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

Nata

LumCAT: NA01D020024BW
Luminaire:
Report No: 200406-B010
Test No: 200406-C010
LampCAT: LUMILEDS 3030 2D
Lamp flux(lm): 92.5
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 6.5100
Current(A): 0.1550
Power (W): 1.0090
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 85.92
Efficiency(%): 92.85%
Lumens(lm)/Power(W): 85.15
Central intensity(cd): 253.336
Maximum intensity(cd): 253.336
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=26.0
[C90/270]Total=26.0
Field angle(10%Imax): [C0/180]Total=56.1
[C90/270]Total=56.1
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.46 C90_270=0.46
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.85%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 93.778%

Nata NA01D020024BW

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	253.336	0.000	0	.000%	.000%
1.0	252.323	0.242	0.242	.261%	.282%
2.0	249.110	0.720	0.962	.778%	1.119%
3.0	243.408	1.178	2.14	1.273%	2.490%
4.0	236.468	1.606	3.746	1.736%	4.360%
5.0	227.848	1.997	5.743	2.158%	6.685%
6.0	216.176	2.333	8.077	2.522%	9.400%
7.0	204.673	2.612	10.689	2.823%	12.441%
8.0	192.755	2.844	13.533	3.074%	15.751%
9.0	179.543	3.017	16.551	3.261%	19.263%
10.0	165.663	3.124	19.675	3.376%	22.899%
11.0	152.831	3.182	22.857	3.439%	26.603%
12.0	140.133	3.203	26.06	3.461%	30.330%
13.0	126.661	3.166	29.226	3.421%	34.015%
14.0	114.877	3.092	32.317	3.341%	37.614%
15.0	104.063	3.006	35.323	3.248%	41.112%
16.0	93.930	2.901	38.224	3.135%	44.488%
17.0	83.630	2.765	40.989	2.988%	47.707%
18.0	75.073	2.617	43.606	2.828%	50.752%
19.0	67.205	2.475	46.081	2.675%	53.633%
20.0	60.258	2.333	48.414	2.521%	56.348%
21.0	53.677	2.188	50.602	2.364%	58.895%
22.0	48.080	2.045	52.647	2.210%	61.275%
23.0	43.327	1.918	54.565	2.073%	63.507%
24.0	38.651	1.792	56.357	1.937%	65.593%
25.0	34.791	1.670	58.027	1.805%	67.536%
26.0	31.409	1.563	59.59	1.689%	69.355%
27.0	28.441	1.464	61.054	1.582%	71.059%
28.0	25.432	1.364	62.418	1.474%	72.647%
29.0	23.013	1.267	63.685	1.370%	74.122%
30.0	20.805	1.183	64.868	1.278%	75.499%
31.0	18.731	1.100	65.969	1.189%	76.780%
32.0	16.938	1.022	66.991	1.104%	77.969%
33.0	15.384	0.952	67.943	1.029%	79.077%
34.0	13.999	0.889	68.832	.961%	80.112%
35.0	12.607	0.826	69.658	.893%	81.074%
36.0	11.531	0.769	70.427	.831%	81.968%
37.0	10.610	0.722	71.149	.780%	82.809%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.731	0.679	71.828	.734%	83.599%
39.0	8.909	0.636	72.464	.688%	84.340%
40.0	8.269	0.599	73.063	.647%	85.037%
41.0	7.671	0.568	73.631	.613%	85.697%
42.0	7.137	0.538	74.169	.581%	86.324%
43.0	6.652	0.511	74.68	.552%	86.918%
44.0	6.216	0.486	75.165	.525%	87.483%
45.0	5.815	0.462	75.628	.500%	88.021%
46.0	5.442	0.440	76.068	.476%	88.534%
47.0	5.105	0.419	76.487	.453%	89.022%
48.0	4.809	0.401	76.888	.433%	89.489%
49.0	4.542	0.384	77.272	.415%	89.935%
50.0	4.254	0.367	77.639	.396%	90.362%
51.0	4.029	0.350	77.989	.379%	90.770%
52.0	3.804	0.336	78.325	.363%	91.161%
53.0	3.593	0.322	78.647	.348%	91.536%
54.0	3.389	0.308	78.955	.333%	91.894%
55.0	3.227	0.295	79.25	.319%	92.238%
56.0	3.073	0.285	79.535	.308%	92.569%
57.0	2.904	0.273	79.808	.295%	92.887%
58.0	2.791	0.263	80.072	.285%	93.194%
59.0	2.672	0.255	80.327	.276%	93.491%
60.0	2.552	0.247	80.574	.267%	93.778%
61.0	2.447	0.239	80.812	.258%	94.056%
62.0	2.348	0.231	81.043	.250%	94.325%
63.0	2.264	0.224	81.268	.242%	94.586%
64.0	2.180	0.218	81.486	.236%	94.840%
65.0	2.123	0.213	81.699	.230%	95.088%
66.0	2.074	0.209	81.908	.226%	95.331%
67.0	2.004	0.205	82.113	.222%	95.570%
68.0	1.969	0.201	82.315	.217%	95.804%
69.0	1.927	0.199	82.513	.215%	96.035%
70.0	1.898	0.196	82.71	.212%	96.264%
71.0	1.863	0.194	82.904	.210%	96.490%
72.0	1.849	0.193	83.097	.209%	96.715%
73.0	1.835	0.193	83.29	.208%	96.939%
74.0	1.828	0.193	83.482	.208%	97.163%
75.0	1.800	0.192	83.674	.207%	97.387%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.786	0.190	83.864	.206%	97.608%
77.0	1.786	0.190	84.055	.206%	97.830%
78.0	1.779	0.191	84.246	.206%	98.052%
79.0	1.758	0.190	84.436	.205%	98.273%
80.0	1.744	0.189	84.625	.204%	98.493%
81.0	1.702	0.186	84.811	.201%	98.710%
82.0	1.680	0.183	84.994	.198%	98.923%
83.0	1.631	0.180	85.174	.195%	99.133%
84.0	1.575	0.175	85.349	.189%	99.336%
85.0	1.519	0.169	85.518	.182%	99.532%
86.0	1.259	0.152	85.67	.164%	99.709%
87.0	0.731	0.109	85.778	.118%	99.836%
88.0	0.429	0.064	85.842	.069%	99.910%
89.0	0.345	0.042	85.884	.046%	99.959%
90.0	0.295	0.035	85.92	.038%	100.000%

Zonal flux distribution table

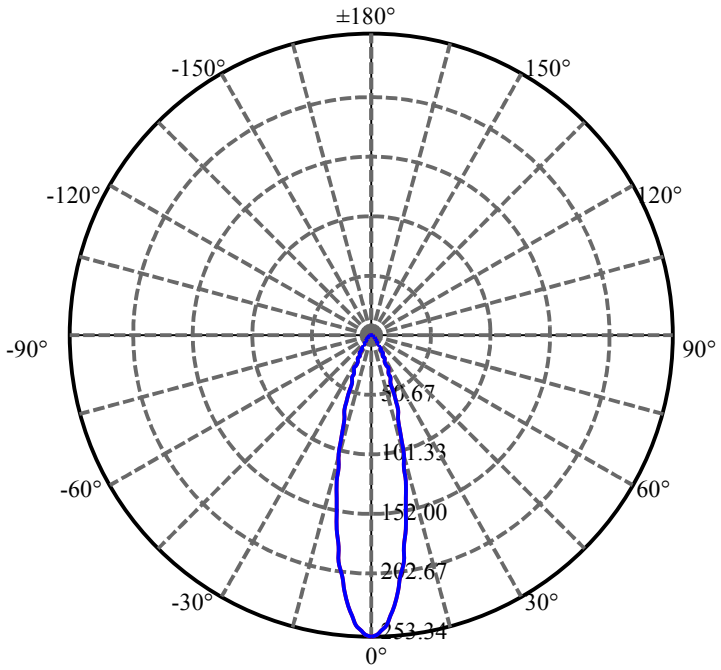
ZONAL LUMEN SUMMARY

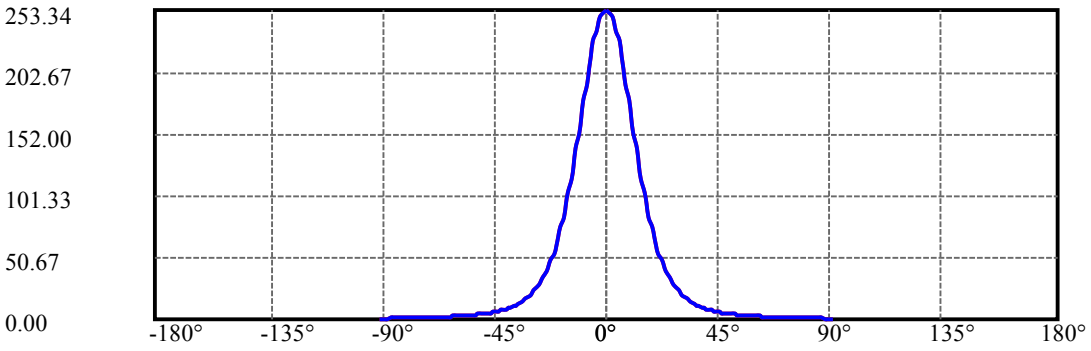
Zone	Lumens	%Lamp	%Fixt
0-30	64.87	70.10%	75.50%
0-40	73.06	78.95%	85.04%
0-60	80.57	87.07%	93.78%
0-90	85.88	92.81%	99.96%
0-120	85.88	92.81%	99.96%
0-180	85.92	92.85%	100.00%
60-90	5.56	6.01%	6.47%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-33.89	68.74	74.28%	80.00%

ZONAL LUMEN SUMMARY

0-10	19.67
10-20	28.74
20-30	16.45
30-40	8.19
40-50	4.58
50-60	2.93
60-70	2.14
70-80	1.91
80-90	1.26
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]





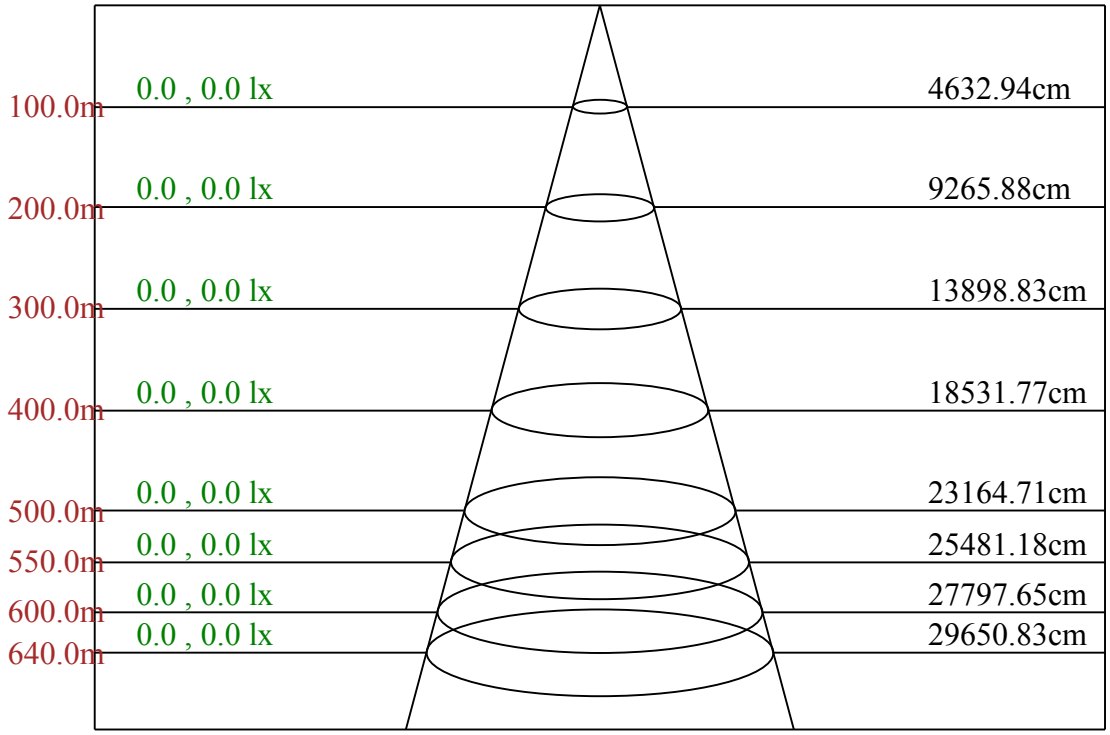
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:28.0 Right:28.0
:C90/270Left:28.0 Right:28.0

Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0
:C90/270Left:13.0 Right:13.0

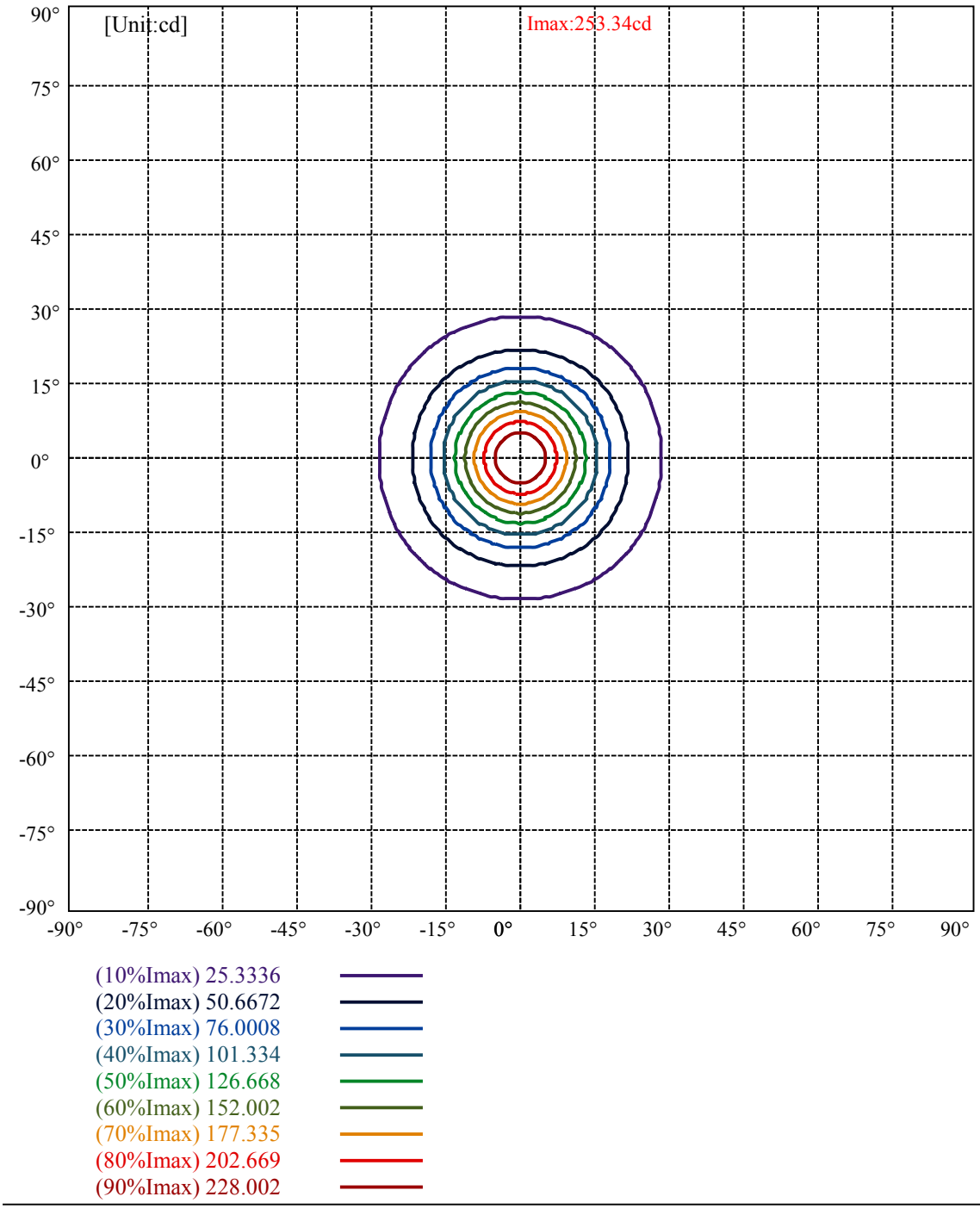
Lux distance Curve



Max , Ave

Beam angle of C0 plane 26.08

ISO-Intensity(V-H)

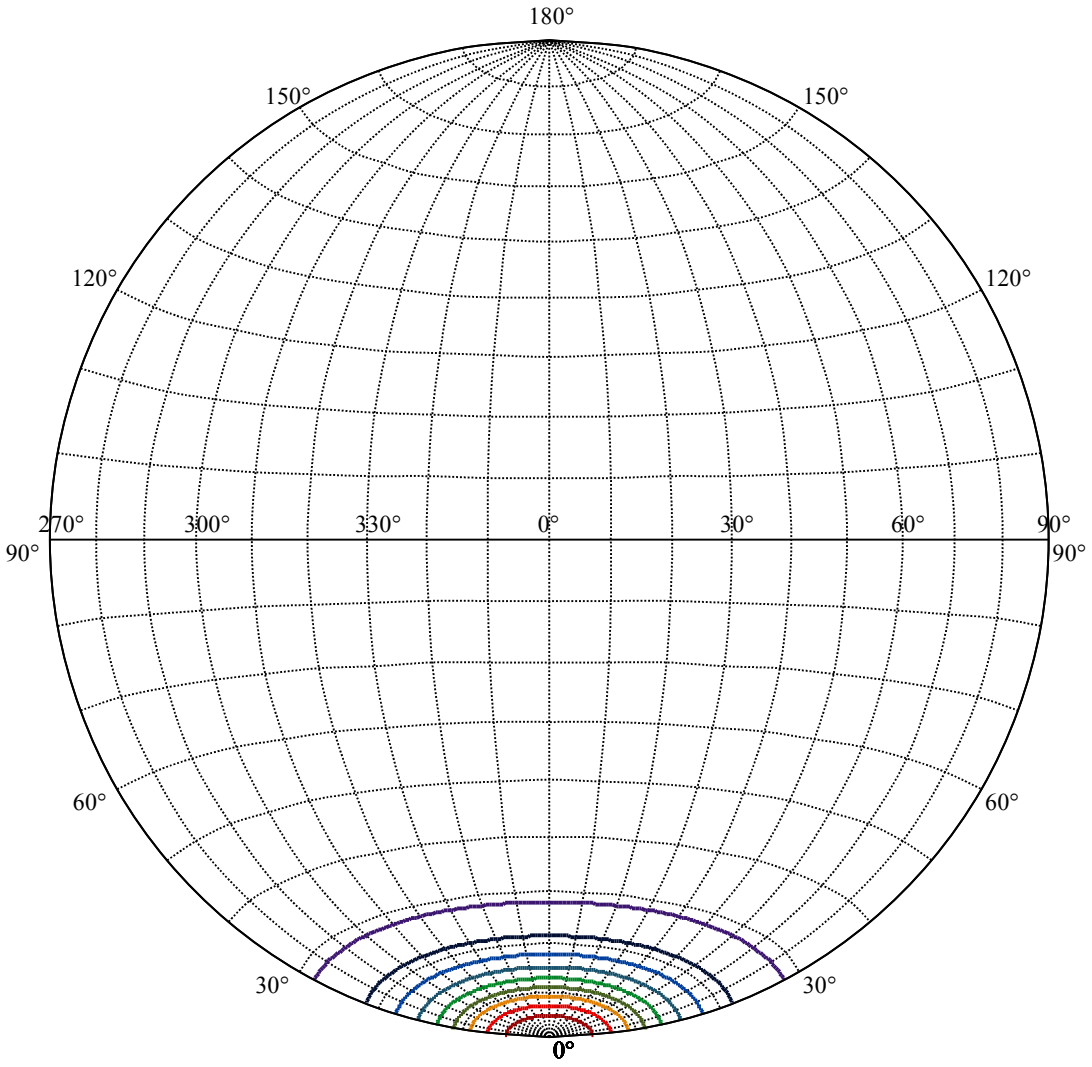


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:253.34

(10%Imax) 25.3336
(20%Imax) 50.6672
(30%Imax) 76.0008
(40%Imax) 101.334
(50%Imax) 126.668
(60%Imax) 152.002
(70%Imax) 177.335
(80%Imax) 202.669
(90%Imax) 228.002

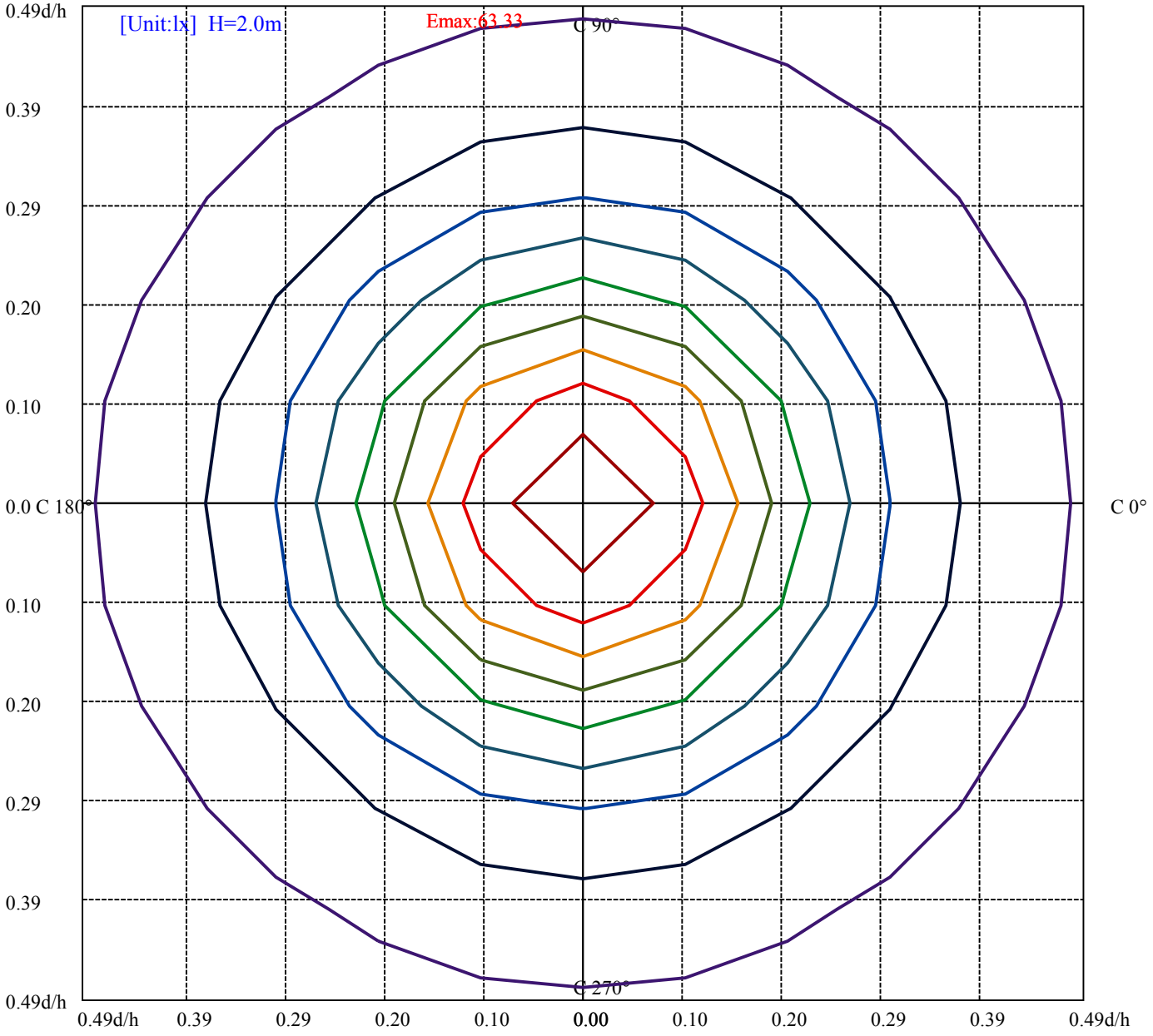
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata NA01D020024BW

ISO illuminance diagram



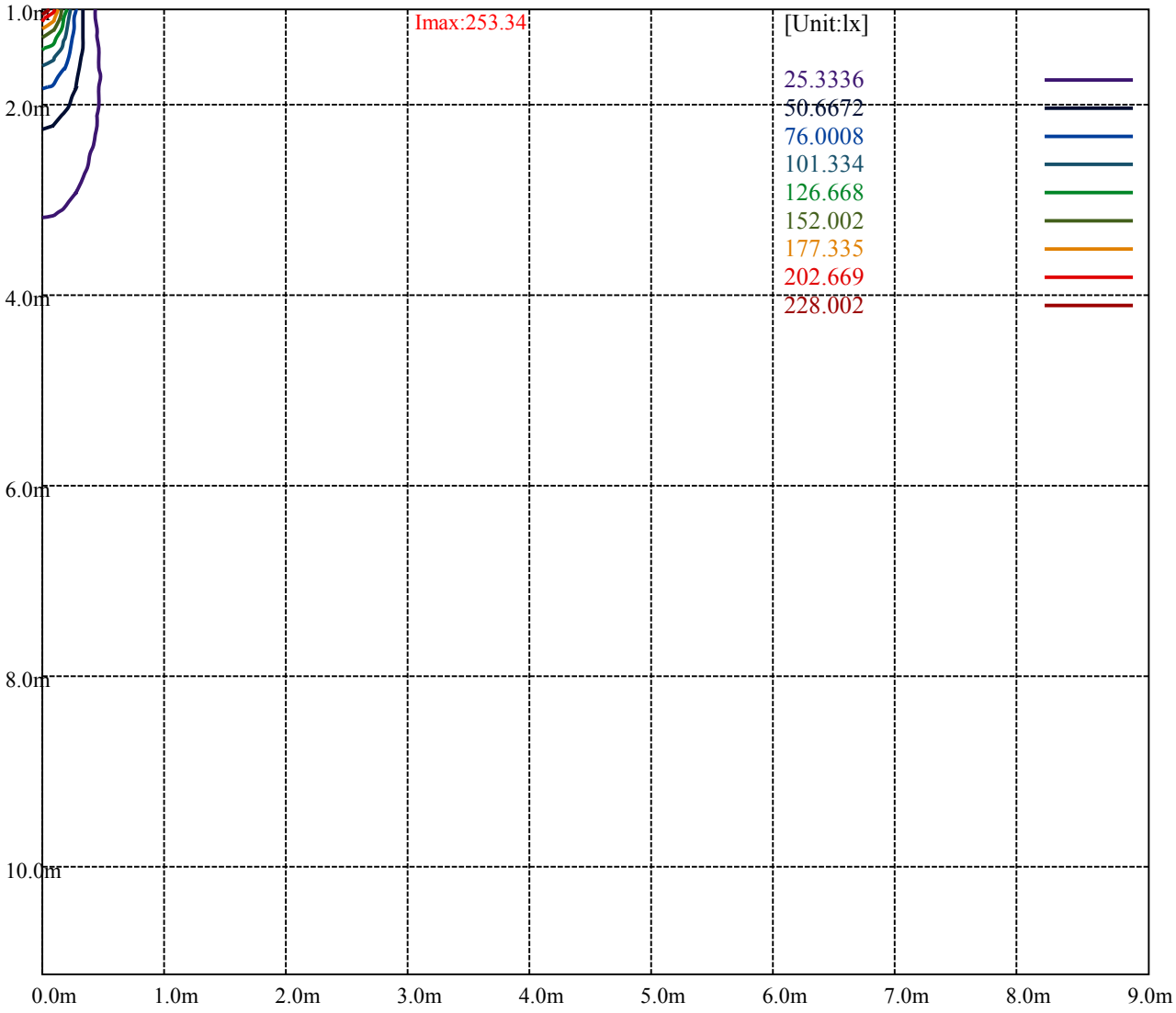
(10%Emax) 6.3334
(20%Emax) 12.6668
(30%Emax) 19.00018
(40%Emax) 25.3335
(50%Emax) 31.667
(60%Emax) 38.00025
(70%Emax) 44.33375
(80%Emax) 50.66725
(90%Emax) 57.0005

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

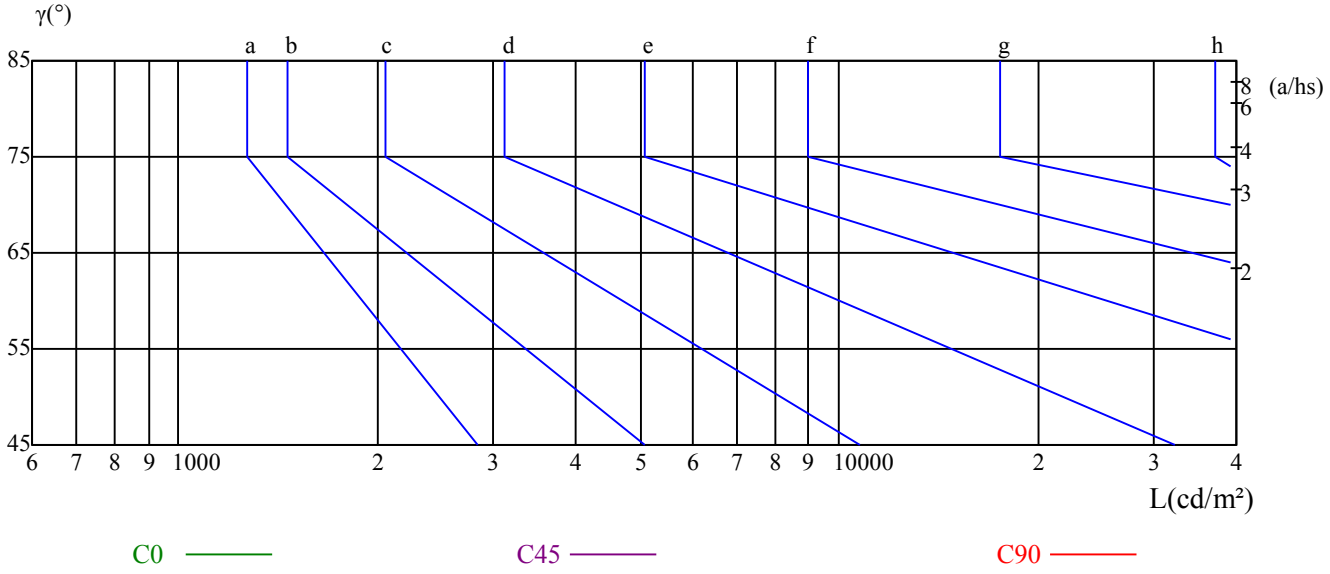
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

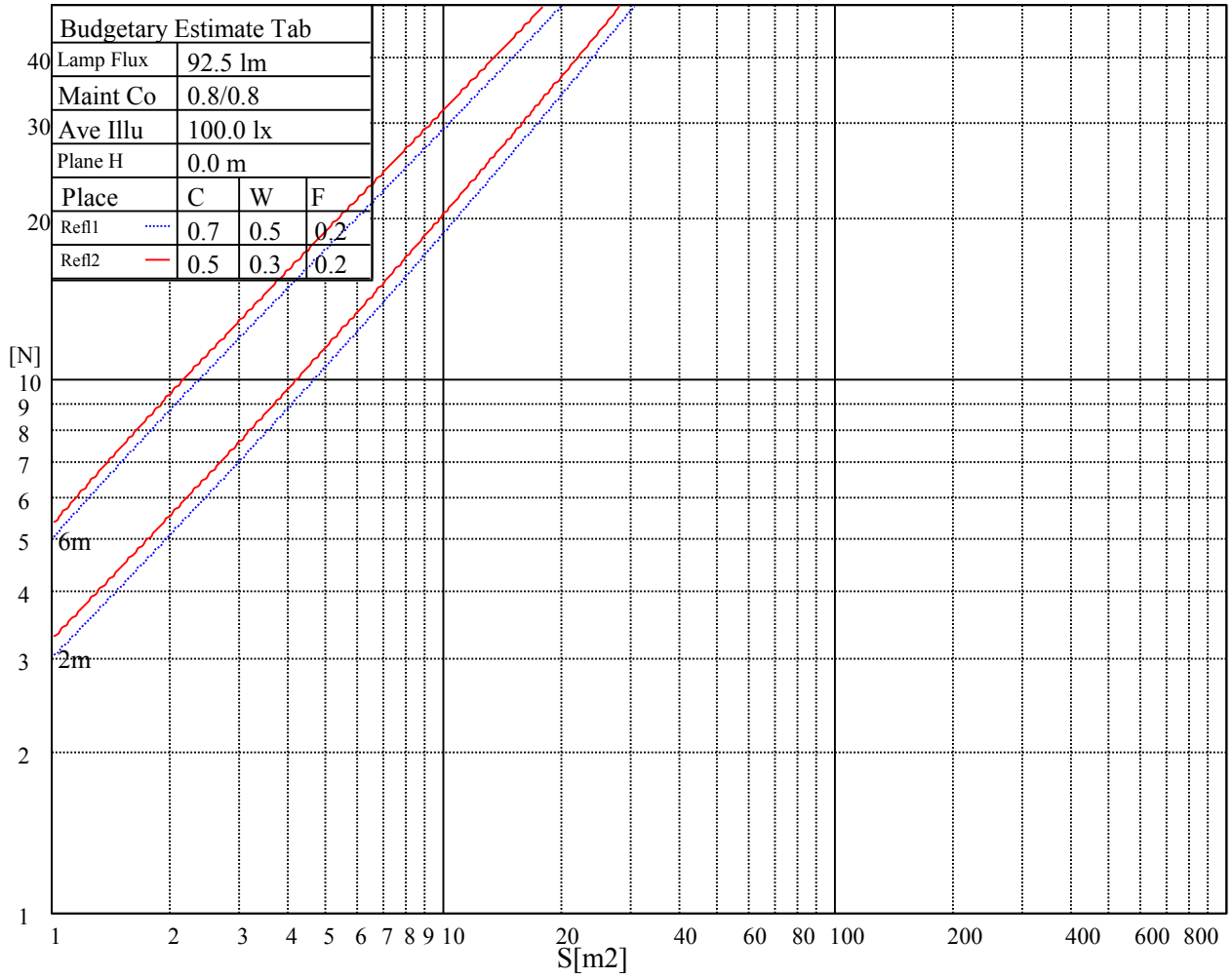
Glare Table

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

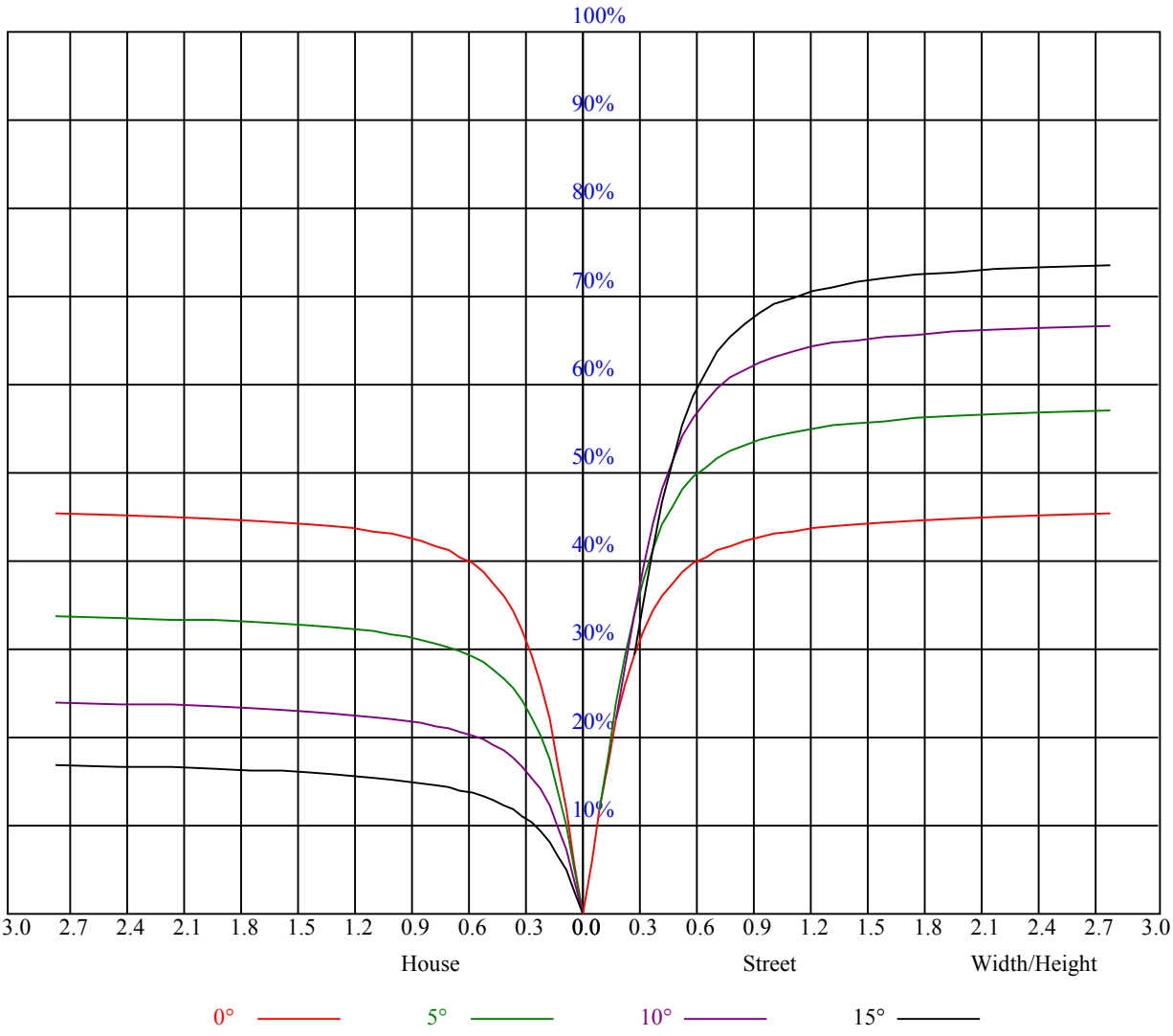


Equipment: GMS1980	Date: 2020/4/6	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	0.99	0.97	1.00	0.98	0.96	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.81	0.80
3	0.89	0.84	0.81	0.88	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.77	0.81	0.78	0.76	0.75
4	0.84	0.79	0.75	0.83	0.78	0.74	0.81	0.77	0.74	0.79	0.75	0.73	0.77	0.74	0.72	0.70
5	0.79	0.74	0.70	0.78	0.74	0.70	0.77	0.73	0.69	0.75	0.72	0.69	0.74	0.71	0.68	0.67
6	0.75	0.70	0.66	0.75	0.70	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.64
7	0.72	0.67	0.63	0.71	0.66	0.63	0.70	0.66	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.61
8	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.58
9	0.66	0.61	0.57	0.65	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.56
10	0.63	0.58	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.61	0.58	0.55	0.61	0.57	0.55	0.54

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/4/6	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	254.31	256.78	256.78	254.31	249.64	243.34	234.11	223.26	212.85
45.0	251.94	255.54	256.78	255.54	252.00	247.11	239.51	229.78	219.77
90.0	253.35	254.59	253.46	250.71	244.35	238.61	229.39	217.69	206.16
135.0	253.74	252.84	248.96	244.18	238.05	229.44	219.04	208.18	195.08
180.0	254.31	249.86	244.01	234.56	225.39	214.88	200.08	187.43	175.11
225.0	251.94	246.71	240.08	229.73	219.77	208.13	193.05	180.73	168.58
270.0	253.35	250.03	244.58	235.91	227.19	216.51	202.22	190.07	178.09
315.0	253.74	252.23	248.23	242.33	235.35	224.78	212.01	200.25	186.41
360.0	254.31	256.78	256.78	254.31	249.64	243.34	234.11	223.26	212.85

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	200.03	186.41	174.04	161.83	145.86	133.54	121.67	109.35	97.88
45.0	207.79	194.63	182.03	169.59	153.79	141.64	129.77	117.34	105.69
90.0	194.18	179.21	167.01	154.46	139.33	127.74	116.78	104.96	94.11
135.0	181.07	168.47	154.18	141.69	128.03	115.03	104.51	94.95	83.87
180.0	160.71	146.31	133.93	120.83	109.86	98.27	87.53	79.20	70.26
225.0	154.52	140.57	128.42	115.59	103.61	93.66	83.93	75.60	66.77
270.0	163.91	149.63	137.19	123.75	112.78	101.19	90.39	81.39	72.39
315.0	174.15	160.09	145.86	133.31	120.04	107.94	97.93	88.65	78.08
360.0	200.03	186.41	174.04	161.83	145.86	133.54	121.67	109.35	97.88

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	88.82	79.71	71.49	64.58	57.66	52.48	47.25	42.41	38.48
45.0	95.74	85.22	76.78	69.13	61.59	56.08	50.74	45.84	41.79
90.0	85.11	75.94	68.46	60.98	54.45	49.56	44.38	39.54	35.83
135.0	75.43	67.39	59.34	53.16	47.64	42.19	37.58	33.58	29.87
180.0	61.76	55.07	49.44	43.09	38.53	34.65	30.43	27.51	24.75
225.0	59.18	53.27	47.70	41.74	37.46	33.75	29.76	26.94	24.24
270.0	64.24	57.88	52.43	46.13	41.57	37.35	32.68	29.59	26.94
315.0	70.31	63.17	56.42	50.63	45.73	40.56	36.39	32.91	29.36
360.0	88.82	79.71	71.49	64.58	57.66	52.48	47.25	42.41	38.48

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	35.33	31.22	28.29	25.71	23.06	20.98	19.13	17.49	15.58
45.0	38.03	33.98	30.94	27.96	25.09	22.78	20.70	18.62	16.88
90.0	32.63	28.91	26.21	23.68	20.93	19.07	17.38	15.69	14.01
135.0	27.00	24.19	21.77	19.74	17.66	16.03	14.57	13.28	11.81
180.0	22.16	19.91	18.11	16.26	14.79	13.44	12.21	11.25	10.35
225.0	21.66	19.52	17.72	16.09	14.74	13.33	12.15	11.14	10.13
270.0	24.19	21.88	19.74	17.61	16.03	14.34	12.88	11.76	10.69
315.0	26.55	23.85	21.32	19.41	17.55	15.53	14.06	12.77	11.42
360.0	35.33	31.22	28.29	25.71	23.06	20.98	19.13	17.49	15.58

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	14.23	13.11	11.81	10.74	9.84	9.00	8.21	7.59	6.98
45.0	15.53	14.12	12.94	11.70	10.74	9.90	9.06	8.27	7.71
90.0	12.77	11.59	10.69	9.84	9.00	8.33	7.82	7.20	6.75
135.0	10.86	10.01	9.23	8.55	8.04	7.48	6.92	6.47	6.08
180.0	9.45	8.83	8.21	7.54	7.09	6.69	6.30	5.91	5.63
225.0	9.28	8.61	7.93	7.26	6.92	6.53	6.13	5.79	5.46
270.0	9.68	8.94	8.33	7.59	7.09	6.58	6.13	5.85	5.46
315.0	10.46	9.68	8.72	8.04	7.43	6.86	6.53	6.13	5.68
360.0	14.23	13.11	11.81	10.74	9.84	9.00	8.21	7.59	6.98

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	6.47	6.02	5.68	5.34	4.95	4.61	4.28	4.11	3.83
45.0	7.09	6.53	6.02	5.68	5.29	4.89	4.67	4.33	4.11
90.0	6.36	5.91	5.57	5.23	4.95	4.61	4.39	4.11	3.94
135.0	5.68	5.34	5.01	4.78	4.50	4.28	4.05	3.88	3.60
180.0	5.34	5.06	4.78	4.50	4.28	4.05	3.83	3.60	3.43
225.0	5.12	4.84	4.56	4.22	4.05	3.83	3.60	3.38	3.21
270.0	5.12	4.84	4.61	4.33	4.11	3.88	3.71	3.49	3.32
315.0	5.34	5.01	4.61	4.39	4.22	3.88	3.71	3.54	3.32
360.0	6.47	6.02	5.68	5.34	4.95	4.61	4.28	4.11	3.83

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.60	3.43	3.21	2.98	2.87	2.70	2.59	2.48	2.36
45.0	3.83	3.60	3.38	3.21	3.04	2.87	2.70	2.59	2.48
90.0	3.71	3.49	3.38	3.15	3.04	2.87	2.76	2.59	2.53
135.0	3.43	3.26	3.15	2.98	2.87	2.76	2.64	2.53	2.42
180.0	3.21	3.09	2.93	2.81	2.70	2.64	2.48	2.42	2.31
225.0	3.04	2.93	2.81	2.64	2.59	2.48	2.42	2.36	2.25
270.0	3.15	3.04	2.93	2.76	2.64	2.59	2.48	2.36	2.31
315.0	3.15	2.98	2.81	2.70	2.59	2.48	2.36	2.25	2.14
360.0	3.60	3.43	3.21	2.98	2.87	2.70	2.59	2.48	2.36

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.25	2.19	2.08	2.03	1.97	1.91	1.86	1.80	1.74
45.0	2.36	2.25	2.19	2.14	2.03	1.97	1.91	1.86	1.80
90.0	2.42	2.31	2.25	2.19	2.08	2.03	1.97	1.97	1.91
135.0	2.36	2.25	2.14	2.14	2.08	2.03	1.97	1.97	1.91
180.0	2.25	2.19	2.19	2.14	2.08	2.08	2.08	2.03	2.03
225.0	2.19	2.14	2.14	2.08	2.03	2.03	2.03	1.97	1.97
270.0	2.19	2.08	2.03	2.03	1.97	1.91	1.86	1.86	1.86
315.0	2.08	2.03	1.97	1.86	1.80	1.80	1.74	1.74	1.69
360.0	2.25	2.19	2.08	2.03	1.97	1.91	1.86	1.80	1.74

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

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.52	1.52	1.52	1.52	1.46	1.41	1.18	0.56	0.39
45.0	1.63	1.63	1.52	1.52	1.52	1.46	1.13	0.56	0.39
90.0	1.86	1.80	1.80	1.74	1.74	1.63	0.68	0.39	0.34
135.0	1.74	1.69	1.63	1.52	1.35	1.18	0.68	0.45	0.34
180.0	1.91	1.86	1.80	1.69	1.58	0.79	0.45	0.34	0.34
225.0	1.80	1.80	1.74	1.69	1.58	0.84	0.45	0.34	0.28
270.0	1.63	1.63	1.58	1.52	1.52	1.41	0.62	0.39	0.34
315.0	1.52	1.52	1.46	1.41	1.41	1.35	0.68	0.39	0.34
360.0	1.52	1.52	1.52	1.52	1.46	1.41	1.18	0.56	0.39

Intensity data(cd)

C/γ(°)	90.0
0.0	0.34
45.0	0.34
90.0	0.28
135.0	0.28
180.0	0.28
225.0	0.28
270.0	0.28
315.0	0.28
360.0	0.34