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

Nata

LumCAT: 3-2035-M
Luminaire: 92.70.129.00
Report No: NT2017051107
Test No: GC2017051107
LampCAT: CREE CXA1830
Lamp flux(lm): 2036.0
Number of Lamps: 1
Length(mm): 78
Phm Type: C

Voltage(V): 218.3000
Current(A): 0.1000
Power (W): 19.7000
PF: 0.9010
Ballast type: DC
Width(mm): 78
Height(mm): 0

Photometric Results

Lumens(lm): 1813.16
Efficiency(%): 89.06%
Lumens(lm)/Power(W): 92.04
Central intensity(cd): 3245.300
Maximum intensity(cd): 3245.300
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=42.0
[C90/270]Total=42.0
Field angle(10%Imax): [C0/180]Total=72.0
[C90/270]Total=72.0
Maximum s/h(1/2): C0_180=0.68 C90_270=0.68
Maximum s/h(1/4): C0_180=0.70 C90_270=0.70
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.687%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3245.299	0.000	0	.000%	.000%
1.0	3241.858	3.104	3.104	.152%	.171%
2.0	3230.297	9.289	12.393	.456%	.684%
3.0	3207.311	15.397	27.79	.756%	1.533%
4.0	3173.589	21.359	49.149	1.049%	2.711%
5.0	3133.535	27.133	76.282	1.333%	4.207%
6.0	3088.113	32.696	108.978	1.606%	6.010%
7.0	3033.332	37.996	146.974	1.866%	8.106%
8.0	2972.220	42.981	189.955	2.111%	10.476%
9.0	2897.343	47.570	237.524	2.336%	13.100%
10.0	2813.107	51.677	289.202	2.538%	15.950%
11.0	2731.486	55.402	344.604	2.721%	19.006%
12.0	2647.525	58.800	403.404	2.888%	22.249%
13.0	2548.561	61.664	465.068	3.029%	25.650%
14.0	2453.313	64.024	529.092	3.145%	29.181%
15.0	2356.276	66.028	595.12	3.243%	32.822%
16.0	2253.458	67.546	662.666	3.318%	36.547%
17.0	2137.152	68.374	731.039	3.358%	40.318%
18.0	2017.404	68.500	799.539	3.364%	44.096%
19.0	1892.977	68.033	867.571	3.341%	47.848%
20.0	1754.372	66.757	934.328	3.279%	51.530%
21.0	1620.998	64.814	999.142	3.183%	55.105%
22.0	1509.509	62.909	1062.051	3.090%	58.574%
23.0	1405.865	61.172	1123.223	3.005%	61.948%
24.0	1313.233	59.449	1182.672	2.920%	65.227%
25.0	1234.915	57.939	1240.612	2.846%	68.422%
26.0	1160.038	56.533	1297.145	2.777%	71.540%
27.0	1072.526	54.620	1351.765	2.683%	74.553%
28.0	1015.254	52.858	1404.623	2.596%	77.468%
29.0	947.232	51.344	1455.967	2.522%	80.300%
30.0	889.409	49.589	1505.556	2.436%	83.035%
31.0	825.130	47.713	1553.27	2.343%	85.666%
32.0	737.632	44.771	1598.041	2.199%	88.135%
33.0	640.320	40.595	1638.636	1.994%	90.374%
34.0	537.268	35.637	1674.273	1.750%	92.340%
35.0	422.599	29.810	1704.083	1.464%	93.984%
36.0	323.195	23.746	1727.829	1.166%	95.294%
37.0	240.156	18.373	1746.203	.902%	96.307%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	146.849	12.918	1759.12	.634%	97.019%
39.0	73.170	7.510	1766.63	.369%	97.434%
40.0	37.232	3.850	1770.481	.189%	97.646%
41.0	23.523	2.163	1772.644	.106%	97.765%
42.0	18.774	1.537	1774.181	.075%	97.850%
43.0	15.003	1.251	1775.432	.061%	97.919%
44.0	12.622	1.043	1776.475	.051%	97.977%
45.0	11.300	0.919	1777.394	.045%	98.027%
46.0	10.530	0.854	1778.248	.042%	98.074%
47.0	10.158	0.823	1779.07	.040%	98.120%
48.0	9.910	0.811	1779.882	.040%	98.164%
49.0	9.704	0.805	1780.687	.040%	98.209%
50.0	9.483	0.800	1781.487	.039%	98.253%
51.0	9.318	0.795	1782.283	.039%	98.297%
52.0	9.153	0.793	1783.075	.039%	98.341%
53.0	9.002	0.790	1783.865	.039%	98.384%
54.0	8.864	0.787	1784.652	.039%	98.428%
55.0	8.754	0.786	1785.439	.039%	98.471%
56.0	8.630	0.786	1786.224	.039%	98.514%
57.0	8.534	0.785	1787.009	.039%	98.558%
58.0	8.437	0.785	1787.794	.039%	98.601%
59.0	8.327	0.784	1788.578	.038%	98.644%
60.0	8.245	0.783	1789.361	.038%	98.687%
61.0	8.203	0.785	1790.146	.039%	98.730%
62.0	8.121	0.787	1790.932	.039%	98.774%
63.0	8.024	0.785	1791.717	.039%	98.817%
64.0	7.969	0.785	1792.502	.039%	98.860%
65.0	7.887	0.785	1793.287	.039%	98.904%
66.0	7.832	0.784	1794.071	.039%	98.947%
67.0	7.777	0.785	1794.856	.039%	98.990%
68.0	7.708	0.784	1795.64	.039%	99.034%
69.0	7.667	0.784	1796.425	.039%	99.077%
70.0	7.639	0.786	1797.211	.039%	99.120%
71.0	7.584	0.787	1797.998	.039%	99.164%
72.0	7.543	0.787	1798.784	.039%	99.207%
73.0	7.515	0.787	1799.572	.039%	99.250%
74.0	7.501	0.789	1800.361	.039%	99.294%
75.0	7.460	0.791	1801.152	.039%	99.338%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.515	0.795	1801.946	.039%	99.381%
77.0	7.598	0.806	1802.752	.040%	99.426%
78.0	7.570	0.812	1803.564	.040%	99.471%
79.0	7.501	0.810	1804.374	.040%	99.515%
80.0	7.433	0.805	1805.179	.040%	99.560%
81.0	7.391	0.802	1805.981	.039%	99.604%
82.0	7.378	0.801	1806.782	.039%	99.648%
83.0	7.323	0.799	1807.581	.039%	99.692%
84.0	7.323	0.798	1808.379	.039%	99.736%
85.0	7.336	0.800	1809.179	.039%	99.780%
86.0	7.295	0.800	1809.978	.039%	99.824%
87.0	7.267	0.797	1810.775	.039%	99.868%
88.0	7.267	0.796	1811.572	.039%	99.912%
89.0	7.254	0.796	1812.368	.039%	99.956%
90.0	7.267	0.796	1813.164	.039%	100.000%

Zonal flux distribution table

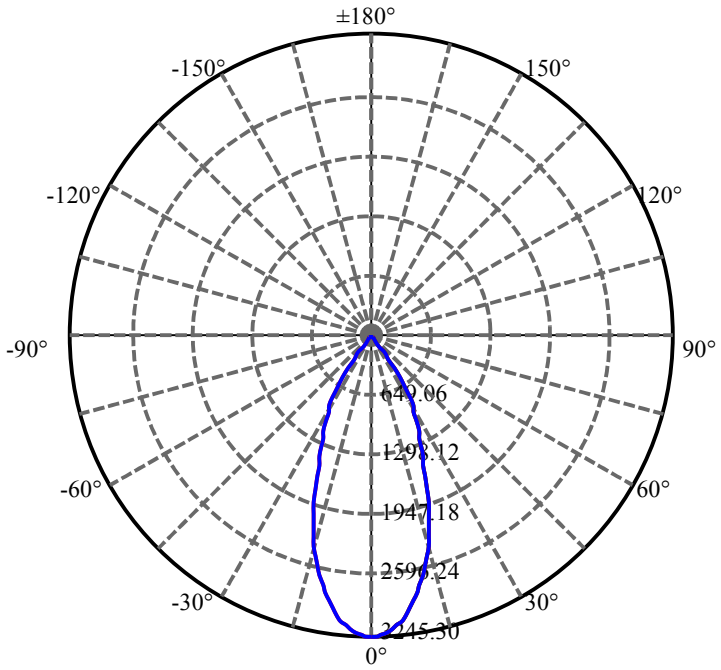
ZONAL LUMEN SUMMARY

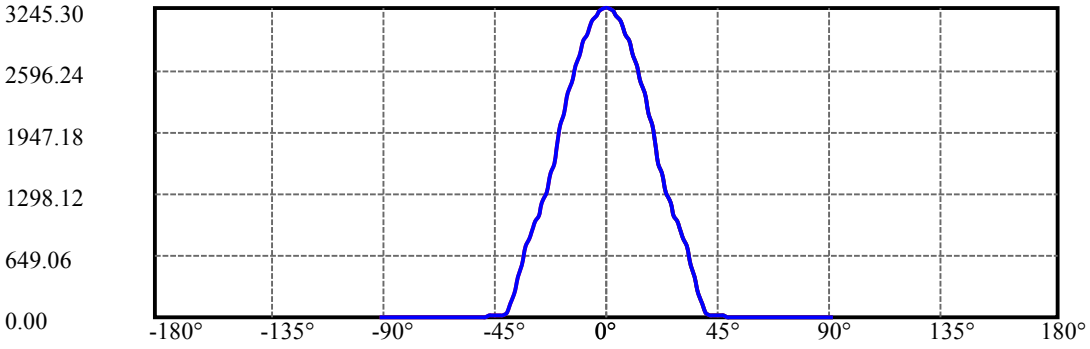
Zone	Lumens	%Lamp	%Fixt
0-30	1505.56	73.95%	83.03%
0-40	1770.48	86.96%	97.65%
0-60	1789.36	87.89%	98.69%
0-90	1812.37	89.02%	99.96%
0-120	1812.37	89.02%	99.96%
0-180	1813.16	89.06%	100.00%
60-90	23.79	1.17%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.89	1450.53	71.24%	80.00%

ZONAL LUMEN SUMMARY

0-10	289.20
10-20	645.13
20-30	571.23
30-40	264.92
40-50	11.01
50-60	7.87
60-70	7.85
70-80	7.97
80-90	7.19
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:36.0 Right:36.0
:C90/270Left:36.0 Right:36.0

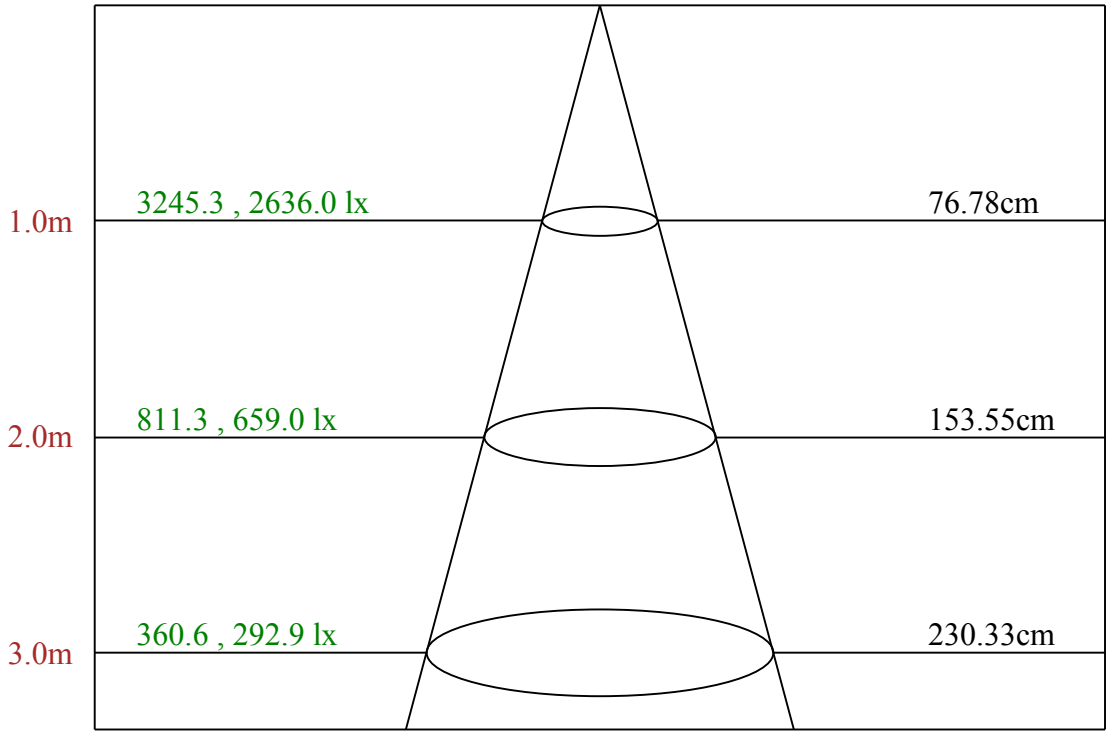
Beam Angle(50%Imax):C0/180Left:21.0 Right:21.0
:C90/270Left:21.0 Right:21.0

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Lux distance Curve

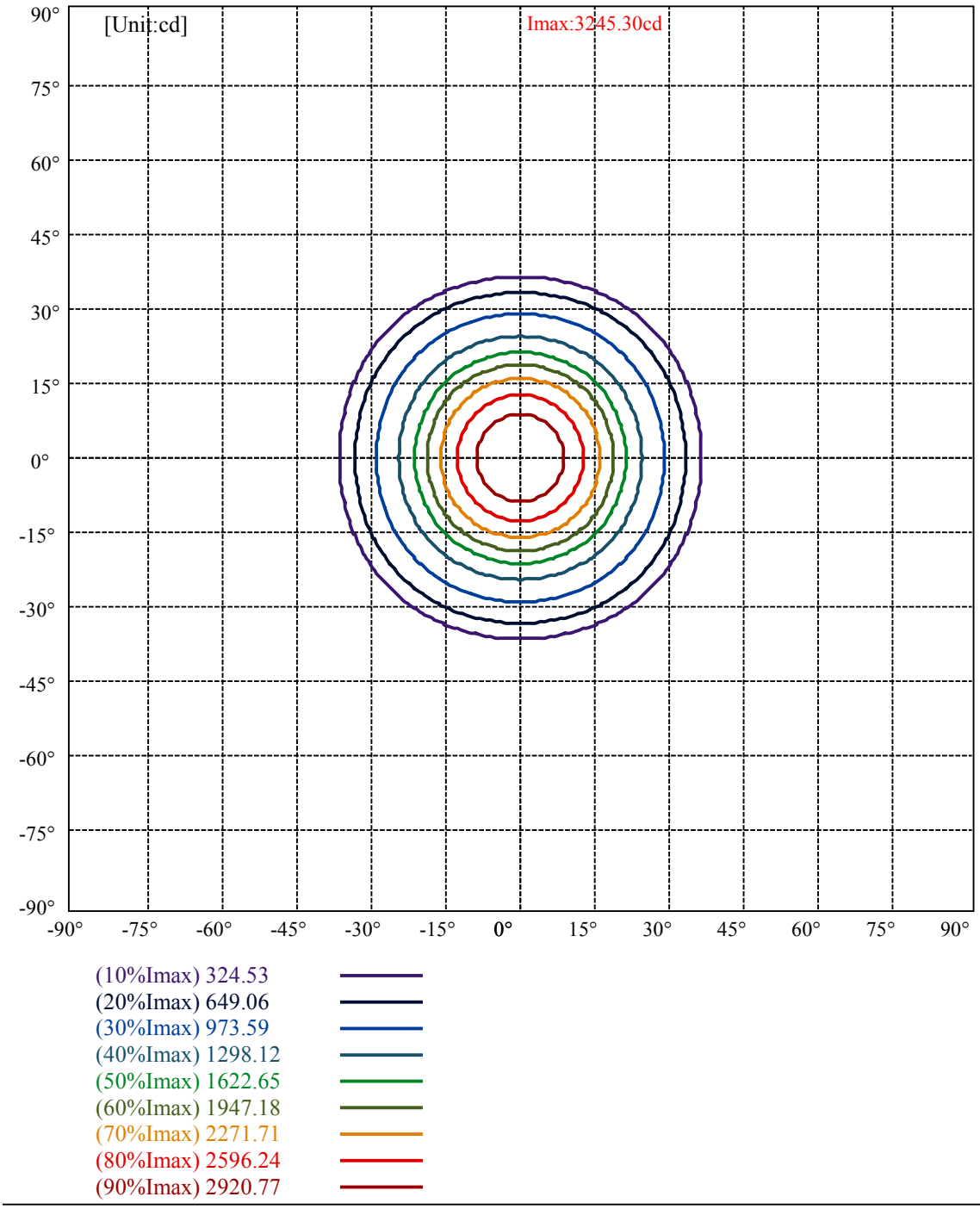


Max , Ave

Beam angle of C0 plane 42.00

Equipment: gms1980	Date: 2017/6/3	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

ISO-Intensity(V-H)

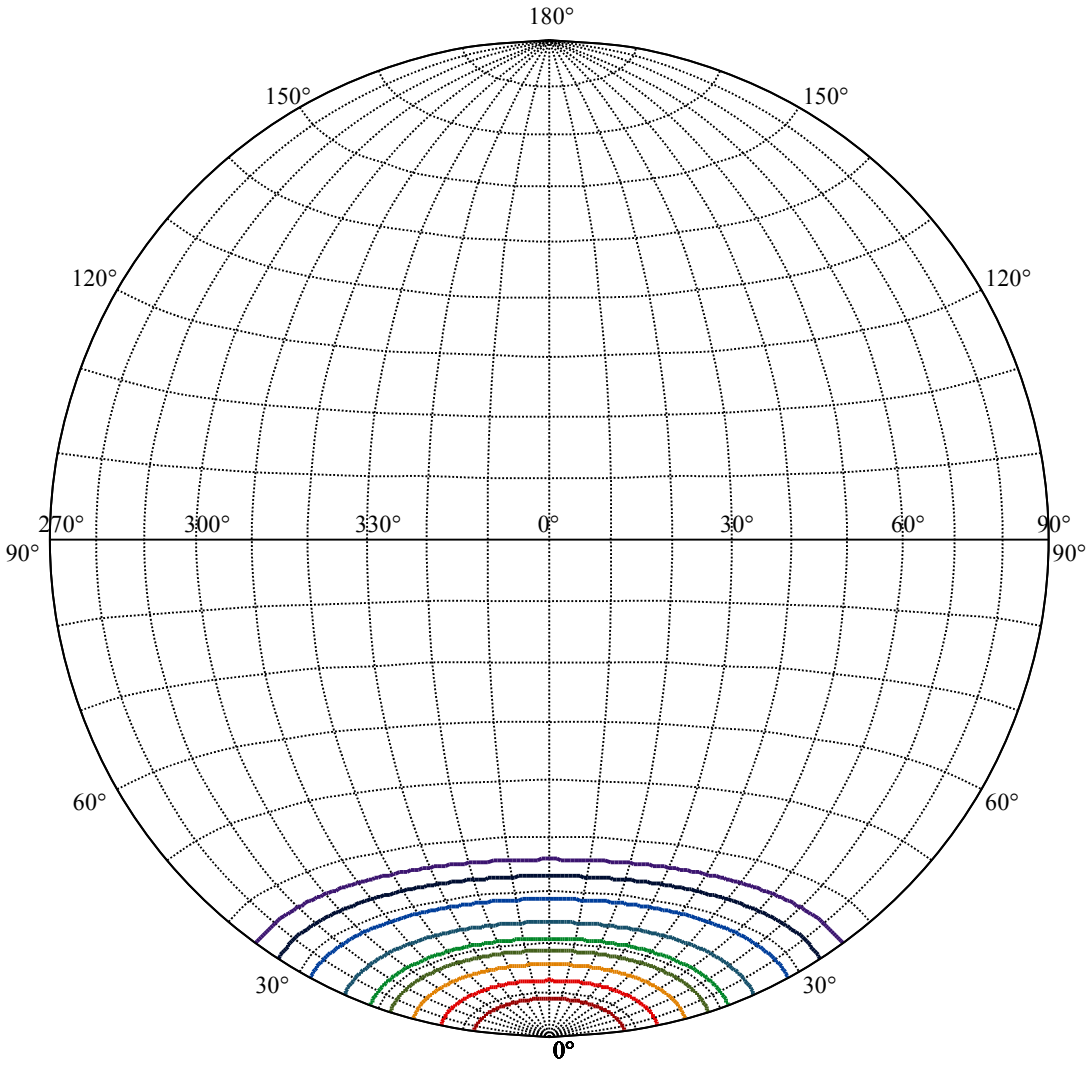


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3245.30

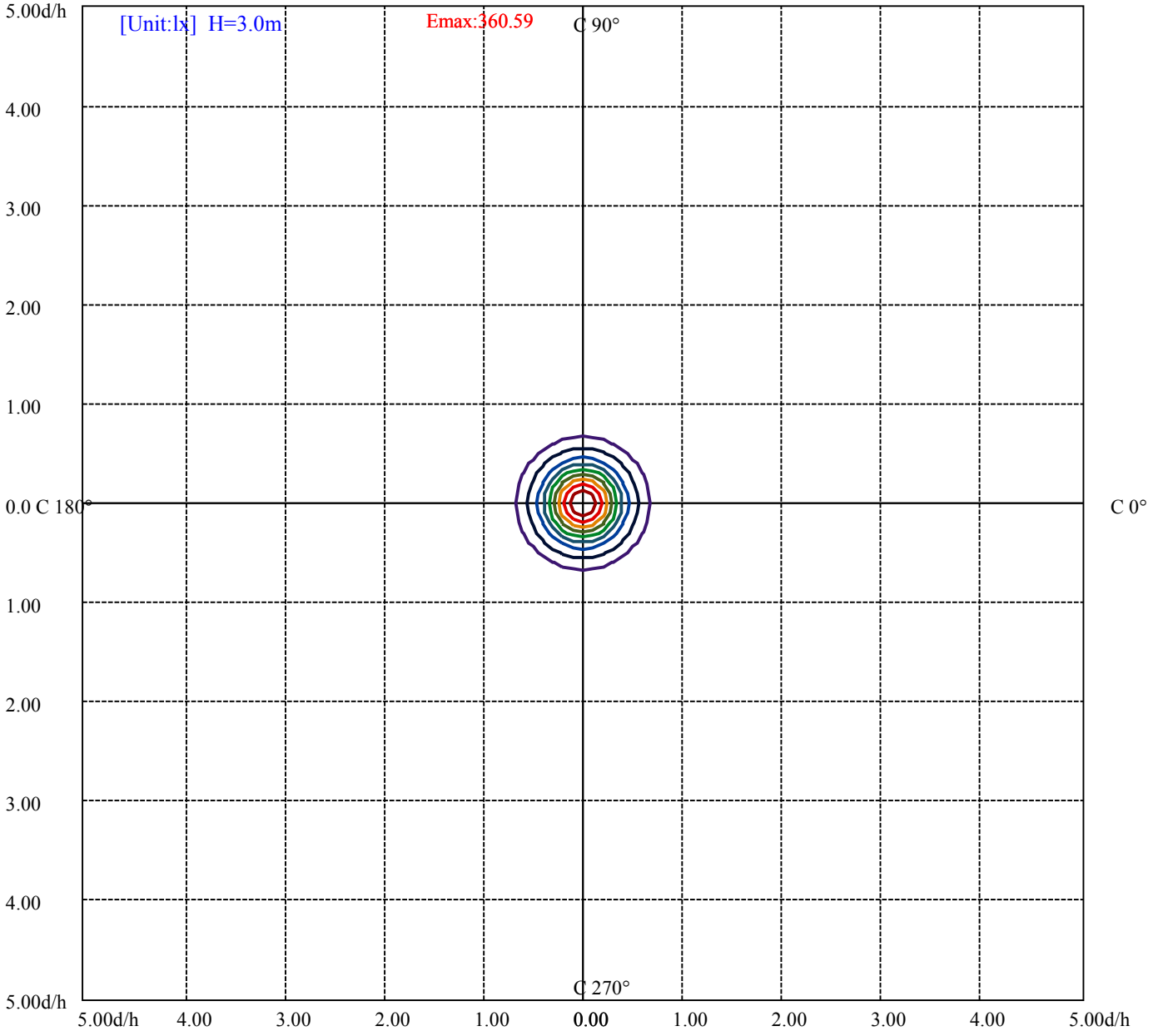
(10%Imax) 324.53
(20%Imax) 649.06
(30%Imax) 973.59
(40%Imax) 1298.12
(50%Imax) 1622.65
(60%Imax) 1947.18
(70%Imax) 2271.71
(80%Imax) 2596.24
(90%Imax) 2920.77

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

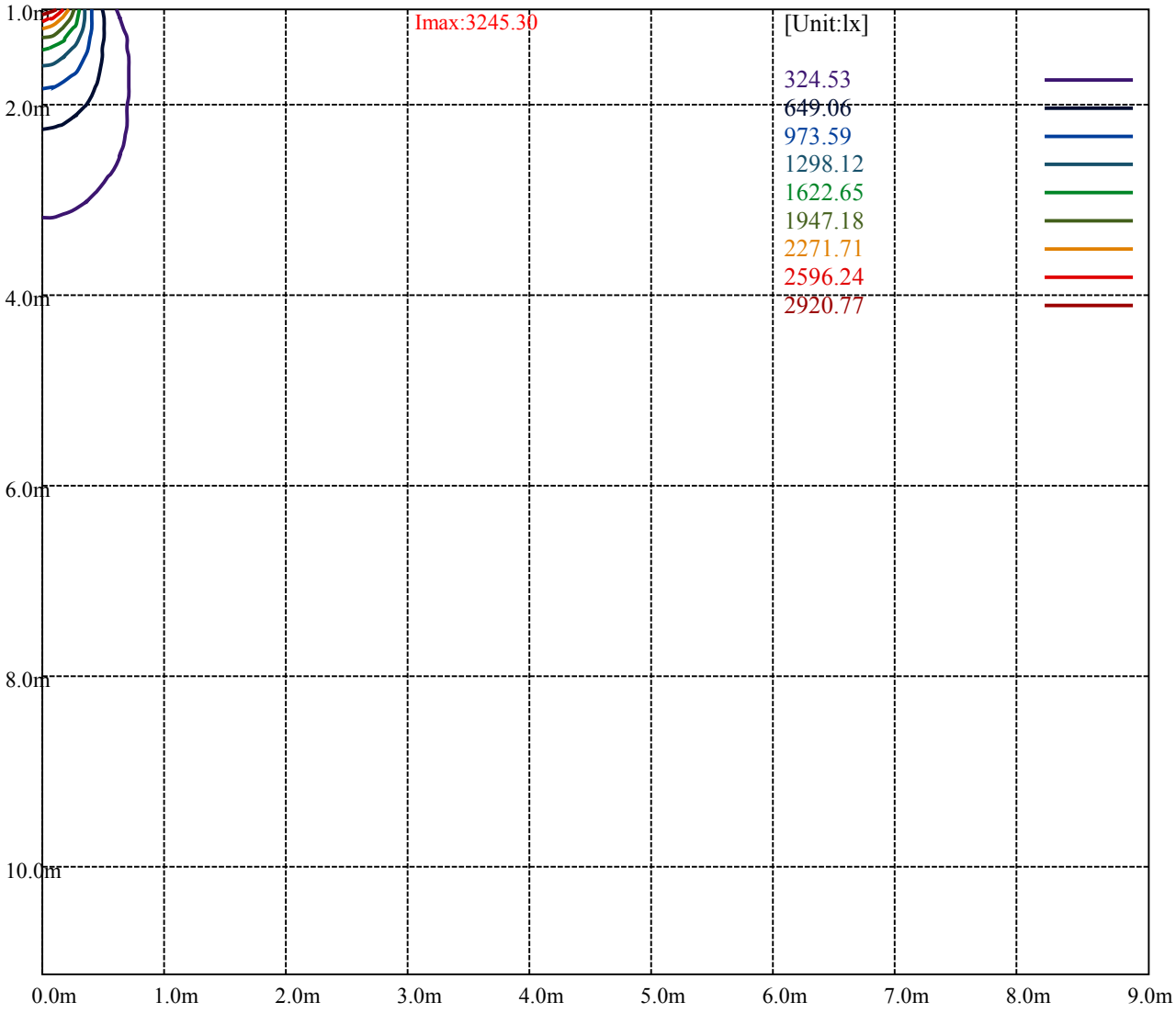
ISO illuminance diagram



(10%Emax) 36.05889
(20%Emax) 72.11777
(30%Emax) 108.1767
(40%Emax) 144.2355
(50%Emax) 180.2944
(60%Emax) 216.3533
(70%Emax) 252.4122
(80%Emax) 288.4711
(90%Emax) 324.53

Equipment: gms1980
Temperature(°C): 25.0
Date: 2017/6/3
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 3-2035-M

Luminance Limitting Curve(no luminous side)

Luminance Table

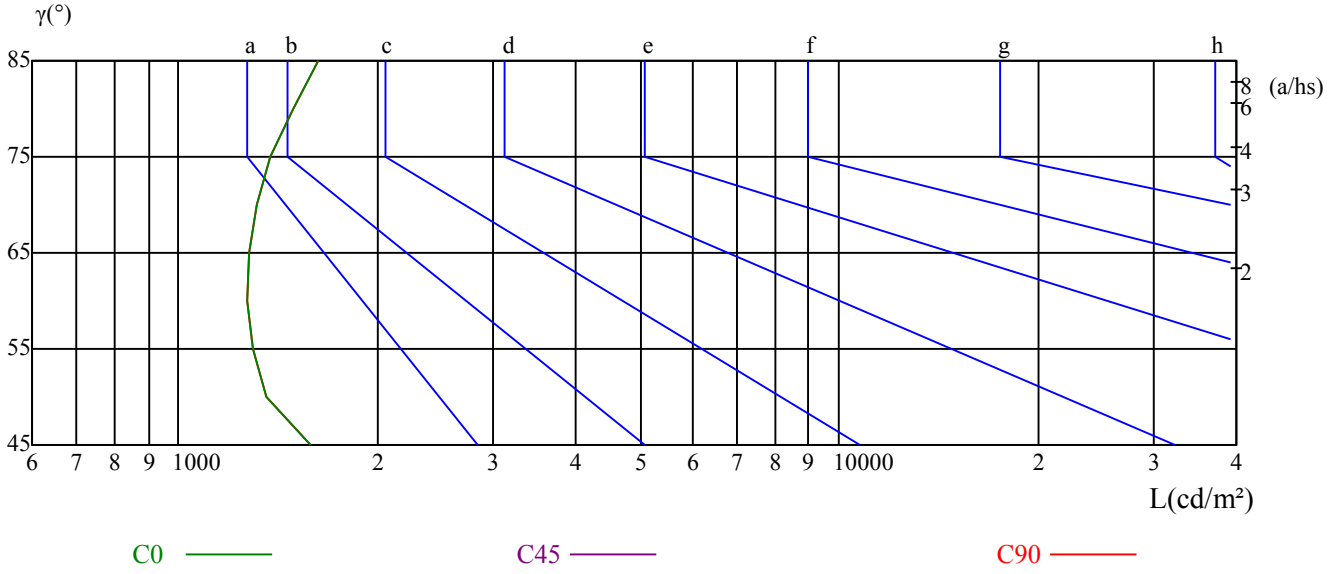
γ	45	50	55	60	65	70	75	80	85
C0	1588	1363	1297	1271	1277	1313	1377	1494	1633
C45	0	0	0	0	0	0	0	0	0
C90	1588	1363	1297	1271	1277	1313	1377	1494	1633

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3067	3067	0	4738	4738	0	13835	13835	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

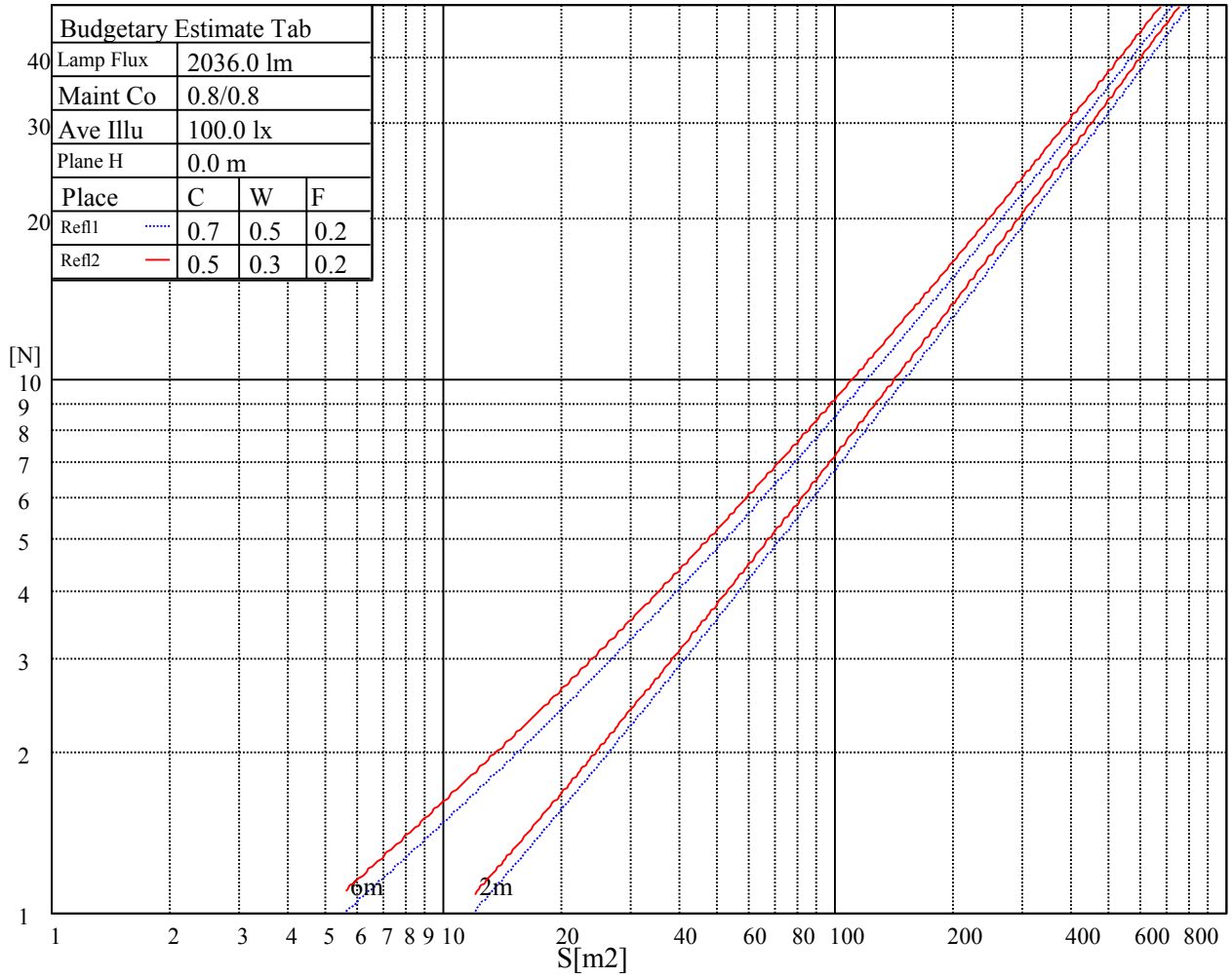


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table



Equipment: gms1980 Date: 2017/6/3 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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.95	0.97	0.95	0.94	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.90	0.87	0.91	0.88	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.81	0.79
3	0.88	0.83	0.80	0.86	0.83	0.80	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
4	0.83	0.78	0.75	0.82	0.78	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.71
5	0.78	0.74	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
6	0.74	0.69	0.66	0.74	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.63
7	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.60
8	0.67	0.62	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57
9	0.64	0.59	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.55
10	0.61	0.57	0.54	0.61	0.56	0.53	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.52

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	3242.27	3234.01	3221.35	3192.72	3156.38	3113.99	3058.38	3001.67	2936.16
90.0	3248.33	3241.17	3221.90	3191.07	3158.04	3111.24	3070.50	3017.64	2948.27
180.0	3242.27	3241.72	3232.91	3214.19	3177.30	3147.57	3105.73	3050.12	3003.88
270.0	3248.33	3250.53	3245.02	3231.26	3202.63	3161.34	3117.84	3063.89	3000.57
360.0	3242.27	3234.01	3221.35	3192.72	3156.38	3113.99	3058.38	3001.67	2936.16

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2847.52	2771.54	2691.16	2599.21	2501.21	2408.72	2299.16	2198.40	2077.28
90.0	2867.89	2792.46	2703.82	2622.34	2525.44	2422.48	2329.99	2218.22	2096.55
180.0	2939.46	2837.61	2770.44	2691.71	2574.99	2497.36	2404.86	2299.16	2187.39
270.0	2934.51	2850.82	2760.53	2676.84	2592.61	2484.70	2391.10	2298.05	2187.39
360.0	2847.52	2771.54	2691.16	2599.21	2501.21	2408.72	2299.16	2198.40	2077.28

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1948.45	1826.77	1690.23	1554.79	1452.94	1367.60	1269.60	1202.43	1133.06
90.0	1975.97	1851.55	1697.94	1576.26	1470.56	1362.65	1273.45	1202.43	1119.85
180.0	2077.28	1940.74	1816.31	1675.92	1559.20	1451.29	1353.84	1265.20	1193.62
270.0	2067.92	1952.85	1813.01	1677.02	1555.34	1441.93	1356.04	1269.60	1193.62
360.0	1948.45	1826.77	1690.23	1554.79	1452.94	1367.60	1269.60	1202.43	1133.06

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1058.73	989.91	931.55	868.79	792.81	705.27	595.71	497.16	386.50
90.0	1044.42	981.66	914.49	858.88	788.96	704.72	595.71	480.09	371.08
180.0	1091.88	1041.34	967.67	905.35	849.80	766.99	677.08	580.18	457.24
270.0	1095.07	1048.11	975.21	924.62	868.96	773.54	692.77	591.64	475.58
360.0	1058.73	989.91	931.55	868.79	792.81	705.27	595.71	497.16	386.50

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	280.79	229.36	116.50	48.34	27.53	22.68	17.62	14.31	12.66
90.0	285.19	187.52	112.98	46.74	25.49	21.03	15.64	12.83	11.51
180.0	362.88	272.14	179.70	99.76	47.68	24.50	20.21	15.58	12.44
270.0	363.92	271.59	178.22	97.84	48.23	25.88	21.64	17.29	13.87
360.0	280.79	229.36	116.50	48.34	27.53	22.68	17.62	14.31	12.66

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	11.18	10.52	10.19	9.97	9.74	9.47	9.30	9.14	9.03
90.0	10.74	10.35	10.08	9.86	9.63	9.47	9.30	9.14	8.97
180.0	11.07	10.46	10.13	9.86	9.69	9.47	9.30	9.14	8.97
270.0	12.22	10.79	10.24	9.97	9.74	9.52	9.36	9.19	9.03
360.0	11.18	10.52	10.19	9.97	9.74	9.47	9.30	9.14	9.03

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.92	8.81	8.64	8.59	8.48	8.37	8.26	8.20	8.09
90.0	8.86	8.75	8.64	8.53	8.42	8.31	8.26	8.20	8.09
180.0	8.81	8.70	8.59	8.48	8.42	8.31	8.20	8.20	8.15
270.0	8.86	8.75	8.64	8.53	8.42	8.31	8.26	8.20	8.15
360.0	8.92	8.81	8.64	8.59	8.48	8.37	8.26	8.20	8.09

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.04	8.04	7.93	7.87	7.82	7.71	7.65	7.65	7.60
90.0	7.98	7.93	7.87	7.82	7.76	7.71	7.65	7.60	7.60
180.0	8.04	7.93	7.87	7.82	7.76	7.71	7.65	7.65	7.54
270.0	8.04	7.98	7.87	7.82	7.76	7.71	7.71	7.65	7.60
360.0	8.04	8.04	7.93	7.87	7.82	7.71	7.65	7.65	7.60

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	7.60	7.54	7.49	7.49	7.49	7.43	7.43	7.38	7.38
90.0	7.54	7.54	7.54	7.49	7.71	8.15	8.09	7.87	7.65
180.0	7.54	7.49	7.49	7.43	7.43	7.38	7.38	7.38	7.38
270.0	7.49	7.49	7.49	7.43	7.43	7.43	7.38	7.38	7.32
360.0	7.60	7.54	7.49	7.49	7.49	7.43	7.43	7.38	7.38

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.38	7.38	7.32	7.32	7.32	7.32	7.27	7.27	7.27
90.0	7.49	7.43	7.38	7.38	7.38	7.27	7.27	7.27	7.27
180.0	7.38	7.38	7.32	7.27	7.32	7.32	7.27	7.27	7.27
270.0	7.32	7.32	7.27	7.32	7.32	7.27	7.27	7.27	7.21
360.0	7.38	7.38	7.32	7.32	7.32	7.32	7.27	7.27	7.27

C/γ(°)	90.0
0.0	7.27
90.0	7.27
180.0	7.27
270.0	7.27
360.0	7.27