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

Nata

LumCAT: 2-1745-N
Luminaire: 92.70.124.00

Report No: 200406-B030	Voltage(V): 220.4000
Test No: 200406-C030	Current(A): 0.0410
LampCAT: SAMSUNG LC013D	Power (W): 8.2600
Lamp flux(lm): 931.0	PF: 0.8960
Number of Lamps: 1	Ballast type: AC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 792.08
Efficiency(%): 85.08%
Lumens(lm)/Power(W): 95.89
Central intensity(cd): 4478.433
Maximum intensity(cd): 4478.433
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.5
[C90/270]Total=15.5
Field angle(10%Imax): [C0/180]Total=45.0
[C90/270]Total=45.0
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 85.08%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.141%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4478.433	0.000	0	.000%	.000%
1.0	4420.545	4.258	4.258	.457%	.538%
2.0	4247.402	12.441	16.699	1.336%	2.108%
3.0	3973.623	19.662	36.361	2.112%	4.591%
4.0	3626.352	25.440	61.801	2.732%	7.802%
5.0	3260.519	29.627	91.428	3.182%	11.543%
6.0	2840.105	32.060	123.488	3.444%	15.590%
7.0	2456.929	32.879	156.367	3.532%	19.741%
8.0	2162.848	33.063	189.429	3.551%	23.916%
9.0	1823.176	32.305	221.734	3.470%	27.994%
10.0	1570.573	30.712	252.446	3.299%	31.871%
11.0	1397.199	29.654	282.1	3.185%	35.615%
12.0	1213.523	28.539	310.639	3.065%	39.218%
13.0	1078.982	27.206	337.846	2.922%	42.653%
14.0	951.205	25.986	363.832	2.791%	45.934%
15.0	864.773	24.931	388.762	2.678%	49.081%
16.0	790.626	24.256	413.018	2.605%	52.144%
17.0	717.732	23.489	436.508	2.523%	55.109%
18.0	652.350	22.590	459.097	2.426%	57.961%
19.0	595.407	21.708	480.806	2.332%	60.702%
20.0	545.587	20.883	501.689	2.243%	63.338%
21.0	501.725	20.111	521.8	2.160%	65.877%
22.0	464.857	19.424	541.224	2.086%	68.330%
23.0	430.722	18.792	560.015	2.018%	70.702%
24.0	402.184	18.210	578.225	1.956%	73.001%
25.0	377.862	17.737	595.962	1.905%	75.240%
26.0	357.172	17.351	613.313	1.864%	77.431%
27.0	336.737	16.977	630.289	1.823%	79.574%
28.0	317.132	16.555	646.844	1.778%	81.664%
29.0	297.753	16.087	662.931	1.728%	83.695%
30.0	275.044	15.465	678.396	1.661%	85.648%
31.0	250.810	14.634	693.03	1.572%	87.495%
32.0	219.192	13.465	706.495	1.446%	89.195%
33.0	180.480	11.774	718.27	1.265%	90.682%
34.0	151.820	10.056	728.326	1.080%	91.951%
35.0	113.155	8.229	736.555	.884%	92.990%
36.0	95.144	6.632	743.187	.712%	93.828%
37.0	61.995	5.125	748.312	.550%	94.475%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	45.429	3.586	751.898	.385%	94.927%
39.0	33.961	2.710	754.608	.291%	95.270%
40.0	26.972	2.125	756.733	.228%	95.538%
41.0	22.511	1.762	758.495	.189%	95.760%
42.0	19.617	1.531	760.026	.164%	95.954%
43.0	17.424	1.372	761.398	.147%	96.127%
44.0	15.974	1.261	762.658	.135%	96.286%
45.0	14.565	1.174	763.832	.126%	96.434%
46.0	13.643	1.103	764.935	.118%	96.573%
47.0	12.999	1.060	765.995	.114%	96.707%
48.0	12.175	1.018	767.012	.109%	96.836%
49.0	11.653	0.979	767.991	.105%	96.959%
50.0	11.201	0.953	768.944	.102%	97.079%
51.0	10.644	0.924	769.868	.099%	97.196%
52.0	10.307	0.899	770.767	.097%	97.310%
53.0	9.954	0.881	771.648	.095%	97.421%
54.0	9.646	0.864	772.512	.093%	97.530%
55.0	9.356	0.848	773.36	.091%	97.637%
56.0	9.049	0.832	774.192	.089%	97.742%
57.0	8.753	0.814	775.006	.087%	97.845%
58.0	8.515	0.799	775.805	.086%	97.946%
59.0	8.237	0.783	776.588	.084%	98.044%
60.0	8.005	0.767	777.355	.082%	98.141%
61.0	7.784	0.753	778.108	.081%	98.236%
62.0	7.604	0.742	778.85	.080%	98.330%
63.0	7.425	0.731	779.581	.079%	98.422%
64.0	7.193	0.717	780.298	.077%	98.513%
65.0	6.995	0.702	781	.075%	98.602%
66.0	6.781	0.687	781.688	.074%	98.688%
67.0	6.543	0.670	782.358	.072%	98.773%
68.0	6.328	0.652	783.01	.070%	98.855%
69.0	6.044	0.631	783.641	.068%	98.935%
70.0	5.812	0.609	784.25	.065%	99.012%
71.0	5.586	0.589	784.839	.063%	99.086%
72.0	5.267	0.564	785.403	.061%	99.157%
73.0	5.046	0.539	785.942	.058%	99.226%
74.0	4.843	0.520	786.462	.056%	99.291%
75.0	4.606	0.499	786.962	.054%	99.354%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.408	0.478	787.44	.051%	99.415%
77.0	4.205	0.459	787.899	.049%	99.473%
78.0	4.002	0.439	788.339	.047%	99.528%
79.0	3.828	0.421	788.759	.045%	99.581%
80.0	3.631	0.402	789.162	.043%	99.632%
81.0	3.451	0.383	789.545	.041%	99.680%
82.0	3.231	0.362	789.907	.039%	99.726%
83.0	3.028	0.340	790.247	.037%	99.769%
84.0	2.842	0.320	790.567	.034%	99.809%
85.0	2.651	0.300	790.867	.032%	99.847%
86.0	2.454	0.279	791.146	.030%	99.882%
87.0	2.227	0.256	791.402	.028%	99.915%
88.0	2.077	0.236	791.638	.025%	99.945%
89.0	2.007	0.224	791.861	.024%	99.973%
90.0	1.920	0.215	792.077	.023%	100.000%

Zonal flux distribution table

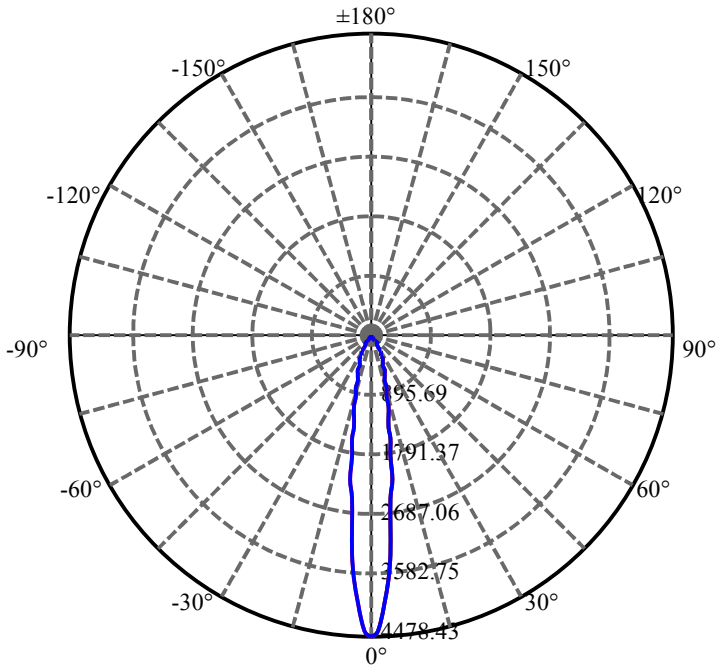
ZONAL LUMEN SUMMARY

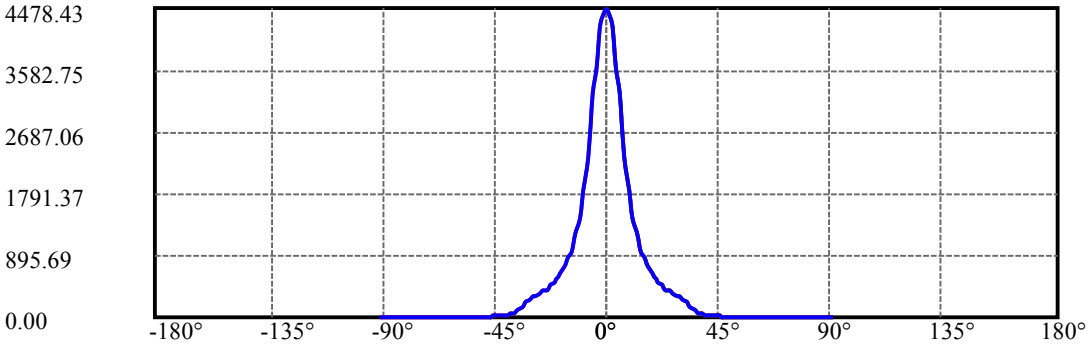
Zone	Lumens	%Lamp	%Fixt
0-30	678.40	72.87%	85.65%
0-40	756.73	81.28%	95.54%
0-60	777.36	83.50%	98.14%
0-90	791.86	85.05%	99.97%
0-120	791.86	85.05%	99.97%
0-180	792.08	85.08%	100.00%
60-90	15.27	1.64%	1.93%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.20	633.66	68.06%	80.00%

ZONAL LUMEN SUMMARY

0-10	252.45
10-20	249.24
20-30	176.71
30-40	78.34
40-50	12.21
50-60	8.41
60-70	6.89
70-80	4.91
80-90	2.70
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):

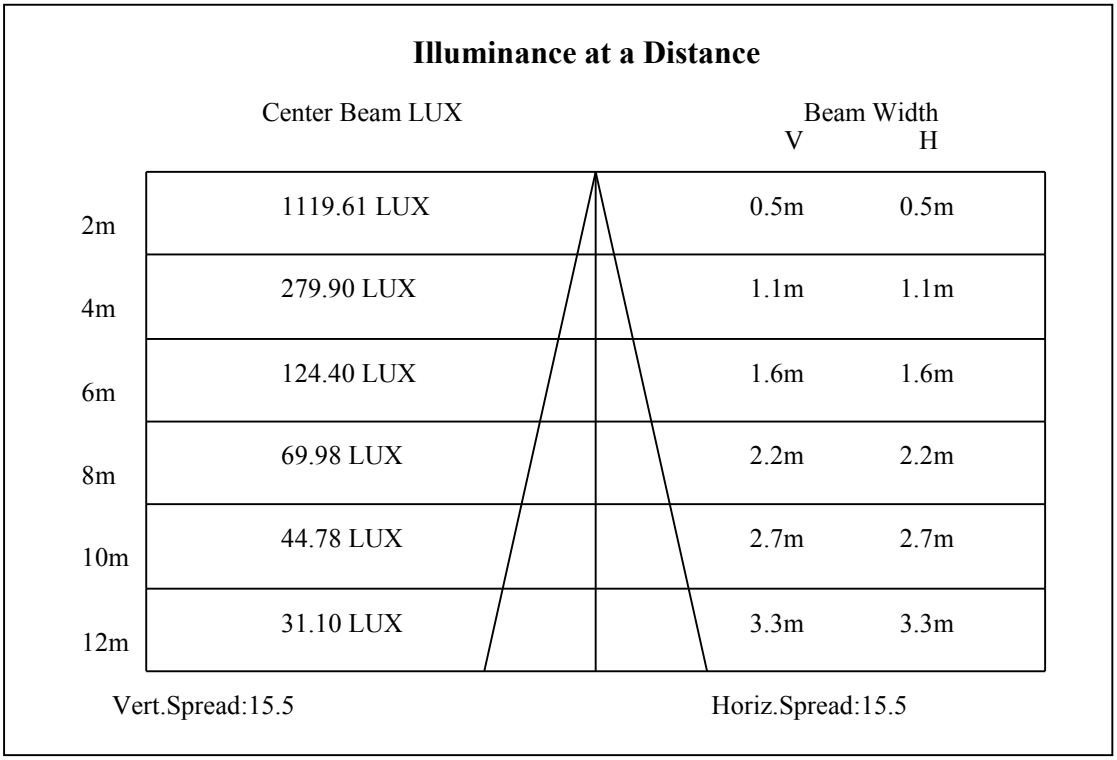
C0/C180:

C90/C270:

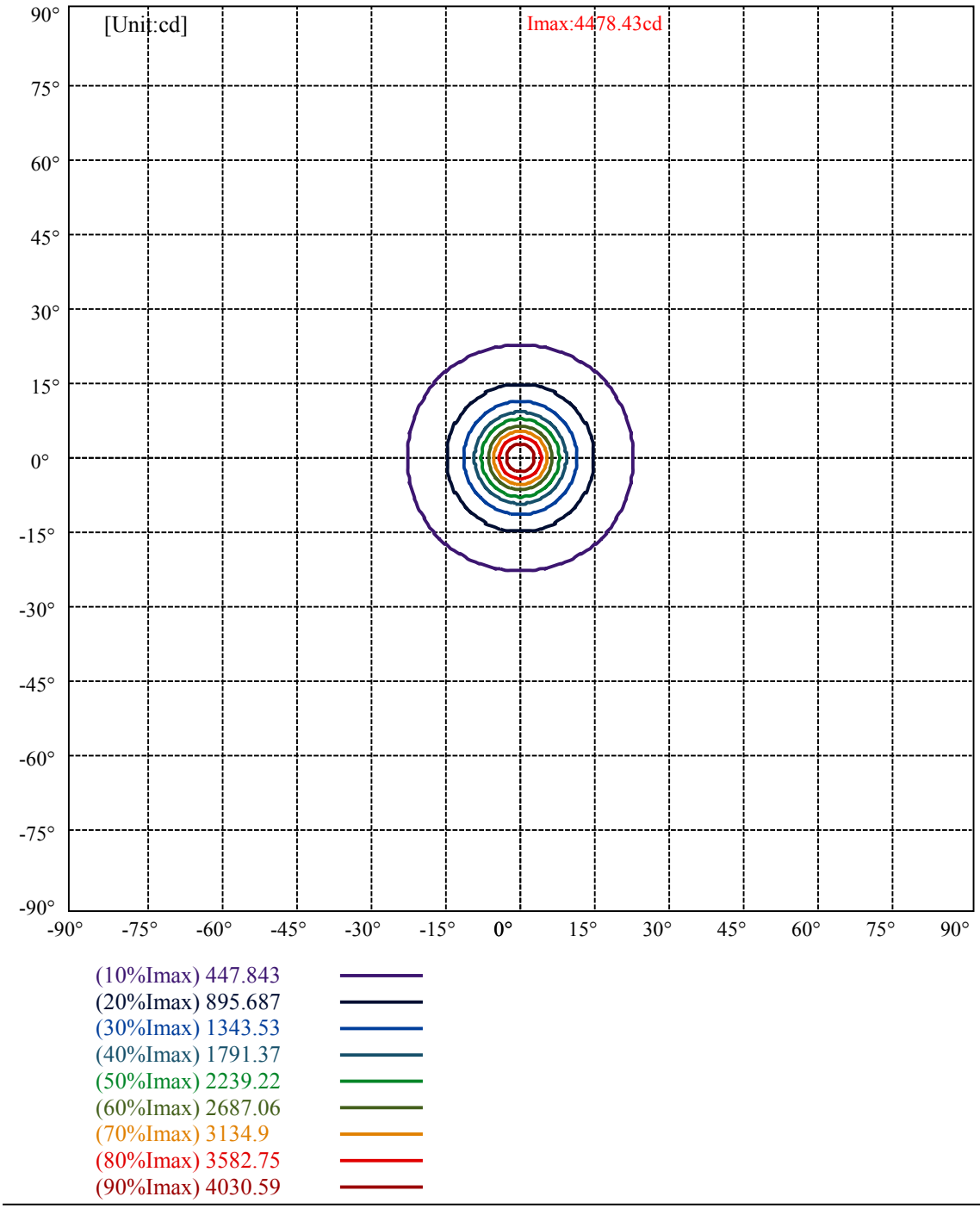
Field angle(10%Imax):C0/180Left:22.5 Right:22.5
:C90/270Left:22.5 Right:22.5

Beam Angle(50%Imax):C0/180Left:7.7 Right:7.7
:C90/270Left:7.7 Right:7.7

Lux distance Curve



ISO-Intensity(V-H)

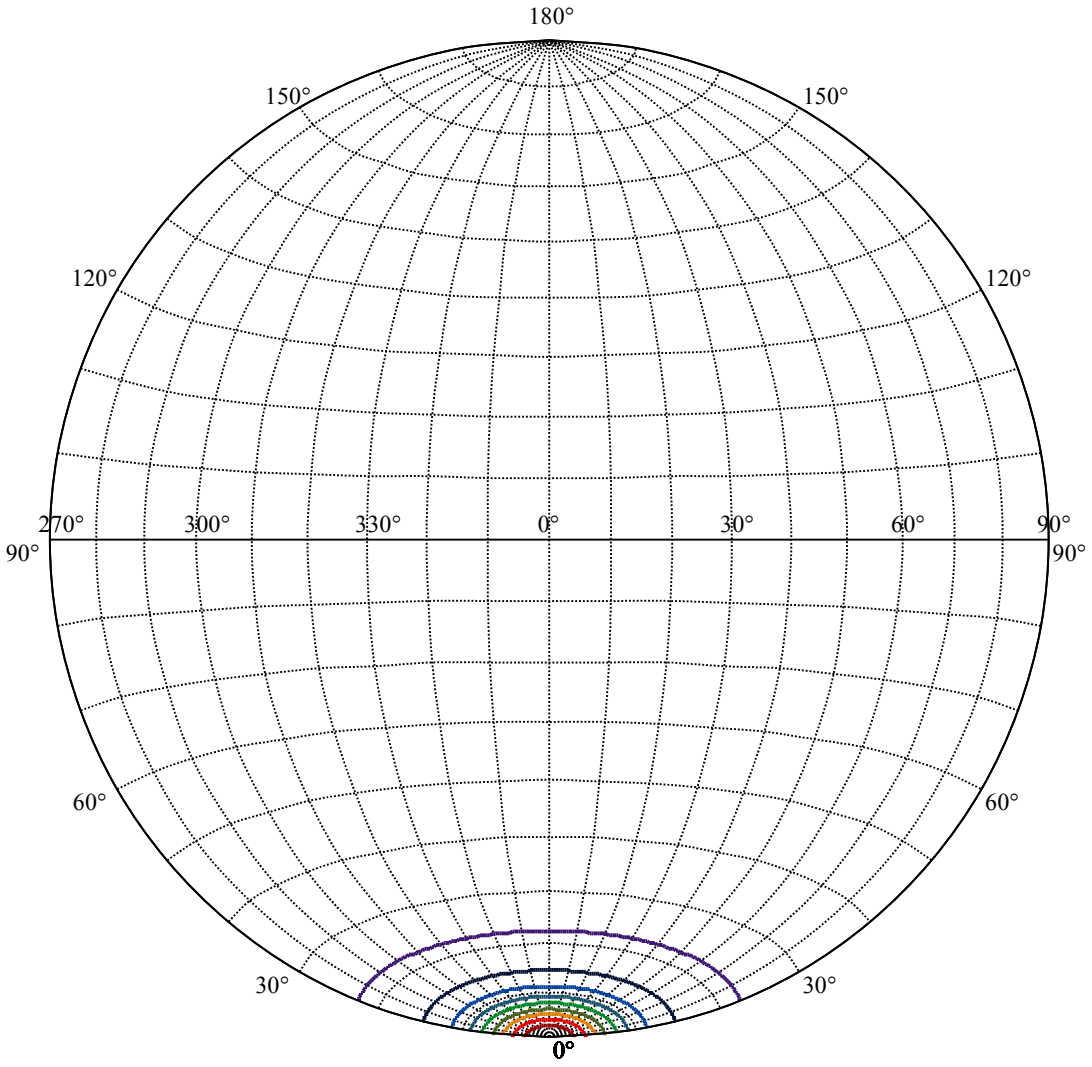


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4478.43

(10%Imax) 447.843
(20%Imax) 895.687
(30%Imax) 1343.53
(40%Imax) 1791.37
(50%Imax) 2239.22
(60%Imax) 2687.06
(70%Imax) 3134.9
(80%Imax) 3582.75
(90%Imax) 4030.59

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

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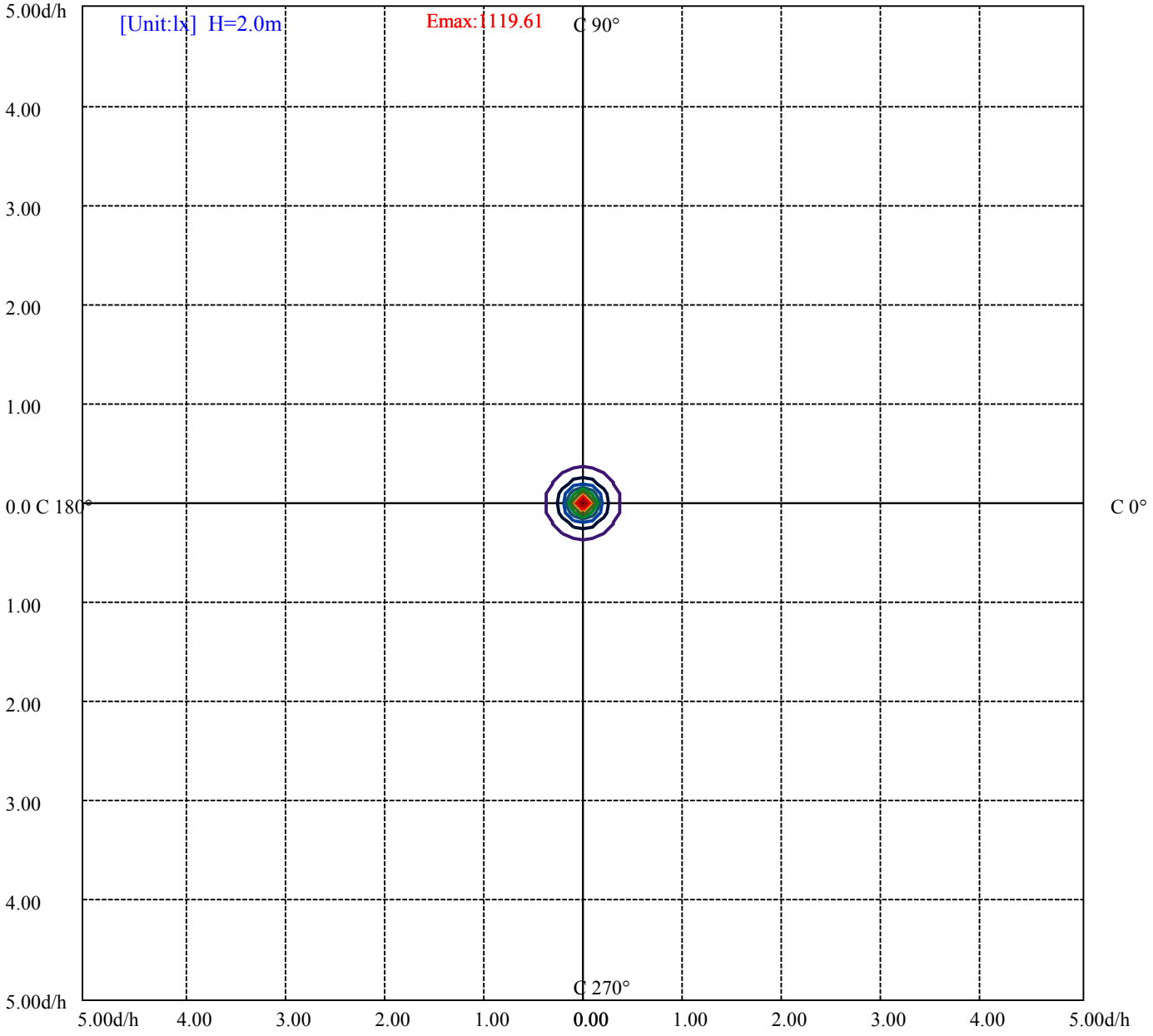
ISO illuminance diagram

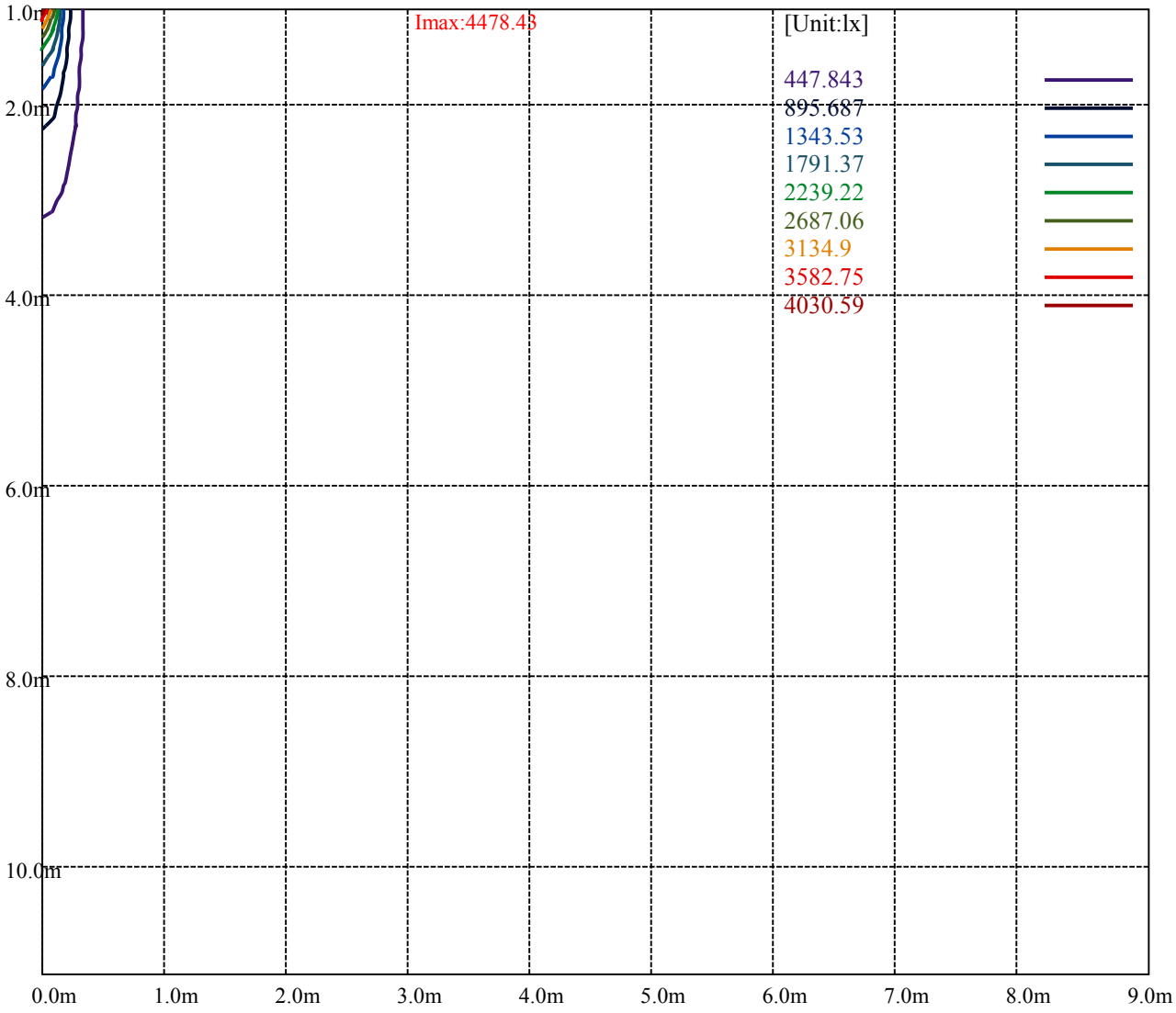


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

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Luminance Limitting Curve(no luminous side)

Luminance Table

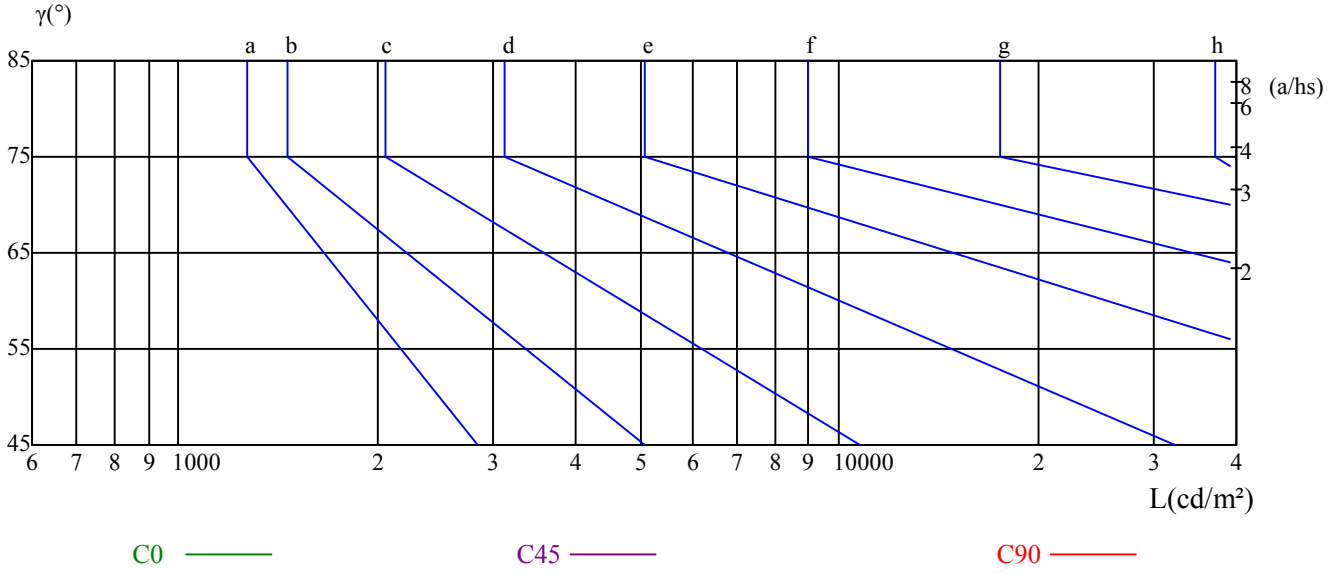
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

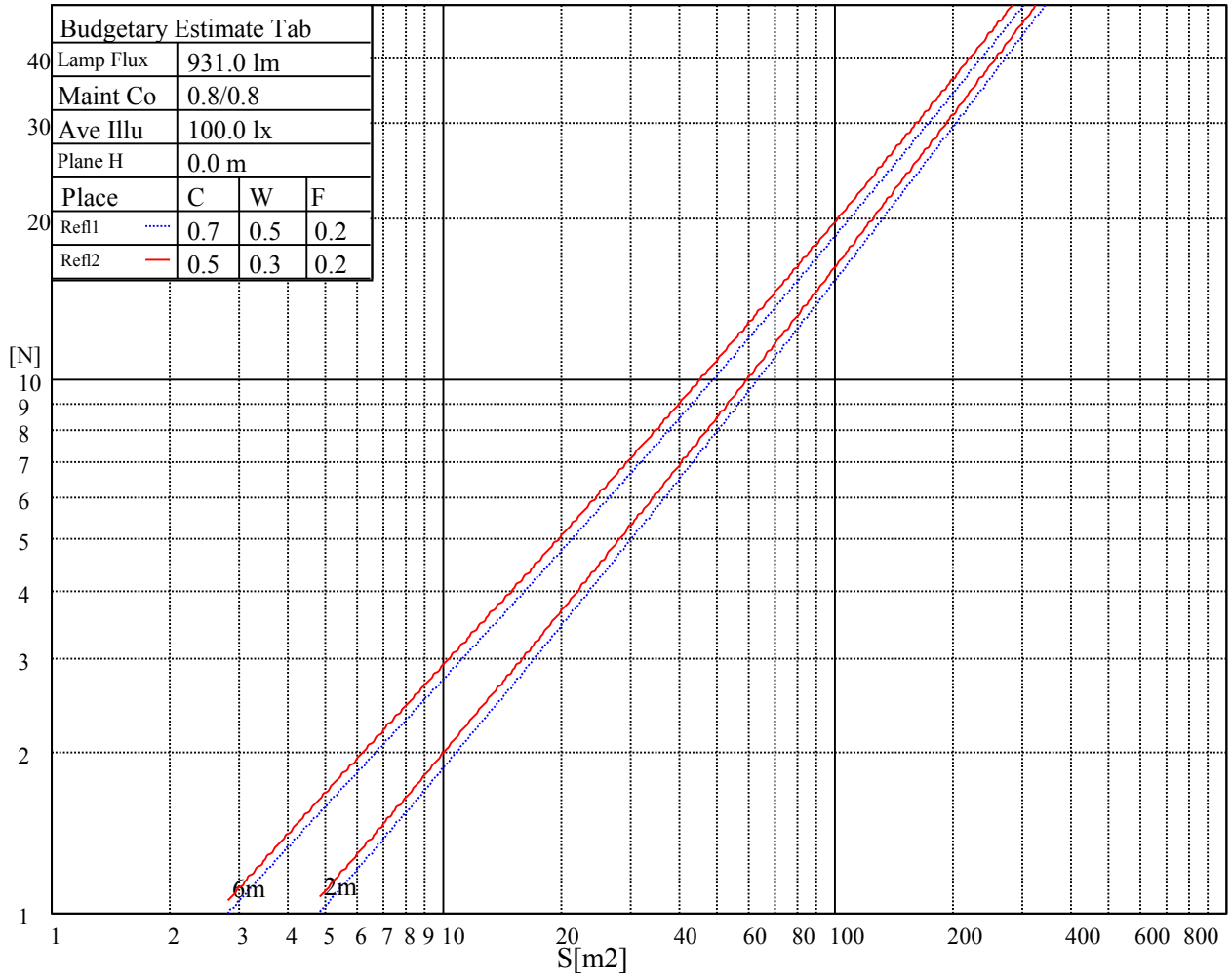


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Budgetary Estimate Table

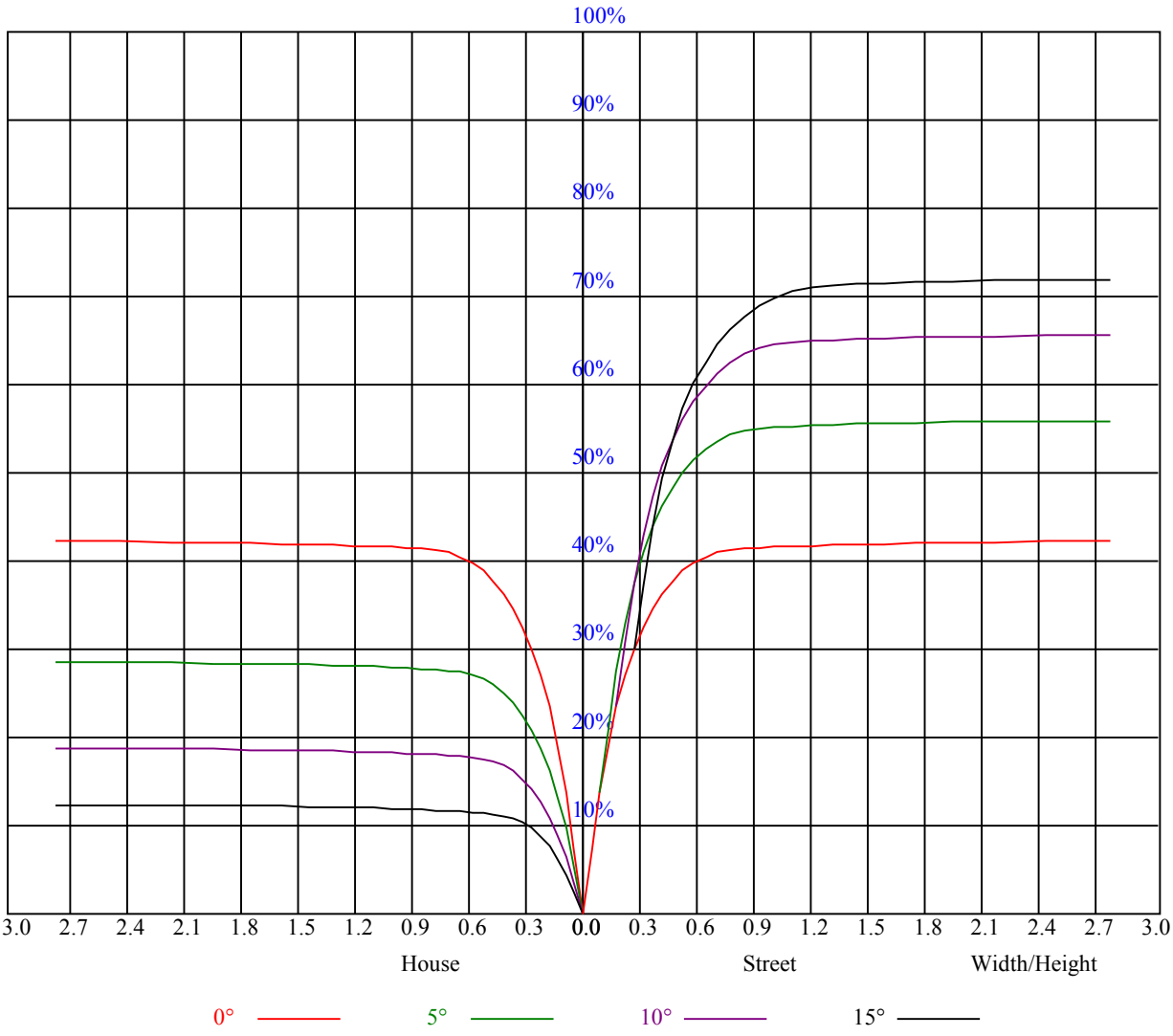


Equipment: GMS 1800 Date: 2020/4/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

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	1.01	1.01	1.01	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.85
1	0.95	0.93	0.92	0.93	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.81
2	0.90	0.87	0.84	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.81	0.80	0.81	0.80	0.78	0.77
3	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.78	0.76	0.75	0.74
4	0.81	0.77	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.74	0.72	0.75	0.73	0.71	0.70
5	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.73	0.70	0.69	0.67
6	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.71	0.69	0.66	0.70	0.68	0.66	0.65
7	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
8	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
9	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.56

Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

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	4367.99	4162.89	3855.24	3475.66	3058.49	2647.82	2253.39	1894.23	1600.96
45.0	4619.50	4333.19	3960.57	3523.92	3067.77	2619.52	2209.31	1856.64	1681.70
90.0	4275.19	3833.43	3349.44	2872.41	2432.51	2047.36	1729.04	1476.14	1286.81
135.0	4651.05	4473.33	4174.49	3785.17	3355.01	2910.46	2494.69	2120.68	1800.50
180.0	4367.99	4460.34	4410.22	4226.93	3924.84	3558.72	3150.83	2747.59	2356.87
225.0	4619.50	4774.49	4767.06	4602.79	4312.77	3945.72	3516.49	3056.63	2605.59
270.0	4275.19	4638.99	4899.31	4991.65	4912.77	4663.12	4301.64	3872.41	3585.17
315.0	4651.05	4687.71	4562.89	4310.45	3946.65	3691.43	3065.45	2631.12	2385.18
360.0	4367.99	4162.89	3855.24	3475.66	3058.49	2647.82	2253.39	1894.23	1600.96

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1375.91	1201.89	1116.51	907.60	907.60	822.82	748.39	682.69	624.91
45.0	1439.48	1180.08	1092.38	972.20	870.57	780.09	698.42	627.42	564.78
90.0	1144.82	911.45	911.45	878.32	796.42	726.95	663.89	611.09	562.18
135.0	1558.27	1374.98	1229.74	1132.29	999.57	906.30	834.84	742.04	686.82
180.0	2069.17	1697.48	1460.82	1311.87	1138.78	1047.83	950.39	858.97	778.23
225.0	2196.32	1842.72	1664.07	1344.35	1178.69	1046.91	903.61	865.38	775.86
270.0	2919.74	2651.07	2232.51	1870.57	1588.43	1375.91	1215.81	1087.28	981.48
315.0	1881.70	1704.91	1470.10	1290.99	1151.78	902.82	902.82	850.16	767.60
360.0	1375.91	1201.89	1116.51	907.60	907.60	822.82	748.39	682.69	624.91

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	577.12	534.33	494.98	458.47	426.96	401.71	379.21	358.28	341.06
45.0	512.80	469.18	430.21	394.94	366.17	341.58	322.09	306.31	291.92
90.0	518.65	480.51	445.15	415.91	391.92	370.48	351.32	333.78	324.54
135.0	626.96	574.06	528.58	487.28	451.55	419.07	393.08	370.35	350.39
180.0	705.38	642.27	588.90	543.89	504.45	466.86	432.53	403.29	378.70
225.0	697.81	630.34	573.08	524.91	481.71	444.59	412.06	382.09	356.42
270.0	885.42	799.58	723.94	657.12	599.11	547.61	503.52	465.47	432.53
315.0	694.66	632.99	579.86	531.27	496.98	453.87	423.66	403.34	381.81
360.0	577.12	534.33	494.98	458.47	426.96	401.71	379.21	358.28	341.06

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	324.54	310.07	287.14	252.62	214.11	173.50	134.57	99.16	67.05
45.0	282.64	265.47	241.81	241.81	231.14	151.41	117.54	87.28	60.51
90.0	292.67	257.35	233.32	191.65	150.35	112.25	77.03	49.98	35.36
135.0	334.15	316.98	295.64	263.62	240.88	240.88	157.86	118.24	82.18
180.0	358.28	339.72	322.55	312.34	283.11	264.08	241.81	241.81	147.19
225.0	334.66	323.06	306.96	284.73	273.45	248.30	217.12	182.78	147.24
270.0	404.22	378.70	365.70	341.58	325.80	309.56	284.96	264.08	234.38
315.0	362.73	345.70	328.91	312.02	287.65	253.55	212.94	171.23	131.32
360.0	324.54	310.07	287.14	252.62	214.11	173.50	134.57	99.16	67.05

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	45.24	34.38	27.93	23.06	20.14	17.82	15.96	14.52	13.41
45.0	42.78	34.01	27.70	23.48	20.56	18.28	16.52	15.13	14.48
90.0	28.82	23.67	20.32	18.00	16.24	14.80	13.69	12.81	12.20
135.0	54.34	38.14	30.90	25.52	22.00	19.72	17.82	16.43	15.41
180.0	111.23	79.16	53.09	38.19	30.81	25.66	22.13	19.63	17.68
225.0	113.04	82.32	56.61	39.72	31.93	26.26	22.46	19.95	17.82
270.0	234.38	140.28	103.25	70.44	46.91	34.99	28.63	23.53	20.32
315.0	131.32	63.99	43.62	33.27	27.19	22.55	19.72	17.40	16.47
360.0	45.24	34.38	27.93	23.06	20.14	17.82	15.96	14.52	13.41

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	12.48	11.74	11.09	10.58	10.12	9.79	9.19	9.05	8.86
45.0	13.18	12.53	12.11	11.55	10.95	10.49	10.07	9.65	9.33
90.0	11.65	11.09	10.49	9.93	9.47	9.19	8.82	8.68	8.49
135.0	14.34	13.83	13.55	12.85	12.62	12.06	11.60	11.28	11.00
180.0	16.01	14.57	13.64	12.71	11.97	11.55	11.00	10.44	9.93
225.0	16.29	15.27	14.71	13.83	13.32	13.18	12.71	12.39	12.02
270.0	18.10	16.33	15.45	13.78	13.27	12.48	11.46	11.18	10.58
315.0	14.48	13.78	12.95	12.16	11.51	10.86	10.30	9.79	9.42
360.0	12.48	11.74	11.09	10.58	10.12	9.79	9.19	9.05	8.86

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.68	8.58	8.17	7.84	7.61	7.42	7.19	7.01	6.82
45.0	9.19	8.86	8.35	8.03	7.80	7.52	7.24	6.96	6.73
90.0	8.17	7.75	7.47	7.24	7.05	6.82	6.64	6.54	6.36
135.0	10.81	10.63	10.39	9.98	9.93	9.93	9.79	9.65	9.51
180.0	9.51	9.19	8.82	8.54	8.26	7.84	7.52	7.24	7.01
225.0	11.65	11.28	11.00	10.67	10.21	9.42	9.05	8.77	8.49
270.0	10.02	9.65	9.42	9.19	9.10	9.00	8.82	8.49	8.35
315.0	9.14	8.91	8.77	8.54	8.17	7.93	7.80	7.61	7.56
360.0	8.68	8.58	8.17	7.84	7.61	7.42	7.19	7.01	6.82

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.64	6.36	6.13	5.94	5.75	5.52	5.20	4.92	4.73
45.0	6.45	6.17	5.99	5.80	5.52	5.29	5.01	4.69	4.55
90.0	6.13	5.89	5.71	5.48	5.10	4.83	4.64	4.45	4.22
135.0	9.47	9.28	9.19	9.14	8.96	8.82	8.54	8.35	8.26
180.0	6.82	6.59	6.45	6.31	6.08	5.85	5.75	5.38	5.20
225.0	8.17	7.75	7.38	7.01	6.68	6.40	5.94	5.75	5.48
270.0	8.26	8.12	7.93	7.61	7.38	7.24	6.87	6.73	6.36
315.0	7.47	7.38	7.19	6.96	6.87	6.68	6.40	6.22	5.89
360.0	6.64	6.36	6.13	5.94	5.75	5.52	5.20	4.92	4.73

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.55	4.36	4.13	3.85	3.67	3.53	3.34	3.16	2.92
45.0	4.22	4.04	3.90	3.67	3.43	3.20	3.06	2.83	2.60
90.0	3.94	3.81	3.71	3.57	3.43	3.20	3.02	2.88	2.69
135.0	8.07	8.03	7.80	7.66	7.56	7.47	7.29	7.10	7.01
180.0	4.97	4.55	4.45	4.22	4.04	3.85	3.57	3.48	3.29
225.0	5.15	4.97	4.69	4.45	4.22	3.99	3.71	3.53	3.34
270.0	5.75	5.48	5.15	4.78	4.50	4.27	4.08	3.85	3.62
315.0	5.48	5.15	4.92	4.64	4.41	4.13	3.94	3.81	3.57
360.0	4.55	4.36	4.13	3.85	3.67	3.53	3.34	3.16	2.92

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.74	2.46	2.32	2.13	2.09	1.90	1.76	1.67	1.58
45.0	2.41	2.27	2.00	1.86	1.67	1.58	1.44	1.30	1.30
90.0	2.55	2.41	2.23	2.18	2.00	1.86	1.72	1.62	1.58
135.0	6.82	6.59	6.31	5.99	5.57	5.10	4.45	4.13	4.08
180.0	3.16	2.92	2.78	2.60	2.41	2.27	2.13	2.04	1.95
225.0	3.16	2.88	2.74	2.46	2.23	2.13	1.95	1.72	1.67
270.0	3.48	3.16	2.97	2.74	2.64	2.37	2.18	2.04	1.95
315.0	3.29	3.16	2.88	2.78	2.60	2.41	2.18	2.09	1.95
360.0	2.74	2.46	2.32	2.13	2.09	1.90	1.76	1.67	1.58

Intensity data(cd)

C/γ(°)	90.0
0.0	1.48
45.0	1.30
90.0	1.48
135.0	3.99
180.0	1.86
225.0	1.53
270.0	1.81
315.0	1.90
360.0	1.48