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Nata

LumCAT: 1687-M	
Luminaire:92.70.123.00	
Report No: NATA0100	Voltage(V): 31.6500
Test No: GC20190902	Current(A): 0.1970
LampCAT: XICATO XOB LES 6MM	Power (W): 6.2300
Lamp flux(lm): 702.8	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46.4	Width(mm): 46.4
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 644.58
Efficiency(%): 91.72%
Lumens(lm)/Power(W): 103.46
Central intensity(cd): 2221.875
Maximum intensity(cd): 2221.875
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=21.9
 [C90/270]Total=21.9
Field angle(10%Imax): [C0/180]Total=59.6
 [C90/270]Total=59.6
Maximum s/h(1/2): C0_180=0.37 C90_270=0.37
Maximum s/h(1/4): C0_180=0.38 C90_270=0.38
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.72%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.728%

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/2
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2221.875	0.000	0	.000%	.000%
1.0	2207.953	2.120	2.12	.302%	.329%
2.0	2163.023	6.274	8.393	.893%	1.302%
3.0	2091.023	10.174	18.568	1.448%	2.881%
4.0	1999.617	13.693	32.26	1.948%	5.005%
5.0	1900.055	16.776	49.036	2.387%	7.607%
6.0	1787.133	19.377	68.414	2.757%	10.614%
7.0	1660.570	21.400	89.813	3.045%	13.934%
8.0	1536.413	22.880	112.694	3.256%	17.483%
9.0	1401.743	23.812	136.506	3.388%	21.177%
10.0	1255.971	24.051	160.557	3.422%	24.909%
11.0	1103.660	23.578	184.135	3.355%	28.566%
12.0	977.716	22.752	206.887	3.237%	32.096%
13.0	831.741	21.474	228.361	3.055%	35.428%
14.0	716.112	19.812	248.173	2.819%	38.501%
15.0	613.216	18.250	266.423	2.597%	41.333%
16.0	515.609	16.540	282.963	2.353%	43.899%
17.0	443.770	14.940	297.903	2.126%	46.216%
18.0	388.610	13.724	311.627	1.953%	48.346%
19.0	341.979	12.711	324.338	1.809%	50.318%
20.0	313.643	12.000	336.338	1.707%	52.179%
21.0	290.820	11.607	347.945	1.651%	53.980%
22.0	272.630	11.323	359.268	1.611%	55.736%
23.0	260.051	11.177	370.445	1.590%	57.470%
24.0	252.626	11.209	381.654	1.595%	59.209%
25.0	243.640	11.284	392.938	1.606%	60.960%
26.0	238.198	11.374	404.311	1.618%	62.724%
27.0	233.072	11.530	415.841	1.641%	64.513%
28.0	228.769	11.693	427.534	1.664%	66.327%
29.0	224.873	11.869	439.402	1.689%	68.168%
30.0	221.414	12.050	451.452	1.714%	70.038%
31.0	217.695	12.220	463.672	1.739%	71.934%
32.0	214.763	12.389	476.061	1.763%	73.856%
33.0	211.802	12.567	488.628	1.788%	75.805%
34.0	208.716	12.726	501.354	1.811%	77.780%
35.0	205.692	12.870	514.224	1.831%	79.776%
36.0	202.584	13.000	527.224	1.850%	81.793%
37.0	198.703	13.088	540.312	1.862%	83.823%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	193.922	13.105	553.417	1.865%	85.857%
39.0	185.555	12.953	566.369	1.843%	87.866%
40.0	172.273	12.480	578.849	1.776%	89.802%
41.0	156.136	11.694	590.544	1.664%	91.616%
42.0	135.513	10.596	601.14	1.508%	93.260%
43.0	109.540	9.077	610.217	1.292%	94.668%
44.0	85.163	7.349	617.566	1.046%	95.809%
45.0	61.748	5.646	623.212	.803%	96.684%
46.0	40.388	3.994	627.206	.568%	97.304%
47.0	24.933	2.598	629.804	.370%	97.707%
48.0	15.307	1.627	631.431	.231%	97.960%
49.0	8.930	0.995	632.426	.142%	98.114%
50.0	6.209	0.631	633.057	.090%	98.212%
51.0	5.344	0.489	633.546	.070%	98.288%
52.0	4.634	0.428	633.974	.061%	98.354%
53.0	4.099	0.380	634.354	.054%	98.413%
54.0	3.656	0.342	634.696	.049%	98.466%
55.0	3.305	0.311	635.007	.044%	98.514%
56.0	3.108	0.290	635.296	.041%	98.559%
57.0	2.988	0.279	635.575	.040%	98.602%
58.0	2.918	0.273	635.848	.039%	98.645%
59.0	2.848	0.270	636.118	.038%	98.687%
60.0	2.798	0.267	636.384	.038%	98.728%
61.0	2.770	0.266	636.65	.038%	98.769%
62.0	2.756	0.266	636.916	.038%	98.811%
63.0	2.714	0.266	637.183	.038%	98.852%
64.0	2.693	0.265	637.448	.038%	98.893%
65.0	2.679	0.266	637.714	.038%	98.934%
66.0	2.665	0.267	637.98	.038%	98.976%
67.0	2.658	0.268	638.248	.038%	99.017%
68.0	2.658	0.269	638.517	.038%	99.059%
69.0	2.644	0.270	638.788	.038%	99.101%
70.0	2.630	0.271	639.059	.039%	99.143%
71.0	2.623	0.271	639.33	.039%	99.185%
72.0	2.616	0.272	639.602	.039%	99.227%
73.0	2.609	0.273	639.876	.039%	99.270%
74.0	2.602	0.274	640.149	.039%	99.312%
75.0	2.588	0.274	640.424	.039%	99.355%

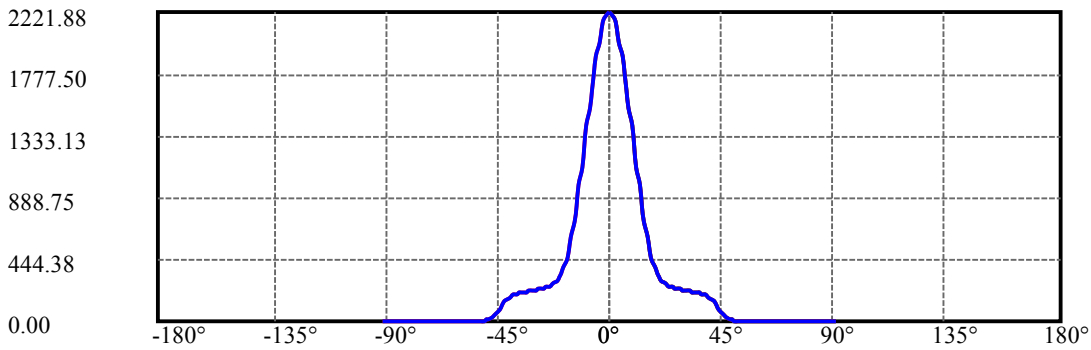
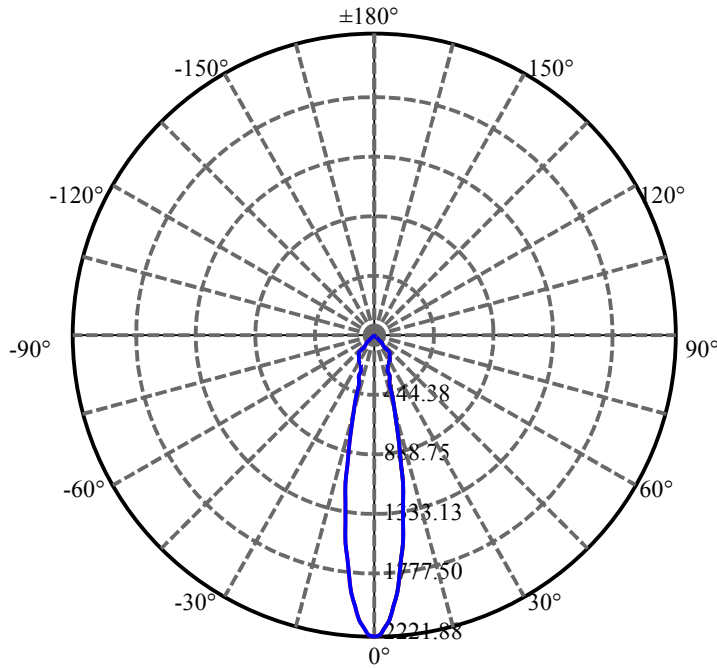
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.580	0.274	640.698	.039%	99.397%
77.0	2.580	0.275	640.973	.039%	99.440%
78.0	2.573	0.276	641.249	.039%	99.483%
79.0	2.552	0.275	641.524	.039%	99.525%
80.0	2.566	0.276	641.8	.039%	99.568%
81.0	2.552	0.277	642.077	.039%	99.611%
82.0	2.566	0.278	642.355	.039%	99.654%
83.0	2.552	0.278	642.633	.040%	99.697%
84.0	2.559	0.278	642.912	.040%	99.741%
85.0	2.573	0.280	643.192	.040%	99.784%
86.0	2.545	0.280	643.471	.040%	99.828%
87.0	2.524	0.277	643.749	.039%	99.871%
88.0	2.545	0.278	644.027	.040%	99.914%
89.0	2.538	0.279	644.305	.040%	99.957%
90.0	2.531	0.278	644.583	.040%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	451.45	64.24%	70.04%
0-40	578.85	82.36%	89.80%
0-60	636.38	90.55%	98.73%
0-90	644.31	91.68%	99.96%
0-120	644.31	91.68%	99.96%
0-180	644.58	91.72%	100.00%
60-90	8.19	1.16%	1.27%
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%
0-35.11	515.67	73.37%	80.00%

ZONAL LUMEN SUMMARY

0-10	160.56
10-20	175.78
20-30	115.11
30-40	127.40
40-50	54.21
50-60	3.33
60-70	2.67
70-80	2.74
80-90	2.50
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: —————

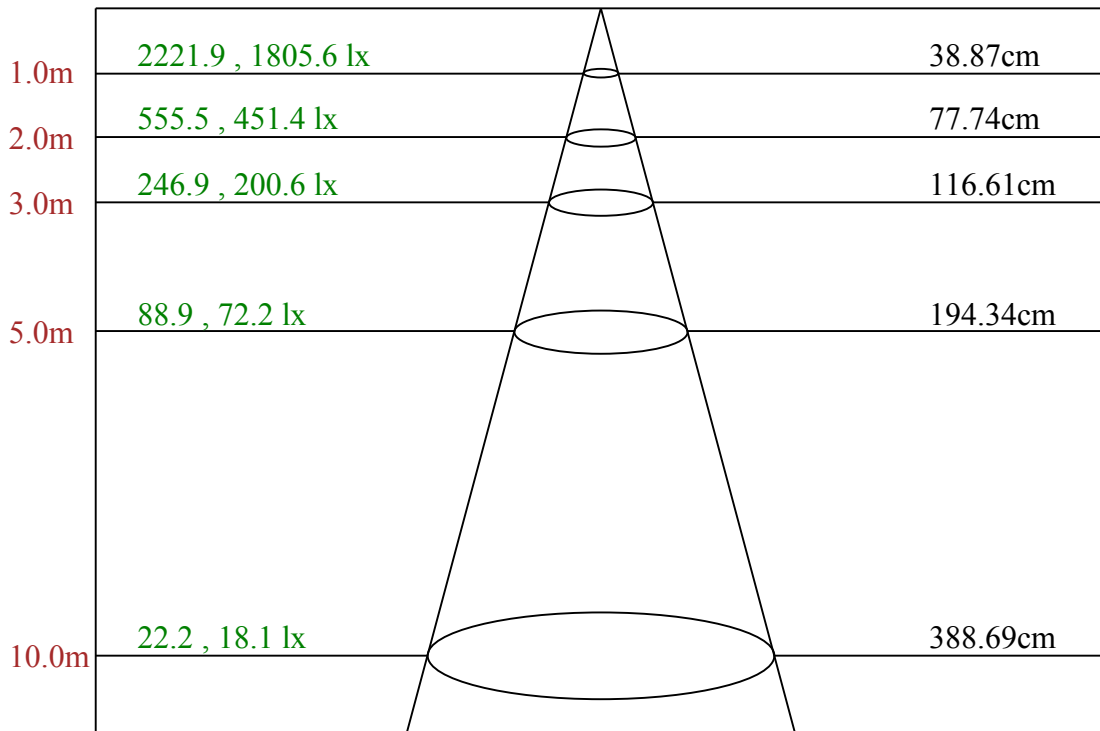
C90/C270: —————

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

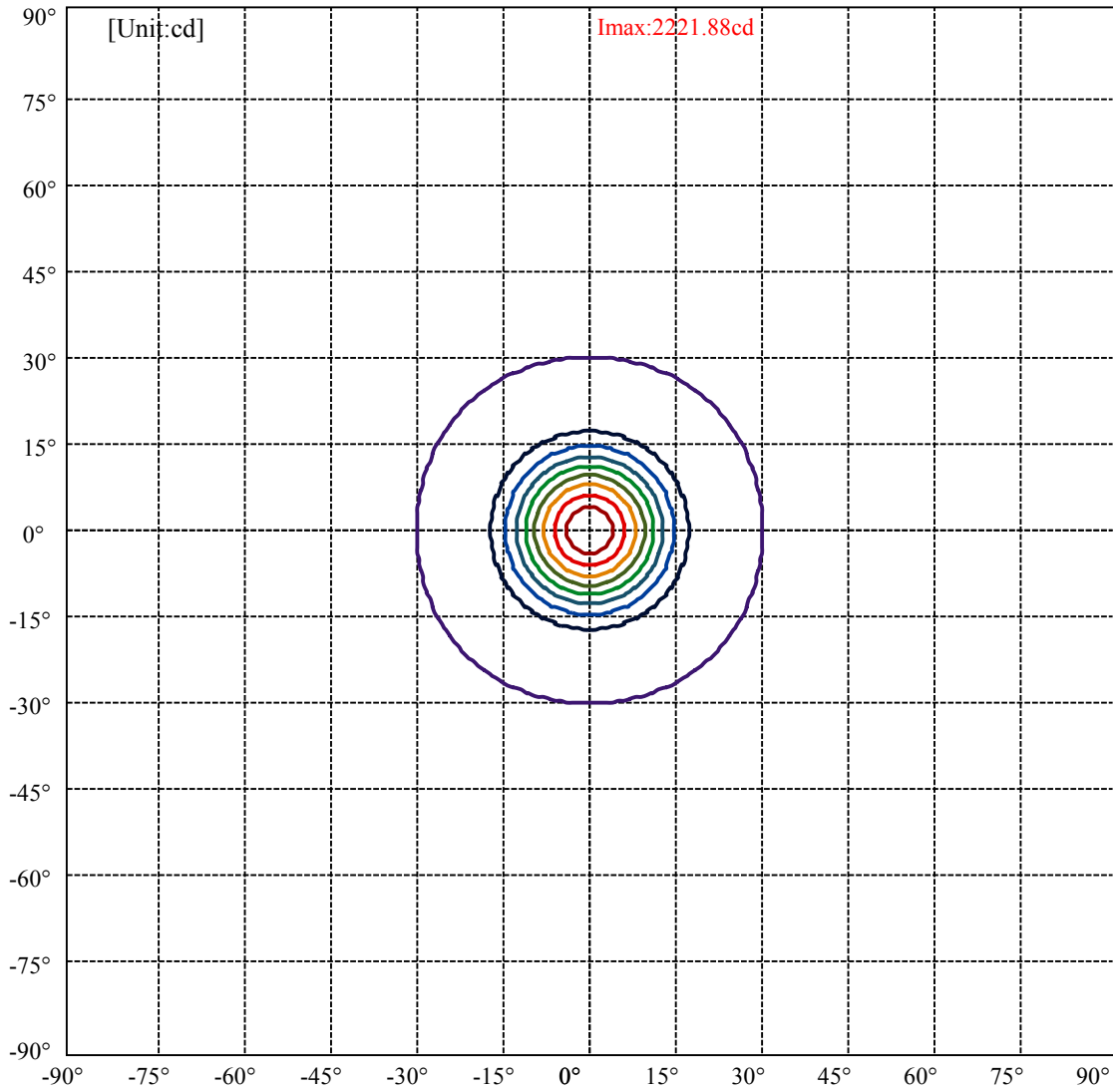
:C90/270Left:29.8 Right:29.8

Beam Angle(50%Imax):C0/180Left:11.0 Right:11.0

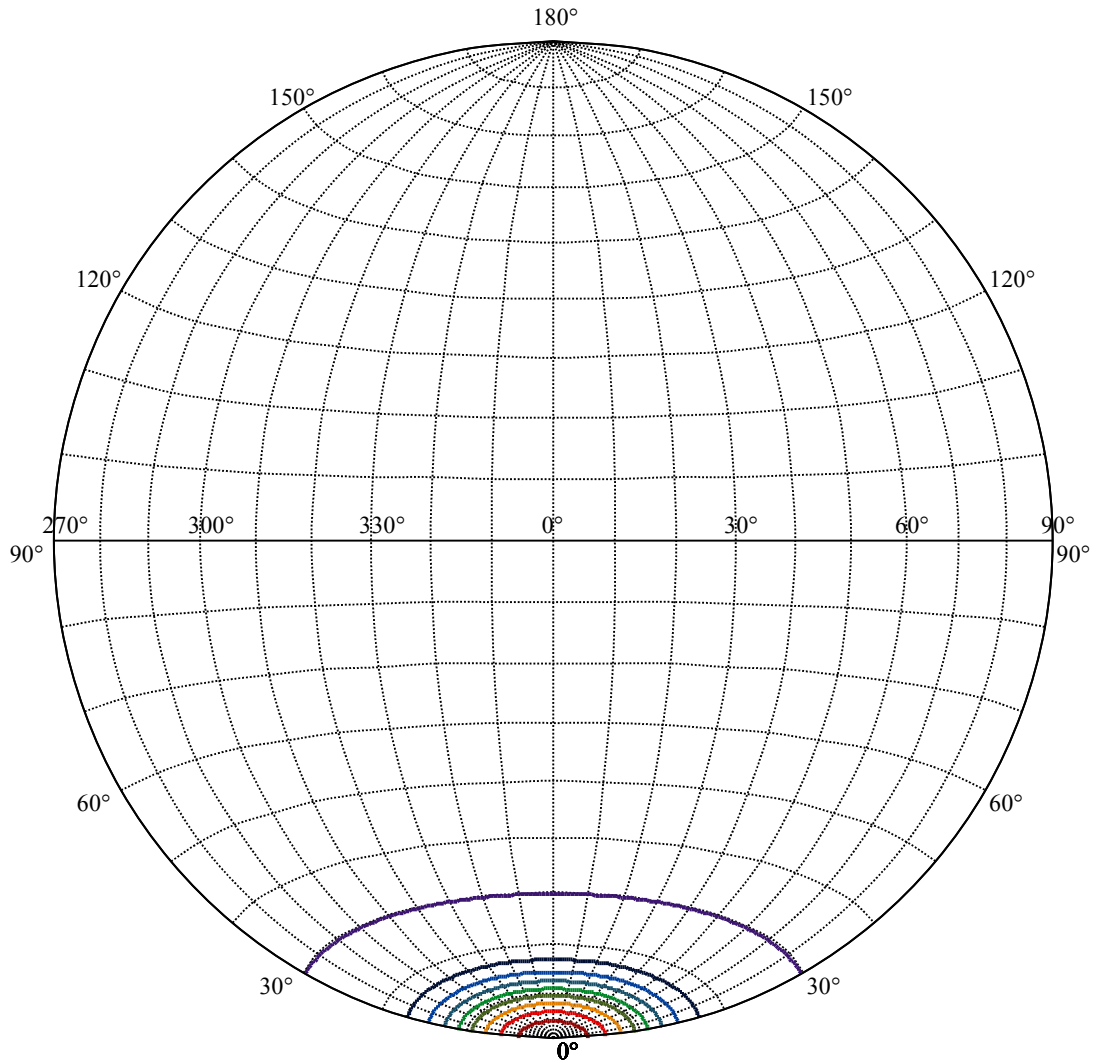
:C90/270Left:11.0 Right:11.0



Max , Ave Beam angle of C0 plane 22.00



(10%Imax) 222.188	—
(20%Imax) 444.375	—
(30%Imax) 666.563	—
(40%Imax) 888.75	—
(50%Imax) 1110.94	—
(60%Imax) 1333.13	—
(70%Imax) 1555.31	—
(80%Imax) 1777.5	—
(90%Imax) 1999.69	—



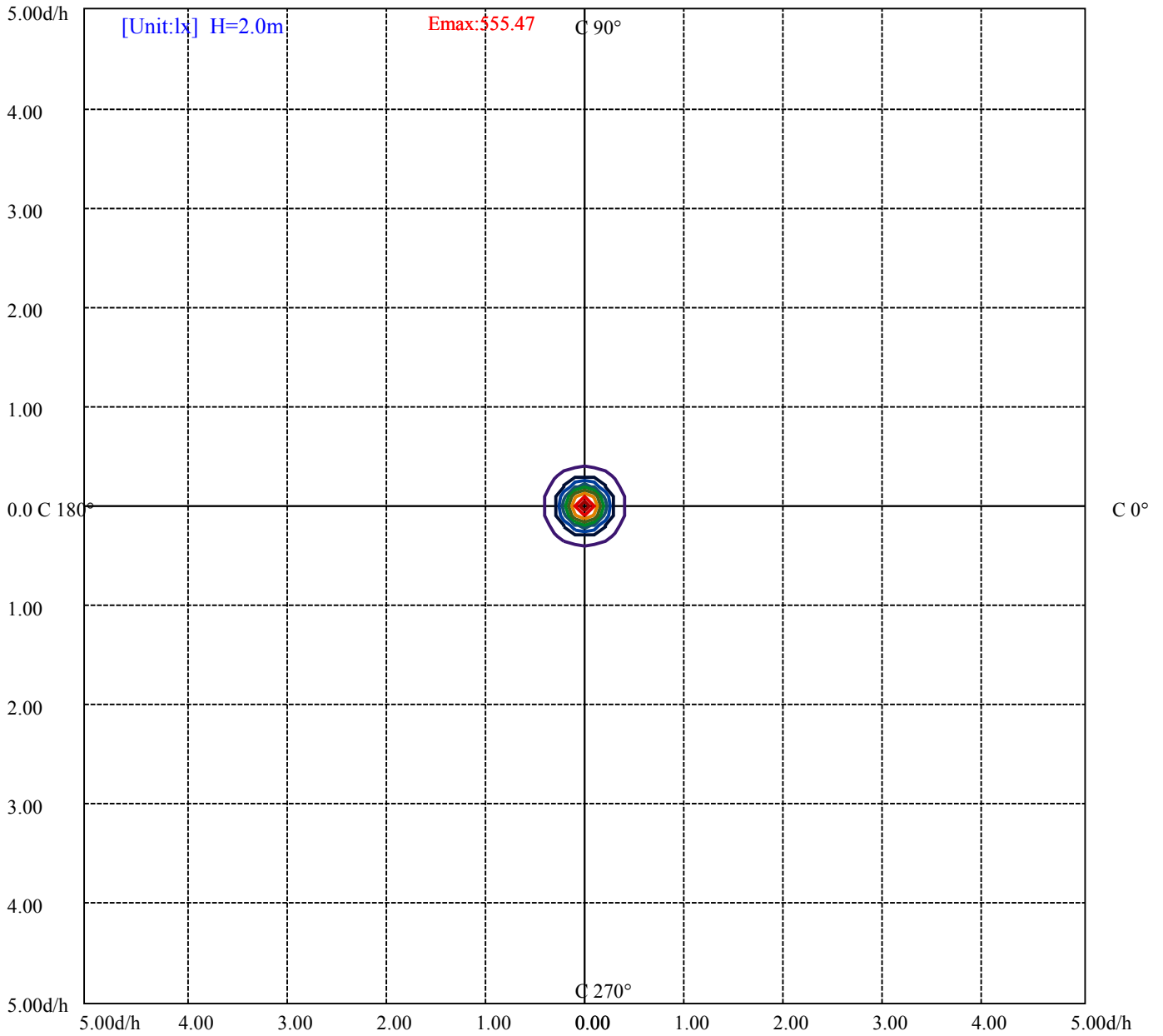
House

[Unit:cd]

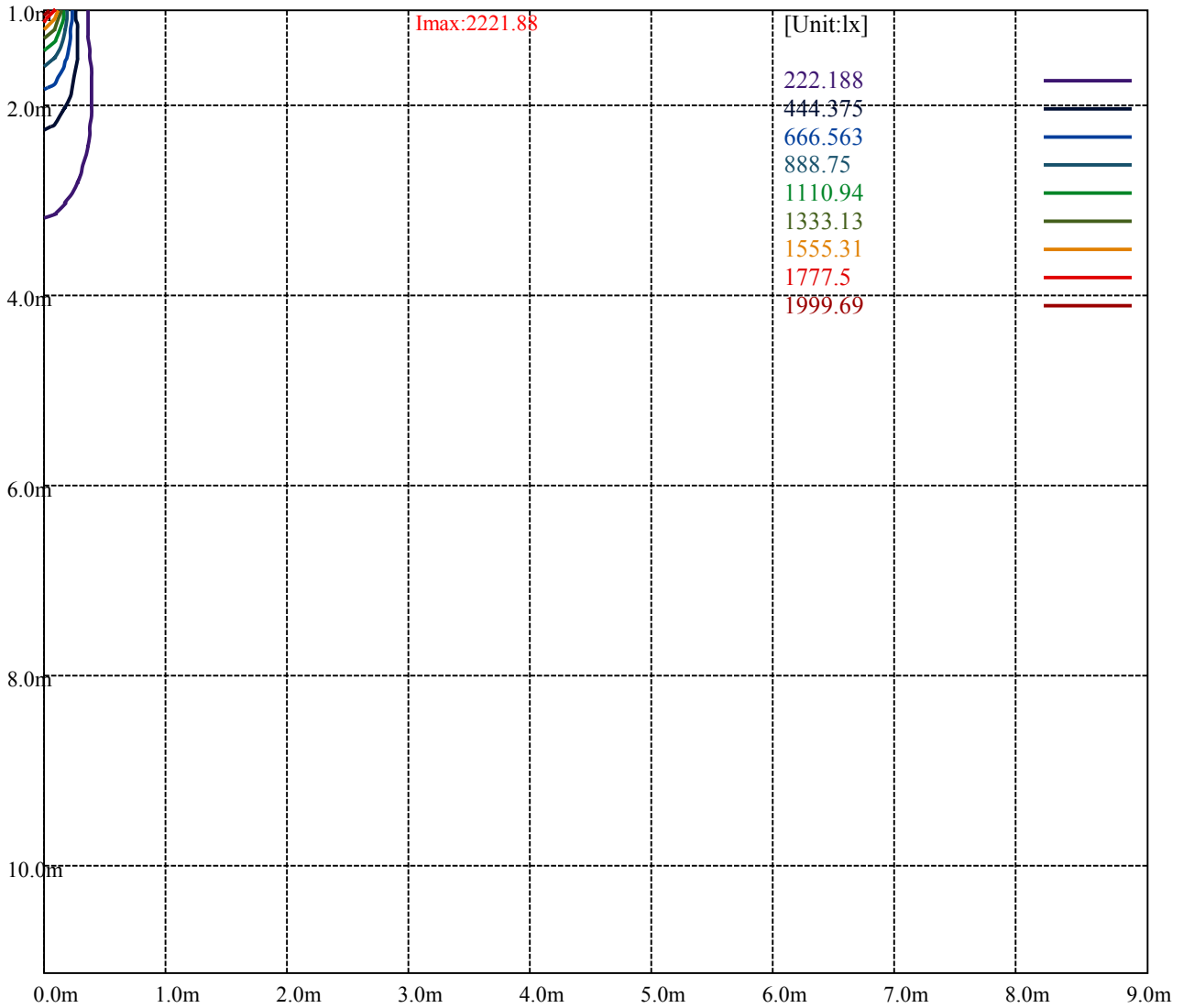
Road

Imax:2221.88

(10%Imax) 222.188	—
(20%Imax) 444.375	—
(30%Imax) 666.563	—
(40%Imax) 888.75	—
(50%Imax) 1110.94	—
(60%Imax) 1333.13	—
(70%Imax) 1555.31	—
(80%Imax) 1777.5	—
(90%Imax) 1999.69	—



- (10%Emax) 55.54675
- (20%Emax) 111.0938
- (30%Emax) 166.6405
- (40%Emax) 222.1873
- (50%Emax) 277.735
- (60%Emax) 333.28
- (70%Emax) 388.8275
- (80%Emax) 444.375
- (90%Emax) 499.9225



Luminance Table

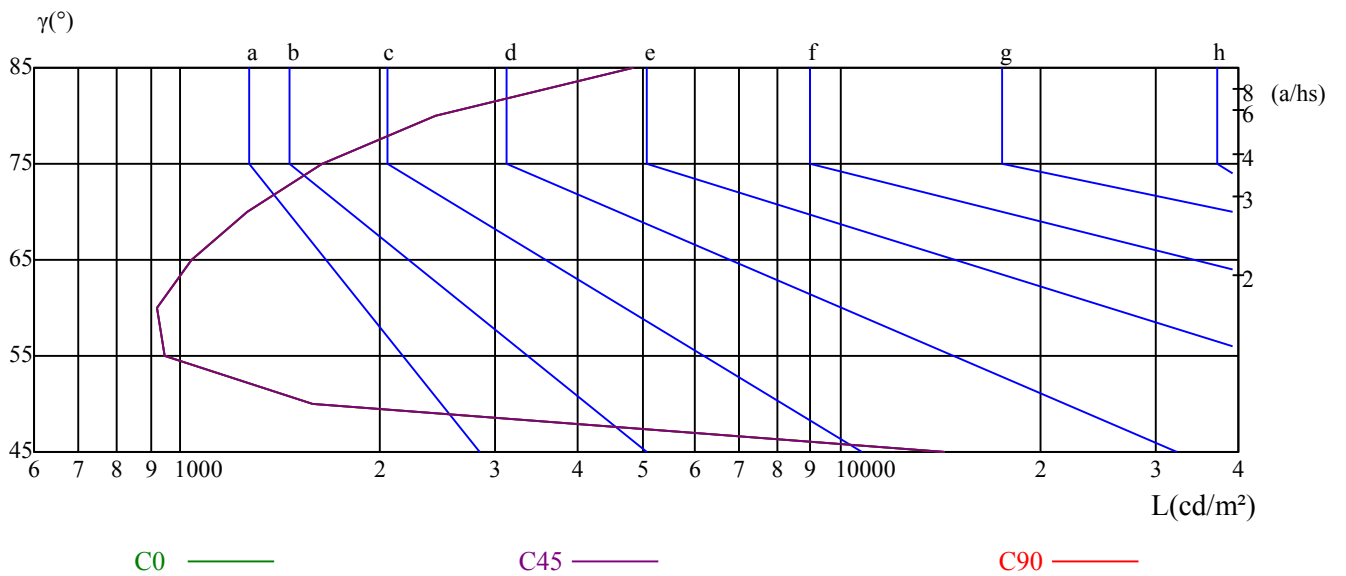
γ	45	50	55	60	65	70	75	80	85
C0	14353	1588	947	920	1042	1264	1643	2429	4853
C45	14353	1588	947	920	1042	1264	1643	2429	4853
C90	14353	1588	947	920	1042	1264	1643	2429	4853

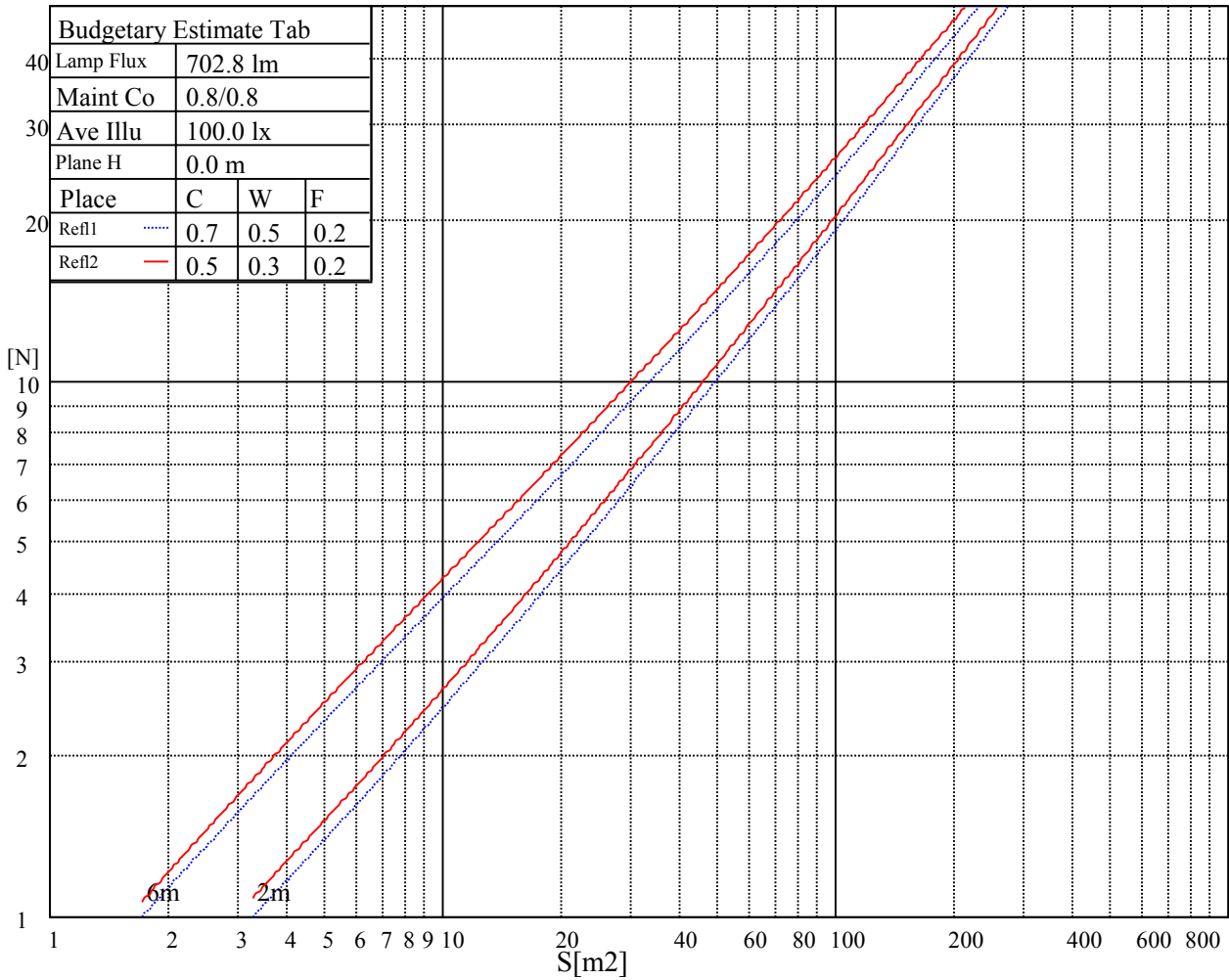
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1042	1042	1042	1643	1643	1643	4853	4853	4853

Glare Table

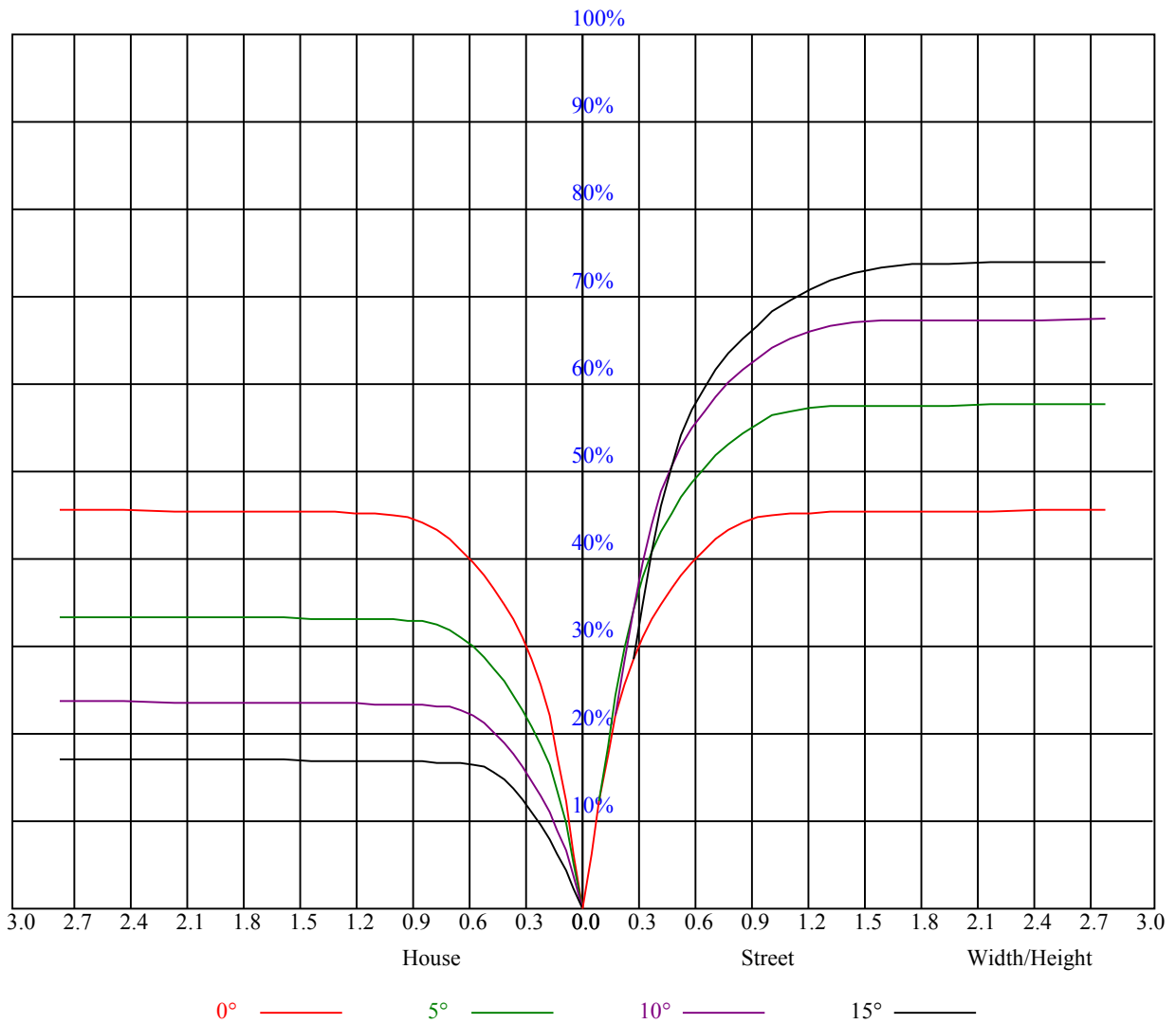
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.09	1.09	1.09	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.95	0.92	0.89	0.94	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.81
3	0.90	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.79	0.78	0.76
4	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.76	0.74	0.78	0.75	0.73	0.72
5	0.80	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.71	0.69	0.68
6	0.76	0.71	0.67	0.75	0.70	0.67	0.74	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.64
7	0.72	0.67	0.63	0.71	0.67	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.61
8	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.58
9	0.65	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.56
10	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.57	0.55	0.61	0.57	0.54	0.60	0.57	0.54	0.53



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	2225.81	2151.00	2054.81	1926.00	1811.81	1692.56	1535.06	1401.19	1263.94
45.0	2241.56	2212.88	2154.38	2085.75	1959.19	1858.50	1762.31	1605.94	1482.19
90.0	2229.19	2241.00	2219.06	2159.44	2079.56	1994.06	1901.81	1779.19	1670.06
135.0	2190.94	2261.25	2293.88	2288.25	2253.38	2186.44	2102.63	2014.88	1918.69
180.0	2225.81	2279.81	2292.19	2271.38	2215.69	2143.13	2044.13	1937.81	1840.50
225.0	2241.56	2232.56	2190.38	2115.00	2028.38	1927.69	1823.63	1722.94	1600.88
270.0	2229.19	2189.25	2106.00	2009.81	1909.69	1791.00	1656.56	1530.56	1395.00
315.0	2190.94	2095.88	1993.50	1872.56	1739.25	1607.06	1470.94	1292.06	1120.05
360.0	2225.81	2151.00	2054.81	1926.00	1811.81	1692.56	1535.06	1401.19	1263.94
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1086.19	943.88	812.81	675.56	561.94	481.50	414.00	371.81	336.38
45.0	1371.94	1204.31	1045.69	906.19	757.69	640.69	542.25	446.06	391.50
90.0	1548.56	1383.75	1201.50	1107.11	954.79	808.20	688.22	568.13	480.60
135.0	1792.13	1680.19	1559.25	1396.13	1260.00	1114.88	970.31	798.75	676.69
180.0	1739.25	1593.56	1462.50	1323.00	1119.83	993.71	856.24	727.20	585.17
225.0	1463.63	1329.19	1112.79	1022.18	860.68	727.48	611.16	492.58	423.62
270.0	1221.19	1079.44	941.63	806.06	650.81	546.75	453.94	388.13	348.19
315.0	991.07	833.46	693.11	585.51	488.19	415.69	369.62	332.21	308.03
360.0	1086.19	943.88	812.81	675.56	561.94	481.50	414.00	371.81	336.38
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	309.94	290.25	284.06	260.16	252.39	247.56	242.78	239.01	234.51
45.0	351.56	314.44	292.50	285.75	260.61	252.39	246.77	241.09	236.76
90.0	405.79	354.83	324.90	299.70	281.08	268.43	257.46	246.43	239.96
135.0	570.38	461.81	399.94	358.31	321.75	292.50	285.19	257.46	248.63
180.0	490.95	417.09	359.16	319.11	293.29	271.01	257.06	248.51	241.71
225.0	373.84	328.44	301.16	280.46	264.94	254.70	248.18	242.33	237.99
270.0	320.06	297.00	284.63	266.91	258.02	250.03	244.63	239.51	235.74
315.0	286.37	271.97	262.80	256.16	248.96	243.79	238.95	234.79	230.29
360.0	309.94	290.25	284.06	260.16	252.39	247.56	242.78	239.01	234.51
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	229.89	226.35	223.31	219.83	216.56	213.64	210.09	206.83	202.11
45.0	232.09	227.36	222.81	219.66	216.28	213.47	210.26	207.11	203.79
90.0	234.34	229.50	225.23	221.57	217.63	214.54	211.33	208.46	205.93
135.0	240.58	235.13	230.96	226.24	221.91	218.36	215.66	212.46	209.98
180.0	236.48	231.92	227.36	223.76	219.66	216.45	213.92	211.16	208.63
225.0	233.27	229.11	225.17	221.68	218.48	216.45	214.09	211.28	208.46
270.0	230.96	227.03	223.93	221.12	216.84	214.20	211.73	208.63	206.33
315.0	226.97	223.76	220.22	217.46	214.20	210.99	207.34	203.79	200.31
360.0	229.89	226.35	223.31	219.83	216.56	213.64	210.09	206.83	202.11
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	198.06	195.02	189.68	168.30	143.49	115.31	79.09	51.30	28.52
45.0	200.81	196.03	192.66	189.34	177.98	158.23	133.31	102.04	70.76
90.0	203.34	199.80	196.88	192.94	189.45	184.67	169.48	140.91	113.79
135.0	207.45	204.30	201.71	199.07	195.13	190.52	186.58	177.08	158.57
180.0	206.21	203.01	200.03	195.86	191.14	187.48	183.26	165.32	142.37
225.0	204.69	199.86	195.69	192.15	188.27	173.14	151.82	122.57	95.06
270.0	202.89	198.62	194.23	187.54	167.29	143.83	113.85	82.35	55.69
315.0	197.21	192.99	180.51	159.24	125.44	95.91	66.71	34.76	16.54
360.0	198.06	195.02	189.68	168.30	143.49	115.31	79.09	51.30	28.52

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	12.04	7.71	6.98	6.13	5.29	4.44	3.88	3.66	3.54
45.0	47.19	22.22	9.06	7.37	6.53	5.74	4.95	4.05	3.49
90.0	85.73	52.31	29.87	13.89	7.76	6.98	6.13	5.06	4.39
135.0	132.92	99.96	70.26	44.55	20.25	9.62	7.76	6.86	5.96
180.0	115.59	87.30	53.27	30.21	14.23	7.76	7.03	6.19	5.12
225.0	62.89	34.88	16.37	8.21	7.31	6.47	5.57	4.56	3.94
270.0	29.53	11.93	7.65	6.86	5.79	4.95	4.22	3.66	3.38
315.0	8.10	6.81	6.02	5.23	4.28	3.71	3.21	3.04	2.98
360.0	12.04	7.71	6.98	6.13	5.29	4.44	3.88	3.66	3.54
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.38	2.93	2.87	2.87	2.81	2.81	2.76	2.70	2.70
45.0	3.21	3.04	2.98	2.93	2.93	2.87	2.87	2.81	2.81
90.0	3.77	3.38	3.15	2.98	2.87	2.87	2.81	2.81	2.81
135.0	5.12	4.39	3.77	3.60	3.38	3.04	2.87	2.87	2.81
180.0	4.16	3.49	3.09	2.93	2.87	2.81	2.81	2.76	2.70
225.0	3.54	3.38	3.26	2.93	2.87	2.81	2.76	2.76	2.76
270.0	3.15	2.98	2.93	2.87	2.81	2.81	2.76	2.76	2.76
315.0	2.93	2.87	2.81	2.81	2.81	2.76	2.76	2.70	2.70
360.0	3.38	2.93	2.87	2.87	2.81	2.81	2.76	2.70	2.70
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.70	2.70	2.64	2.64	2.64	2.64	2.64	2.59	2.59
45.0	2.76	2.76	2.76	2.70	2.70	2.70	2.70	2.70	2.70
90.0	2.76	2.70	2.70	2.70	2.70	2.70	2.64	2.64	2.64
135.0	2.76	2.76	2.70	2.70	2.70	2.70	2.64	2.70	2.64
180.0	2.70	2.64	2.64	2.64	2.59	2.64	2.59	2.59	2.59
225.0	2.70	2.64	2.70	2.64	2.64	2.64	2.64	2.59	2.59
270.0	2.70	2.70	2.64	2.64	2.64	2.64	2.64	2.64	2.64
315.0	2.64	2.64	2.64	2.64	2.64	2.59	2.64	2.59	2.59
360.0	2.70	2.70	2.64	2.64	2.64	2.64	2.64	2.59	2.59
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.59	2.59	2.59	2.59	2.53	2.59	2.53	2.53	2.53
45.0	2.64	2.64	2.64	2.59	2.59	2.59	2.64	2.59	2.64
90.0	2.64	2.64	2.64	2.64	2.59	2.59	2.59	2.59	2.59
135.0	2.64	2.64	2.59	2.59	2.59	2.59	2.59	2.53	2.59
180.0	2.59	2.53	2.59	2.53	2.59	2.53	2.53	2.53	2.53
225.0	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
270.0	2.64	2.64	2.59	2.59	2.59	2.59	2.59	2.53	2.53
315.0	2.59	2.59	2.59	2.59	2.59	2.59	2.53	2.53	2.53
360.0	2.59	2.59	2.59	2.59	2.53	2.59	2.53	2.53	2.53
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.53	2.53	2.53	2.53	2.53	2.53	2.48	2.53	2.53
45.0	2.59	2.59	2.59	2.59	2.59	2.59	2.53	2.59	2.53
90.0	2.59	2.59	2.59	2.59	2.59	2.59	2.53	2.53	2.53
135.0	2.53	2.59	2.53	2.53	2.59	2.53	2.53	2.53	2.53
180.0	2.53	2.53	2.53	2.53	2.59	2.53	2.53	2.53	2.53
225.0	2.53	2.59	2.59	2.59	2.59	2.53	2.53	2.59	2.59
270.0	2.59	2.59	2.53	2.59	2.59	2.53	2.53	2.53	2.53
315.0	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53
360.0	2.53	2.53	2.53	2.53	2.53	2.53	2.48	2.53	2.53

Intensity data(cd)

C/γ(°)	90.0
0.0	2.53
45.0	2.53
90.0	2.53
135.0	2.53
180.0	2.53
225.0	2.53
270.0	2.53
315.0	2.53
360.0	2.53