NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: LN01D04515DA-N
Luminaire: 97.70.234.00
Report No: 200708-B010
Test No: 200708-C010
LampCAT: CREE CXA1304
Lamp flux(lm): 506.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 37.3700
Current(A): 0.1510
Power (W): 5.6400
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 441.62
Efficiency(%): 87.28%
Lumens(lm)/Power(W): 78.30
Central intensity(cd): 4791.375
Maximum intensity(cd): 4791.375
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.8
[C90/270]Total=14.8
Field angle(10%Imax): [C0/180]Total=27.3
[C90/270]Total=27.3
Maximum s/h(1/2): C0_180=0.25 C90_270=0.25
Maximum s/h(1/4): C0_180=0.25 C90_270=0.25
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.28%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.892%

Nata LM01D04515DA

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4791.375	0.000	0	.000%	.000%
1.0	4733.648	4.558	4.558	.901%	1.032%
2.0	4560.398	13.340	17.897	2.636%	4.053%
3.0	4267.898	21.114	39.012	4.173%	8.834%
4.0	3898.055	27.334	66.346	5.402%	15.023%
5.0	3473.156	31.711	98.056	6.267%	22.204%
6.0	3020.344	34.125	132.181	6.744%	29.931%
7.0	2557.758	34.623	166.805	6.843%	37.771%
8.0	2140.453	33.624	200.429	6.645%	45.385%
9.0	1738.195	31.434	231.863	6.212%	52.503%
10.0	1282.739	27.338	259.201	5.403%	58.694%
11.0	1037.742	23.186	282.388	4.582%	63.944%
12.0	796.753	20.054	302.441	3.963%	68.485%
13.0	575.494	16.285	318.727	3.218%	72.173%
14.0	430.566	12.877	331.604	2.545%	75.089%
15.0	329.723	10.438	342.042	2.063%	77.452%
16.0	267.012	8.744	350.785	1.728%	79.432%
17.0	198.373	7.247	358.033	1.432%	81.073%
18.0	155.370	5.832	363.865	1.153%	82.394%
19.0	127.027	4.913	368.778	.971%	83.506%
20.0	105.729	4.260	373.038	.842%	84.471%
21.0	89.937	3.757	376.796	.743%	85.322%
22.0	77.105	3.357	380.152	.663%	86.082%
23.0	67.598	3.036	383.189	.600%	86.769%
24.0	59.843	2.786	385.975	.551%	87.400%
25.0	53.086	2.568	388.543	.507%	87.982%
26.0	47.967	2.385	390.928	.471%	88.522%
27.0	43.495	2.238	393.166	.442%	89.029%
28.0	38.869	2.085	395.251	.412%	89.501%
29.0	35.452	1.944	397.195	.384%	89.941%
30.0	32.372	1.831	399.027	.362%	90.356%
31.0	29.187	1.713	400.74	.339%	90.744%
32.0	26.670	1.600	402.34	.316%	91.106%
33.0	24.623	1.511	403.851	.299%	91.448%
34.0	22.613	1.429	405.281	.283%	91.772%
35.0	20.995	1.354	406.635	.268%	92.079%
36.0	19.638	1.294	407.929	.256%	92.372%
37.0	18.366	1.239	409.168	.245%	92.652%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	17.325	1.191	410.359	.235%	92.922%
39.0	16.320	1.148	411.508	.227%	93.182%
40.0	15.391	1.106	412.614	.219%	93.432%
41.0	14.597	1.068	413.682	.211%	93.674%
42.0	13.795	1.032	414.713	.204%	93.908%
43.0	12.952	0.991	415.704	.196%	94.132%
44.0	12.241	0.951	416.655	.188%	94.347%
45.0	11.566	0.915	417.57	.181%	94.555%
46.0	10.842	0.876	418.446	.173%	94.753%
47.0	10.195	0.837	419.283	.165%	94.943%
48.0	9.612	0.801	420.083	.158%	95.124%
49.0	9.056	0.767	420.85	.152%	95.297%
50.0	8.578	0.735	421.585	.145%	95.464%
51.0	8.205	0.710	422.295	.140%	95.625%
52.0	7.868	0.690	422.985	.136%	95.781%
53.0	7.538	0.670	423.655	.132%	95.933%
54.0	7.263	0.652	424.308	.129%	96.080%
55.0	6.982	0.636	424.944	.126%	96.224%
56.0	6.722	0.619	425.563	.122%	96.365%
57.0	6.476	0.603	426.166	.119%	96.501%
58.0	6.251	0.589	426.755	.116%	96.635%
59.0	6.040	0.575	427.329	.114%	96.765%
60.0	5.836	0.561	427.89	.111%	96.892%
61.0	5.625	0.547	428.437	.108%	97.016%
62.0	5.449	0.534	428.971	.105%	97.136%
63.0	5.273	0.521	429.492	.103%	97.254%
64.0	5.084	0.508	430.001	.100%	97.370%
65.0	4.922	0.495	430.496	.098%	97.482%
66.0	4.767	0.483	430.979	.096%	97.591%
67.0	4.605	0.471	431.451	.093%	97.698%
68.0	4.465	0.459	431.91	.091%	97.802%
69.0	4.345	0.449	432.359	.089%	97.904%
70.0	4.289	0.443	432.803	.088%	98.004%
71.0	4.402	0.449	433.252	.089%	98.106%
72.0	4.690	0.473	433.725	.093%	98.213%
73.0	5.182	0.516	434.241	.102%	98.330%
74.0	5.520	0.563	434.804	.111%	98.457%
75.0	5.738	0.595	435.398	.118%	98.592%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.913	0.618	436.017	.122%	98.732%
77.0	5.850	0.627	436.644	.124%	98.874%
78.0	5.681	0.617	437.261	.122%	99.014%
79.0	5.421	0.597	437.858	.118%	99.149%
80.0	5.041	0.564	438.422	.111%	99.276%
81.0	4.521	0.517	438.939	.102%	99.394%
82.0	3.832	0.453	439.392	.090%	99.496%
83.0	3.263	0.386	439.778	.076%	99.583%
84.0	2.791	0.330	440.107	.065%	99.658%
85.0	2.559	0.292	440.399	.058%	99.724%
86.0	2.419	0.272	440.672	.054%	99.786%
87.0	2.285	0.257	440.929	.051%	99.844%
88.0	2.123	0.241	441.171	.048%	99.899%
89.0	2.032	0.228	441.398	.045%	99.950%
90.0	1.962	0.219	441.617	.043%	100.000%

Zonal flux distribution table

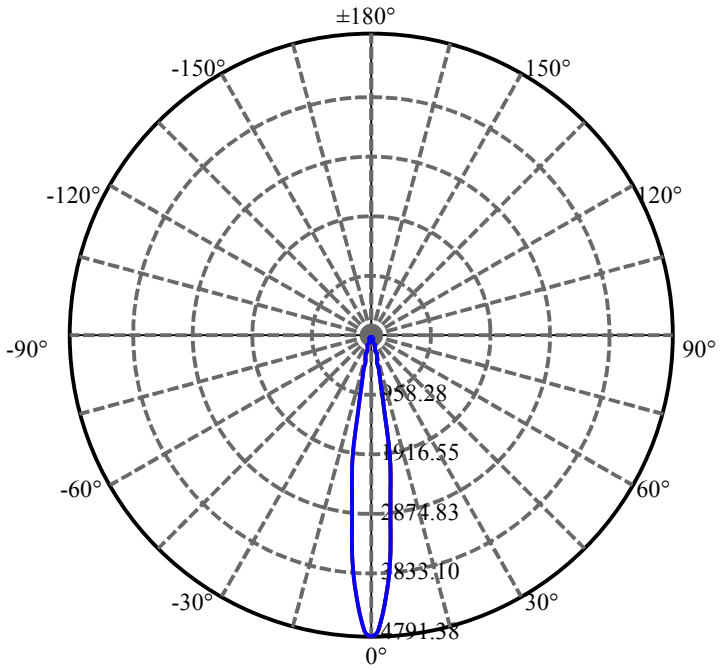
ZONAL LUMEN SUMMARY

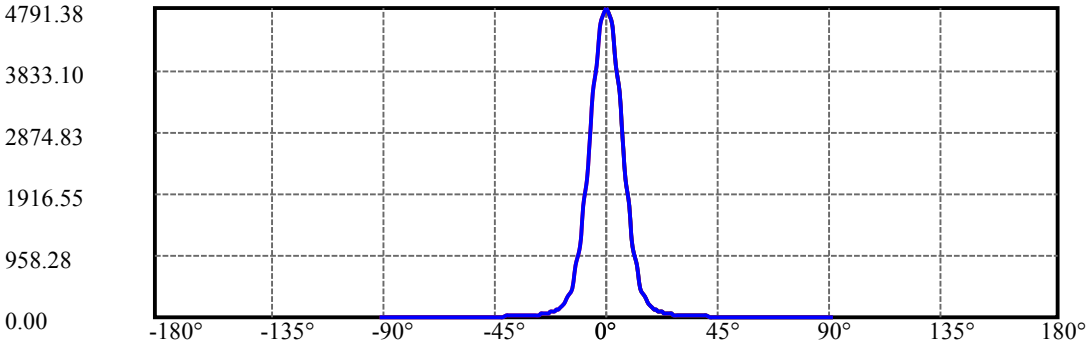
Zone	Lumens	%Lamp	%Fixt
0-30	399.03	78.86%	90.36%
0-40	412.61	81.54%	93.43%
0-60	427.89	84.56%	96.89%
0-90	441.40	87.23%	99.95%
0-120	441.40	87.23%	99.95%
0-180	441.62	87.28%	100.00%
60-90	14.07	2.78%	3.19%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.35	353.29	69.82%	80.00%

ZONAL LUMEN SUMMARY

0-10	259.20
10-20	113.84
20-30	25.99
30-40	13.59
40-50	8.97
50-60	6.31
60-70	4.91
70-80	5.62
80-90	2.98
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):

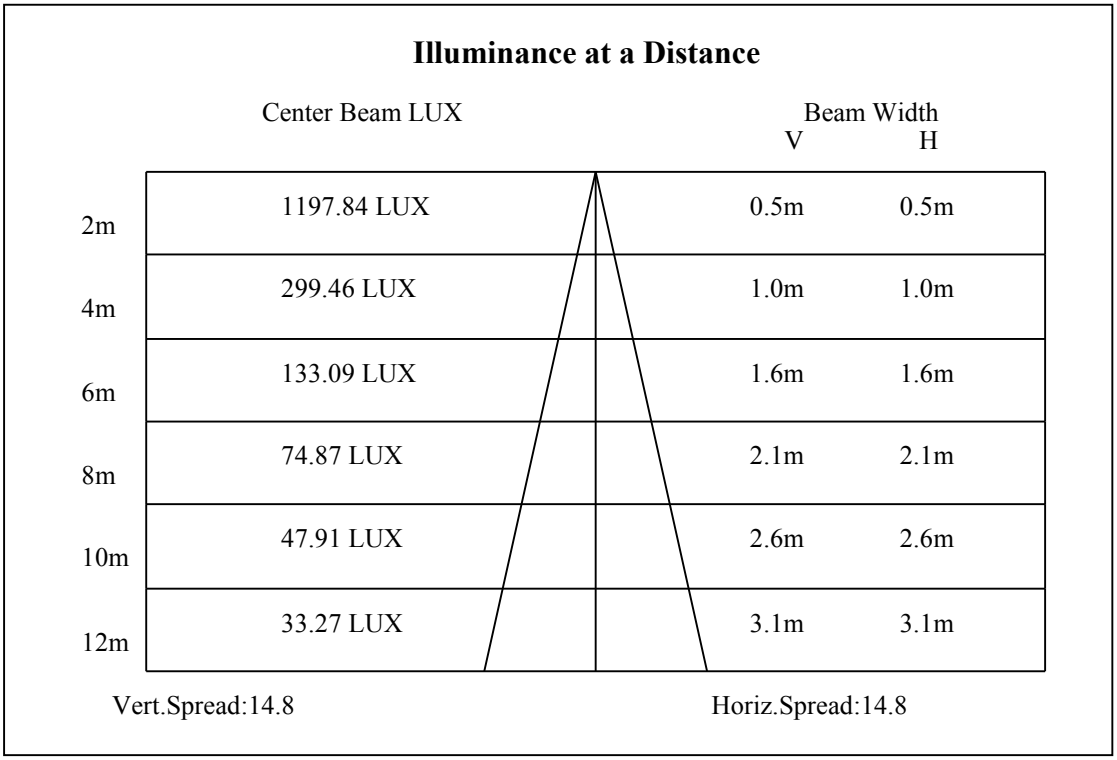
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:13.7 Right:13.7
:C90/270Left:13.7 Right:13.7

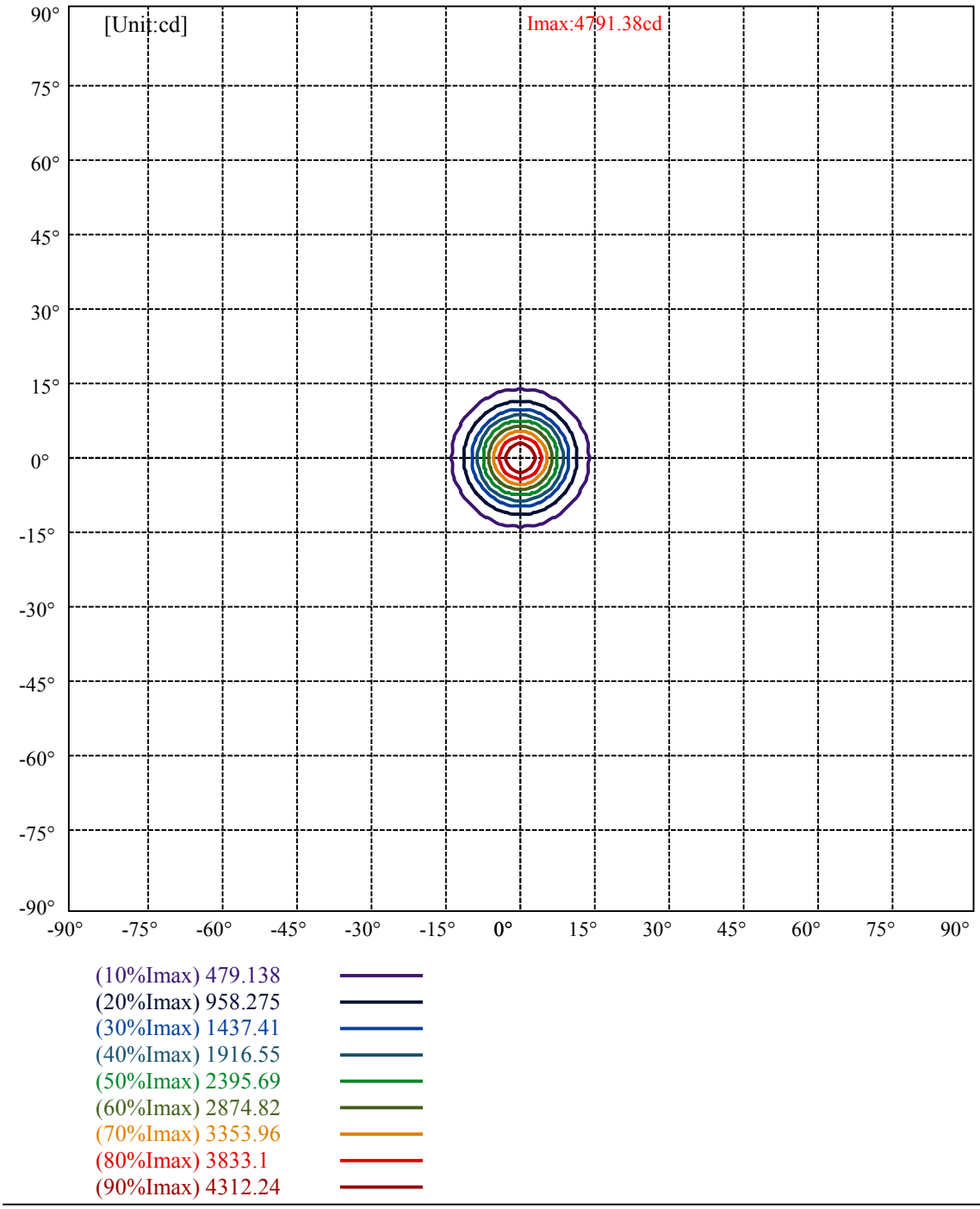
Beam Angle(50%Imax):C0/180Left:7.4 Right:7.4
:C90/270Left:7.4 Right:7.4

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)

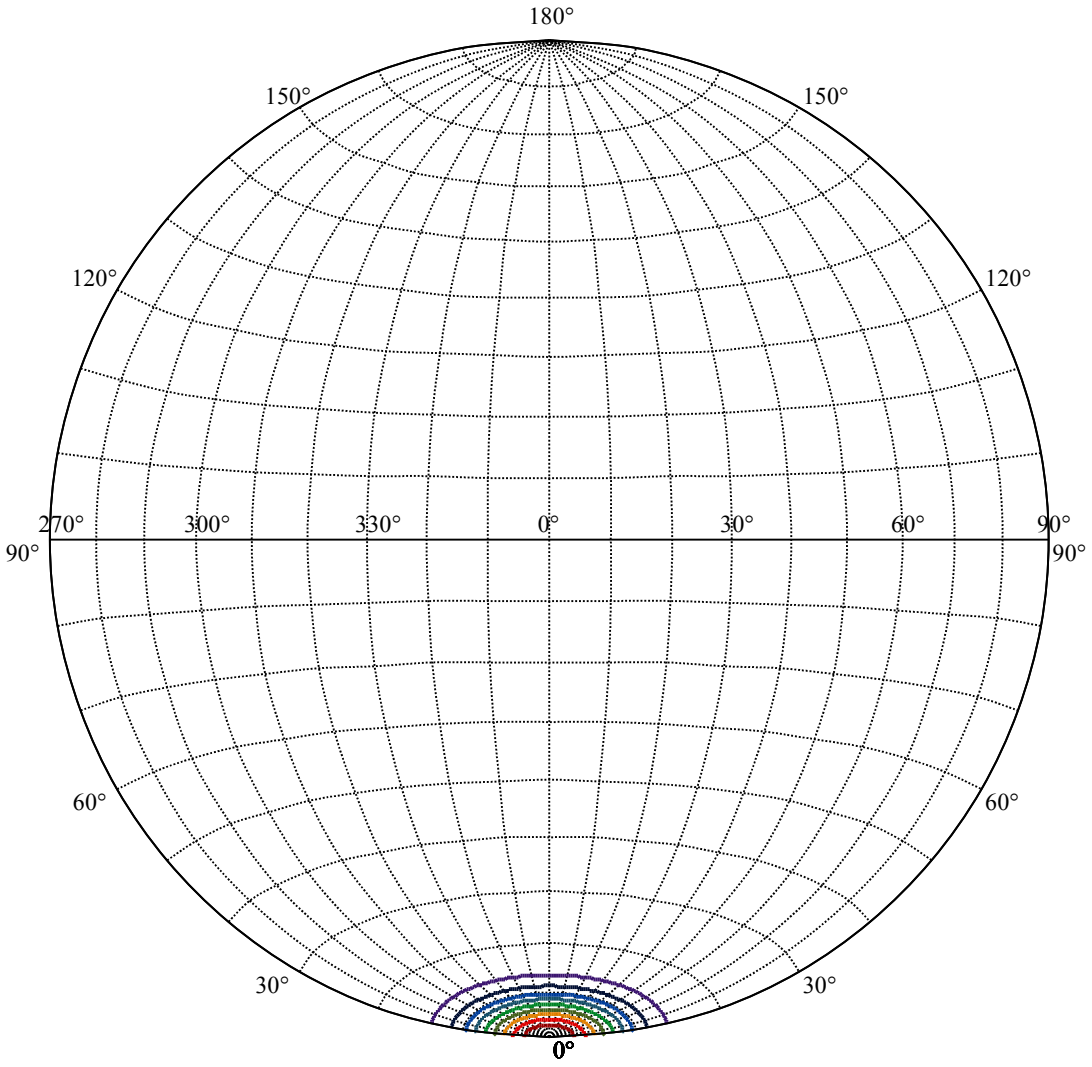


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4791.38

(10%Imax) 479.138
(20%Imax) 958.275
(30%Imax) 1437.41
(40%Imax) 1916.55
(50%Imax) 2395.69
(60%Imax) 2874.82
(70%Imax) 3353.96
(80%Imax) 3833.1
(90%Imax) 4312.24

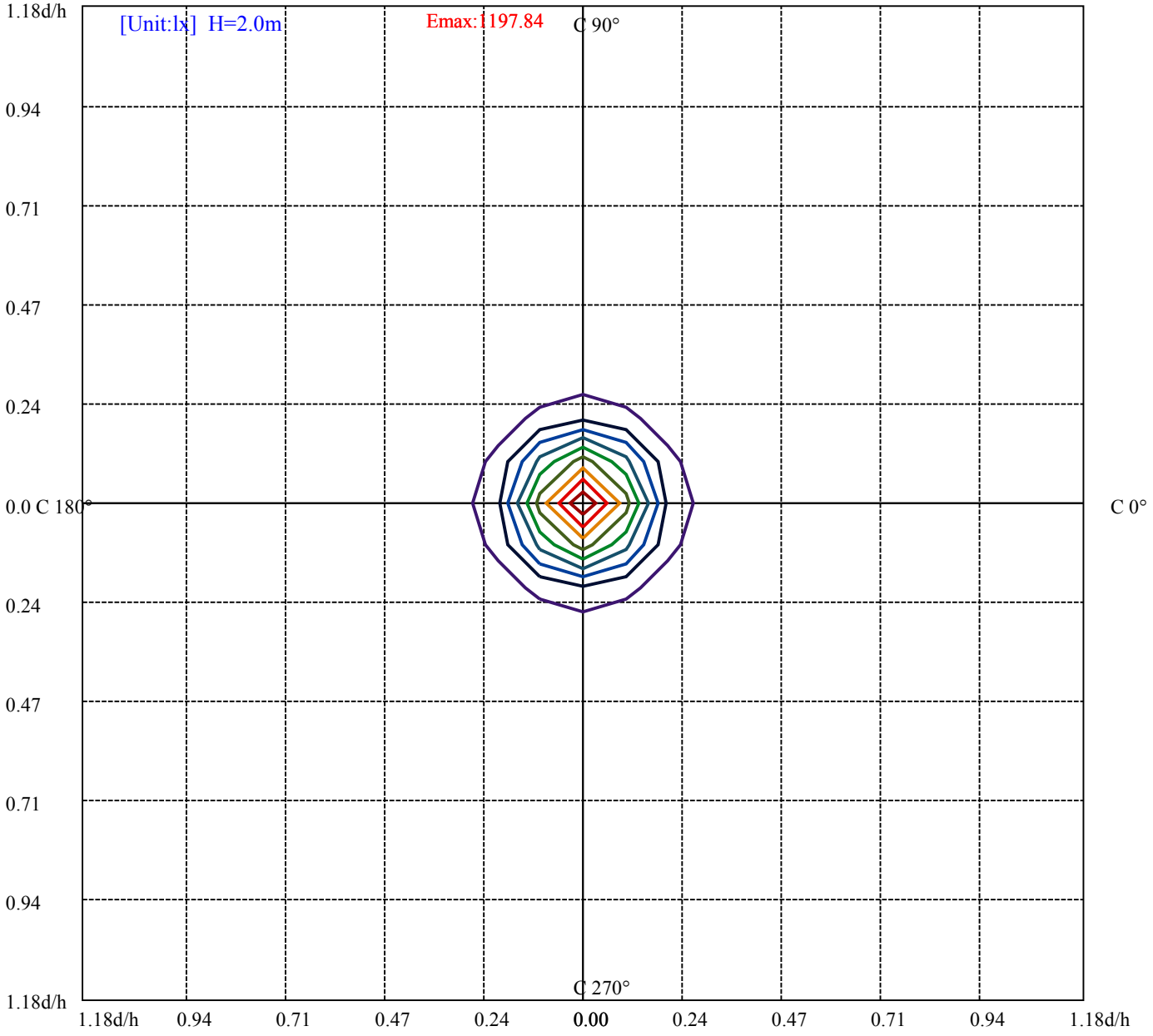
Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

Nata LM01D04515DA

ISO illuminance diagram

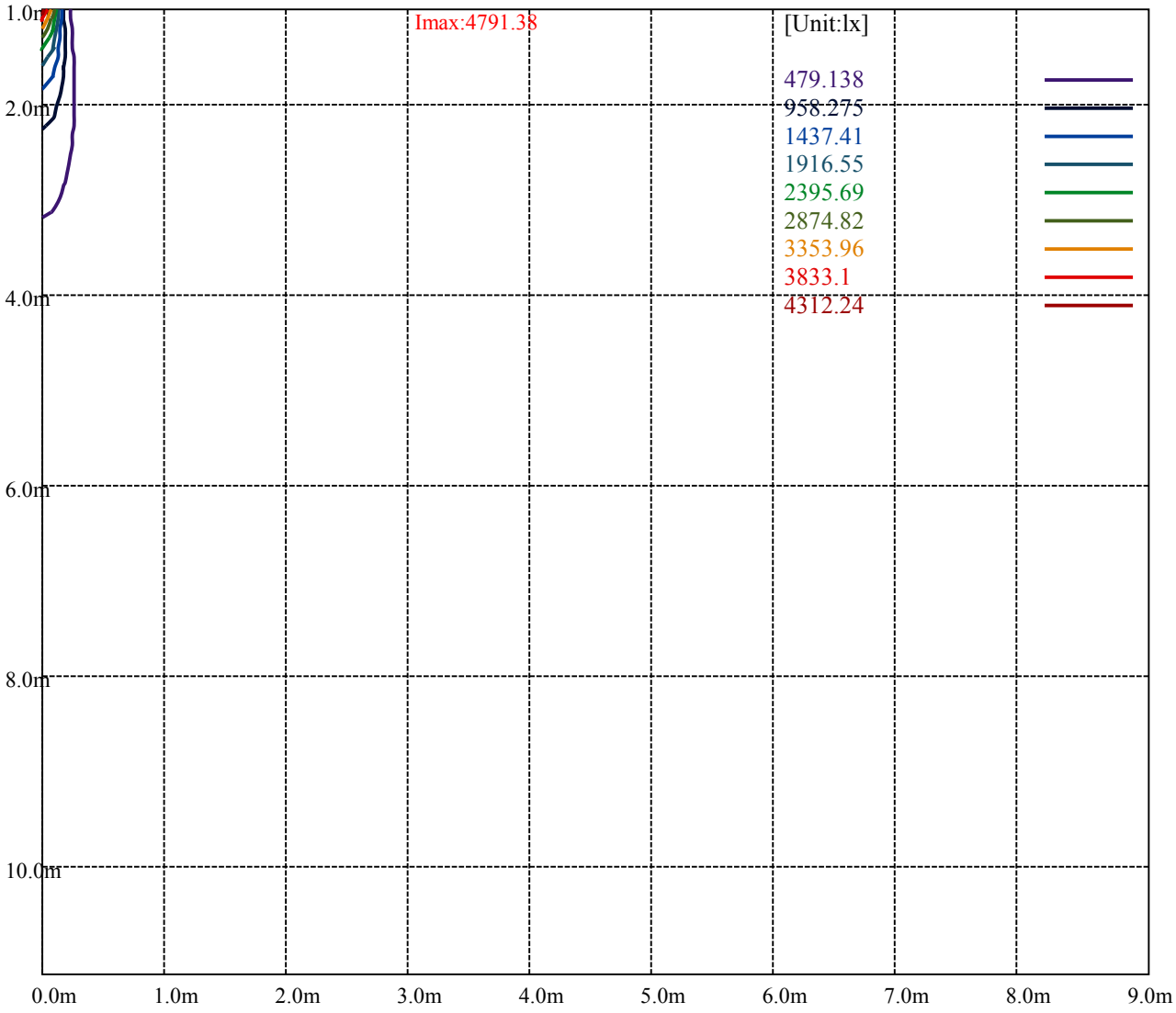


Equipment: GMS1980
Temperature(°C): 25.0

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

Nata LM01D04515DA

Luminance Limitting Curve(no luminous side)

Luminance Table

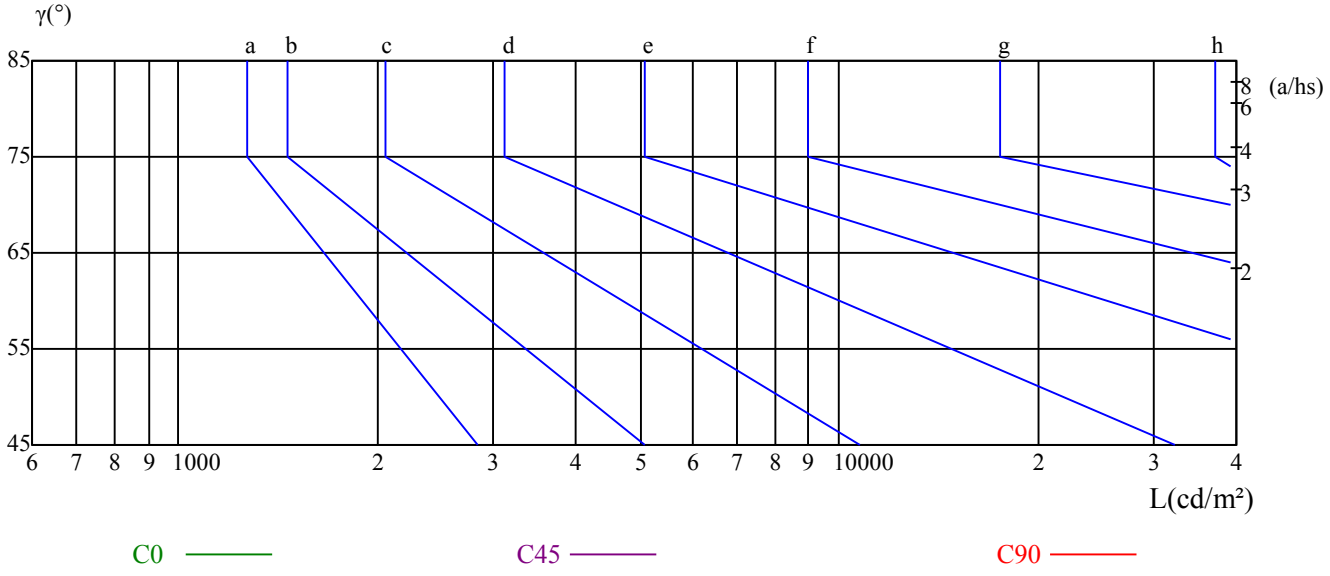
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

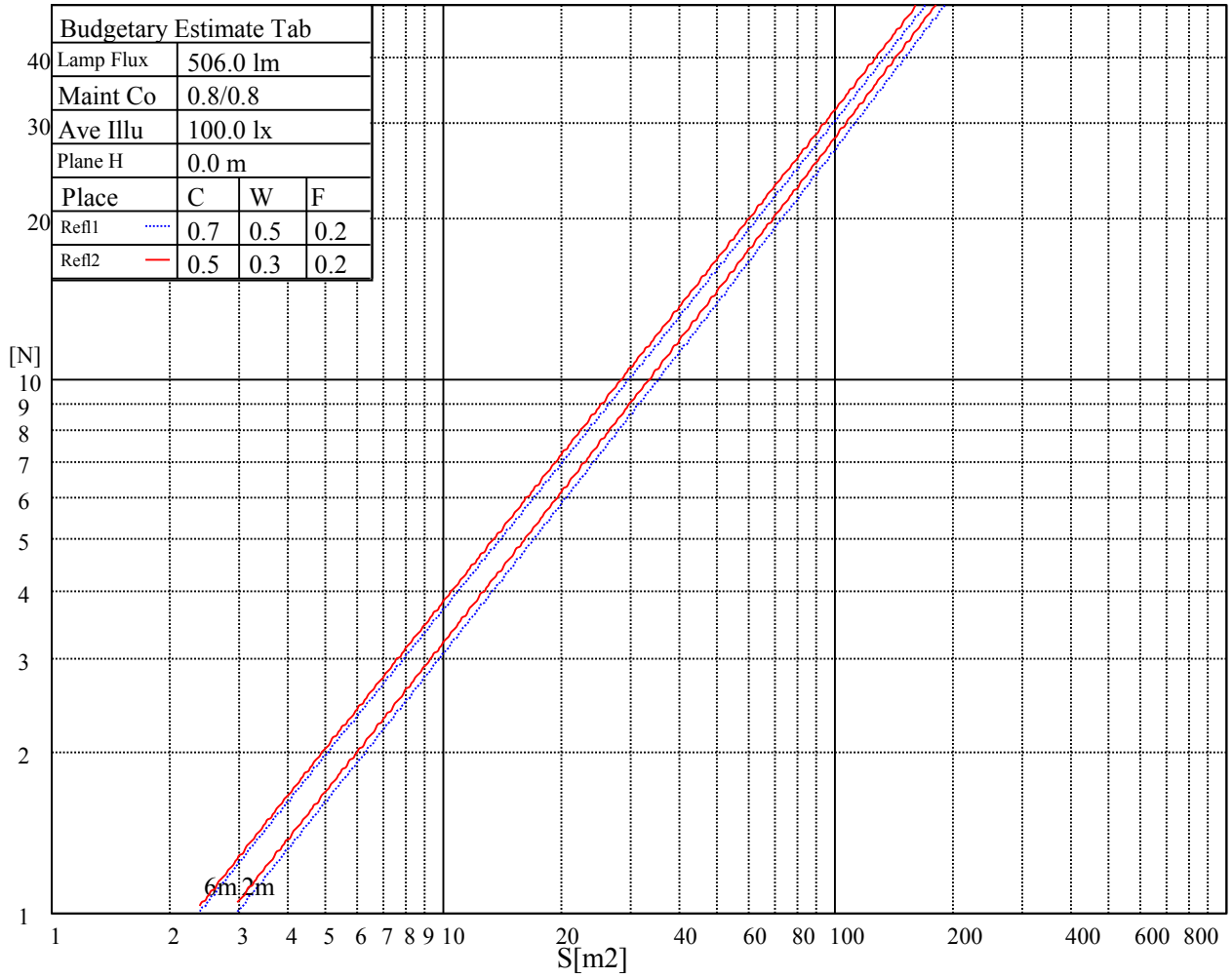


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table



Equipment: GMS1980
Temperature(°C): 25.0

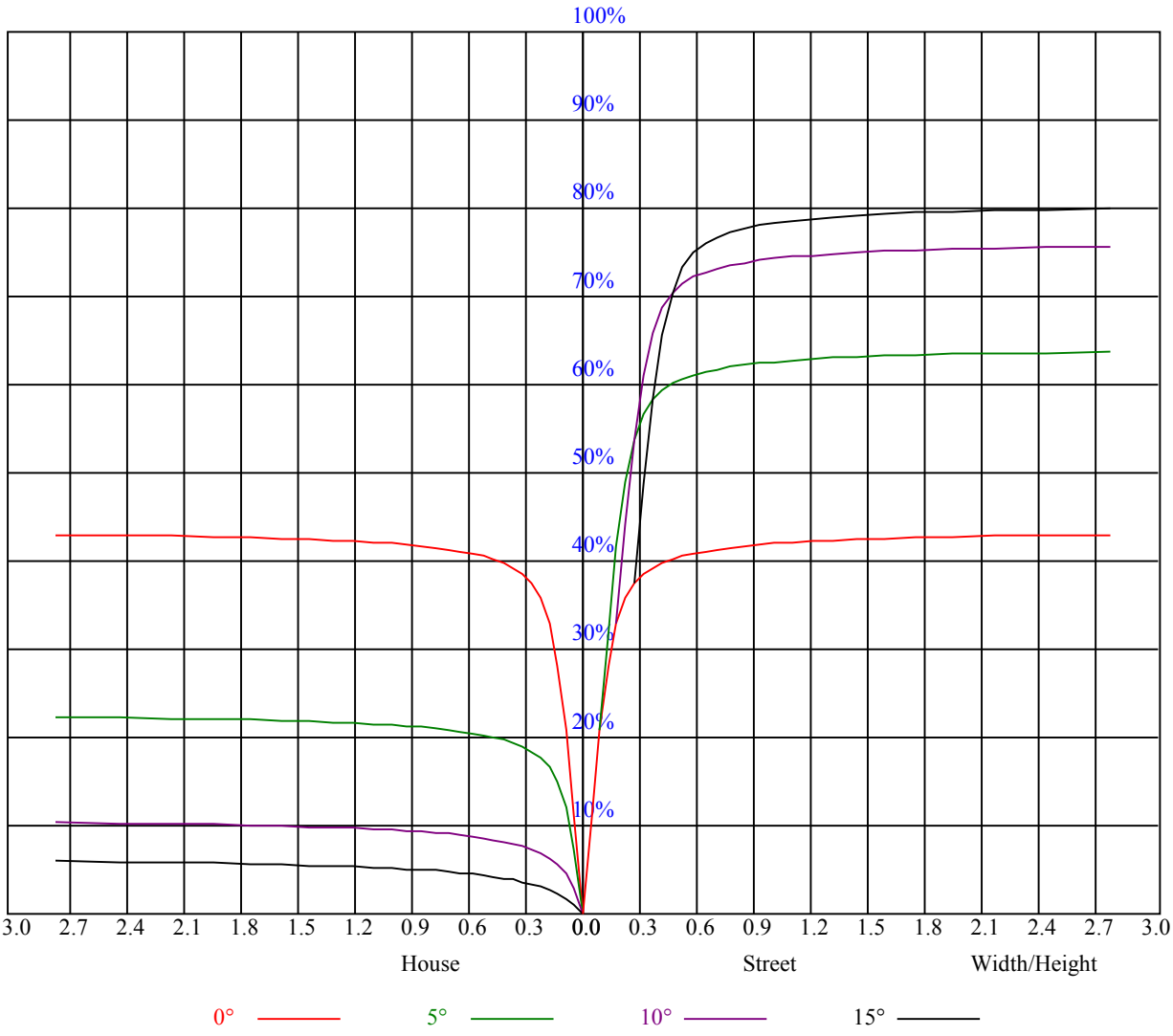
Date: 2020/7/8
Humidity(%): 65.0%

Operator: NT07
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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.98	0.97	0.95	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.94	0.91	0.89	0.92	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.83	0.81
3	0.90	0.87	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.83	0.82	0.80	0.79
4	0.87	0.84	0.82	0.86	0.83	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
5	0.85	0.81	0.79	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.77	0.76
6	0.83	0.79	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.80	0.77	0.76	0.79	0.77	0.75	0.74
7	0.81	0.77	0.75	0.80	0.77	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.78	0.75	0.74	0.73
8	0.79	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.75	0.73	0.76	0.74	0.73	0.72
9	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.76	0.73	0.72	0.75	0.73	0.72	0.71
10	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.75	0.72	0.71	0.74	0.72	0.70	0.70

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	4782.38	4725.00	4568.06	4269.38	3916.13	3463.88	3000.38	2576.25	2175.19
45.0	4821.19	4755.38	4532.06	4234.50	3862.69	3405.38	2932.31	2504.81	2050.88
90.0	4780.69	4662.00	4444.31	4039.31	3635.44	3225.94	2698.31	2280.94	1886.06
135.0	4781.25	4754.25	4592.81	4344.19	3960.56	3513.38	3109.50	2622.38	2207.25
180.0	4782.38	4707.00	4545.00	4242.94	3841.31	3450.38	3028.50	2487.94	2079.00
225.0	4821.19	4784.63	4598.44	4350.94	4009.50	3550.50	3084.75	2669.06	2207.81
270.0	4780.69	4791.94	4680.56	4483.69	4148.44	3763.69	3306.38	2841.75	2435.63
315.0	4781.25	4689.00	4521.94	4178.25	3810.38	3412.13	3002.63	2478.94	2081.81
360.0	4782.38	4725.00	4568.06	4269.38	3916.13	3463.88	3000.38	2576.25	2175.19

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1756.13	1362.38	1055.81	779.06	569.81	429.19	315.56	285.75	182.93
45.0	1681.31	1290.38	957.94	727.88	529.88	386.44	295.31	286.31	175.61
90.0	1442.25	1096.71	873.62	671.23	478.24	366.98	277.09	220.11	173.64
135.0	1784.25	1394.44	1087.31	861.19	590.06	447.75	354.38	284.06	197.27
180.0	1697.63	1107.79	971.49	740.93	540.51	394.48	303.02	228.32	180.73
225.0	1829.81	1299.38	1071.34	819.79	601.76	441.84	338.68	262.07	194.06
270.0	1997.44	1598.06	1275.19	997.31	721.13	554.06	425.81	320.63	284.06
315.0	1716.75	1112.79	1009.24	776.64	572.57	423.79	327.94	248.85	198.68
360.0	1756.13	1362.38	1055.81	779.06	569.81	429.19	315.56	285.75	182.93

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	147.88	119.70	98.89	85.22	73.07	63.56	56.81	50.46	45.51
45.0	139.33	115.65	96.19	81.00	70.31	63.06	54.56	48.99	45.17
90.0	140.01	117.56	100.35	85.33	73.74	65.31	57.60	51.69	46.69
135.0	161.21	131.18	109.58	94.44	80.10	70.14	63.00	55.80	50.63
180.0	142.82	116.66	99.06	83.70	71.78	63.62	56.81	49.84	45.00
225.0	157.33	129.32	103.73	88.31	76.56	65.19	57.94	52.03	45.90
270.0	195.75	156.83	128.14	108.73	91.80	79.99	69.58	60.98	54.90
315.0	158.63	129.32	109.91	92.76	79.48	69.92	62.44	54.90	49.95
360.0	147.88	119.70	98.89	85.22	73.07	63.56	56.81	50.46	45.51

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	40.95	36.96	33.86	31.39	27.90	25.71	24.08	21.83	20.36
45.0	40.44	36.34	33.53	30.04	27.34	25.37	23.06	21.54	20.25
90.0	42.36	37.52	34.14	31.16	28.18	25.65	23.74	21.83	20.19
135.0	45.96	41.23	37.63	34.26	30.60	27.96	25.65	23.23	21.54
180.0	40.78	36.39	33.19	30.21	27.11	24.92	23.01	21.04	19.91
225.0	42.24	38.03	34.09	31.44	28.74	25.65	23.96	22.28	20.48
270.0	49.67	43.88	39.99	36.39	32.57	29.93	27.56	25.48	23.23
315.0	45.56	40.61	37.18	34.09	31.05	28.18	25.93	23.68	21.99
360.0	40.95	36.96	33.86	31.39	27.90	25.71	24.08	21.83	20.36

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	19.35	18.06	16.93	16.20	15.24	14.51	13.78	12.94	12.32
45.0	18.90	17.89	16.99	16.03	15.24	14.51	13.61	12.94	12.26
90.0	18.90	17.61	16.71	15.69	14.79	13.95	13.22	12.26	11.59
135.0	20.14	18.73	17.44	16.48	15.41	14.57	13.67	12.83	12.04
180.0	18.56	17.33	16.65	15.69	14.74	14.12	13.50	12.60	12.04
225.0	19.41	18.34	17.38	16.43	15.64	14.85	14.06	13.39	12.60
270.0	21.60	20.08	18.79	17.49	16.54	15.58	14.63	13.78	12.94
315.0	20.25	18.90	17.72	16.54	15.53	14.68	13.89	12.88	12.15
360.0	19.35	18.06	16.93	16.20	15.24	14.51	13.78	12.94	12.32

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	11.70	10.97	10.35	9.79	9.17	8.72	8.33	7.99	7.65
45.0	11.53	10.86	10.29	9.73	9.23	8.78	8.38	8.10	7.71
90.0	10.91	10.24	9.68	9.06	8.55	8.16	7.82	7.48	7.20
135.0	11.31	10.58	9.96	9.39	8.78	8.38	8.04	7.65	7.37
180.0	11.42	10.74	10.13	9.56	9.06	8.61	8.27	7.93	7.59
225.0	11.93	11.25	10.52	9.90	9.45	8.89	8.49	8.16	7.82
270.0	12.26	11.42	10.69	10.07	9.45	8.78	8.38	8.04	7.65
315.0	11.48	10.69	9.96	9.39	8.78	8.33	7.93	7.59	7.31
360.0	11.70	10.97	10.35	9.79	9.17	8.72	8.33	7.99	7.65

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.37	7.09	6.81	6.58	6.30	6.13	5.85	5.63	5.46
45.0	7.43	7.14	6.86	6.58	6.36	6.13	5.96	5.74	5.57
90.0	6.92	6.69	6.47	6.24	6.02	5.85	5.68	5.46	5.29
135.0	7.14	6.86	6.64	6.41	6.19	6.02	5.79	5.63	5.46
180.0	7.31	7.03	6.81	6.53	6.30	6.08	5.91	5.63	5.46
225.0	7.54	7.26	6.92	6.64	6.47	6.19	5.96	5.79	5.57
270.0	7.37	7.09	6.81	6.58	6.36	6.13	5.91	5.68	5.51
315.0	7.03	6.69	6.47	6.24	6.02	5.79	5.63	5.46	5.29
360.0	7.37	7.09	6.81	6.58	6.30	6.13	5.85	5.63	5.46

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.29	5.06	4.89	4.73	4.56	4.39	4.28	4.11	3.99
45.0	5.34	5.12	4.95	4.78	4.61	4.50	4.33	4.22	4.05
90.0	5.12	4.95	4.78	4.67	4.50	4.39	4.28	4.16	3.99
135.0	5.29	5.12	4.95	4.84	4.67	4.56	4.50	4.78	5.96
180.0	5.29	5.12	4.95	4.78	4.61	4.44	4.33	4.22	4.05
225.0	5.40	5.23	5.01	4.84	4.67	4.50	4.33	4.22	4.11
270.0	5.34	5.12	5.01	4.84	4.73	4.56	4.44	4.28	4.16
315.0	5.12	4.95	4.84	4.67	4.50	4.39	4.28	4.33	4.89
360.0	5.29	5.06	4.89	4.73	4.56	4.39	4.28	4.11	3.99

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.88	3.71	3.60	3.43	3.32	3.26	3.15	3.04	2.98
45.0	3.94	3.83	3.66	3.54	3.43	3.32	3.26	3.15	3.04
90.0	3.88	3.88	3.88	3.99	3.99	4.05	4.05	3.99	3.71
135.0	7.54	9.84	11.64	12.88	13.84	13.67	13.05	12.21	11.03
180.0	3.94	3.77	3.60	3.49	3.38	3.26	3.21	3.09	2.98
225.0	3.94	3.77	3.71	3.54	3.43	3.26	3.15	3.04	2.98
270.0	4.05	3.94	3.83	3.83	3.88	3.94	3.99	3.99	3.99
315.0	6.36	8.72	10.24	11.19	12.04	12.04	11.59	10.86	9.62
360.0	3.88	3.71	3.60	3.43	3.32	3.26	3.15	3.04	2.98

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.81	2.70	2.59	2.48	2.31	2.25	2.14	2.03	1.97
45.0	2.93	2.81	2.70	2.59	2.48	2.36	2.25	2.14	2.14
90.0	3.32	2.93	2.81	2.70	2.53	2.36	2.25	2.14	2.03
135.0	9.39	7.31	5.51	3.66	2.87	2.64	2.42	2.25	2.08
180.0	2.87	2.76	2.59	2.48	2.36	2.19	2.14	2.03	1.97
225.0	2.87	2.76	2.64	2.53	2.42	2.36	2.25	2.08	2.03
270.0	3.83	3.32	2.87	2.76	2.64	2.53	2.36	2.19	2.08
315.0	8.16	6.08	4.39	3.15	2.87	2.64	2.48	2.14	1.97
360.0	2.81	2.70	2.59	2.48	2.31	2.25	2.14	2.03	1.97

Intensity data(cd)

C/γ(°)	90.0
0.0	1.91
45.0	2.03
90.0	1.97
135.0	1.97
180.0	1.91
225.0	2.03
270.0	1.97
315.0	1.91
360.0	1.91