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

Nata

LumCAT: 2-1672-M
Luminaire: 92.70.131.00
Report No: NT2017061703
Test No: GC2017061703
LampCAT: CITIZEN CLU038
Lamp flux(lm): 2365.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 34.2000
Current(A): 0.5000
Power (W): 17.1000
PF: 0.0000
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 2138.04
Efficiency(%): 90.40%
Lumens(lm)/Power(W): 125.03
Central intensity(cd): 7644.030
Maximum intensity(cd): 7644.030
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=25.8
[C90/270]Total=25.8
Field angle(10%Imax): [C0/180]Total=57.3
[C90/270]Total=57.3
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.41 C90_270=0.41
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.40%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.781%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7644.031	0.000	0	.000%	.000%
1.0	7613.612	7.300	7.3	.309%	.341%
2.0	7538.598	21.748	29.048	.920%	1.359%
3.0	7432.201	35.805	64.854	1.514%	3.033%
4.0	7301.855	49.320	114.173	2.085%	5.340%
5.0	7143.155	62.142	176.315	2.628%	8.247%
6.0	6947.842	74.052	250.367	3.131%	11.710%
7.0	6669.532	84.523	334.89	3.574%	15.663%
8.0	6358.877	93.242	428.131	3.943%	20.024%
9.0	5962.195	99.856	527.987	4.222%	24.695%
10.0	5500.272	103.731	631.718	4.386%	29.547%
11.0	4974.070	104.660	736.378	4.425%	34.442%
12.0	4427.636	102.774	839.153	4.346%	39.249%
13.0	3742.734	96.962	936.114	4.100%	43.784%
14.0	3214.193	89.048	1025.162	3.765%	47.949%
15.0	2671.749	80.805	1105.967	3.417%	51.728%
16.0	2166.882	70.899	1176.867	2.998%	55.044%
17.0	1789.333	61.609	1238.476	2.605%	57.926%
18.0	1510.059	54.400	1292.875	2.300%	60.470%
19.0	1289.146	48.700	1341.576	2.059%	62.748%
20.0	1136.516	44.396	1385.972	1.877%	64.824%
21.0	1033.973	41.678	1427.65	1.762%	66.774%
22.0	957.417	40.018	1467.668	1.692%	68.645%
23.0	904.040	39.058	1506.726	1.652%	70.472%
24.0	864.592	38.669	1545.395	1.635%	72.281%
25.0	833.953	38.621	1584.016	1.633%	74.087%
26.0	809.976	38.805	1622.821	1.641%	75.902%
27.0	790.238	39.150	1661.971	1.655%	77.733%
28.0	773.391	39.588	1701.558	1.674%	79.585%
29.0	759.434	40.103	1741.661	1.696%	81.461%
30.0	745.904	40.644	1782.305	1.719%	83.362%
31.0	730.089	41.075	1823.38	1.737%	85.283%
32.0	705.217	41.120	1864.5	1.739%	87.206%
33.0	659.411	40.202	1904.702	1.700%	89.086%
34.0	589.916	37.808	1942.511	1.599%	90.855%
35.0	526.821	34.682	1977.192	1.466%	92.477%
36.0	439.887	30.780	2007.973	1.301%	93.916%
37.0	354.894	25.921	2033.894	1.096%	95.129%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	292.735	21.617	2055.511	.914%	96.140%
39.0	206.709	17.047	2072.558	.721%	96.937%
40.0	121.152	11.435	2083.993	.483%	97.472%
41.0	68.697	6.760	2090.753	.286%	97.788%
42.0	37.383	3.854	2094.607	.163%	97.969%
43.0	21.734	2.190	2096.797	.093%	98.071%
44.0	17.659	1.487	2098.284	.063%	98.140%
45.0	14.631	1.241	2099.525	.052%	98.199%
46.0	12.401	1.057	2100.582	.045%	98.248%
47.0	10.956	0.929	2101.511	.039%	98.291%
48.0	10.062	0.850	2102.361	.036%	98.331%
49.0	9.649	0.809	2103.17	.034%	98.369%
50.0	9.470	0.797	2103.967	.034%	98.406%
51.0	9.318	0.795	2104.762	.034%	98.443%
52.0	9.181	0.794	2105.556	.034%	98.481%
53.0	9.084	0.795	2106.35	.034%	98.518%
54.0	8.988	0.797	2107.147	.034%	98.555%
55.0	8.905	0.799	2107.946	.034%	98.592%
56.0	8.795	0.800	2108.746	.034%	98.630%
57.0	8.726	0.801	2109.547	.034%	98.667%
58.0	8.658	0.804	2110.351	.034%	98.705%
59.0	8.616	0.808	2111.158	.034%	98.743%
60.0	8.575	0.812	2111.97	.034%	98.781%
61.0	8.534	0.816	2112.787	.035%	98.819%
62.0	8.479	0.820	2113.607	.035%	98.857%
63.0	8.424	0.822	2114.429	.035%	98.896%
64.0	8.396	0.825	2115.254	.035%	98.934%
65.0	8.355	0.829	2116.083	.035%	98.973%
66.0	8.314	0.832	2116.915	.035%	99.012%
67.0	8.286	0.835	2117.749	.035%	99.051%
68.0	8.245	0.837	2118.587	.035%	99.090%
69.0	8.258	0.842	2119.429	.036%	99.129%
70.0	8.231	0.847	2120.275	.036%	99.169%
71.0	8.203	0.849	2121.125	.036%	99.209%
72.0	8.190	0.852	2121.977	.036%	99.249%
73.0	8.148	0.854	2122.832	.036%	99.289%
74.0	8.148	0.857	2123.688	.036%	99.329%
75.0	8.135	0.860	2124.549	.036%	99.369%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.217	0.868	2125.417	.037%	99.410%
77.0	8.382	0.885	2126.302	.037%	99.451%
78.0	8.506	0.904	2127.206	.038%	99.493%
79.0	8.575	0.918	2128.124	.039%	99.536%
80.0	8.520	0.922	2129.045	.039%	99.579%
81.0	8.369	0.913	2129.958	.039%	99.622%
82.0	8.258	0.902	2130.86	.038%	99.664%
83.0	8.258	0.898	2131.758	.038%	99.706%
84.0	8.300	0.902	2132.66	.038%	99.748%
85.0	8.382	0.910	2133.571	.038%	99.791%
86.0	8.327	0.913	2134.484	.039%	99.834%
87.0	8.286	0.909	2135.393	.038%	99.876%
88.0	8.011	0.893	2136.286	.038%	99.918%
89.0	7.997	0.877	2137.163	.037%	99.959%
90.0	8.011	0.878	2138.041	.037%	100.000%

Zonal flux distribution table

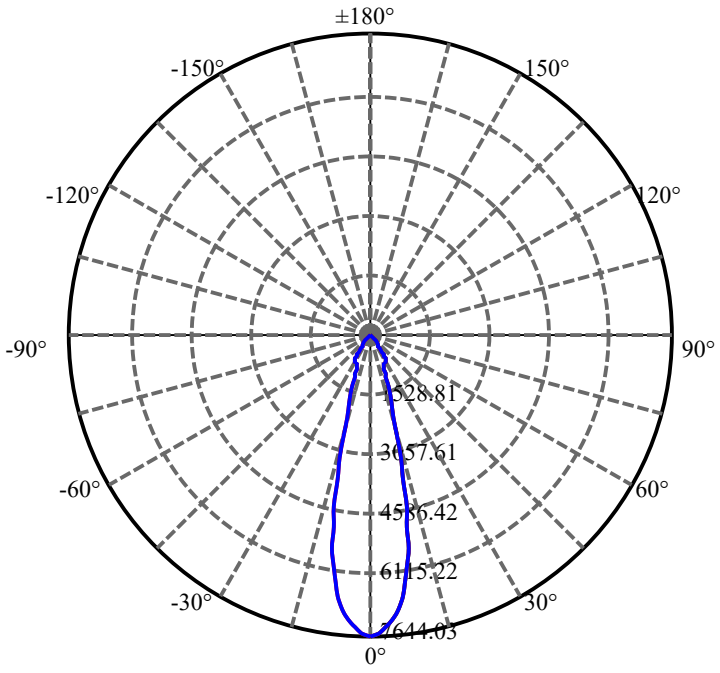
ZONAL LUMEN SUMMARY

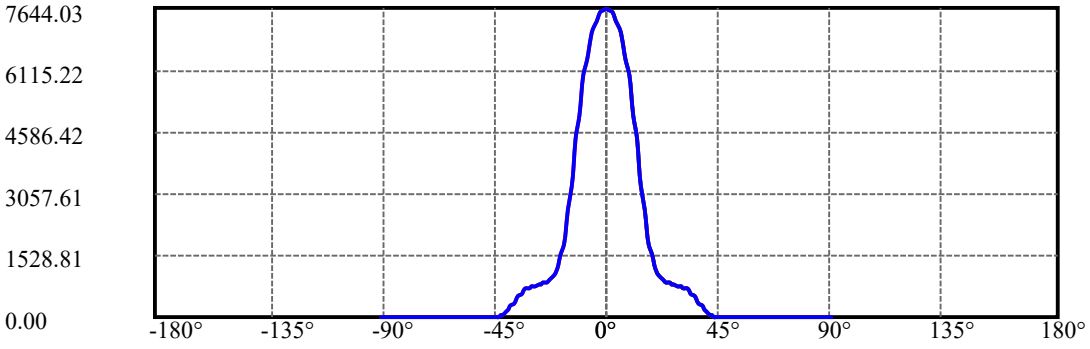
Zone	Lumens	%Lamp	%Fixt
0-30	1782.31	75.36%	83.36%
0-40	2083.99	88.12%	97.47%
0-60	2111.97	89.30%	98.78%
0-90	2137.16	90.37%	99.96%
0-120	2137.16	90.37%	99.96%
0-180	2138.04	90.40%	100.00%
60-90	26.01	1.10%	1.22%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.22	1710.43	72.32%	80.00%

ZONAL LUMEN SUMMARY

0-10	631.72
10-20	754.25
20-30	396.33
30-40	301.69
40-50	19.97
50-60	8.00
60-70	8.31
70-80	8.77
80-90	8.12
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):

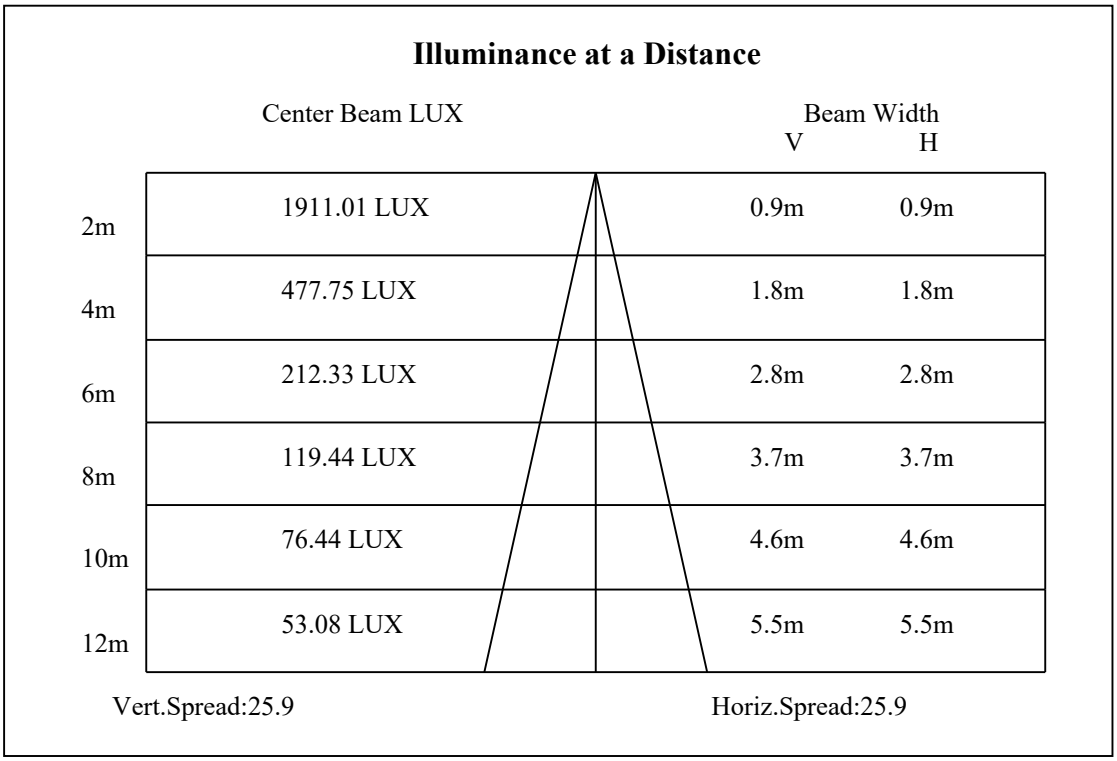
C0/C180:

C90/C270:

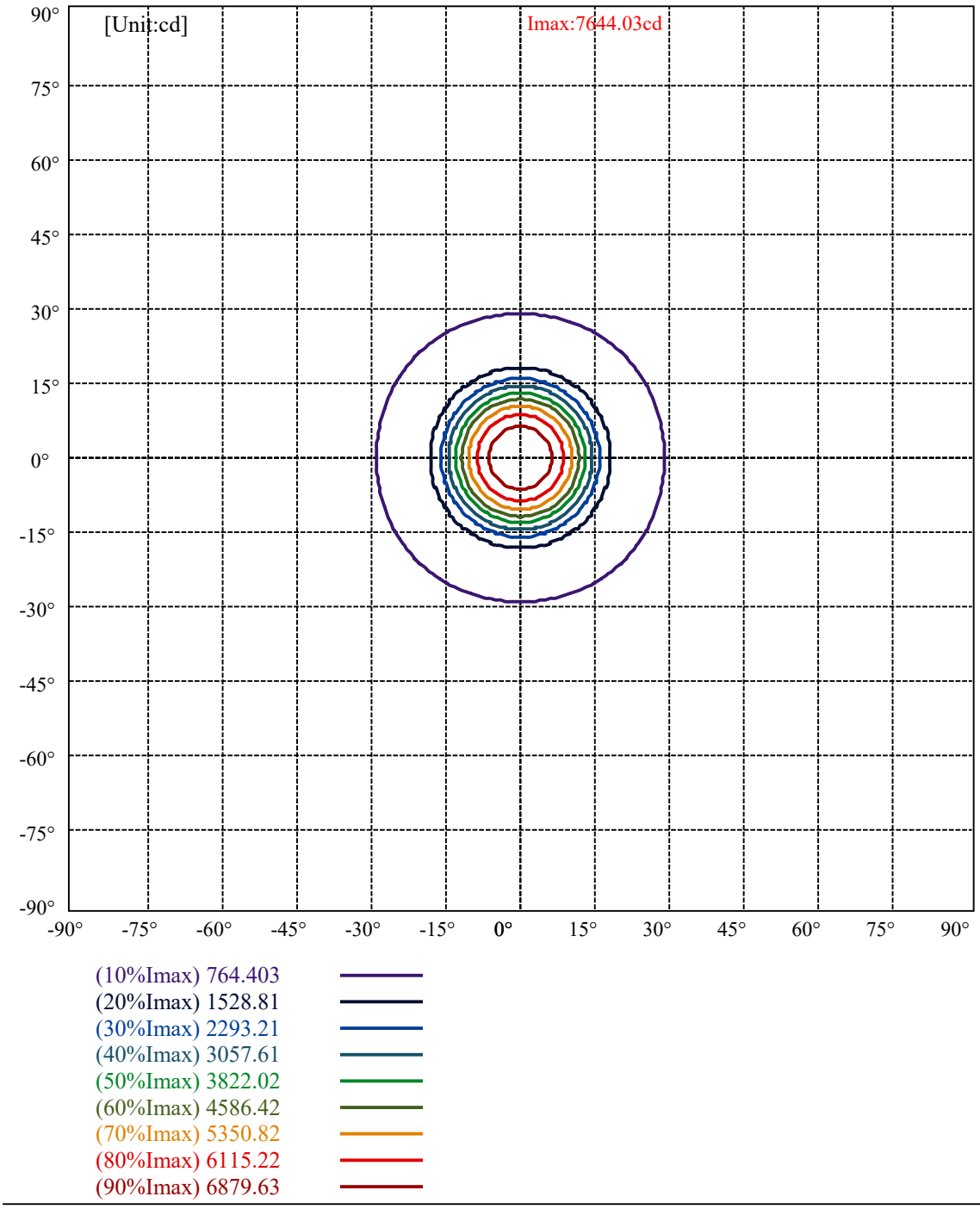
Field angle(10%Imax):C0/180Left:28.6 Right:28.6
:C90/270Left:28.6 Right:28.6

Beam Angle(50%Imax):C0/180Left:12.9 Right:12.9
:C90/270Left:12.9 Right:12.9

Lux distance Curve



ISO-Intensity(V-H)

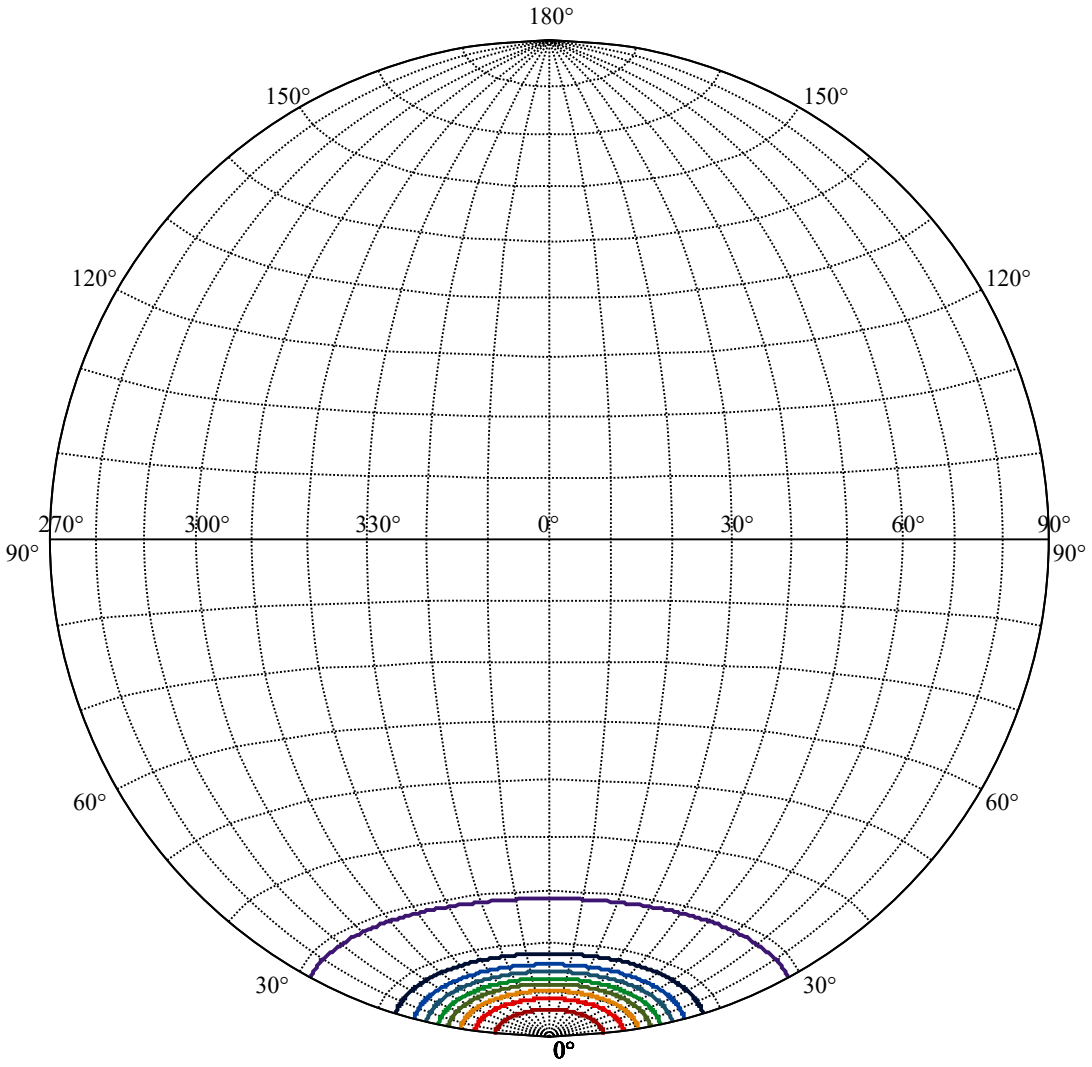


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/04
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:7644.03

(10%Imax) 764.403
(20%Imax) 1528.81
(30%Imax) 2293.21
(40%Imax) 3057.61
(50%Imax) 3822.02
(60%Imax) 4586.42
(70%Imax) 5350.82
(80%Imax) 6115.22
(90%Imax) 6879.63

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/04
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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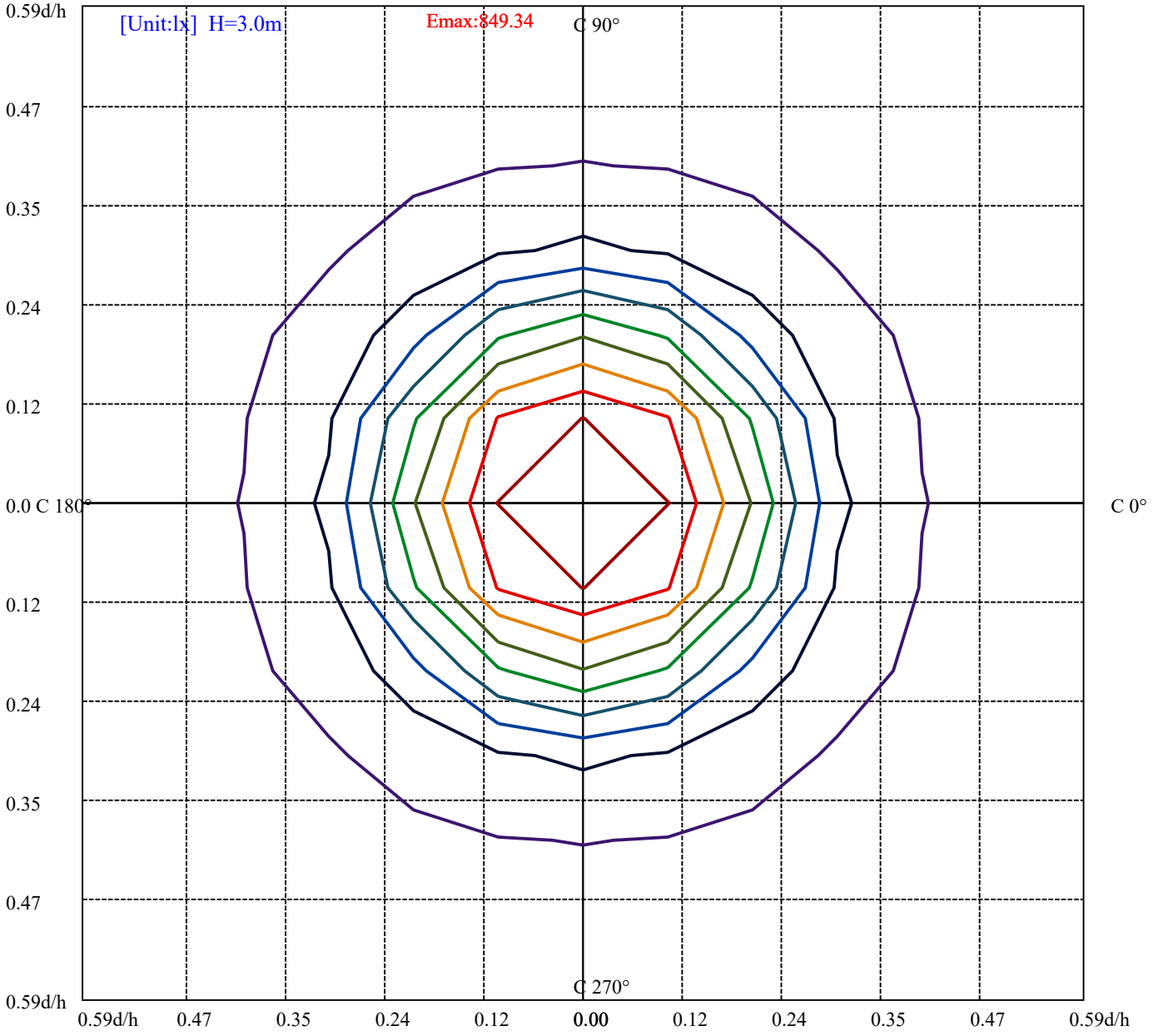
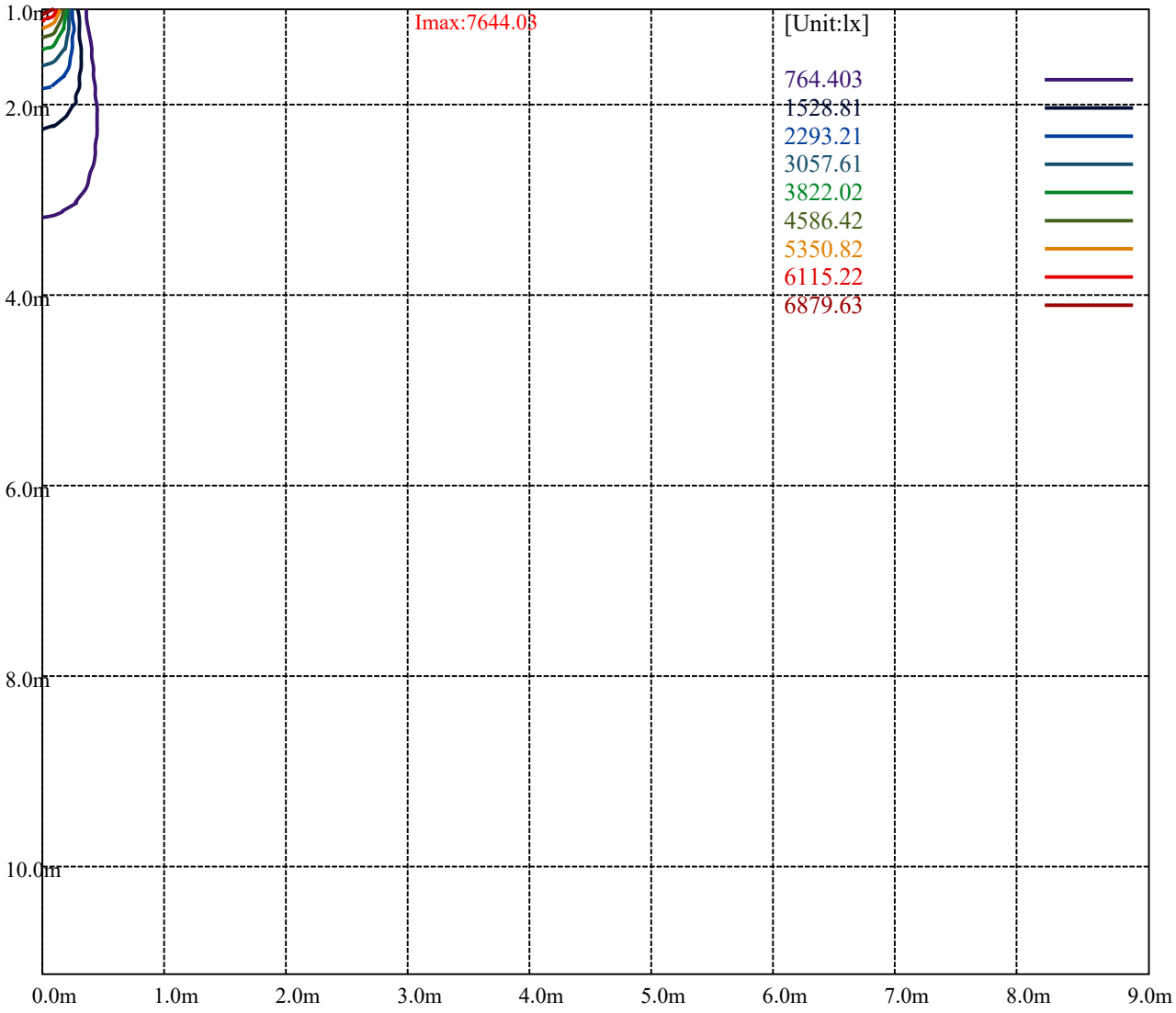
ISO illuminance diagram



Equipment: gms1980 Date: 2017/6/04 Operator: NT07

Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/04
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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Luminance Limitting Curve(no luminous side)

Luminance Table

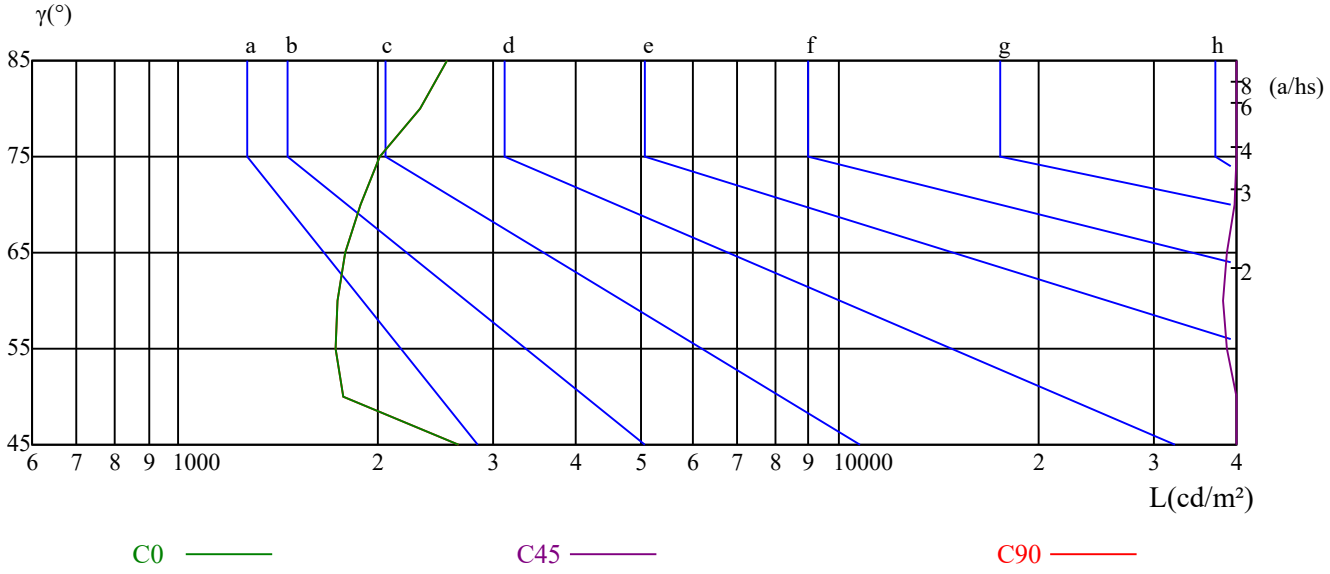
γ	45	50	55	60	65	70	75	80	85
C0	2663	1771	1725	1737	1788	1882	2013	2317	2551
C45	69446	41476	38566	38080	38568	39619	41726	49469	48546
C90	2663	1771	1725	1737	1788	1882	2013	2317	2551

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4035	4035	107078	6414	6414	170715	19628	19628	508165

Glare Table

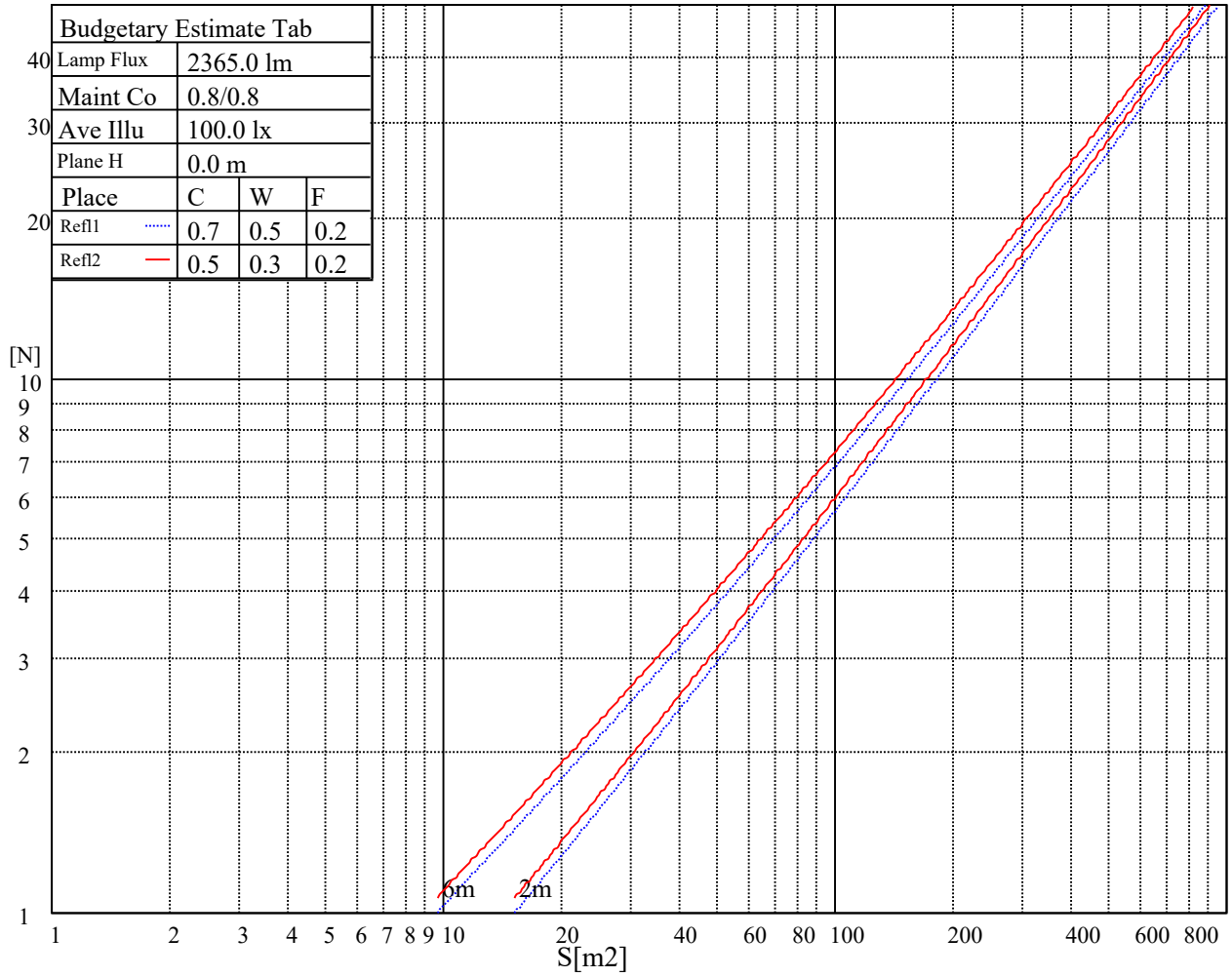
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Equipment: gms1980 Date: 2017/6/04 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Budgetary Estimate Table

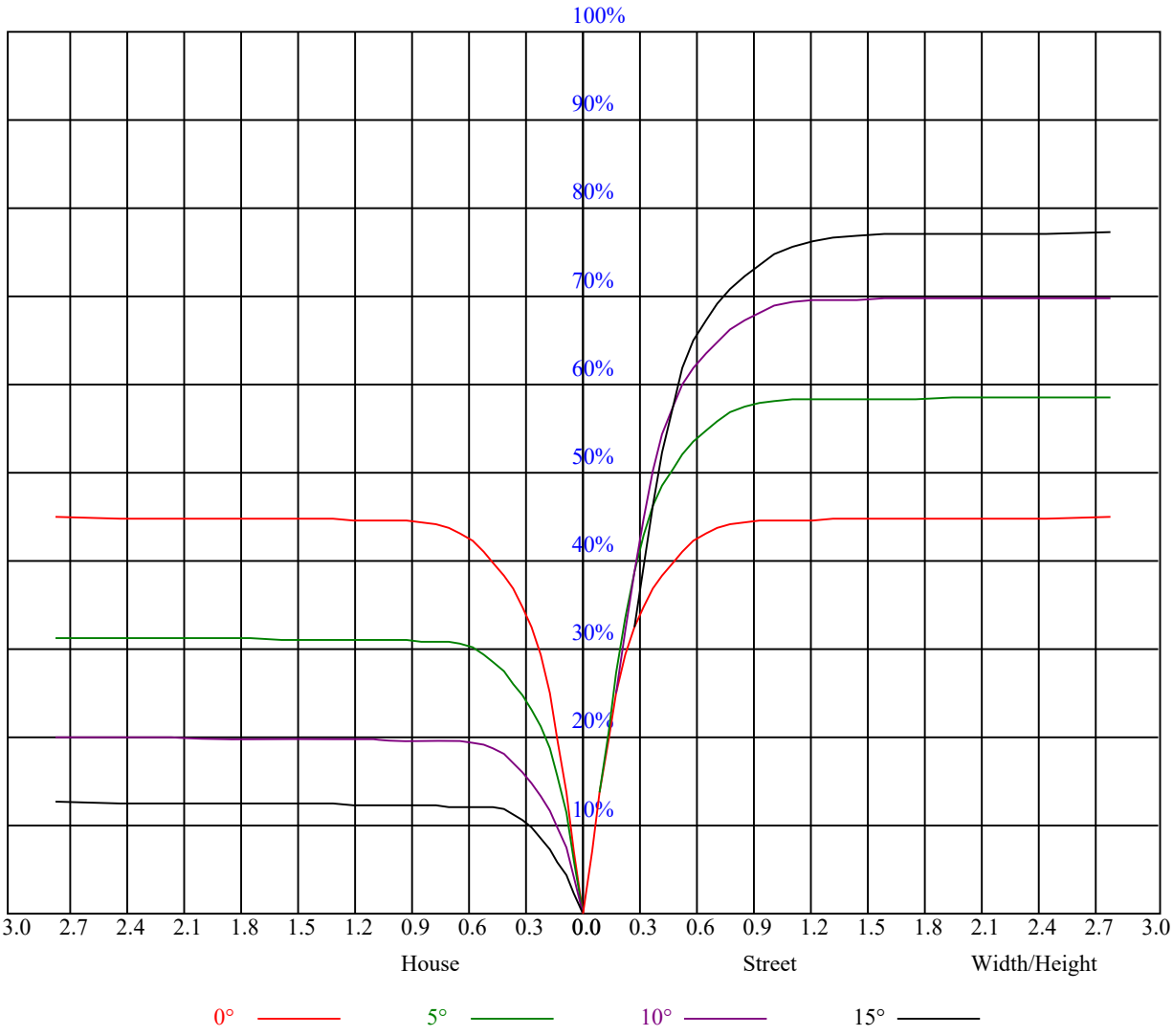


Equipment: gms1980 Date: 2017/6/04 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.08	1.08	1.08	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.86
2	0.96	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.80	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.84	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.78	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
7	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
8	0.73	0.69	0.66	0.72	0.68	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64
9	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.62	0.62
10	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.60	0.59

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/6/04	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

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	7628.61	7562.55	7452.43	7323.05	7187.61	6991.61	6736.70	6454.26	6121.17
90.0	7659.45	7626.41	7552.09	7448.58	7298.83	7141.92	6951.42	6632.09	6317.72
180.0	7628.61	7642.93	7605.49	7516.30	7411.69	7302.13	7165.59	6922.24	6668.43
270.0	7659.45	7622.56	7544.38	7440.87	7309.29	7136.96	6937.66	6669.53	6328.18
360.0	7628.61	7562.55	7452.43	7323.05	7187.61	6991.61	6736.70	6454.26	6121.17

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5620.16	5149.98	4633.55	4078.03	3381.01	2854.67	2321.18	1928.08	1596.09
90.0	5902.05	5468.20	4895.06	4333.49	3616.65	3135.46	2560.67	2072.87	1734.83
180.0	6358.46	5893.79	5437.92	4919.84	4293.85	3660.15	3106.83	2533.70	2050.30
270.0	5968.11	5489.12	4929.75	4379.19	3679.42	3206.48	2698.31	2132.88	1776.12
360.0	5620.16	5149.98	4633.55	4078.03	3381.01	2854.67	2321.18	1928.08	1596.09

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1358.79	1201.33	1085.71	982.21	922.75	878.15	844.01	817.59	796.12
90.0	1450.19	1244.27	1113.79	1024.05	942.02	895.22	859.98	834.10	806.03
180.0	1715.01	1434.22	1251.98	1093.03	1008.91	945.65	895.71	853.26	829.26
270.0	1516.25	1276.76	1094.58	1036.60	956.00	897.14	858.66	830.86	808.50
360.0	1358.79	1201.33	1085.71	982.21	922.75	878.15	844.01	817.59	796.12

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	777.40	762.53	748.77	733.90	713.53	670.04	606.17	540.10	477.89
90.0	787.86	771.34	758.13	745.46	731.15	709.68	661.23	589.65	525.24
180.0	806.14	786.43	770.35	757.30	741.83	727.35	695.64	629.57	573.41
270.0	789.56	773.27	760.49	746.95	733.85	713.81	674.61	600.33	530.74
360.0	777.40	762.53	748.77	733.90	713.53	670.04	606.17	540.10	477.89

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	374.93	297.86	279.14	131.86	74.82	38.48	22.08	18.94	15.91
90.0	437.15	346.30	278.03	233.05	112.43	60.89	34.13	19.60	16.85
180.0	493.36	409.73	335.51	259.54	168.86	106.04	56.76	26.37	19.66
270.0	454.11	365.68	278.26	202.39	128.50	69.37	36.56	22.02	18.22
360.0	374.93	297.86	279.14	131.86	74.82	38.48	22.08	18.94	15.91

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	13.16	11.78	10.35	10.08	9.80	9.58	9.36	9.25	9.14
90.0	14.04	12.06	11.01	9.97	9.47	9.36	9.25	9.08	9.03
180.0	16.79	13.87	11.51	10.19	9.52	9.41	9.25	9.08	9.03
270.0	14.53	11.89	10.96	10.02	9.80	9.52	9.41	9.30	9.14
360.0	13.16	11.78	10.35	10.08	9.80	9.58	9.36	9.25	9.14

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.03	8.97	8.86	8.75	8.70	8.64	8.59	8.53	8.53
90.0	8.92	8.81	8.75	8.70	8.64	8.64	8.59	8.53	8.48
180.0	8.92	8.86	8.75	8.70	8.59	8.53	8.53	8.48	8.42
270.0	9.08	8.97	8.81	8.75	8.70	8.64	8.59	8.59	8.48
360.0	9.03	8.97	8.86	8.75	8.70	8.64	8.59	8.53	8.53

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.48	8.42	8.37	8.31	8.31	8.26	8.31	8.26	8.20
90.0	8.42	8.42	8.37	8.37	8.31	8.26	8.26	8.26	8.26
180.0	8.37	8.37	8.31	8.26	8.20	8.20	8.20	8.20	8.15
270.0	8.42	8.37	8.37	8.31	8.31	8.26	8.26	8.20	8.20
360.0	8.48	8.42	8.37	8.31	8.31	8.26	8.31	8.26	8.20

Intensity data(cd)

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.20	8.15	8.20	8.15	8.20	8.15	8.31	8.48	8.53
90.0	8.20	8.15	8.15	8.15	8.15	8.15	8.15	8.09	8.09
180.0	8.15	8.09	8.09	8.04	8.04	8.09	8.09	8.04	8.04
270.0	8.20	8.20	8.15	8.20	8.48	9.14	9.47	9.69	9.41
360.0	8.20	8.15	8.20	8.15	8.20	8.15	8.31	8.48	8.53

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.42	8.42	8.48	8.53	8.64	8.31	7.98	7.98	7.98
90.0	8.09	8.15	8.09	8.04	8.09	8.04	8.04	8.04	8.04
180.0	8.04	8.04	7.98	8.04	7.98	7.98	7.98	7.98	7.93
270.0	8.92	8.42	8.48	8.59	8.81	8.97	9.14	8.04	8.04
360.0	8.42	8.42	8.48	8.53	8.64	8.31	7.98	7.98	7.98

C/γ(°)	90.0
0.0	7.98
90.0	8.04
180.0	7.98
270.0	8.04
360.0	7.98