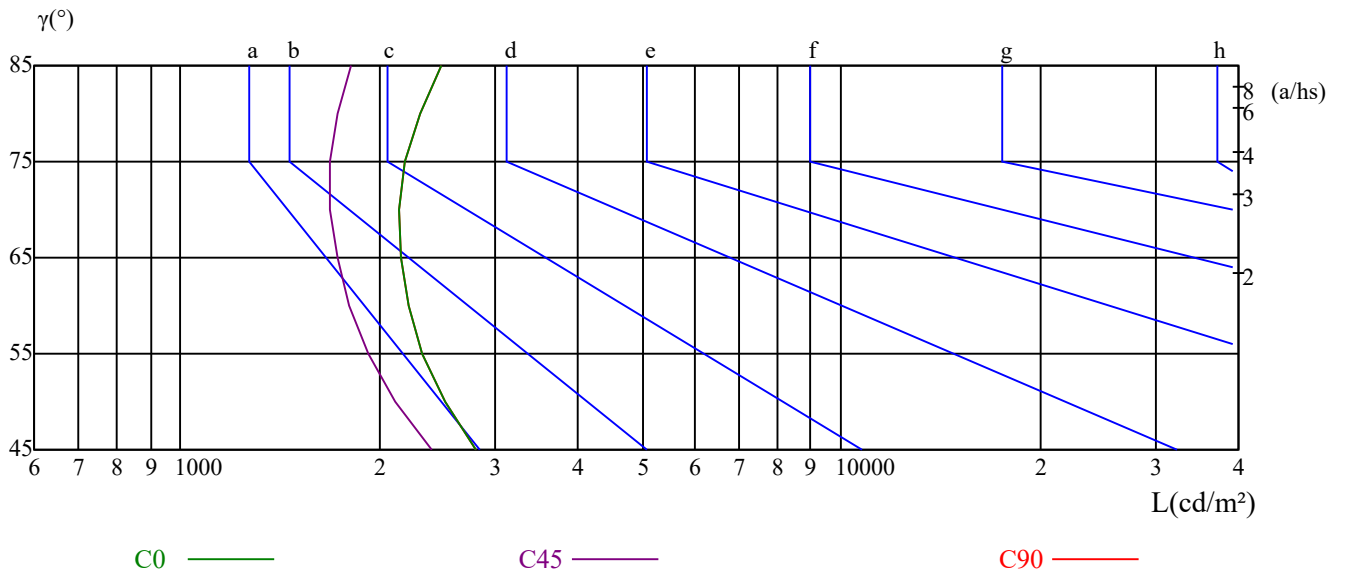
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2808	2512	2329	2211	2154	2144	2189	2301	2485
C45	2398	2113	1928	1802	1725	1684	1684	1728	1816
C90	2808	2512	2329	2211	2154	2144	2189	2301	2485

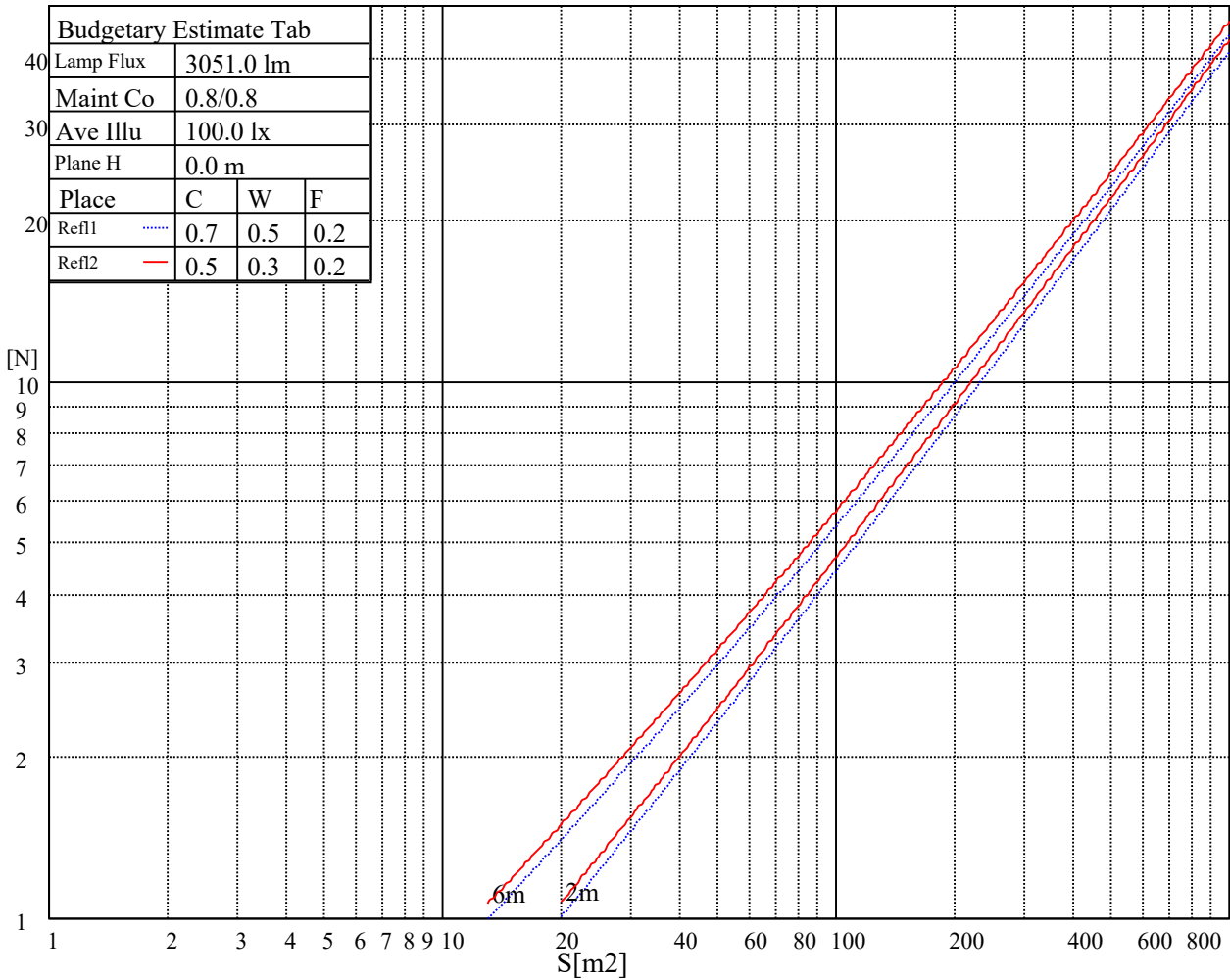
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5406	5406	5406	7939	7939	7939	22470	22470	22470

Glare Table

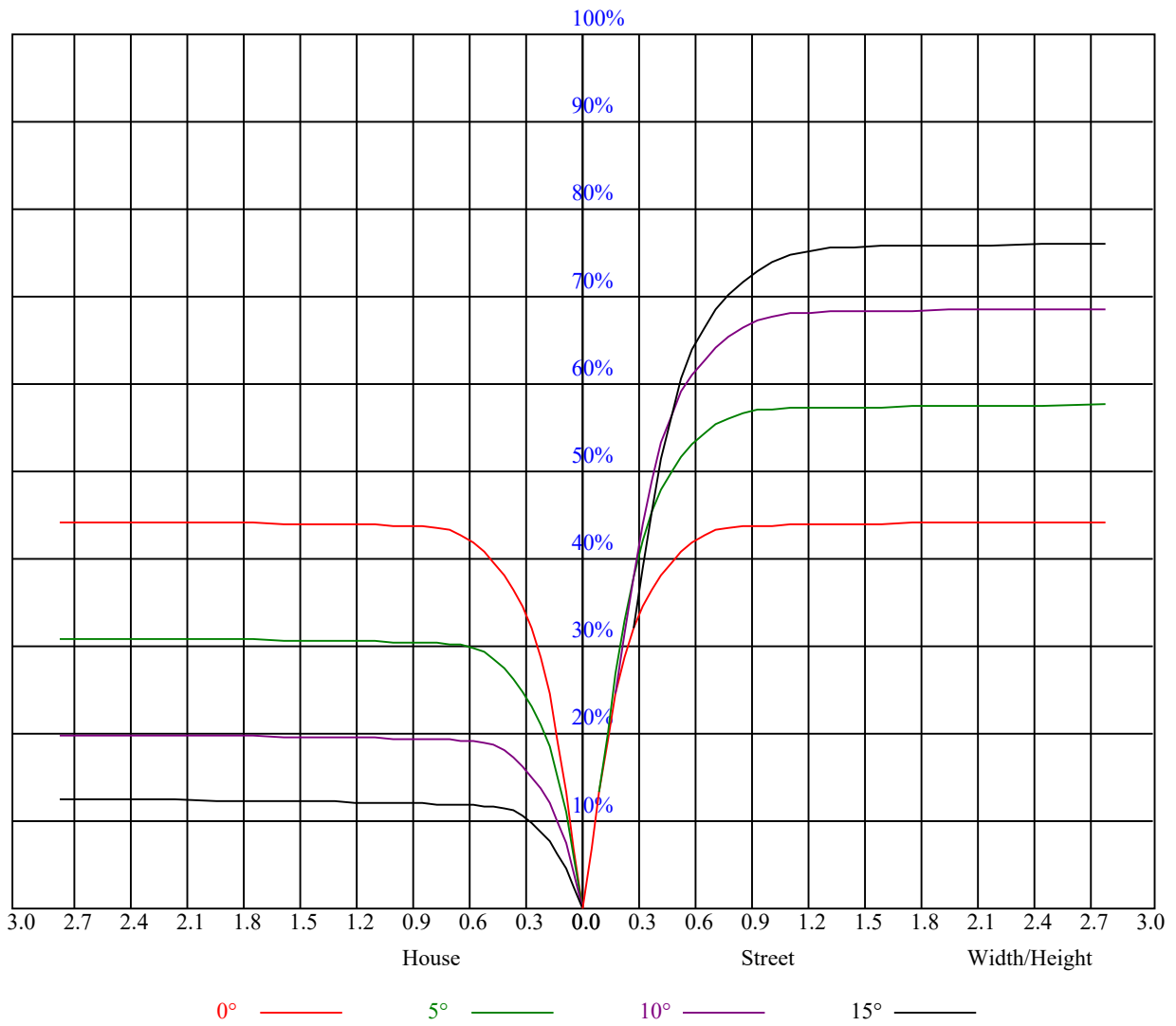
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.72	0.76	0.74	0.72	0.71
6	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.66	0.65
8	0.72	0.68	0.65	0.72	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.63
9	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59



Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	9703.69	9708.10	9662.40	9557.24	9358.49	9078.25	8746.26	8273.88	7795.44
45.0	9732.87	9727.36	9643.68	9506.04	9311.69	8990.16	8559.62	8091.64	7508.04
90.0	9722.96	9692.68	9575.41	9411.89	9185.61	8782.05	8421.43	7881.32	7283.96
135.0	9715.80	9703.69	9660.20	9540.17	9373.90	9081.55	8757.27	8413.72	7838.38
180.0	9703.69	9672.31	9620.56	9473.55	9290.22	9047.42	8682.94	8226.53	7759.10
225.0	9732.87	9709.75	9662.40	9572.66	9421.25	9170.74	8843.71	8483.09	7945.19
270.0	9722.96	9716.90	9687.72	9622.76	9498.88	9278.10	8982.45	8648.26	8199.55
315.0	9715.80	9703.69	9648.63	9507.69	9324.90	9039.16	8707.72	8250.20	7778.37
360.0	9703.69	9708.10	9662.40	9557.24	9358.49	9078.25	8746.26	8273.88	7795.44

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7209.09	6564.37	5968.66	5361.94	4682.55	4022.42	3488.37	2969.19	2535.90
45.0	6879.85	6279.73	5574.46	4952.87	4277.33	3656.85	3174.00	2755.57	2311.27
90.0	6706.42	6022.62	5333.86	4734.30	4158.41	3502.14	3041.87	2639.95	2289.25
135.0	7258.64	6766.98	6029.78	5429.66	4689.70	4129.78	3617.21	3156.38	2649.31
180.0	7171.65	6548.41	5976.37	5329.46	4761.83	4143.54	3577.56	3126.10	2719.24
225.0	7517.40	6918.39	6209.26	5701.09	5048.12	4418.28	3892.49	3408.54	2833.75
270.0	7674.31	7155.68	6534.09	5956.55	5294.77	4634.65	4071.97	3491.68	2996.17
315.0	7196.97	6560.52	5963.71	5280.46	4677.04	4035.08	3456.99	3002.78	2608.02
360.0	7209.09	6564.37	5968.66	5361.94	4682.55	4022.42	3488.37	2969.19	2535.90

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2205.56	1955.60	1639.58	1463.95	1344.48	1209.04	1142.97	1101.68	1057.08
45.0	1984.23	1739.78	1497.53	1346.68	1241.52	1156.18	1099.48	1064.79	1031.76
90.0	1917.61	1678.12	1489.28	1313.10	1216.75	1141.32	1093.70	1055.27	1025.21
135.0	2279.89	2000.20	1700.69	1517.35	1355.49	1225.00	1152.33	1105.53	1067.54
180.0	2284.29	2001.30	1766.21	1524.51	1372.01	1261.34	1173.80	1095.73	1072.83
225.0	2521.03	2215.47	1928.08	1688.03	1507.44	1345.03	1230.51	1160.04	1096.12
270.0	2615.18	2292.00	1955.05	1725.47	1533.87	1362.65	1240.97	1165.54	1109.39
315.0	2198.95	1924.77	1694.09	1466.70	1330.16	1230.51	1151.78	1094.52	1059.06
360.0	2205.56	1955.60	1639.58	1463.95	1344.48	1209.04	1142.97	1101.68	1057.08

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1026.25	1007.53	989.91	973.95	951.37	877.05	786.21	678.85	532.95
45.0	1009.18	988.26	969.54	948.62	893.01	802.72	701.97	591.31	448.71
90.0	999.93	981.60	961.56	937.23	885.91	790.06	675.05	563.78	451.52
135.0	1030.11	1008.08	986.61	968.44	945.32	885.86	802.72	682.70	556.62
180.0	1033.63	1009.35	985.56	964.20	945.48	894.28	800.24	695.69	580.90
225.0	1062.42	1029.11	1007.04	986.39	968.33	939.21	866.04	776.08	652.20
270.0	1067.54	1038.36	1012.49	994.32	975.60	949.72	892.46	791.16	669.49
315.0	1026.91	1004.94	986.28	966.79	944.00	878.65	777.45	667.39	549.96
360.0	1026.25	1007.53	989.91	973.95	951.37	877.05	786.21	678.85	532.95

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	417.33	297.30	161.15	83.25	45.20	36.39	29.51	25.05	21.09
45.0	333.64	279.69	135.33	57.53	39.97	32.54	26.15	23.62	20.87
90.0	312.78	210.10	122.34	57.42	39.15	32.59	26.21	23.62	21.47
135.0	440.45	337.50	292.90	114.68	58.69	40.58	33.58	28.24	24.83
180.0	442.93	331.38	226.94	128.06	62.76	43.60	36.67	30.06	26.87
225.0	518.69	401.14	287.45	164.40	92.44	52.63	41.18	33.69	28.85
270.0	553.32	432.74	285.19	220.61	99.54	51.26	40.03	33.36	27.69
315.0	397.34	284.92	180.20	84.57	47.02	38.37	30.83	25.55	22.90
360.0	417.33	297.30	161.15	83.25	45.20	36.39	29.51	25.05	21.09



Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	20.32	19.82	19.32	18.88	18.44	18.06	17.73	17.45	17.07
45.0	20.32	19.82	19.38	18.99	18.61	18.17	17.84	17.51	17.12
90.0	20.92	20.37	19.93	19.43	19.05	18.66	18.22	17.89	17.56
135.0	22.90	22.30	21.69	21.14	20.65	20.15	19.71	19.38	18.83
180.0	24.11	23.34	22.68	22.02	21.53	20.98	20.43	19.99	19.60
225.0	24.45	23.51	22.85	22.19	21.64	21.03	20.54	20.15	19.71
270.0	23.51	22.41	21.75	21.20	20.65	20.15	19.66	19.27	18.77
315.0	21.03	20.43	19.88	19.43	18.99	18.61	18.17	17.84	17.51
360.0	20.32	19.82	19.32	18.88	18.44	18.06	17.73	17.45	17.07
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	16.85	16.57	16.24	16.02	15.80	15.53	15.31	15.09	14.92
45.0	16.79	16.52	16.24	15.91	15.69	15.47	15.20	15.03	14.87
90.0	17.18	16.90	16.63	16.35	16.08	15.80	15.58	15.36	15.14
135.0	18.50	18.11	17.73	17.40	17.12	16.90	16.57	16.30	16.02
180.0	19.05	18.72	18.33	17.95	17.56	17.29	16.96	16.63	16.35
225.0	19.21	18.83	18.44	18.00	17.67	17.40	17.07	16.79	16.52
270.0	18.39	18.06	17.62	17.34	17.07	16.79	16.52	16.24	16.02
315.0	17.12	16.85	16.57	16.30	16.02	15.80	15.58	15.36	15.20
360.0	16.85	16.57	16.24	16.02	15.80	15.53	15.31	15.09	14.92
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	14.70	14.53	14.37	14.26	14.09	13.93	13.82	13.71	13.60
45.0	14.65	14.48	14.31	14.20	14.04	13.93	13.76	13.65	13.60
90.0	14.92	14.76	14.59	14.37	14.26	14.09	13.93	13.82	13.71
135.0	15.80	15.53	15.25	15.09	14.81	14.65	14.48	14.26	14.09
180.0	16.08	15.80	15.58	15.31	15.14	14.92	14.70	14.48	14.31
225.0	16.24	16.02	15.80	15.53	15.31	15.09	14.87	14.65	14.53
270.0	15.80	15.58	15.36	15.20	14.98	14.81	14.65	14.48	14.31
315.0	14.98	14.81	14.65	14.42	14.31	14.15	13.98	13.87	13.76
360.0	14.70	14.53	14.37	14.26	14.09	13.93	13.82	13.71	13.60
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.49	13.43	13.32	13.21	13.21	13.10	13.05	12.99	12.94
45.0	13.49	13.43	13.32	13.21	13.16	13.10	13.05	12.99	12.94
90.0	13.54	13.49	13.38	13.32	13.21	13.16	13.10	13.05	12.99
135.0	13.93	13.82	13.65	13.54	13.43	13.32	13.21	13.16	13.10
180.0	14.15	13.98	13.87	13.71	13.54	13.43	13.32	13.27	13.16
225.0	14.31	14.15	14.04	13.82	13.71	13.60	13.49	13.38	13.27
270.0	14.15	13.98	13.87	13.71	13.65	13.49	13.43	13.32	13.27
315.0	13.60	13.54	13.43	13.32	13.32	13.21	13.10	13.10	12.99
360.0	13.49	13.43	13.32	13.21	13.21	13.10	13.05	12.99	12.94
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	12.94	12.88	12.83	12.83	12.83	12.77	12.72	12.66	12.66
45.0	12.94	12.88	12.83	12.77	12.77	12.77	12.72	12.72	12.66
90.0	12.94	12.88	12.83	12.83	12.83	12.77	12.72	12.72	12.72
135.0	13.05	12.94	12.94	12.88	12.88	12.77	12.72	12.72	12.72
180.0	13.05	12.99	12.94	12.88	12.83	12.77	12.72	12.72	12.66
225.0	13.16	13.10	13.05	12.99	12.88	12.83	12.83	12.77	12.72
270.0	13.16	13.10	12.99	12.94	12.94	12.83	12.77	12.77	12.77
315.0	12.99	12.94	12.88	12.83	12.83	12.77	12.77	12.72	12.72
360.0	12.94	12.88	12.83	12.83	12.83	12.77	12.72	12.66	12.66

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>12.66</b>
<b>45.0</b>	<b>12.66</b>
<b>90.0</b>	<b>12.72</b>
<b>135.0</b>	<b>12.66</b>
<b>180.0</b>	<b>12.66</b>
<b>225.0</b>	<b>12.72</b>
<b>270.0</b>	<b>12.72</b>
<b>315.0</b>	<b>12.72</b>
<b>360.0</b>	<b>12.66</b>