NATA LIGHTING CO.,LTD.
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Nata

LumCAT: LN01D04515DA-N
Luminaire: 97.70.234.00
Report No: 200708-B006
Test No: 200708-C006
LampCAT: BRIDGELUX V6HD
Lamp flux(lm): 718.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 33.9500
Current(A): 0.1500
Power (W): 5.1300
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 621.39
Efficiency(%): 86.54%
Lumens(lm)/Power(W): 121.13
Central intensity(cd): 5986.969
Maximum intensity(cd): 5986.969
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.6
[C90/270]Total=15.6
Field angle(10%Imax): [C0/180]Total=29.2
[C90/270]Total=29.2
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 86.54%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.027%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5986.969	0.000	0	.000%	.000%
1.0	5922.914	5.699	5.699	.794%	.917%
2.0	5715.633	16.705	22.403	2.327%	3.605%
3.0	5361.680	26.493	48.897	3.690%	7.869%
4.0	4935.094	34.467	83.363	4.800%	13.416%
5.0	4476.938	40.490	123.853	5.639%	19.932%
6.0	3901.922	44.033	167.886	6.133%	27.018%
7.0	3380.625	45.203	213.089	6.296%	34.293%
8.0	2904.047	44.978	258.067	6.264%	41.531%
9.0	2412.844	43.091	301.158	6.001%	48.465%
10.0	1924.664	39.253	340.411	5.467%	54.782%
11.0	1503.000	34.249	374.66	4.770%	60.294%
12.0	1178.304	29.310	403.971	4.082%	65.011%
13.0	895.936	24.616	428.587	3.428%	68.973%
14.0	692.557	20.333	448.919	2.832%	72.245%
15.0	530.571	16.792	465.711	2.339%	74.947%
16.0	406.498	13.731	479.441	1.912%	77.157%
17.0	313.805	11.217	490.659	1.562%	78.962%
18.0	254.995	9.378	500.037	1.306%	80.471%
19.0	204.469	7.994	508.031	1.113%	81.758%
20.0	166.802	6.795	514.826	.946%	82.851%
21.0	139.388	5.879	520.705	.819%	83.797%
22.0	119.229	5.197	525.902	.724%	84.634%
23.0	103.739	4.678	530.581	.652%	85.387%
24.0	89.754	4.230	534.811	.589%	86.067%
25.0	79.538	3.849	538.661	.536%	86.687%
26.0	71.163	3.557	542.218	.495%	87.259%
27.0	64.287	3.314	545.532	.462%	87.793%
28.0	57.213	3.076	548.608	.428%	88.288%
29.0	52.102	2.860	551.468	.398%	88.748%
30.0	47.595	2.692	554.16	.375%	89.181%
31.0	43.045	2.522	556.682	.351%	89.587%
32.0	39.347	2.360	559.042	.329%	89.967%
33.0	36.380	2.231	561.273	.311%	90.326%
34.0	33.652	2.119	563.393	.295%	90.667%
35.0	31.127	2.012	565.404	.280%	90.991%
36.0	29.215	1.921	567.326	.268%	91.300%
37.0	27.408	1.847	569.172	.257%	91.597%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	25.840	1.777	570.95	.248%	91.883%
39.0	24.307	1.712	572.661	.238%	92.159%
40.0	23.034	1.651	574.313	.230%	92.424%
41.0	21.846	1.598	575.911	.223%	92.682%
42.0	20.609	1.542	577.453	.215%	92.930%
43.0	19.350	1.480	578.933	.206%	93.168%
44.0	18.225	1.418	580.352	.198%	93.396%
45.0	17.163	1.360	581.712	.189%	93.615%
46.0	15.912	1.293	583.005	.180%	93.823%
47.0	14.963	1.228	584.233	.171%	94.021%
48.0	14.105	1.175	585.408	.164%	94.210%
49.0	13.268	1.124	586.532	.157%	94.391%
50.0	12.410	1.071	587.603	.149%	94.563%
51.0	11.862	1.027	588.63	.143%	94.728%
52.0	11.327	0.995	589.625	.139%	94.889%
53.0	10.877	0.966	590.591	.135%	95.044%
54.0	10.455	0.940	591.531	.131%	95.195%
55.0	10.069	0.916	592.447	.128%	95.343%
56.0	9.710	0.894	593.341	.124%	95.487%
57.0	9.345	0.871	594.212	.121%	95.627%
58.0	9.007	0.849	595.061	.118%	95.763%
59.0	8.733	0.829	595.89	.116%	95.897%
60.0	8.459	0.812	596.702	.113%	96.027%
61.0	8.128	0.792	597.494	.110%	96.155%
62.0	7.875	0.771	598.265	.107%	96.279%
63.0	7.657	0.755	599.02	.105%	96.401%
64.0	7.390	0.738	599.759	.103%	96.519%
65.0	7.151	0.720	600.478	.100%	96.635%
66.0	6.940	0.703	601.181	.098%	96.748%
67.0	6.715	0.687	601.868	.096%	96.859%
68.0	6.574	0.673	602.541	.094%	96.967%
69.0	6.884	0.687	603.228	.096%	97.078%
70.0	7.629	0.745	603.973	.104%	97.198%
71.0	8.712	0.845	604.817	.118%	97.333%
72.0	9.696	0.957	605.775	.133%	97.488%
73.0	10.575	1.060	606.835	.148%	97.658%
74.0	11.524	1.162	607.996	.162%	97.845%
75.0	12.340	1.261	609.257	.176%	98.048%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.853	1.337	610.595	.186%	98.263%
77.0	12.677	1.361	611.956	.190%	98.482%
78.0	11.911	1.316	613.272	.183%	98.694%
79.0	11.095	1.236	614.508	.172%	98.893%
80.0	10.209	1.149	615.657	.160%	99.078%
81.0	9.436	1.062	616.719	.148%	99.249%
82.0	8.641	0.980	617.699	.137%	99.407%
83.0	7.017	0.851	618.551	.119%	99.544%
84.0	4.838	0.646	619.197	.090%	99.648%
85.0	3.734	0.468	619.664	.065%	99.723%
86.0	3.459	0.393	620.058	.055%	99.786%
87.0	3.192	0.364	620.422	.051%	99.845%
88.0	2.981	0.338	620.76	.047%	99.899%
89.0	2.841	0.319	621.079	.044%	99.950%
90.0	2.777	0.308	621.387	.043%	100.000%

Zonal flux distribution table

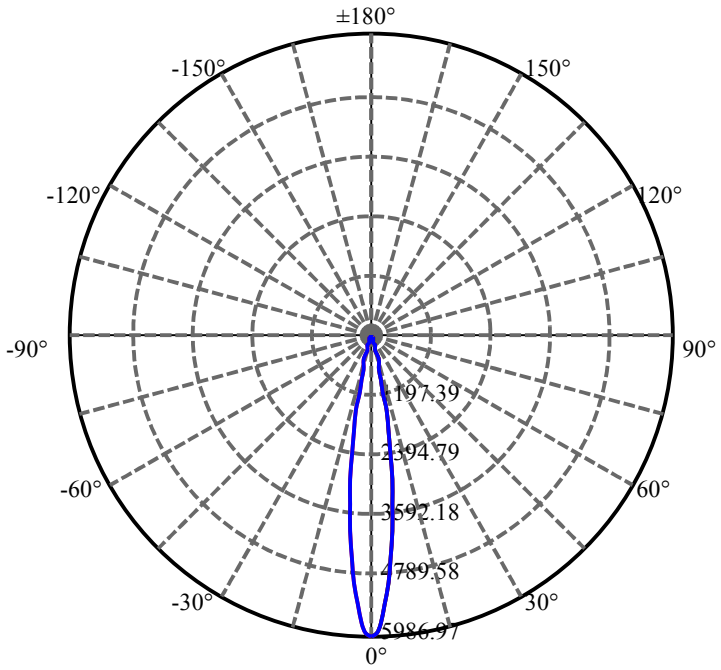
ZONAL LUMEN SUMMARY

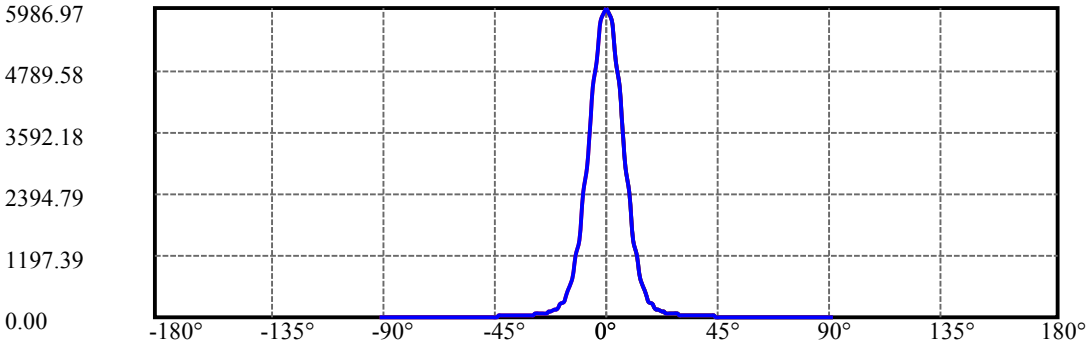
Zone	Lumens	%Lamp	%Fixt
0-30	554.16	77.18%	89.18%
0-40	574.31	79.99%	92.42%
0-60	596.70	83.11%	96.03%
0-90	621.08	86.50%	99.95%
0-120	621.08	86.50%	99.95%
0-180	621.39	86.54%	100.00%
60-90	25.19	3.51%	4.05%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-17.69	497.11	69.24%	80.00%

ZONAL LUMEN SUMMARY

0-10	340.41
10-20	174.42
20-30	39.33
30-40	20.15
40-50	13.29
50-60	9.10
60-70	7.27
70-80	11.68
80-90	5.42
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):

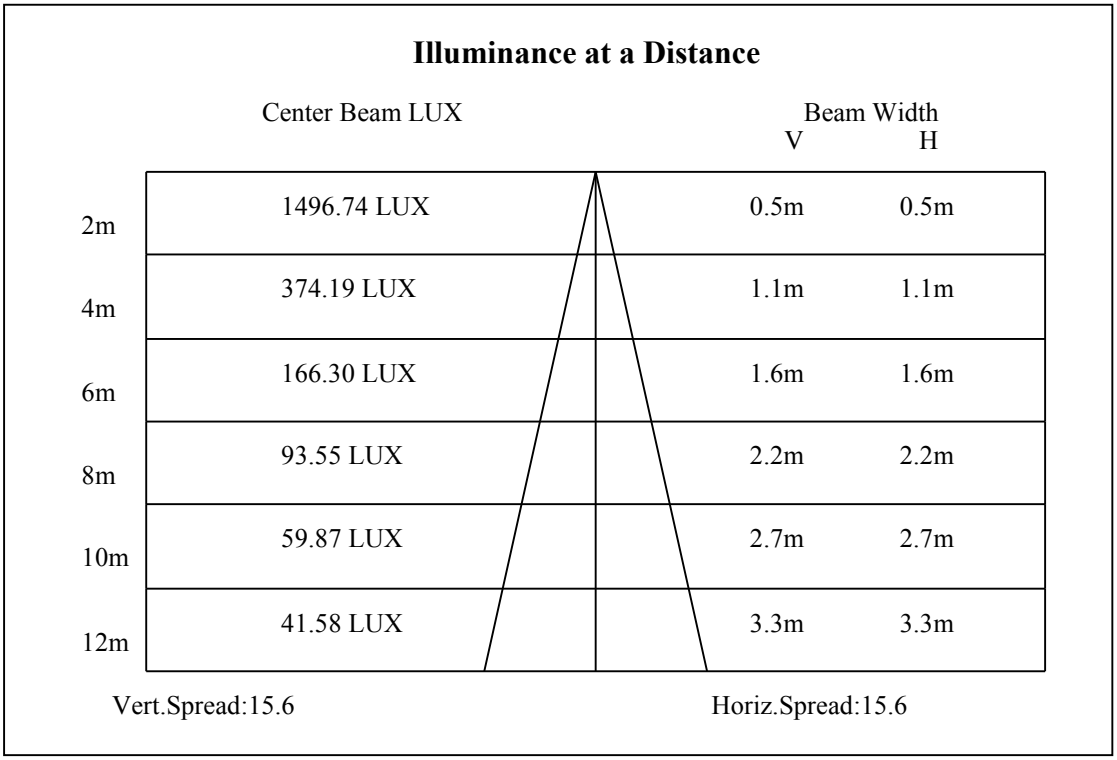
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:14.6 Right:14.6
:C90/270Left:14.6 Right:14.6

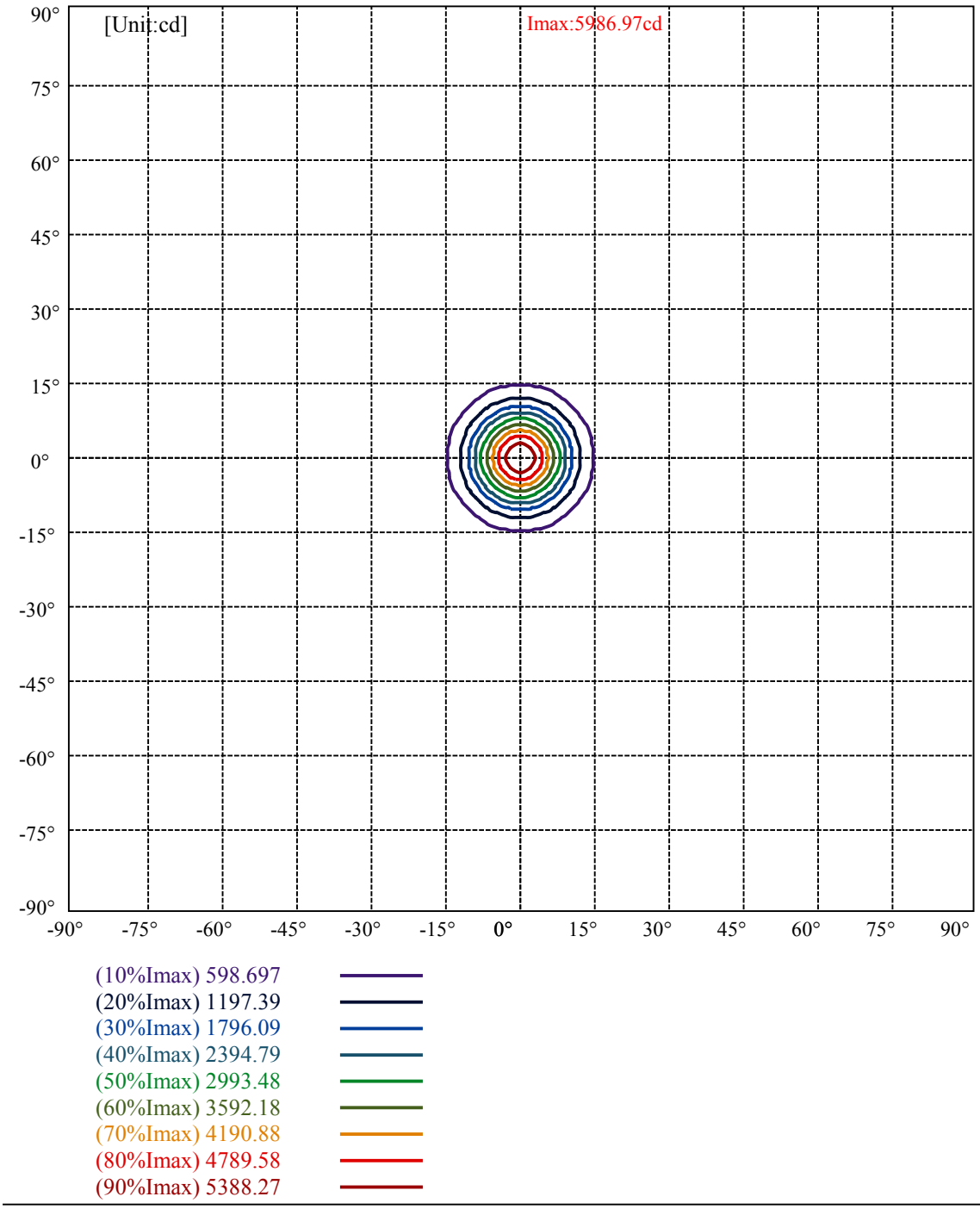
Beam Angle(50%Imax):C0/180Left:7.8 Right:7.8
:C90/270Left:7.8 Right:7.8

Lux distance Curve



Equipment: GMS1980 Date: 2020/7/8 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

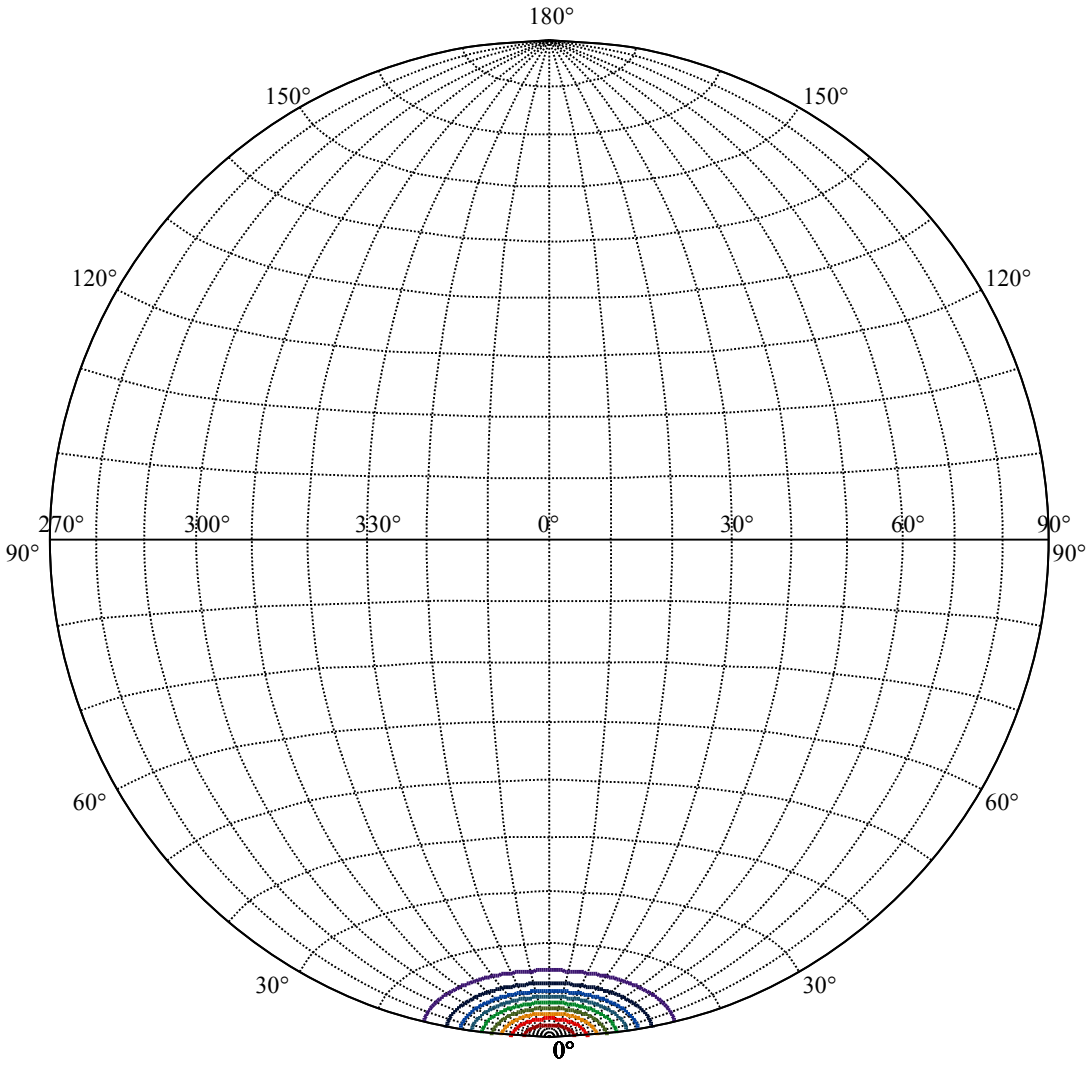


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5986.97

(10%Imax) 598.697
(20%Imax) 1197.39
(30%Imax) 1796.09
(40%Imax) 2394.79
(50%Imax) 2993.48
(60%Imax) 3592.18
(70%Imax) 4190.88
(80%Imax) 4789.58
(90%Imax) 5388.27

Equipment: GMS1980 Date: 2020/7/8 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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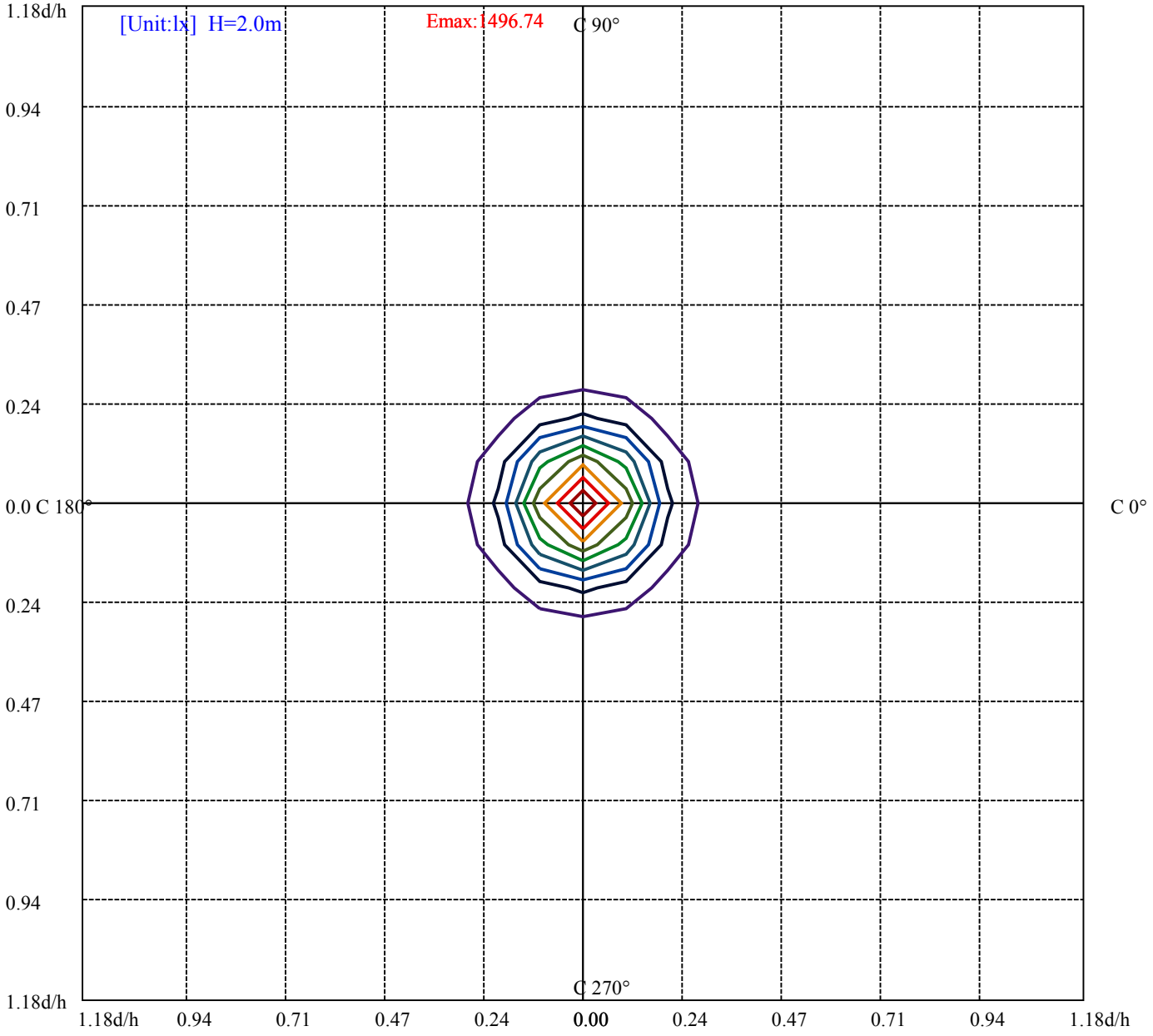
ISO illuminance diagram

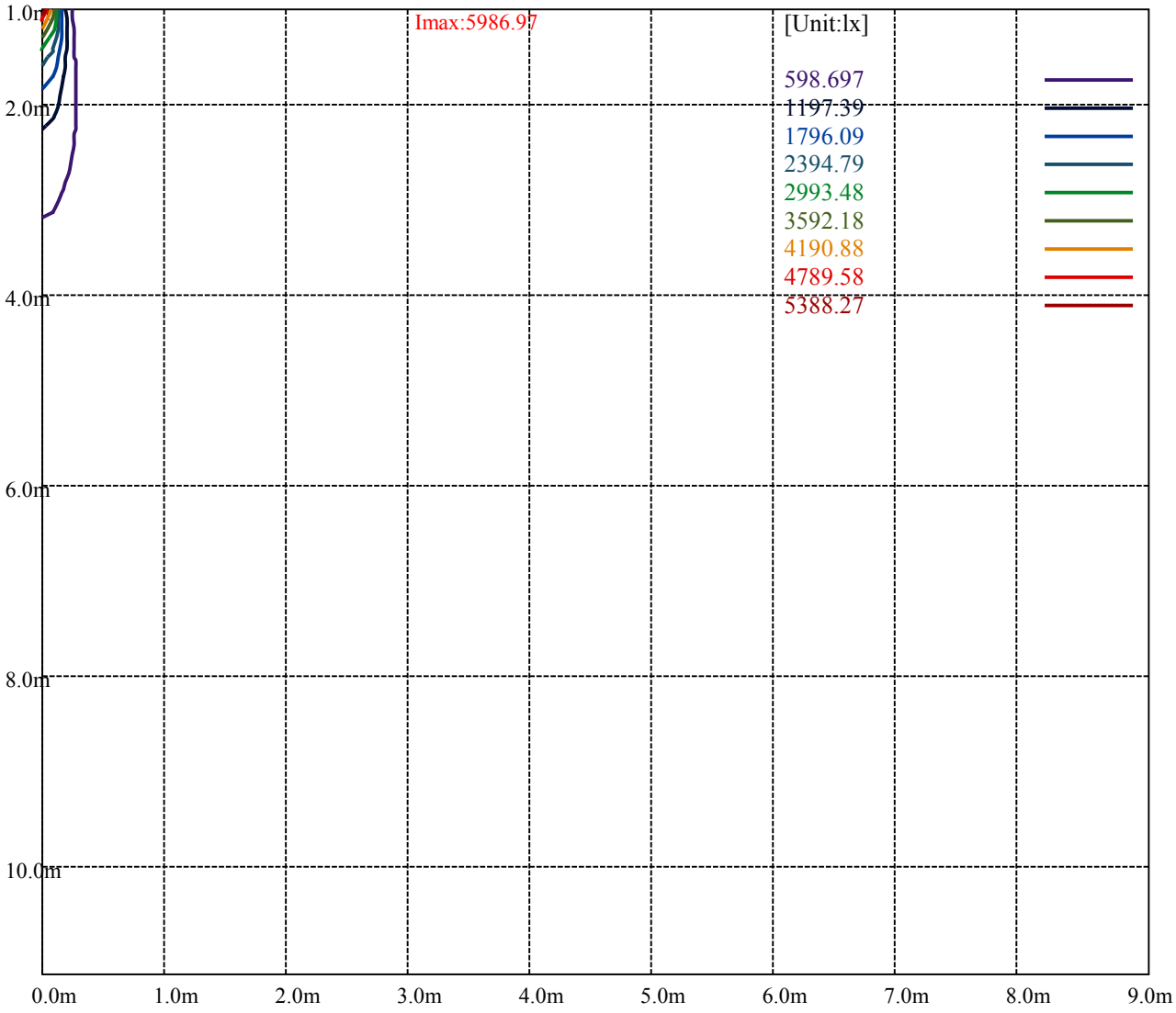


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

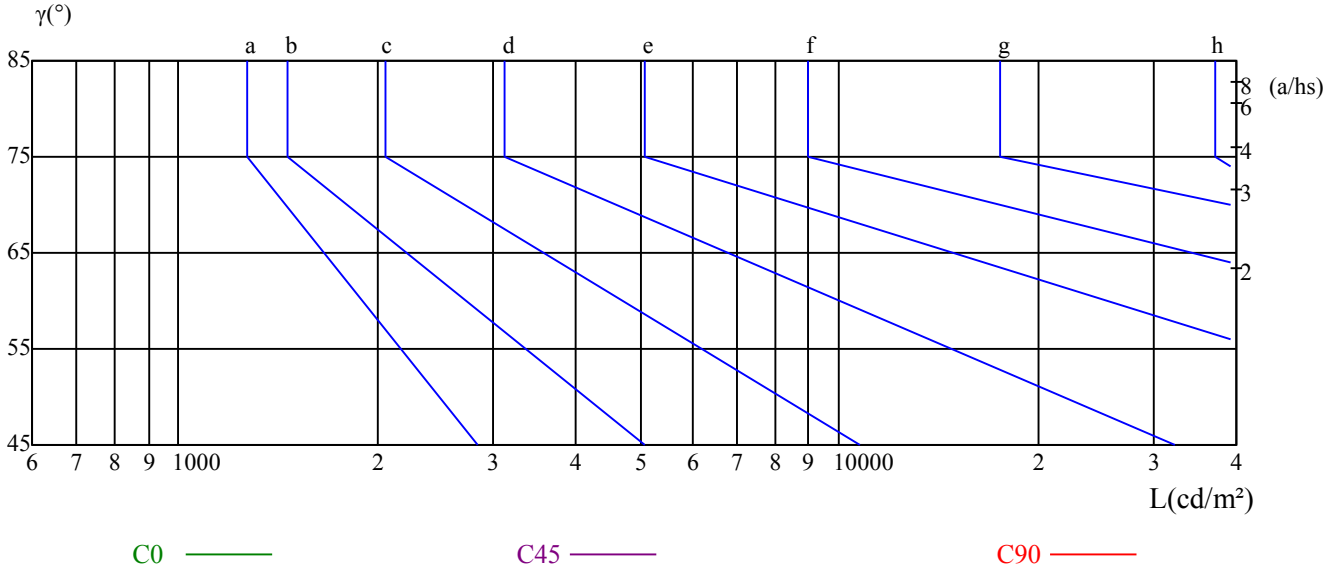
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

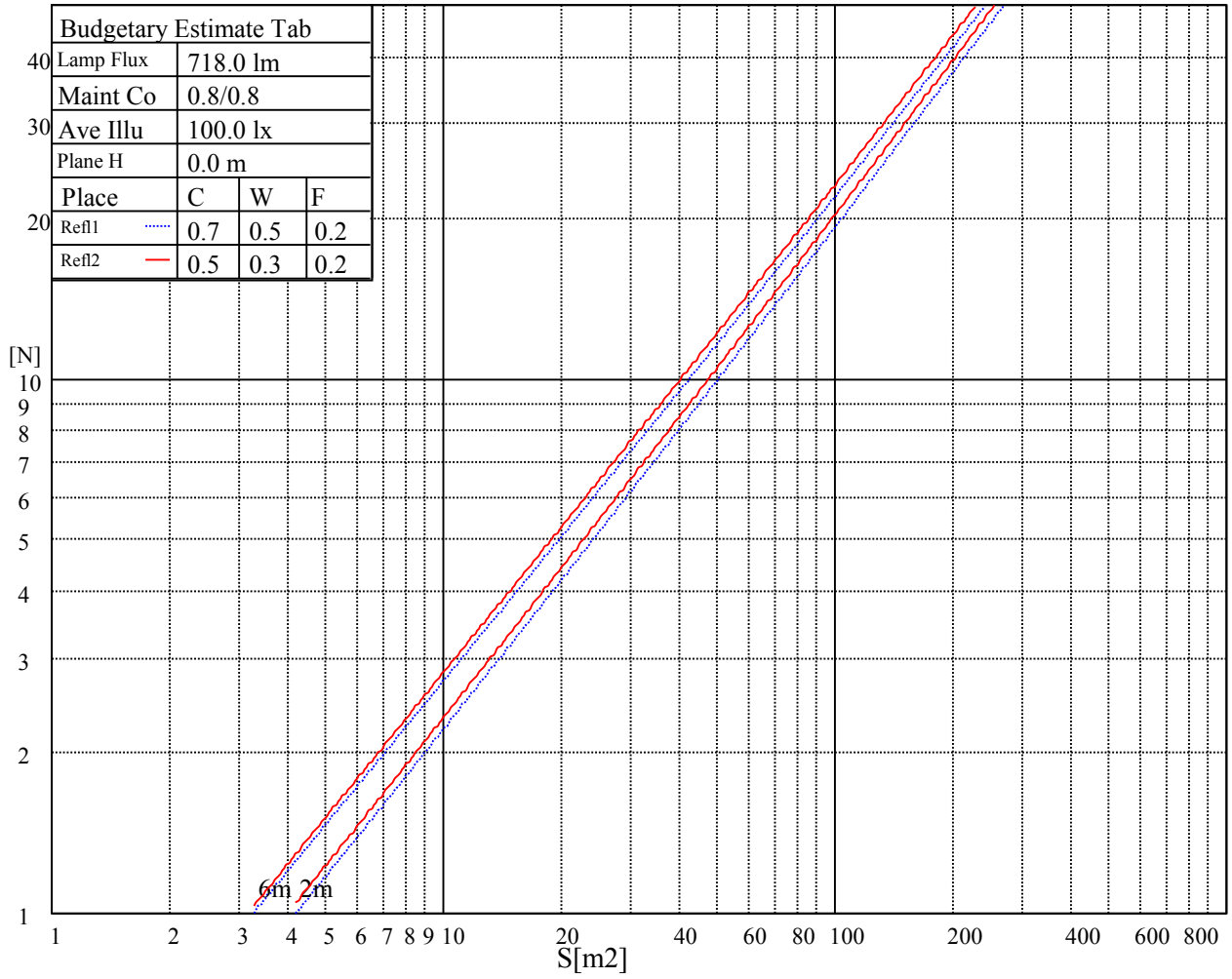
Glare Table

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



Budgetary Estimate Table

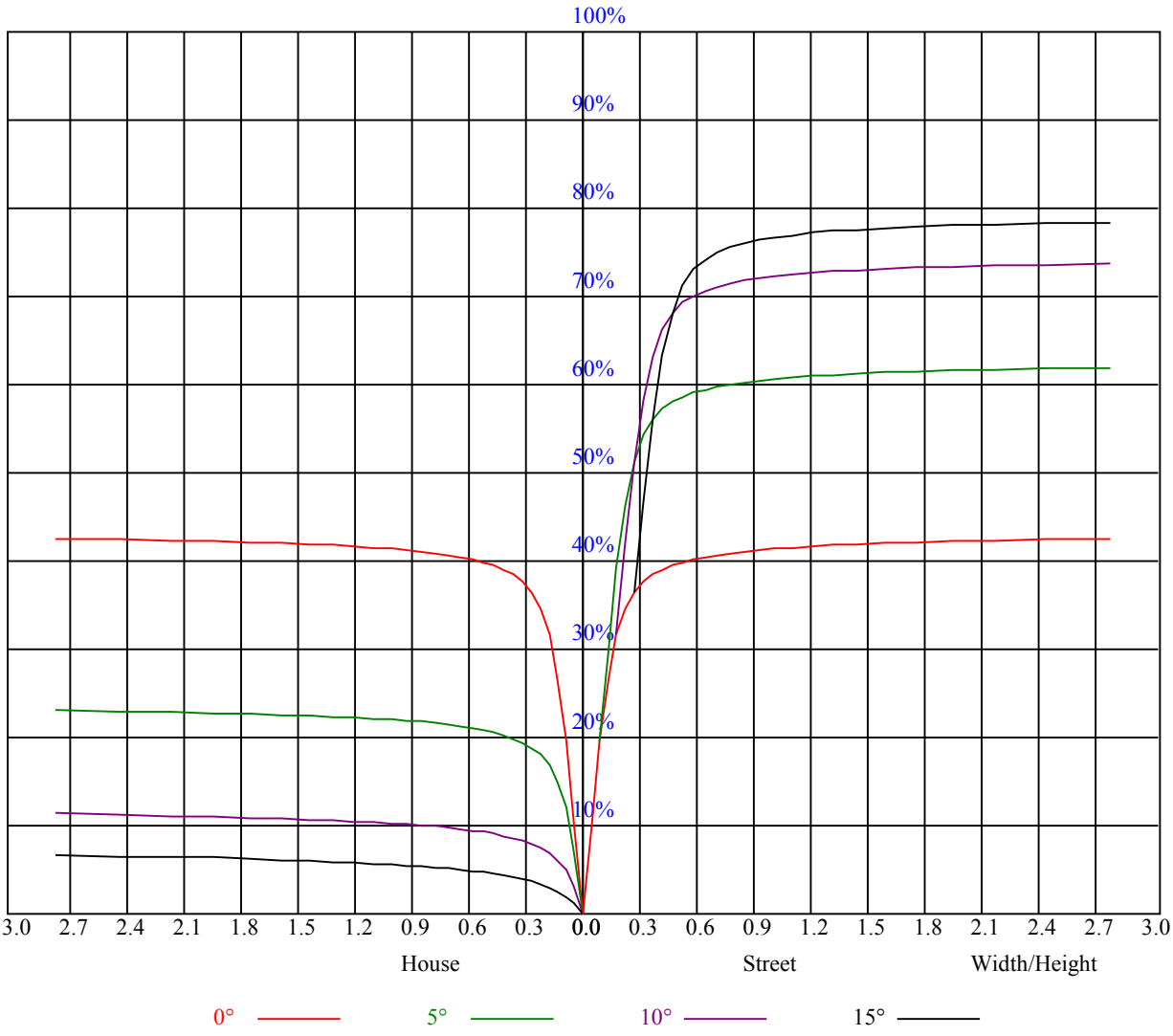


Equipment: GMS1980 Date: 2020/7/8 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.03	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	0.94	0.95	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.83
2	0.92	0.90	0.87	0.91	0.89	0.86	0.88	0.86	0.85	0.86	0.84	0.83	0.84	0.82	0.81	0.80
3	0.89	0.86	0.83	0.88	0.85	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.82	0.80	0.79	0.77
4	0.86	0.82	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.77	0.76
5	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.75	0.74
6	0.81	0.77	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.75	0.74	0.77	0.75	0.73	0.72
7	0.79	0.75	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.76	0.73	0.72	0.71
8	0.77	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.71	0.74	0.72	0.70	0.70
9	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.74	0.71	0.69	0.73	0.71	0.69	0.68
10	0.74	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.72	0.70	0.68	0.67

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/7/8	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	6004.13	5923.69	5698.69	5360.06	4888.69	4413.94	3857.63	3309.75	2834.44
45.0	5990.63	5996.81	5855.63	5593.50	5182.88	4756.50	4219.31	3653.44	3166.31
90.0	6032.81	6031.13	5909.06	5600.81	5225.63	4790.25	4177.69	3681.00	3179.81
135.0	5920.31	6043.50	5974.31	5803.88	5420.81	5016.38	4552.88	3928.50	3429.56
180.0	6004.13	5929.31	5749.88	5354.44	4948.88	4480.88	3861.56	3358.13	2871.56
225.0	5990.63	5843.25	5594.06	5130.00	4681.69	4202.44	3595.50	3117.94	2660.63
270.0	6032.81	5876.44	5575.50	5201.44	4698.00	4217.06	3670.88	3133.13	2673.56
315.0	5920.31	5739.19	5367.94	4849.31	4434.19	3938.06	3279.94	2863.13	2416.50
360.0	6004.13	5923.69	5698.69	5360.06	4888.69	4413.94	3857.63	3309.75	2834.44

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2331.00	1857.94	1486.69	1164.94	844.31	642.94	492.75	367.31	288.56
45.0	2648.25	2149.31	1742.63	1387.69	1018.13	786.38	606.94	460.13	352.13
90.0	2651.63	2146.50	1742.06	1122.02	1020.15	784.07	582.24	448.76	337.44
135.0	2954.81	2380.50	1949.63	1564.31	1153.13	889.88	681.75	507.38	379.69
180.0	2406.94	1868.06	1491.19	1097.78	842.68	641.53	490.89	366.24	276.47
225.0	2174.63	1728.00	1117.29	1051.14	795.43	624.15	465.24	383.23	304.88
270.0	2190.94	1741.50	1392.19	1095.19	801.00	625.50	491.06	378.56	298.69
315.0	1944.56	1525.50	1102.33	943.37	692.66	546.02	433.69	340.37	272.59
360.0	2331.00	1857.94	1486.69	1164.94	844.31	642.94	492.75	367.31	288.56

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	222.75	177.92	145.46	123.81	105.30	92.19	80.72	71.89	64.97
45.0	290.81	229.61	184.78	156.88	133.71	113.79	98.61	87.13	75.83
90.0	259.20	210.38	174.94	142.37	123.64	108.34	94.05	84.43	76.73
135.0	296.44	251.78	186.13	156.94	131.57	114.41	98.72	85.84	76.11
180.0	219.15	173.36	143.83	119.08	101.64	89.94	79.54	70.99	64.97
225.0	240.64	206.16	174.60	140.63	123.53	106.48	88.59	79.82	70.82
270.0	284.06	200.08	166.39	142.26	121.39	106.31	92.64	81.73	73.41
315.0	226.91	186.47	158.29	133.14	113.06	98.44	85.16	74.48	66.49
360.0	222.75	177.92	145.46	123.81	105.30	92.19	80.72	71.89	64.97

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	59.23	52.88	48.21	44.44	40.05	37.18	34.82	32.46	30.38
45.0	68.46	61.09	54.51	49.28	44.49	40.16	37.07	34.43	31.33
90.0	69.92	62.61	57.26	52.65	47.64	43.26	39.77	36.34	33.41
135.0	68.85	60.98	55.52	50.57	45.23	41.40	37.97	34.71	32.01
180.0	59.34	53.04	48.60	44.55	40.73	37.18	34.65	32.12	30.09
225.0	62.55	55.80	51.13	46.58	42.75	39.15	36.06	33.75	31.50
270.0	66.38	58.89	53.94	49.33	44.21	40.61	37.46	34.71	31.67
315.0	59.57	52.43	47.64	43.37	39.26	35.83	33.24	30.71	28.63
360.0	59.23	52.88	48.21	44.44	40.05	37.18	34.82	32.46	30.38

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	28.80	27.06	25.65	24.30	23.06	21.94	20.70	19.46	18.39
45.0	29.36	27.84	25.93	24.47	23.34	21.83	20.59	19.63	18.34
90.0	31.11	28.80	27.00	25.31	23.74	22.44	21.15	19.58	18.28
135.0	29.87	27.84	26.21	24.64	23.18	21.99	20.64	19.46	18.45
180.0	28.41	26.66	25.31	23.85	22.56	21.43	20.31	18.96	17.89
225.0	29.64	27.90	26.55	24.98	24.19	23.29	22.05	20.81	19.74
270.0	29.59	27.79	26.04	24.36	22.89	21.66	20.31	19.07	17.83
315.0	26.94	25.37	24.02	22.56	21.32	20.19	19.13	17.83	16.88
360.0	28.80	27.06	25.65	24.30	23.06	21.94	20.70	19.46	18.39

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	17.38	16.20	15.30	14.40	13.56	12.77	12.21	11.64	11.19
45.0	17.27	16.31	15.30	14.40	13.67	12.77	12.21	11.70	11.14
90.0	17.21	15.92	14.96	14.06	13.11	12.32	11.64	11.03	10.58
135.0	17.44	16.20	15.36	14.46	13.56	12.71	12.09	11.53	10.97
180.0	17.04	15.86	15.02	14.18	13.22	12.54	12.09	11.42	11.03
225.0	18.28	16.48	15.36	14.51	13.73	12.21	11.64	11.14	10.74
270.0	16.82	15.64	14.57	13.73	12.94	12.21	11.70	11.31	10.86
315.0	15.86	14.68	13.84	13.11	12.38	11.76	11.31	10.86	10.52
360.0	17.38	16.20	15.30	14.40	13.56	12.77	12.21	11.64	11.19

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.74	10.35	9.96	9.62	9.23	8.94	8.61	8.27	8.04
45.0	10.74	10.35	9.96	9.56	9.28	8.94	8.61	8.33	7.99
90.0	10.13	9.73	9.34	9.00	8.72	8.44	8.21	7.88	7.65
135.0	10.52	10.13	9.79	9.39	9.00	8.72	8.44	8.10	7.82
180.0	10.58	10.13	9.84	9.45	9.06	8.83	8.61	8.16	7.93
225.0	10.29	9.96	9.62	9.23	8.89	8.61	8.33	7.99	7.71
270.0	10.52	10.18	9.79	9.45	9.17	8.94	8.72	8.49	8.27
315.0	10.13	9.73	9.39	9.06	8.72	8.44	8.16	7.82	7.59
360.0	10.74	10.35	9.96	9.62	9.23	8.94	8.61	8.27	8.04

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.76	7.48	7.26	7.03	6.75	6.53	6.30	6.13	5.85
45.0	7.76	7.48	7.20	6.98	6.75	6.53	6.36	6.13	5.96
90.0	7.48	7.26	7.14	6.92	6.75	6.75	8.21	11.98	15.75
135.0	7.59	7.31	7.03	6.86	6.64	6.36	6.19	6.02	5.79
180.0	7.71	7.43	7.14	6.98	6.69	6.47	6.30	6.08	5.85
225.0	7.48	7.20	6.98	6.75	6.53	6.30	6.13	5.91	5.74
270.0	8.10	7.88	7.59	7.37	7.20	7.43	9.56	12.94	19.07
315.0	7.37	7.09	6.86	6.64	6.41	6.24	6.02	5.85	5.68
360.0	7.76	7.48	7.26	7.03	6.75	6.53	6.30	6.13	5.85

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.68	5.46	5.29	5.12	4.95	4.78	4.67	4.56	4.39
45.0	5.79	5.63	5.46	5.23	5.01	4.84	4.67	4.56	4.39
90.0	20.14	24.30	27.90	31.73	34.65	35.44	33.41	30.26	27.68
135.0	5.63	5.46	5.29	5.12	4.95	4.78	4.61	4.44	4.28
180.0	5.68	5.51	5.34	5.18	5.06	4.84	4.67	4.50	4.33
225.0	5.57	5.40	5.23	5.01	4.89	4.78	4.61	4.44	4.33
270.0	23.57	27.56	32.57	36.39	38.53	37.29	34.14	31.67	28.13
315.0	5.51	5.29	5.12	4.95	4.78	4.67	4.50	4.33	4.16
360.0	5.68	5.46	5.29	5.12	4.95	4.78	4.67	4.56	4.39

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.28	4.11	3.94	3.77	3.66	3.43	3.21	3.09	2.93
45.0	4.28	4.11	3.88	3.77	3.60	3.43	3.21	3.04	2.87
90.0	25.14	22.33	18.06	10.24	4.61	3.71	3.21	2.98	2.87
135.0	4.11	3.99	3.83	3.66	3.49	3.32	3.15	2.93	2.76
180.0	4.28	4.05	3.94	3.77	3.60	3.43	3.15	3.04	2.87
225.0	4.16	3.99	3.83	3.66	3.54	3.38	3.15	3.04	2.87
270.0	25.20	22.67	15.02	6.36	4.05	3.83	3.60	2.98	2.87
315.0	4.05	3.88	3.66	3.49	3.32	3.15	2.87	2.76	2.70
360.0	4.28	4.11	3.94	3.77	3.66	3.43	3.21	3.09	2.93

Intensity data(cd)

C/γ(°)	90.0
0.0	2.93
45.0	2.76
90.0	2.76
135.0	2.70
180.0	2.81
225.0	2.81
270.0	2.76
315.0	2.70
360.0	2.93