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Nata

LumCAT: 2-2211-L	
Luminaire: 92.70.131.00	
Report No: 200417-B002	Voltage(V): 36.3100
Test No: 200417-C002	Current(A): 0.5510
LampCAT: CITIZEN CLU038	Power (W): 20.0070
Lamp flux(lm): 2427.1	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2340.19
Efficiency(%): 96.42%
Lumens(lm)/Power(W): 116.97
Central intensity(cd): 12809.530
Maximum intensity(cd): 12809.530
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.1
 [C90/270]Total=19.1
Field angle(10%Imax): [C0/180]Total=39.8
 [C90/270]Total=39.8
Maximum s/h(1/2): C0_180=0.33 C90_270=0.33
Maximum s/h(1/4): C0_180=0.32 C90_270=0.32
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 96.42%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.279%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12809.531	0.000	0	.000%	.000%
1.0	12758.906	12.234	12.234	.504%	.523%
2.0	12664.688	36.490	48.724	1.503%	2.082%
3.0	12448.125	60.062	108.786	2.475%	4.649%
4.0	11885.063	81.451	190.237	3.356%	8.129%
5.0	11354.344	99.975	290.212	4.119%	12.401%
6.0	10471.641	114.701	404.913	4.726%	17.303%
7.0	9404.156	123.369	528.282	5.083%	22.574%
8.0	8367.961	127.192	655.473	5.240%	28.009%
9.0	7066.898	125.091	780.565	5.154%	33.355%
10.0	5808.867	116.521	897.085	4.801%	38.334%
11.0	4801.289	106.017	1003.103	4.368%	42.864%
12.0	3868.383	94.772	1097.875	3.905%	46.914%
13.0	3173.625	83.571	1181.446	3.443%	50.485%
14.0	2724.188	75.491	1256.937	3.110%	53.711%
15.0	2351.953	69.688	1326.625	2.871%	56.689%
16.0	2005.242	63.845	1390.47	2.631%	59.417%
17.0	1747.125	58.434	1448.904	2.408%	61.914%
18.0	1556.719	54.473	1503.377	2.244%	64.242%
19.0	1393.945	51.336	1554.713	2.115%	66.435%
20.0	1267.945	48.720	1603.433	2.007%	68.517%
21.0	1146.473	46.362	1649.795	1.910%	70.498%
22.0	1077.834	44.698	1694.493	1.842%	72.408%
23.0	1012.725	43.866	1738.359	1.807%	74.283%
24.0	952.341	42.963	1781.322	1.770%	76.119%
25.0	909.724	42.339	1823.661	1.744%	77.928%
26.0	875.236	42.134	1865.795	1.736%	79.729%
27.0	843.103	42.040	1907.835	1.732%	81.525%
28.0	814.908	41.977	1949.812	1.730%	83.319%
29.0	781.376	41.763	1991.576	1.721%	85.103%
30.0	733.788	40.909	2032.485	1.686%	86.851%
31.0	670.240	39.072	2071.557	1.610%	88.521%
32.0	593.761	36.212	2107.769	1.492%	90.068%
33.0	521.916	32.868	2140.637	1.354%	91.473%
34.0	445.127	29.266	2169.903	1.206%	92.724%
35.0	361.146	25.040	2194.943	1.032%	93.794%
36.0	292.816	20.822	2215.765	.858%	94.683%
37.0	230.738	17.075	2232.84	.704%	95.413%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	149.780	12.701	2245.541	.523%	95.956%
39.0	95.070	8.357	2253.899	.344%	96.313%
40.0	54.584	5.219	2259.118	.215%	96.536%
41.0	37.448	3.277	2262.395	.135%	96.676%
42.0	32.843	2.554	2264.949	.105%	96.785%
43.0	30.192	2.335	2267.284	.096%	96.885%
44.0	27.970	2.195	2269.479	.090%	96.979%
45.0	26.747	2.103	2271.582	.087%	97.068%
46.0	25.678	2.050	2273.633	.084%	97.156%
47.0	24.750	2.006	2275.638	.083%	97.242%
48.0	24.026	1.972	2277.61	.081%	97.326%
49.0	23.295	1.943	2279.553	.080%	97.409%
50.0	22.711	1.918	2281.471	.079%	97.491%
51.0	22.205	1.900	2283.372	.078%	97.572%
52.0	21.762	1.887	2285.258	.078%	97.653%
53.0	21.248	1.871	2287.129	.077%	97.733%
54.0	20.946	1.860	2288.989	.077%	97.812%
55.0	20.489	1.850	2290.839	.076%	97.891%
56.0	20.074	1.833	2292.671	.076%	97.970%
57.0	19.800	1.823	2294.495	.075%	98.048%
58.0	19.589	1.821	2296.316	.075%	98.125%
59.0	19.132	1.810	2298.126	.075%	98.203%
60.0	18.654	1.785	2299.911	.074%	98.279%
61.0	18.190	1.758	2301.67	.072%	98.354%
62.0	17.796	1.734	2303.404	.071%	98.428%
63.0	17.241	1.704	2305.108	.070%	98.501%
64.0	16.481	1.655	2306.763	.068%	98.572%
65.0	15.891	1.602	2308.365	.066%	98.640%
66.0	15.272	1.555	2309.919	.064%	98.707%
67.0	14.653	1.505	2311.424	.062%	98.771%
68.0	14.238	1.464	2312.888	.060%	98.833%
69.0	13.873	1.434	2314.322	.059%	98.895%
70.0	13.416	1.401	2315.723	.058%	98.955%
71.0	13.001	1.365	2317.089	.056%	99.013%
72.0	12.614	1.332	2318.42	.055%	99.070%
73.0	12.270	1.301	2319.722	.054%	99.126%
74.0	11.967	1.274	2320.996	.052%	99.180%
75.0	11.749	1.253	2322.249	.052%	99.234%

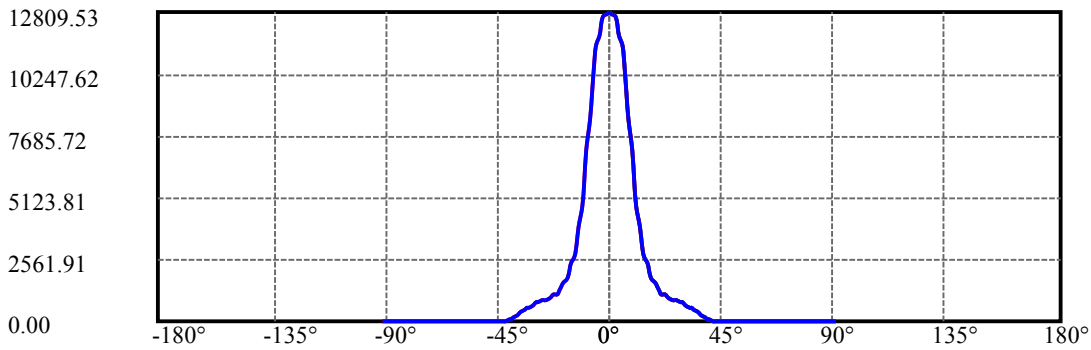
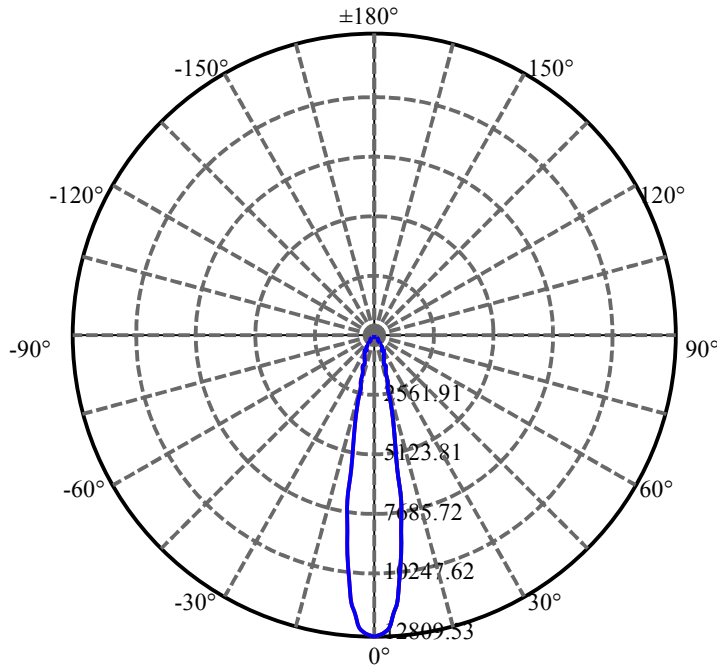
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.623	1.241	2323.49	.051%	99.287%
77.0	11.531	1.234	2324.724	.051%	99.339%
78.0	11.426	1.229	2325.953	.051%	99.392%
79.0	11.341	1.223	2327.176	.050%	99.444%
80.0	11.236	1.217	2328.393	.050%	99.496%
81.0	11.222	1.214	2329.608	.050%	99.548%
82.0	11.257	1.219	2330.827	.050%	99.600%
83.0	11.067	1.214	2332.04	.050%	99.652%
84.0	10.891	1.196	2333.237	.049%	99.703%
85.0	10.842	1.186	2334.423	.049%	99.754%
86.0	10.786	1.182	2335.605	.049%	99.804%
87.0	10.589	1.170	2336.775	.048%	99.854%
88.0	10.498	1.155	2337.93	.048%	99.904%
89.0	10.273	1.138	2339.069	.047%	99.952%
90.0	10.111	1.118	2340.186	.046%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2032.48	83.74%	86.85%
0-40	2259.12	93.08%	96.54%
0-60	2299.91	94.76%	98.28%
0-90	2339.07	96.37%	99.95%
0-120	2339.07	96.37%	99.95%
0-180	2340.19	96.42%	100.00%
60-90	40.94	1.69%	1.75%
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%
0-26.15	1872.15	77.14%	80.00%

ZONAL LUMEN SUMMARY

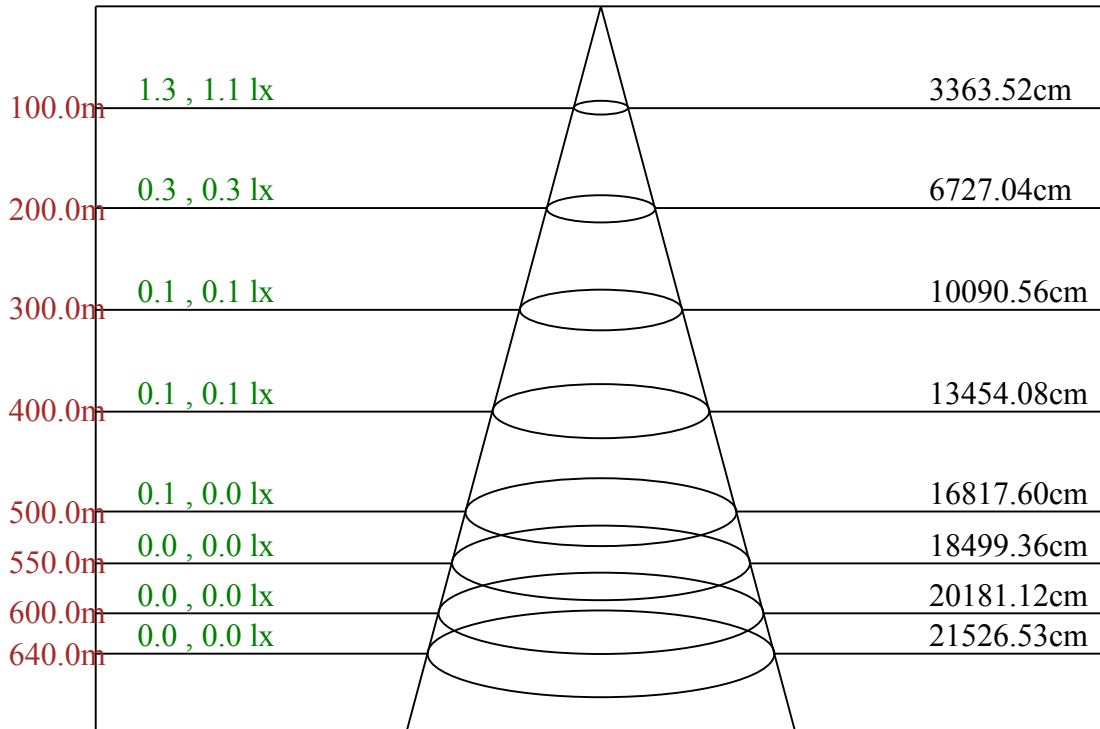
0-10	897.09
10-20	706.35
20-30	429.05
30-40	226.63
40-50	22.35
50-60	18.44
60-70	15.81
70-80	12.67
80-90	10.68
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



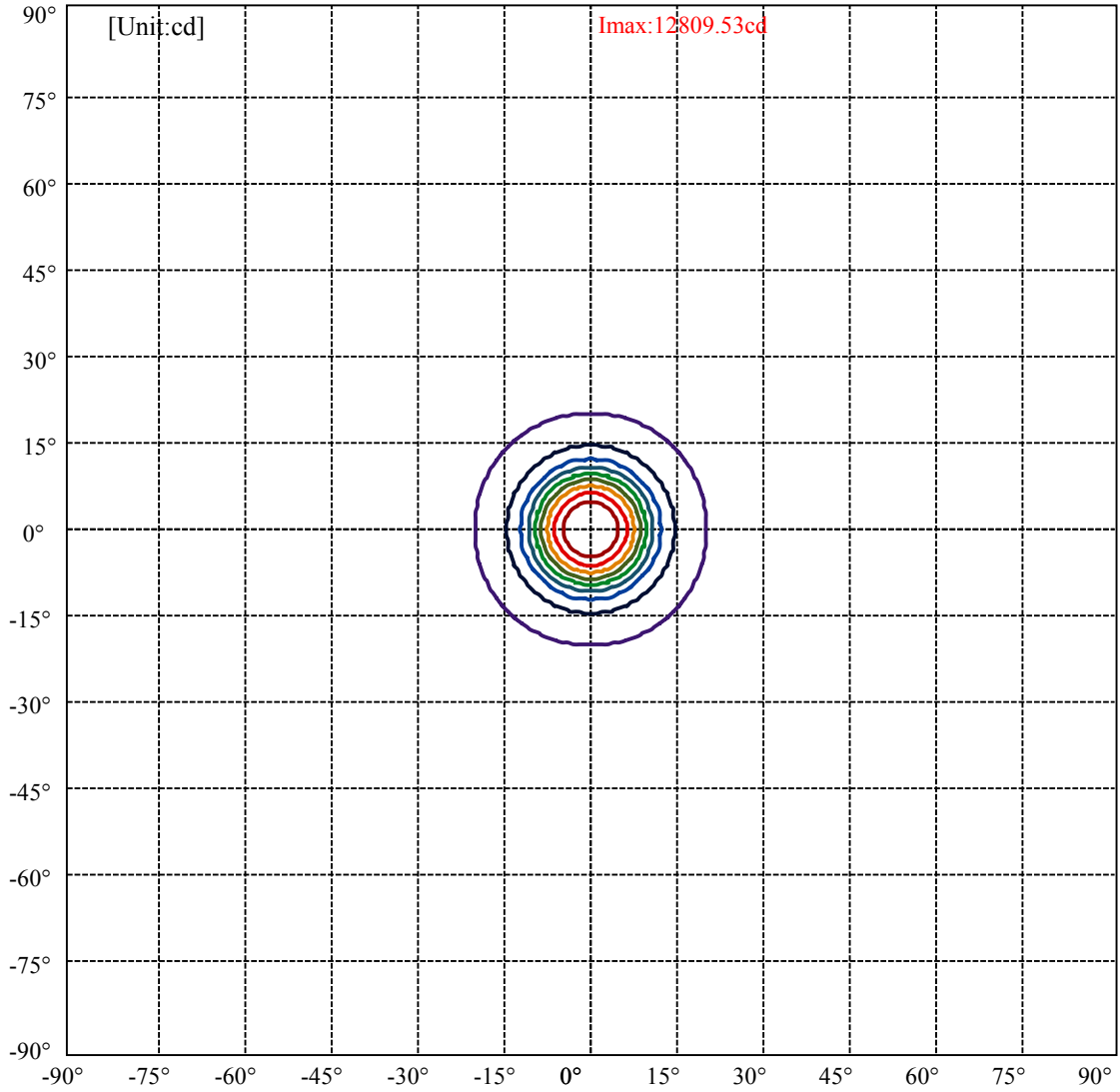
C0(Max): —————
C0/C180: —————
C90/C270: —————

Field angle(10%Imax):C0/180Left:19.9 Right:19.9
:C90/270Left:19.9 Right:19.9

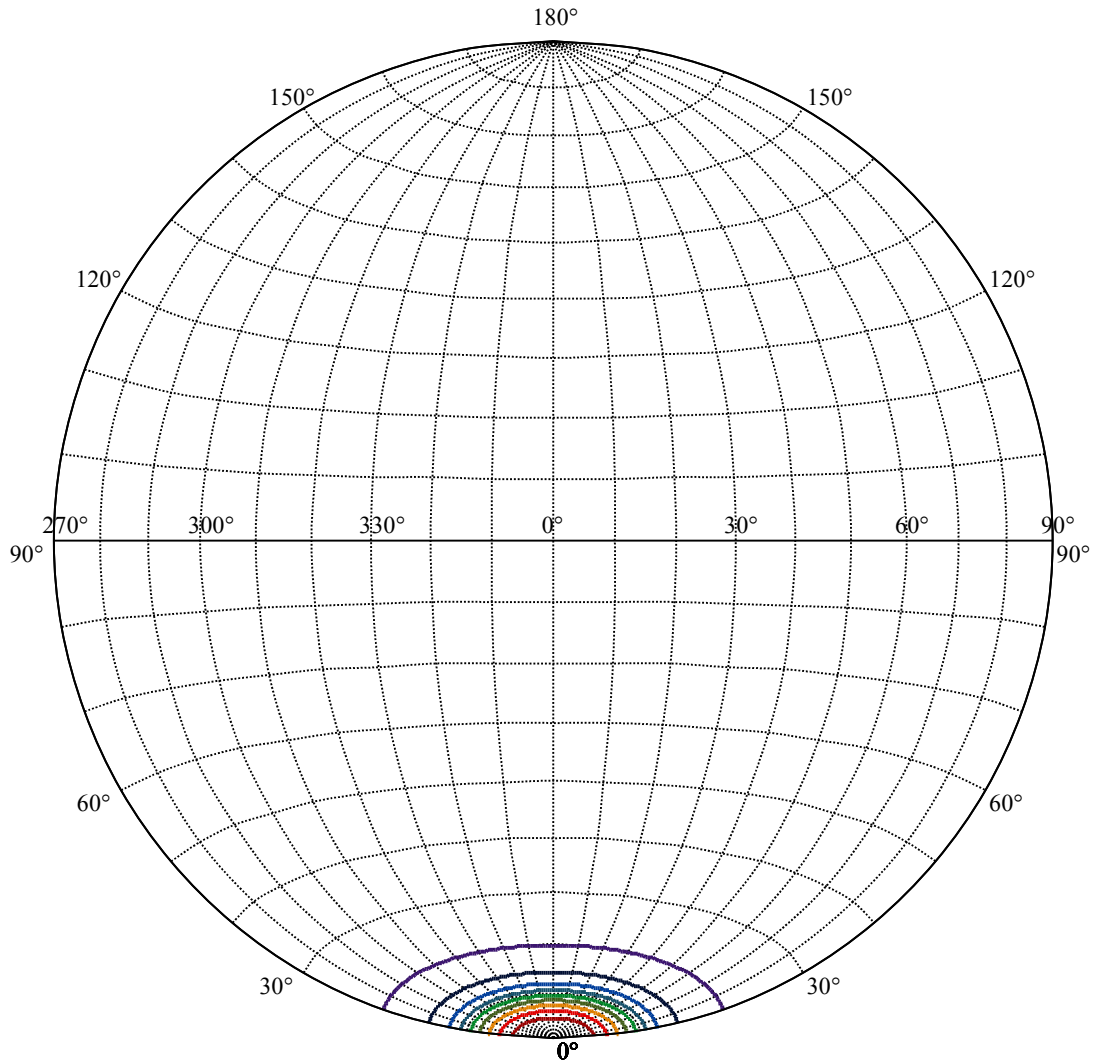
Beam Angle(50%Imax):C0/180Left:9.5 Right:9.5
:C90/270Left:9.5 Right:9.5



Max , Ave Beam angle of C0 plane 19.09



(10%Imax) 1280.95	—
(20%Imax) 2561.91	—
(30%Imax) 3842.86	—
(40%Imax) 5123.81	—
(50%Imax) 6404.77	—
(60%Imax) 7685.72	—
(70%Imax) 8966.67	—
(80%Imax) 10247.6	—
(90%Imax) 11528.6	—



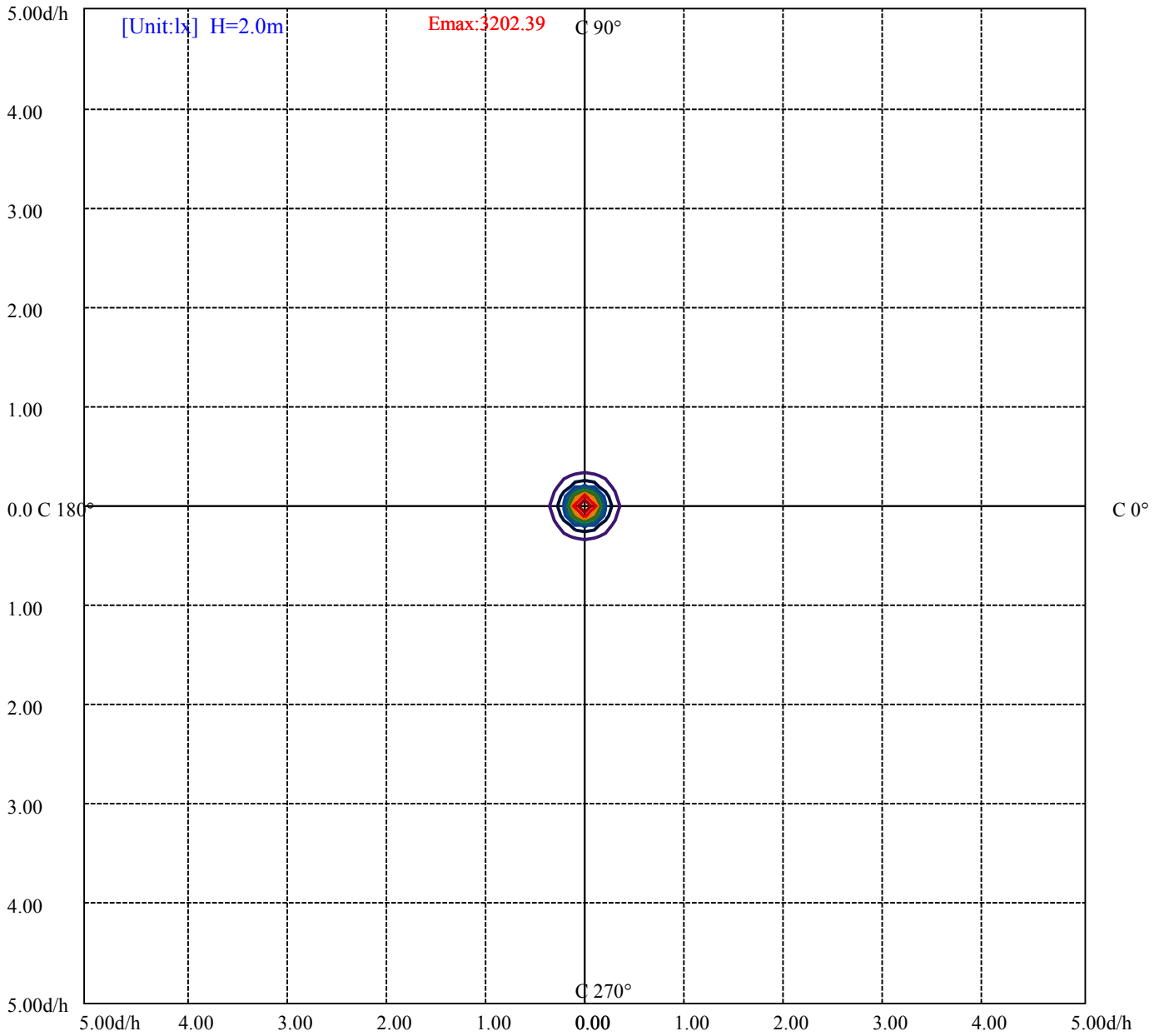
House

[Unit:cd]

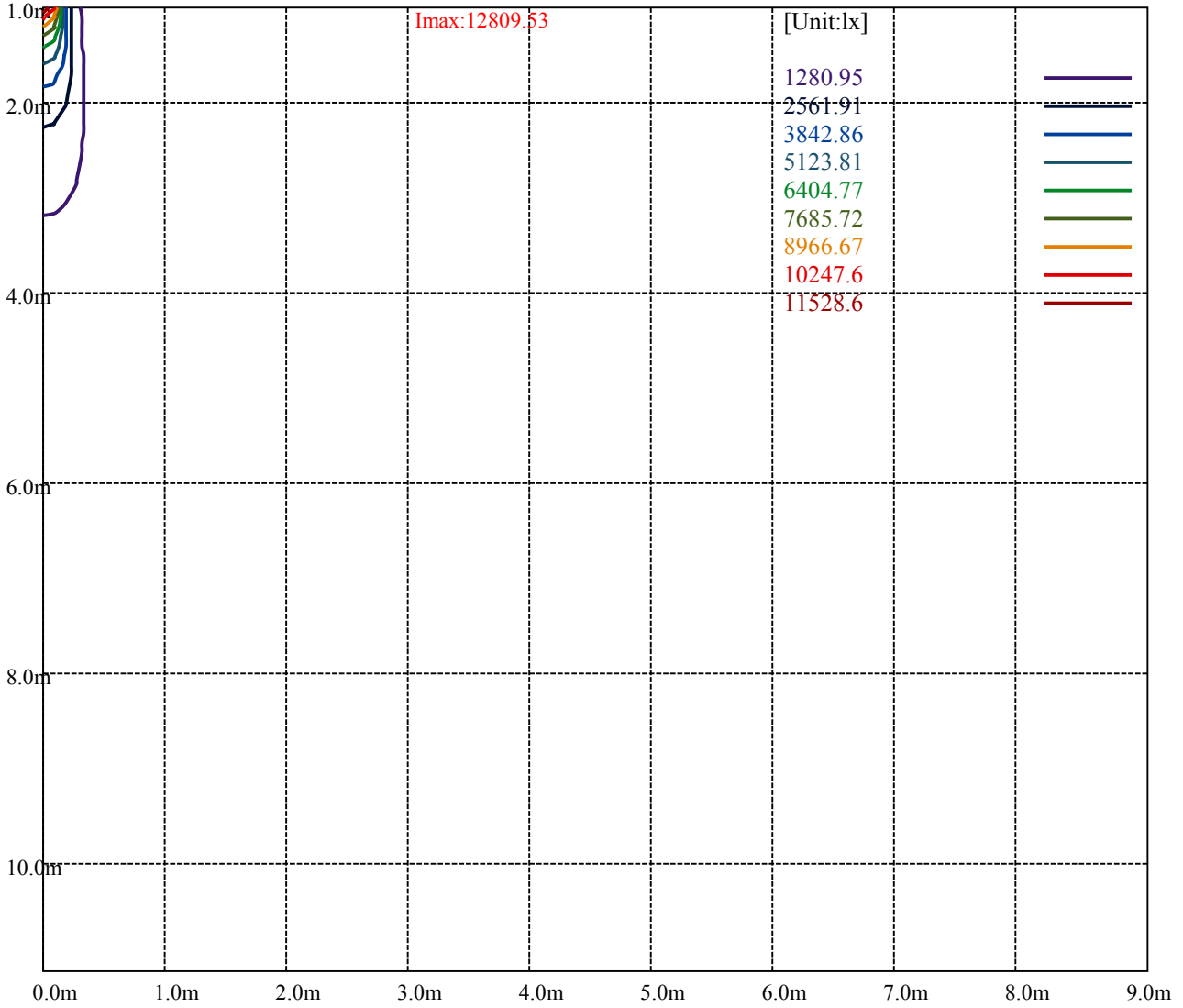
Road

Imax:12809.53

(10%Imax) 1280.95	—
(20%Imax) 2561.91	—
(30%Imax) 3842.86	—
(40%Imax) 5123.81	—
(50%Imax) 6404.77	—
(60%Imax) 7685.72	—
(70%Imax) 8966.67	—
(80%Imax) 10247.6	—
(90%Imax) 11528.6	—



- (10%Emax) 320.2375
- (20%Emax) 640.475
- (30%Emax) 960.715
- (40%Emax) 1280.953
- (50%Emax) 1601.19
- (60%Emax) 1921.427
- (70%Emax) 2241.667
- (80%Emax) 2561.9
- (90%Emax) 2882.15



Luminance Table

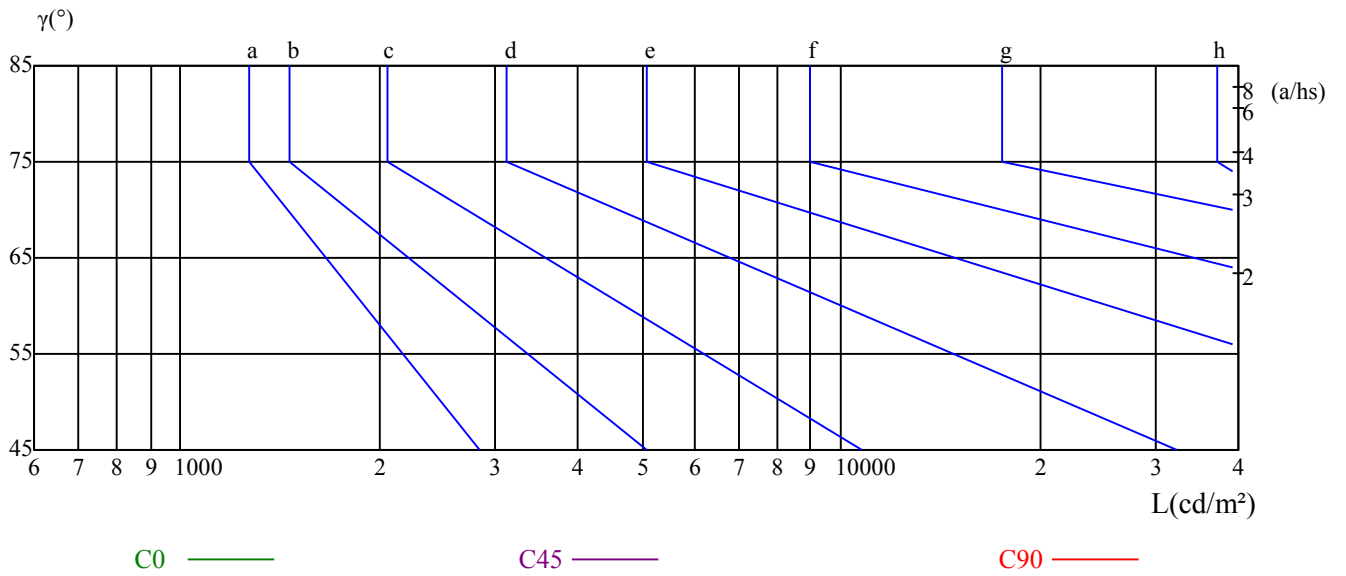
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

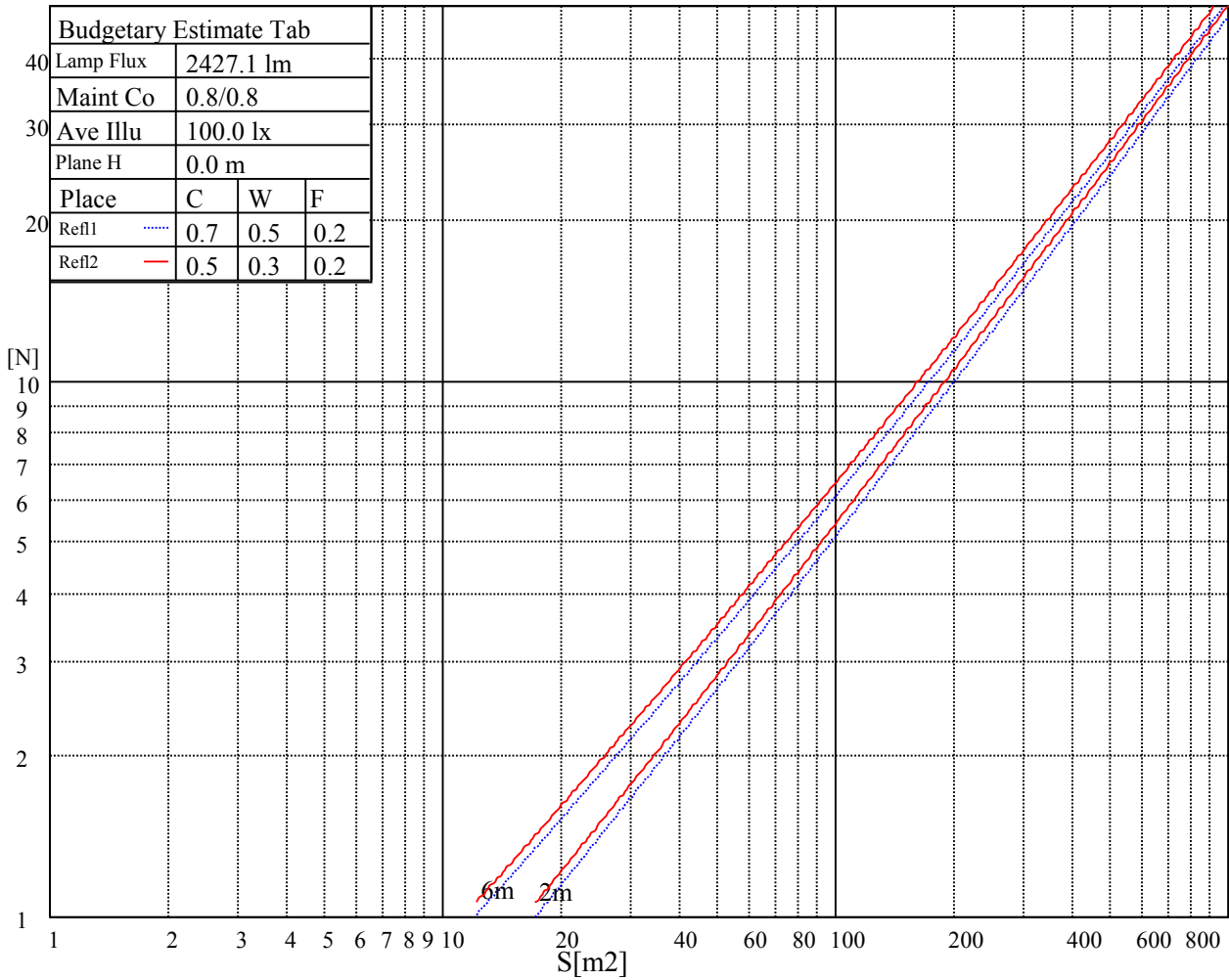
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

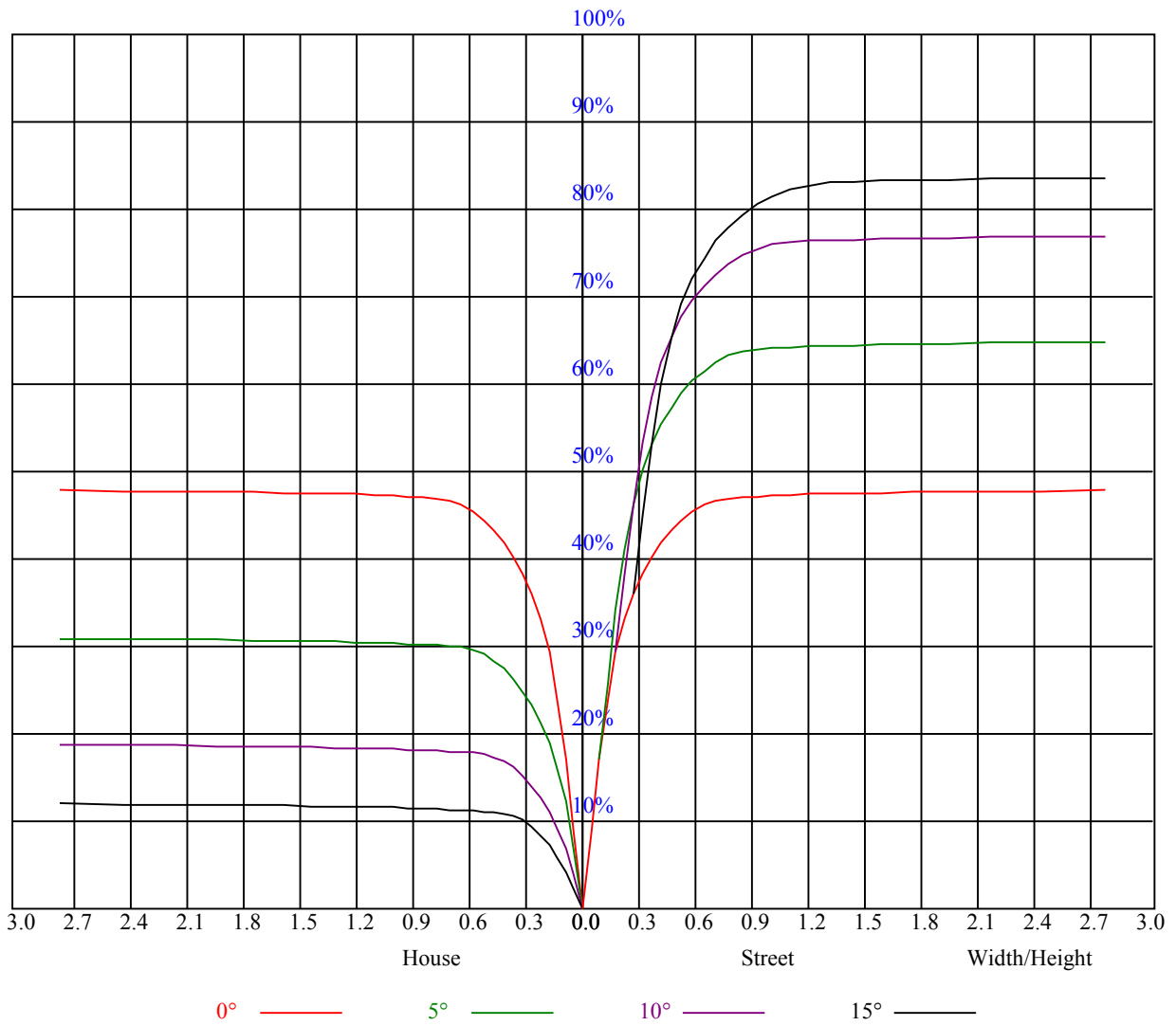
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.15	1.15	1.15	1.12	1.12	1.12	1.07	1.07	1.07	1.03	1.03	1.03	0.98	0.98	0.98	0.96
1	1.08	1.06	1.04	1.06	1.04	1.03	1.02	1.01	0.99	0.99	0.98	0.96	0.95	0.95	0.94	0.92
2	1.02	0.99	0.97	1.01	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.92	0.92	0.91	0.90	0.88
3	0.98	0.94	0.91	0.96	0.93	0.90	0.94	0.91	0.89	0.92	0.89	0.87	0.90	0.88	0.86	0.85
4	0.93	0.89	0.86	0.92	0.89	0.86	0.90	0.87	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.82
5	0.90	0.85	0.82	0.89	0.85	0.82	0.87	0.84	0.81	0.86	0.83	0.80	0.84	0.82	0.80	0.79
6	0.86	0.82	0.79	0.86	0.82	0.79	0.84	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.76
7	0.83	0.79	0.76	0.83	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.75	0.74
8	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.73	0.77	0.75	0.72	0.71
9	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
10	0.76	0.72	0.69	0.75	0.71	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67



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	12791.25	12825.00	12690.00	12583.13	12318.75	11846.25	10946.25	10068.75	9101.25
45.0	12819.38	12825.00	12712.50	12650.63	12408.75	11835.00	11019.38	10096.88	9191.25
90.0	12819.38	12774.38	12729.38	12498.75	12048.75	11146.50	10518.75	9337.50	8243.44
135.0	12808.13	12751.88	12656.25	12532.50	12166.88	11514.38	10631.25	9641.25	8578.13
180.0	12791.25	12712.50	12583.13	12268.13	11209.50	10895.63	9830.25	8506.69	7507.69
225.0	12819.38	12712.50	12639.38	12341.25	11201.63	10992.38	10074.94	8998.88	7754.06
270.0	12819.38	12735.00	12645.00	12386.25	12009.38	11435.63	10496.25	9528.75	8465.63
315.0	12808.13	12735.00	12661.88	12324.38	11716.88	11169.00	10256.06	9054.56	8102.25
360.0	12791.25	12825.00	12690.00	12583.13	12318.75	11846.25	10946.25	10068.75	9101.25
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7751.25	6609.38	5506.88	4387.50	3526.88	2953.13	2891.25	2201.06	1918.13
45.0	7655.63	6491.25	5512.50	4162.50	3420.00	2919.38	2417.63	2077.31	1811.81
90.0	7061.63	5623.88	4637.25	3822.75	3123.56	2606.06	2253.94	1976.63	1685.25
135.0	7121.25	5945.63	4921.88	3903.75	3251.25	2863.13	2356.31	2036.81	1794.38
180.0	6356.81	4897.13	4142.81	3456.56	2840.06	2464.31	2153.25	1832.63	1638.56
225.0	6604.31	5356.69	4298.06	3577.50	3016.13	2570.63	2208.94	1937.81	1690.31
270.0	7042.50	5889.38	4865.63	3909.38	3172.50	2851.88	2288.81	2000.25	1733.63
315.0	6941.81	5657.63	4525.31	3727.13	3038.63	2565.00	2245.50	1979.44	1704.94
360.0	7751.25	6609.38	5506.88	4387.50	3526.88	2953.13	2891.25	2201.06	1918.13
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1703.25	1515.94	1380.38	1241.44	1153.69	1084.50	1007.44	956.25	915.19
45.0	1576.69	1404.56	1258.31	1138.50	1056.94	992.81	927.00	891.00	860.63
90.0	1512.00	1348.31	1226.25	1120.44	1047.94	979.26	927.34	890.27	856.63
135.0	1591.31	1417.50	1287.00	1181.81	1088.44	1028.81	968.06	922.50	887.06
180.0	1478.81	1306.13	1212.75	1114.43	1039.28	982.29	928.63	887.06	856.46
225.0	1506.38	1375.31	1253.25	1121.46	1080.51	1014.08	963.79	919.58	883.18
270.0	1548.56	1384.88	1247.63	1136.81	1055.81	986.06	916.88	873.00	842.63
315.0	1536.75	1398.94	1278.00	1116.90	1100.08	1033.99	979.59	938.14	900.11
360.0	1703.25	1515.94	1380.38	1241.44	1153.69	1084.50	1007.44	956.25	915.19
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	881.44	844.31	817.31	785.25	723.94	664.31	595.13	514.13	430.31
45.0	825.75	805.50	779.63	746.44	686.25	622.13	554.63	463.50	393.75
90.0	829.97	802.13	770.57	720.90	663.30	577.07	503.83	436.39	349.93
135.0	849.38	824.06	793.69	742.50	672.19	599.63	533.25	446.63	362.25
180.0	827.78	796.95	754.65	696.04	626.74	536.34	461.64	390.09	302.63
225.0	853.09	826.93	784.74	728.78	663.98	573.64	498.32	422.78	329.57
270.0	810.00	783.00	747.56	693.00	626.06	563.63	487.69	420.75	346.50
315.0	867.43	836.38	802.86	757.41	699.47	613.35	540.84	466.76	374.23
360.0	881.44	844.31	817.31	785.25	723.94	664.31	595.13	514.13	430.31
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	355.50	291.38	199.69	137.25	72.62	42.69	31.28	29.19	26.94
45.0	319.50	290.81	168.75	111.71	63.06	41.40	34.43	31.84	29.48
90.0	282.88	217.58	148.73	90.79	54.23	38.87	36.23	33.08	30.71
135.0	297.56	243.34	146.81	98.83	48.99	32.29	29.08	26.55	24.24
180.0	236.08	172.69	108.90	60.24	39.15	30.94	29.36	27.51	25.37
225.0	256.56	188.61	114.13	68.74	43.20	31.28	29.53	27.06	25.65
270.0	290.81	208.63	151.20	96.86	61.09	47.48	41.91	38.19	35.61
315.0	303.64	232.88	160.03	96.13	54.34	34.65	30.94	28.13	25.76
360.0	355.50	291.38	199.69	137.25	72.62	42.69	31.28	29.19	26.94

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	25.20	23.85	22.78	22.11	21.54	20.93	20.81	20.59	20.08
45.0	28.24	27.23	26.10	25.43	24.69	24.24	23.63	23.01	22.44
90.0	29.98	29.14	28.24	27.23	26.33	25.65	24.64	23.96	23.18
135.0	22.89	22.11	21.49	20.81	19.97	19.46	19.07	18.62	18.23
180.0	24.64	24.08	23.63	23.12	22.78	22.33	21.88	21.60	21.04
225.0	24.36	22.33	21.15	20.70	20.31	20.25	20.08	19.86	19.52
270.0	33.92	32.68	31.61	30.60	29.14	27.79	26.89	26.21	25.54
315.0	24.75	24.02	23.01	22.22	21.60	21.04	20.64	20.25	19.97
360.0	25.20	23.85	22.78	22.11	21.54	20.93	20.81	20.59	20.08
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	20.03	19.69	19.46	19.18	18.73	18.34	17.94	17.38	16.99
45.0	22.11	21.83	21.15	20.76	20.31	19.80	19.35	18.96	18.68
90.0	23.06	22.67	22.28	22.22	22.05	21.38	21.15	20.76	20.19
135.0	17.83	17.55	17.27	16.99	16.71	16.37	16.03	15.58	15.30
180.0	20.59	20.25	19.86	19.35	18.90	18.39	18.00	17.49	16.82
225.0	19.18	18.62	18.34	18.34	18.56	18.00	17.44	17.27	17.49
270.0	25.20	24.36	23.96	23.63	23.63	23.18	22.05	21.15	20.36
315.0	19.58	18.96	18.28	17.94	17.83	17.61	17.27	16.93	16.54
360.0	20.03	19.69	19.46	19.18	18.73	18.34	17.94	17.38	16.99
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.48	15.81	15.41	15.02	14.57	14.23	13.84	13.33	12.99
45.0	17.94	16.65	16.20	15.41	14.57	14.29	13.89	13.50	12.94
90.0	19.41	18.06	17.49	16.54	15.30	14.74	14.29	13.84	13.50
135.0	15.02	14.74	14.51	14.12	13.78	13.56	13.44	13.22	12.83
180.0	16.37	15.81	15.24	14.85	14.46	13.95	13.56	12.99	12.60
225.0	17.16	16.59	15.75	15.19	14.79	14.40	14.01	13.33	12.99
270.0	19.35	18.45	17.44	16.37	15.47	14.91	14.34	13.89	13.33
315.0	16.20	15.75	15.08	14.68	14.29	13.84	13.61	13.22	12.83
360.0	16.48	15.81	15.41	15.02	14.57	14.23	13.84	13.33	12.99
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.54	12.15	11.81	11.53	11.36	11.31	11.19	11.14	11.14
45.0	12.54	12.21	11.93	11.64	11.53	11.42	11.25	11.19	11.08
90.0	13.16	12.83	12.54	12.43	12.32	12.26	12.21	12.04	11.81
135.0	12.60	12.26	11.98	11.76	11.64	11.59	11.48	11.36	11.31
180.0	12.21	11.87	11.53	11.36	11.25	11.08	11.03	10.97	10.86
225.0	12.54	12.26	12.04	11.81	11.76	11.64	11.53	11.48	11.36
270.0	12.88	12.49	12.09	11.81	11.59	11.53	11.42	11.31	11.19
315.0	12.43	12.09	11.81	11.64	11.53	11.42	11.31	11.25	11.14
360.0	12.54	12.15	11.81	11.53	11.36	11.31	11.19	11.14	11.14
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.03	10.97	10.91	10.86	10.80	10.69	10.63	10.58	10.41
45.0	11.03	10.97	10.91	10.86	10.86	10.80	10.63	10.52	10.35
90.0	11.81	11.81	11.36	11.19	11.14	11.14	10.63	10.58	10.18
135.0	11.70	12.38	11.81	11.03	10.97	10.91	10.74	10.58	10.41
180.0	10.80	10.74	10.69	10.63	10.63	10.63	10.41	10.29	10.07
225.0	11.25	11.19	11.03	10.91	10.86	10.74	10.58	10.52	10.29
270.0	11.08	10.97	10.86	10.74	10.69	10.58	10.46	10.41	10.18
315.0	11.08	11.03	10.97	10.91	10.80	10.80	10.63	10.52	10.29
360.0	11.03	10.97	10.91	10.86	10.80	10.69	10.63	10.58	10.41

Intensity data(cd)

C/γ(°)	90.0
0.0	10.18
45.0	10.18
90.0	10.07
135.0	10.13
180.0	10.01
225.0	10.13
270.0	10.07
315.0	10.13
360.0	10.18