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

Nata

LumCAT: NA01D0202050CA
Luminaire:
Report No: 200407-B002
Test No: 200407-C002
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): 0.1550
Power (W): 1.0080
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 69.82
Efficiency(%): 75.45%
Lumens(lm)/Power(W): 69.27
Central intensity(cd): 69.188
Maximum intensity(cd): 137.025
Angle of maximum intensity: C=180.0 γ=10.0
Beam Angle(50%Imax): [C0/180]Total=20.1
[C90/270]Total=46.4
Field angle(10%Imax): [C0/180]Total=51.4
[C90/270]Total=125.5
Maximum s/h(1/2): C0_180=0.87 C90_270=0.60
Maximum s/h(1/4): C0_180=0.77 C90_270=0.66
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 75.45%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 85.506%

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	67.894	0.000	0	.000%	.000%
1.0	68.309	0.065	0.065	.070%	.093%
2.0	68.892	0.197	0.262	.213%	.375%
3.0	69.237	0.330	0.592	.357%	.848%
4.0	70.263	0.467	1.059	.505%	1.517%
5.0	71.234	0.609	1.668	.658%	2.389%
6.0	72.113	0.753	2.421	.814%	3.468%
7.0	73.104	0.901	3.323	.974%	4.759%
8.0	73.624	1.050	4.373	1.135%	6.263%
9.0	73.765	1.195	5.567	1.291%	7.973%
10.0	73.779	1.335	6.903	1.443%	9.886%
11.0	73.076	1.467	8.37	1.586%	11.987%
12.0	71.986	1.586	9.956	1.714%	14.258%
13.0	70.305	1.689	11.644	1.825%	16.677%
14.0	68.351	1.775	13.419	1.918%	19.218%
15.0	66.150	1.846	15.266	1.995%	21.863%
16.0	63.555	1.901	17.166	2.054%	24.585%
17.0	60.377	1.930	19.096	2.086%	27.349%
18.0	57.424	1.942	21.038	2.099%	30.130%
19.0	54.288	1.944	22.982	2.100%	32.914%
20.0	51.068	1.928	24.91	2.084%	35.676%
21.0	47.728	1.897	26.807	2.050%	38.392%
22.0	44.585	1.855	28.662	2.005%	41.049%
23.0	41.562	1.808	30.47	1.953%	43.638%
24.0	38.398	1.748	32.218	1.889%	46.142%
25.0	35.585	1.682	33.9	1.818%	48.551%
26.0	32.864	1.616	35.516	1.746%	50.865%
27.0	30.389	1.548	37.064	1.672%	53.081%
28.0	27.717	1.471	38.535	1.590%	55.188%
29.0	25.474	1.392	39.927	1.504%	57.181%
30.0	23.386	1.319	41.246	1.426%	59.070%
31.0	21.361	1.245	42.491	1.346%	60.854%
32.0	19.470	1.170	43.661	1.264%	62.529%
33.0	17.902	1.101	44.762	1.190%	64.106%
34.0	16.390	1.038	45.799	1.121%	65.592%
35.0	14.836	0.970	46.769	1.048%	66.981%
36.0	13.676	0.908	47.677	.981%	68.281%
37.0	12.572	0.856	48.533	.925%	69.507%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	11.538	0.805	49.338	.870%	70.660%
39.0	10.533	0.753	50.091	.814%	71.739%
40.0	9.717	0.706	50.797	.763%	72.750%
41.0	8.986	0.666	51.463	.720%	73.704%
42.0	8.283	0.627	52.091	.678%	74.602%
43.0	7.636	0.590	52.681	.637%	75.447%
44.0	7.130	0.557	53.238	.602%	76.245%
45.0	6.666	0.530	53.768	.573%	77.004%
46.0	6.223	0.504	54.272	.545%	77.726%
47.0	5.850	0.480	54.752	.519%	78.414%
48.0	5.534	0.460	55.212	.497%	79.073%
49.0	5.231	0.442	55.654	.478%	79.706%
50.0	4.943	0.424	56.079	.458%	80.313%
51.0	4.725	0.409	56.488	.442%	80.899%
52.0	4.514	0.396	56.884	.428%	81.467%
53.0	4.324	0.384	57.269	.415%	82.018%
54.0	4.148	0.373	57.642	.404%	82.553%
55.0	3.994	0.363	58.005	.393%	83.073%
56.0	3.867	0.355	58.361	.384%	83.582%
57.0	3.713	0.347	58.707	.374%	84.078%
58.0	3.593	0.338	59.045	.365%	84.562%
59.0	3.509	0.332	59.377	.359%	85.037%
60.0	3.410	0.327	59.704	.353%	85.506%
61.0	3.298	0.320	60.024	.346%	85.964%
62.0	3.227	0.314	60.338	.340%	86.414%
63.0	3.178	0.312	60.65	.337%	86.860%
64.0	3.115	0.309	60.959	.334%	87.303%
65.0	3.087	0.307	61.266	.332%	87.742%
66.0	3.045	0.306	61.572	.331%	88.180%
67.0	3.023	0.305	61.877	.330%	88.617%
68.0	3.002	0.305	62.182	.330%	89.054%
69.0	2.974	0.305	62.487	.329%	89.491%
70.0	2.974	0.306	62.792	.330%	89.929%
71.0	2.946	0.306	63.098	.331%	90.367%
72.0	2.939	0.306	63.404	.331%	90.805%
73.0	2.967	0.309	63.713	.334%	91.247%
74.0	2.946	0.311	64.024	.336%	91.693%
75.0	2.960	0.312	64.336	.337%	92.140%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.974	0.315	64.651	.340%	92.591%
77.0	3.002	0.319	64.97	.344%	93.047%
78.0	3.023	0.323	65.292	.349%	93.509%
79.0	3.045	0.326	65.618	.352%	93.976%
80.0	3.087	0.331	65.949	.357%	94.449%
81.0	3.150	0.337	66.286	.364%	94.932%
82.0	3.234	0.346	66.632	.374%	95.428%
83.0	3.354	0.358	66.991	.387%	95.941%
84.0	3.537	0.375	67.366	.406%	96.479%
85.0	3.762	0.398	67.764	.430%	97.049%
86.0	3.938	0.421	68.185	.455%	97.652%
87.0	3.741	0.420	68.605	.454%	98.254%
88.0	3.691	0.407	69.013	.440%	98.837%
89.0	3.720	0.406	69.419	.439%	99.419%
90.0	3.684	0.406	69.825	.439%	100.000%

Zonal flux distribution table

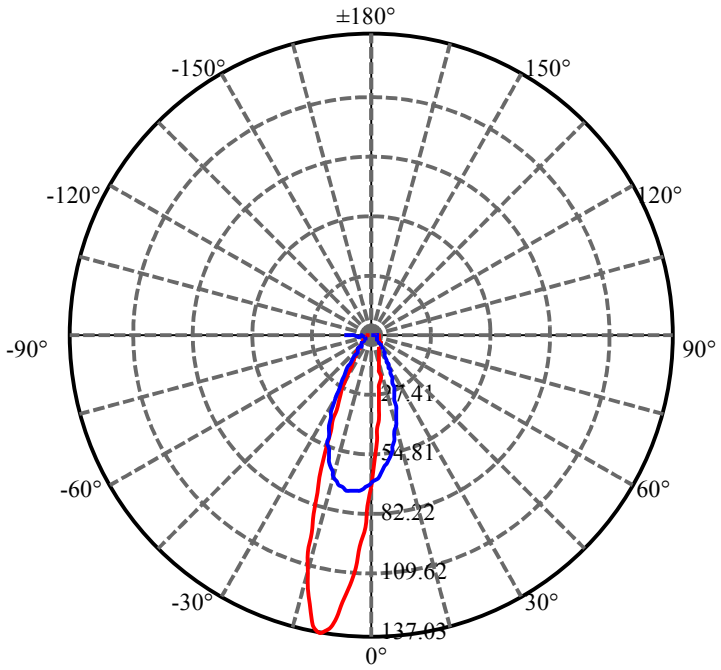
ZONAL LUMEN SUMMARY

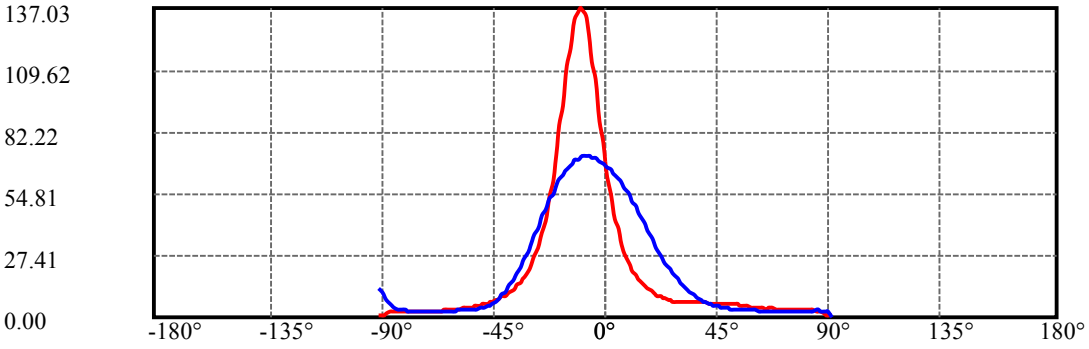
Zone	Lumens	%Lamp	%Fixt
0-30	41.25	44.57%	59.07%
0-40	50.80	54.89%	72.75%
0-60	59.70	64.52%	85.51%
0-90	69.42	75.01%	99.42%
0-120	69.42	75.01%	99.42%
0-180	69.82	75.45%	100.00%
60-90	10.04	10.85%	14.38%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-49.48	55.86	60.36%	80.00%

ZONAL LUMEN SUMMARY

0-10	6.90
10-20	18.01
20-30	16.34
30-40	9.55
40-50	5.28
50-60	3.63
60-70	3.09
70-80	3.16
80-90	3.47
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:

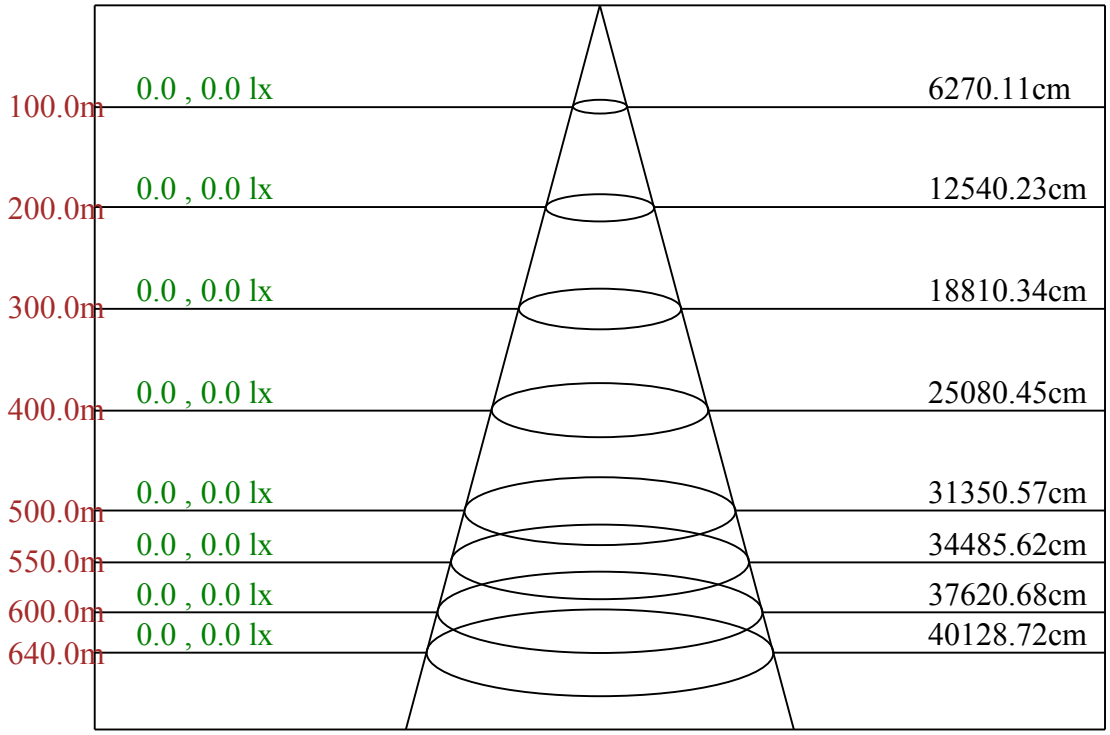
Field angle(10%Imax):C0/180Left:25.4 Right:26.1

:C90/270Left:78.5 Right:47.0

Beam Angle(50%Imax):C0/180Left:10.0 Right:10.1

:C90/270Left:20.3 Right:26.0

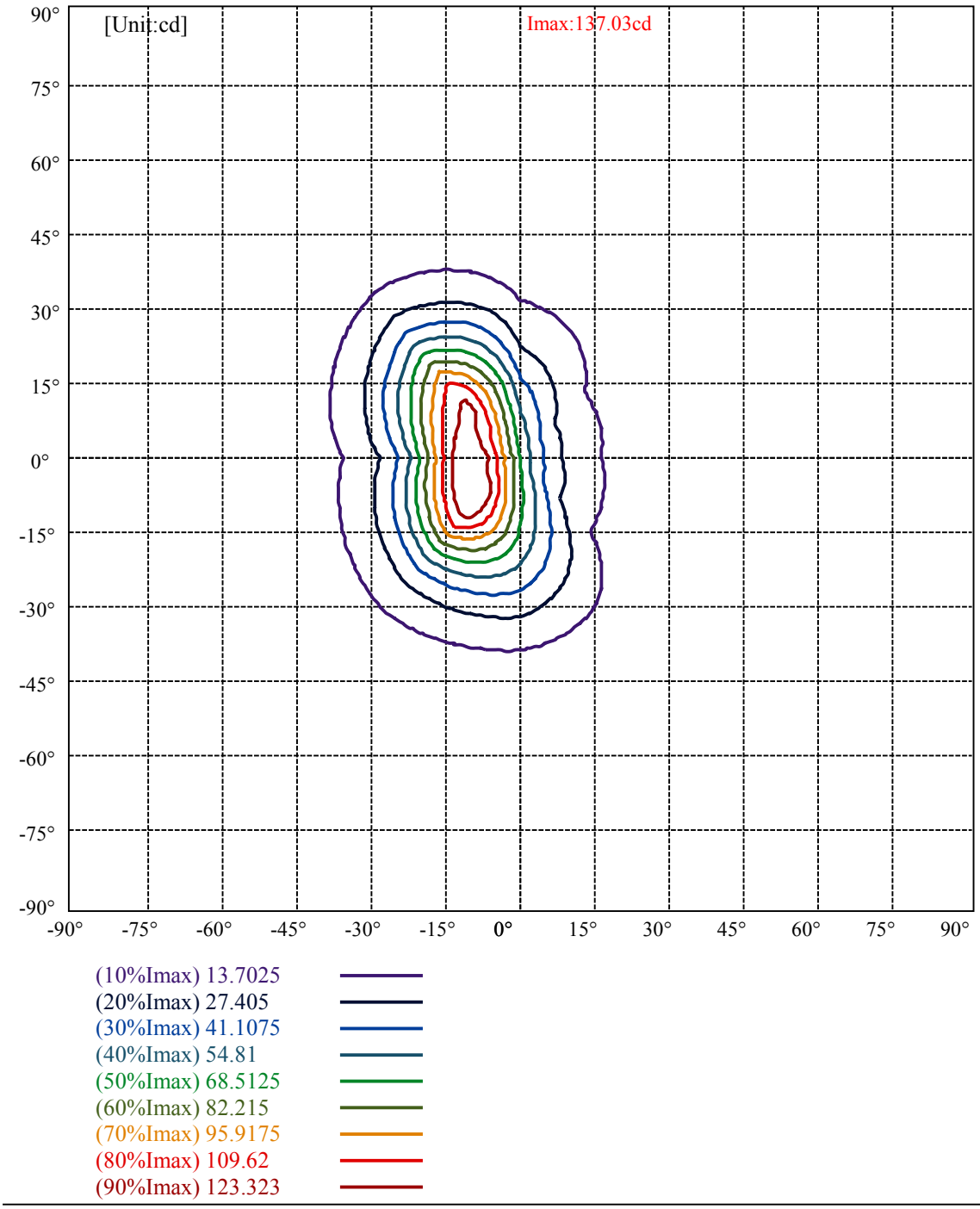
Lux distance Curve



Max , Ave

Beam angle of C180 plane 33.74

ISO-Intensity(V-H)

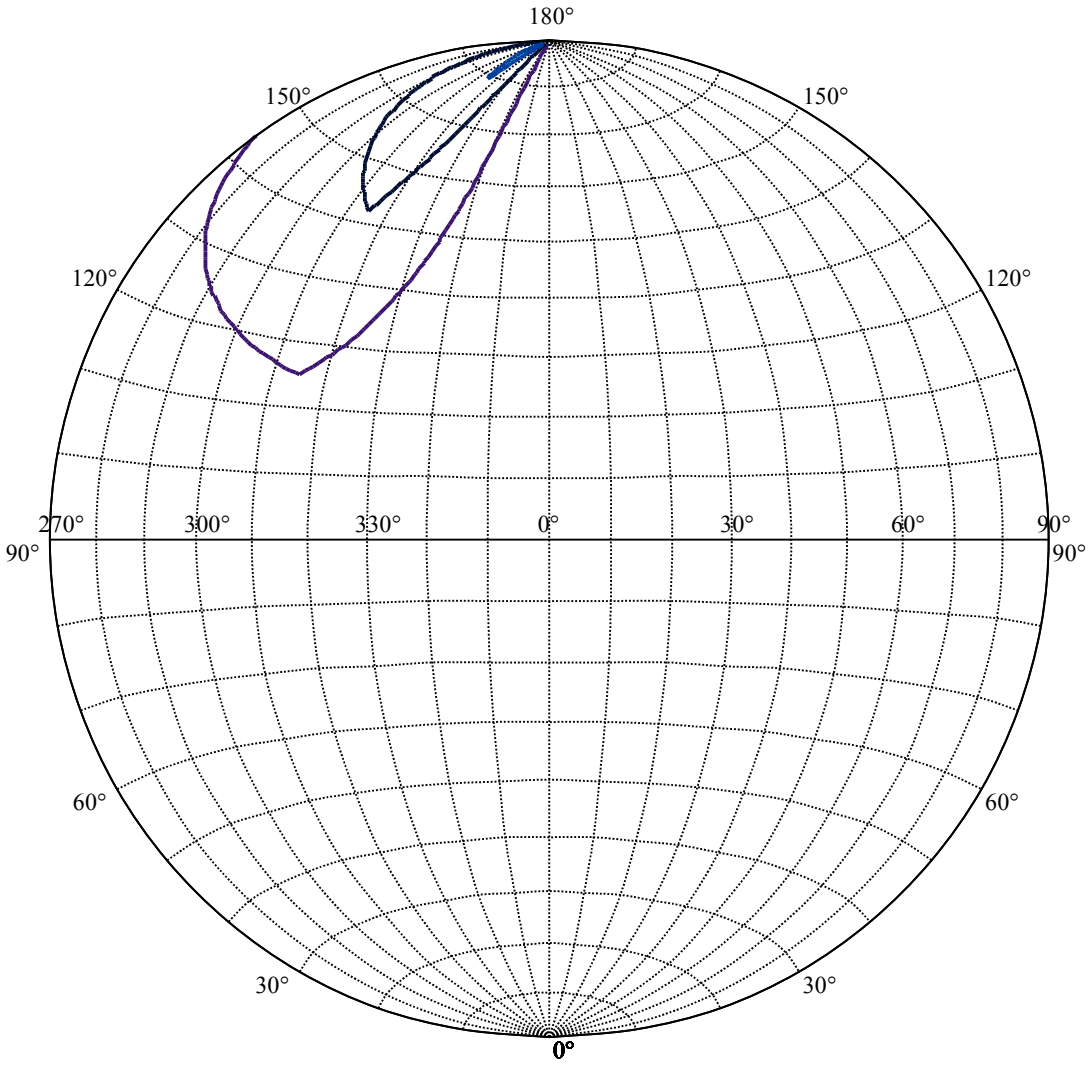


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:137.03

(10%Imax) 79.3181

(20%Imax) 158.636

(30%Imax) 237.954

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

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

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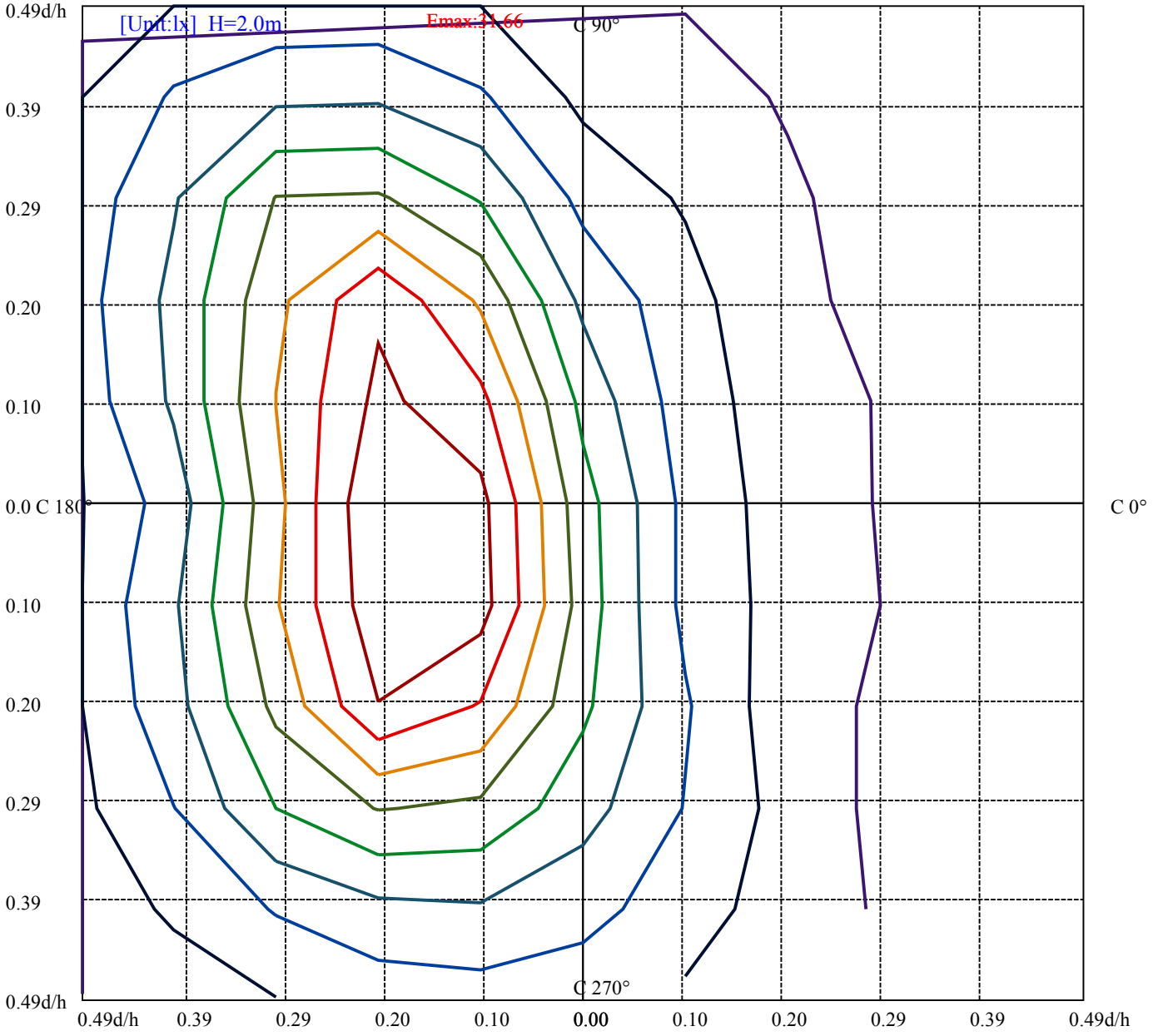
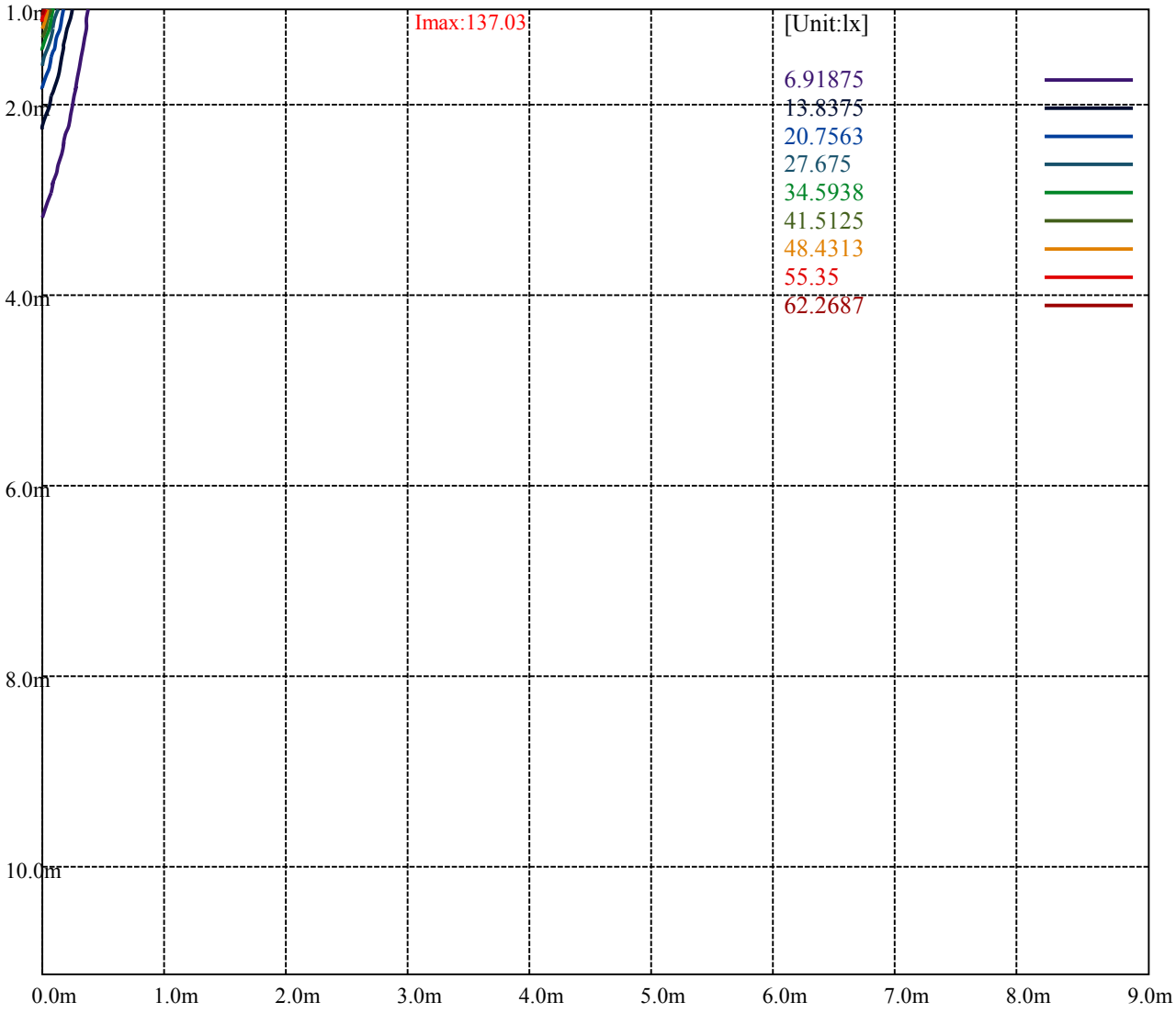
ISO illuminance diagram



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

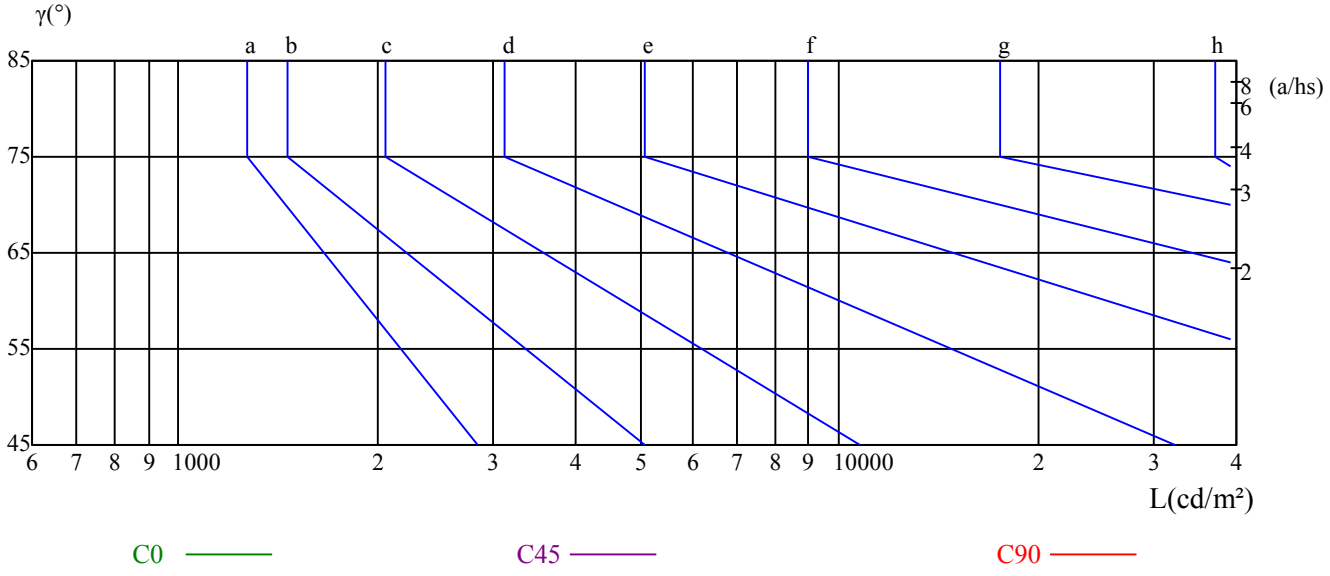
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

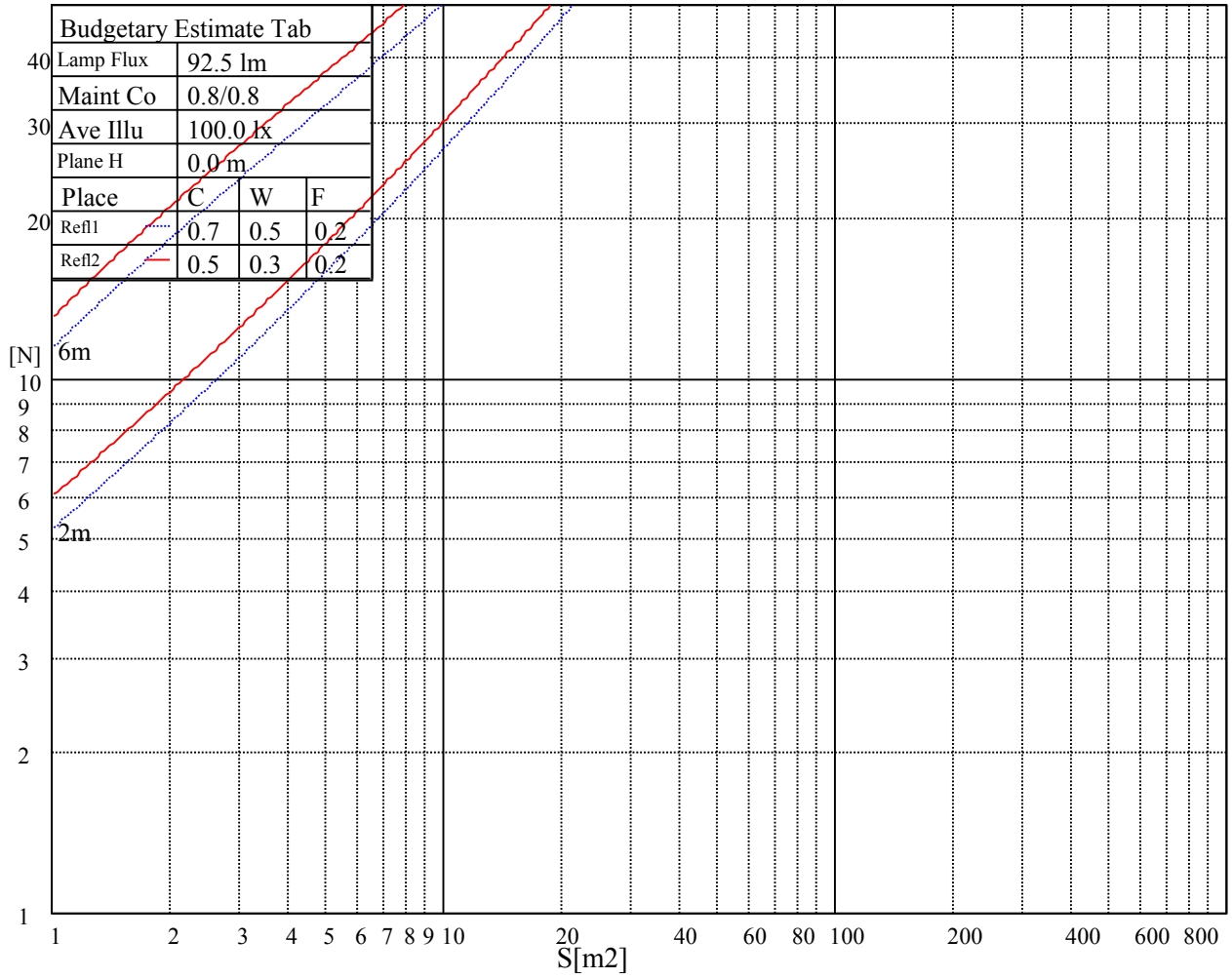
Glare Table

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

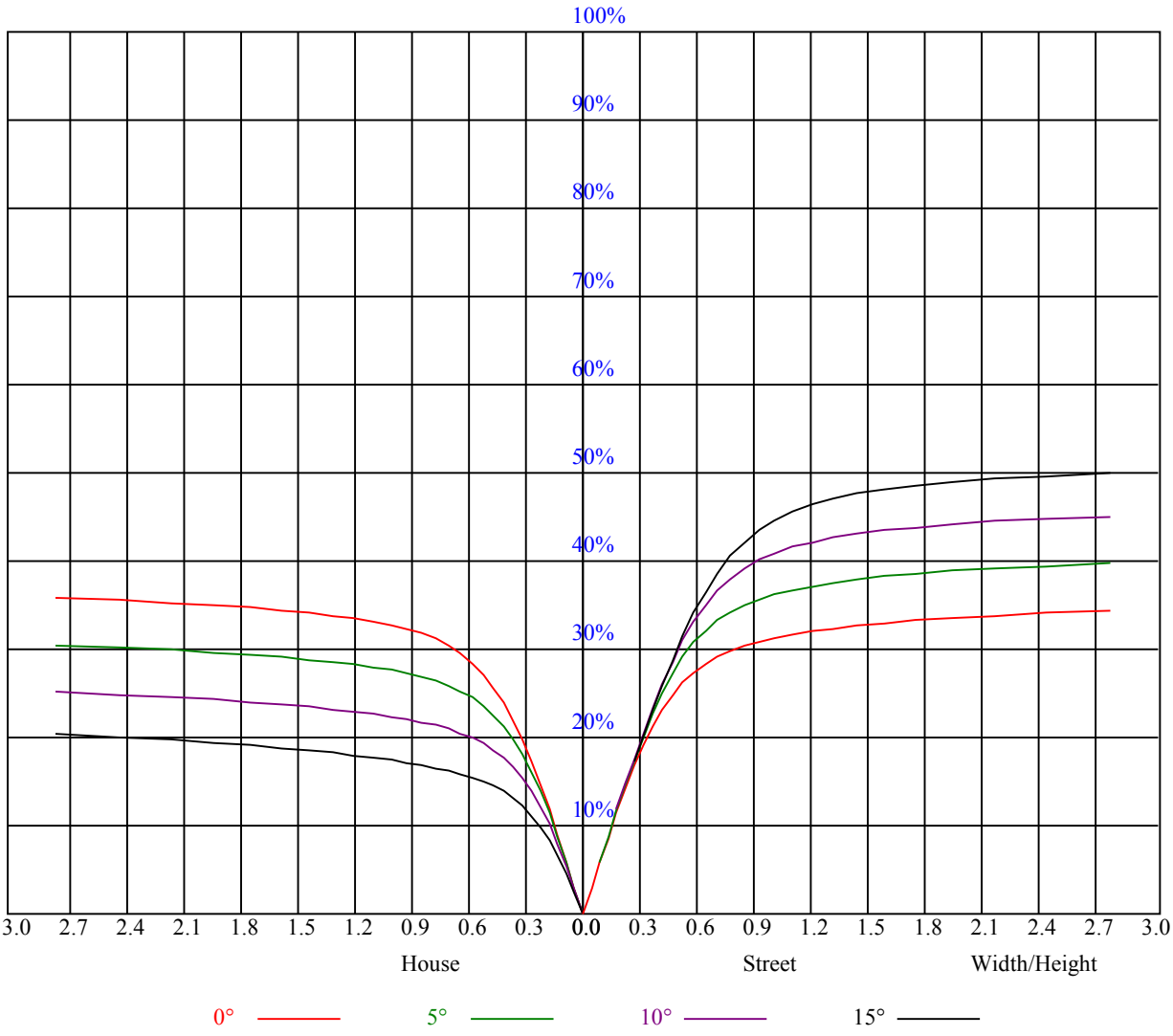


Equipment: GMS1980	Date: 2020/4/7	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	0.90	0.90	0.90	0.88	0.88	0.88	0.84	0.84	0.84	0.80	0.80	0.80	0.77	0.77	0.77	0.75
1	0.80	0.77	0.74	0.78	0.75	0.73	0.75	0.73	0.71	0.72	0.70	0.68	0.69	0.68	0.66	0.65
2	0.72	0.68	0.64	0.71	0.67	0.64	0.68	0.65	0.62	0.66	0.63	0.61	0.64	0.62	0.60	0.58
3	0.66	0.61	0.57	0.65	0.61	0.57	0.63	0.59	0.56	0.61	0.58	0.55	0.59	0.57	0.54	0.53
4	0.61	0.56	0.52	0.60	0.56	0.52	0.59	0.54	0.51	0.57	0.53	0.50	0.56	0.52	0.50	0.48
5	0.57	0.52	0.48	0.56	0.51	0.47	0.55	0.50	0.47	0.53	0.50	0.47	0.52	0.49	0.46	0.45
6	0.53	0.48	0.44	0.53	0.48	0.44	0.51	0.47	0.44	0.50	0.46	0.43	0.49	0.46	0.43	0.42
7	0.50	0.45	0.41	0.49	0.44	0.41	0.48	0.44	0.41	0.47	0.43	0.40	0.46	0.43	0.40	0.39
8	0.47	0.42	0.38	0.46	0.42	0.38	0.46	0.41	0.38	0.45	0.41	0.38	0.44	0.40	0.38	0.36
9	0.44	0.39	0.36	0.44	0.39	0.36	0.43	0.39	0.36	0.42	0.38	0.36	0.42	0.38	0.35	0.34
10	0.42	0.37	0.34	0.42	0.37	0.34	0.41	0.37	0.34	0.40	0.36	0.34	0.40	0.36	0.33	0.32

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	69.19	61.99	54.79	48.32	43.26	38.76	33.92	30.66	27.79
45.0	68.63	62.83	57.04	51.64	47.25	43.26	38.70	35.33	32.29
90.0	67.61	66.77	65.59	64.24	63.17	61.59	60.08	58.61	56.87
135.0	66.15	71.49	76.95	81.96	87.47	92.48	98.04	103.33	107.83
180.0	69.19	77.79	87.19	95.79	105.47	113.57	122.12	128.93	133.54
225.0	68.63	75.60	82.86	89.33	96.02	103.61	110.98	117.68	123.08
270.0	67.61	68.29	69.30	70.03	70.48	70.99	71.44	71.55	71.66
315.0	66.15	61.71	57.43	52.59	48.99	45.62	41.63	38.76	35.94
360.0	69.19	61.99	54.79	48.32	43.26	38.76	33.92	30.66	27.79

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	24.75	22.61	20.81	18.96	17.38	16.09	14.85	13.78	12.66
45.0	29.03	26.66	24.53	22.39	20.48	18.96	17.38	16.26	15.08
90.0	55.41	53.49	51.41	49.44	47.19	44.83	42.81	40.67	38.03
135.0	112.67	117.17	120.32	122.91	125.10	126.06	126.17	125.33	123.47
180.0	136.24	137.03	135.34	132.02	125.61	119.14	111.88	102.99	93.66
225.0	127.63	131.96	134.04	135.23	134.94	133.09	130.44	126.56	120.66
270.0	71.38	71.04	70.20	69.41	68.40	67.11	65.87	64.52	62.61
315.0	33.02	30.26	27.96	25.54	23.34	21.54	19.80	18.34	16.88
360.0	24.75	22.61	20.81	18.96	17.38	16.09	14.85	13.78	12.66

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	11.76	11.03	10.29	9.62	9.11	8.61	8.16	7.76	7.43
45.0	13.84	12.99	12.15	11.25	10.52	10.01	9.34	8.94	8.55
90.0	35.89	33.75	31.61	29.48	27.62	25.76	23.96	22.44	20.98
135.0	120.99	117.28	113.23	108.51	103.05	98.04	92.14	86.12	80.44
180.0	85.22	75.99	68.40	60.41	53.38	47.76	42.19	37.46	33.69
225.0	115.20	109.52	102.49	95.12	88.48	81.06	73.63	67.22	60.47
270.0	60.92	59.18	56.76	54.79	52.59	50.01	47.31	44.83	41.96
315.0	15.58	14.57	13.61	12.66	11.93	11.25	10.46	9.90	9.39
360.0	11.76	11.03	10.29	9.62	9.11	8.61	8.16	7.76	7.43

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	7.14	6.92	6.75	6.64	6.58	6.53	6.47	6.47	6.47
45.0	8.04	7.65	7.37	7.03	6.75	6.53	6.30	6.13	5.96
90.0	19.41	17.89	16.71	15.30	14.18	12.94	11.93	10.97	9.96
135.0	74.70	68.06	62.72	57.32	51.41	46.74	42.53	38.14	33.98
180.0	30.49	27.00	24.47	22.28	20.08	18.23	16.76	15.30	14.06
225.0	55.01	49.16	43.76	39.38	35.44	31.16	28.18	25.43	22.33
270.0	39.49	36.73	33.98	31.56	29.03	26.55	24.30	22.16	19.63
315.0	8.83	8.33	8.04	7.59	7.43	7.09	6.75	6.53	6.30
360.0	7.14	6.92	6.75	6.64	6.58	6.53	6.47	6.47	6.47

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	6.53	6.47	6.47	6.41	6.41	6.36	6.36	6.36	6.30
45.0	5.85	5.74	5.63	5.51	5.46	5.40	5.29	5.18	5.12
90.0	9.17	8.49	7.88	7.14	6.69	6.24	5.79	5.40	5.12
135.0	30.71	27.51	24.69	21.94	19.35	17.44	15.30	13.39	11.87
180.0	13.05	12.04	11.25	10.41	9.68	9.06	8.55	7.88	7.48
225.0	20.25	18.39	16.48	14.91	13.67	12.38	11.31	10.29	9.51
270.0	17.78	16.03	14.18	12.49	11.14	9.84	8.61	7.65	6.81
315.0	6.08	5.91	5.74	5.46	5.34	5.18	5.06	4.95	4.84
360.0	6.53	6.47	6.47	6.41	6.41	6.36	6.36	6.36	6.30

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	6.24	6.24	6.24	6.19	6.13	6.02	5.96	5.85	5.68
45.0	5.06	4.95	4.89	4.73	4.61	4.50	4.33	4.22	4.11
90.0	4.78	4.56	4.39	4.16	3.99	3.83	3.66	3.54	3.43
135.0	10.58	9.23	8.16	7.37	6.64	6.02	5.63	5.12	4.78
180.0	7.03	6.58	6.24	5.96	5.63	5.40	5.12	4.84	4.67
225.0	8.72	8.04	7.31	6.75	6.19	5.57	5.18	4.84	4.50
270.0	6.13	5.51	5.01	4.61	4.28	3.99	3.77	3.60	3.43
315.0	4.78	4.67	4.56	4.50	4.39	4.22	4.16	4.11	3.99
360.0	6.24	6.24	6.24	6.19	6.13	6.02	5.96	5.85	5.68

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.51	5.29	5.12	4.89	4.67	4.56	4.33	4.11	3.99
45.0	3.99	3.94	3.83	3.77	3.66	3.60	3.49	3.49	3.38
90.0	3.26	3.21	3.15	3.09	3.04	2.98	2.98	2.87	2.87
135.0	4.50	4.28	4.05	3.77	3.60	3.43	3.38	3.26	3.15
180.0	4.44	4.22	4.05	3.88	3.71	3.60	3.49	3.26	3.21
225.0	4.22	3.99	3.83	3.60	3.49	3.38	3.26	3.15	3.09
270.0	3.38	3.21	3.15	3.04	3.04	2.98	2.93	2.87	2.81
315.0	3.88	3.83	3.77	3.66	3.54	3.54	3.43	3.38	3.32
360.0	5.51	5.29	5.12	4.89	4.67	4.56	4.33	4.11	3.99

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.88	3.83	3.94	3.94	3.88	3.83	3.71	3.71	3.60
45.0	3.32	3.26	3.21	3.21	3.15	3.15	3.09	3.09	3.04
90.0	2.87	2.81	2.76	2.76	2.76	2.76	2.76	2.76	2.76
135.0	3.09	3.04	2.98	2.87	2.87	2.87	2.87	2.81	2.81
180.0	3.09	2.98	2.93	2.81	2.76	2.70	2.70	2.70	2.64
225.0	3.04	2.98	2.93	2.87	2.87	2.87	2.81	2.81	2.81
270.0	2.81	2.76	2.76	2.76	2.76	2.70	2.76	2.76	2.76
315.0	3.32	3.26	3.21	3.15	3.15	3.15	3.09	3.15	3.15
360.0	3.88	3.83	3.94	3.94	3.88	3.83	3.71	3.71	3.60

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.54	3.54	3.49	3.43	3.38	3.38	3.38	3.32	3.21
45.0	3.04	3.04	3.04	3.09	3.09	3.09	3.09	3.09	3.09
90.0	2.76	2.76	2.70	2.70	2.70	2.76	2.76	2.76	2.81
135.0	2.81	2.87	2.87	2.93	2.98	3.04	3.09	3.21	3.32
180.0	2.64	2.70	2.64	2.70	2.70	2.76	2.76	2.76	2.76
225.0	2.81	2.81	2.87	2.81	2.87	2.93	2.98	3.04	3.15
270.0	2.76	2.81	2.81	2.81	2.87	2.87	2.93	2.93	2.98
315.0	3.15	3.21	3.15	3.21	3.21	3.21	3.21	3.26	3.38
360.0	3.54	3.54	3.49	3.43	3.38	3.38	3.38	3.32	3.21

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.15	3.09	3.04	2.93	2.81	2.59	1.69	1.18	0.84
45.0	3.09	3.09	3.09	3.09	3.04	2.70	1.97	1.29	1.07
90.0	2.81	2.87	2.93	3.04	3.15	2.93	2.64	2.76	2.48
135.0	3.49	3.71	4.05	4.61	5.34	6.02	6.02	6.19	6.30
180.0	2.81	2.76	2.76	2.70	2.59	2.48	1.69	1.24	0.90
225.0	3.26	3.49	3.66	3.88	4.05	4.22	4.22	3.71	3.60
270.0	3.09	3.32	3.66	4.16	5.06	6.36	7.93	9.51	11.14
315.0	3.49	3.54	3.66	3.88	4.05	4.22	3.77	3.66	3.43
360.0	3.15	3.09	3.04	2.93	2.81	2.59	1.69	1.18	0.84

Intensity data(cd)

C/γ(°)	90.0
0.0	0.62
45.0	0.68
90.0	0.34
135.0	6.19
180.0	0.68
225.0	2.25
270.0	12.38
315.0	6.36
360.0	0.62