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

Nata

LumCAT: LN01D04515DA-N
Luminaire: 97.70.273.00
Report No: 200709-B005
Test No: 200709-C005
LampCAT: NICHIA NTCWS024B-V3
Lamp flux(lm): 737.5
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 35.4400
Current(A): 0.2000
Power (W): 7.0880
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 661.25
Efficiency(%): 89.66%
Lumens(lm)/Power(W): 93.29
Central intensity(cd): 5853.234
Maximum intensity(cd): 5853.234
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.2
[C90/270]Total=16.2
Field angle(10%Imax): [C0/180]Total=30.6
[C90/270]Total=30.6
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.66%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.018%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5853.234	0.000	0	.000%	.000%
1.0	5792.414	5.572	5.572	.756%	.843%
2.0	5595.961	16.346	21.918	2.216%	3.315%
3.0	5293.195	26.043	47.961	3.531%	7.253%
4.0	4913.859	34.166	82.127	4.633%	12.420%
5.0	4451.273	40.288	122.416	5.463%	18.513%
6.0	3941.930	44.109	166.524	5.981%	25.183%
7.0	3452.977	45.900	212.424	6.224%	32.125%
8.0	2964.234	45.927	258.351	6.227%	39.070%
9.0	2494.195	44.238	302.589	5.998%	45.760%
10.0	2043.352	41.063	343.652	5.568%	51.970%
11.0	1610.979	36.514	380.166	4.951%	57.492%
12.0	1315.695	31.993	412.159	4.338%	62.330%
13.0	1029.220	27.828	439.987	3.773%	66.539%
14.0	795.945	23.362	463.349	3.168%	70.072%
15.0	623.623	19.488	482.837	2.643%	73.019%
16.0	492.286	16.351	499.189	2.217%	75.492%
17.0	379.104	13.570	512.759	1.840%	77.544%
18.0	310.170	11.365	524.123	1.541%	79.263%
19.0	250.059	9.747	533.87	1.322%	80.737%
20.0	205.636	8.340	542.21	1.131%	81.998%
21.0	168.877	7.191	549.402	.975%	83.086%
22.0	144.780	6.303	555.705	.855%	84.039%
23.0	123.680	5.633	561.338	.764%	84.891%
24.0	106.214	5.026	566.364	.682%	85.651%
25.0	93.691	4.545	570.91	.616%	86.338%
26.0	82.962	4.170	575.08	.565%	86.969%
27.0	73.371	3.825	578.904	.519%	87.547%
28.0	65.616	3.519	582.423	.477%	88.079%
29.0	58.908	3.258	585.681	.442%	88.572%
30.0	53.241	3.028	588.709	.411%	89.030%
31.0	48.326	2.826	591.535	.383%	89.457%
32.0	43.798	2.639	594.175	.358%	89.857%
33.0	40.247	2.476	596.651	.336%	90.231%
34.0	37.223	2.344	598.995	.318%	90.586%
35.0	34.291	2.221	601.216	.301%	90.921%
36.0	31.943	2.109	603.325	.286%	91.240%
37.0	30.009	2.021	605.346	.274%	91.546%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	28.209	1.943	607.289	.263%	91.840%
39.0	26.318	1.861	609.15	.252%	92.121%
40.0	24.912	1.787	610.937	.242%	92.391%
41.0	23.541	1.725	612.662	.234%	92.652%
42.0	22.001	1.655	614.317	.224%	92.903%
43.0	20.672	1.581	615.897	.214%	93.142%
44.0	19.455	1.515	617.412	.205%	93.371%
45.0	18.204	1.447	618.859	.196%	93.590%
46.0	17.051	1.379	620.238	.187%	93.798%
47.0	16.024	1.315	621.553	.178%	93.997%
48.0	15.054	1.256	622.81	.170%	94.187%
49.0	14.210	1.202	624.012	.163%	94.369%
50.0	13.388	1.151	625.162	.156%	94.543%
51.0	12.734	1.105	626.267	.150%	94.710%
52.0	12.206	1.070	627.338	.145%	94.872%
53.0	11.679	1.039	628.377	.141%	95.029%
54.0	11.194	1.008	629.385	.137%	95.181%
55.0	10.786	0.981	630.366	.133%	95.330%
56.0	10.399	0.957	631.323	.130%	95.474%
57.0	9.970	0.931	632.254	.126%	95.615%
58.0	9.647	0.907	633.162	.123%	95.753%
59.0	9.330	0.887	634.049	.120%	95.887%
60.0	8.986	0.865	634.914	.117%	96.018%
61.0	8.691	0.844	635.758	.114%	96.145%
62.0	8.416	0.824	636.582	.112%	96.270%
63.0	8.142	0.805	637.387	.109%	96.392%
64.0	7.868	0.786	638.173	.107%	96.510%
65.0	7.622	0.767	638.94	.104%	96.626%
66.0	7.432	0.751	639.691	.102%	96.740%
67.0	7.467	0.749	640.44	.102%	96.853%
68.0	7.847	0.776	641.216	.105%	96.971%
69.0	8.416	0.830	642.045	.112%	97.096%
70.0	9.260	0.908	642.953	.123%	97.233%
71.0	10.223	1.007	643.96	.137%	97.386%
72.0	11.145	1.111	645.071	.151%	97.554%
73.0	11.911	1.206	646.277	.163%	97.736%
74.0	12.607	1.289	647.566	.175%	97.931%
75.0	13.198	1.363	648.929	.185%	98.137%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.380	1.411	650.34	.191%	98.350%
77.0	12.987	1.406	651.746	.191%	98.563%
78.0	12.206	1.349	653.094	.183%	98.767%
79.0	11.250	1.260	654.355	.171%	98.958%
80.0	10.392	1.167	655.522	.158%	99.134%
81.0	9.323	1.066	656.588	.145%	99.295%
82.0	7.945	0.936	657.524	.127%	99.437%
83.0	6.216	0.770	658.294	.104%	99.553%
84.0	4.957	0.609	658.903	.083%	99.645%
85.0	4.113	0.495	659.398	.067%	99.720%
86.0	3.713	0.428	659.825	.058%	99.785%
87.0	3.424	0.391	660.216	.053%	99.844%
88.0	3.185	0.362	660.578	.049%	99.899%
89.0	3.030	0.341	660.919	.046%	99.950%
90.0	2.974	0.329	661.248	.045%	100.000%

Zonal flux distribution table

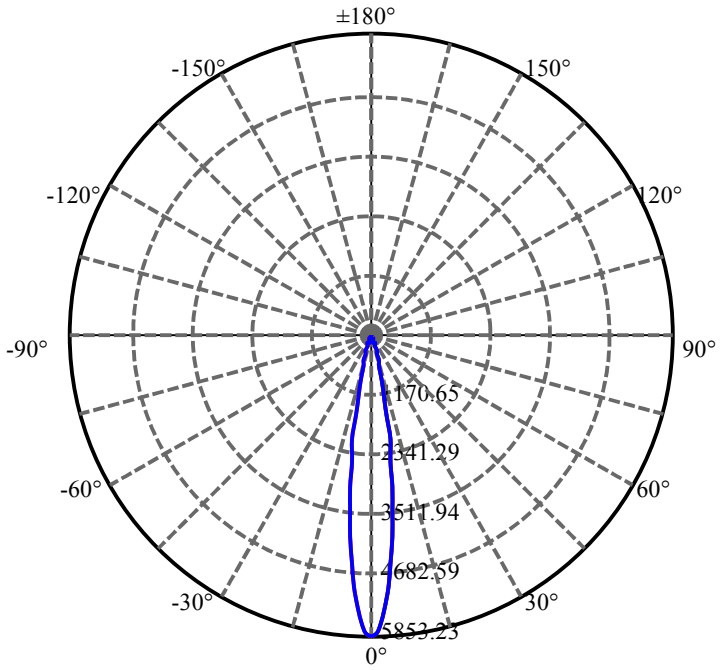
ZONAL LUMEN SUMMARY

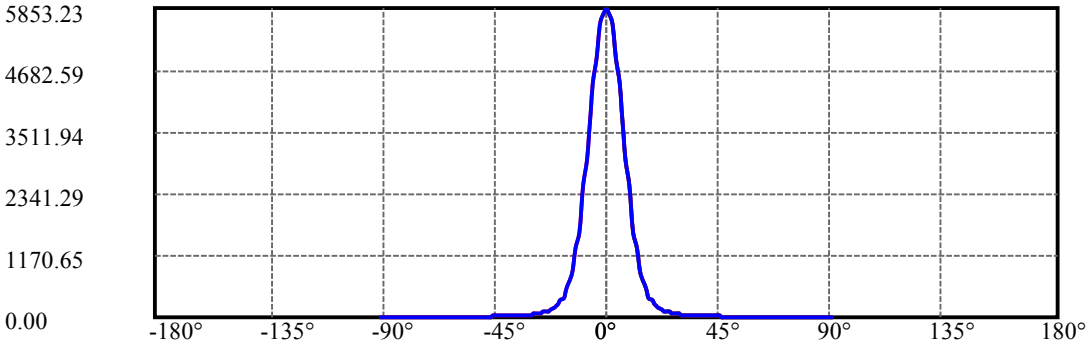
Zone	Lumens	%Lamp	%Fixt
0-30	588.71	79.83%	89.03%
0-40	610.94	82.84%	92.39%
0-60	634.91	86.09%	96.02%
0-90	660.92	89.62%	99.95%
0-120	660.92	89.62%	99.95%
0-180	661.25	89.66%	100.00%
60-90	26.87	3.64%	4.06%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.50	529.00	71.73%	80.00%

ZONAL LUMEN SUMMARY

0-10	343.65
10-20	198.56
20-30	46.50
30-40	22.23
40-50	14.23
50-60	9.75
60-70	8.04
70-80	12.57
80-90	5.40
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):

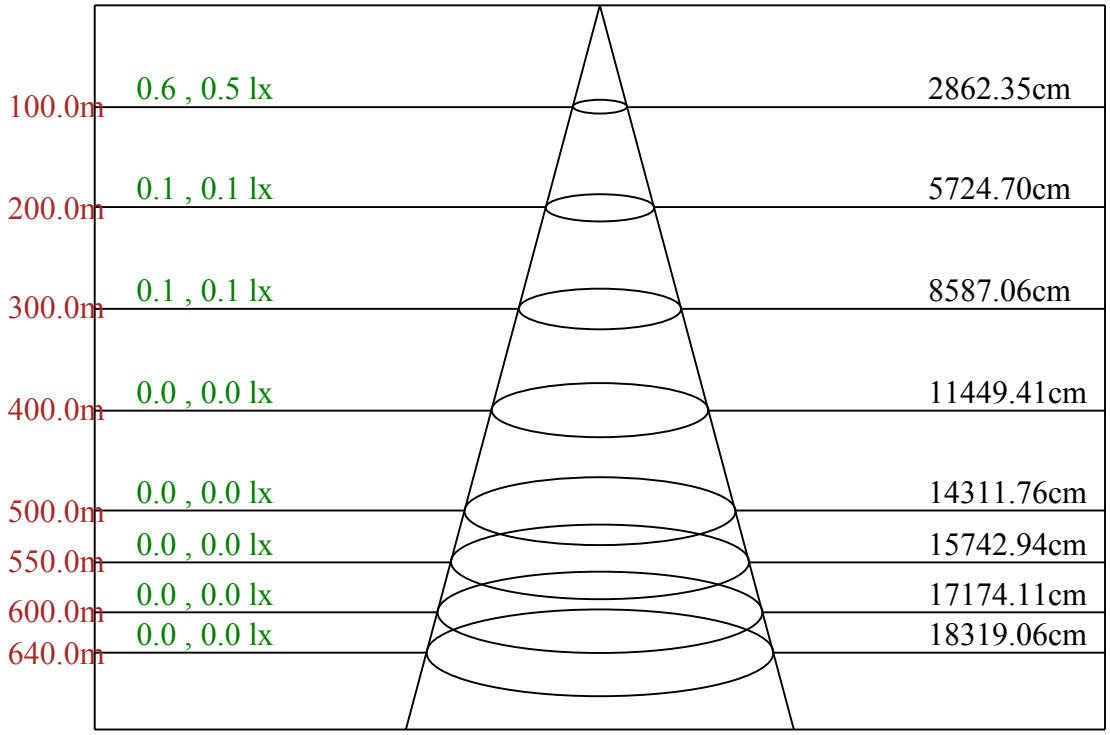
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:15.3 Right:15.3
:C90/270Left:15.3 Right:15.3

Beam Angle(50%Imax):C0/180Left:8.1 Right:8.1
:C90/270Left:8.1 Right:8.1

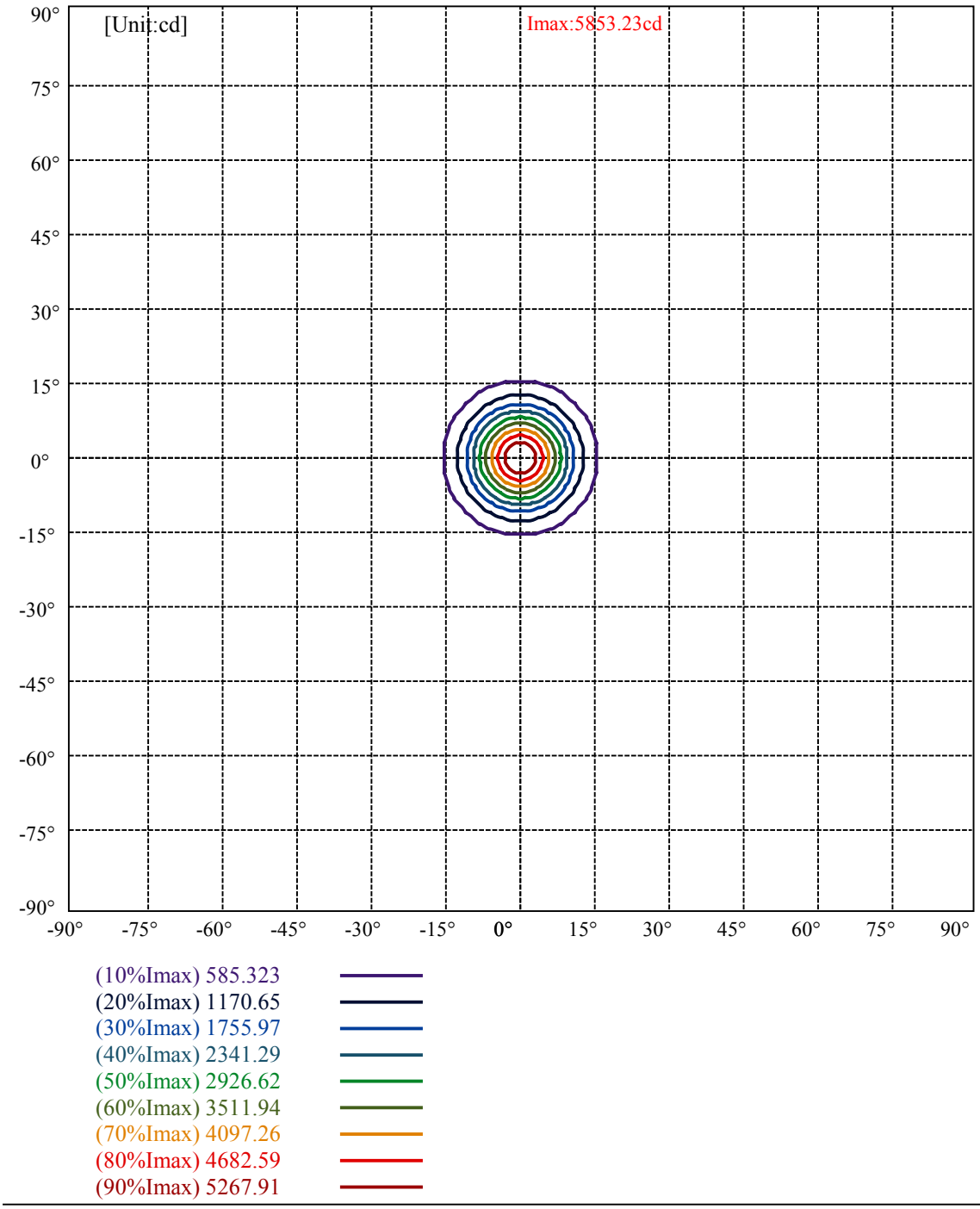
Lux distance Curve



Max , Ave

Beam angle of C0 plane 16.29

ISO-Intensity(V-H)

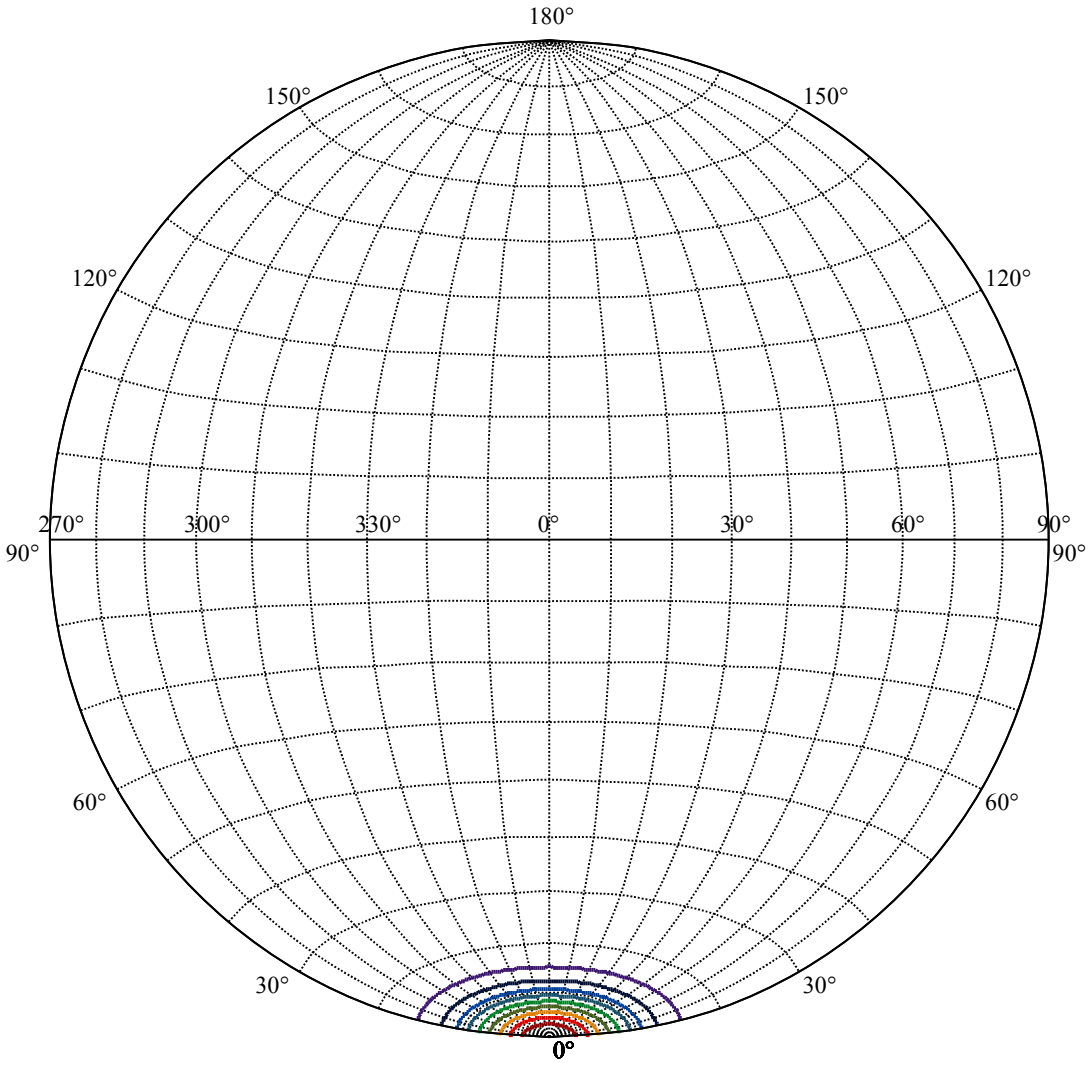


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5853.23

(10%Imax) 585.323
(20%Imax) 1170.65
(30%Imax) 1755.97
(40%Imax) 2341.29
(50%Imax) 2926.62
(60%Imax) 3511.94
(70%Imax) 4097.26
(80%Imax) 4682.59
(90%Imax) 5267.91

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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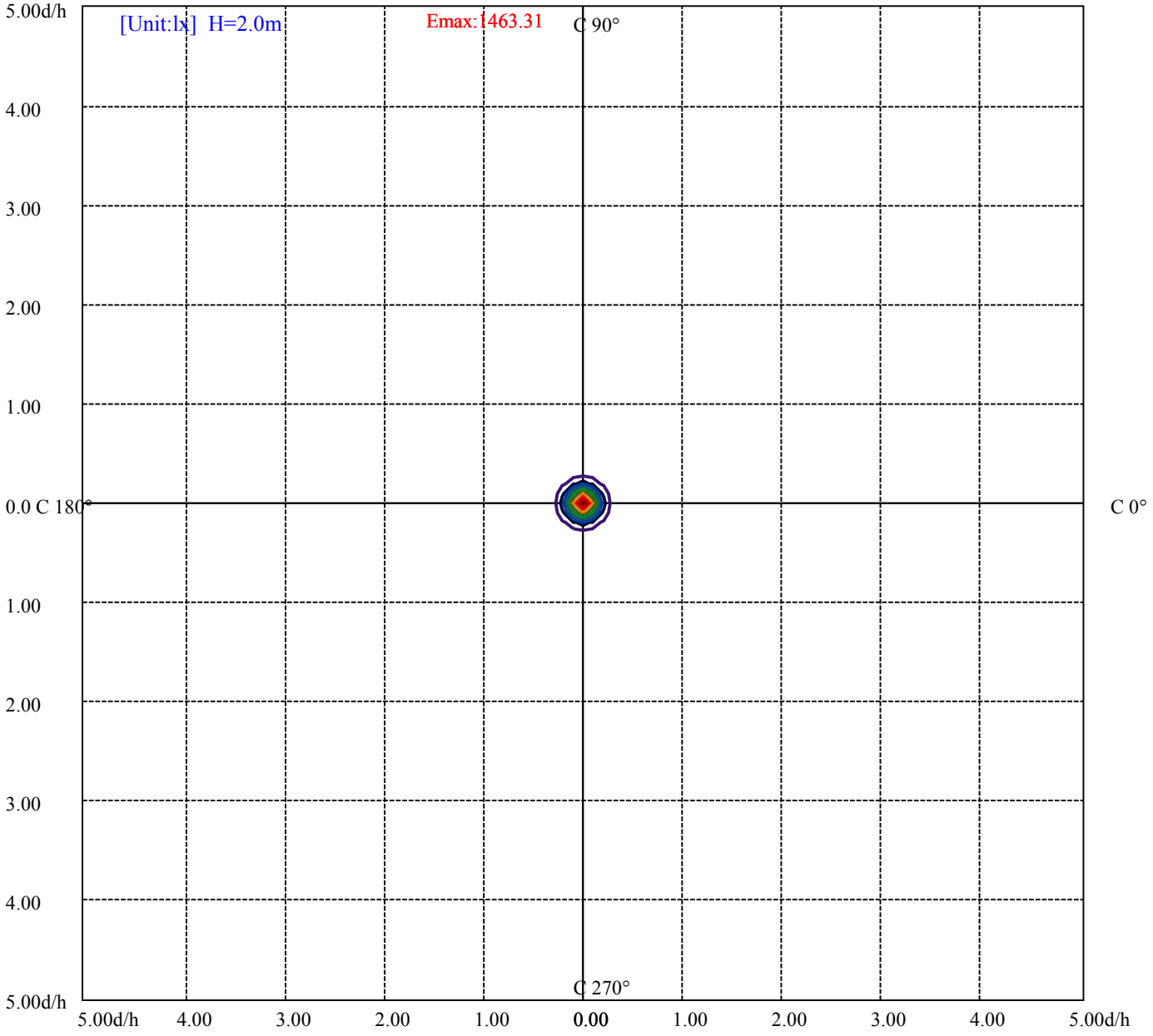
ISO illuminance diagram

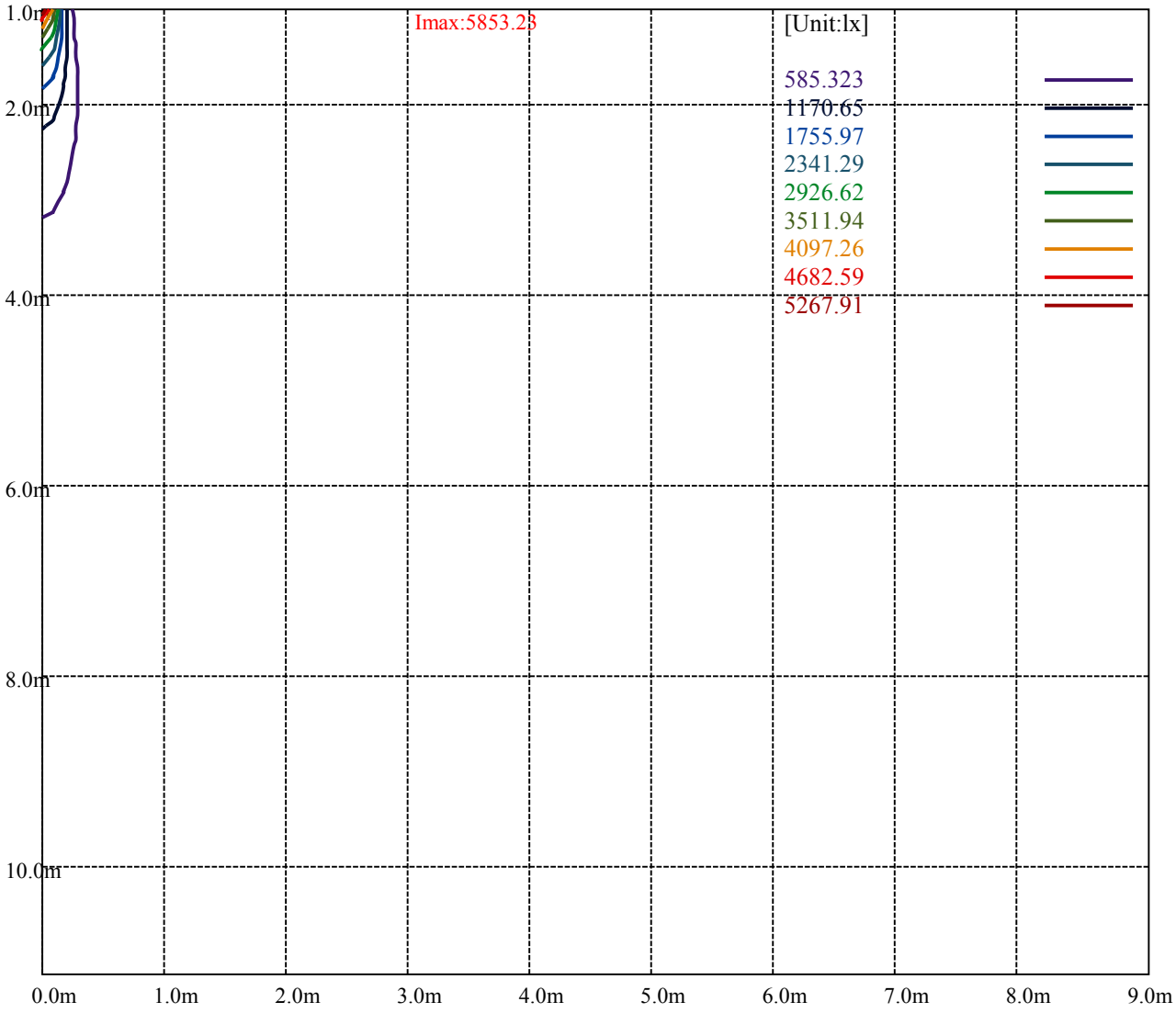


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/7/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

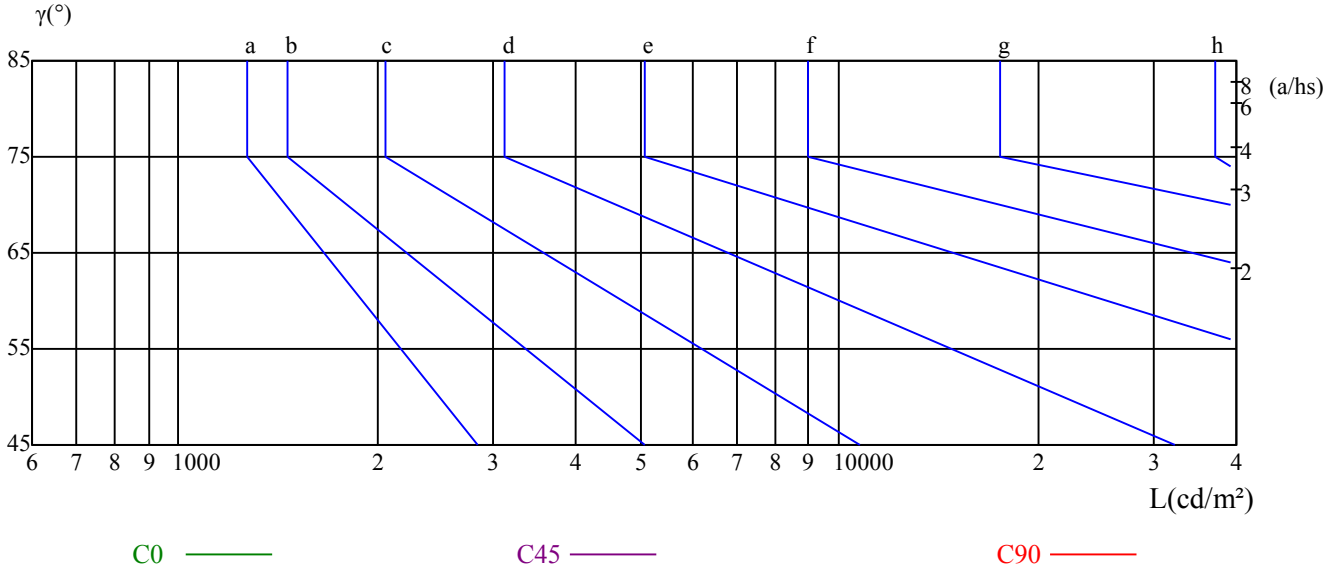
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

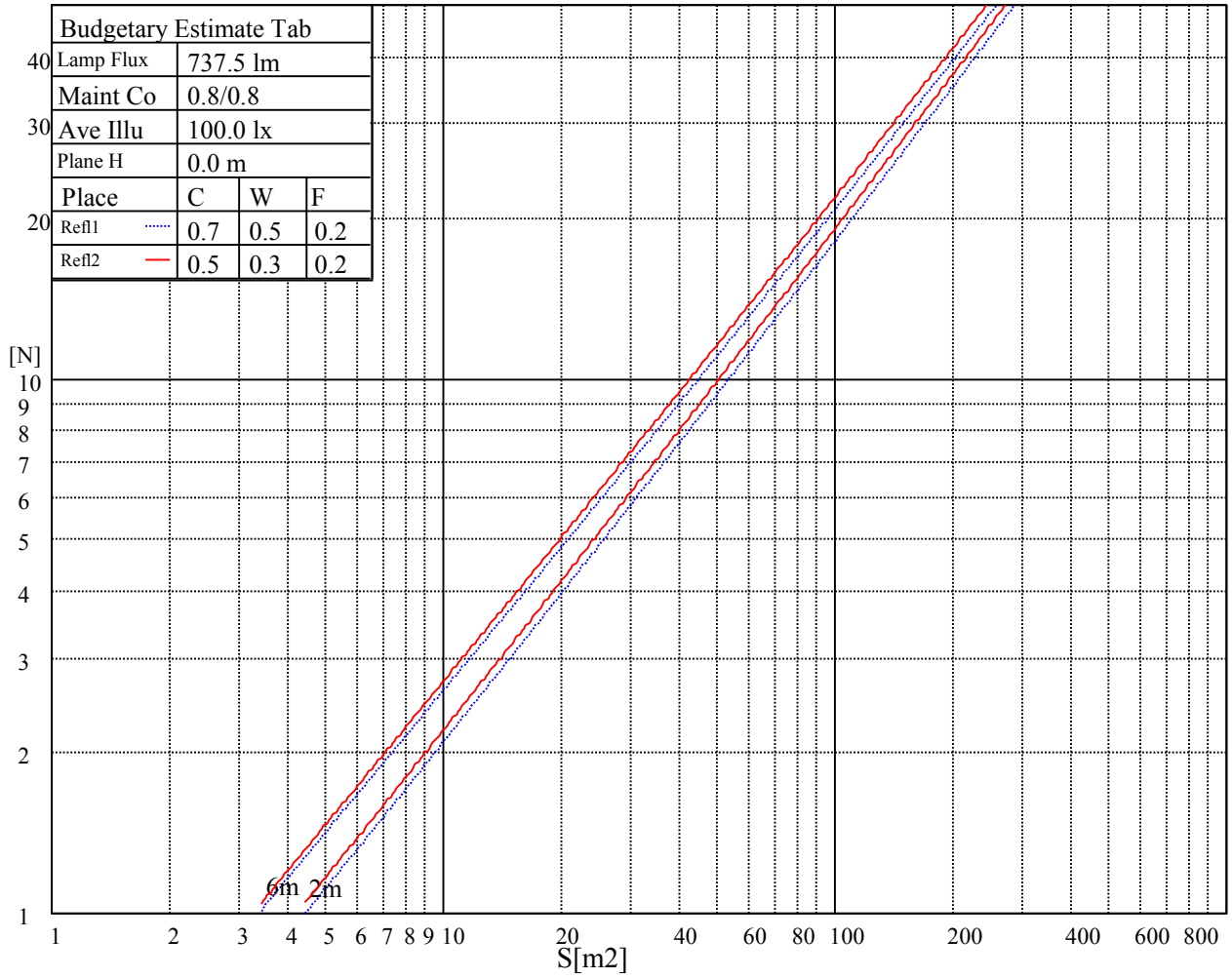
Glare Table

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

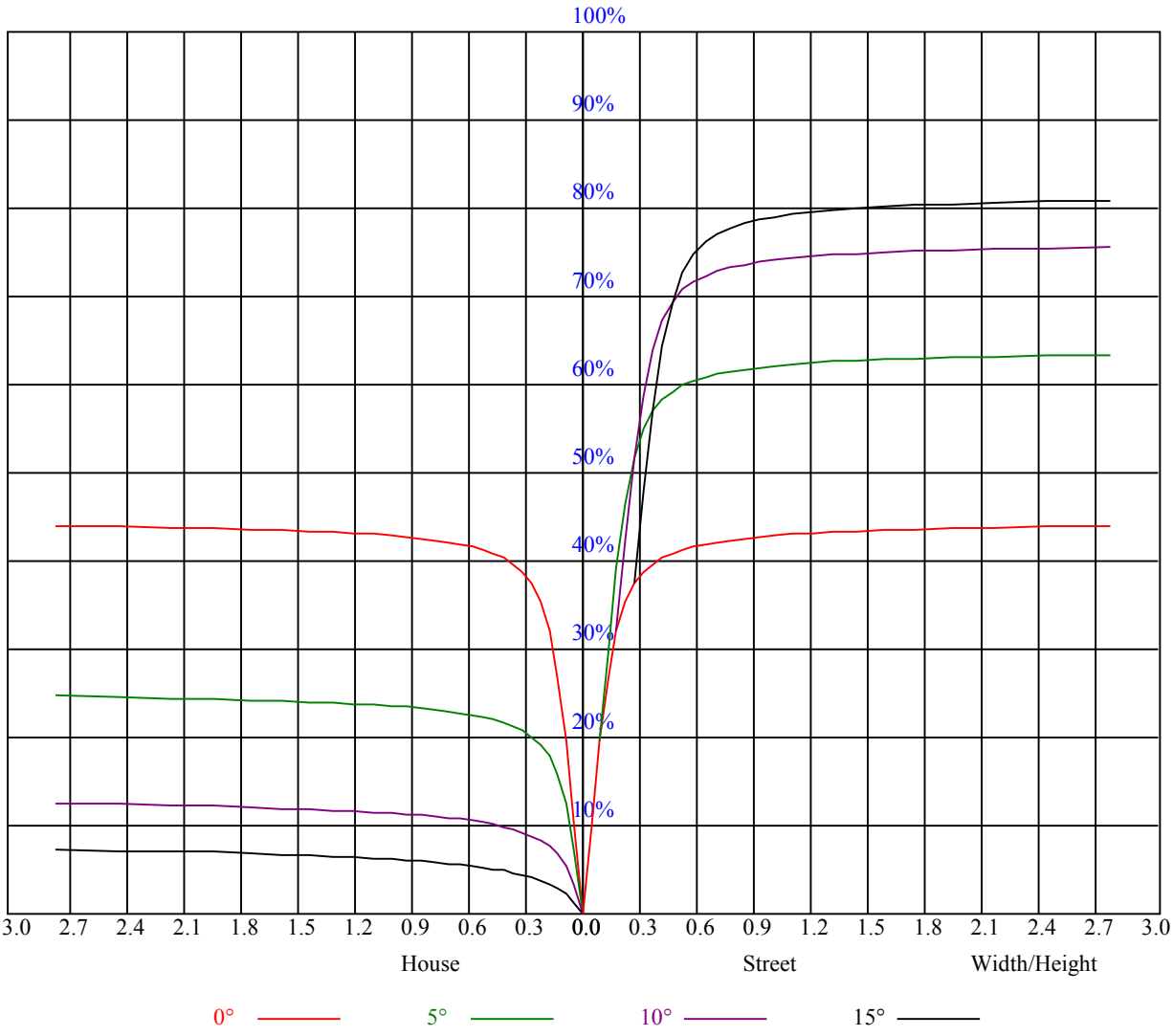


Equipment: GMS1980 Date: 2020/7/9 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.96	0.93	0.90	0.94	0.92	0.89	0.91	0.89	0.87	0.89	0.87	0.86	0.86	0.85	0.84	0.82
3	0.92	0.88	0.86	0.90	0.87	0.85	0.88	0.86	0.84	0.86	0.84	0.82	0.84	0.83	0.81	0.80
4	0.88	0.85	0.82	0.87	0.84	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.78
5	0.86	0.82	0.79	0.85	0.81	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.81	0.79	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	0.78	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	0.76	0.74	0.79	0.76	0.74	0.78	0.75	0.74	0.73
8	0.79	0.75	0.73	0.79	0.75	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
9	0.77	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
10	0.76	0.72	0.70	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.74	0.71	0.70	0.69

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/7/9	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	5837.06	5940.56	5917.50	5776.88	5521.50	5119.88	4631.63	4174.88	3632.06
45.0	5838.75	5884.88	5829.19	5585.63	5298.19	4925.25	4375.13	3912.75	3442.50
90.0	5839.88	5743.13	5495.63	5136.19	4739.06	4248.00	3774.94	3239.44	2726.44
135.0	5897.25	5777.44	5465.81	5119.31	4701.94	4182.75	3646.69	3168.56	2653.88
180.0	5837.06	5623.31	5265.56	4810.50	4357.69	3832.88	3298.50	2836.13	2343.94
225.0	5838.75	5623.31	5329.69	4966.31	4425.75	4026.38	3504.38	2936.25	2553.75
270.0	5839.88	5837.06	5675.63	5421.38	5071.50	4547.25	4090.50	3623.06	3164.06
315.0	5897.25	5909.63	5788.69	5529.38	5195.25	4727.81	4213.69	3732.75	3197.25
360.0	5837.06	5940.56	5917.50	5776.88	5521.50	5119.88	4631.63	4174.88	3632.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3171.38	2665.69	2189.25	1801.13	1422.56	1103.63	871.31	686.25	514.69
45.0	2874.94	2436.75	2024.44	1607.63	1252.13	993.94	761.63	598.50	462.38
90.0	2292.75	1842.19	1453.50	1095.86	919.24	682.76	539.16	428.79	334.74
135.0	2175.75	1779.19	1392.75	1100.81	833.06	628.88	492.75	388.69	293.06
180.0	1941.19	1540.13	1109.59	963.11	747.90	583.43	472.44	386.16	304.88
225.0	2140.31	1629.00	1104.24	1073.08	828.11	640.91	509.68	409.56	319.56
270.0	2617.88	2204.44	1818.00	1440.00	1122.75	892.13	687.38	532.13	429.19
315.0	2739.38	2249.44	1796.06	1443.94	1108.01	841.89	654.64	508.22	374.34
360.0	3171.38	2665.69	2189.25	1801.13	1422.56	1103.63	871.31	686.25	514.69

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	411.75	334.13	288.56	218.31	185.23	156.26	132.86	116.33	102.43
45.0	358.31	291.38	232.26	191.81	163.07	140.46	118.69	104.74	93.54
90.0	265.39	220.61	181.69	151.93	131.29	112.78	99.28	86.68	76.11
135.0	285.19	191.70	154.24	131.34	113.46	99.11	84.94	75.99	68.68
180.0	254.42	214.54	182.42	150.30	130.05	113.46	96.36	85.16	75.77
225.0	265.84	223.71	186.30	157.05	136.07	116.61	101.36	90.28	79.76
270.0	343.13	285.19	232.31	193.33	165.60	140.01	119.25	104.12	91.18
315.0	297.34	239.23	187.31	156.94	133.48	110.76	96.98	86.23	76.22
360.0	411.75	334.13	288.56	218.31	185.23	156.26	132.86	116.33	102.43

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	87.92	78.41	69.47	62.66	56.25	51.08	46.35	42.47	38.42
45.0	83.42	74.53	67.39	60.47	54.56	49.78	45.11	41.34	37.80
90.0	68.46	61.65	54.51	49.44	45.28	40.56	37.58	34.88	32.34
135.0	61.37	55.58	50.68	46.13	42.08	39.09	36.11	33.92	31.73
180.0	66.83	59.29	53.55	47.98	43.88	39.49	36.68	34.20	31.84
225.0	72.00	64.18	57.77	52.82	48.26	43.31	39.99	37.01	33.69
270.0	78.19	69.69	62.49	55.74	49.84	45.45	41.12	37.52	34.88
315.0	68.79	61.59	55.41	50.68	46.46	41.63	39.04	36.45	33.64
360.0	87.92	78.41	69.47	62.66	56.25	51.08	46.35	42.47	38.42

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	35.66	33.24	31.05	28.63	27.00	25.54	23.79	22.44	21.09
45.0	34.76	32.34	30.32	28.07	26.55	24.98	23.01	21.54	20.19
90.0	30.15	28.41	26.72	25.14	23.74	22.33	21.09	19.86	18.62
135.0	29.81	28.29	27.00	25.14	23.96	22.95	21.26	20.03	19.13
180.0	29.64	27.90	26.33	24.47	23.12	21.77	20.31	18.96	17.83
225.0	31.50	29.53	27.56	25.82	24.36	22.78	21.43	19.97	18.62
270.0	32.29	30.32	28.41	26.61	25.14	23.91	22.28	21.09	19.97
315.0	31.73	30.04	28.29	26.66	25.43	24.08	22.84	21.49	20.19
360.0	35.66	33.24	31.05	28.63	27.00	25.54	23.79	22.44	21.09

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	19.86	18.51	17.44	16.26	15.30	14.40	13.50	12.88	12.15
45.0	18.73	17.38	16.31	15.30	14.23	13.33	12.60	11.98	11.42
90.0	17.55	16.59	15.41	14.57	13.78	12.99	12.43	11.93	11.36
135.0	17.72	16.65	15.81	14.74	14.01	13.39	12.71	12.21	11.76
180.0	16.65	15.58	14.74	13.89	13.22	12.49	11.93	11.48	11.08
225.0	17.44	16.26	15.19	14.40	13.67	12.83	12.32	11.87	11.42
270.0	18.56	17.55	16.54	15.47	14.51	13.73	13.05	12.54	11.98
315.0	19.13	17.89	16.76	15.81	14.96	13.95	13.33	12.77	12.26
360.0	19.86	18.51	17.44	16.26	15.30	14.40	13.50	12.88	12.15

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.64	11.19	10.80	10.29	9.96	9.62	9.23	8.89	8.61
45.0	10.91	10.46	10.13	9.68	9.39	9.11	8.72	8.49	8.27
90.0	10.91	10.52	10.07	9.73	9.39	9.00	8.78	8.38	8.10
135.0	11.25	10.80	10.41	9.96	9.62	9.34	8.94	8.66	8.38
180.0	10.58	10.24	9.90	9.51	9.23	8.94	8.61	8.38	8.10
225.0	11.03	10.69	10.29	9.96	9.68	9.39	9.17	8.89	8.61
270.0	11.53	11.14	10.74	10.29	9.96	9.56	9.17	8.89	8.61
315.0	11.70	11.25	10.86	10.35	9.96	9.68	9.28	8.94	8.66
360.0	11.64	11.19	10.80	10.29	9.96	9.62	9.23	8.89	8.61

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.33	8.04	7.82	7.48	7.26	7.03	6.81	6.64	6.41
45.0	8.04	7.76	7.59	7.43	7.65	8.94	11.03	14.85	19.18
90.0	7.88	7.59	7.26	7.03	6.86	6.58	6.41	6.24	6.08
135.0	8.04	7.76	7.54	7.26	7.03	6.81	6.58	6.41	6.19
180.0	7.82	7.54	7.31	7.09	6.86	6.69	6.47	6.30	6.13
225.0	8.38	8.21	7.93	8.16	9.51	12.66	16.43	20.48	25.09
270.0	8.27	7.99	7.71	7.48	7.26	7.03	6.81	6.58	6.36
315.0	8.38	8.04	7.82	7.54	7.31	7.03	6.81	6.58	6.36
360.0	8.33	8.04	7.82	7.48	7.26	7.03	6.81	6.64	6.41

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.24	6.08	5.96	5.74	5.57	5.40	5.23	5.06	4.95
45.0	23.57	26.94	30.26	33.53	36.23	37.07	34.99	31.61	28.91
90.0	5.85	5.68	5.40	5.23	5.01	4.89	4.73	4.56	4.39
135.0	5.91	5.79	5.57	5.40	5.23	5.06	4.89	4.73	4.61
180.0	5.91	5.74	5.57	5.40	5.23	5.12	4.95	4.84	4.67
225.0	29.36	33.13	36.51	39.26	39.04	35.94	32.79	29.48	26.16
270.0	6.19	5.96	5.79	5.46	5.34	5.18	5.01	4.84	4.67
315.0	6.13	5.96	5.79	5.57	5.40	5.23	5.06	4.89	4.78
360.0	6.24	6.08	5.96	5.74	5.57	5.40	5.23	5.06	4.95

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.73	4.56	4.39	4.22	4.05	3.83	3.66	3.43	3.21
45.0	26.33	23.18	17.83	10.97	5.79	4.28	3.94	3.32	3.04
90.0	4.16	3.99	3.83	3.66	3.49	3.26	3.04	2.93	2.81
135.0	4.50	4.33	4.16	3.99	3.83	3.54	3.38	3.21	3.09
180.0	4.44	4.28	4.05	3.83	3.66	3.38	3.15	2.98	2.93
225.0	21.32	14.40	7.03	4.89	4.33	4.05	3.26	3.15	2.98
270.0	4.50	4.33	4.11	3.88	3.71	3.49	3.32	3.09	2.98
315.0	4.61	4.50	4.33	4.22	4.05	3.88	3.66	3.38	3.21
360.0	4.73	4.56	4.39	4.22	4.05	3.83	3.66	3.43	3.21

Intensity data(cd)

C/γ(°)	90.0
0.0	2.98
45.0	2.98
90.0	2.81
135.0	3.15
180.0	2.93
225.0	2.93
270.0	2.87
315.0	3.15
360.0	2.98