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Nata

LumCAT: LN01D03524EE-N
Luminaire: 92.70.307.00
Report No: 210520-B006
Test No: 210520-C006
LampCAT: CITIZEN CLU7A2 LES4.5
Lamp flux(lm): 671.4
Number of Lamps: 1
Length(mm): 74
Phm Type: C

Voltage(V): 221.5000
Current(A): 0.0760
Power (W): 8.5000
PF: 0.5020
Ballast type: DC
Width(mm): 74
Height(mm): 56

Photometric Results

Lumens(lm): 464.12
Efficiency(%): 69.13%
Lumens(lm)/Power(W): 54.60
Central intensity(cd): 1670.062
Maximum intensity(cd): 1670.062
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.6
[C90/270]Total=24.6
Field angle(10%Imax): [C0/180]Total=48.7
[C90/270]Total=48.7
Maximum s/h(1/2): C0_180=0.42 C90_270=0.42
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 69.13%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 93.970%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1670.063	0.000	0	.000%	.000%
1.0	1663.383	1.595	1.595	.238%	.344%
2.0	1640.672	4.742	6.337	.706%	1.365%
3.0	1605.094	7.763	14.1	1.156%	3.038%
4.0	1557.844	10.587	24.687	1.577%	5.319%
5.0	1499.414	13.152	37.84	1.959%	8.153%
6.0	1414.547	15.314	53.153	2.281%	11.452%
7.0	1339.186	17.092	70.246	2.546%	15.135%
8.0	1244.813	18.493	88.739	2.754%	19.120%
9.0	1150.995	19.417	108.156	2.892%	23.303%
10.0	1049.484	19.914	128.069	2.966%	27.594%
11.0	959.667	20.076	148.145	2.990%	31.919%
12.0	863.852	19.934	168.078	2.969%	36.214%
13.0	768.213	19.369	187.447	2.885%	40.387%
14.0	681.279	18.553	206	2.763%	44.385%
15.0	599.892	17.588	223.589	2.620%	48.174%
16.0	531.302	16.575	240.164	2.469%	51.746%
17.0	455.245	15.363	255.527	2.288%	55.056%
18.0	396.429	14.042	269.569	2.091%	58.081%
19.0	349.952	12.986	282.555	1.934%	60.879%
20.0	301.416	11.922	294.477	1.776%	63.448%
21.0	261.415	10.807	305.284	1.610%	65.776%
22.0	228.790	9.851	315.135	1.467%	67.899%
23.0	201.452	9.028	324.163	1.345%	69.844%
24.0	174.502	8.220	332.382	1.224%	71.615%
25.0	154.364	7.478	339.86	1.114%	73.226%
26.0	137.665	6.893	346.753	1.027%	74.711%
27.0	122.323	6.361	353.114	.947%	76.082%
28.0	108.105	5.834	358.948	.869%	77.339%
29.0	97.045	5.367	364.315	.799%	78.495%
30.0	87.286	4.977	369.292	.741%	79.568%
31.0	78.961	4.626	373.919	.689%	80.564%
32.0	71.107	4.299	378.218	.640%	81.491%
33.0	64.695	4.001	382.219	.596%	82.353%
34.0	59.288	3.752	385.971	.559%	83.161%
35.0	53.655	3.508	389.478	.522%	83.917%
36.0	49.148	3.273	392.752	.488%	84.622%
37.0	45.309	3.081	395.832	.459%	85.286%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	41.625	2.902	398.734	.432%	85.911%
39.0	38.130	2.722	401.456	.405%	86.498%
40.0	35.388	2.564	404.02	.382%	87.050%
41.0	32.773	2.427	406.448	.361%	87.573%
42.0	30.389	2.295	408.742	.342%	88.067%
43.0	28.280	2.173	410.916	.324%	88.536%
44.0	26.353	2.062	412.978	.307%	88.980%
45.0	24.694	1.962	414.939	.292%	89.403%
46.0	23.070	1.868	416.807	.278%	89.805%
47.0	21.642	1.778	418.586	.265%	90.188%
48.0	20.454	1.702	420.287	.253%	90.555%
49.0	19.301	1.633	421.92	.243%	90.907%
50.0	18.014	1.556	423.476	.232%	91.242%
51.0	17.058	1.484	424.96	.221%	91.562%
52.0	16.235	1.429	426.388	.213%	91.869%
53.0	15.413	1.377	427.765	.205%	92.166%
54.0	14.625	1.324	429.089	.197%	92.451%
55.0	13.985	1.277	430.366	.190%	92.726%
56.0	13.359	1.236	431.601	.184%	92.993%
57.0	12.691	1.191	432.793	.177%	93.249%
58.0	12.171	1.150	433.942	.171%	93.497%
59.0	11.672	1.115	435.057	.166%	93.737%
60.0	11.187	1.080	436.137	.161%	93.970%
61.0	10.730	1.046	437.183	.156%	94.195%
62.0	10.301	1.013	438.196	.151%	94.414%
63.0	9.935	0.984	439.18	.147%	94.626%
64.0	9.563	0.957	440.137	.142%	94.832%
65.0	9.211	0.929	441.066	.138%	95.032%
66.0	8.902	0.904	441.97	.135%	95.227%
67.0	8.761	0.888	442.858	.132%	95.418%
68.0	9.120	0.906	443.764	.135%	95.613%
69.0	9.773	0.964	444.728	.144%	95.821%
70.0	10.624	1.048	445.775	.156%	96.047%
71.0	11.552	1.146	446.921	.171%	96.294%
72.0	12.347	1.243	448.164	.185%	96.561%
73.0	13.134	1.332	449.497	.198%	96.848%
74.0	13.788	1.415	450.912	.211%	97.153%
75.0	14.034	1.470	452.382	.219%	97.470%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.676	1.471	453.853	.219%	97.787%
77.0	12.839	1.414	455.267	.211%	98.092%
78.0	12.016	1.331	456.597	.198%	98.378%
79.0	10.990	1.236	457.833	.184%	98.645%
80.0	10.090	1.136	458.97	.169%	98.889%
81.0	9.274	1.047	460.017	.156%	99.115%
82.0	7.952	0.934	460.951	.139%	99.316%
83.0	5.702	0.742	461.693	.111%	99.476%
84.0	4.071	0.532	462.226	.079%	99.591%
85.0	3.466	0.411	462.637	.061%	99.680%
86.0	3.016	0.354	462.992	.053%	99.756%
87.0	2.763	0.316	463.308	.047%	99.824%
88.0	2.545	0.291	463.599	.043%	99.887%
89.0	2.391	0.271	463.869	.040%	99.945%
90.0	2.257	0.255	464.124	.038%	100.000%

Zonal flux distribution table

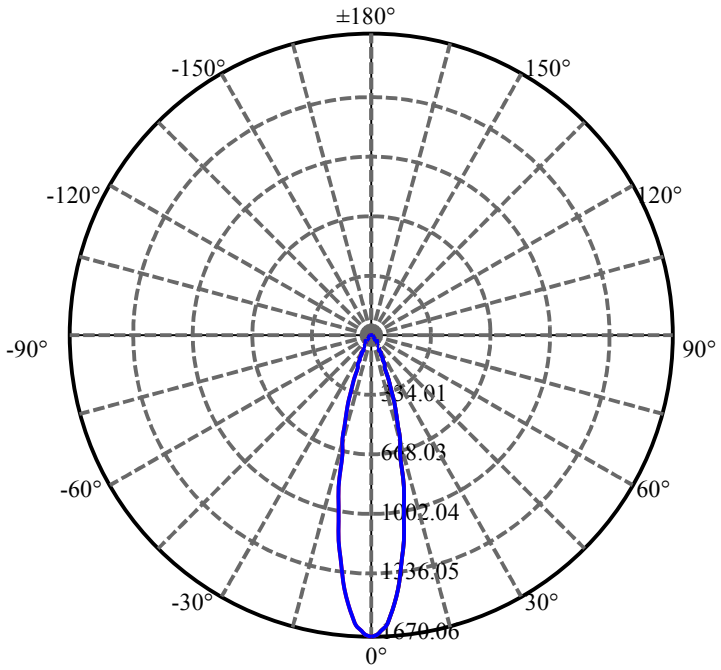
ZONAL LUMEN SUMMARY

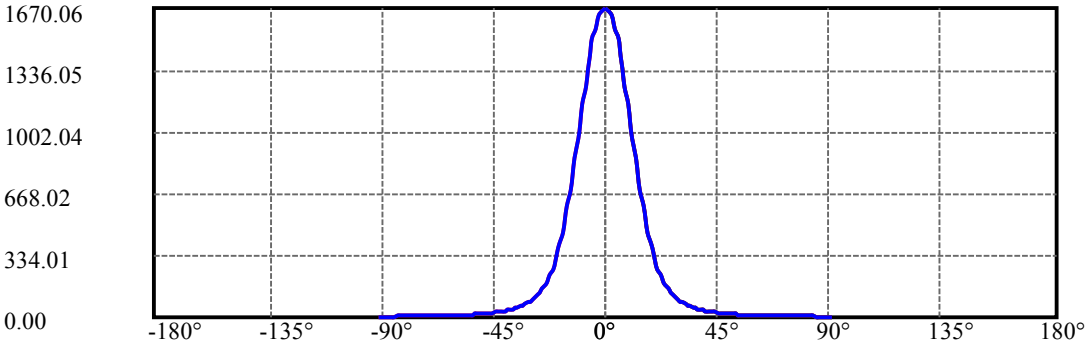
Zone	Lumens	%Lamp	%Fixt
0-30	369.29	55.00%	79.57%
0-40	404.02	60.17%	87.05%
0-60	436.14	64.96%	93.97%
0-90	463.87	69.09%	99.95%
0-120	463.87	69.09%	99.95%
0-180	464.12	69.13%	100.00%
60-90	28.81	4.29%	6.21%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-30.43	371.30	55.30%	80.00%

ZONAL LUMEN SUMMARY

0-10	128.07
10-20	166.41
20-30	74.82
30-40	34.73
40-50	19.46
50-60	12.66
60-70	9.64
70-80	13.19
80-90	4.90
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):

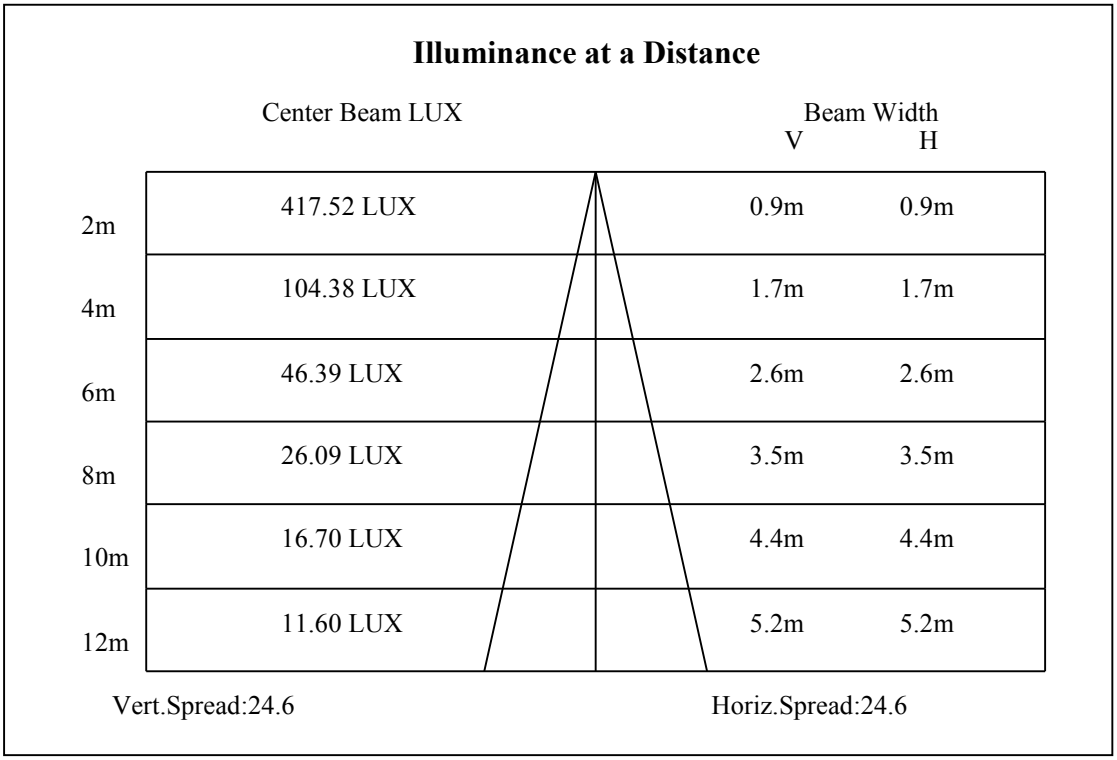
C0/C180:

C90/C270:

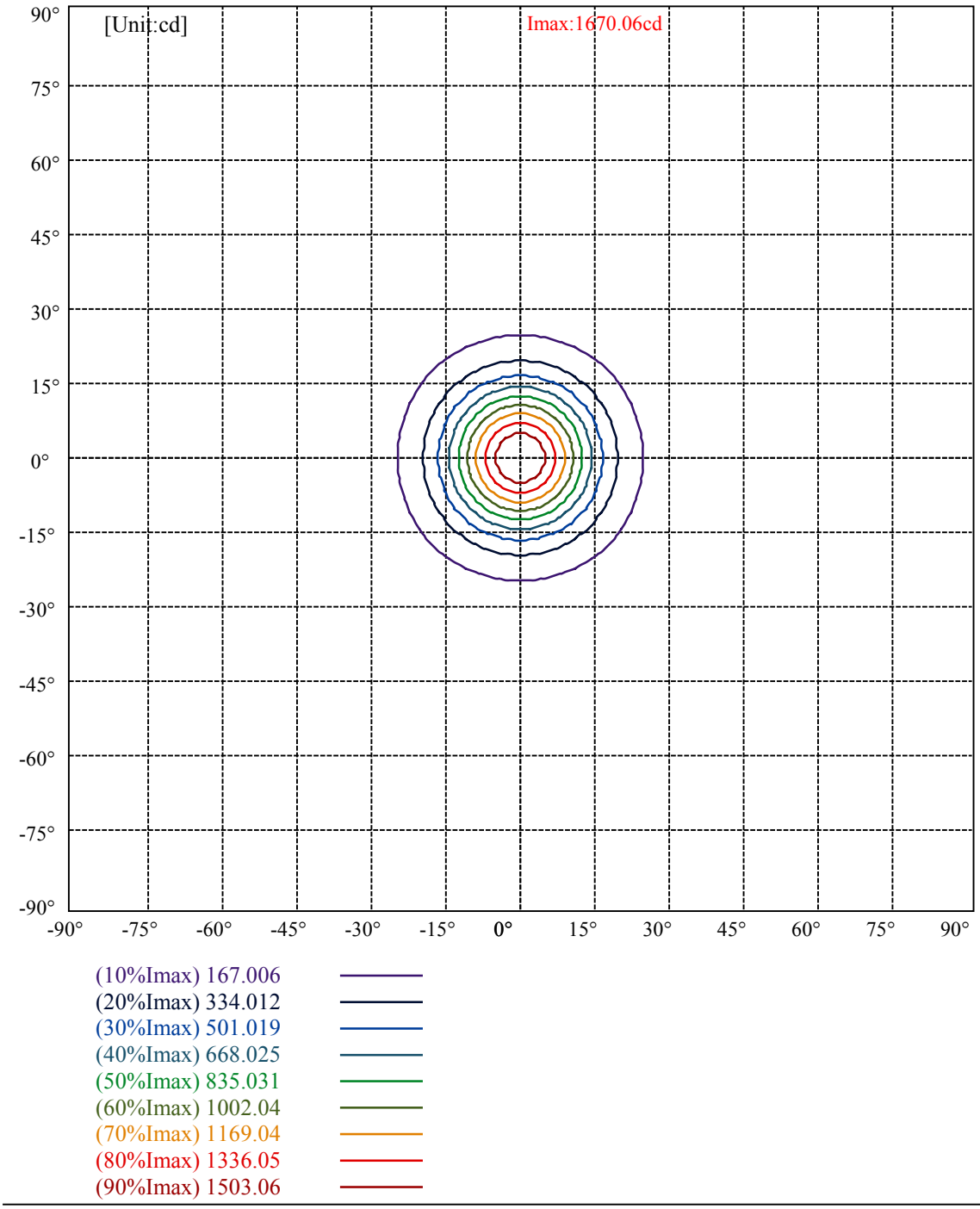
Field angle(10%Imax):C0/180Left:24.4 Right:24.4
:C90/270Left:24.4 Right:24.4

Beam Angle(50%Imax):C0/180Left:12.3 Right:12.3
:C90/270Left:12.3 Right:12.3

Lux distance Curve



ISO-Intensity(V-H)

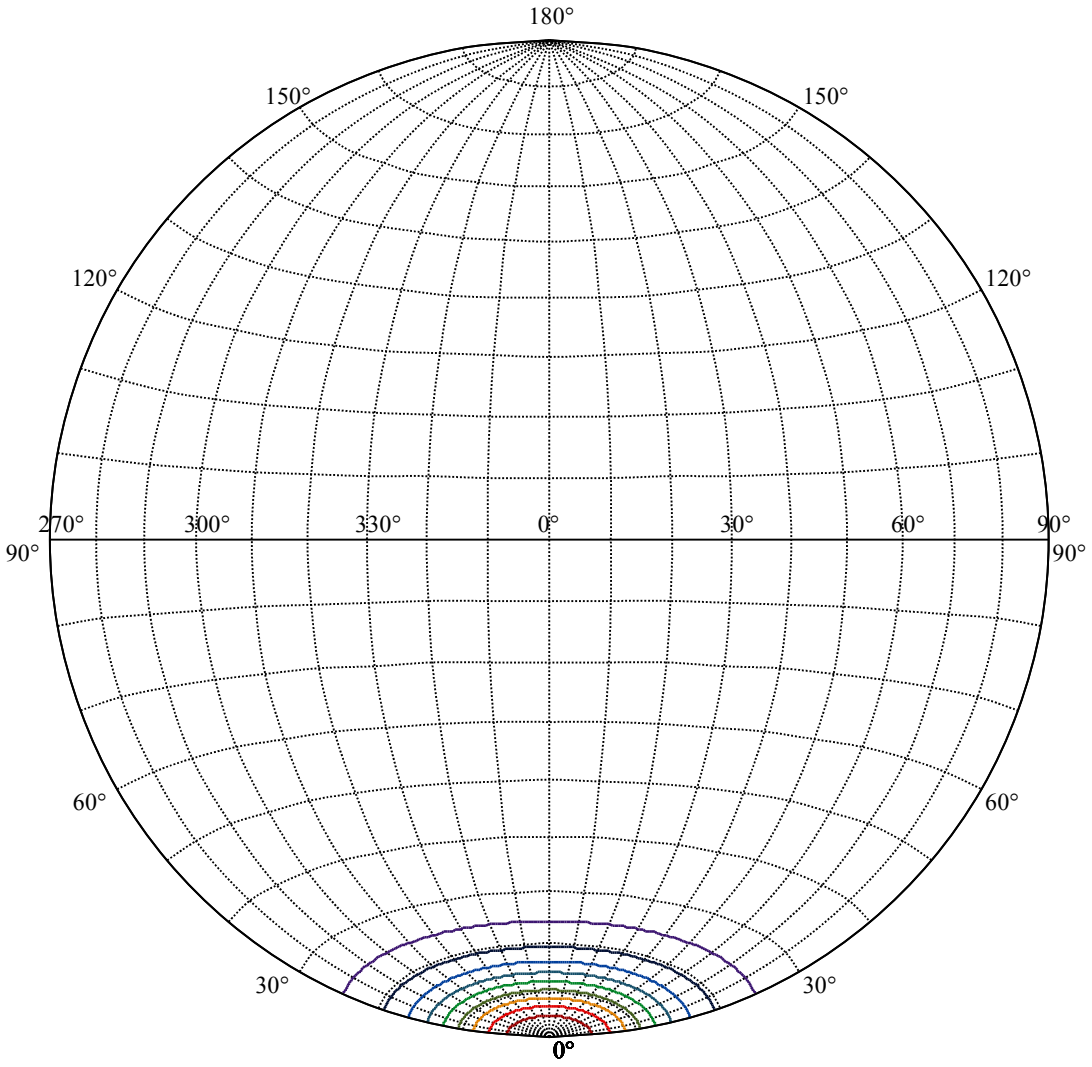


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1670.06

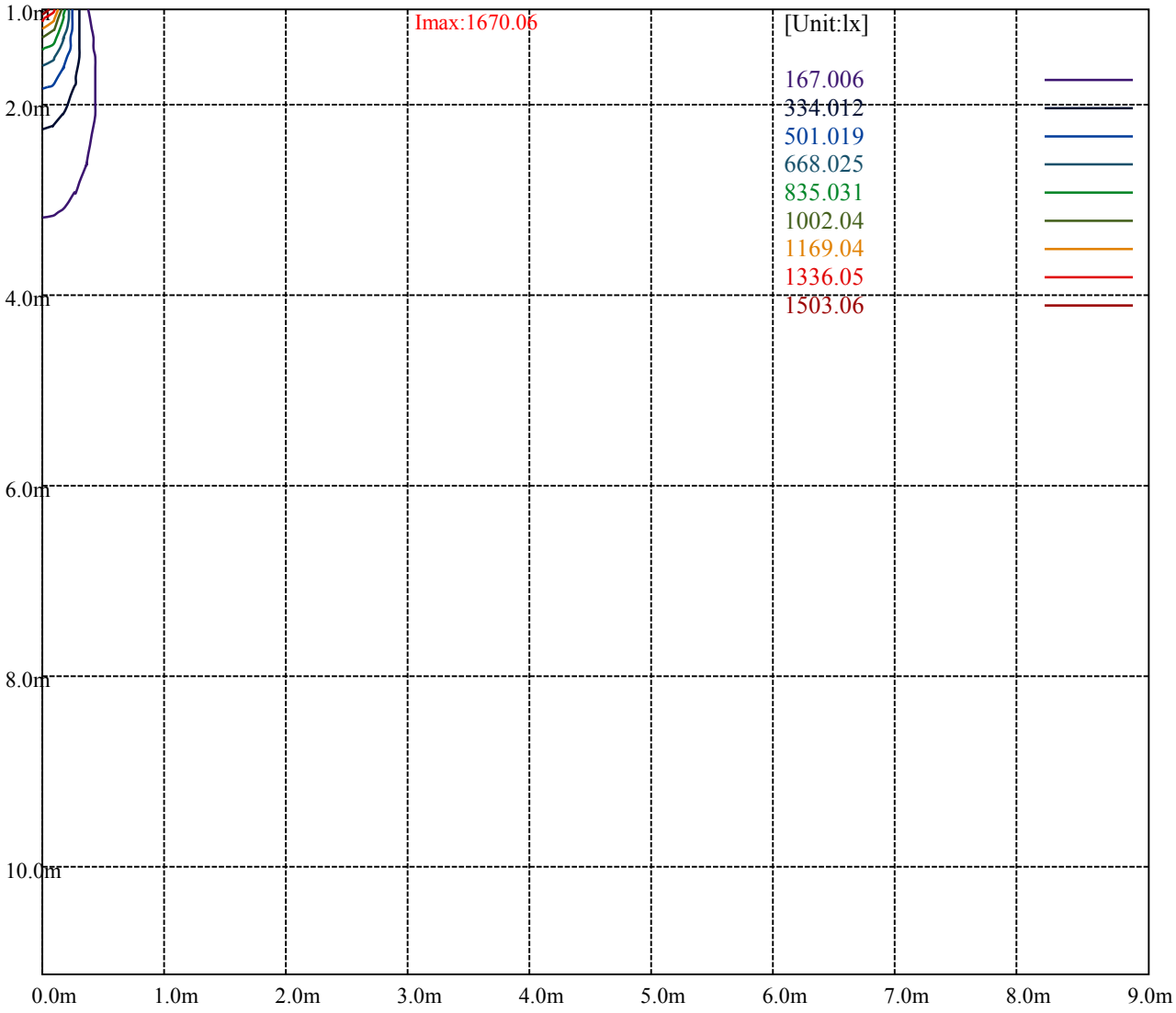
(10%Imax) 167.006
(20%Imax) 334.012
(30%Imax) 501.019
(40%Imax) 668.025
(50%Imax) 835.031
(60%Imax) 1002.04
(70%Imax) 1169.04
(80%Imax) 1336.05
(90%Imax) 1503.06

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

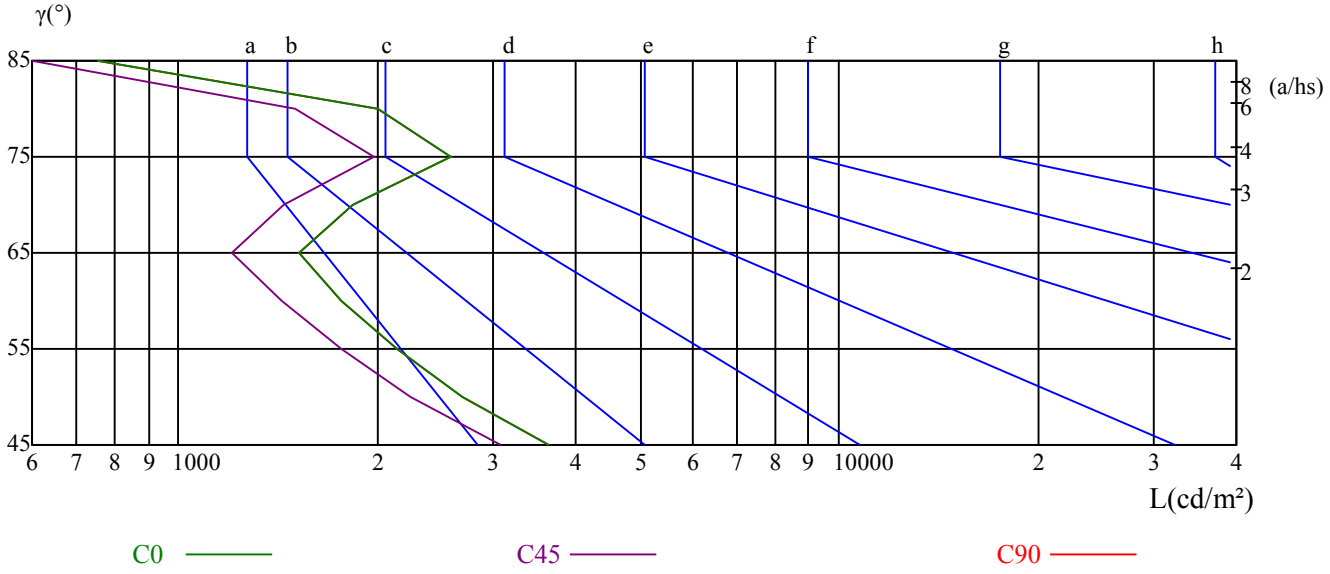
γ	45	50	55	60	65	70	75	80	85
C0	3630	2691	2140	1768	1517	1842	2589	2005	753
C45	3081	2249	1761	1432	1208	1440	1983	1501	549
C90	3630	2691	2140	1768	1517	1842	2589	2005	753

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3980	3980	3980	9902	9902	9902	7263	7263	7263

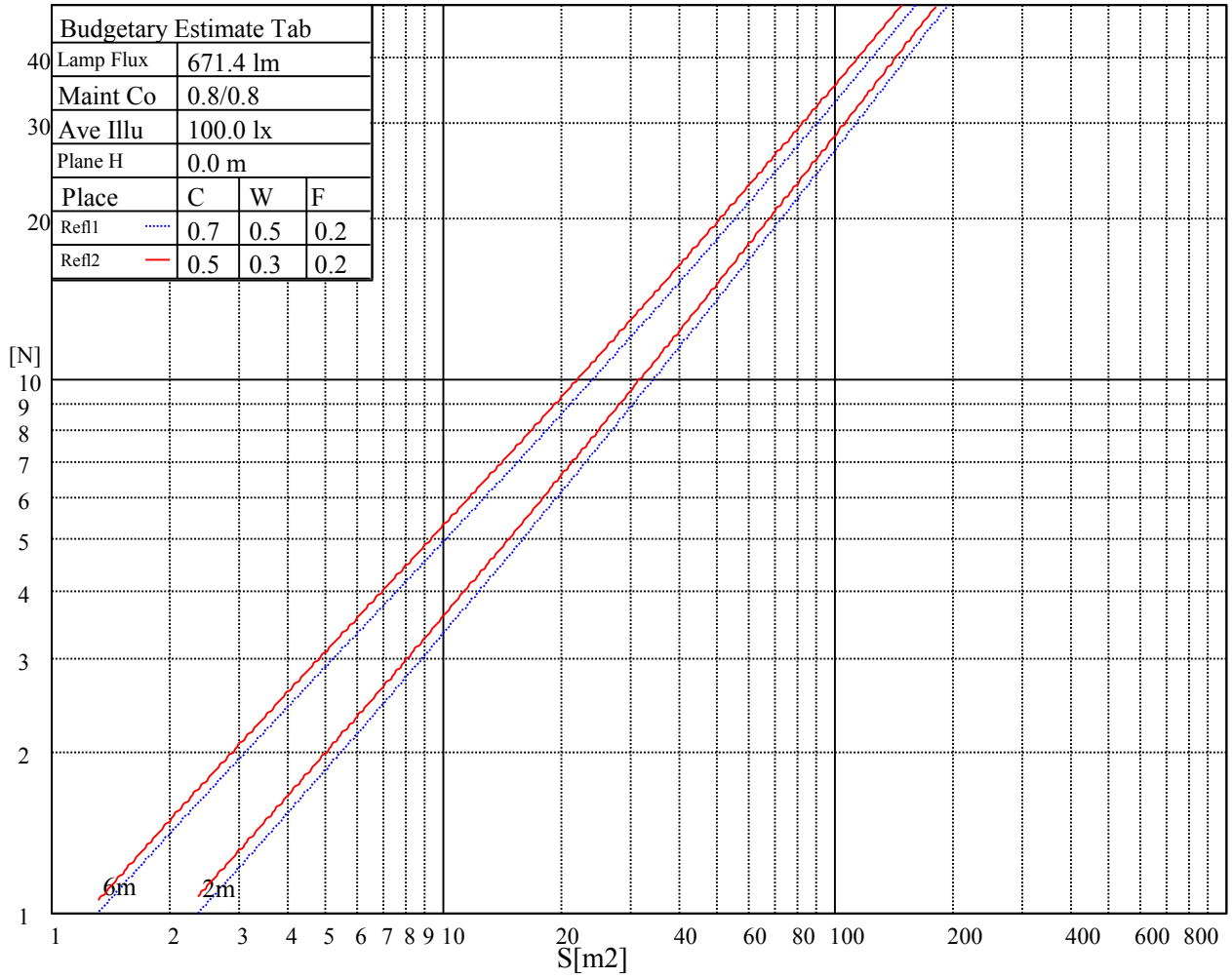
Glare Table

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

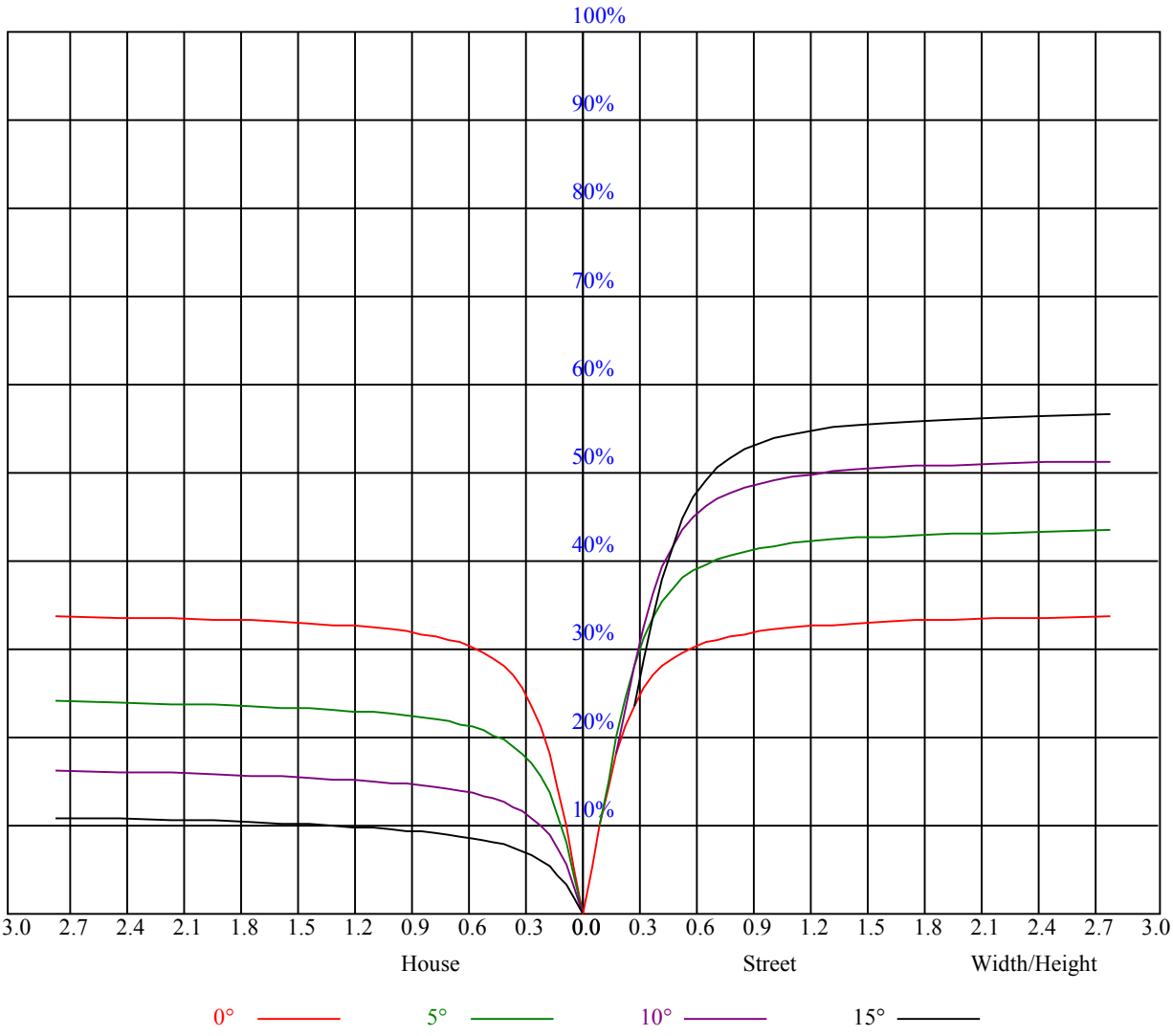


Equipment: GMS1980 Date: 2021/05/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.82	0.82	0.82	0.80	0.80	0.80	0.77	0.77	0.77	0.74	0.74	0.74	0.71	0.71	0.71	0.69
1	0.76	0.74	0.73	0.75	0.73	0.72	0.72	0.71	0.69	0.69	0.68	0.67	0.67	0.66	0.65	0.64
2	0.71	0.69	0.66	0.70	0.68	0.65	0.68	0.66	0.64	0.66	0.64	0.63	0.64	0.63	0.61	0.60
3	0.67	0.64	0.61	0.66	0.63	0.61	0.64	0.62	0.60	0.63	0.61	0.59	0.61	0.59	0.58	0.57
4	0.64	0.60	0.57	0.63	0.60	0.57	0.61	0.59	0.56	0.60	0.58	0.56	0.59	0.57	0.55	0.54
5	0.61	0.57	0.54	0.60	0.57	0.54	0.59	0.56	0.54	0.58	0.55	0.53	0.57	0.54	0.53	0.52
6	0.58	0.54	0.52	0.57	0.54	0.51	0.56	0.53	0.51	0.55	0.53	0.51	0.55	0.52	0.50	0.49
7	0.55	0.52	0.49	0.55	0.52	0.49	0.54	0.51	0.49	0.53	0.51	0.49	0.53	0.50	0.48	0.48
8	0.53	0.50	0.47	0.53	0.50	0.47	0.52	0.49	0.47	0.52	0.49	0.47	0.51	0.48	0.47	0.46
9	0.51	0.48	0.46	0.51	0.48	0.45	0.50	0.47	0.45	0.50	0.47	0.45	0.49	0.47	0.45	0.44
10	0.50	0.46	0.44	0.49	0.46	0.44	0.49	0.46	0.44	0.48	0.46	0.44	0.48	0.45	0.44	0.43

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/05/20	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	1640.81	1665.00	1676.81	1671.19	1653.75	1618.88	1570.50	1524.94	1445.06
45.0	1692.56	1692.56	1678.50	1646.44	1608.75	1560.38	1483.31	1409.06	1329.19
90.0	1682.44	1664.44	1630.69	1587.94	1526.63	1460.25	1374.19	1276.88	1121.85
135.0	1664.44	1643.63	1600.88	1553.06	1491.75	1423.69	1319.63	1228.50	1124.44
180.0	1640.81	1605.94	1544.06	1483.31	1411.31	1317.94	1190.25	1118.93	1022.96
225.0	1692.56	1677.94	1653.75	1608.75	1550.25	1486.69	1399.50	1310.63	1220.63
270.0	1682.44	1685.81	1675.13	1647.56	1609.31	1566.56	1483.88	1412.44	1345.50
315.0	1664.44	1671.75	1665.56	1642.50	1611.00	1560.94	1495.13	1432.13	1348.88
360.0	1640.81	1665.00	1676.81	1671.19	1653.75	1618.88	1570.50	1524.94	1445.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1374.75	1299.38	1194.19	1107.56	1029.94	905.06	818.44	743.63	633.38
45.0	1222.88	1131.19	1036.13	930.94	827.44	741.38	651.38	576.56	500.06
90.0	1085.85	978.58	873.23	783.28	687.54	599.68	528.36	463.28	392.12
135.0	1015.31	918.00	812.81	722.25	628.88	554.63	478.69	419.63	353.81
180.0	901.74	811.07	723.60	632.08	549.11	482.96	416.59	364.56	313.54
225.0	1111.05	1005.13	909.34	817.14	707.29	627.36	552.71	485.66	410.63
270.0	1229.06	1140.75	1060.88	943.88	840.94	763.88	659.25	581.63	511.88
315.0	1267.31	1111.78	1067.18	973.69	874.58	775.29	693.73	615.49	526.56
360.0	1374.75	1299.38	1194.19	1107.56	1029.94	905.06	818.44	743.63	633.38

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	561.94	496.69	430.88	372.38	326.81	287.44	246.94	214.31	186.64
45.0	431.44	379.69	327.94	288.00	246.88	216.90	187.71	166.16	148.39
90.0	342.34	299.19	257.79	223.14	197.10	172.46	151.31	135.28	119.81
135.0	308.81	284.06	232.37	202.22	179.49	163.01	139.95	123.58	113.12
180.0	269.78	236.98	205.31	179.10	159.19	142.31	123.92	111.66	100.74
225.0	360.00	315.11	272.31	235.69	208.13	181.41	158.68	139.50	125.27
270.0	434.25	380.81	333.56	287.44	246.04	216.79	185.63	164.76	146.53
315.0	462.88	407.08	351.17	303.36	266.68	231.30	201.88	179.66	160.82
360.0	561.94	496.69	430.88	372.38	326.81	287.44	246.94	214.31	186.64

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	165.43	145.07	127.91	115.03	103.89	91.91	83.48	76.11	67.84
45.0	131.68	115.93	103.89	92.59	82.91	75.15	67.61	61.82	56.08
90.0	108.11	96.24	85.89	78.02	71.04	63.45	58.11	53.49	48.38
135.0	99.68	89.55	82.07	73.18	66.66	61.31	55.86	51.08	47.36
180.0	89.04	80.72	73.35	66.15	59.79	54.90	50.06	46.24	42.30
225.0	112.73	98.94	89.66	81.45	74.14	66.09	60.69	55.80	50.12
270.0	128.93	113.96	102.66	91.74	82.35	74.98	67.78	62.10	56.48
315.0	142.99	124.43	110.93	100.13	90.90	81.06	73.97	67.67	60.69
360.0	165.43	145.07	127.91	115.03	103.89	91.91	83.48	76.11	67.84

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	62.04	56.93	51.81	47.14	43.65	40.05	37.24	34.37	31.61
45.0	50.85	46.74	43.14	39.09	36.17	33.58	30.71	28.63	26.83
90.0	44.78	41.46	38.03	35.16	32.63	30.09	28.07	26.10	24.36
135.0	42.98	39.94	37.24	34.09	31.73	29.64	27.23	25.37	23.79
180.0	38.98	36.17	33.41	30.83	28.69	26.83	24.81	23.29	22.05
225.0	46.18	42.30	38.81	35.72	33.19	30.77	28.80	26.89	25.20
270.0	51.36	47.25	43.76	39.66	36.84	34.37	31.56	29.42	27.51
315.0	56.03	51.69	46.80	43.37	40.22	36.84	34.71	32.18	29.48
360.0	62.04	56.93	51.81	47.14	43.65	40.05	37.24	34.37	31.61

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	29.53	27.39	25.48	24.02	22.61	21.21	19.86	18.84	17.72
45.0	25.14	23.23	21.88	20.64	19.35	18.23	17.21	16.26	15.41
90.0	22.95	21.49	20.19	19.13	18.06	16.99	16.14	15.30	14.51
135.0	22.22	20.87	19.80	18.62	17.78	16.88	16.14	15.53	14.85
180.0	20.76	19.74	18.56	17.49	16.65	15.69	14.85	14.18	13.56
225.0	23.74	22.33	21.09	20.14	18.90	16.88	15.98	15.24	14.46
270.0	25.54	23.85	22.44	21.09	19.91	18.68	17.55	16.71	15.81
315.0	27.68	25.65	23.68	22.50	21.15	19.58	18.73	17.83	16.99
360.0	29.53	27.39	25.48	24.02	22.61	21.21	19.86	18.84	17.72

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	16.76	15.98	15.13	14.34	13.73	13.11	12.49	11.93	11.42
45.0	14.74	14.12	13.56	12.83	12.26	11.76	11.19	10.74	10.41
90.0	13.73	13.11	12.49	11.87	11.42	10.91	10.52	10.07	9.62
135.0	14.29	13.67	13.11	12.43	11.93	11.42	10.91	10.52	10.13
180.0	12.83	12.26	11.76	11.19	10.80	10.41	10.01	9.62	9.28
225.0	13.67	13.05	12.43	11.87	11.42	10.97	10.63	10.29	9.96
270.0	14.91	14.23	13.61	12.88	12.32	11.81	11.19	10.74	10.29
315.0	16.09	15.47	14.79	14.12	13.50	12.99	12.54	11.93	11.31
360.0	16.76	15.98	15.13	14.34	13.73	13.11	12.49	11.93	11.42

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.03	10.58	10.13	9.79	9.45	9.06	8.78	8.49	8.21
45.0	10.07	9.73	9.45	9.17	9.00	10.35	13.56	18.00	22.50
90.0	9.28	8.94	8.61	8.38	8.10	7.82	7.59	7.31	6.98
135.0	9.73	9.34	8.94	8.61	8.38	8.16	7.93	7.76	7.59
180.0	8.94	8.61	8.33	8.04	7.82	7.54	7.26	7.03	6.75
225.0	9.68	9.39	9.11	8.94	9.68	13.05	16.65	20.53	24.92
270.0	9.90	9.56	9.23	8.83	8.55	8.27	7.99	7.71	7.48
315.0	10.86	10.35	9.90	9.45	9.11	8.72	8.44	8.16	7.99
360.0	11.03	10.58	10.13	9.79	9.45	9.06	8.78	8.49	8.21

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.93	7.82	7.43	7.14	6.81	6.47	6.19	5.85	5.51
45.0	26.33	30.60	34.31	37.24	38.42	36.56	34.43	30.99	28.29
90.0	6.69	6.41	6.13	5.85	5.57	5.18	4.95	4.67	4.33
135.0	7.48	7.26	7.03	6.64	6.24	5.79	5.34	4.89	4.56
180.0	6.41	6.13	5.85	5.46	5.18	4.95	4.61	4.33	4.11
225.0	28.97	32.34	35.38	36.28	34.03	31.16	28.69	26.04	23.51
270.0	7.20	6.92	6.69	6.36	6.08	5.85	5.57	5.23	4.95
315.0	7.76	7.59	7.48	7.31	7.09	6.75	6.36	5.91	5.46
360.0	7.93	7.82	7.43	7.14	6.81	6.47	6.19	5.85	5.51

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.23	4.89	4.61	4.28	3.99	3.77	3.38	3.04	2.81
45.0	26.33	22.84	15.24	6.19	3.71	2.93	2.64	2.42	2.19
90.0	4.11	3.83	3.54	3.32	3.04	2.70	2.53	2.31	2.25
135.0	4.28	3.99	3.71	3.43	3.09	2.76	2.53	2.36	2.31
180.0	3.88	3.66	3.38	3.04	2.76	2.48	2.36	2.31	2.31
225.0	20.59	15.24	6.58	4.28	3.66	2.87	2.59	2.31	2.08
270.0	4.67	4.39	4.11	3.83	3.54	3.15	2.93	2.70	2.48
315.0	5.12	4.78	4.44	4.22	3.94	3.49	3.15	2.93	2.70
360.0	5.23	4.89	4.61	4.28	3.99	3.77	3.38	3.04	2.81

Intensity data(cd)

C/γ(°)	90.0
0.0	2.64
45.0	1.97
90.0	2.14
135.0	2.31
180.0	2.19
225.0	2.03
270.0	2.31
315.0	2.48
360.0	2.64