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## NATA

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LumCAT: 3-2324-M	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 34.7100
Test No: GC2019123020	Current(A): 0.6000
LampCAT: LUMINUS CXM-14-AC40	Power (W): 20.8600
Lamp flux(lm): 2608.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2258.24  
Efficiency(%): 86.59%  
Lumens(lm)/Power(W): 108.26  
Central intensity(cd): 7902.000  
Maximum intensity(cd): 7902.000  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=24.8  
                                  [C90/270]Total=24.8  
Field angle(10%Imax): [C0/180]Total=62.3  
                                  [C90/270]Total=62.3  
Maximum s/h(1/2): C0\_180=0.42 C90\_270=0.42  
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(%): 86.59%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.510%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7902.000	0.000	0	.000%	.000%
1.0	7883.789	7.553	7.553	.290%	.334%
2.0	7818.469	22.537	30.091	.864%	1.332%
3.0	7701.117	37.118	67.208	1.423%	2.976%
4.0	7541.438	51.022	118.23	1.956%	5.236%
5.0	7324.102	63.951	182.181	2.452%	8.067%
6.0	7017.891	75.371	257.552	2.890%	11.405%
7.0	6668.016	84.948	342.5	3.257%	15.167%
8.0	6271.453	92.605	435.105	3.551%	19.267%
9.0	5768.859	97.580	532.685	3.742%	23.589%
10.0	5232.516	99.558	632.244	3.817%	27.997%
11.0	4703.203	99.278	731.522	3.807%	32.394%
12.0	4168.336	96.979	828.501	3.719%	36.688%
13.0	3604.359	92.242	920.743	3.537%	40.773%
14.0	3136.078	86.277	1007.02	3.308%	44.593%
15.0	2726.859	80.489	1087.509	3.086%	48.157%
16.0	2369.461	74.675	1162.184	2.863%	51.464%
17.0	2060.016	68.979	1231.163	2.645%	54.519%
18.0	1807.805	63.772	1294.935	2.445%	57.343%
19.0	1614.094	59.534	1354.469	2.283%	59.979%
20.0	1441.927	55.934	1410.403	2.145%	62.456%
21.0	1314.162	52.922	1463.325	2.029%	64.799%
22.0	1211.252	50.749	1514.075	1.946%	67.047%
23.0	1135.835	49.248	1563.323	1.888%	69.228%
24.0	1062.415	48.062	1611.385	1.843%	71.356%
25.0	1013.414	47.200	1658.584	1.810%	73.446%
26.0	973.814	46.909	1705.493	1.799%	75.523%
27.0	939.227	46.803	1752.296	1.795%	77.596%
28.0	905.787	46.712	1799.008	1.791%	79.664%
29.0	878.674	46.687	1845.695	1.790%	81.732%
30.0	846.984	46.592	1892.287	1.787%	83.795%
31.0	799.010	45.806	1938.093	1.756%	85.823%
32.0	739.287	44.070	1982.163	1.690%	87.775%
33.0	676.202	41.701	2023.864	1.599%	89.621%
34.0	590.562	38.336	2062.2	1.470%	91.319%
35.0	494.831	33.708	2095.908	1.292%	92.812%
36.0	408.846	28.773	2124.681	1.103%	94.086%
37.0	313.601	23.562	2148.244	.903%	95.129%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	235.997	18.345	2166.588	.703%	95.942%
39.0	158.829	13.476	2180.065	.517%	96.538%
40.0	107.473	9.288	2189.353	.356%	96.950%
41.0	63.844	6.100	2195.453	.234%	97.220%
42.0	38.370	3.714	2199.167	.142%	97.384%
43.0	27.809	2.451	2201.618	.094%	97.493%
44.0	24.019	1.956	2203.574	.075%	97.579%
45.0	21.333	1.743	2205.317	.067%	97.657%
46.0	19.266	1.588	2206.905	.061%	97.727%
47.0	17.895	1.478	2208.383	.057%	97.792%
48.0	16.973	1.410	2209.792	.054%	97.855%
49.0	16.284	1.366	2211.158	.052%	97.915%
50.0	15.588	1.329	2212.487	.051%	97.974%
51.0	15.068	1.297	2213.784	.050%	98.032%
52.0	14.590	1.273	2215.057	.049%	98.088%
53.0	14.119	1.249	2216.305	.048%	98.143%
54.0	13.711	1.227	2217.532	.047%	98.197%
55.0	13.366	1.209	2218.741	.046%	98.251%
56.0	13.029	1.193	2219.933	.046%	98.304%
57.0	12.734	1.178	2221.111	.045%	98.356%
58.0	12.466	1.165	2222.277	.045%	98.408%
59.0	12.248	1.155	2223.432	.044%	98.459%
60.0	12.038	1.147	2224.579	.044%	98.510%
61.0	11.848	1.140	2225.719	.044%	98.560%
62.0	11.693	1.134	2226.854	.043%	98.610%
63.0	11.559	1.131	2227.985	.043%	98.660%
64.0	11.433	1.128	2229.113	.043%	98.710%
65.0	11.292	1.125	2230.237	.043%	98.760%
66.0	11.194	1.122	2231.359	.043%	98.810%
67.0	11.081	1.120	2232.479	.043%	98.859%
68.0	10.990	1.118	2233.597	.043%	98.909%
69.0	10.913	1.117	2234.715	.043%	98.958%
70.0	10.828	1.117	2235.831	.043%	99.008%
71.0	10.765	1.116	2236.947	.043%	99.057%
72.0	10.702	1.116	2238.064	.043%	99.107%
73.0	10.652	1.117	2239.18	.043%	99.156%
74.0	10.596	1.117	2240.297	.043%	99.206%
75.0	10.554	1.117	2241.415	.043%	99.255%

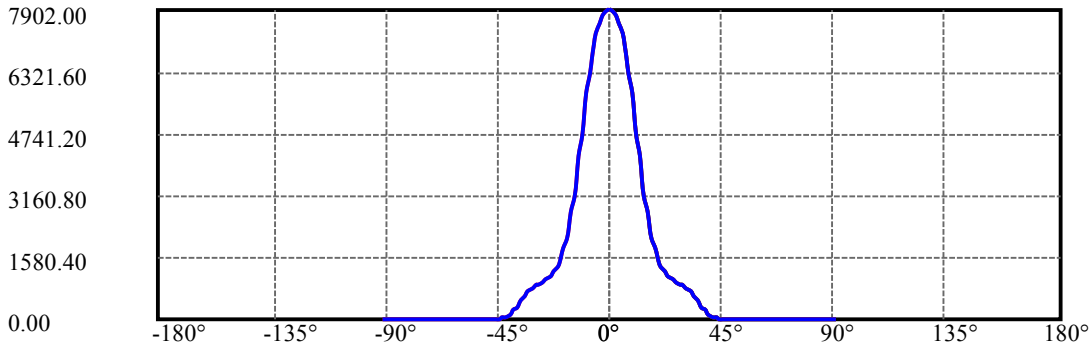
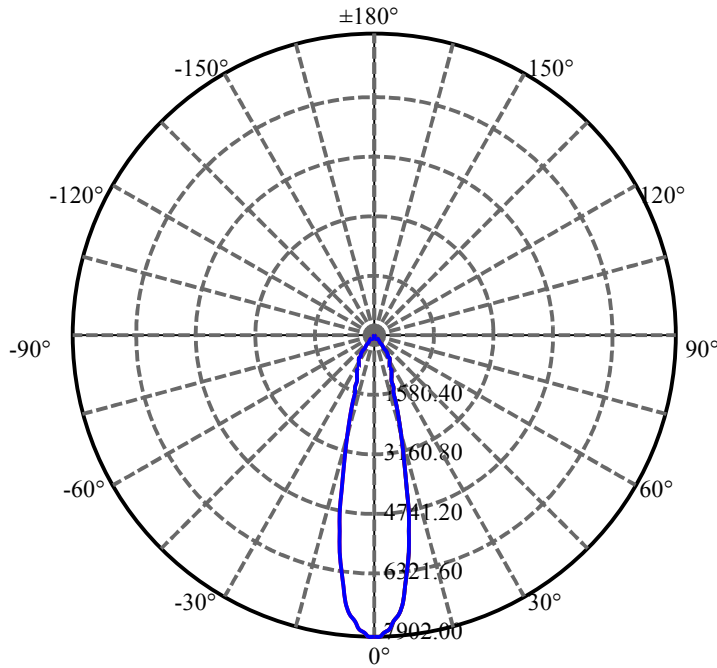
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.512	1.118	2242.533	.043%	99.305%
77.0	10.470	1.119	2243.652	.043%	99.354%
78.0	10.434	1.119	2244.771	.043%	99.404%
79.0	10.420	1.121	2245.891	.043%	99.453%
80.0	10.385	1.122	2247.013	.043%	99.503%
81.0	10.364	1.122	2248.135	.043%	99.553%
82.0	10.350	1.123	2249.258	.043%	99.602%
83.0	10.329	1.124	2250.382	.043%	99.652%
84.0	10.294	1.123	2251.506	.043%	99.702%
85.0	10.280	1.123	2252.629	.043%	99.752%
86.0	10.252	1.122	2253.751	.043%	99.801%
87.0	10.245	1.122	2254.873	.043%	99.851%
88.0	10.238	1.122	2255.995	.043%	99.901%
89.0	10.223	1.121	2257.116	.043%	99.950%
90.0	10.223	1.121	2258.237	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1892.29	72.56%	83.79%
0-40	2189.35	83.95%	96.95%
0-60	2224.58	85.30%	98.51%
0-90	2257.12	86.55%	99.95%
0-120	2257.12	86.55%	99.95%
0-180	2258.24	86.59%	100.00%
60-90	33.68	1.29%	1.49%
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%
0-28.16	1806.59	69.27%	80.00%

ZONAL LUMEN SUMMARY

0-10	632.24
10-20	778.16
20-30	481.88
30-40	297.07
40-50	23.13
50-60	12.09
60-70	11.25
70-80	11.18
80-90	10.10
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: —————

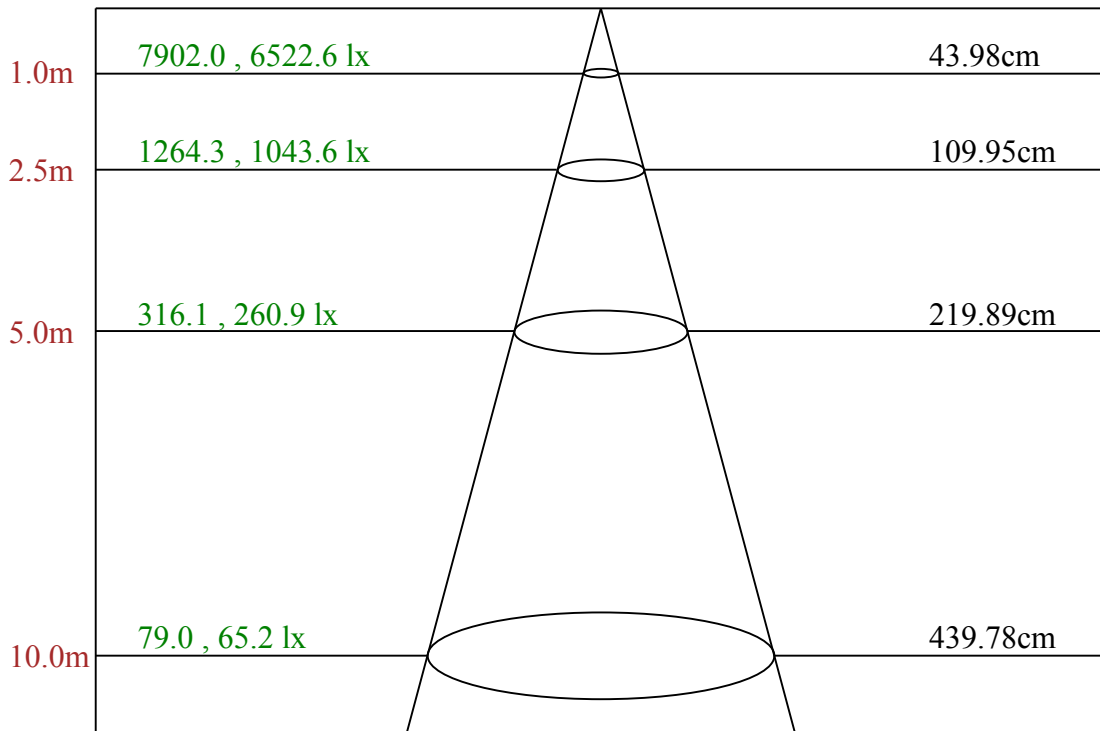
C90/C270: —————

Field angle(10%Imax):C0/180Left:31.1 Right:31.1

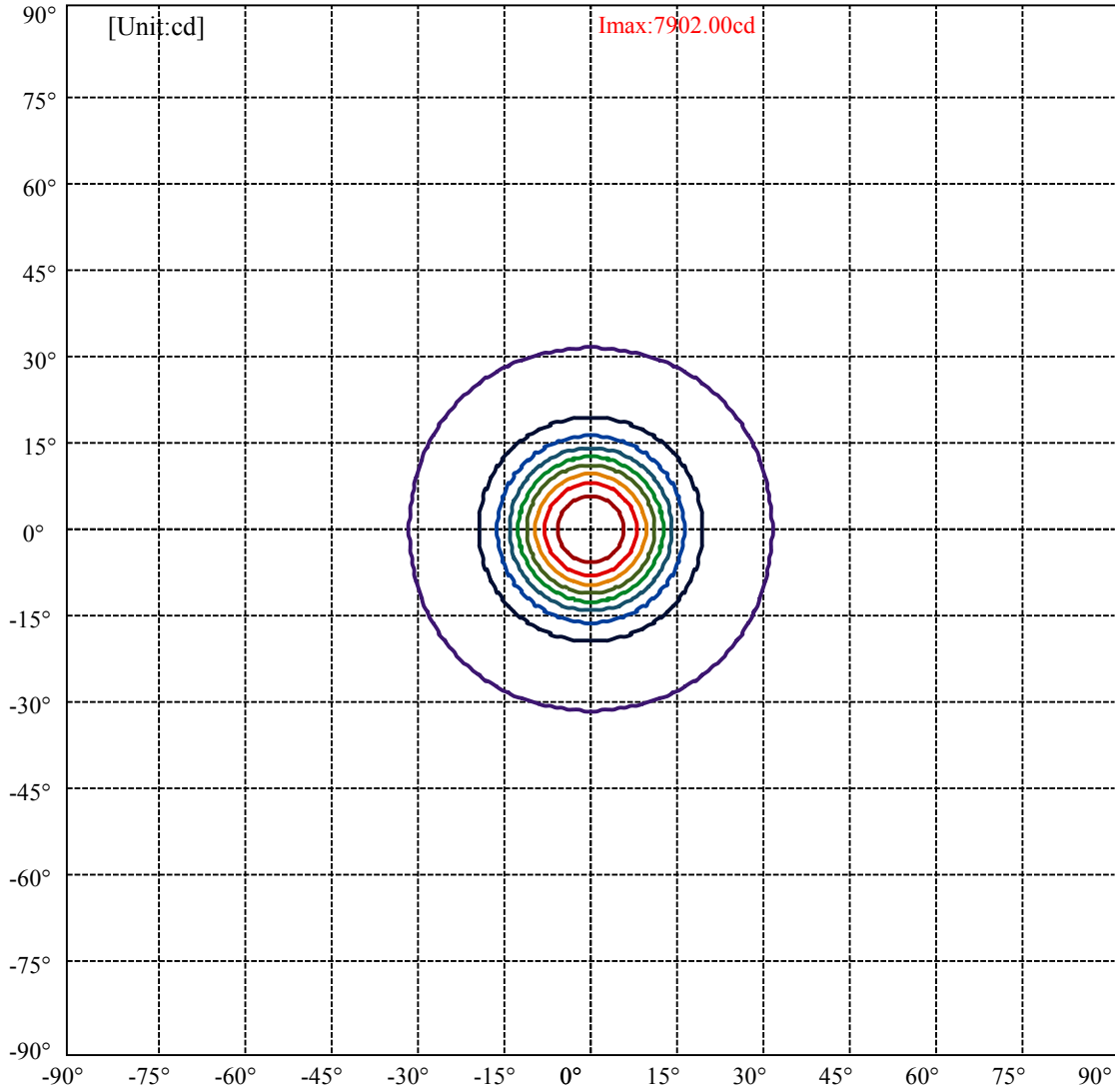
:C90/270Left:31.1 Right:31.1

Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4

:C90/270Left:12.4 Right:12.4

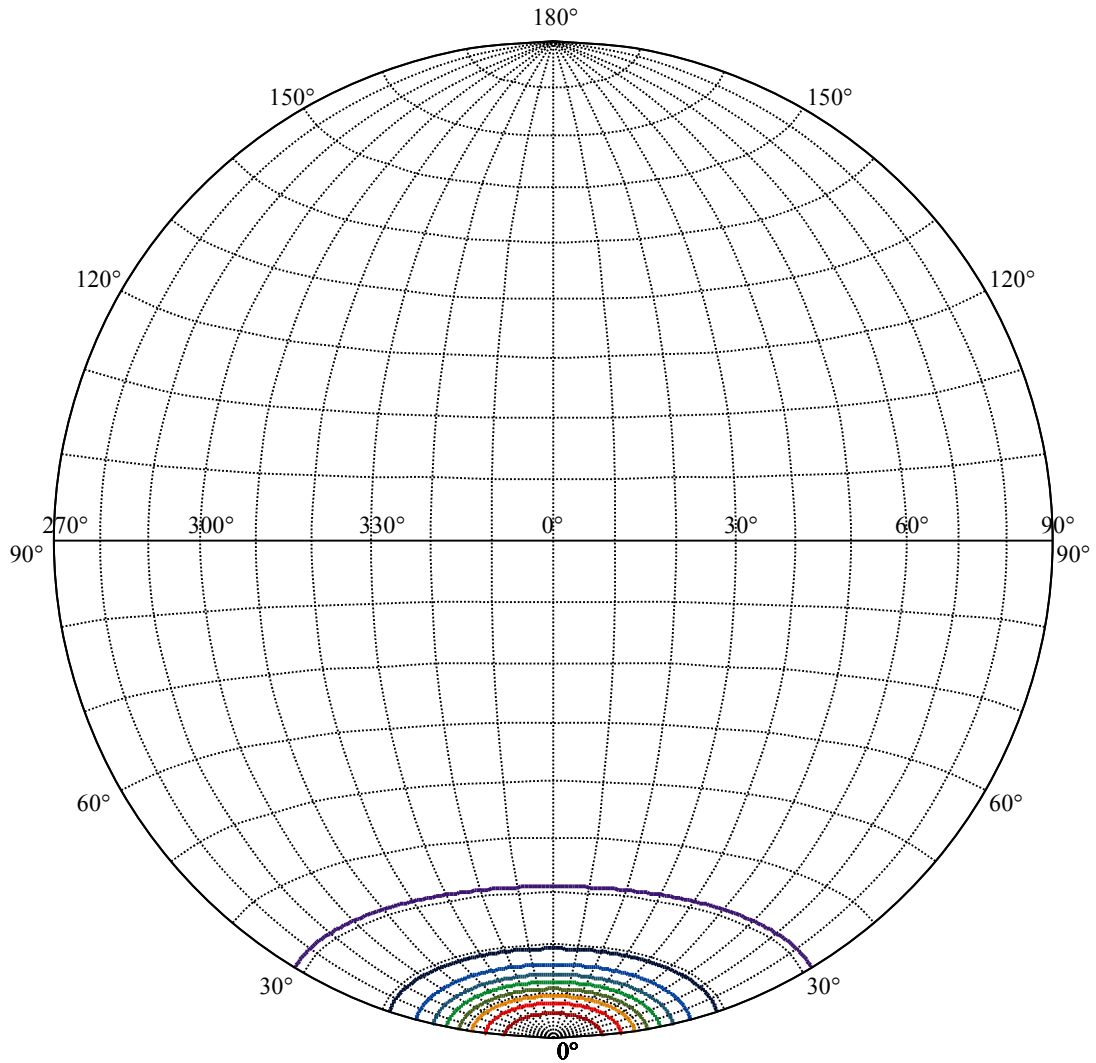


Max , Ave      Beam angle of C0 plane 24.80



(10%Imax) 790.2	—
(20%Imax) 1580.4	—
(30%Imax) 2370.6	—
(40%Imax) 3160.8	—
(50%Imax) 3951	—
(60%Imax) 4741.2	—
(70%Imax) 5531.4	—
(80%Imax) 6321.6	—
(90%Imax) 7111.8	—





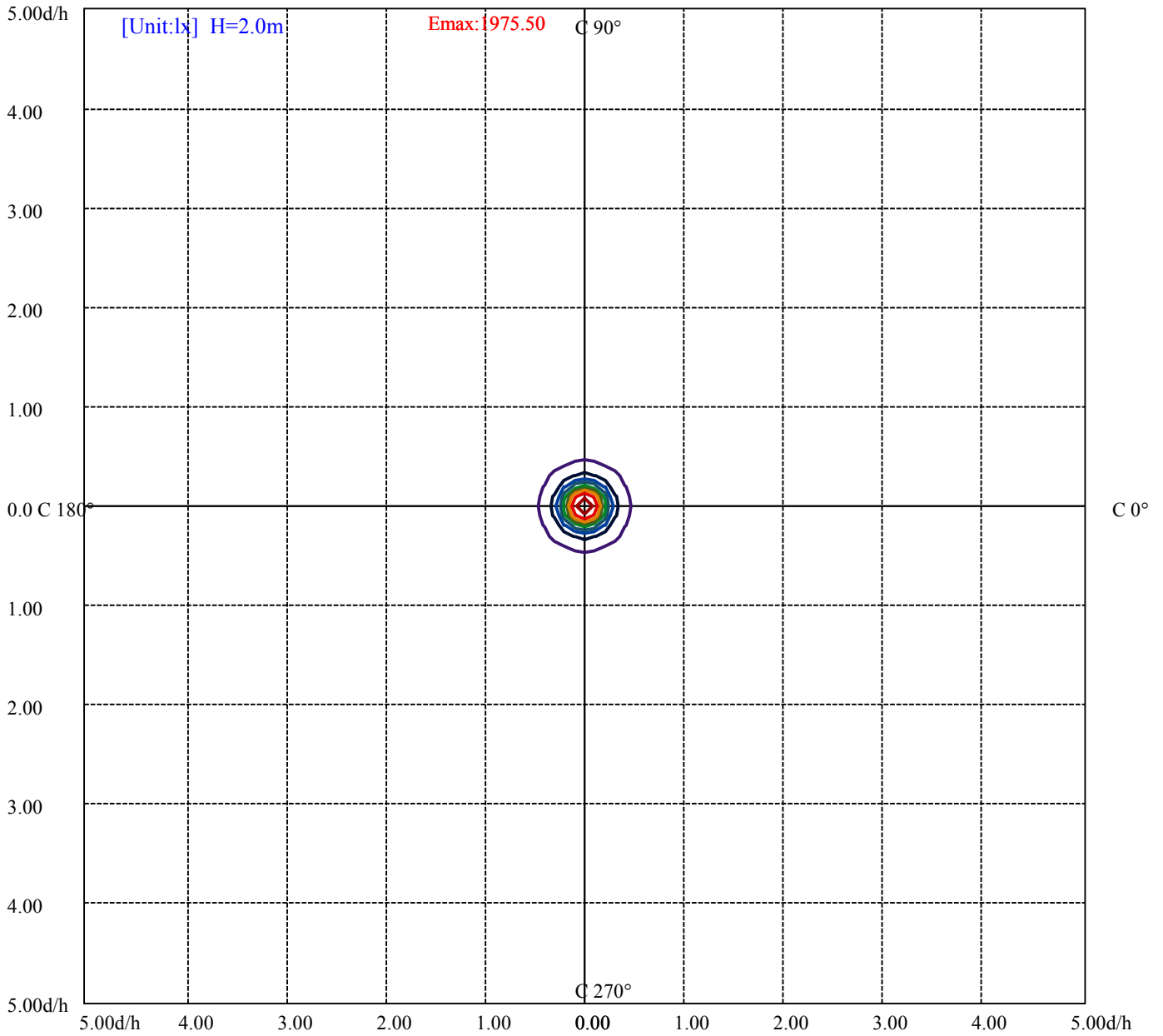
House

[Unit:cd]

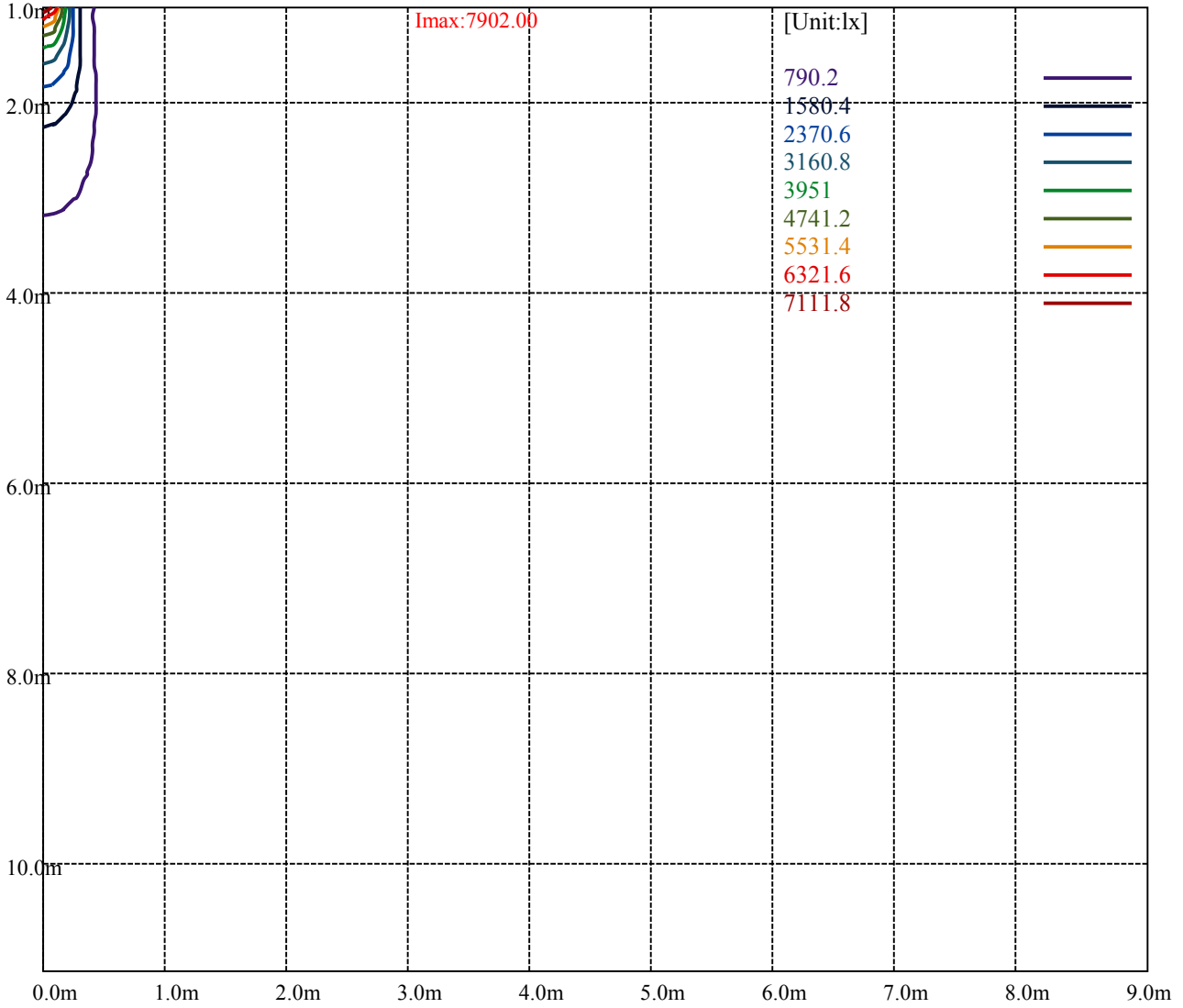
Road

I<sub>max</sub>:7902.00

(10%I <sub>max</sub> ) 790.2	—
(20%I <sub>max</sub> ) 1580.4	—
(30%I <sub>max</sub> ) 2370.6	—
(40%I <sub>max</sub> ) 3160.8	—
(50%I <sub>max</sub> ) 3951	—
(60%I <sub>max</sub> ) 4741.2	—
(70%I <sub>max</sub> ) 5531.4	—
(80%I <sub>max</sub> ) 6321.6	—
(90%I <sub>max</sub> ) 7111.8	—



(10%E <sub>max</sub> ) 197.55	—
(20%E <sub>max</sub> ) 395.1	—
(30%E <sub>max</sub> ) 592.65	—
(40%E <sub>max</sub> ) 790.2	—
(50%E <sub>max</sub> ) 987.75	—
(60%E <sub>max</sub> ) 1185.3	—
(70%E <sub>max</sub> ) 1382.85	—
(80%E <sub>max</sub> ) 1580.4	—
(90%E <sub>max</sub> ) 1777.95	—



Luminance Table

$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

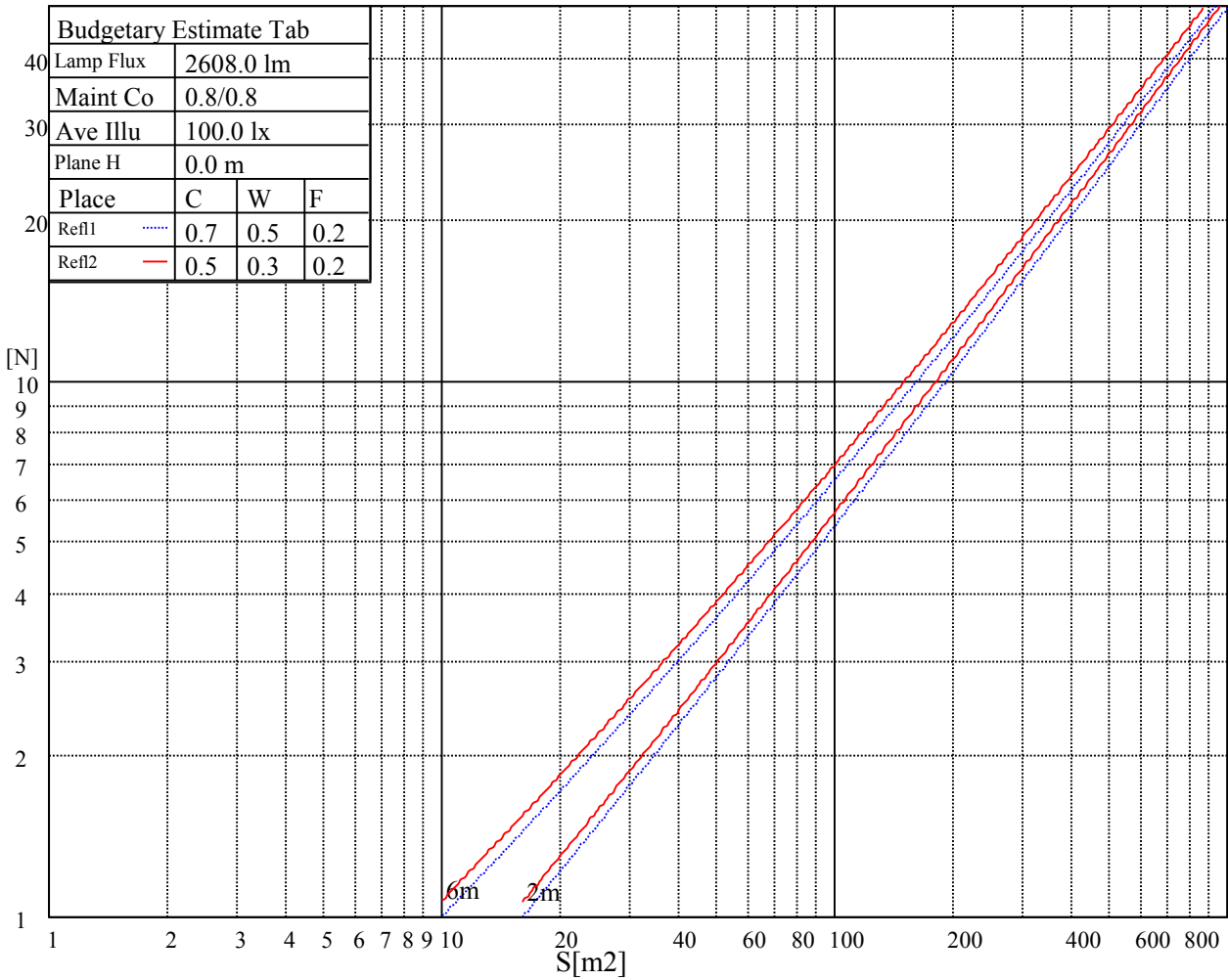
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

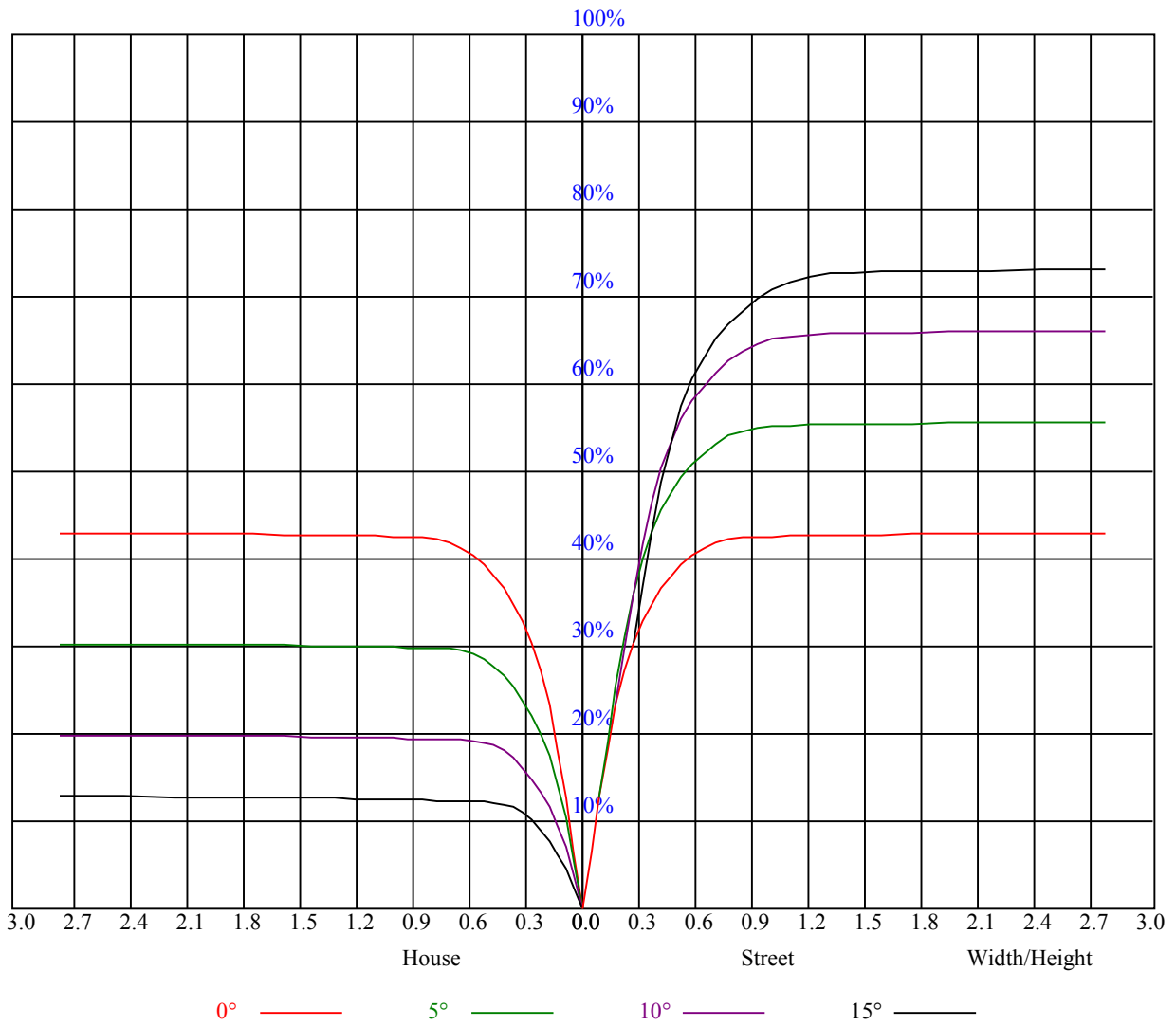
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.03	1.03	1.03	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.87
1	0.97	0.95	0.93	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.82
2	0.91	0.88	0.86	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.81	0.82	0.81	0.80	0.78
3	0.87	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	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.71
5	0.79	0.74	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
6	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
7	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
8	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
9	0.67	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.56



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	7882.88	7965.00	7997.63	7992.56	7938.00	7850.81	7705.69	7503.19	7266.38
45.0	7882.31	7923.38	7925.63	7886.81	7814.81	7689.94	7506.00	7280.44	6996.38
90.0	7905.94	7867.69	7780.50	7645.50	7478.44	7259.63	6893.44	6524.44	6095.25
135.0	7936.88	7857.56	7728.19	7563.94	7319.25	7001.44	6653.25	6177.38	5703.19
180.0	7882.88	7774.31	7620.75	7354.13	7074.00	6732.00	6211.13	5724.00	5193.56
225.0	7882.31	7804.69	7668.00	7477.31	7245.56	6904.13	6484.50	6051.94	5505.19
270.0	7905.94	7908.75	7863.19	7781.06	7638.75	7459.88	7192.69	6852.94	6486.19
315.0	7936.88	7968.94	7963.88	7907.63	7822.69	7695.00	7496.44	7229.81	6925.50
360.0	7882.88	7965.00	7997.63	7992.56	7938.00	7850.81	7705.69	7503.19	7266.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6925.50	6504.19	6067.69	5576.63	4907.81	4354.88	3823.88	3275.44	2804.63
45.0	6558.19	6130.13	5573.25	5032.13	4404.38	3792.38	3298.50	2871.56	2467.13
90.0	5549.06	4947.75	4395.38	3794.06	3248.44	2824.31	2419.31	2120.63	1843.31
135.0	5127.19	4509.56	3960.56	3454.31	2905.31	2535.19	2222.44	1904.06	1700.44
180.0	4502.81	3956.06	3449.81	2951.44	2532.94	2219.06	1928.81	1720.69	1527.75
225.0	4974.75	4352.06	3746.81	3256.88	2777.06	2383.31	2095.31	1855.13	1614.38
270.0	6005.25	5452.31	4920.75	4369.50	3697.88	3210.75	2790.00	2388.38	2061.56
315.0	6508.13	6008.06	5511.38	4911.75	4361.06	3768.75	3236.63	2819.81	2460.94
360.0	6925.50	6504.19	6067.69	5576.63	4907.81	4354.88	3823.88	3275.44	2804.63
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2453.06	2126.81	1859.06	1663.88	1485.00	1356.75	1239.75	1148.06	1085.63
45.0	2109.38	1875.38	1632.38	1471.50	1340.44	1239.19	1141.88	1082.81	1036.13
90.0	1621.13	1461.94	1335.38	1211.06	1114.82	1072.41	1017.34	978.41	945.34
135.0	1518.75	1370.25	1251.56	1162.13	1085.63	1030.50	989.44	950.06	921.38
180.0	1372.50	1261.13	1116.23	1093.16	1034.66	991.07	948.99	916.09	891.06
225.0	1463.06	1339.31	1226.81	1118.76	1074.60	1020.77	973.07	939.38	908.04
270.0	1826.44	1615.50	1446.19	1323.00	1212.75	1137.38	1071.00	1018.13	976.50
315.0	2098.13	1862.44	1667.81	1469.81	1342.13	1238.63	1117.86	1074.38	1026.45
360.0	2453.06	2126.81	1859.06	1663.88	1485.00	1356.75	1239.75	1148.06	1085.63
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1036.13	984.38	950.63	922.50	893.25	870.19	849.94	804.38	727.31
45.0	989.44	950.63	922.50	896.06	870.19	849.38	804.94	739.13	650.81
90.0	916.14	891.23	869.96	849.94	807.47	732.88	653.85	554.06	452.48
135.0	894.38	868.50	847.69	812.25	729.56	646.88	559.13	444.94	352.69
180.0	868.44	841.11	809.33	749.48	659.87	559.86	469.13	367.14	268.43
225.0	884.14	859.22	833.06	794.19	728.27	617.06	540.00	448.03	322.82
270.0	941.63	907.31	883.69	862.31	838.69	795.38	730.13	640.69	541.13
315.0	983.53	943.93	912.54	889.14	864.79	842.68	802.52	726.13	642.99
360.0	1036.13	984.38	950.63	922.50	893.25	870.19	849.94	804.38	727.31
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	644.06	540.56	446.63	343.13	285.75	158.79	85.67	42.64	34.48
45.0	553.50	465.19	383.63	293.63	174.71	105.64	44.78	32.68	28.18
90.0	363.09	265.39	182.03	103.61	46.74	30.71	27.17	22.73	20.81
135.0	285.75	179.04	92.81	46.07	31.50	27.56	23.74	21.66	19.52
180.0	187.09	107.72	56.93	34.43	29.76	25.48	22.61	19.97	18.62
225.0	247.84	168.75	93.21	44.33	34.09	28.74	24.41	21.04	18.56
270.0	448.88	344.81	288.00	160.26	101.19	43.82	32.79	29.03	23.51
315.0	540.56	437.34	344.76	245.19	156.04	90.00	45.79	32.74	28.46
360.0	644.06	540.56	446.63	343.13	285.75	158.79	85.67	42.64	34.48



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	29.42	24.13	21.66	19.35	18.39	17.38	16.71	16.09	15.47
45.0	23.40	20.70	18.51	17.55	16.88	16.20	15.58	15.08	14.51
90.0	18.68	17.61	16.88	16.26	15.64	15.08	14.63	14.12	13.73
135.0	18.51	17.72	16.93	16.31	15.75	15.13	14.68	14.29	13.78
180.0	17.83	16.99	16.37	15.81	15.24	14.74	14.29	13.89	13.56
225.0	17.66	16.88	16.03	15.47	14.96	14.34	13.95	13.56	13.22
270.0	20.87	18.73	17.61	16.88	16.14	15.36	14.85	14.40	13.89
315.0	24.30	21.38	19.18	18.17	17.27	16.48	15.86	15.30	14.79
360.0	29.42	24.13	21.66	19.35	18.39	17.38	16.71	16.09	15.47
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	14.96	14.51	14.01	13.67	13.33	12.99	12.77	12.49	12.26
45.0	14.06	13.67	13.33	12.94	12.66	12.49	12.15	11.98	11.81
90.0	13.33	12.99	12.71	12.43	12.21	11.98	11.81	11.64	11.53
135.0	13.44	13.16	12.77	12.54	12.32	12.09	11.93	11.76	11.59
180.0	13.16	12.88	12.66	12.38	12.15	11.98	11.81	11.64	11.53
225.0	12.88	12.66	12.38	12.15	11.93	11.76	11.59	11.42	11.31
270.0	13.50	13.16	12.88	12.60	12.32	12.15	11.93	11.76	11.59
315.0	14.34	13.89	13.50	13.16	12.83	12.54	12.32	12.09	11.93
360.0	14.96	14.51	14.01	13.67	13.33	12.99	12.77	12.49	12.26
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	12.04	11.87	11.76	11.59	11.48	11.31	11.25	11.14	11.03
45.0	11.64	11.53	11.36	11.31	11.14	11.03	10.97	10.86	10.80
90.0	11.42	11.25	11.14	11.03	10.97	10.91	10.80	10.74	10.69
135.0	11.48	11.36	11.19	11.14	11.03	10.97	10.86	10.80	10.69
180.0	11.42	11.31	11.19	11.08	10.97	10.91	10.86	10.74	10.74
225.0	11.19	11.14	10.97	10.91	10.80	10.74	10.69	10.63	10.58
270.0	11.48	11.36	11.25	11.14	11.03	10.91	10.86	10.80	10.69
315.0	11.81	11.64	11.48	11.36	11.25	11.14	11.03	10.91	10.91
360.0	12.04	11.87	11.76	11.59	11.48	11.31	11.25	11.14	11.03
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.97	10.86	10.80	10.80	10.69	10.63	10.58	10.58	10.52
45.0	10.69	10.69	10.63	10.52	10.52	10.46	10.46	10.35	10.35
90.0	10.63	10.58	10.52	10.46	10.46	10.41	10.41	10.41	10.35
135.0	10.63	10.63	10.58	10.52	10.46	10.41	10.41	10.41	10.35
180.0	10.69	10.63	10.58	10.58	10.52	10.52	10.46	10.41	10.41
225.0	10.52	10.46	10.41	10.41	10.41	10.35	10.29	10.35	10.29
270.0	10.69	10.63	10.58	10.52	10.46	10.46	10.41	10.41	10.41
315.0	10.80	10.74	10.69	10.63	10.58	10.52	10.46	10.46	10.41
360.0	10.97	10.86	10.80	10.80	10.69	10.63	10.58	10.58	10.52
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.52	10.46	10.46	10.41	10.41	10.41	10.35	10.41	10.29
45.0	10.35	10.29	10.29	10.24	10.24	10.24	10.24	10.18	10.18
90.0	10.35	10.35	10.35	10.29	10.29	10.29	10.18	10.18	10.18
135.0	10.35	10.29	10.29	10.24	10.24	10.18	10.24	10.24	10.24
180.0	10.35	10.35	10.35	10.29	10.29	10.29	10.29	10.29	10.29
225.0	10.29	10.29	10.24	10.18	10.18	10.18	10.18	10.18	10.18
270.0	10.35	10.35	10.35	10.35	10.24	10.18	10.18	10.18	10.18
315.0	10.35	10.41	10.29	10.35	10.35	10.24	10.29	10.24	10.24
360.0	10.52	10.46	10.46	10.41	10.41	10.41	10.35	10.41	10.29

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	10.35
45.0	10.18
90.0	10.18
135.0	10.24
180.0	10.24
225.0	10.18
270.0	10.18
315.0	10.24
360.0	10.35