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## Nata

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LumCAT: 3-2383-M	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 33.8200
Test No: GC2019092327	Current(A): 0.5000
LampCAT: BRIDGELUX V13B	Power (W): 16.9100
Lamp flux(lm): 2398.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 74	Width(mm): 74
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2316.61  
Efficiency(%): 96.61%  
Lumens(lm)/Power(W): 137.00  
Central intensity(cd): 11919.380  
Maximum intensity(cd): 11919.380  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=21.8  
                                  [C90/270]Total=21.8  
Field angle(10%Imax): [C0/180]Total=36.2  
                                  [C90/270]Total=36.2  
Maximum s/h(1/2): C0\_180=0.37 C90\_270=0.37  
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(%): 96.61%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.445%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11919.375	0.000	0	.000%	.000%
1.0	11885.625	11.390	11.39	.475%	.492%
2.0	11791.406	33.984	45.374	1.417%	1.959%
3.0	11632.500	56.022	101.396	2.336%	4.377%
4.0	11377.477	77.022	178.418	3.212%	7.702%
5.0	11101.430	96.703	275.121	4.033%	11.876%
6.0	10562.977	113.852	388.973	4.748%	16.791%
7.0	9777.094	126.250	515.224	5.265%	22.240%
8.0	8945.438	133.994	649.217	5.588%	28.024%
9.0	7916.344	136.656	785.873	5.699%	33.923%
10.0	6857.578	133.699	919.571	5.575%	39.695%
11.0	5885.578	127.330	1046.902	5.310%	45.191%
12.0	4873.711	117.614	1164.516	4.905%	50.268%
13.0	3860.367	103.651	1268.168	4.322%	54.742%
14.0	3012.680	87.974	1356.142	3.669%	58.540%
15.0	2449.969	74.994	1431.136	3.127%	61.777%
16.0	1763.578	61.740	1492.876	2.575%	64.442%
17.0	1447.945	50.012	1542.888	2.086%	66.601%
18.0	1202.569	43.701	1586.589	1.822%	68.488%
19.0	1107.513	40.191	1626.78	1.676%	70.222%
20.0	1015.629	38.859	1665.639	1.620%	71.900%
21.0	947.355	37.693	1703.333	1.572%	73.527%
22.0	897.244	37.068	1740.401	1.546%	75.127%
23.0	859.099	36.853	1777.253	1.537%	76.718%
24.0	830.222	36.935	1814.188	1.540%	78.312%
25.0	805.746	37.198	1851.386	1.551%	79.918%
26.0	786.495	37.585	1888.971	1.567%	81.540%
27.0	770.527	38.093	1927.064	1.589%	83.185%
28.0	754.755	38.617	1965.681	1.610%	84.852%
29.0	741.551	39.148	2004.829	1.633%	86.542%
30.0	723.291	39.550	2044.379	1.649%	88.249%
31.0	673.010	38.857	2083.236	1.620%	89.926%
32.0	599.885	36.467	2119.703	1.521%	91.500%
33.0	521.663	33.041	2152.744	1.378%	92.927%
34.0	422.691	28.579	2181.323	1.192%	94.160%
35.0	333.464	23.483	2204.807	.979%	95.174%
36.0	256.444	18.783	2223.589	.783%	95.985%
37.0	163.596	13.699	2237.289	.571%	96.576%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	83.967	8.263	2245.552	.345%	96.933%
39.0	40.816	4.259	2249.811	.178%	97.117%
40.0	28.554	2.419	2252.231	.101%	97.221%
41.0	25.798	1.935	2254.166	.081%	97.305%
42.0	23.273	1.783	2255.949	.074%	97.382%
43.0	21.375	1.654	2257.603	.069%	97.453%
44.0	20.285	1.572	2259.175	.066%	97.521%
45.0	19.413	1.526	2260.701	.064%	97.587%
46.0	18.703	1.491	2262.192	.062%	97.651%
47.0	17.866	1.454	2263.646	.061%	97.714%
48.0	17.367	1.424	2265.07	.059%	97.775%
49.0	16.734	1.400	2266.471	.058%	97.836%
50.0	16.214	1.374	2267.844	.057%	97.895%
51.0	15.645	1.348	2269.192	.056%	97.953%
52.0	15.223	1.325	2270.517	.055%	98.010%
53.0	14.723	1.303	2271.82	.054%	98.067%
54.0	14.365	1.282	2273.102	.053%	98.122%
55.0	14.027	1.267	2274.369	.053%	98.177%
56.0	13.760	1.256	2275.625	.052%	98.231%
57.0	13.514	1.247	2276.872	.052%	98.285%
58.0	13.324	1.241	2278.113	.052%	98.338%
59.0	13.120	1.236	2279.349	.052%	98.392%
60.0	12.980	1.233	2280.582	.051%	98.445%
61.0	12.846	1.232	2281.815	.051%	98.498%
62.0	12.741	1.233	2283.048	.051%	98.551%
63.0	12.663	1.236	2284.283	.052%	98.605%
64.0	12.558	1.238	2285.521	.052%	98.658%
65.0	12.445	1.237	2286.758	.052%	98.711%
66.0	12.326	1.236	2287.994	.052%	98.765%
67.0	12.178	1.232	2289.226	.051%	98.818%
68.0	12.045	1.227	2290.453	.051%	98.871%
69.0	11.918	1.222	2291.676	.051%	98.924%
70.0	11.798	1.218	2292.894	.051%	98.976%
71.0	11.679	1.213	2294.107	.051%	99.029%
72.0	11.580	1.209	2295.316	.050%	99.081%
73.0	11.482	1.206	2296.522	.050%	99.133%
74.0	11.398	1.203	2297.725	.050%	99.185%
75.0	11.320	1.200	2298.926	.050%	99.237%

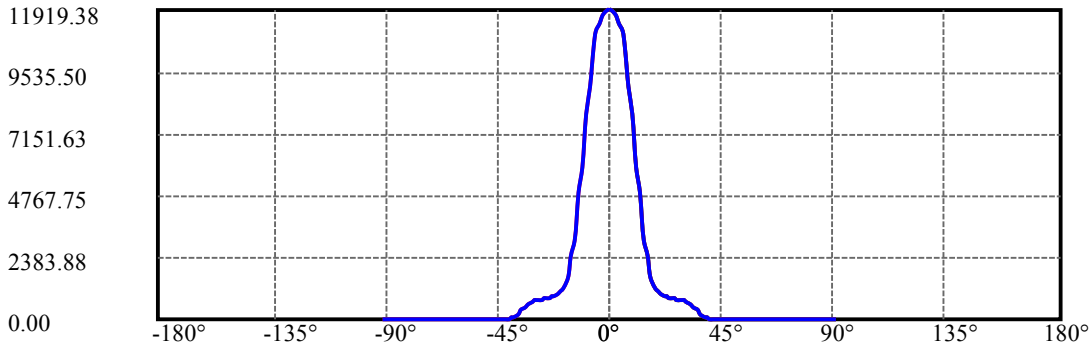
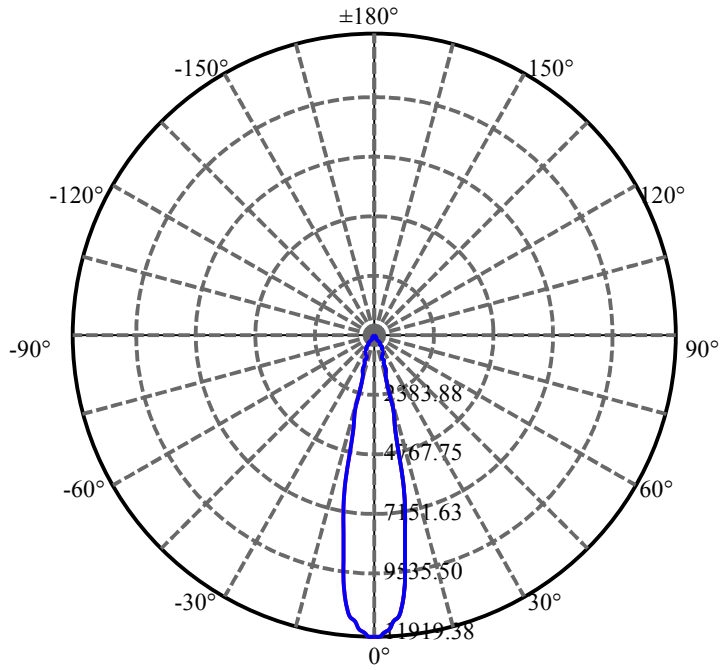
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.257	1.198	2300.124	.050%	99.288%
77.0	11.194	1.197	2301.321	.050%	99.340%
78.0	11.130	1.195	2302.516	.050%	99.392%
79.0	11.067	1.193	2303.709	.050%	99.443%
80.0	10.997	1.190	2304.898	.050%	99.494%
81.0	10.962	1.187	2306.086	.050%	99.546%
82.0	10.905	1.186	2307.272	.049%	99.597%
83.0	10.849	1.183	2308.454	.049%	99.648%
84.0	10.807	1.180	2309.634	.049%	99.699%
85.0	10.723	1.175	2310.809	.049%	99.750%
86.0	10.723	1.172	2311.981	.049%	99.800%
87.0	10.610	1.168	2313.149	.049%	99.851%
88.0	10.547	1.159	2314.308	.048%	99.901%
89.0	10.498	1.153	2315.461	.048%	99.950%
90.0	10.434	1.148	2316.609	.048%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2044.38	85.25%	88.25%
0-40	2252.23	93.92%	97.22%
0-60	2280.58	95.10%	98.44%
0-90	2315.46	96.56%	99.95%
0-120	2315.46	96.56%	99.95%
0-180	2316.61	96.61%	100.00%
60-90	36.11	1.51%	1.56%
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%
0-25.05	1853.29	77.28%	80.00%

ZONAL LUMEN SUMMARY

0-10	919.57
10-20	746.07
20-30	378.74
30-40	207.85
40-50	15.61
50-60	12.74
60-70	12.31
70-80	12.00
80-90	10.56
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: —————

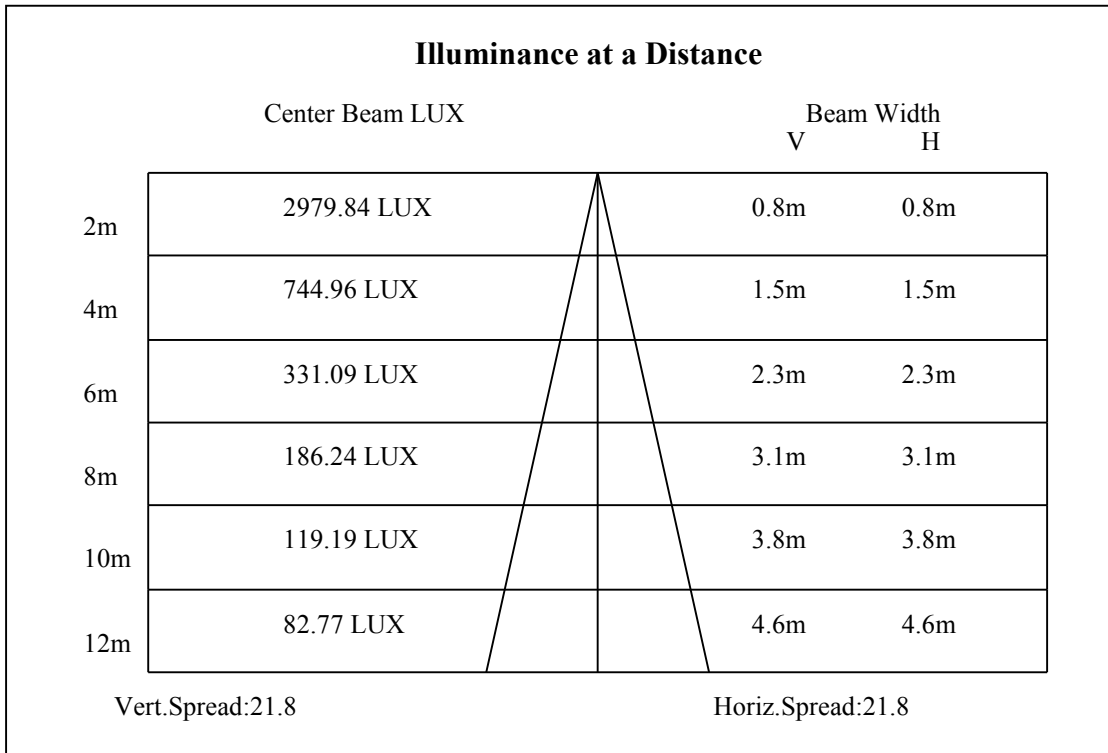
C90/C270: —————

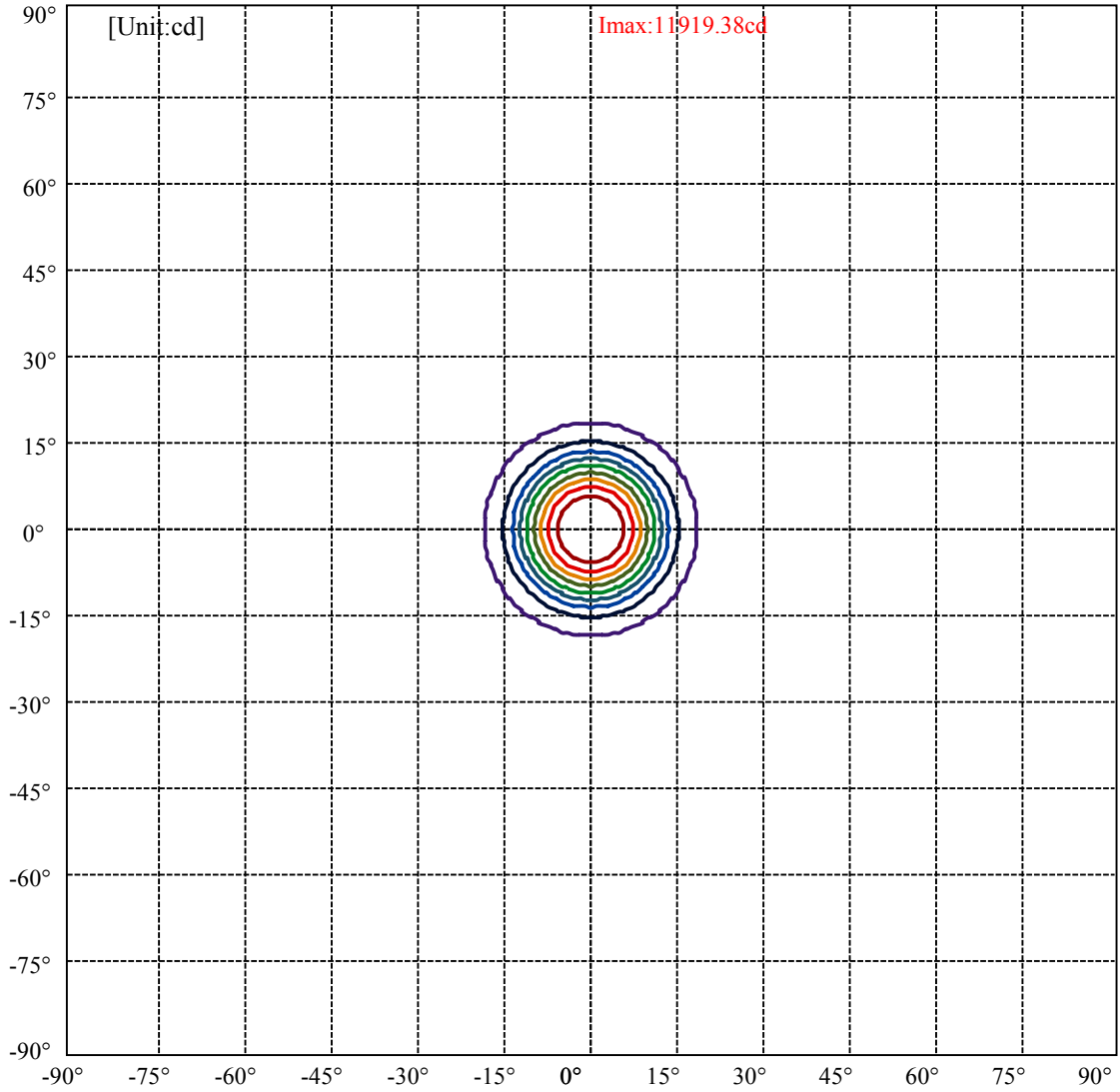
Field angle(10%Imax):C0/180Left:18.1 Right:18.1

:C90/270Left:18.1 Right:18.1

Beam Angle(50%Imax):C0/180Left:10.9 Right:10.9

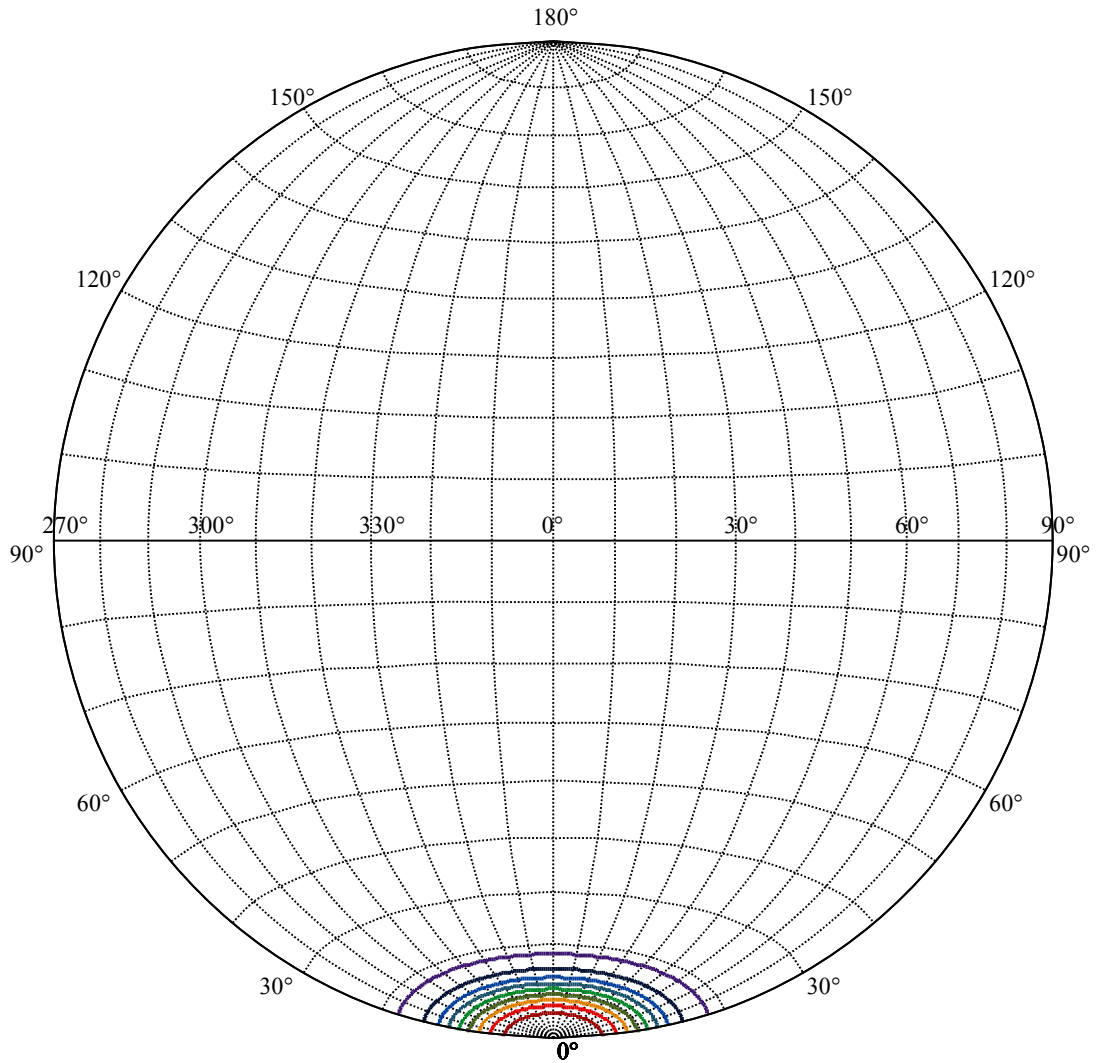
:C90/270Left:10.9 Right:10.9





(10%Imax) 1191.94	—
(20%Imax) 2383.88	—
(30%Imax) 3575.81	—
(40%Imax) 4767.75	—
(50%Imax) 5959.69	—
(60%Imax) 7151.63	—
(70%Imax) 8343.56	—
(80%Imax) 9535.5	—
(90%Imax) 10727.4	—





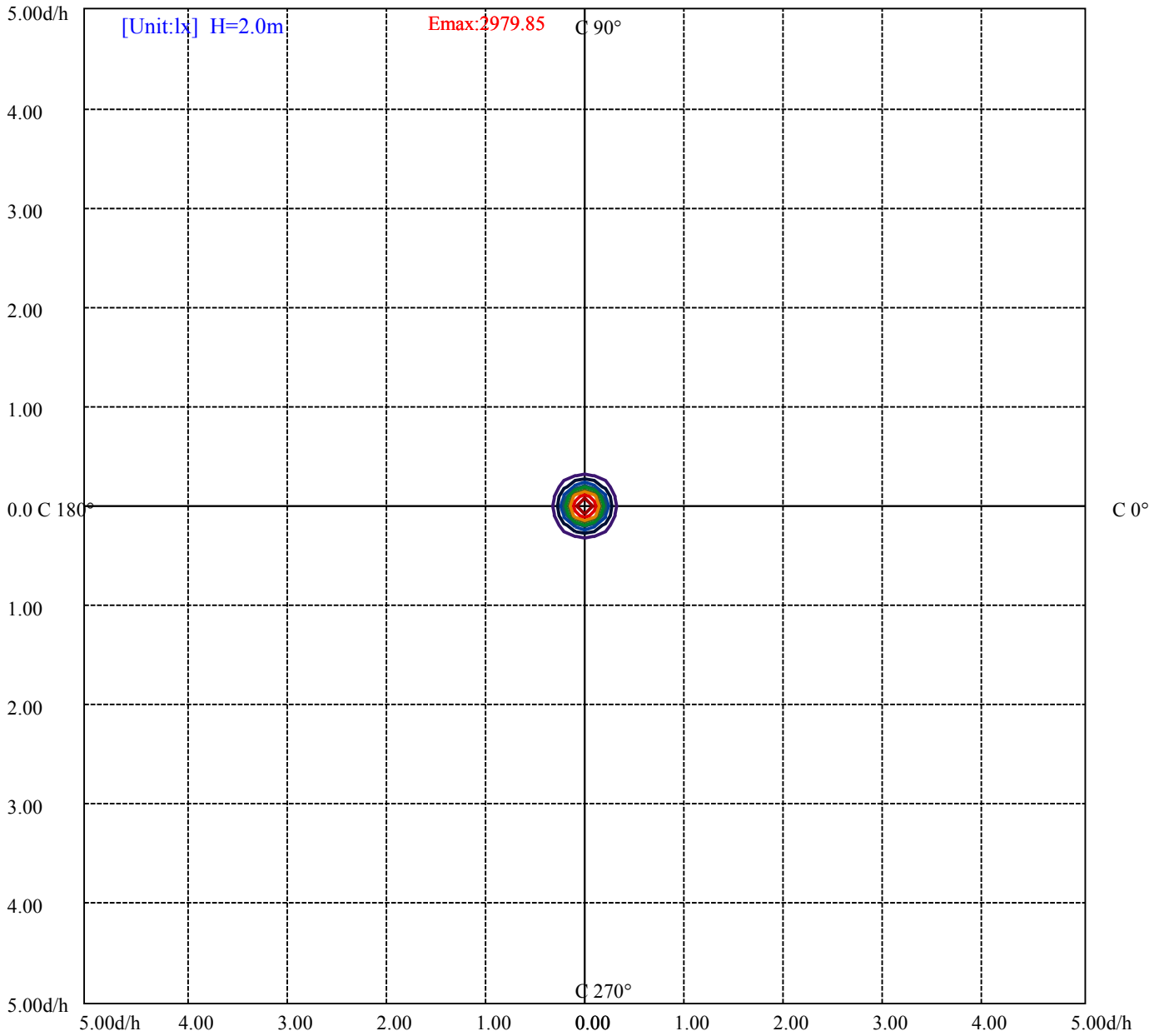
House

[Unit:cd]

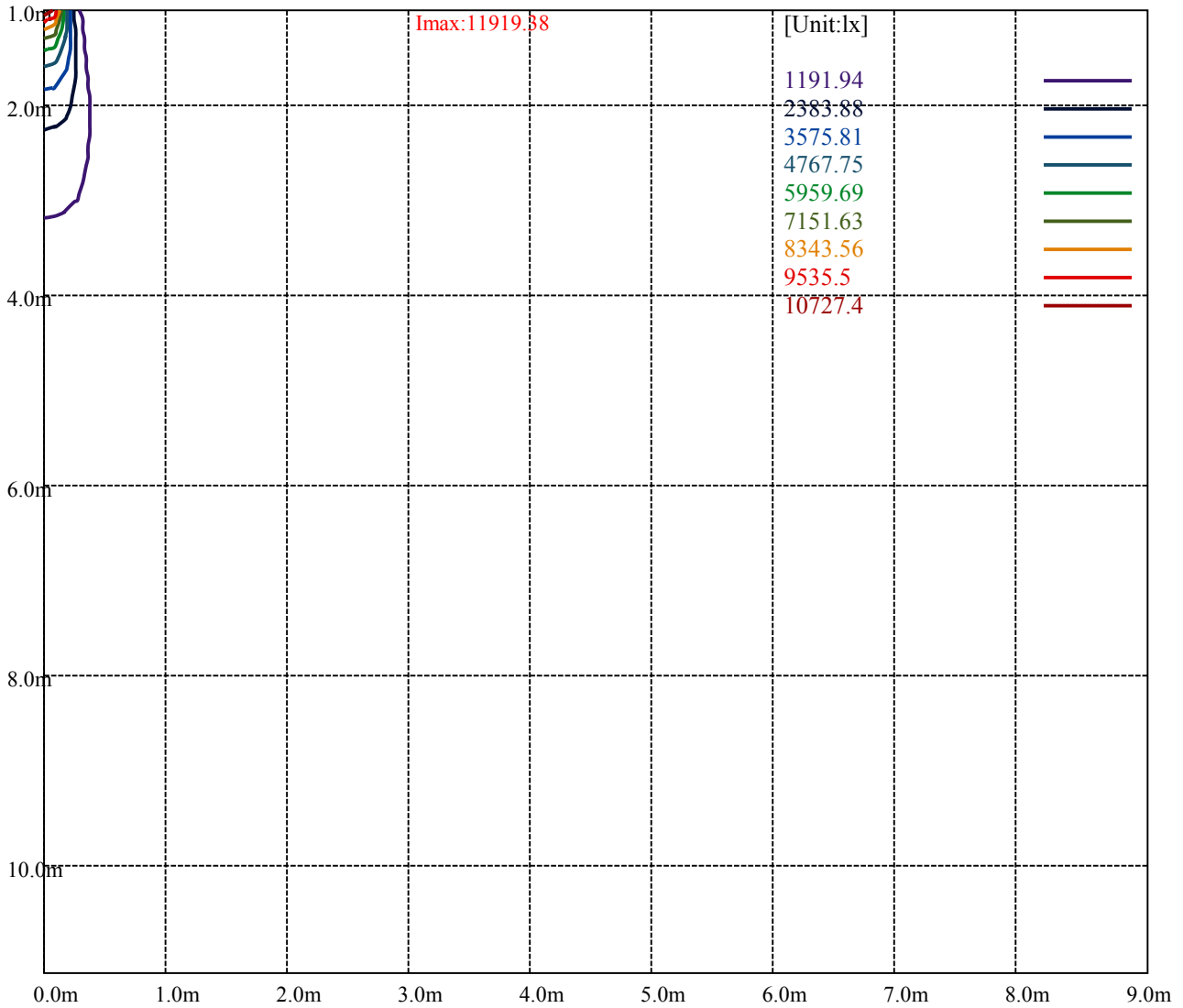
Road

**Imax:11919.38**

(10%Imax)	1191.94	—
(20%Imax)	2383.88	—
(30%Imax)	3575.81	—
(40%Imax)	4767.75	—
(50%Imax)	5959.69	—
(60%Imax)	7151.63	—
(70%Imax)	8343.56	—
(80%Imax)	9535.5	—
(90%Imax)	10727.4	—



- (10%Emax) 297.985
- (20%Emax) 595.9675
- (30%Emax) 893.9525
- (40%Emax) 1191.938
- (50%Emax) 1489.922
- (60%Emax) 1787.905
- (70%Emax) 2085.89
- (80%Emax) 2383.875
- (90%Emax) 2681.85



Luminance Table

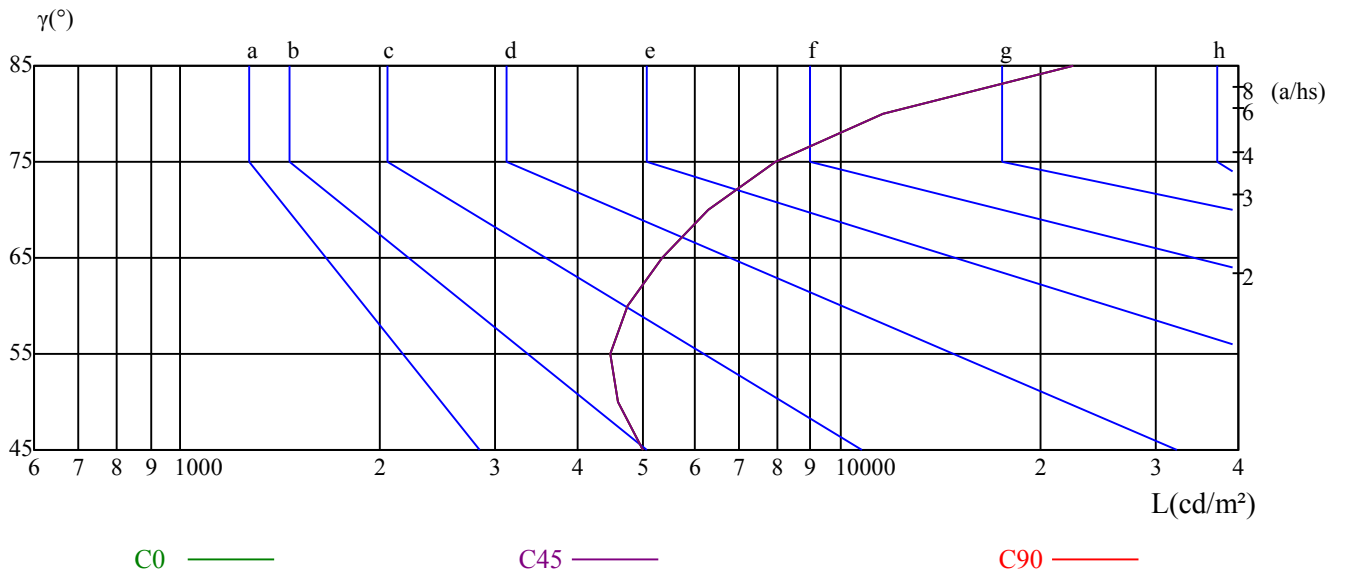
$\gamma$	45	50	55	60	65	70	75	80	85
C0	5014	4606	4466	4741	5378	6300	7987	11565	22467
C45	5014	4606	4466	4741	5378	6300	7987	11565	22467
C90	5014	4606	4466	4741	5378	6300	7987	11565	22467

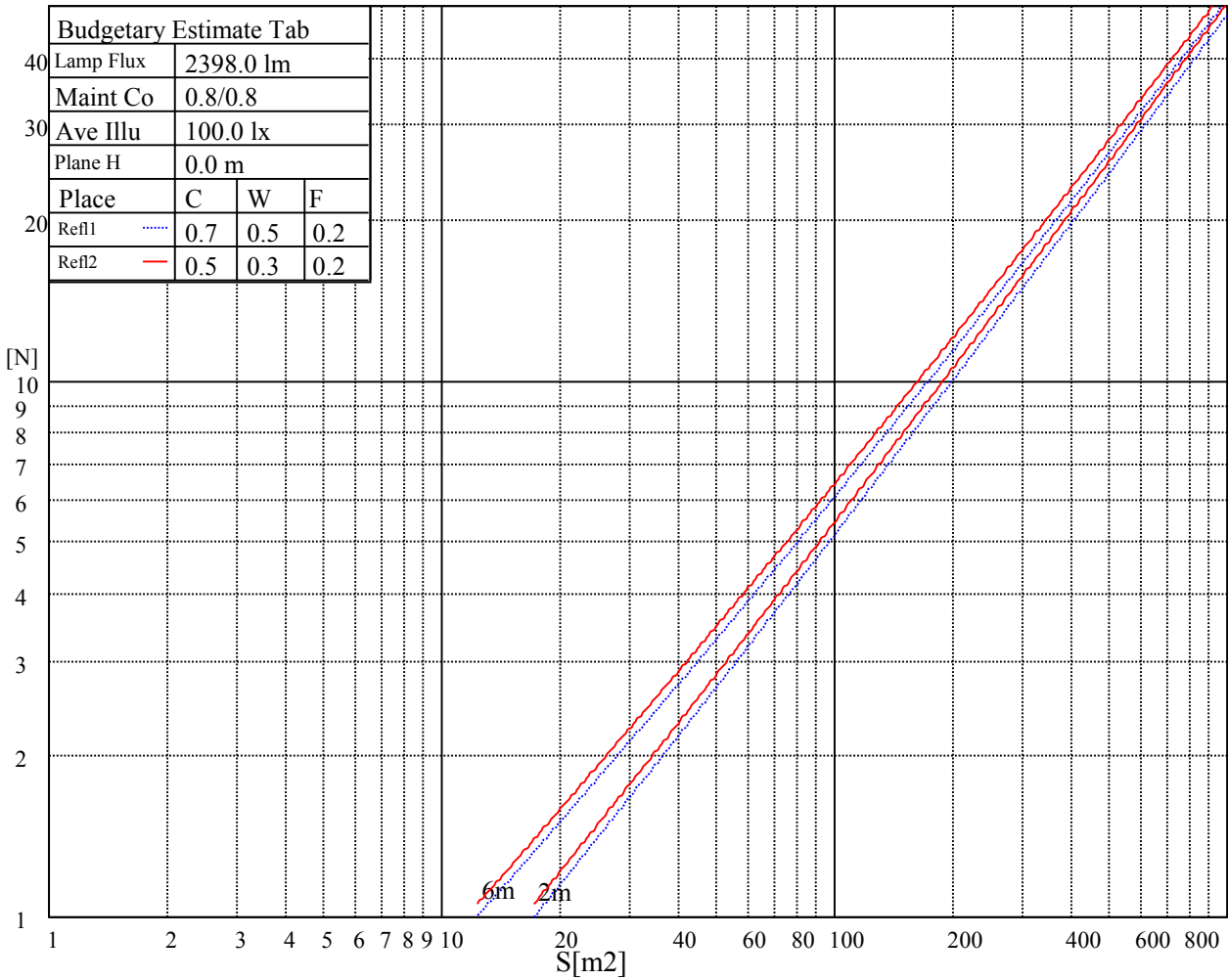
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5378	5378	5378	7987	7987	7987	22467	22467	22467

Glare Table

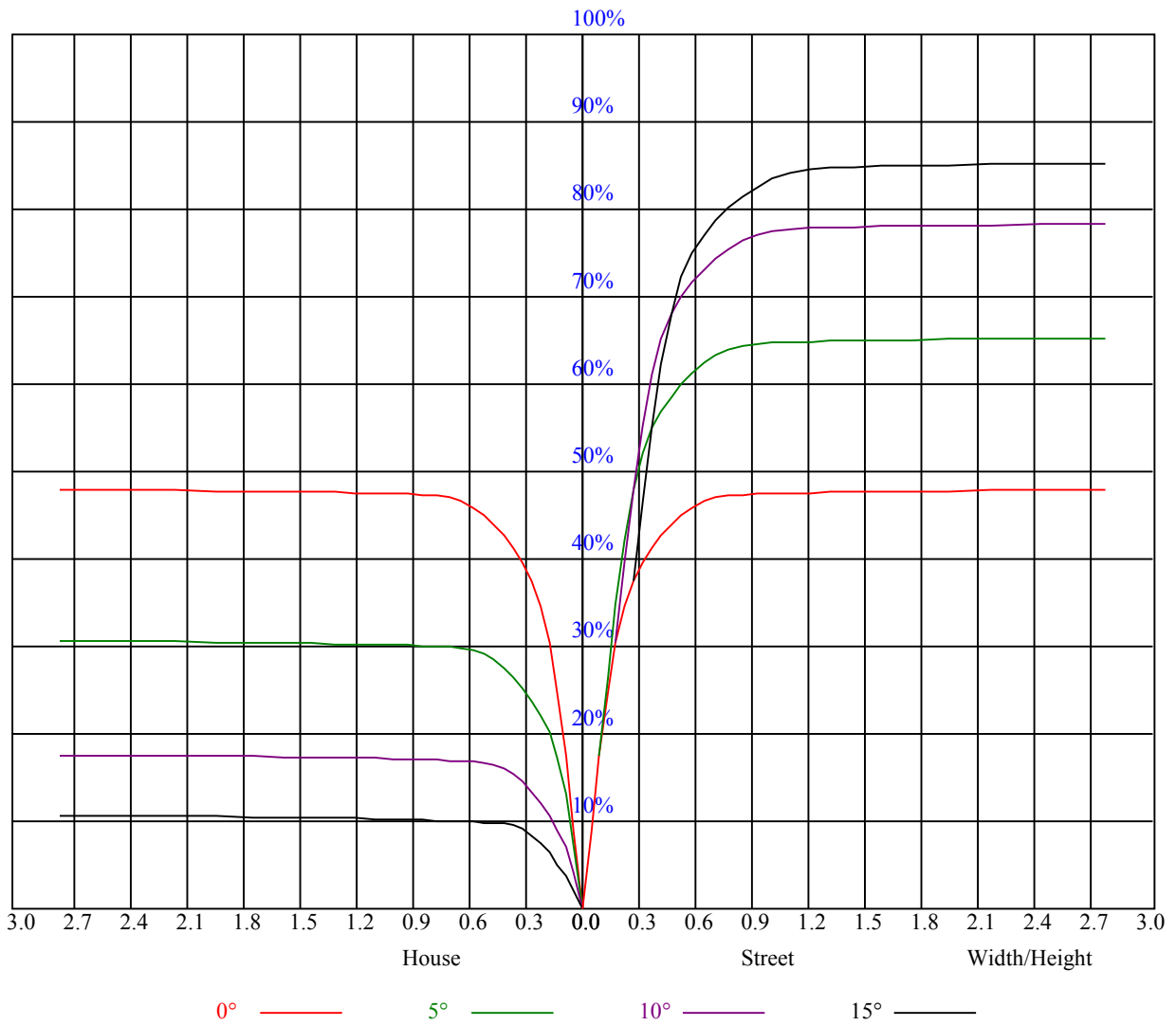
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.15	1.15	1.15	1.12	1.12	1.12	1.07	1.07	1.07	1.03	1.03	1.03	0.99	0.99	0.99	0.97
1	1.08	1.06	1.05	1.06	1.05	1.03	1.03	1.01	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.92
2	1.03	1.00	0.97	1.01	0.99	0.96	0.98	0.96	0.94	0.96	0.94	0.92	0.93	0.92	0.90	0.89
3	0.98	0.95	0.92	0.97	0.94	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.90	0.88	0.87	0.86
4	0.94	0.90	0.87	0.93	0.90	0.87	0.91	0.88	0.86	0.90	0.87	0.85	0.88	0.86	0.84	0.83
5	0.91	0.86	0.83	0.90	0.86	0.83	0.88	0.85	0.82	0.87	0.84	0.82	0.85	0.83	0.81	0.80
6	0.87	0.83	0.80	0.87	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.83	0.80	0.78	0.77
7	0.84	0.80	0.77	0.84	0.80	0.77	0.83	0.79	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.75
8	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.74	0.73
9	0.79	0.75	0.73	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.77	0.74	0.72	0.71
10	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.69



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	11947.50	11896.88	11806.88	11688.75	11508.75	11070.00	10344.38	9534.38	8645.63
45.0	11925.00	11891.25	11806.88	11671.88	11486.25	11126.25	10603.13	9787.50	8943.75
90.0	11896.88	11851.88	11739.38	11531.25	11223.00	10931.06	10288.13	9441.56	8566.88
135.0	11908.13	11925.00	11840.63	11700.00	11497.50	11227.50	10811.25	10102.50	9326.25
180.0	11947.50	11947.50	11840.63	11688.75	11458.13	11205.00	10837.13	10037.81	9208.69
225.0	11925.00	11863.13	11756.25	11520.00	11196.56	11056.50	10559.25	9802.69	9007.88
270.0	11896.88	11863.13	11778.75	11626.88	11441.25	11171.25	10732.50	10080.00	9315.00
315.0	11908.13	11846.25	11761.88	11632.50	11208.38	11023.88	10328.06	9430.31	8549.44
360.0	11947.50	11896.88	11806.88	11688.75	11508.75	11070.00	10344.38	9534.38	8645.63
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7509.38	6586.88	5664.38	4601.25	3594.38	2857.50	2463.75	1614.94	1384.31
45.0	7925.63	6823.13	5833.13	4876.88	3723.75	2885.63	2486.25	1695.38	1422.00
90.0	7396.31	6387.75	5389.88	4342.50	3509.44	2682.00	1977.75	1645.31	1383.75
135.0	8370.00	7329.38	6378.75	5422.50	4280.63	3420.00	2880.00	2036.81	1580.63
180.0	8296.31	7135.88	6211.13	5303.81	4318.31	3399.19	2639.25	1929.38	1522.69
225.0	8002.69	6923.25	5940.00	4850.44	3955.50	3056.06	2287.69	1776.94	1456.88
270.0	8347.50	7267.50	6249.38	5248.13	4050.00	3217.50	2925.00	1828.13	1478.25
315.0	7482.94	6406.88	5418.00	4344.19	3450.94	2583.56	1940.06	1581.75	1355.06
360.0	7509.38	6586.88	5664.38	4601.25	3594.38	2857.50	2463.75	1614.94	1384.31
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1216.13	1111.50	1023.75	970.88	911.81	875.81	847.69	821.25	804.94
45.0	1244.81	1112.06	1026.00	963.56	914.63	875.25	846.56	823.50	806.06
90.0	1116.90	1067.23	988.31	917.44	873.28	839.42	810.28	786.54	772.93
135.0	1341.00	1187.44	1060.88	987.19	929.81	882.00	848.25	826.88	802.69
180.0	1209.94	1093.89	1013.85	936.96	882.84	847.41	821.03	794.59	778.95
225.0	1122.19	1099.24	1014.64	947.48	898.99	865.80	840.49	812.76	796.84
270.0	1255.50	1107.00	986.06	919.69	868.50	823.50	793.69	769.50	735.19
315.0	1114.09	1081.74	1011.54	935.66	898.09	863.61	833.79	810.96	794.36
360.0	1216.13	1111.50	1023.75	970.88	911.81	875.81	847.69	821.25	804.94
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	789.19	770.63	758.81	736.88	671.06	599.63	518.06	407.25	315.00
45.0	790.88	772.88	760.50	743.63	680.06	614.81	534.38	416.81	334.69
90.0	760.22	745.09	732.99	707.29	647.55	565.76	484.03	389.98	307.58
135.0	785.81	770.63	756.56	744.19	708.19	637.31	566.44	466.31	370.69
180.0	765.51	752.29	737.16	725.85	688.95	613.52	534.66	449.38	348.81
225.0	781.54	765.45	751.16	735.98	684.45	606.04	524.59	424.80	334.41
270.0	714.94	699.75	686.81	675.56	646.88	589.50	522.00	439.31	358.88
315.0	776.14	761.34	748.41	716.96	656.94	572.51	489.15	387.68	297.68
360.0	789.19	770.63	758.81	736.88	671.06	599.63	518.06	407.25	315.00
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	291.94	134.89	66.77	31.22	25.14	22.56	19.24	17.44	16.59
45.0	290.81	176.68	82.29	39.49	28.07	25.31	21.77	19.74	18.96
90.0	216.62	133.93	75.99	41.01	36.51	33.41	30.60	28.52	26.94
135.0	286.88	186.92	97.26	45.11	23.29	21.15	19.52	18.11	17.16
180.0	250.82	170.44	93.88	40.95	22.44	20.70	19.01	17.49	16.48
225.0	235.35	147.71	80.04	34.82	24.75	23.12	21.49	20.03	19.24
270.0	286.31	238.11	115.03	65.87	43.09	37.35	33.69	30.49	28.58
315.0	192.83	120.09	60.47	28.07	25.14	22.78	20.87	19.18	18.34
360.0	291.94	134.89	66.77	31.22	25.14	22.56	19.24	17.44	16.59



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	15.86	15.30	14.79	14.34	13.89	13.61	13.39	13.11	12.88
45.0	18.39	17.89	17.04	16.76	16.31	15.92	15.19	14.85	14.18
90.0	25.26	23.96	22.89	22.28	21.38	20.48	19.74	19.01	18.39
135.0	16.54	16.20	15.47	14.85	14.51	14.12	13.73	13.39	13.05
180.0	15.81	15.30	14.63	14.23	13.95	13.61	13.39	13.22	12.94
225.0	18.62	18.23	17.16	17.04	15.98	15.69	14.68	14.29	13.78
270.0	26.89	25.65	24.47	23.40	22.50	21.38	20.59	19.97	18.96
315.0	17.94	17.10	16.48	16.03	15.36	14.91	14.46	13.95	13.61
360.0	15.86	15.30	14.79	14.34	13.89	13.61	13.39	13.11	12.88
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.71	12.54	12.38	12.26	12.15	12.04	12.04	11.98	11.98
45.0	13.73	13.44	13.16	12.94	12.83	12.66	12.54	12.38	12.26
90.0	17.78	17.04	16.71	16.09	15.69	15.19	14.91	14.46	14.29
135.0	12.88	12.71	12.54	12.38	12.26	12.21	12.15	12.15	12.09
180.0	12.77	12.60	12.43	12.32	12.21	12.09	12.09	12.09	12.09
225.0	13.44	13.22	12.99	12.88	12.77	12.66	12.54	12.43	12.38
270.0	18.34	17.66	16.99	16.48	16.03	15.53	15.08	14.85	14.46
315.0	13.28	12.99	12.88	12.77	12.66	12.60	12.49	12.43	12.38
360.0	12.71	12.54	12.38	12.26	12.15	12.04	12.04	11.98	11.98
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.98	11.98	11.98	11.98	11.87	11.76	11.70	11.59	11.42
45.0	12.26	12.26	12.15	12.04	11.87	11.76	11.70	11.59	11.48
90.0	14.18	13.95	13.67	13.44	13.16	12.99	12.71	12.49	12.32
135.0	11.98	11.93	11.87	11.81	11.76	11.64	11.59	11.59	11.53
180.0	12.09	12.09	12.15	12.09	12.04	11.98	11.81	11.76	11.64
225.0	12.32	12.21	12.21	12.04	11.93	11.81	11.70	11.53	11.48
270.0	14.23	13.89	13.56	13.33	13.05	12.77	12.54	12.38	12.15
315.0	12.26	12.15	11.98	11.87	11.76	11.64	11.59	11.48	11.42
360.0	11.98	11.98	11.98	11.98	11.87	11.76	11.70	11.59	11.42
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.31	11.19	11.08	11.03	10.97	10.91	10.86	10.80	10.74
45.0	11.42	11.36	11.31	11.19	11.14	11.08	10.97	10.91	10.86
90.0	12.15	12.04	11.98	11.87	11.81	11.76	11.70	11.64	11.53
135.0	11.48	11.42	11.31	11.25	11.19	11.14	11.08	11.03	10.97
180.0	11.53	11.42	11.31	11.25	11.19	11.14	11.08	10.97	10.91
225.0	11.36	11.31	11.25	11.19	11.14	11.08	11.03	10.97	10.91
270.0	12.04	11.87	11.81	11.76	11.64	11.53	11.48	11.42	11.31
315.0	11.36	11.25	11.14	11.03	10.97	10.91	10.86	10.80	10.74
360.0	11.31	11.19	11.08	11.03	10.97	10.91	10.86	10.80	10.74
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.74	10.69	10.63	10.63	10.63	10.58	10.58	10.52	10.41
45.0	10.86	10.80	10.74	10.74	10.69	10.63	10.63	10.52	10.52
90.0	11.48	11.36	11.19	11.08	10.86	11.25	10.69	10.58	10.46
135.0	10.91	10.86	10.80	10.80	10.74	10.74	10.69	10.63	10.58
180.0	10.86	10.80	10.80	10.74	10.74	10.69	10.63	10.58	10.52
225.0	10.91	10.80	10.80	10.74	10.69	10.63	10.58	10.58	10.52
270.0	11.25	11.25	11.19	11.08	10.80	10.69	10.58	10.52	10.52
315.0	10.69	10.69	10.63	10.63	10.63	10.58	10.52	10.46	10.46
360.0	10.74	10.69	10.63	10.63	10.63	10.58	10.58	10.52	10.41

Intensity data(cd)

<b>C/<math>\gamma</math>(<math>^{\circ}</math>)</b>	<b>90.0</b>
<b>0.0</b>	<b>10.41</b>
<b>45.0</b>	<b>10.46</b>
<b>90.0</b>	<b>10.46</b>
<b>135.0</b>	<b>10.41</b>
<b>180.0</b>	<b>10.41</b>
<b>225.0</b>	<b>10.46</b>
<b>270.0</b>	<b>10.41</b>
<b>315.0</b>	<b>10.46</b>
<b>360.0</b>	<b>10.41</b>