NATA LIGHTNG CO.,LTD.
www.nata.cn
Email:info@nata.con
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,Ching

Nata

LumCAT: 1-0926-M
Luminaire: 99.02.73.179+92.76.853.00

Report No: 220609-B004	Voltage(V): 35.2600
Test No: 220609-C004	Current(A): 0.3610
LampCAT: CREE CXA1516	Power (W): 12.7280
Lamp flux(lm): 1492.4	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1121.35
Efficiency(%): 75.14%
Lumens(lm)/Power(W): 88.10
Central intensity(cd): 9997.407
Maximum intensity(cd): 9997.407
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.1
[C90/270]Total=15.1
Field angle(10%Imax): [C0/180]Total=36.0
[C90/270]Total=36.0
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 75.14%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.534%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9997.407	0.000	0	.000%	.000%
1.0	9827.186	9.486	9.486	.636%	.846%
2.0	9316.000	27.476	36.962	1.841%	3.296%
3.0	8596.426	42.841	79.802	2.871%	7.117%
4.0	7837.414	55.009	134.812	3.686%	12.022%
5.0	7001.994	63.838	198.65	4.278%	17.715%
6.0	6182.931	69.290	267.94	4.643%	23.895%
7.0	5381.869	71.783	339.723	4.810%	30.296%
8.0	4697.922	72.139	411.862	4.834%	36.729%
9.0	4057.819	70.961	482.823	4.755%	43.057%
10.0	3517.130	68.551	551.373	4.593%	49.171%
11.0	3070.477	65.824	617.197	4.411%	55.041%
12.0	2673.494	62.790	679.987	4.207%	60.640%
13.0	2307.059	59.107	739.093	3.961%	65.911%
14.0	1985.738	54.947	794.041	3.682%	70.811%
15.0	1714.385	50.797	844.838	3.404%	75.341%
16.0	1429.775	46.071	890.908	3.087%	79.450%
17.0	1221.588	41.289	932.197	2.767%	83.132%
18.0	999.263	36.617	968.814	2.454%	86.397%
19.0	814.813	31.561	1000.376	2.115%	89.212%
20.0	613.057	26.134	1026.51	1.751%	91.543%
21.0	442.709	20.273	1046.782	1.358%	93.351%
22.0	308.340	15.093	1061.875	1.011%	94.696%
23.0	218.830	11.061	1072.936	.741%	95.683%
24.0	100.116	6.973	1079.91	.467%	96.305%
25.0	49.065	3.392	1083.302	.227%	96.607%
26.0	26.373	1.781	1085.083	.119%	96.766%
27.0	18.845	1.106	1086.189	.074%	96.865%
28.0	15.700	0.875	1087.063	.059%	96.943%
29.0	14.072	0.779	1087.842	.052%	97.012%
30.0	12.951	0.730	1088.572	.049%	97.077%
31.0	11.995	0.694	1089.266	.047%	97.139%
32.0	11.114	0.662	1089.928	.044%	97.198%
33.0	10.434	0.635	1090.563	.043%	97.255%
34.0	9.852	0.614	1091.177	.041%	97.310%
35.0	9.314	0.595	1091.772	.040%	97.363%
36.0	8.858	0.579	1092.351	.039%	97.414%
37.0	8.492	0.566	1092.917	.038%	97.465%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	8.156	0.556	1093.472	.037%	97.514%
39.0	7.843	0.546	1094.018	.037%	97.563%
40.0	7.589	0.538	1094.557	.036%	97.611%
41.0	7.372	0.533	1095.089	.036%	97.659%
42.0	7.170	0.528	1095.618	.035%	97.706%
43.0	6.991	0.525	1096.142	.035%	97.752%
44.0	6.819	0.521	1096.664	.035%	97.799%
45.0	6.662	0.518	1097.182	.035%	97.845%
46.0	6.535	0.516	1097.698	.035%	97.891%
47.0	6.416	0.515	1098.213	.035%	97.937%
48.0	6.304	0.514	1098.727	.034%	97.983%
49.0	6.207	0.514	1099.241	.034%	98.029%
50.0	6.125	0.514	1099.755	.034%	98.075%
51.0	6.028	0.514	1100.269	.034%	98.120%
52.0	5.953	0.514	1100.783	.034%	98.166%
53.0	5.863	0.514	1101.297	.034%	98.212%
54.0	5.796	0.514	1101.811	.034%	98.258%
55.0	5.736	0.515	1102.326	.034%	98.304%
56.0	5.669	0.515	1102.841	.035%	98.350%
57.0	5.602	0.515	1103.357	.035%	98.396%
58.0	5.557	0.516	1103.873	.035%	98.442%
59.0	5.512	0.517	1104.39	.035%	98.488%
60.0	5.467	0.519	1104.909	.035%	98.534%
61.0	5.423	0.520	1105.429	.035%	98.581%
62.0	5.385	0.521	1105.949	.035%	98.627%
63.0	5.333	0.521	1106.471	.035%	98.673%
64.0	5.303	0.522	1106.993	.035%	98.720%
65.0	5.288	0.524	1107.517	.035%	98.767%
66.0	5.251	0.526	1108.043	.035%	98.814%
67.0	5.236	0.527	1108.57	.035%	98.861%
68.0	5.206	0.529	1109.099	.035%	98.908%
69.0	5.184	0.530	1109.629	.036%	98.955%
70.0	5.169	0.532	1110.16	.036%	99.003%
71.0	5.146	0.533	1110.694	.036%	99.050%
72.0	5.146	0.535	1111.229	.036%	99.098%
73.0	5.139	0.538	1111.767	.036%	99.146%
74.0	5.169	0.542	1112.309	.036%	99.194%
75.0	5.191	0.547	1112.856	.037%	99.243%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.251	0.554	1113.41	.037%	99.292%
77.0	5.333	0.564	1113.974	.038%	99.343%
78.0	5.393	0.574	1114.549	.038%	99.394%
79.0	5.430	0.582	1115.13	.039%	99.446%
80.0	5.355	0.581	1115.712	.039%	99.498%
81.0	5.228	0.572	1116.284	.038%	99.549%
82.0	5.266	0.569	1116.853	.038%	99.599%
83.0	5.348	0.577	1117.43	.039%	99.651%
84.0	5.438	0.588	1118.018	.039%	99.703%
85.0	5.385	0.591	1118.608	.040%	99.756%
86.0	5.281	0.583	1119.191	.039%	99.808%
87.0	5.072	0.567	1119.758	.038%	99.858%
88.0	4.780	0.540	1120.297	.036%	99.907%
89.0	4.780	0.524	1120.821	.035%	99.953%
90.0	4.780	0.524	1121.346	.035%	100.000%

Zonal flux distribution table

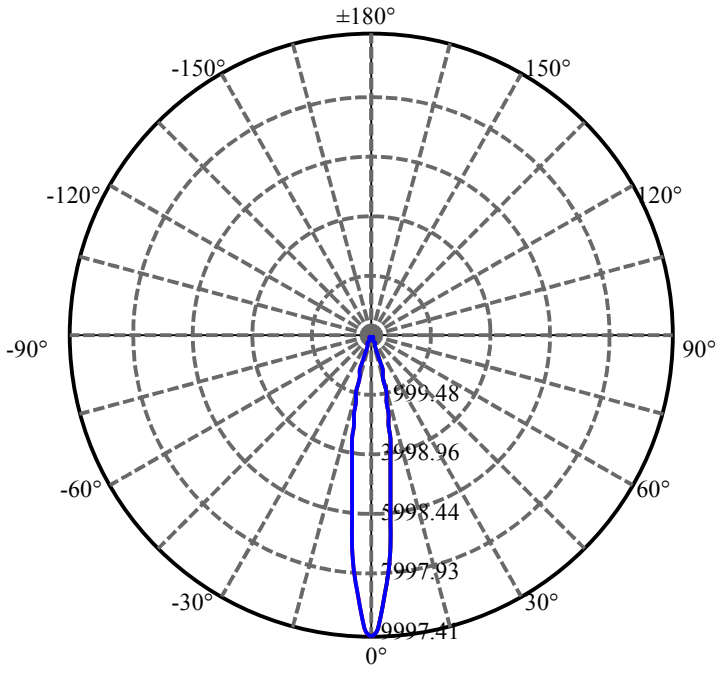
ZONAL LUMEN SUMMARY

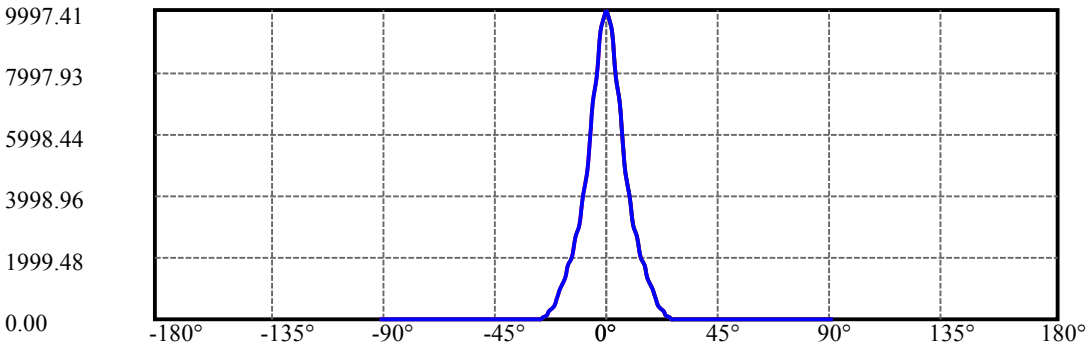
Zone	Lumens	%Lamp	%Fixt
0-30	1088.57	72.94%	97.08%
0-40	1094.56	73.34%	97.61%
0-60	1104.91	74.04%	98.53%
0-90	1120.82	75.10%	99.95%
0-120	1120.82	75.10%	99.95%
0-180	1121.35	75.14%	100.00%
60-90	16.43	1.10%	1.47%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.15	897.08	60.11%	80.00%

ZONAL LUMEN SUMMARY

0-10	551.37
10-20	475.14
20-30	62.06
30-40	5.98
40-50	5.20
50-60	5.15
60-70	5.25
70-80	5.55
80-90	5.11
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):

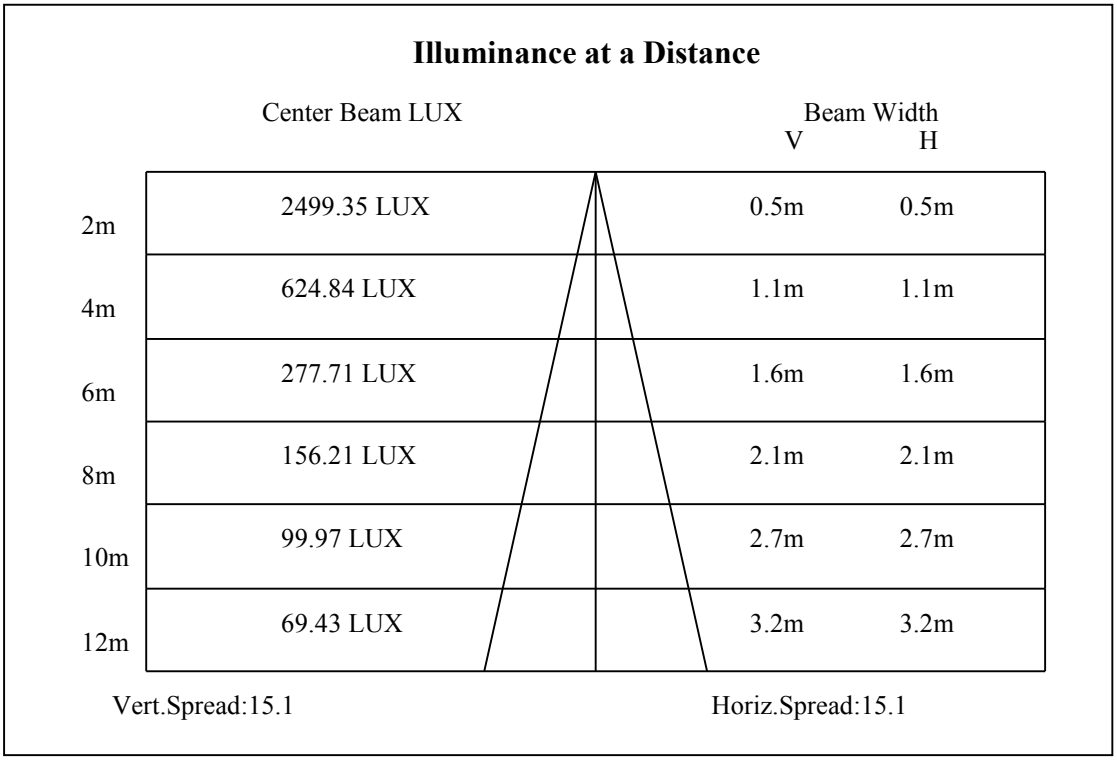
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:18.0 Right:18.0
:C90/270Left:18.0 Right:18.0

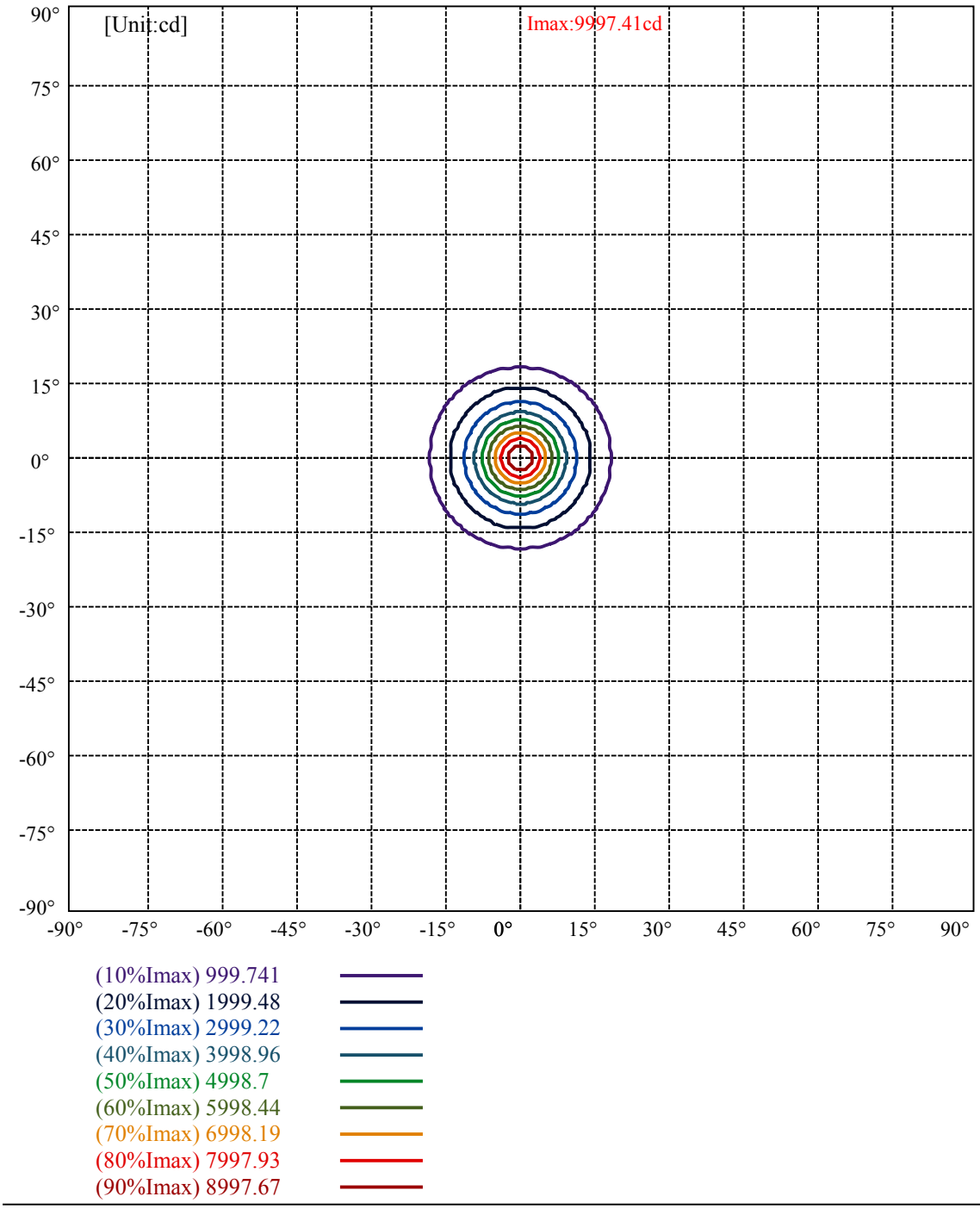
Beam Angle(50%Imax):C0/180Left:7.6 Right:7.6
:C90/270Left:7.6 Right:7.6

Lux distance Curve



Equipment: GMS1980 Date: 2022/6/09 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

ISO-Intensity(V-H)



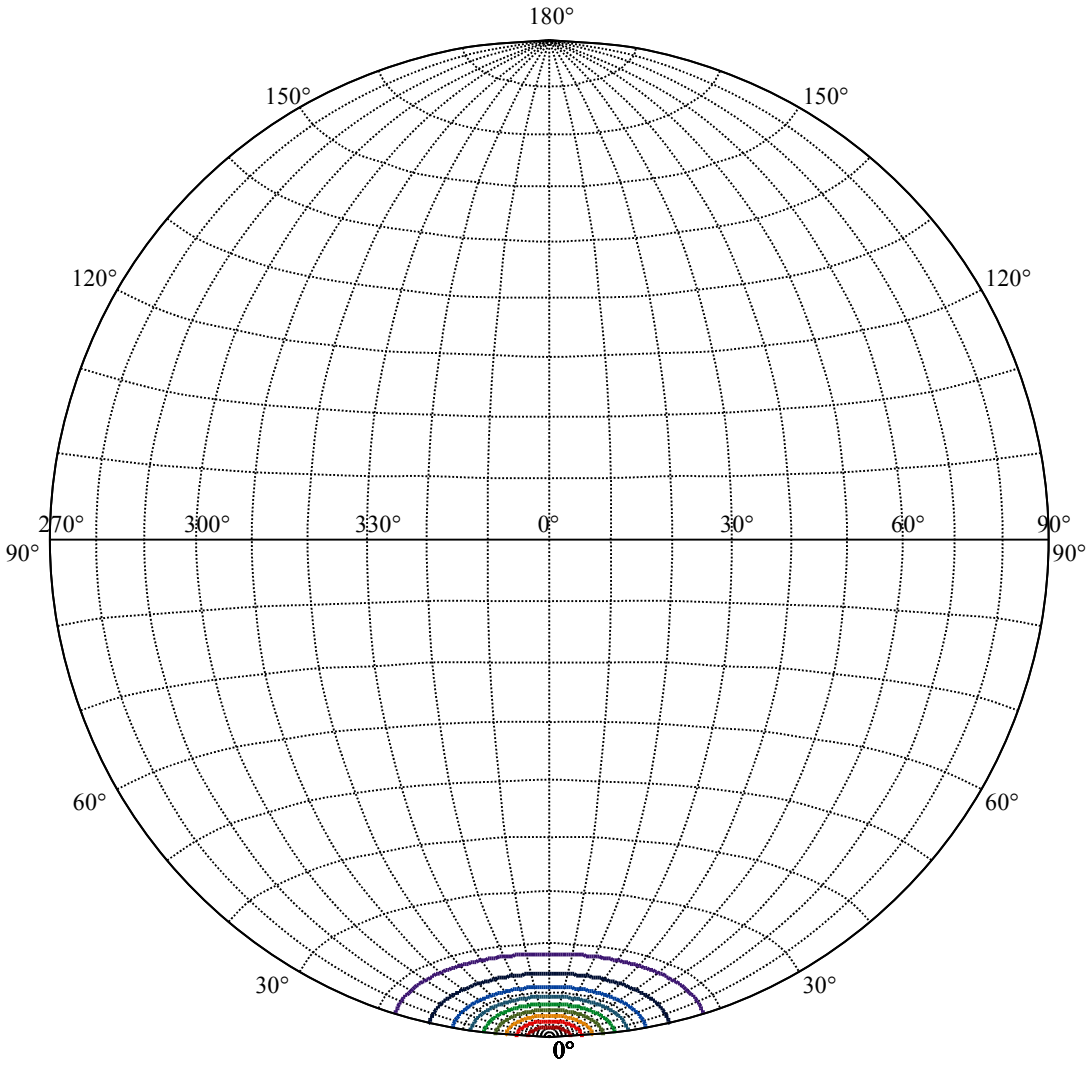
(10%Imax) 999.741
(20%Imax) 1999.48
(30%Imax) 2999.22
(40%Imax) 3998.96
(50%Imax) 4998.7
(60%Imax) 5998.44
(70%Imax) 6998.19
(80%Imax) 7997.93
(90%Imax) 8997.67

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:9997.41

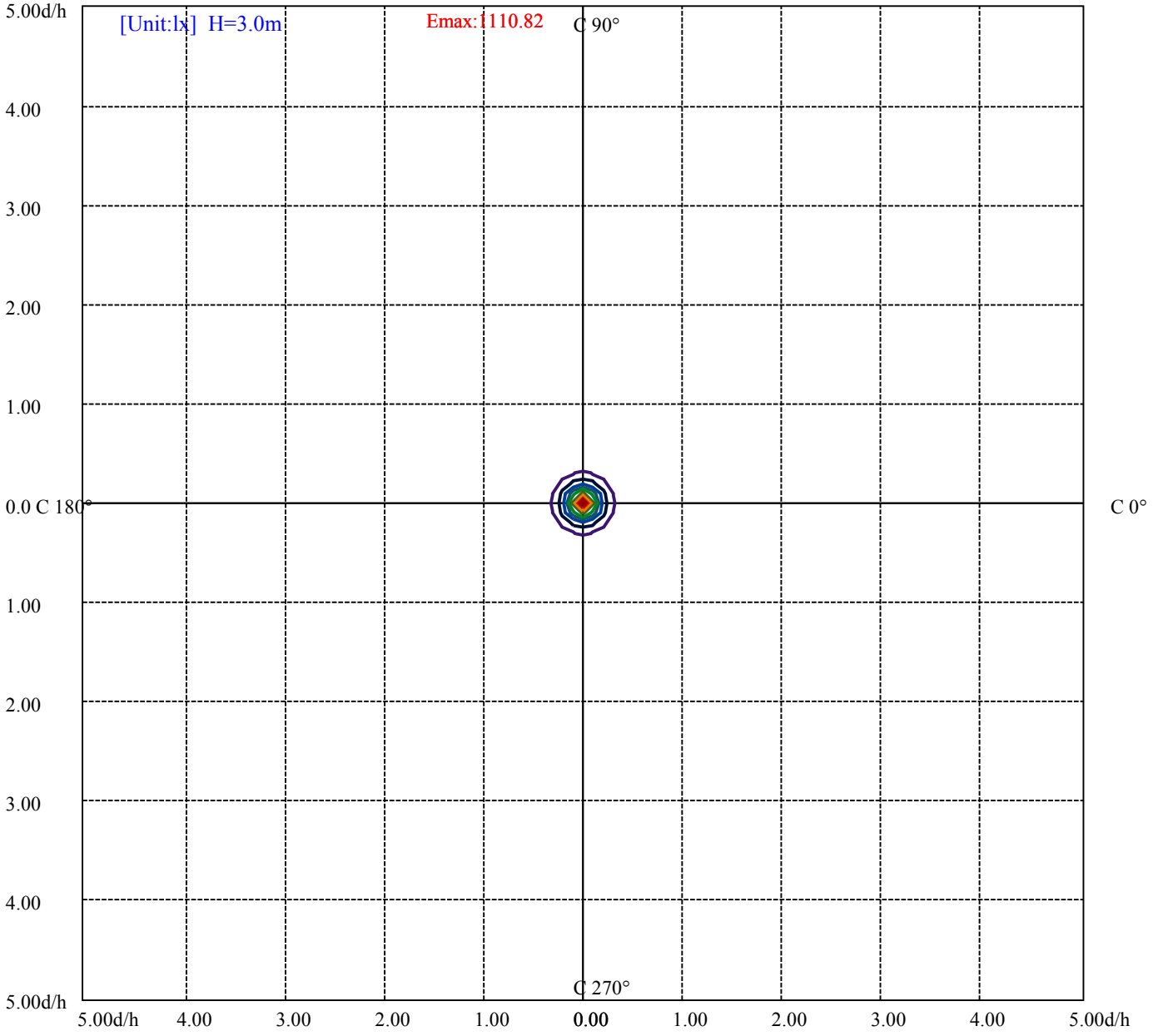
(10%Imax) 999.741
(20%Imax) 1999.48
(30%Imax) 2999.22
(40%Imax) 3998.96
(50%Imax) 4998.7
(60%Imax) 5998.44
(70%Imax) 6998.19
(80%Imax) 7997.93
(90%Imax) 8997.67

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

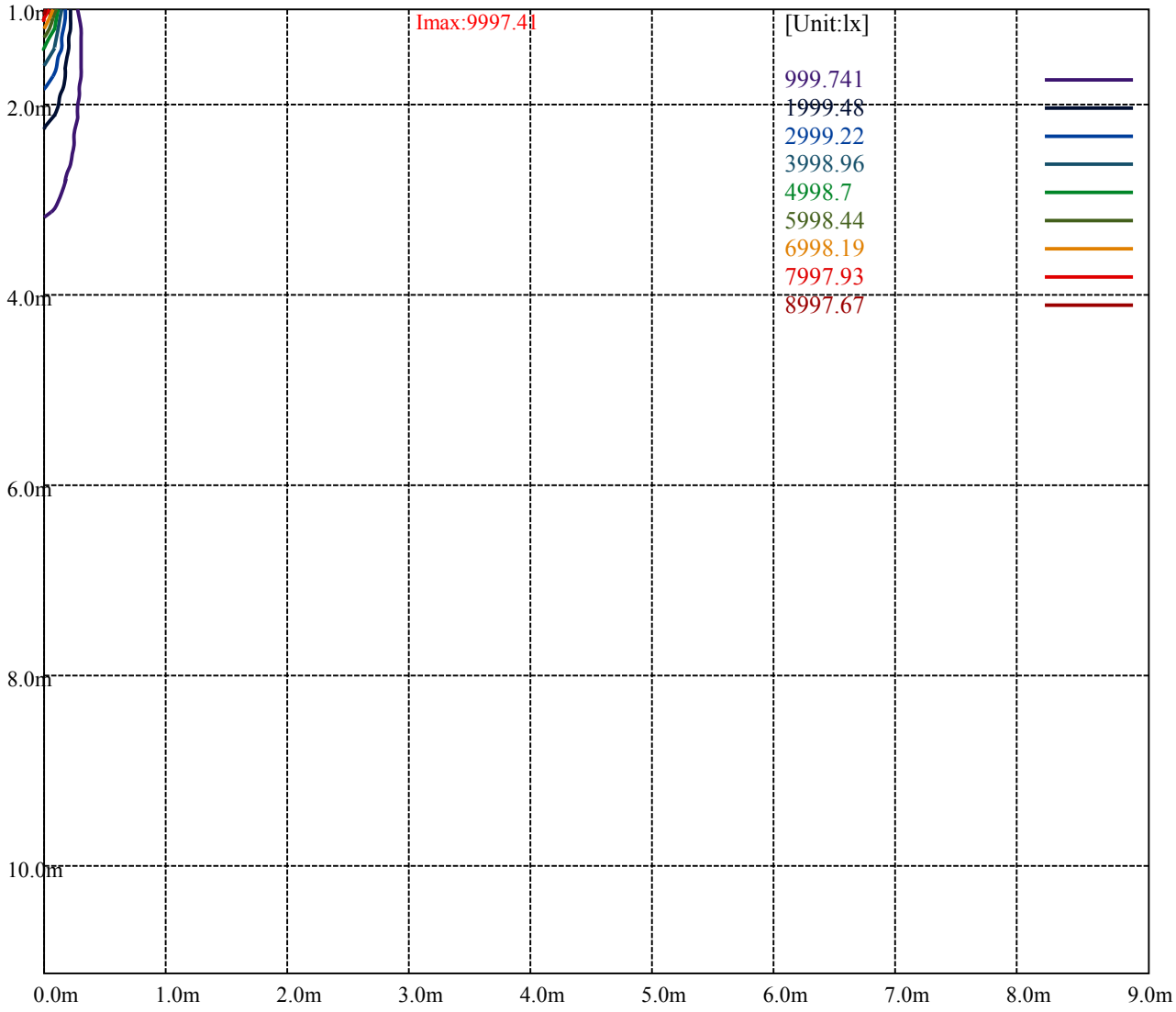
Operator: NT07
Distance(m): 7.73

ISO illuminance diagram



Equipment: GMS1980	Date: 2022/6/09	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

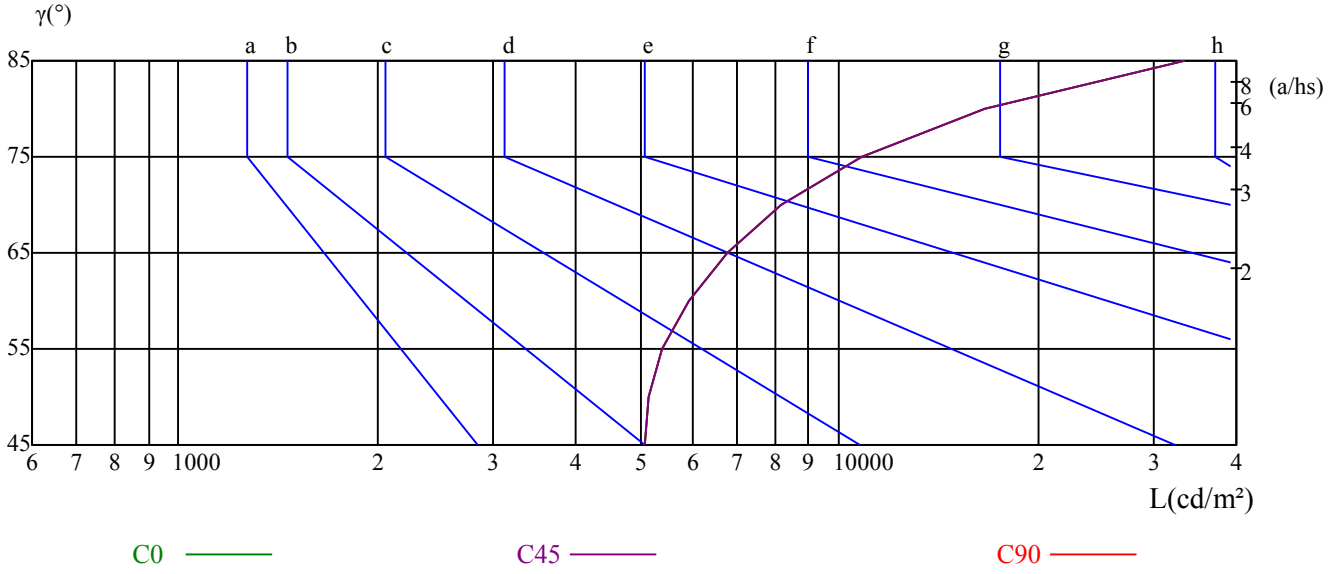
γ	45	50	55	60	65	70	75	80	85
C0	5096	5153	5409	5914	6767	8173	10847	16679	33417
C45	5096	5153	5409	5914	6767	8173	10847	16679	33417
C90	5096	5153	5409	5914	6767	8173	10847	16679	33417

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6767	6767	6767	10847	10847	10847	33417	33417	33417

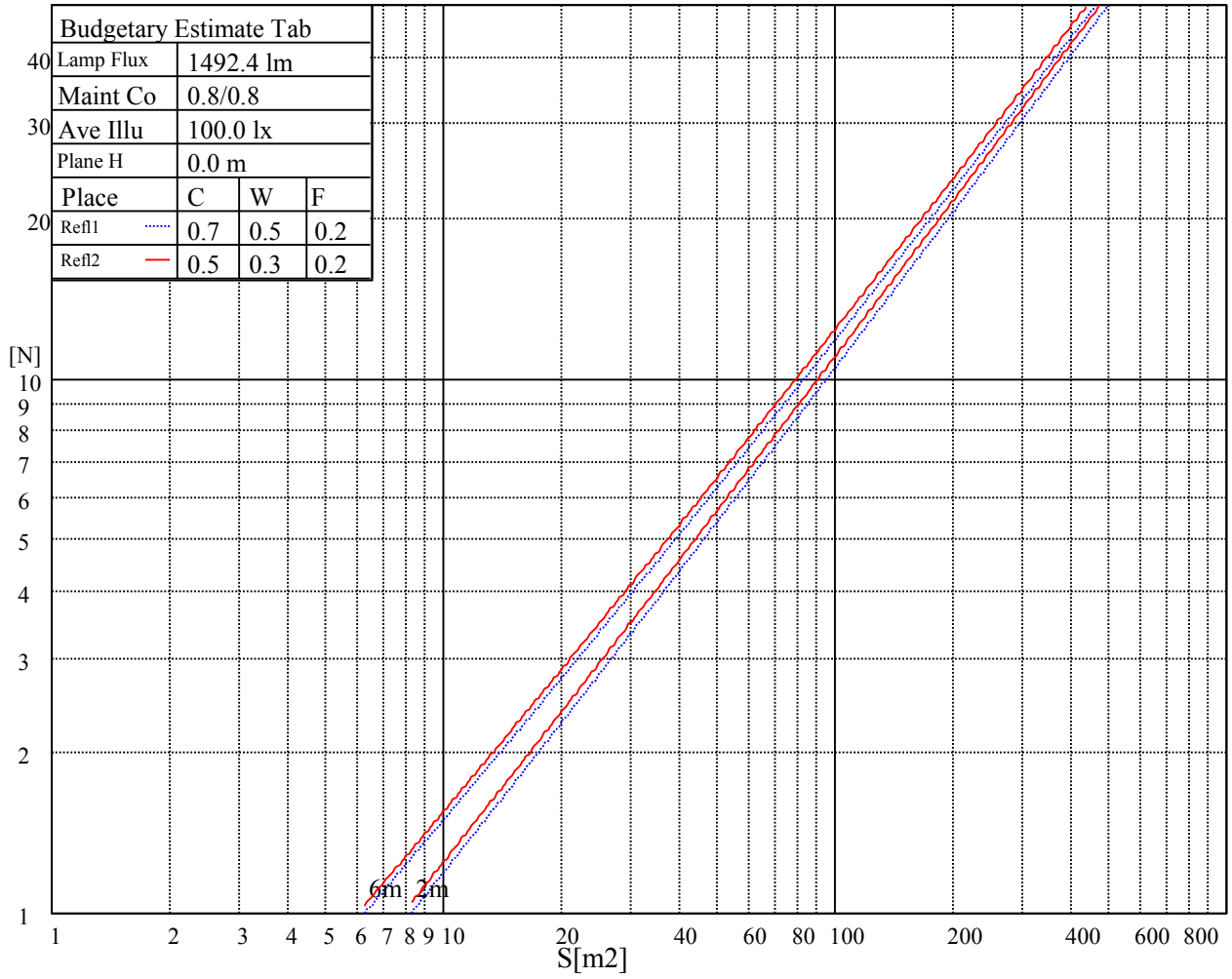
Glare Table

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



Budgetary Estimate Table

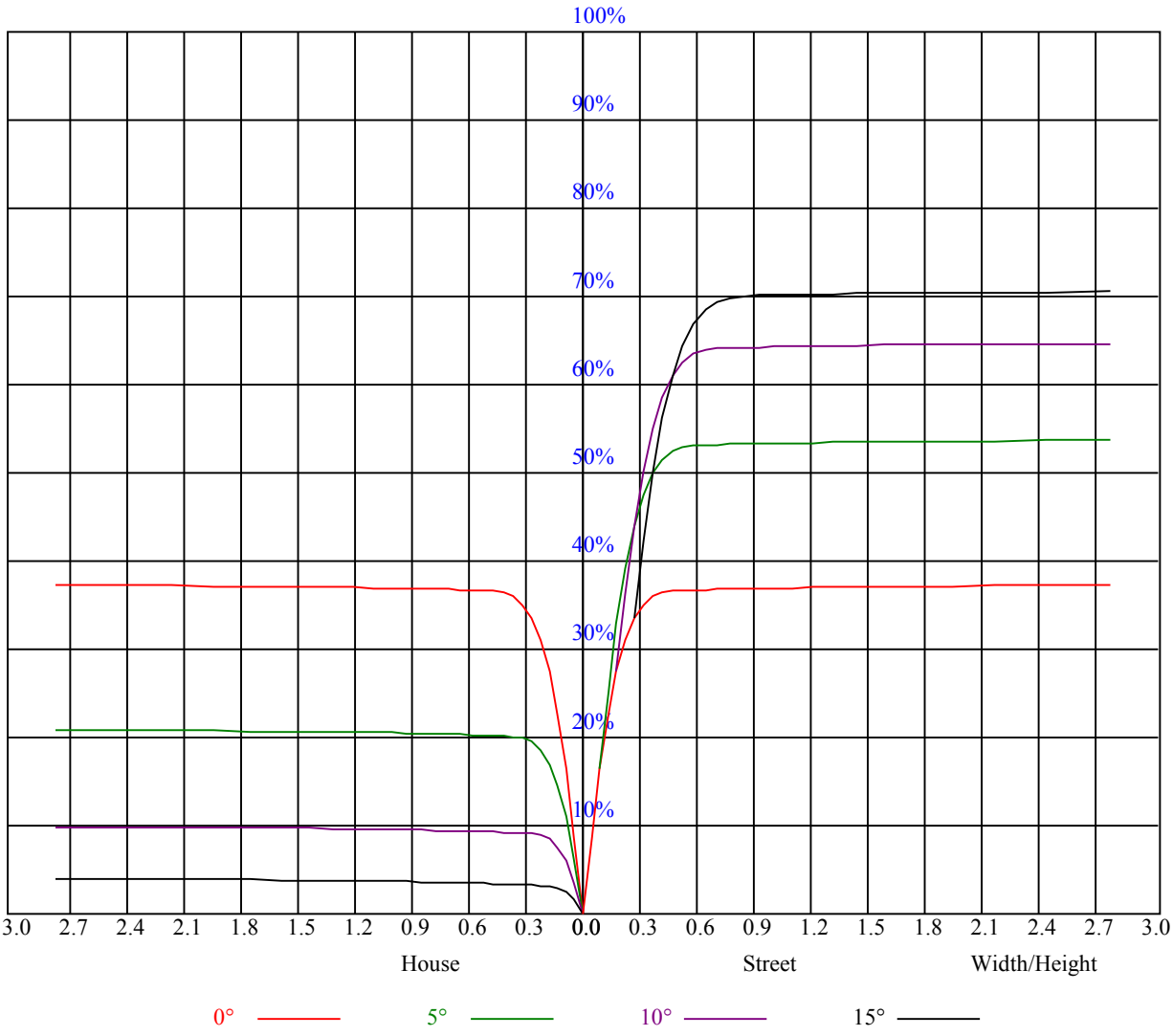


Equipment: GMS1980 Date: 2022/6/09 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.89	0.89	0.89	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.77	0.77	0.77	0.75
1	0.85	0.84	0.82	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73
2	0.81	0.79	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.76	0.75	0.74	0.74	0.73	0.72	0.71
3	0.79	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.73	0.71	0.72	0.71	0.70	0.69
4	0.76	0.73	0.71	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.69	0.71	0.70	0.69	0.68
5	0.74	0.71	0.69	0.73	0.71	0.69	0.72	0.70	0.68	0.71	0.69	0.68	0.70	0.68	0.67	0.66
6	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.65
7	0.70	0.67	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.65	0.68	0.66	0.65	0.64
8	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.64	0.66	0.65	0.63	0.63
9	0.67	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.63	0.66	0.64	0.62	0.65	0.64	0.62	0.62
10	0.66	0.63	0.62	0.66	0.63	0.62	0.65	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.61

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/6/09	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

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	10153.81	10064.18	9499.52	8805.19	8055.89	7092.07	6323.05	5579.13	4826.24
45.0	9815.01	9314.28	8651.02	7752.34	7007.22	6253.74	5329.36	4674.47	4106.82
90.0	9887.91	9408.69	8771.73	7968.05	7118.36	6355.32	5599.44	4752.15	4154.02
135.0	10132.90	10084.50	9556.28	8901.99	8187.94	7218.75	6425.23	5654.42	4868.07
180.0	10153.81	9906.43	9302.93	8533.91	7776.24	6884.73	6074.48	5214.64	4458.16
225.0	9815.01	10013.99	9840.71	9316.67	8496.86	7857.51	6988.10	6022.49	5365.21
270.0	9887.91	10000.84	9729.56	9123.07	8434.72	7597.58	6734.15	5974.09	5334.74
315.0	10132.90	9824.57	9176.25	8370.19	7622.08	6756.26	5989.63	5183.56	4470.11
360.0	10153.81	10064.18	9499.52	8805.19	8055.89	7092.07	6323.05	5579.13	4826.24

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4170.15	3671.82	3180.65	2794.05	2403.86	2067.45	1800.95	1523.70	1267.96
45.0	3500.32	3074.88	2698.44	2325.58	2001.72	1744.19	1475.90	1257.20	1030.74
90.0	3649.71	3107.15	2733.70	2397.88	2100.91	1772.87	1532.66	1174.44	1072.21
135.0	4186.89	3669.43	3166.31	2773.73	2381.15	2043.55	1777.65	1511.75	1259.59
180.0	3893.50	3357.52	2897.42	2532.33	2212.05	1865.49	1619.30	1311.58	1147.32
225.0	4686.42	3964.01	3473.44	3041.42	2568.18	2240.14	1958.10	1702.96	1410.17
270.0	4450.99	3895.29	3480.01	2957.77	2546.67	2263.44	1910.30	1624.68	1420.92
315.0	3924.57	3396.95	2933.87	2565.19	2241.93	1888.79	1640.22	1331.89	1163.81
360.0	4170.15	3671.82	3180.65	2794.05	2403.86	2067.45	1800.95	1523.70	1267.96

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1066.59	875.38	647.72	485.79	343.58	311.91	111.20	53.90	28.08
45.0	814.43	636.97	454.72	310.12	180.75	100.62	38.90	25.16	17.51
90.0	852.85	668.40	482.80	325.83	213.08	113.59	56.11	27.43	18.94
135.0	1058.22	864.62	642.34	466.07	335.21	316.69	108.63	49.95	27.07
180.0	928.68	743.51	552.06	385.82	262.43	151.00	77.20	32.51	22.65
225.0	1171.22	1003.31	795.49	603.56	446.47	294.46	173.28	91.96	38.42
270.0	1155.02	965.61	779.18	566.46	413.49	315.50	154.04	77.56	36.21
315.0	947.08	760.71	550.14	398.01	271.70	146.87	81.56	34.06	22.11
360.0	1066.59	875.38	647.72	485.79	343.58	311.91	111.20	53.90	28.08

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	18.52	15.72	14.16	12.91	11.89	11.11	10.40	9.80	9.32
45.0	14.88	13.44	12.43	11.53	10.76	10.10	9.56	9.14	8.72
90.0	15.83	14.34	12.97	12.07	11.29	10.46	9.86	9.38	8.90
135.0	18.88	15.89	14.28	13.09	12.07	11.29	10.52	9.86	9.38
180.0	17.09	15.24	13.62	12.55	11.71	10.76	10.22	9.62	9.08
225.0	25.63	18.40	16.07	14.70	13.56	12.37	11.53	10.88	10.10
270.0	22.77	17.39	15.60	14.22	13.03	12.13	11.23	10.52	9.98
315.0	17.15	15.18	13.44	12.55	11.65	10.70	10.16	9.62	9.02
360.0	18.52	15.72	14.16	12.91	11.89	11.11	10.40	9.80	9.32

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.78	8.43	8.13	7.83	7.59	7.41	7.17	6.99	6.87
45.0	8.37	8.07	7.83	7.53	7.35	7.17	6.99	6.87	6.69
90.0	8.48	8.19	7.89	7.59	7.35	7.17	6.99	6.81	6.63
135.0	8.90	8.54	8.19	7.89	7.65	7.41	7.17	6.99	6.81
180.0	8.72	8.37	8.07	7.71	7.47	7.17	7.05	6.87	6.69
225.0	9.56	9.08	8.66	8.31	8.01	7.77	7.53	7.29	7.05
270.0	9.44	9.02	8.54	8.25	7.89	7.65	7.41	7.23	7.05
315.0	8.60	8.25	7.95	7.65	7.41	7.23	7.05	6.87	6.75
360.0	8.78	8.43	8.13	7.83	7.59	7.41	7.17	6.99	6.87

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	6.69	6.57	6.51	6.39	6.33	6.27	6.15	6.09	6.04
45.0	6.57	6.45	6.33	6.27	6.21	6.09	6.04	5.98	5.92
90.0	6.51	6.39	6.21	6.15	6.04	5.98	5.92	5.86	5.74
135.0	6.63	6.51	6.39	6.27	6.15	6.09	5.98	5.86	5.80
180.0	6.51	6.39	6.27	6.15	6.04	5.98	5.86	5.74	5.68
225.0	6.93	6.81	6.63	6.51	6.39	6.27	6.15	6.09	5.98
270.0	6.87	6.69	6.63	6.45	6.39	6.27	6.15	6.09	5.98
315.0	6.57	6.45	6.33	6.21	6.09	6.04	5.98	5.92	5.80
360.0	6.69	6.57	6.51	6.39	6.33	6.27	6.15	6.09	6.04

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.04	5.98	5.92	5.86	5.86	5.80	5.80	5.74	5.74
45.0	5.80	5.74	5.74	5.68	5.62	5.62	5.56	5.50	5.50
90.0	5.68	5.62	5.50	5.50	5.44	5.38	5.38	5.32	5.26
135.0	5.74	5.68	5.56	5.50	5.44	5.38	5.38	5.32	5.26
180.0	5.62	5.56	5.50	5.44	5.38	5.32	5.26	5.26	5.20
225.0	5.92	5.86	5.80	5.68	5.62	5.62	5.56	5.50	5.44
270.0	5.86	5.80	5.74	5.68	5.62	5.56	5.44	5.44	5.38
315.0	5.74	5.68	5.62	5.50	5.50	5.44	5.38	5.32	5.32
360.0	6.04	5.98	5.92	5.86	5.86	5.80	5.80	5.74	5.74

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.74	5.68	5.68	5.62	5.62	5.68	5.68	5.68	5.68
45.0	5.44	5.44	5.38	5.38	5.38	5.32	5.32	5.32	5.32
90.0	5.20	5.20	5.14	5.14	5.14	5.08	5.02	5.02	5.02
135.0	5.20	5.20	5.20	5.14	5.14	5.08	5.08	5.02	5.02
180.0	5.14	5.08	5.08	5.02	5.02	4.96	4.96	4.96	4.90
225.0	5.38	5.32	5.32	5.26	5.26	5.20	5.20	5.14	5.14
270.0	5.32	5.32	5.32	5.26	5.20	5.20	5.14	5.14	5.08
315.0	5.26	5.20	5.20	5.20	5.14	5.14	5.08	5.08	5.02
360.0	5.74	5.68	5.68	5.62	5.62	5.68	5.68	5.68	5.68

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.62	5.68	5.86	6.15	6.63	7.11	7.65	7.71	7.05
45.0	5.38	5.38	5.38	5.32	5.38	5.50	5.38	5.38	5.50
90.0	5.02	5.02	5.02	4.96	4.96	4.96	5.02	5.02	5.08
135.0	5.02	4.96	5.02	5.02	4.96	5.02	5.02	5.02	5.02
180.0	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
225.0	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.26	5.20
270.0	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.02
315.0	5.08	5.02	5.02	5.02	5.02	5.02	5.02	5.08	5.08
360.0	5.62	5.68	5.86	6.15	6.63	7.11	7.65	7.71	7.05

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.04	6.21	6.45	6.69	6.81	6.99	6.57	4.72	4.72
45.0	5.50	5.56	5.68	5.86	5.86	4.84	4.84	4.84	4.84
90.0	5.08	5.14	5.20	5.26	4.84	4.84	4.78	4.78	4.84
135.0	5.02	5.02	5.08	5.14	5.08	4.78	4.78	4.78	4.78
180.0	4.96	4.96	4.96	4.96	4.72	4.72	4.66	4.72	4.66
225.0	5.08	5.08	5.08	5.14	5.20	5.26	4.84	4.84	4.84
270.0	5.08	5.08	5.14	5.20	5.26	5.38	5.32	4.84	4.84
315.0	5.08	5.08	5.20	5.26	5.32	5.44	4.78	4.72	4.72
360.0	6.04	6.21	6.45	6.69	6.81	6.99	6.57	4.72	4.72

Intensity data(cd)

C/γ(°)	90.0
0.0	4.72
45.0	4.78
90.0	4.78
135.0	4.78
180.0	4.72
225.0	4.84
270.0	4.84
315.0	4.78
360.0	4.72