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

Nata

LumCAT: NA01D0201530CA
Luminaire:
Report No: 200407-B001
Test No: 200407-C001
LampCAT: LUMILEDS 3030 2D
Lamp flux(lm): 92.5
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 6.5000
Current(A): 0.1530
Power (W): 0.9950
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 81.98
Efficiency(%): 88.59%
Lumens(lm)/Power(W): 82.39
Central intensity(cd): 149.963
Maximum intensity(cd): 291.825
Angle of maximum intensity: C=180.0 γ=9.0
Beam Angle(50%Imax): [C0/180]Total=18.3
[C90/270]Total=31.6
Field angle(10%Imax): [C0/180]Total=41.6
[C90/270]Total=60.2
Maximum s/h(1/2): C0_180=0.78 C90_270=0.42
Maximum s/h(1/4): C0_180=0.68 C90_270=0.46
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.59%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 93.693%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2020/4/7
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	145.209	0.000	0	.000%	.000%
1.0	144.563	0.139	0.139	.150%	.169%
2.0	144.225	0.414	0.553	.448%	.675%
3.0	145.955	0.694	1.247	.750%	1.521%
4.0	145.793	0.977	2.224	1.055%	2.713%
5.0	146.180	1.256	3.48	1.357%	4.245%
6.0	147.171	1.542	5.021	1.666%	6.125%
7.0	146.271	1.821	6.843	1.968%	8.347%
8.0	145.350	2.087	8.93	2.255%	10.893%
9.0	143.522	2.341	11.271	2.530%	13.749%
10.0	140.259	2.568	13.839	2.775%	16.881%
11.0	136.427	2.765	16.604	2.988%	20.254%
12.0	131.379	2.928	19.531	3.164%	23.825%
13.0	124.791	3.040	22.571	3.285%	27.533%
14.0	118.076	3.109	25.68	3.359%	31.325%
15.0	110.412	3.137	28.817	3.390%	35.151%
16.0	102.909	3.126	31.943	3.378%	38.964%
17.0	94.338	3.072	35.014	3.319%	42.711%
18.0	86.140	2.976	37.99	3.216%	46.341%
19.0	78.638	2.867	40.857	3.098%	49.838%
20.0	71.163	2.742	43.599	2.963%	53.182%
21.0	63.345	2.583	46.181	2.791%	56.333%
22.0	57.038	2.419	48.6	2.614%	59.284%
23.0	51.328	2.274	50.874	2.457%	62.057%
24.0	45.077	2.108	52.982	2.278%	64.629%
25.0	40.402	1.944	54.926	2.100%	66.999%
26.0	36.204	1.808	56.734	1.954%	69.205%
27.0	31.985	1.668	58.402	1.803%	71.240%
28.0	28.153	1.523	59.925	1.645%	73.097%
29.0	24.996	1.391	61.315	1.503%	74.794%
30.0	22.092	1.271	62.587	1.374%	76.344%
31.0	19.596	1.160	63.747	1.254%	77.760%
32.0	17.381	1.059	64.806	1.145%	79.052%
33.0	15.497	0.969	65.775	1.047%	80.233%
34.0	13.915	0.890	66.665	.962%	81.319%
35.0	12.333	0.815	67.48	.881%	82.313%
36.0	11.039	0.744	68.224	.804%	83.221%
37.0	9.991	0.686	68.91	.741%	84.058%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.063	0.636	69.546	.687%	84.834%
39.0	8.107	0.586	70.132	.633%	85.549%
40.0	7.390	0.540	70.673	.584%	86.208%
41.0	6.764	0.504	71.177	.545%	86.823%
42.0	6.159	0.470	71.646	.507%	87.395%
43.0	5.625	0.437	72.083	.472%	87.928%
44.0	5.182	0.408	72.491	.441%	88.425%
45.0	4.788	0.383	72.874	.414%	88.893%
46.0	4.395	0.359	73.233	.388%	89.331%
47.0	4.078	0.337	73.57	.364%	89.742%
48.0	3.797	0.318	73.888	.344%	90.130%
49.0	3.558	0.302	74.19	.326%	90.499%
50.0	3.312	0.286	74.477	.310%	90.848%
51.0	3.122	0.272	74.749	.294%	91.180%
52.0	2.960	0.261	75.01	.282%	91.498%
53.0	2.777	0.250	75.259	.270%	91.803%
54.0	2.651	0.239	75.499	.259%	92.095%
55.0	2.545	0.232	75.731	.251%	92.378%
56.0	2.440	0.225	75.956	.243%	92.652%
57.0	2.370	0.220	76.176	.238%	92.921%
58.0	2.292	0.216	76.391	.233%	93.184%
59.0	2.215	0.211	76.602	.228%	93.441%
60.0	2.159	0.207	76.809	.223%	93.693%
61.0	2.102	0.203	77.012	.220%	93.941%
62.0	2.032	0.199	77.211	.215%	94.184%
63.0	1.983	0.195	77.406	.211%	94.422%
64.0	1.934	0.192	77.599	.208%	94.656%
65.0	1.877	0.189	77.787	.204%	94.886%
66.0	1.842	0.186	77.973	.201%	95.113%
67.0	1.779	0.182	78.155	.197%	95.335%
68.0	1.737	0.178	78.333	.192%	95.552%
69.0	1.730	0.177	78.51	.191%	95.768%
70.0	1.793	0.181	78.691	.196%	95.989%
71.0	1.786	0.185	78.876	.200%	96.214%
72.0	1.758	0.184	79.06	.199%	96.439%
73.0	1.737	0.183	79.243	.197%	96.662%
74.0	1.730	0.182	79.425	.197%	96.884%
75.0	1.702	0.181	79.606	.196%	97.105%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.723	0.182	79.788	.196%	97.327%
77.0	1.716	0.183	79.971	.198%	97.551%
78.0	1.709	0.183	80.155	.198%	97.774%
79.0	1.702	0.183	80.338	.198%	97.998%
80.0	1.688	0.183	80.521	.197%	98.221%
81.0	1.680	0.182	80.703	.197%	98.443%
82.0	1.673	0.182	80.885	.197%	98.665%
83.0	1.659	0.181	81.066	.196%	98.886%
84.0	1.631	0.179	81.245	.194%	99.104%
85.0	1.582	0.175	81.42	.190%	99.318%
86.0	1.427	0.164	81.585	.178%	99.519%
87.0	1.083	0.137	81.722	.148%	99.686%
88.0	0.809	0.104	81.826	.112%	99.813%
89.0	0.710	0.083	81.909	.090%	99.914%
90.0	0.570	0.070	81.979	.076%	100.000%

Zonal flux distribution table

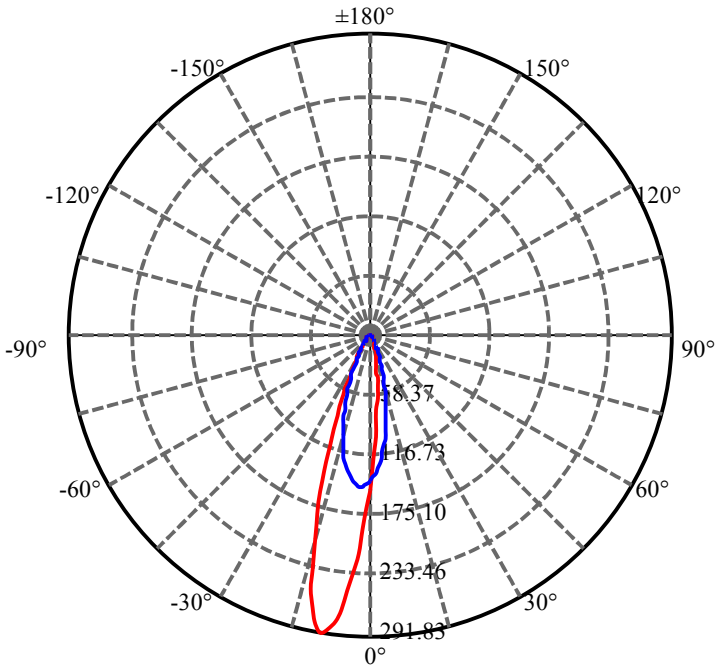
ZONAL LUMEN SUMMARY

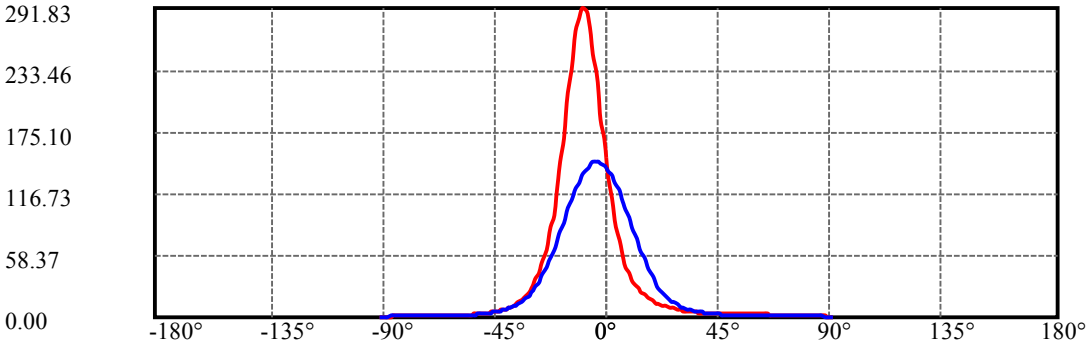
Zone	Lumens	%Lamp	%Fixt
0-30	62.59	67.63%	76.34%
0-40	70.67	76.37%	86.21%
0-60	76.81	83.00%	93.69%
0-90	81.91	88.51%	99.91%
0-120	81.91	88.51%	99.91%
0-180	81.98	88.59%	100.00%
60-90	5.31	5.73%	6.47%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-32.80	65.58	70.87%	80.00%

ZONAL LUMEN SUMMARY

0-10	13.84
10-20	29.76
20-30	18.99
30-40	8.09
40-50	3.80
50-60	2.33
60-70	1.88
70-80	1.83
80-90	1.39
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/C180:

C90/C270:

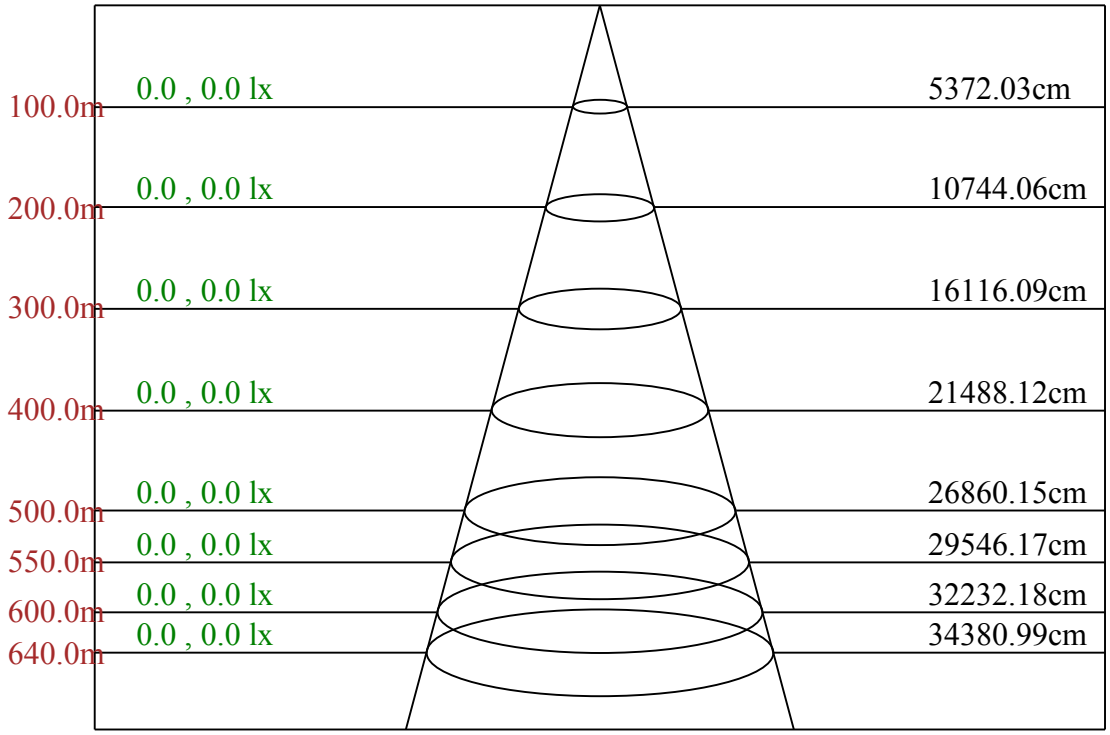
Field angle(10%Imax):C0/180Left:20.5 Right:21.2

:C90/270Left:29.9 Right:30.3

Beam Angle(50%Imax):C0/180Left:9.1 Right:9.2

:C90/270Left:15.4 Right:16.2

Lux distance Curve



Max , Ave

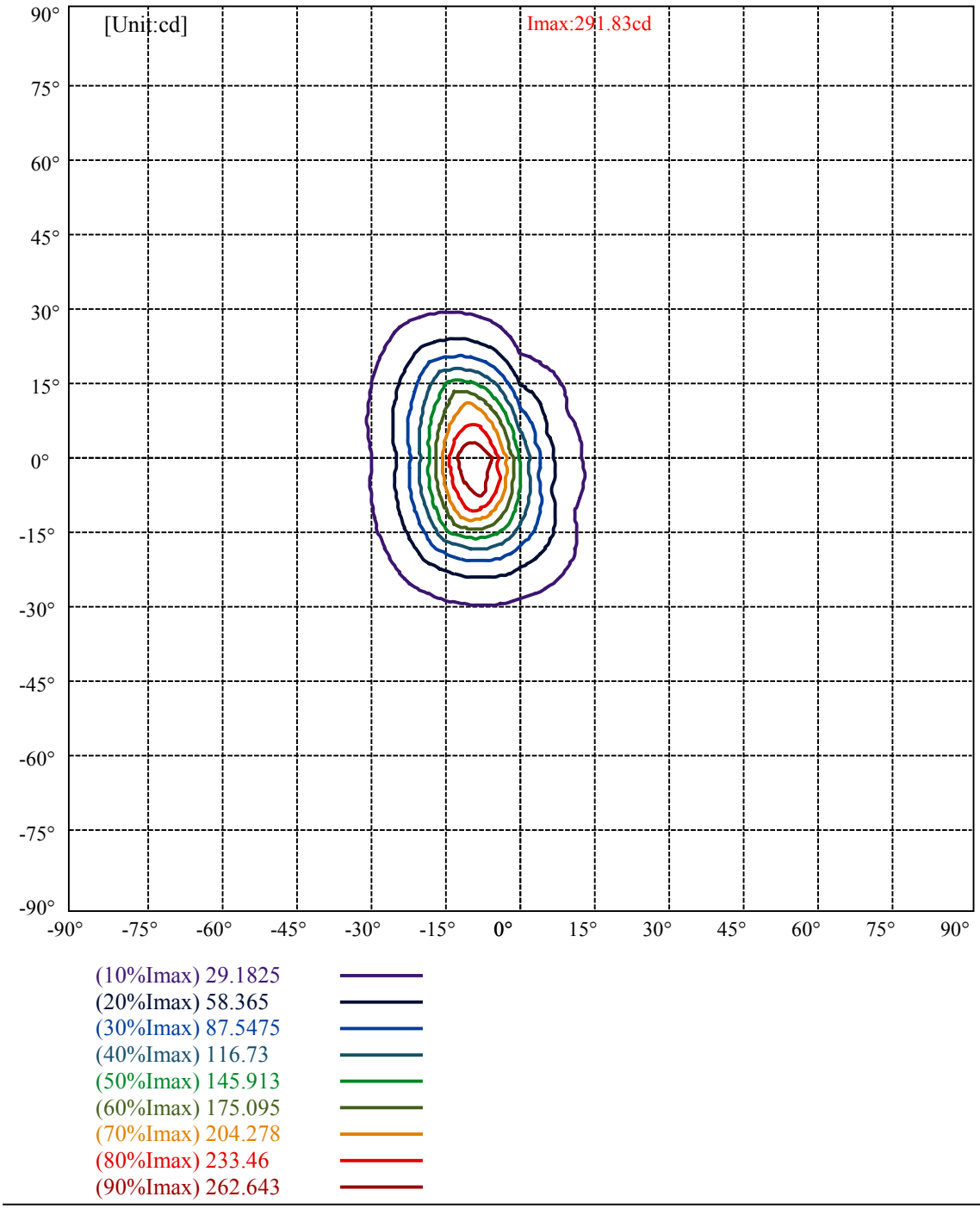
Beam angle of C180 plane 29.31

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO-Intensity(V-H)

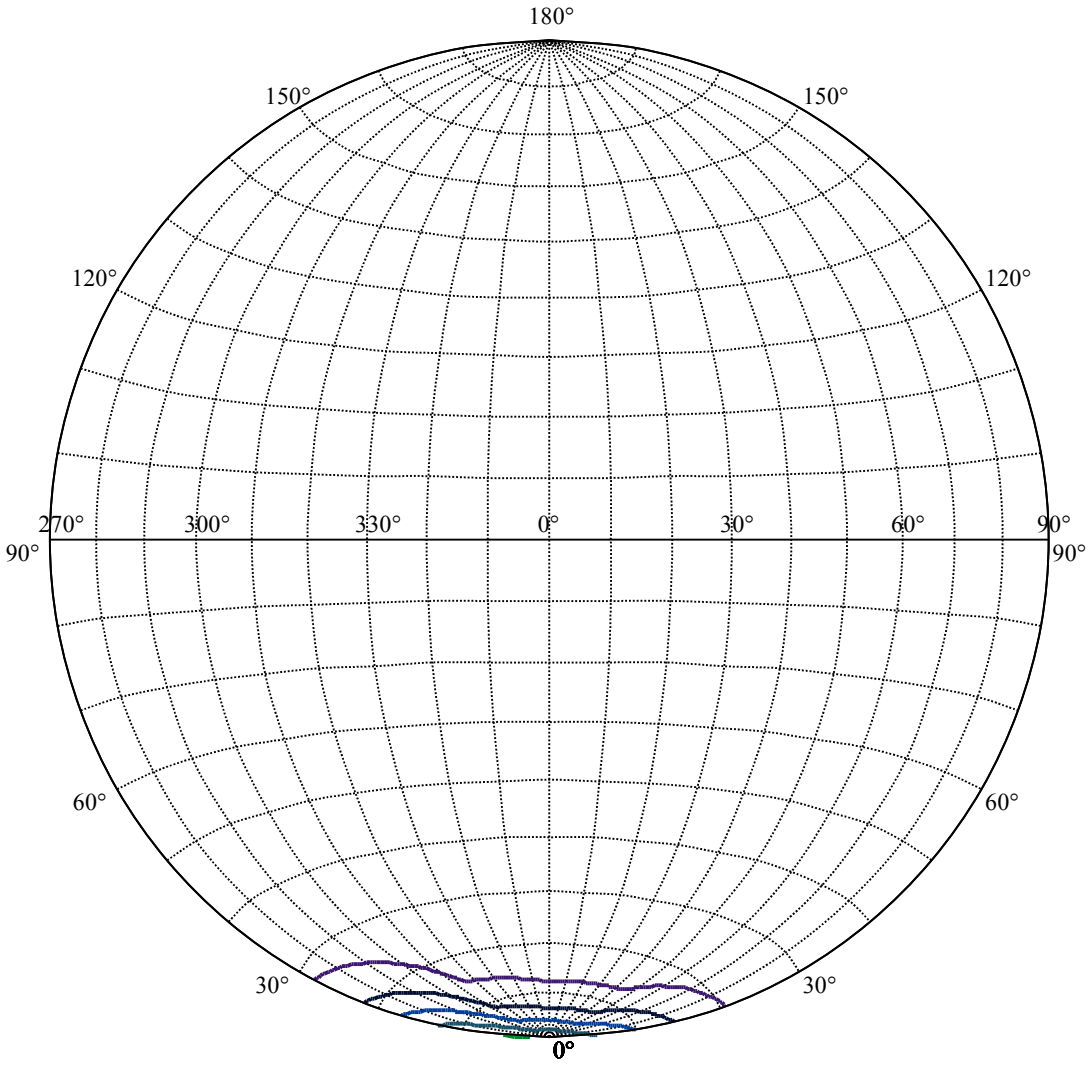


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



[Unit:cd]

Imax:291.83

(10%Imax) 29.1825

(20%Imax) 58.365

(30%Imax) 87.5475

(40%Imax) 116.73

(50%Imax) 145.913

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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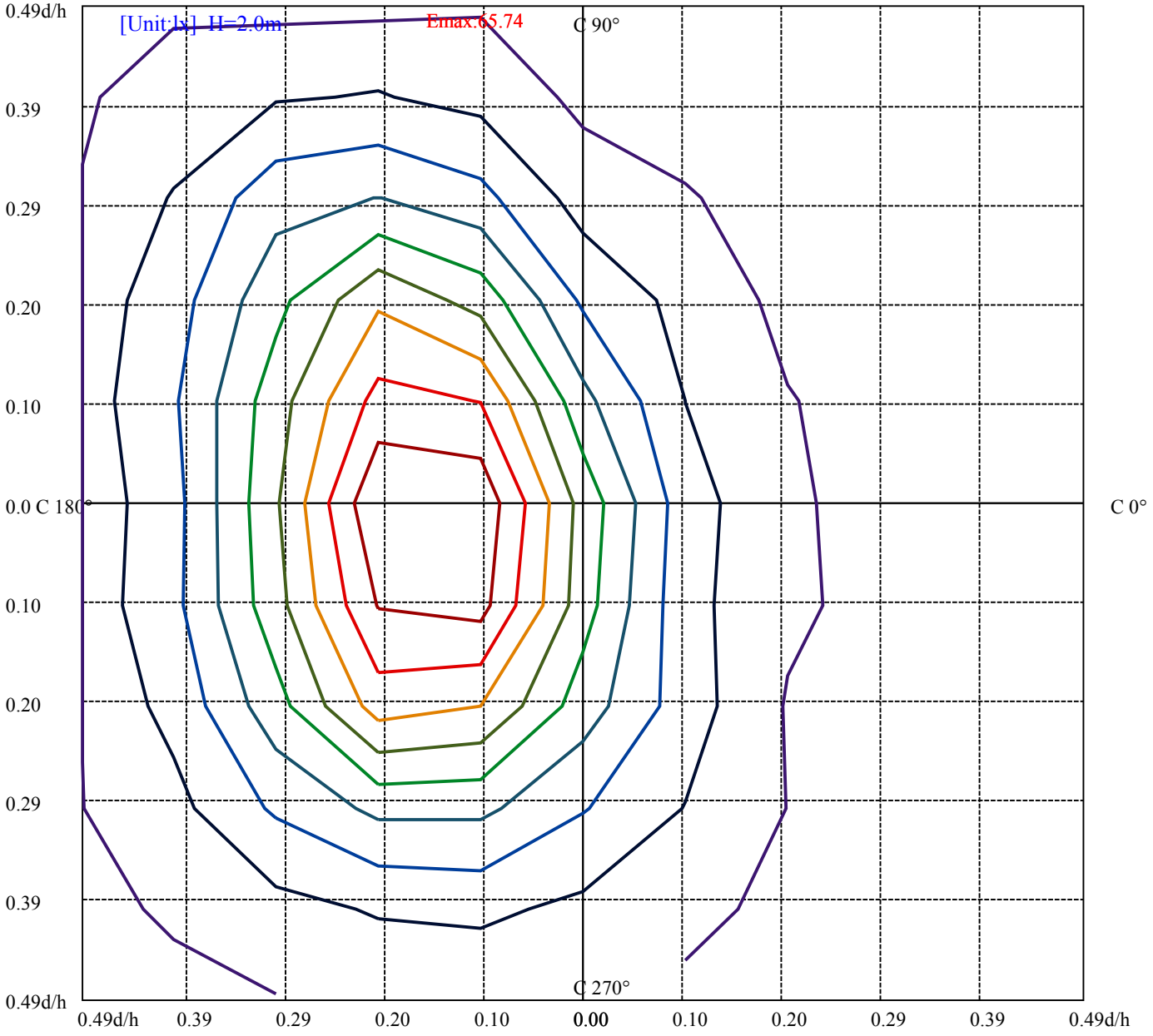
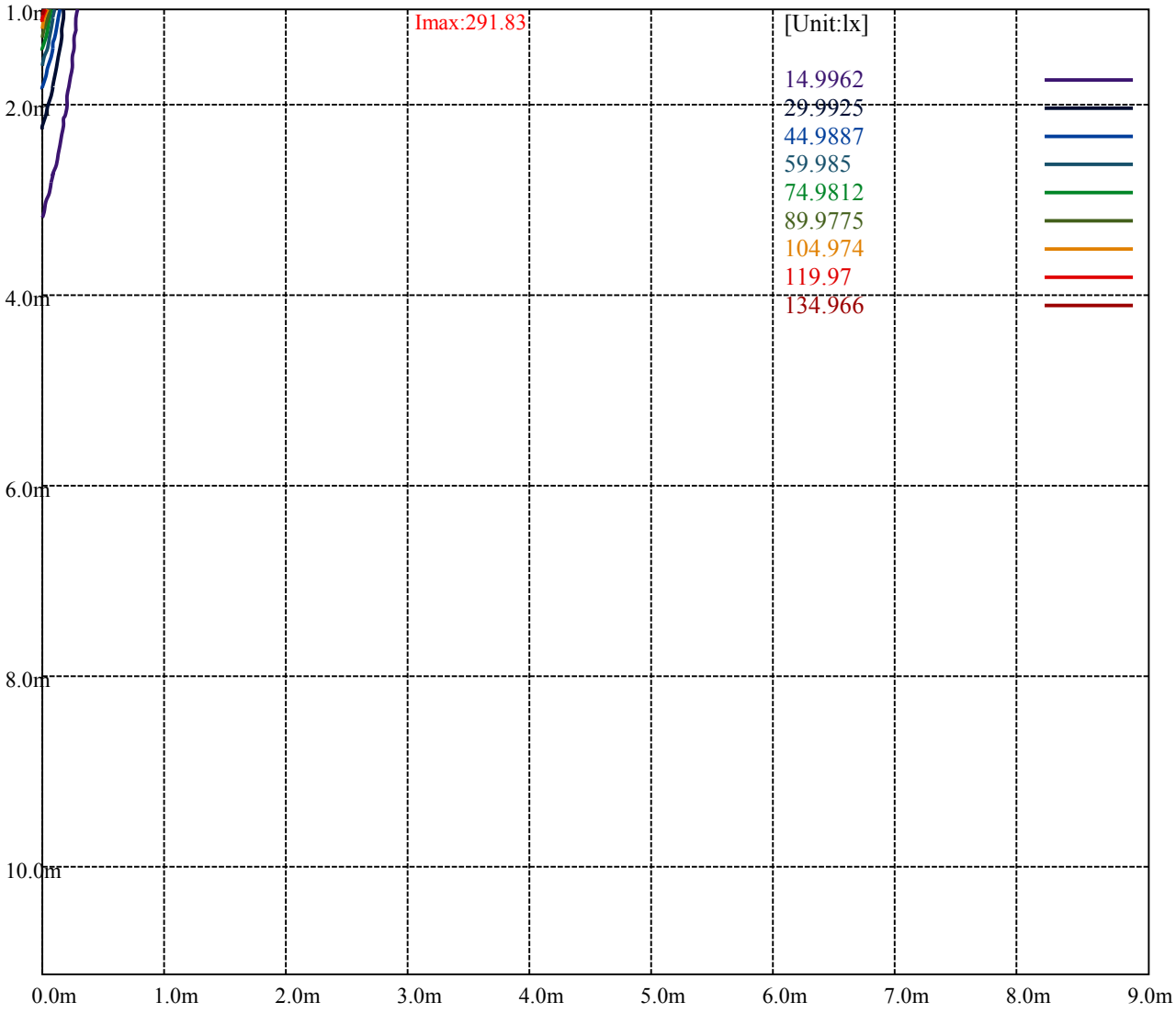
ISO illuminance diagram



Equipment: GMS1980 Date: 2020/4/7 Operator: NT07

Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

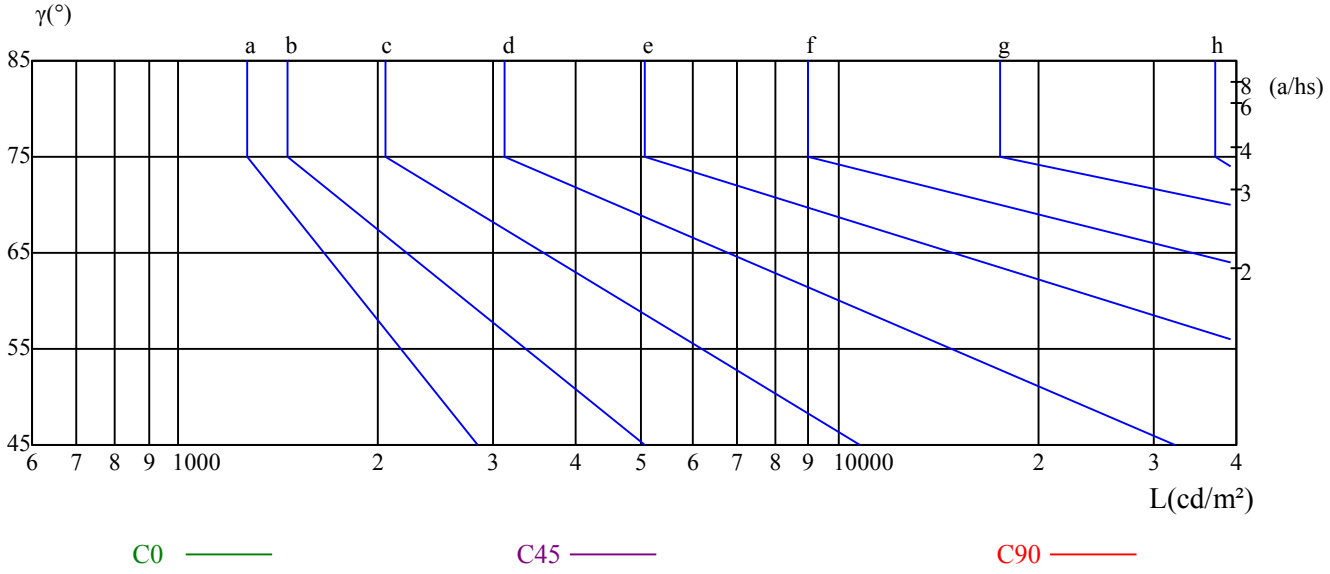
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

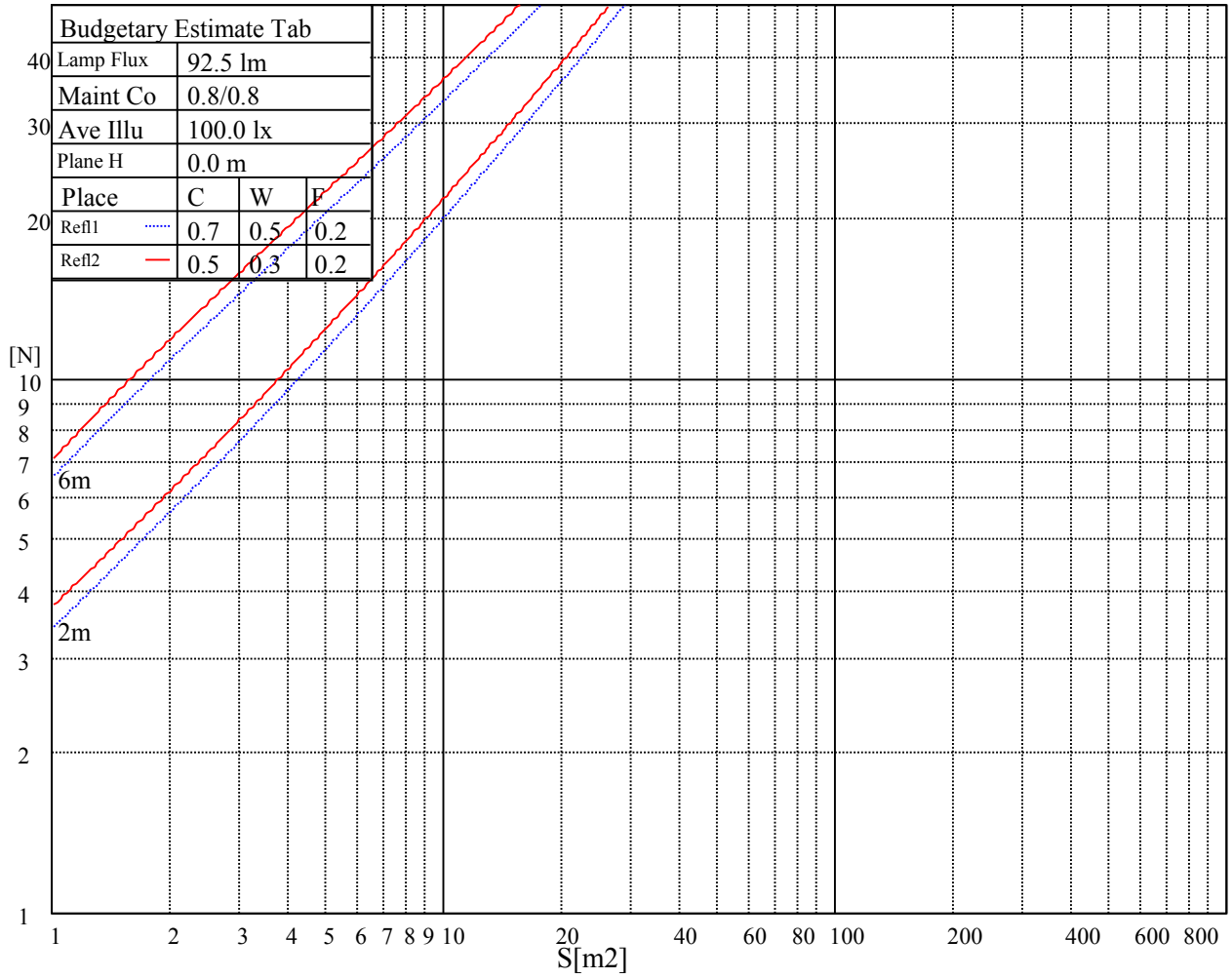
Glare Table

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

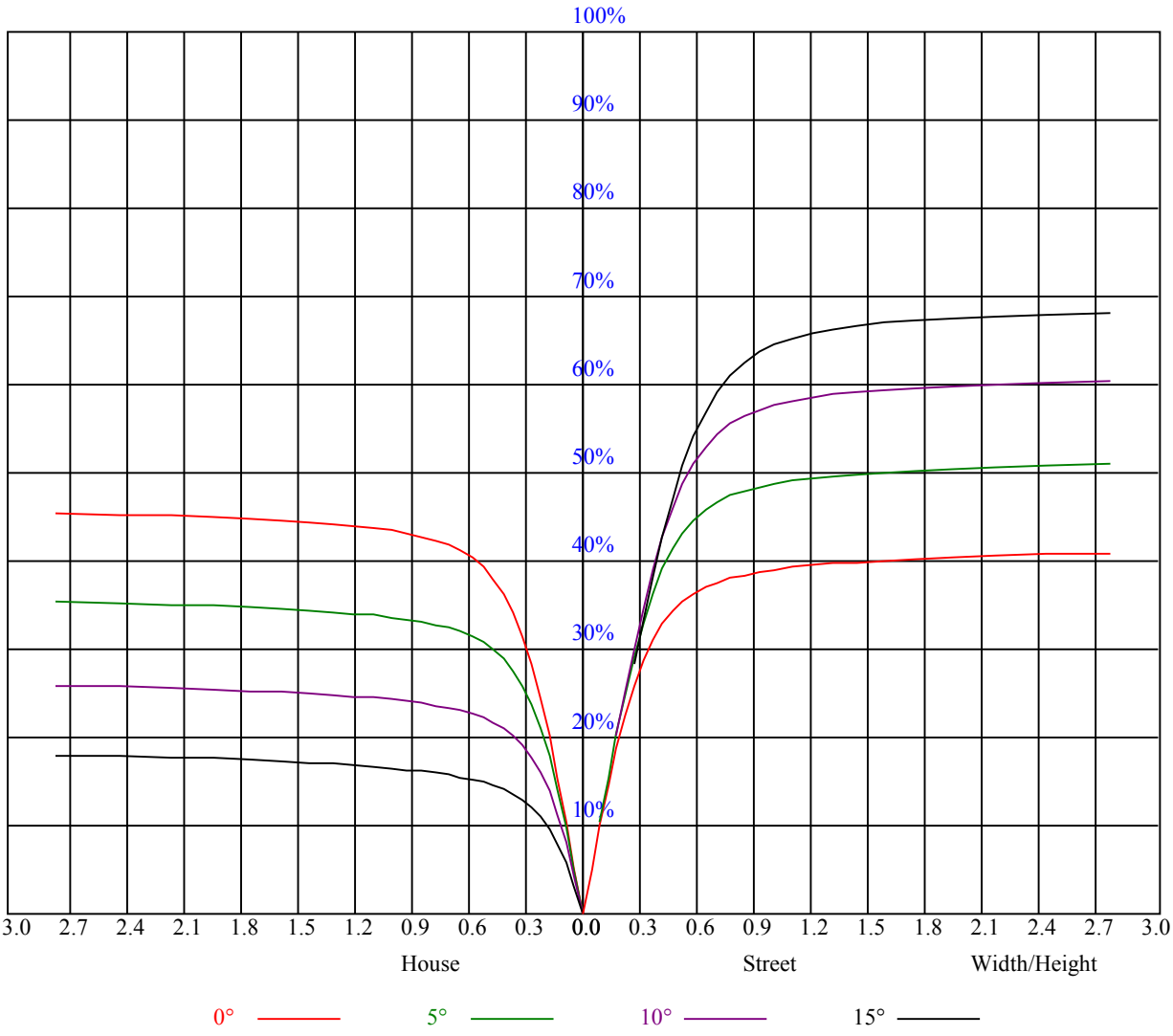


Equipment: GMS1980	Date: 2020/4/7	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.89
1	0.97	0.95	0.92	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.85	0.85	0.84	0.83	0.81
2	0.90	0.86	0.83	0.89	0.85	0.82	0.86	0.83	0.80	0.83	0.81	0.79	0.81	0.79	0.77	0.75
3	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.77	0.74	0.79	0.76	0.73	0.77	0.74	0.72	0.71
4	0.79	0.74	0.71	0.78	0.74	0.70	0.76	0.72	0.69	0.75	0.71	0.68	0.73	0.70	0.68	0.66
5	0.75	0.70	0.66	0.74	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.66	0.64	0.63
6	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.61	0.68	0.64	0.61	0.66	0.63	0.61	0.59
7	0.67	0.62	0.59	0.67	0.62	0.59	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.56
8	0.64	0.59	0.56	0.64	0.59	0.56	0.63	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.54
9	0.61	0.56	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.59	0.55	0.52	0.51
10	0.59	0.54	0.51	0.58	0.54	0.51	0.58	0.53	0.50	0.57	0.53	0.50	0.56	0.53	0.50	0.49

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/4/7	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	149.96	132.86	113.06	98.27	85.28	72.90	62.61	54.17	47.87
45.0	148.33	130.84	115.65	104.96	90.34	80.10	71.10	61.03	54.28
90.0	141.47	137.64	133.82	129.15	124.26	119.36	113.18	106.88	101.19
135.0	141.08	151.31	163.91	173.93	183.15	193.28	202.78	209.70	215.78
180.0	149.96	168.08	187.09	211.50	230.51	248.18	267.30	279.56	287.83
225.0	148.33	160.99	175.61	195.36	207.62	221.40	237.49	245.87	253.63
270.0	141.47	144.00	145.69	146.70	146.98	146.36	144.62	142.20	139.28
315.0	141.08	130.78	118.97	107.78	98.21	87.86	78.30	70.76	62.94
360.0	149.96	132.86	113.06	98.27	85.28	72.90	62.61	54.17	47.87

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	41.96	36.84	33.02	29.81	26.33	23.91	21.77	19.86	17.78
45.0	48.38	41.85	37.46	33.69	29.48	26.49	23.96	21.38	19.24
90.0	94.73	87.08	80.94	74.98	67.44	61.43	55.97	50.23	44.83
135.0	219.66	221.79	222.47	221.51	218.93	213.81	207.34	199.97	189.84
180.0	291.83	289.74	282.94	270.00	252.68	234.17	211.78	191.48	169.20
225.0	259.71	262.52	262.29	258.69	251.44	242.61	230.29	217.46	200.93
270.0	135.23	131.63	127.29	121.67	115.71	109.80	102.88	96.36	89.55
315.0	56.70	50.63	45.00	40.67	36.34	32.40	29.31	26.55	23.34
360.0	41.96	36.84	33.02	29.81	26.33	23.91	21.77	19.86	17.78

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	16.26	14.91	13.50	12.49	11.70	10.91	10.24	9.68	9.17
45.0	17.66	15.64	14.18	12.94	11.64	10.63	9.73	8.89	8.21
90.0	40.39	35.55	31.67	27.79	24.41	21.66	19.13	16.99	15.24
135.0	179.94	169.48	156.54	144.68	132.75	121.61	108.56	98.10	88.48
180.0	147.66	130.11	114.41	96.92	84.83	74.25	62.83	55.13	48.26
225.0	183.54	168.02	152.33	133.48	119.36	106.31	91.80	81.39	72.34
270.0	82.41	76.05	69.19	62.61	57.09	52.03	46.24	41.91	37.69
315.0	21.26	19.35	17.49	15.86	14.51	13.22	12.09	11.14	10.24
360.0	16.26	14.91	13.50	12.49	11.70	10.91	10.24	9.68	9.17

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	8.66	8.10	7.37	6.69	6.08	5.63	5.34	5.18	4.89
45.0	7.65	6.98	6.58	6.13	5.74	5.40	5.12	4.78	4.50
90.0	13.61	11.93	10.74	9.68	8.61	7.82	7.14	6.36	5.85
135.0	78.58	69.53	61.20	54.39	47.76	42.02	37.46	33.36	28.74
180.0	41.51	35.72	31.22	26.78	23.51	20.36	17.72	15.81	14.06
225.0	63.11	55.01	48.71	42.53	37.74	32.96	28.74	25.43	22.22
270.0	33.24	29.25	26.10	23.01	20.31	18.28	16.20	14.51	12.88
315.0	9.51	8.72	8.04	7.54	7.03	6.58	6.24	5.91	5.51
360.0	8.66	8.10	7.37	6.69	6.08	5.63	5.34	5.18	4.89

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	4.67	4.50	4.39	4.28	4.16	4.05	3.99	3.94	3.88
45.0	4.28	4.05	3.88	3.71	3.60	3.49	3.38	3.32	3.26
90.0	5.40	4.89	4.56	4.22	3.83	3.60	3.38	3.09	2.98
135.0	25.59	22.84	20.31	17.55	15.69	14.01	12.15	10.80	9.45
180.0	12.32	11.08	9.96	8.83	8.04	7.31	6.64	5.96	5.51
225.0	19.35	17.21	15.30	13.39	11.87	10.63	9.56	8.38	7.54
270.0	11.48	10.35	9.39	8.38	7.59	6.86	6.19	5.68	5.18
315.0	5.23	5.01	4.73	4.50	4.33	4.16	3.99	3.83	3.66
360.0	4.67	4.50	4.39	4.28	4.16	4.05	3.99	3.94	3.88

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	3.83	3.77	3.71	3.60	3.60	3.49	3.43	3.43	3.26
45.0	3.21	3.09	2.98	2.93	2.93	2.87	2.81	2.76	2.70
90.0	2.81	2.64	2.53	2.48	2.31	2.25	2.19	2.14	2.08
135.0	8.38	7.37	6.53	5.68	5.12	4.44	3.94	3.49	2.98
180.0	5.01	4.56	4.22	3.88	3.60	3.32	3.09	2.93	2.76
225.0	6.81	6.02	5.46	4.95	4.50	4.05	3.71	3.38	3.09
270.0	4.73	4.28	3.94	3.66	3.32	3.09	2.87	2.70	2.53
315.0	3.54	3.43	3.26	3.21	3.09	2.98	2.93	2.87	2.81
360.0	3.83	3.77	3.71	3.60	3.60	3.49	3.43	3.43	3.26

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.26	3.26	3.21	3.21	3.26	3.21	3.21	3.21	3.15
45.0	2.64	2.59	2.59	2.53	2.48	2.42	2.36	2.36	2.25
90.0	2.03	1.97	1.91	1.91	1.86	1.80	1.80	1.69	1.69
135.0	2.70	2.53	2.31	2.19	2.08	2.03	1.86	1.86	1.74
180.0	2.53	2.42	2.25	2.14	2.03	1.91	1.86	1.74	1.63
225.0	2.87	2.59	2.42	2.31	2.08	1.97	1.91	1.80	1.74
270.0	2.42	2.31	2.19	2.08	2.03	1.91	1.91	1.86	1.80
315.0	2.76	2.70	2.64	2.59	2.53	2.48	2.36	2.31	2.25
360.0	3.26	3.26	3.21	3.21	3.26	3.21	3.21	3.21	3.15

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.04	2.87	2.70	2.48	2.31	2.08	2.14	2.64	2.59
45.0	2.25	2.19	2.14	2.14	2.08	2.08	2.03	2.03	1.97
90.0	1.63	1.63	1.63	1.63	1.58	1.58	1.58	1.63	1.58
135.0	1.74	1.74	1.69	1.69	1.69	1.63	1.63	1.63	1.69
180.0	1.58	1.58	1.52	1.46	1.41	1.41	1.41	1.46	1.46
225.0	1.69	1.63	1.58	1.58	1.52	1.52	1.52	1.52	1.52
270.0	1.74	1.69	1.69	1.69	1.69	1.63	1.63	1.58	1.63
315.0	2.19	2.14	2.08	2.08	1.97	1.97	1.91	1.86	1.86
360.0	3.04	2.87	2.70	2.48	2.31	2.08	2.14	2.64	2.59

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	2.53	2.36	2.19	2.03	1.97	1.91	1.86	1.80	1.80
45.0	1.91	1.91	1.91	1.86	1.91	1.86	1.86	1.80	1.74
90.0	1.58	1.58	1.63	1.63	1.63	1.63	1.58	1.58	1.52
135.0	1.74	1.74	1.74	1.80	1.86	1.91	1.97	2.03	2.08
180.0	1.46	1.46	1.52	1.52	1.58	1.58	1.58	1.58	1.58
225.0	1.46	1.46	1.52	1.58	1.58	1.63	1.63	1.69	1.69
270.0	1.58	1.58	1.58	1.52	1.58	1.58	1.58	1.58	1.52
315.0	1.80	1.80	1.74	1.69	1.69	1.63	1.63	1.58	1.58
360.0	2.53	2.36	2.19	2.03	1.97	1.91	1.86	1.80	1.80

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.74	1.69	1.63	1.58	1.52	1.52	1.35	0.73	0.62
45.0	1.74	1.69	1.69	1.63	1.58	1.52	1.46	0.79	0.62
90.0	1.46	1.46	1.41	1.35	1.29	1.18	0.84	0.68	0.56
135.0	2.14	2.19	2.25	2.25	2.31	2.36	1.74	1.63	1.63
180.0	1.58	1.58	1.58	1.52	1.46	0.84	0.62	0.51	0.39
225.0	1.74	1.74	1.74	1.74	1.63	1.24	0.90	0.79	0.62
270.0	1.52	1.52	1.52	1.52	1.46	1.35	0.84	0.68	0.62
315.0	1.52	1.52	1.46	1.46	1.41	1.41	0.90	0.68	0.62
360.0	1.74	1.69	1.63	1.58	1.52	1.52	1.35	0.73	0.62

Intensity data(cd)

C/γ(°)	90.0
0.0	0.51
45.0	0.56
90.0	0.39
135.0	1.52
180.0	0.34
225.0	0.39
270.0	0.39
315.0	0.45
360.0	0.51