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Nata

LumCAT: LN01D03515DA-N
Luminaire: 97.70.267.00
Report No: 200623-B005
Test No: 200623-C005
LampCAT: CITIZEN CLU7B2
Lamp flux(lm): 318.9
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 21.9800
Current(A): 0.1600
Power (W): 3.5170
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 284.28
Efficiency(%): 89.15%
Lumens(lm)/Power(W): 80.83
Central intensity(cd): 3000.656
Maximum intensity(cd): 3000.656
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.9
[C90/270]Total=14.9
Field angle(10%Imax): [C0/180]Total=27.5
[C90/270]Total=27.5
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.15%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.947%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2020/6/23
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Nata LM01D03515DA

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3000.656	0.000	0	.000%	.000%
1.0	2969.016	2.856	2.856	.896%	1.005%
2.0	2862.211	8.370	11.226	2.625%	3.949%
3.0	2685.375	13.268	24.494	4.161%	8.616%
4.0	2469.797	17.256	41.75	5.411%	14.686%
5.0	2226.797	20.205	61.954	6.336%	21.793%
6.0	1929.867	21.844	83.799	6.850%	29.477%
7.0	1613.145	21.991	105.79	6.896%	37.213%
8.0	1371.466	21.360	127.151	6.699%	44.726%
9.0	1094.583	19.986	147.136	6.268%	51.757%
10.0	870.841	17.786	164.923	5.578%	58.013%
11.0	688.992	15.586	180.509	4.888%	63.496%
12.0	522.021	13.238	193.747	4.151%	68.152%
13.0	376.995	10.669	204.416	3.346%	71.905%
14.0	277.495	8.377	212.793	2.627%	74.852%
15.0	217.167	6.791	219.584	2.130%	77.241%
16.0	156.649	5.477	225.062	1.718%	79.168%
17.0	113.252	4.203	229.265	1.318%	80.646%
18.0	89.255	3.339	232.604	1.047%	81.821%
19.0	72.977	2.823	235.426	.885%	82.814%
20.0	61.397	2.459	237.886	.771%	83.679%
21.0	52.538	2.188	240.073	.686%	84.448%
22.0	45.991	1.980	242.053	.621%	85.145%
23.0	40.880	1.823	243.876	.572%	85.786%
24.0	36.563	1.693	245.569	.531%	86.381%
25.0	32.984	1.581	247.151	.496%	86.938%
26.0	30.291	1.494	248.644	.468%	87.463%
27.0	27.759	1.420	250.065	.445%	87.963%
28.0	25.481	1.348	251.412	.423%	88.437%
29.0	23.456	1.280	252.693	.402%	88.887%
30.0	21.621	1.217	253.91	.382%	89.315%
31.0	19.638	1.148	255.058	.360%	89.719%
32.0	17.916	1.076	256.134	.337%	90.098%
33.0	16.418	1.011	257.145	.317%	90.453%
34.0	15.005	0.951	258.096	.298%	90.788%
35.0	13.809	0.895	258.991	.281%	91.103%
36.0	12.797	0.847	259.838	.266%	91.401%
37.0	11.953	0.807	260.646	.253%	91.685%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	11.201	0.773	261.418	.242%	91.957%
39.0	10.582	0.744	262.162	.233%	92.218%
40.0	9.963	0.717	262.878	.225%	92.470%
41.0	9.415	0.690	263.569	.216%	92.713%
42.0	8.859	0.664	264.232	.208%	92.946%
43.0	8.283	0.635	264.867	.199%	93.170%
44.0	7.805	0.607	265.475	.190%	93.383%
45.0	7.327	0.582	266.056	.182%	93.588%
46.0	6.863	0.555	266.611	.174%	93.783%
47.0	6.497	0.531	267.142	.167%	93.970%
48.0	6.195	0.513	267.655	.161%	94.150%
49.0	5.885	0.496	268.152	.156%	94.325%
50.0	5.604	0.479	268.631	.150%	94.493%
51.0	5.379	0.465	269.095	.146%	94.657%
52.0	5.161	0.452	269.547	.142%	94.816%
53.0	4.943	0.440	269.987	.138%	94.971%
54.0	4.760	0.428	270.415	.134%	95.121%
55.0	4.563	0.416	270.831	.131%	95.267%
56.0	4.430	0.406	271.237	.127%	95.410%
57.0	4.261	0.397	271.635	.125%	95.550%
58.0	4.085	0.386	272.021	.121%	95.686%
59.0	3.938	0.375	272.396	.118%	95.818%
60.0	3.811	0.366	272.762	.115%	95.947%
61.0	3.670	0.357	273.119	.112%	96.072%
62.0	3.565	0.349	273.467	.109%	96.195%
63.0	3.445	0.341	273.808	.107%	96.315%
64.0	3.319	0.332	274.14	.104%	96.432%
65.0	3.206	0.323	274.463	.101%	96.545%
66.0	3.129	0.316	274.779	.099%	96.656%
67.0	3.045	0.310	275.09	.097%	96.765%
68.0	2.981	0.305	275.395	.096%	96.873%
69.0	3.136	0.312	275.707	.098%	96.983%
70.0	3.748	0.354	276.06	.111%	97.107%
71.0	4.458	0.424	276.485	.133%	97.256%
72.0	5.217	0.503	276.988	.158%	97.433%
73.0	5.998	0.586	277.574	.184%	97.639%
74.0	6.441	0.654	278.228	.205%	97.869%
75.0	6.546	0.686	278.914	.215%	98.111%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.188	0.676	279.59	.212%	98.349%
77.0	5.843	0.641	280.231	.201%	98.574%
78.0	5.428	0.603	280.835	.189%	98.786%
79.0	4.978	0.559	281.394	.175%	98.983%
80.0	4.521	0.512	281.906	.161%	99.163%
81.0	4.113	0.467	282.373	.146%	99.328%
82.0	3.621	0.419	282.792	.132%	99.475%
83.0	2.377	0.326	283.118	.102%	99.590%
84.0	1.793	0.227	283.346	.071%	99.670%
85.0	1.659	0.188	283.534	.059%	99.736%
86.0	1.540	0.175	283.709	.055%	99.797%
87.0	1.385	0.160	283.869	.050%	99.854%
88.0	1.294	0.147	284.016	.046%	99.905%
89.0	1.216	0.138	284.153	.043%	99.954%
90.0	1.181	0.131	284.285	.041%	100.000%

Zonal flux distribution table

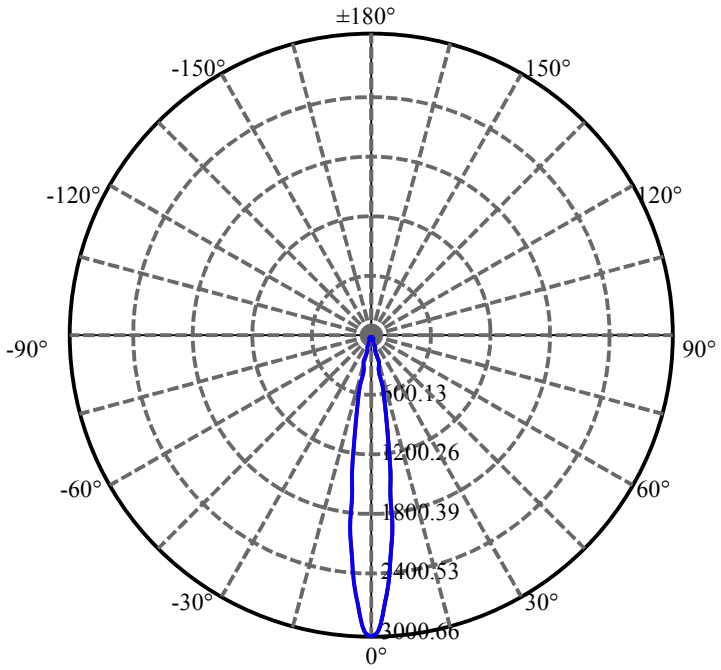
ZONAL LUMEN SUMMARY

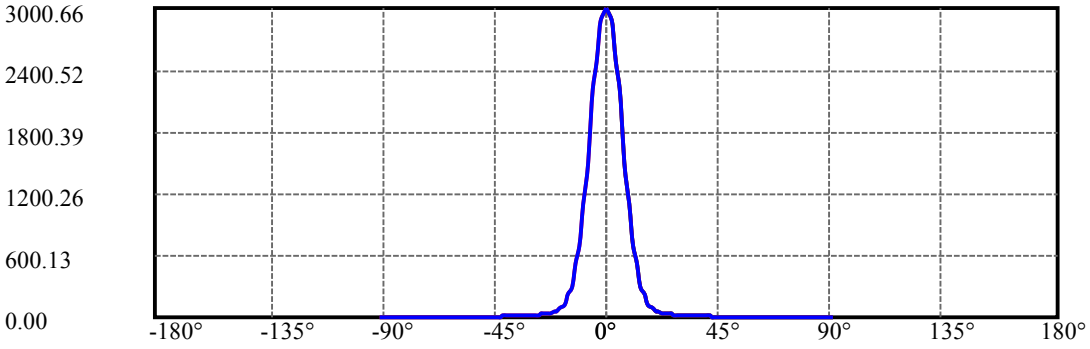
Zone	Lumens	%Lamp	%Fixt
0-30	253.91	79.63%	89.32%
0-40	262.88	82.44%	92.47%
0-60	272.76	85.54%	95.95%
0-90	284.15	89.11%	99.95%
0-120	284.15	89.11%	99.95%
0-180	284.28	89.15%	100.00%
60-90	11.76	3.69%	4.14%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.56	227.43	71.32%	80.00%

ZONAL LUMEN SUMMARY

0-10	164.92
10-20	72.96
20-30	16.02
30-40	8.97
40-50	5.75
50-60	4.13
60-70	3.30
70-80	5.85
80-90	2.25
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

Light Distribution Curve [Unit:cd]





C0(Max):

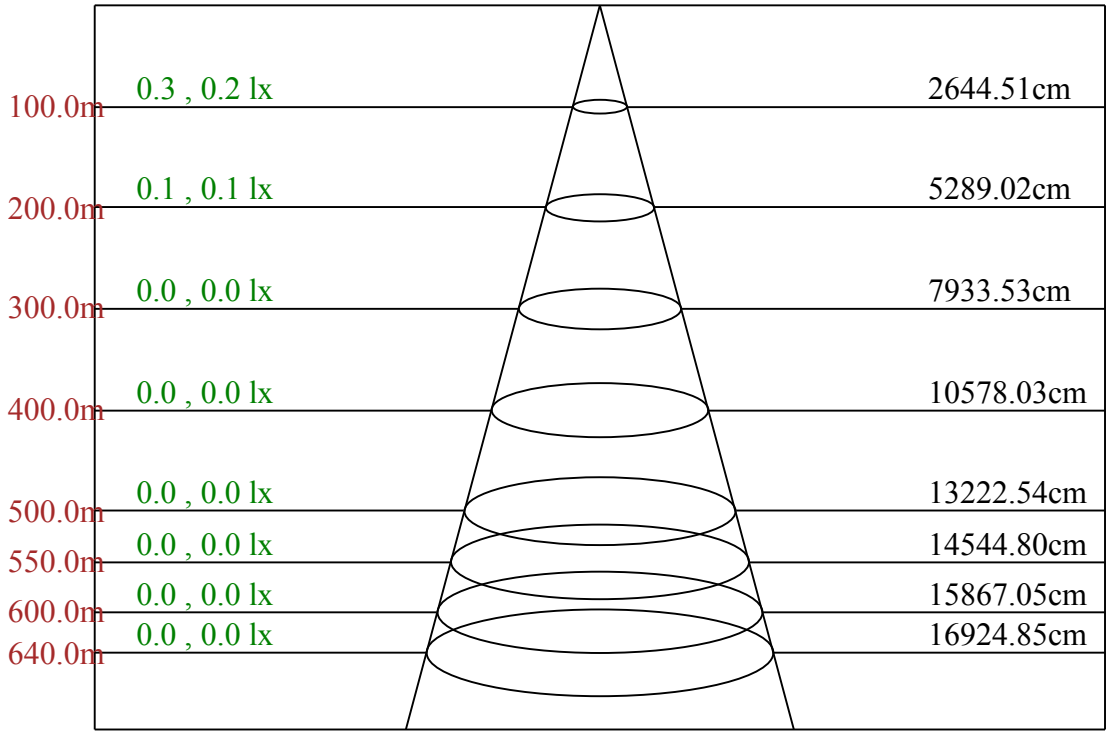
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:13.8 Right:13.8
:C90/270Left:13.8 Right:13.8

Beam Angle(50%Imax):C0/180Left:7.5 Right:7.5
:C90/270Left:7.5 Right:7.5

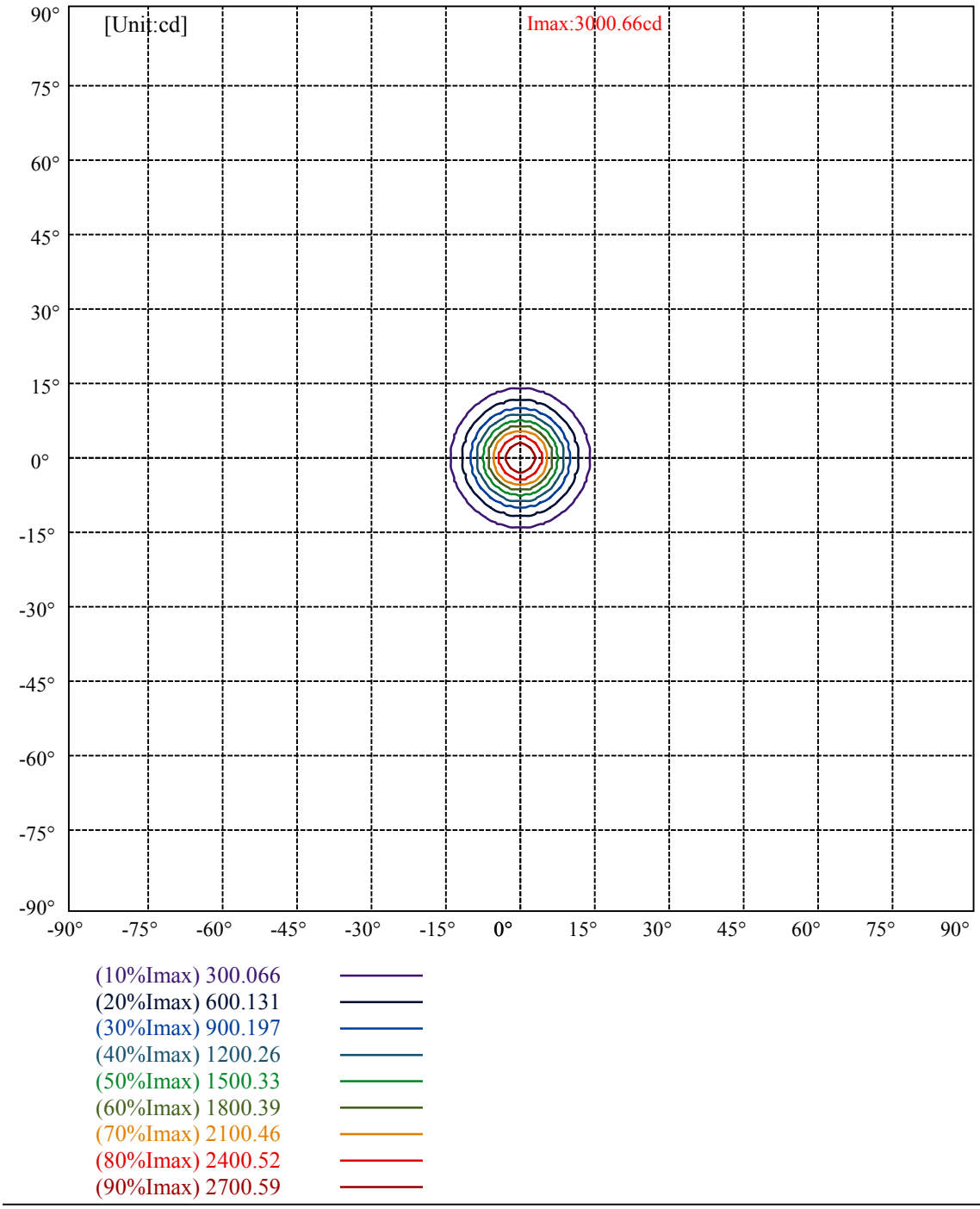
Lux distance Curve



Max , Ave

Beam angle of C0 plane 15.06

ISO-Intensity(V-H)

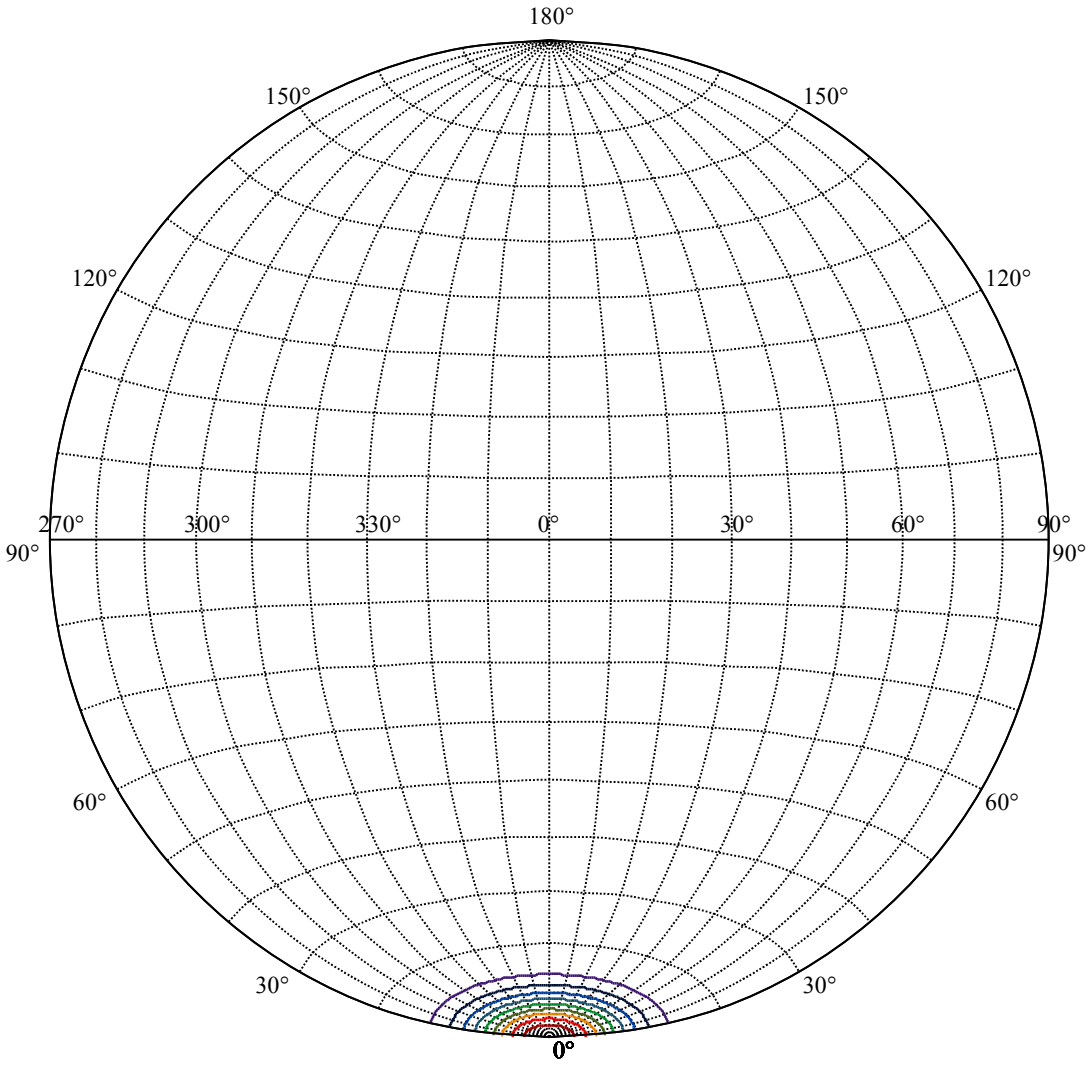


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



[Unit:cd]

Imax:3000.66

(10%Imax) 300.066
(20%Imax) 600.131
(30%Imax) 900.197
(40%Imax) 1200.26
(50%Imax) 1500.33
(60%Imax) 1800.39
(70%Imax) 2100.46
(80%Imax) 2400.52
(90%Imax) 2700.59

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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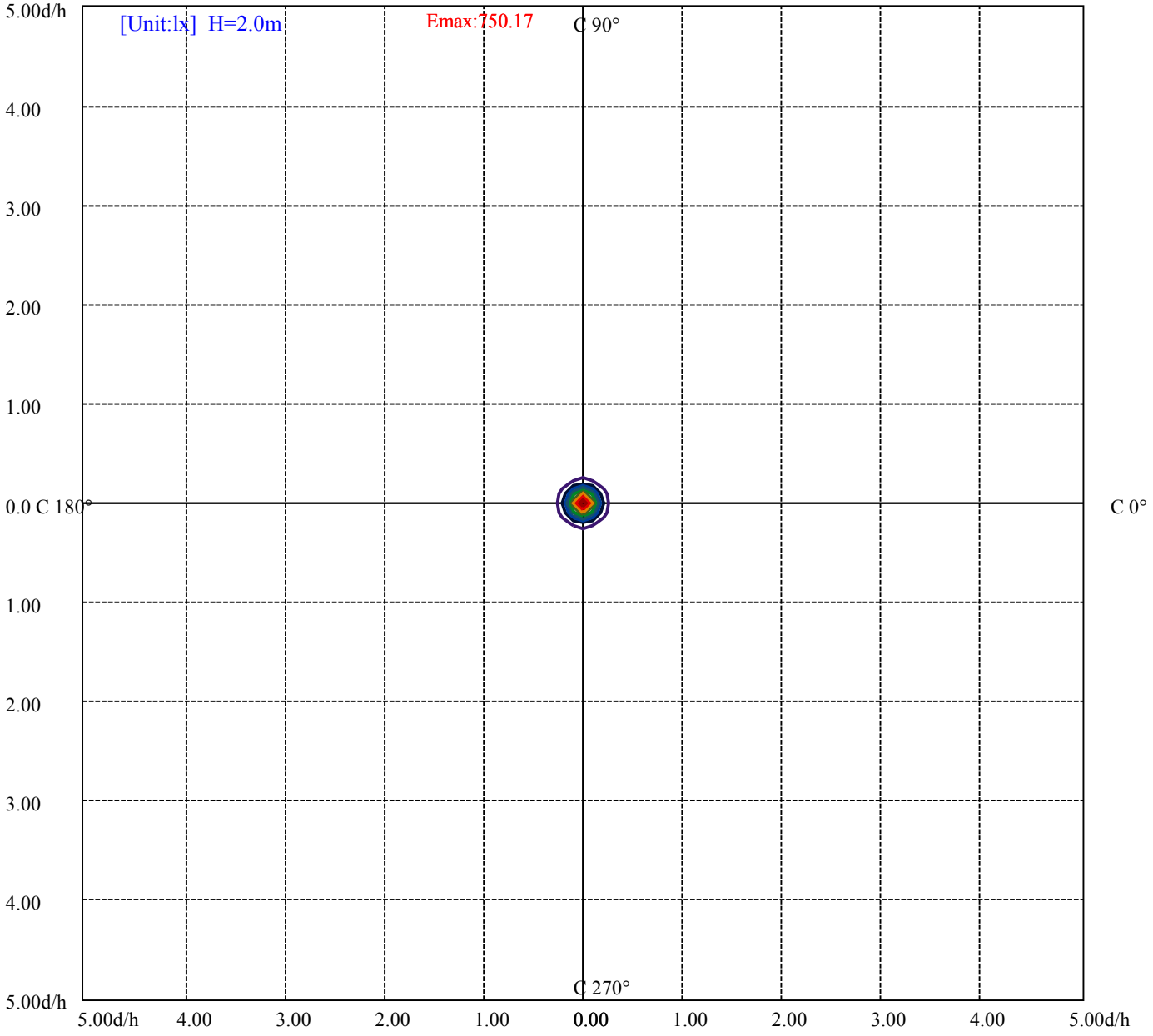
ISO illuminance diagram

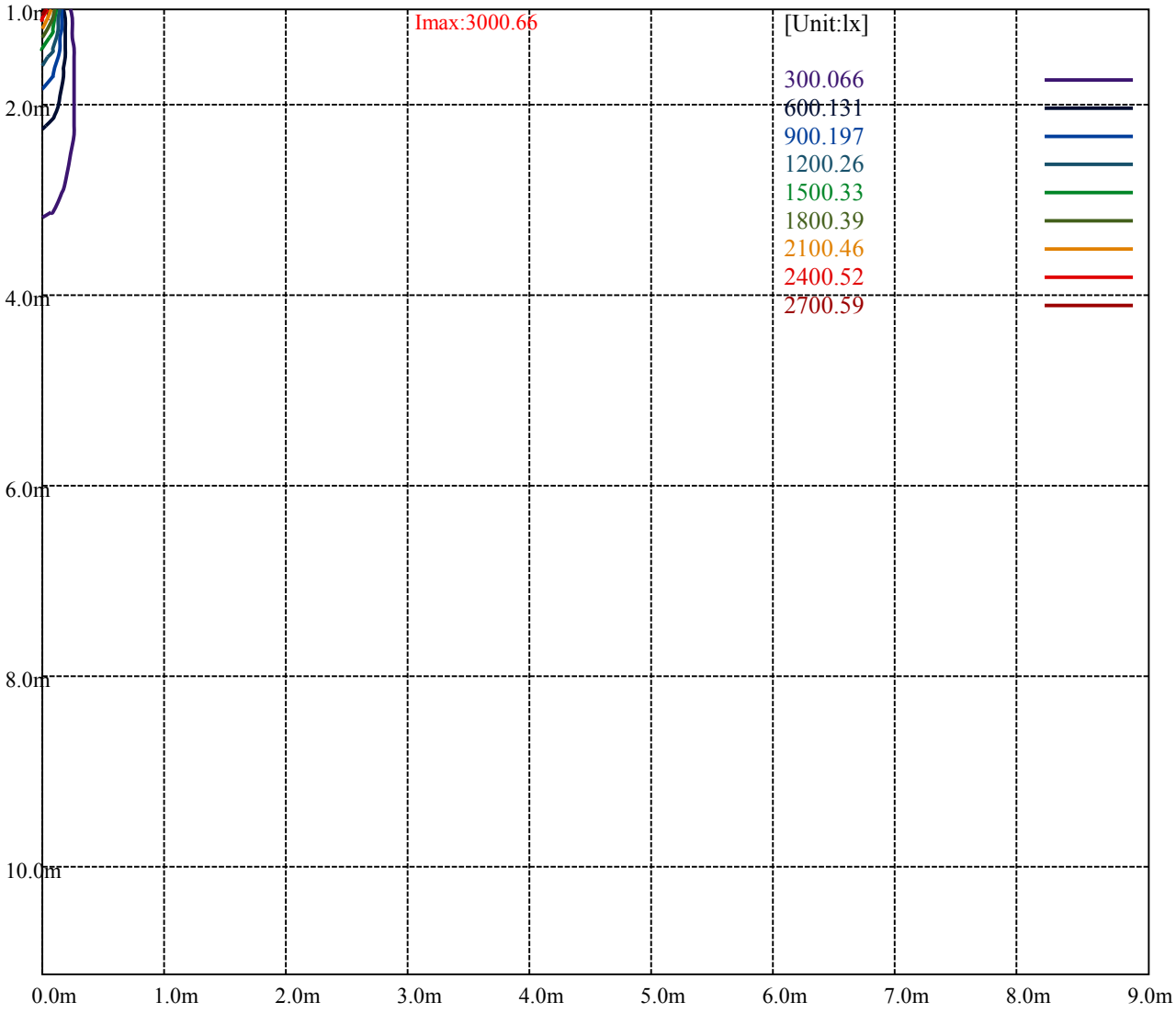


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

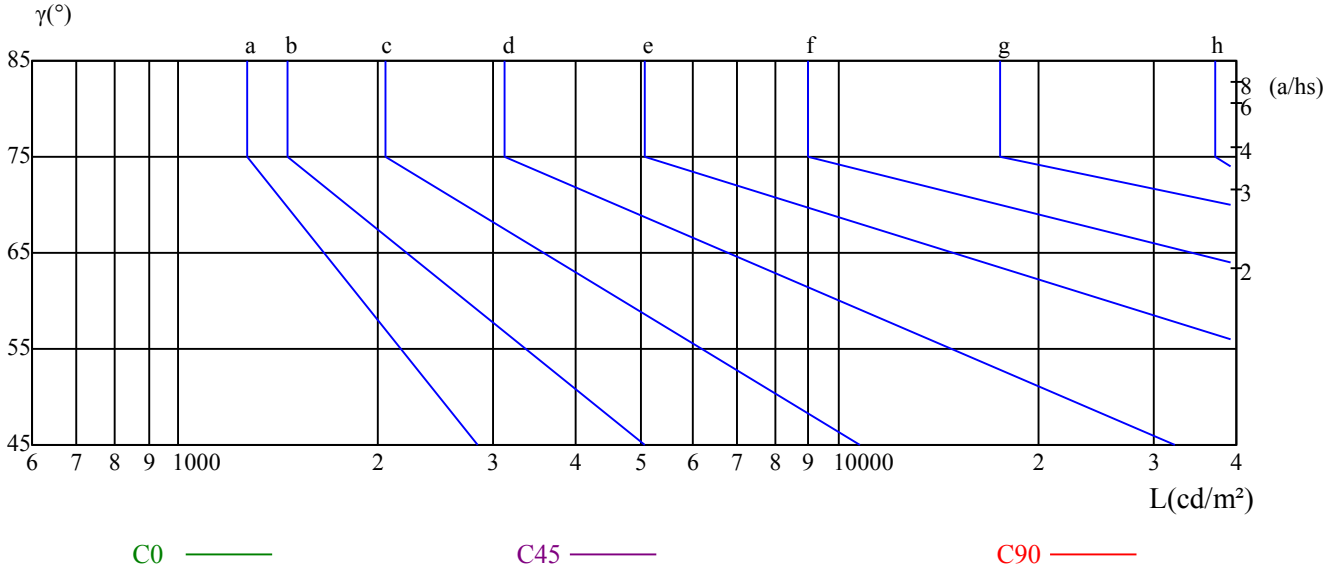
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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 Limitting Curve

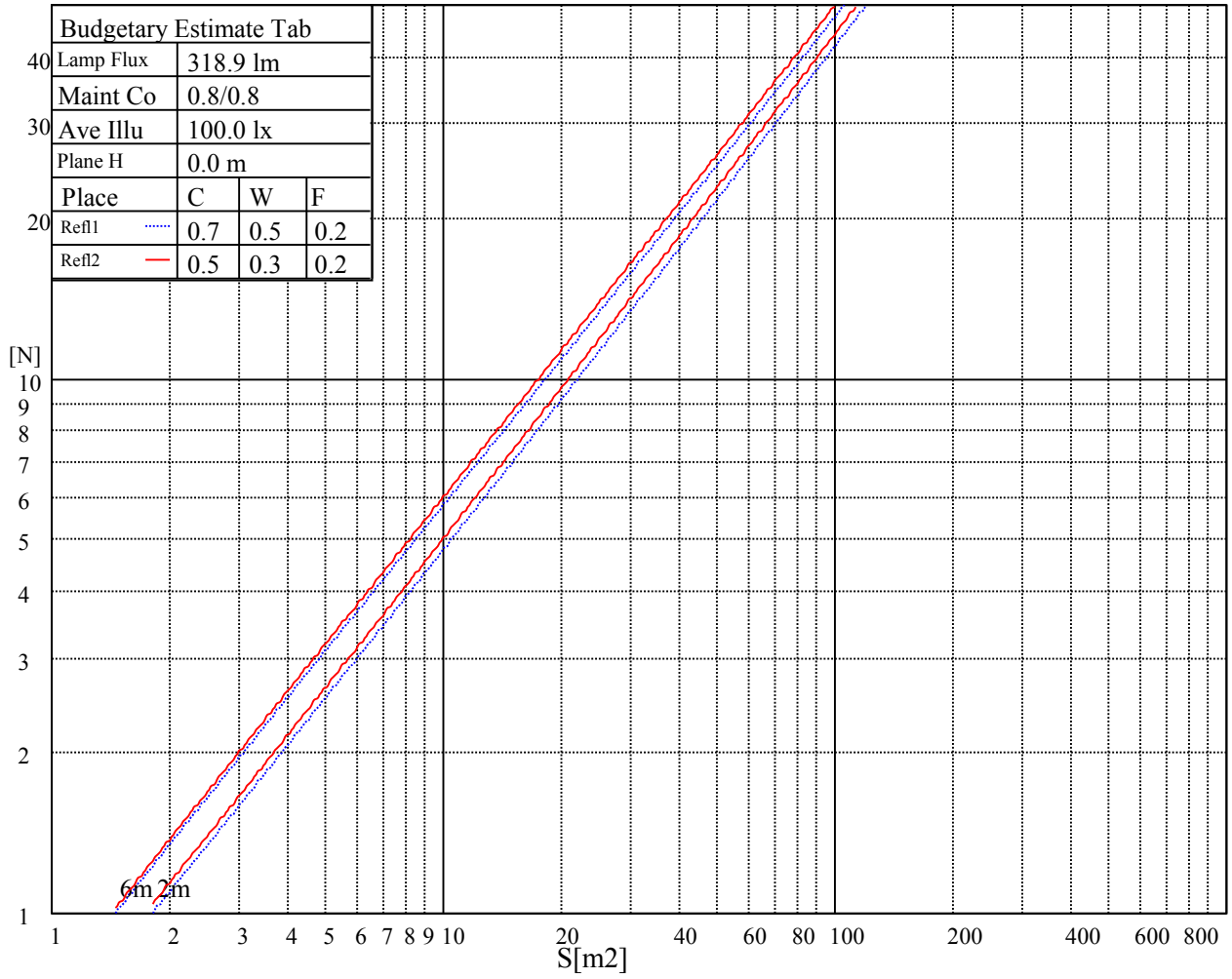


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

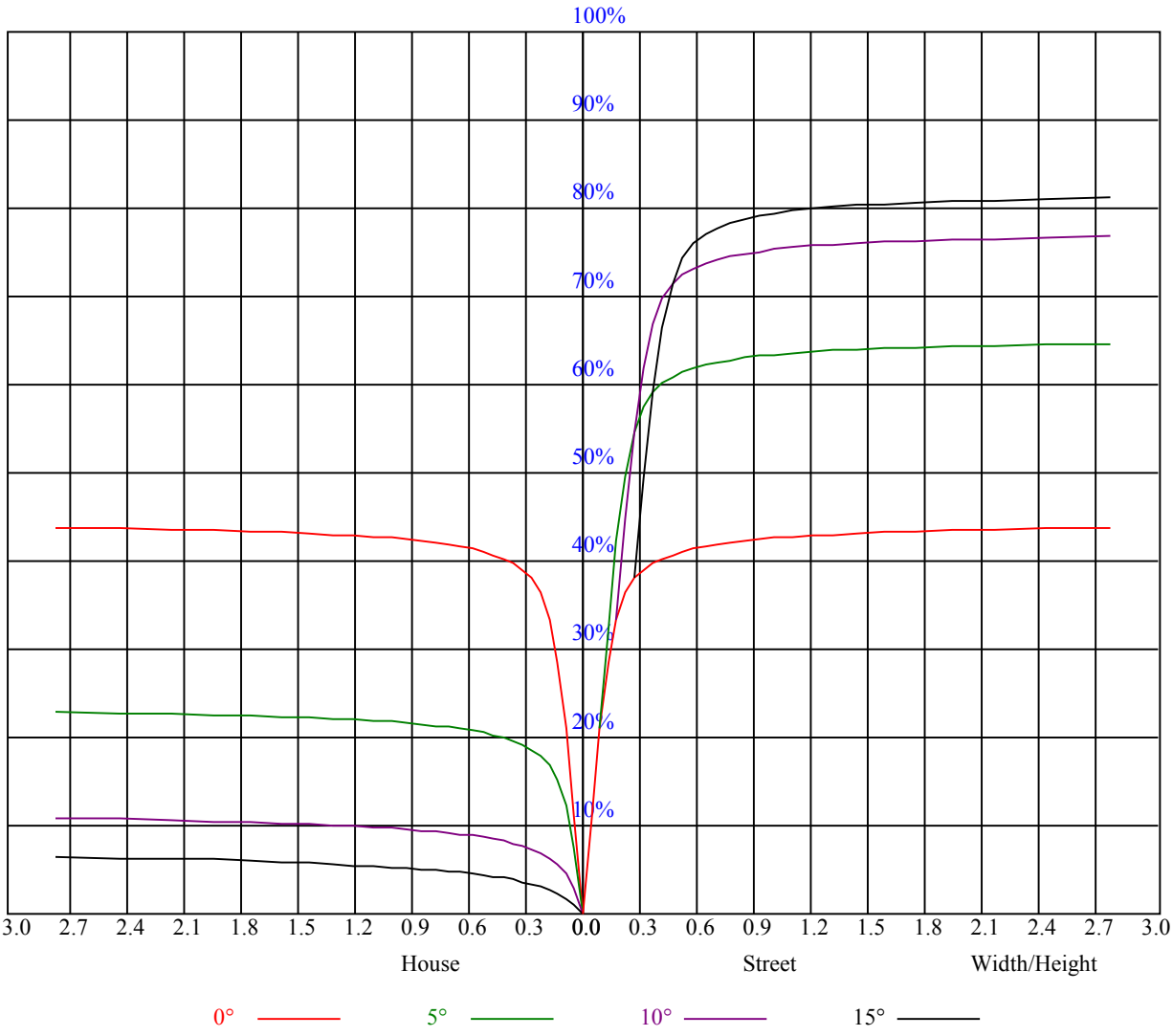


Equipment: GMS1980	Date: 2020/6/23	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Utilization factor table for indoor luminaire

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	COEFFCIENTS 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	0.97	0.98	0.97	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.85
2	0.95	0.93	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.89	0.87	0.86	0.86	0.85	0.84	0.82
3	0.92	0.88	0.86	0.91	0.88	0.85	0.88	0.86	0.84	0.86	0.84	0.83	0.84	0.83	0.81	0.80
4	0.89	0.85	0.82	0.88	0.84	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.83	0.81	0.79	0.78
5	0.86	0.82	0.80	0.85	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.81	0.79	0.78	0.77
6	0.84	0.80	0.78	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.77	0.80	0.78	0.76	0.75
7	0.82	0.78	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.79	0.77	0.75	0.79	0.76	0.75	0.74
8	0.80	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.74	0.78	0.76	0.74	0.77	0.75	0.73	0.73
9	0.78	0.75	0.73	0.78	0.75	0.73	0.77	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.72
10	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.71

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/6/23	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	2964.94	3061.69	3097.69	3041.44	2920.50	2754.56	2440.69	2180.81	1944.00
45.0	2982.38	3062.25	3039.19	2961.00	2772.56	2559.94	2277.56	1967.06	1690.31
90.0	3028.50	2975.06	2858.06	2660.63	2408.63	2153.81	1879.88	1532.25	1117.58
135.0	3026.81	2942.44	2771.44	2539.13	2301.19	2014.88	1711.69	1441.13	1187.44
180.0	2964.94	2785.50	2543.63	2304.00	2009.25	1737.56	1431.00	1105.99	905.40
225.0	2982.38	2874.38	2697.75	2395.13	2174.06	1909.69	1543.50	1104.92	1076.57
270.0	3028.50	3003.75	2903.63	2730.94	2527.31	2263.50	1978.31	1713.38	1454.63
315.0	3026.81	3047.06	2986.31	2850.75	2644.88	2420.44	2176.31	1859.63	1595.81
360.0	2964.94	3061.69	3097.69	3041.44	2920.50	2754.56	2440.69	2180.81	1944.00

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1573.88	1318.50	1106.44	831.94	622.13	466.31	326.81	288.56	159.64
45.0	1416.38	1102.50	877.50	678.94	475.88	350.44	286.88	173.93	124.14
90.0	1030.73	766.63	590.29	443.87	316.46	224.44	167.74	124.43	99.06
135.0	901.69	702.00	536.63	388.69	291.38	209.93	157.11	120.38	97.14
180.0	704.98	519.53	378.90	285.69	210.21	157.84	124.43	99.56	76.89
225.0	859.33	625.16	475.09	356.06	247.56	189.73	149.29	116.38	91.80
270.0	1148.06	927.00	730.13	561.38	396.00	296.44	285.75	159.08	126.79
315.0	1121.63	1005.41	816.98	629.61	456.36	324.84	239.34	170.89	130.56
360.0	1573.88	1318.50	1106.44	831.94	622.13	466.31	326.81	288.56	159.64

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	115.54	91.35	73.91	62.16	54.56	47.81	41.34	37.52	34.43
45.0	95.06	77.18	64.41	56.36	49.05	44.49	39.43	35.49	32.57
90.0	80.10	67.39	59.06	52.31	46.29	41.91	38.19	34.09	31.33
135.0	79.03	65.76	55.97	46.86	41.79	36.84	33.36	30.49	28.13
180.0	64.29	54.51	46.13	39.83	35.66	32.06	29.25	27.06	25.03
225.0	76.11	63.06	54.34	45.73	40.50	36.23	32.46	29.31	26.89
270.0	102.71	83.25	68.74	59.06	50.40	43.82	39.15	34.88	31.84
315.0	101.19	81.34	68.63	57.99	49.67	43.88	39.32	35.04	32.12
360.0	115.54	91.35	73.91	62.16	54.56	47.81	41.34	37.52	34.43

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	31.16	29.08	27.28	25.26	23.34	21.38	19.29	17.72	16.03
45.0	29.98	27.23	25.14	23.40	21.21	19.58	17.89	16.14	14.74
90.0	28.80	26.38	24.08	22.11	20.03	18.11	16.54	15.02	13.84
135.0	25.71	23.74	21.77	19.91	17.83	16.43	15.08	13.73	12.88
180.0	23.34	21.38	19.58	18.06	16.71	15.24	14.23	13.39	12.54
225.0	24.81	22.56	20.93	19.29	17.55	15.98	14.74	13.56	12.60
270.0	28.74	26.10	24.02	21.99	19.74	18.00	16.54	14.91	13.73
315.0	29.53	27.39	24.86	22.95	20.70	18.62	17.04	15.58	14.12
360.0	31.16	29.08	27.28	25.26	23.34	21.38	19.29	17.72	16.03

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.57	13.56	12.60	11.81	11.25	10.69	10.01	9.51	9.00
45.0	13.56	12.60	11.76	11.14	10.46	9.90	9.34	8.83	8.38
90.0	12.77	11.87	11.14	10.52	9.79	9.23	8.66	8.04	7.54
135.0	12.04	11.25	10.58	10.07	9.51	8.94	8.38	7.82	7.31
180.0	11.87	11.36	10.74	10.18	9.62	9.06	8.49	7.82	7.37
225.0	11.87	11.25	10.63	10.01	9.45	8.94	8.44	7.88	7.43
270.0	12.71	11.81	10.97	10.41	9.73	9.23	8.66	8.10	7.59
315.0	12.99	11.93	11.19	10.52	9.90	9.34	8.89	8.27	7.82
360.0	14.57	13.56	12.60	11.81	11.25	10.69	10.01	9.51	9.00

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	8.49	7.93	7.43	7.03	6.58	6.24	5.96	5.68	5.46
45.0	7.93	7.37	6.98	6.64	6.30	6.02	5.74	5.51	5.23
90.0	7.03	6.58	6.24	5.91	5.63	5.40	5.18	5.01	4.78
135.0	6.86	6.47	6.13	5.91	5.57	5.34	5.18	4.95	4.73
180.0	6.92	6.58	6.30	6.02	5.79	5.46	5.29	5.06	4.89
225.0	6.98	6.53	6.24	6.02	5.79	5.51	5.34	5.12	4.89
270.0	7.09	6.58	6.24	5.96	5.63	5.40	5.12	4.95	4.73
315.0	7.31	6.86	6.41	6.08	5.79	5.46	5.23	5.01	4.84
360.0	8.49	7.93	7.43	7.03	6.58	6.24	5.96	5.68	5.46

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.23	5.01	4.84	4.67	4.44	4.33	4.22	4.05	3.94
45.0	5.06	4.84	4.67	4.50	4.33	4.16	3.99	3.88	3.77
90.0	4.61	4.39	4.28	4.11	3.94	3.83	3.71	3.54	3.49
135.0	4.61	4.39	4.22	4.11	3.94	3.77	3.66	3.54	3.43
180.0	4.73	4.56	4.44	4.28	4.11	3.94	3.83	3.66	3.54
225.0	4.67	4.50	4.39	4.16	3.99	3.83	3.71	3.54	3.43
270.0	4.56	4.39	4.28	4.11	3.94	3.83	3.66	3.54	3.49
315.0	4.61	4.44	4.33	4.16	3.99	3.83	3.71	3.60	3.43
360.0	5.23	5.01	4.84	4.67	4.44	4.33	4.22	4.05	3.94

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.83	3.66	3.49	3.43	3.32	3.21	3.15	2.98	2.93
45.0	3.60	3.43	3.38	3.26	3.21	3.09	3.04	2.93	2.81
90.0	3.38	3.26	3.15	3.09	3.04	3.09	4.33	7.37	10.01
135.0	3.32	3.21	3.09	2.98	2.93	2.87	2.76	2.70	2.59
180.0	3.43	3.32	3.21	3.15	3.04	2.93	2.87	2.81	2.70
225.0	3.32	3.21	3.09	2.98	2.87	2.81	2.76	2.64	2.59
270.0	3.38	3.21	3.15	3.09	3.04	2.98	3.38	5.85	9.39
315.0	3.32	3.26	3.09	3.04	2.93	2.87	2.81	2.70	2.64
360.0	3.83	3.66	3.49	3.43	3.32	3.21	3.15	2.98	2.93

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.81	2.81	2.81	2.87	3.04	3.15	3.09	2.81	2.48
45.0	2.76	2.64	2.59	2.48	2.42	2.36	2.25	2.19	2.08
90.0	13.39	16.82	18.56	19.29	17.89	16.71	15.36	13.89	12.49
135.0	2.53	2.42	2.36	2.25	2.19	2.14	2.03	1.97	1.86
180.0	2.64	2.59	2.53	2.42	2.36	2.25	2.14	2.03	1.91
225.0	2.48	2.42	2.36	2.25	2.25	2.19	2.14	2.08	1.97
270.0	12.60	15.81	17.89	18.45	17.04	15.75	14.23	12.77	11.36
315.0	2.53	2.48	2.42	2.36	2.31	2.19	2.19	2.08	2.03
360.0	2.81	2.81	2.81	2.87	3.04	3.15	3.09	2.81	2.48

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.19	2.14	2.03	1.91	1.80	1.74	1.63	1.58	1.41
45.0	2.03	1.97	1.86	1.80	1.69	1.63	1.52	1.41	1.29
90.0	11.31	9.79	5.40	2.14	1.74	1.58	1.29	1.24	1.13
135.0	1.80	1.74	1.63	1.58	1.46	1.35	1.24	1.18	1.13
180.0	1.86	1.80	1.69	1.58	1.52	1.35	1.29	1.24	1.24
225.0	1.86	1.80	1.69	1.58	1.52	1.41	1.24	1.18	1.18
270.0	9.96	7.82	2.93	2.03	1.91	1.69	1.41	1.24	1.18
315.0	1.91	1.91	1.80	1.74	1.63	1.58	1.46	1.29	1.18
360.0	2.19	2.14	2.03	1.91	1.80	1.74	1.63	1.58	1.41

Intensity data(cd)

C/γ(°)	90.0
0.0	1.29
45.0	1.24
90.0	1.13
135.0	1.13
180.0	1.24
225.0	1.24
270.0	1.07
315.0	1.13
360.0	1.29