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Nata

LumCAT: LN01D04524DA-N
Luminaire: 97.70.234.00
Report No: 200709-B001
Test No: 200709-C001
LampCAT: CITIZEN CLU700
Lamp flux(lm): 534.4
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 11.0000
Current(A): 0.6000
Power (W): 6.6000
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 469.90
Efficiency(%): 87.93%
Lumens(lm)/Power(W): 71.20
Central intensity(cd): 2030.344
Maximum intensity(cd): 2030.344
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=26.4
[C90/270]Total=26.4
Field angle(10%Imax): [C0/180]Total=41.7
[C90/270]Total=41.7
Maximum s/h(1/2): C0_180=0.45 C90_270=0.45
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(%): 87.93%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.029%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2030.344	0.000	0	.000%	.000%
1.0	2027.953	1.942	1.942	.363%	.413%
2.0	2019.234	5.809	7.751	1.087%	1.649%
3.0	2004.258	9.623	17.374	1.801%	3.697%
4.0	1980.633	13.339	30.712	2.496%	6.536%
5.0	1943.367	16.881	47.593	3.159%	10.128%
6.0	1892.180	20.157	67.75	3.772%	14.418%
7.0	1824.047	23.067	90.817	4.316%	19.327%
8.0	1737.281	25.488	116.304	4.769%	24.751%
9.0	1622.672	27.231	143.535	5.095%	30.546%
10.0	1491.117	28.179	171.714	5.273%	36.543%
11.0	1326.614	28.155	199.868	5.268%	42.534%
12.0	1174.029	27.336	227.204	5.115%	48.352%
13.0	1043.508	26.317	253.521	4.924%	53.952%
14.0	886.078	24.699	278.219	4.621%	59.208%
15.0	748.167	22.436	300.655	4.198%	63.983%
16.0	617.070	20.005	320.659	3.743%	68.240%
17.0	490.395	17.246	337.906	3.227%	71.910%
18.0	392.738	14.561	352.466	2.725%	75.009%
19.0	315.225	12.317	364.784	2.305%	77.630%
20.0	248.934	10.326	375.109	1.932%	79.828%
21.0	196.263	8.549	383.658	1.600%	81.647%
22.0	147.987	6.918	390.576	1.294%	83.119%
23.0	115.200	5.522	396.098	1.033%	84.294%
24.0	91.688	4.523	400.621	.846%	85.257%
25.0	75.902	3.811	404.432	.713%	86.068%
26.0	64.378	3.311	407.743	.620%	86.773%
27.0	55.772	2.939	410.683	.550%	87.398%
28.0	49.605	2.668	413.351	.499%	87.966%
29.0	44.585	2.464	415.815	.461%	88.490%
30.0	40.451	2.296	418.111	.430%	88.979%
31.0	36.830	2.151	420.262	.402%	89.437%
32.0	33.525	2.016	422.277	.377%	89.866%
33.0	30.663	1.891	424.168	.354%	90.268%
34.0	28.209	1.782	425.95	.333%	90.647%
35.0	25.854	1.679	427.629	.314%	91.004%
36.0	23.815	1.581	429.21	.296%	91.341%
37.0	22.177	1.500	430.71	.281%	91.660%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	20.559	1.426	432.137	.267%	91.964%
39.0	19.090	1.353	433.49	.253%	92.252%
40.0	17.852	1.288	434.779	.241%	92.526%
41.0	16.685	1.230	436.008	.230%	92.788%
42.0	15.567	1.172	437.18	.219%	93.037%
43.0	14.597	1.117	438.298	.209%	93.275%
44.0	13.669	1.067	439.364	.200%	93.502%
45.0	12.790	1.017	440.381	.190%	93.718%
46.0	11.988	0.969	441.35	.181%	93.925%
47.0	11.208	0.923	442.273	.173%	94.121%
48.0	10.512	0.878	443.151	.164%	94.308%
49.0	9.865	0.837	443.988	.157%	94.486%
50.0	9.204	0.795	444.783	.149%	94.655%
51.0	8.663	0.756	445.539	.141%	94.816%
52.0	8.163	0.722	446.261	.135%	94.969%
53.0	7.734	0.692	446.952	.129%	95.117%
54.0	7.341	0.664	447.617	.124%	95.258%
55.0	7.059	0.643	448.259	.120%	95.395%
56.0	6.778	0.625	448.885	.117%	95.528%
57.0	6.532	0.609	449.493	.114%	95.657%
58.0	6.342	0.595	450.089	.111%	95.784%
59.0	6.124	0.583	450.671	.109%	95.908%
60.0	5.955	0.571	451.242	.107%	96.030%
61.0	5.766	0.559	451.801	.105%	96.149%
62.0	5.583	0.547	452.348	.102%	96.265%
63.0	5.428	0.536	452.884	.100%	96.379%
64.0	5.273	0.525	453.409	.098%	96.491%
65.0	5.119	0.514	453.923	.096%	96.600%
66.0	4.992	0.504	454.428	.094%	96.708%
67.0	4.901	0.497	454.925	.093%	96.813%
68.0	5.027	0.503	455.428	.094%	96.920%
69.0	5.323	0.528	455.956	.099%	97.033%
70.0	5.815	0.572	456.528	.107%	97.155%
71.0	6.553	0.639	457.167	.120%	97.291%
72.0	7.538	0.733	457.9	.137%	97.446%
73.0	8.395	0.833	458.733	.156%	97.624%
74.0	9.007	0.915	459.648	.171%	97.818%
75.0	9.780	0.993	460.641	.186%	98.030%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.809	1.040	461.681	.195%	98.251%
77.0	9.619	1.036	462.716	.194%	98.471%
78.0	9.211	1.008	463.724	.189%	98.686%
79.0	8.494	0.951	464.676	.178%	98.888%
80.0	7.875	0.882	465.558	.165%	99.076%
81.0	7.151	0.813	466.371	.152%	99.249%
82.0	6.230	0.726	467.096	.136%	99.404%
83.0	5.013	0.611	467.707	.114%	99.534%
84.0	3.839	0.482	468.19	.090%	99.636%
85.0	2.988	0.373	468.562	.070%	99.716%
86.0	2.651	0.308	468.871	.058%	99.781%
87.0	2.482	0.281	469.151	.053%	99.841%
88.0	2.334	0.264	469.415	.049%	99.897%
89.0	2.194	0.248	469.663	.046%	99.950%
90.0	2.102	0.236	469.899	.044%	100.000%

Zonal flux distribution table

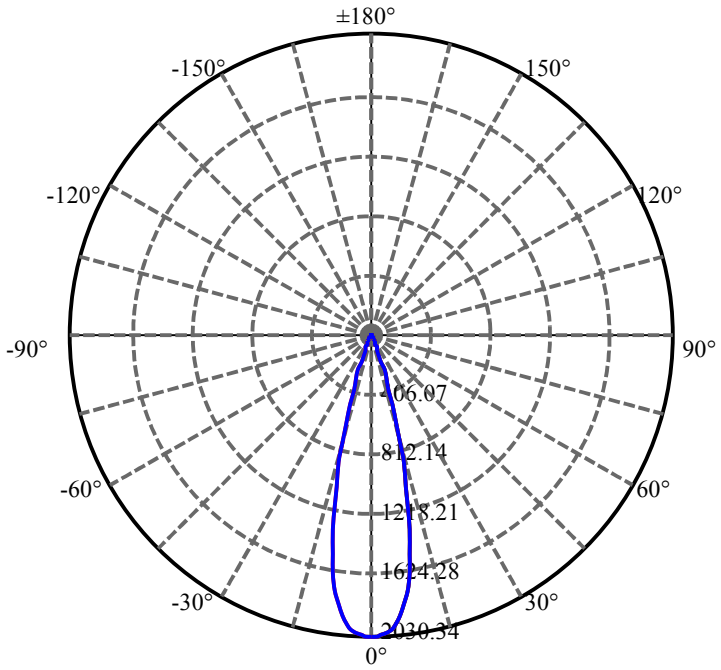
ZONAL LUMEN SUMMARY

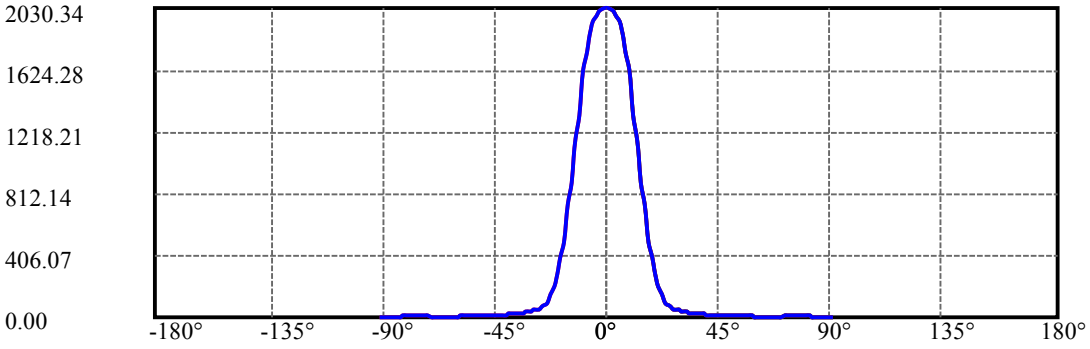
Zone	Lumens	%Lamp	%Fixt
0-30	418.11	78.23%	88.98%
0-40	434.78	81.35%	92.53%
0-60	451.24	84.43%	96.03%
0-90	469.66	87.88%	99.95%
0-120	469.66	87.88%	99.95%
0-180	469.90	87.93%	100.00%
60-90	18.99	3.55%	4.04%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-20.09	375.92	70.34%	80.00%

ZONAL LUMEN SUMMARY

0-10	171.71
10-20	203.40
20-30	43.00
30-40	16.67
40-50	10.00
50-60	6.46
60-70	5.29
70-80	9.03
80-90	4.11
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:20.9 Right:20.9
:C90/270Left:20.9 Right:20.9

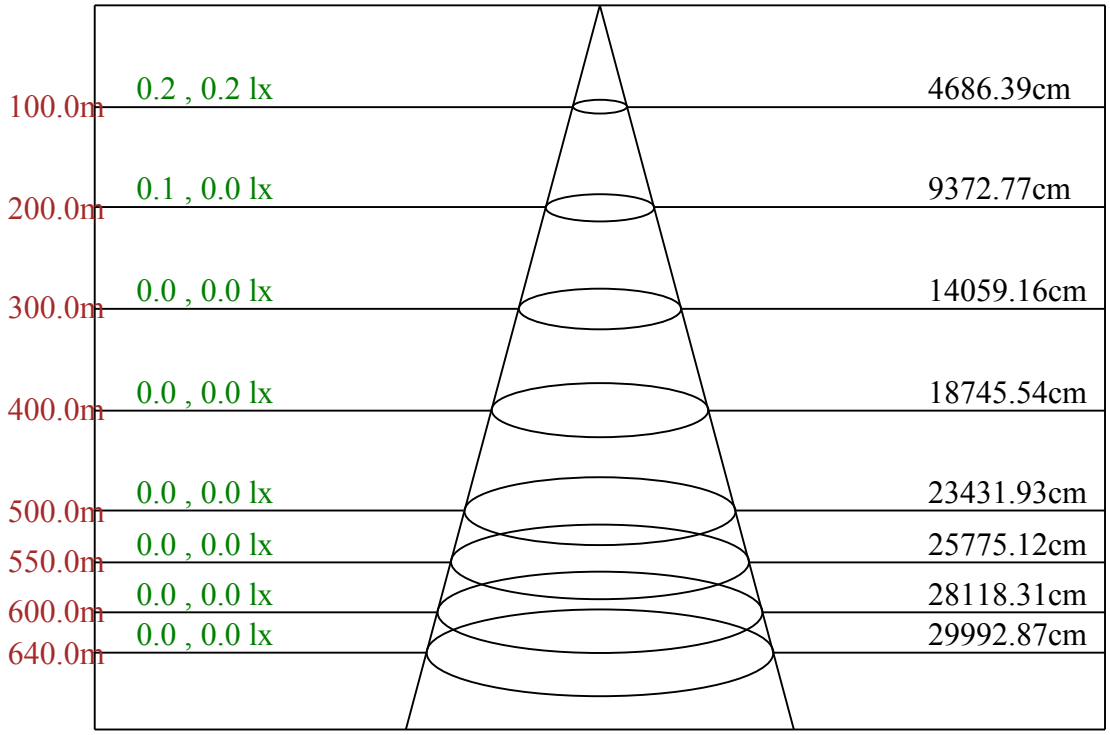
Beam Angle(50%Imax):C0/180Left:13.2 Right:13.2
:C90/270Left:13.2 Right:13.2

Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

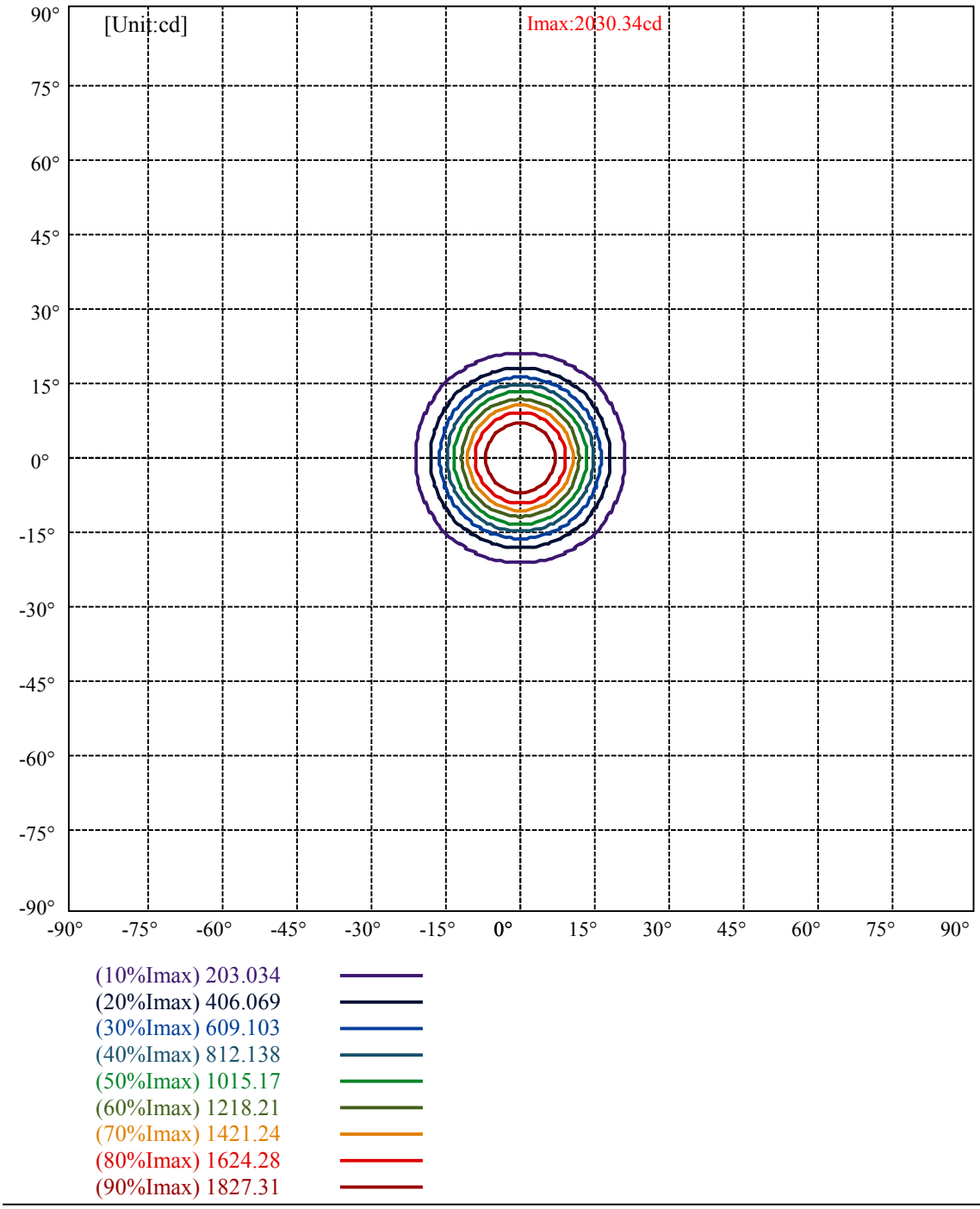
Lux distance Curve



Max , Ave

Beam angle of C0 plane 26.38

ISO-Intensity(V-H)

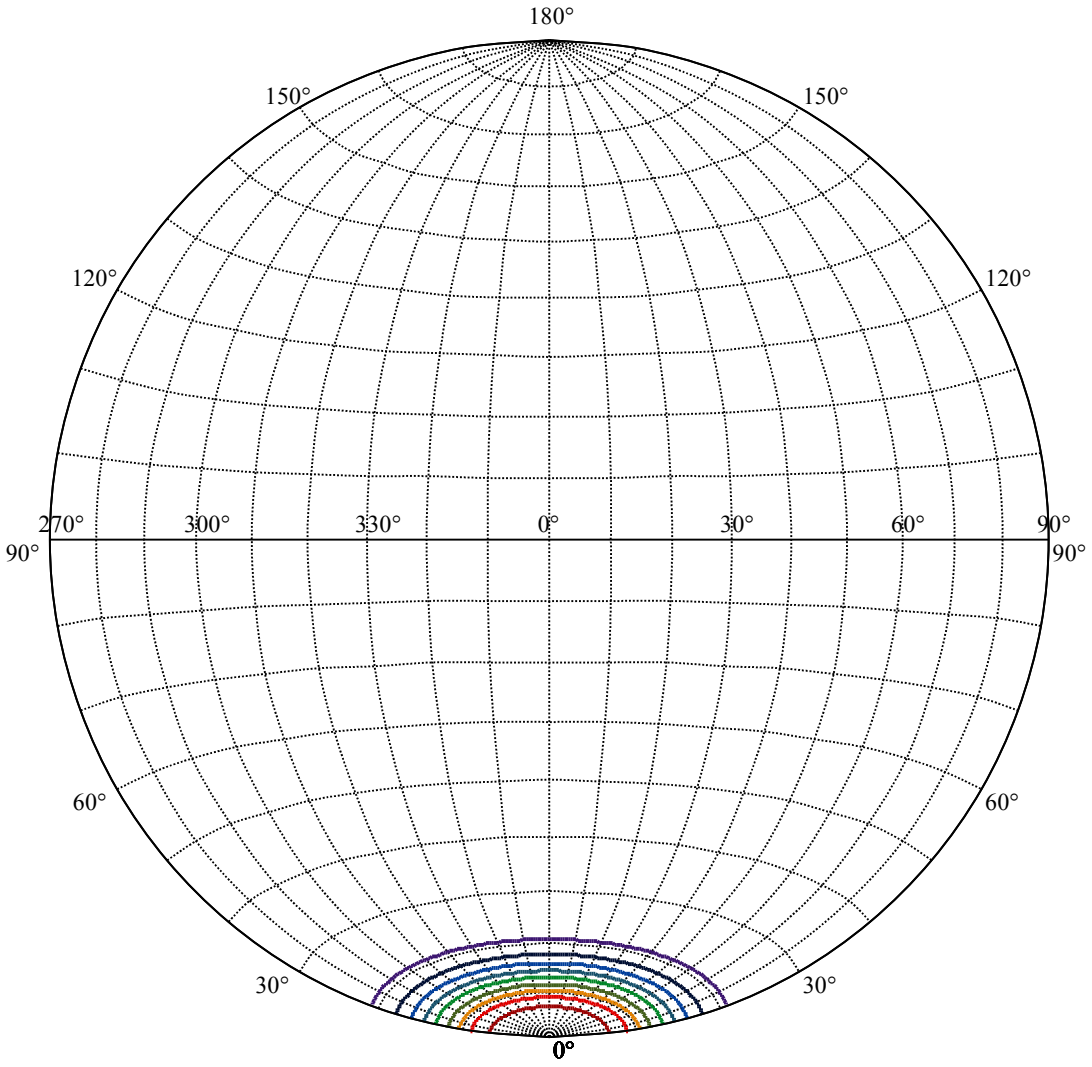


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:2030.34

(10%Imax) 203.034
(20%Imax) 406.069
(30%Imax) 609.103
(40%Imax) 812.138
(50%Imax) 1015.17
(60%Imax) 1218.21
(70%Imax) 1421.24
(80%Imax) 1624.28
(90%Imax) 1827.31

Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

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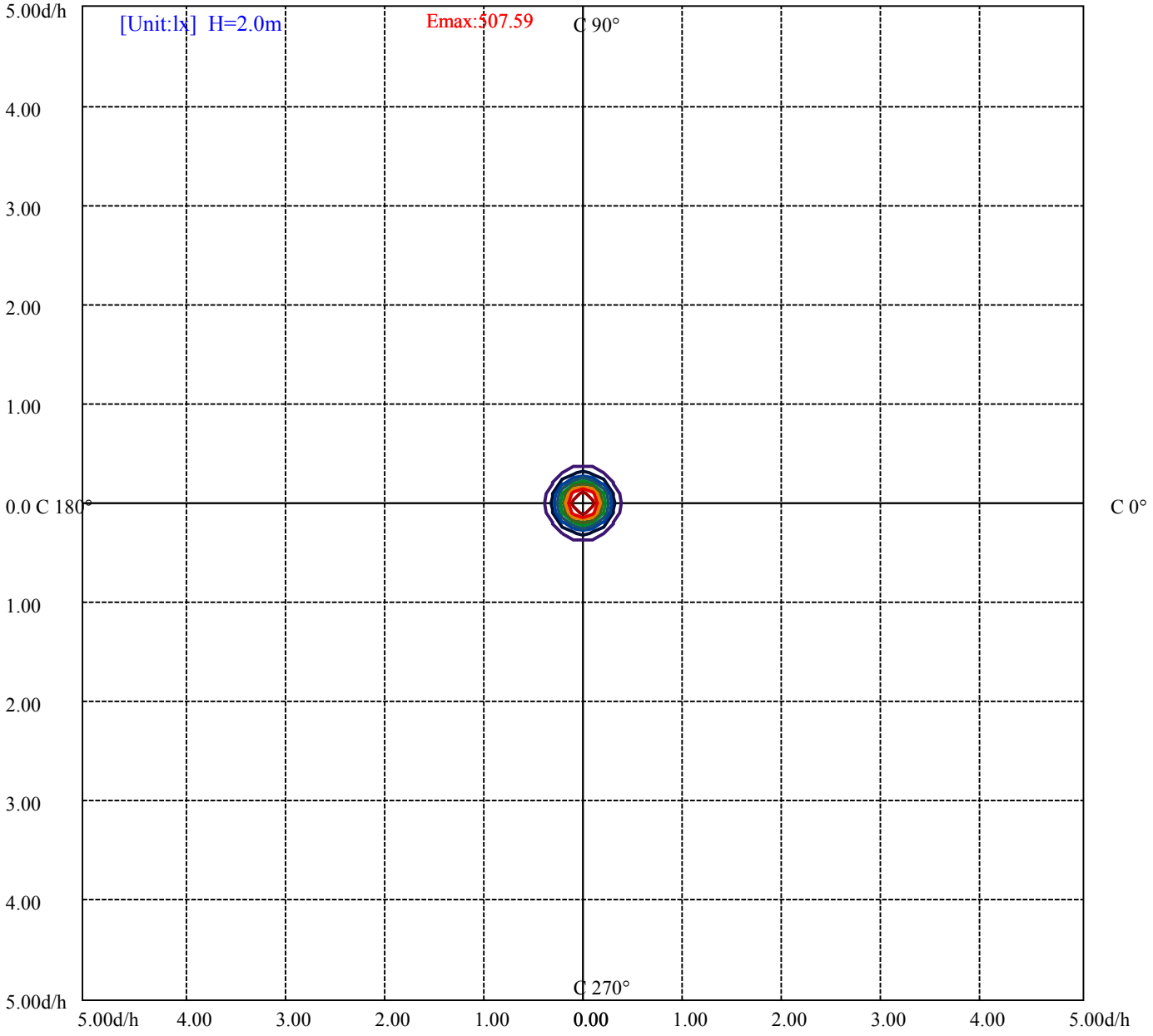
ISO illuminance diagram



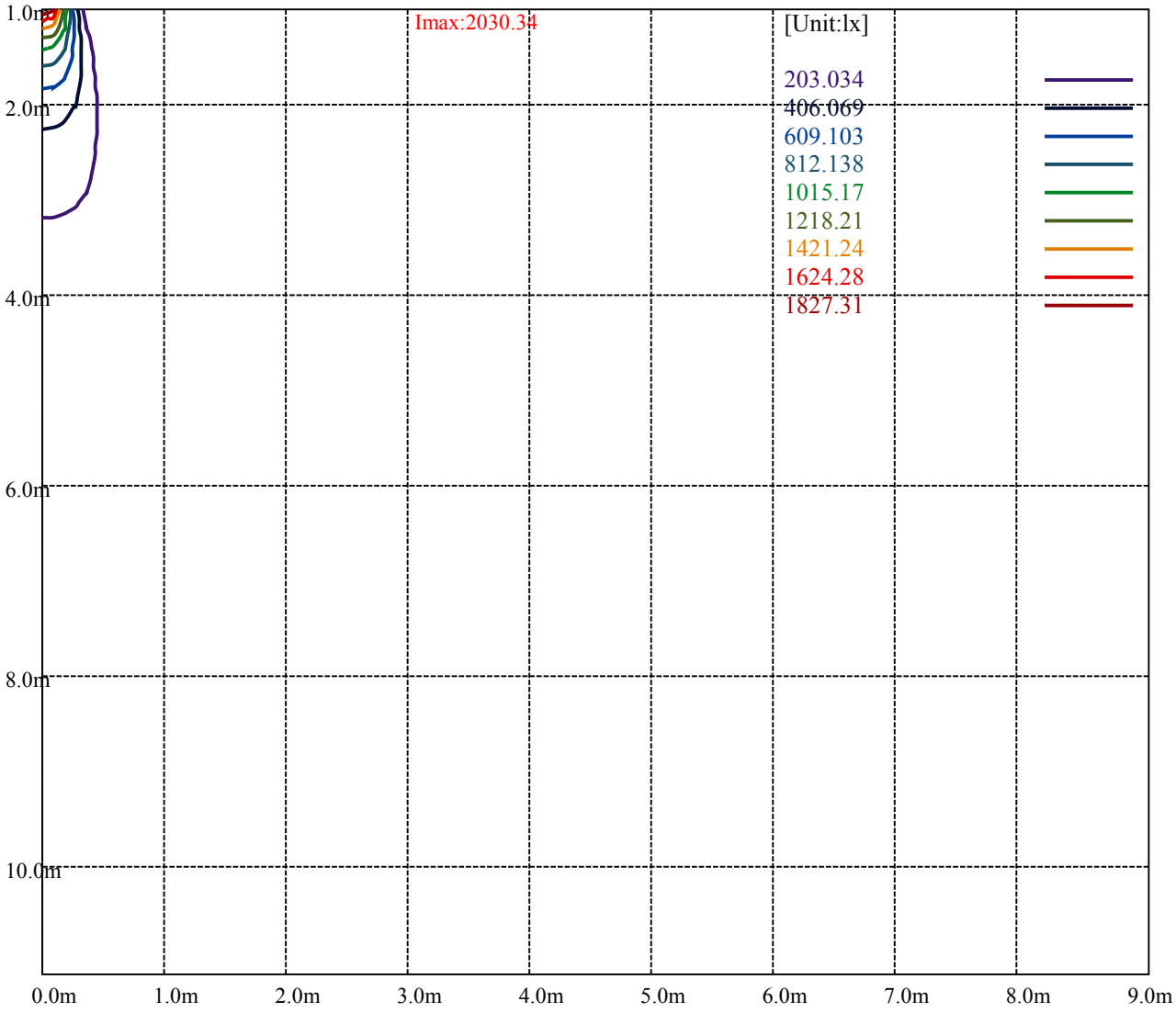
(10%Emax) 50.7585
(20%Emax) 101.5173
(30%Emax) 152.2758
(40%Emax) 203.0343
(50%Emax) 253.7925
(60%Emax) 304.5525
(70%Emax) 355.31
(80%Emax) 406.0675
(90%Emax) 456.8275

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

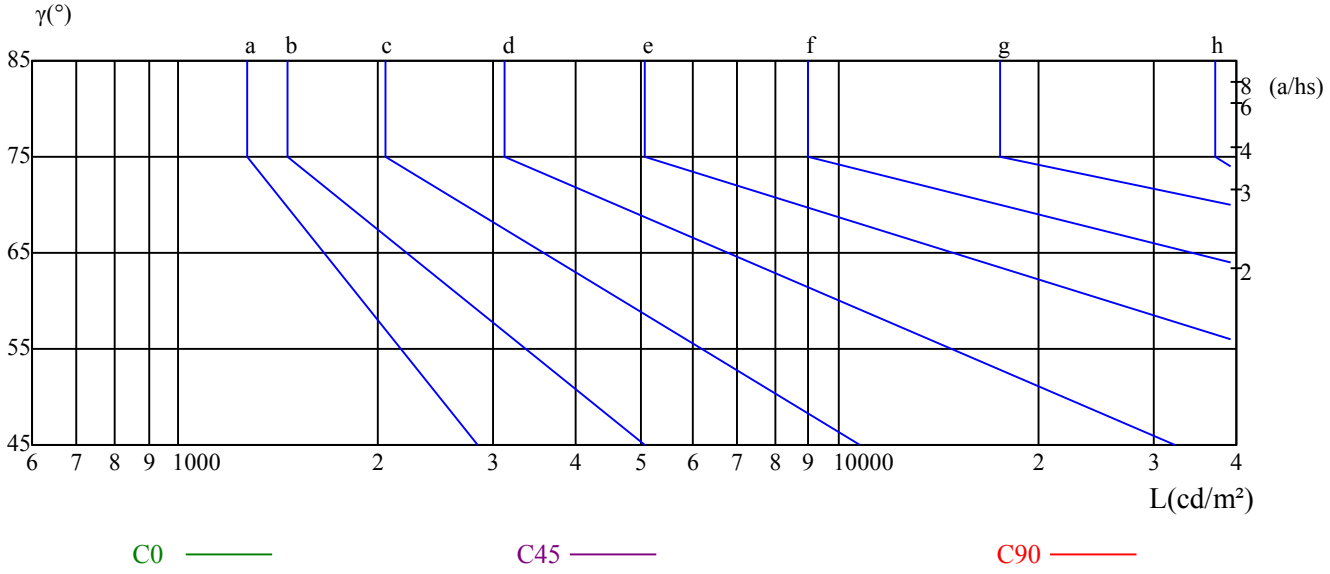
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

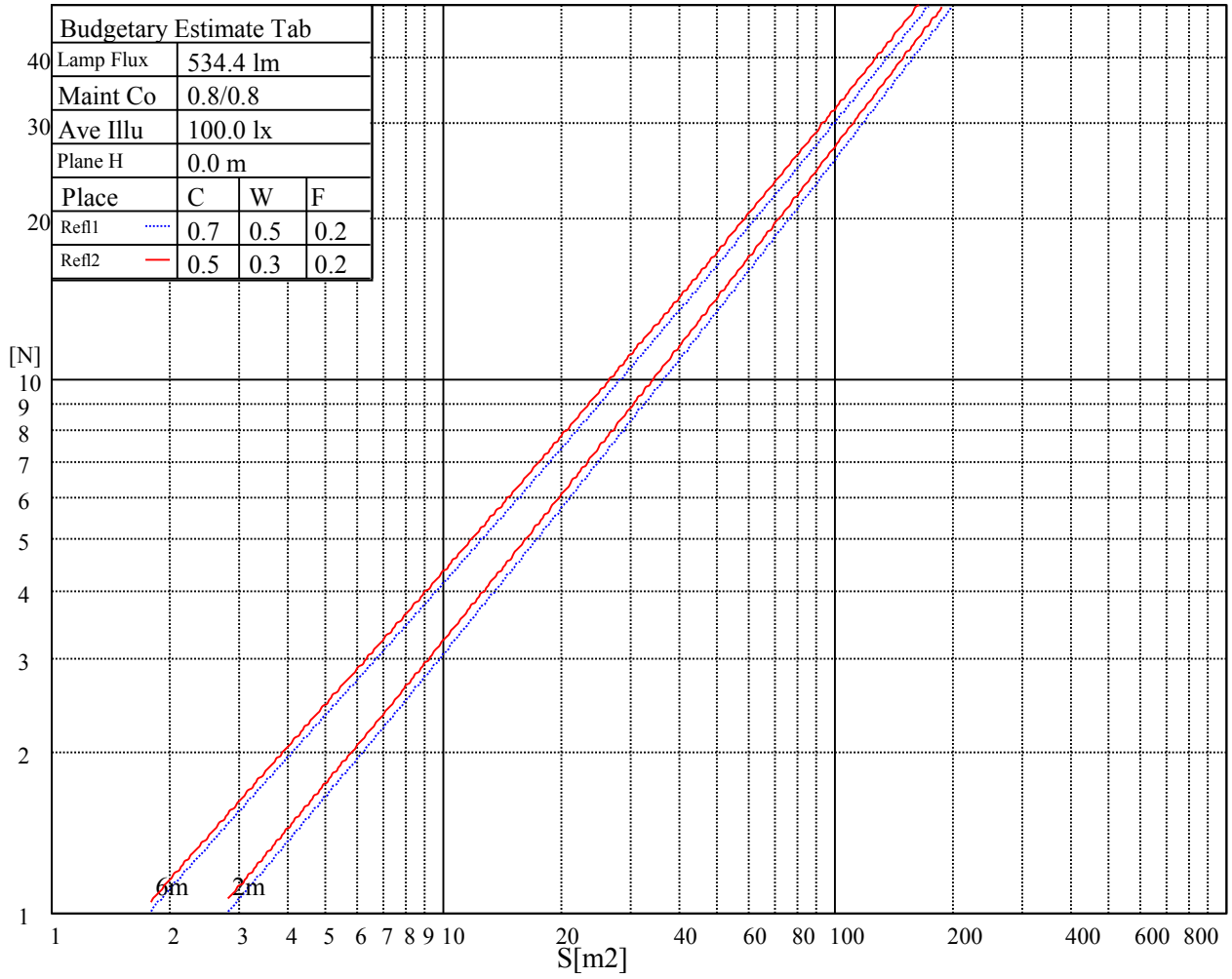
Glare Table

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

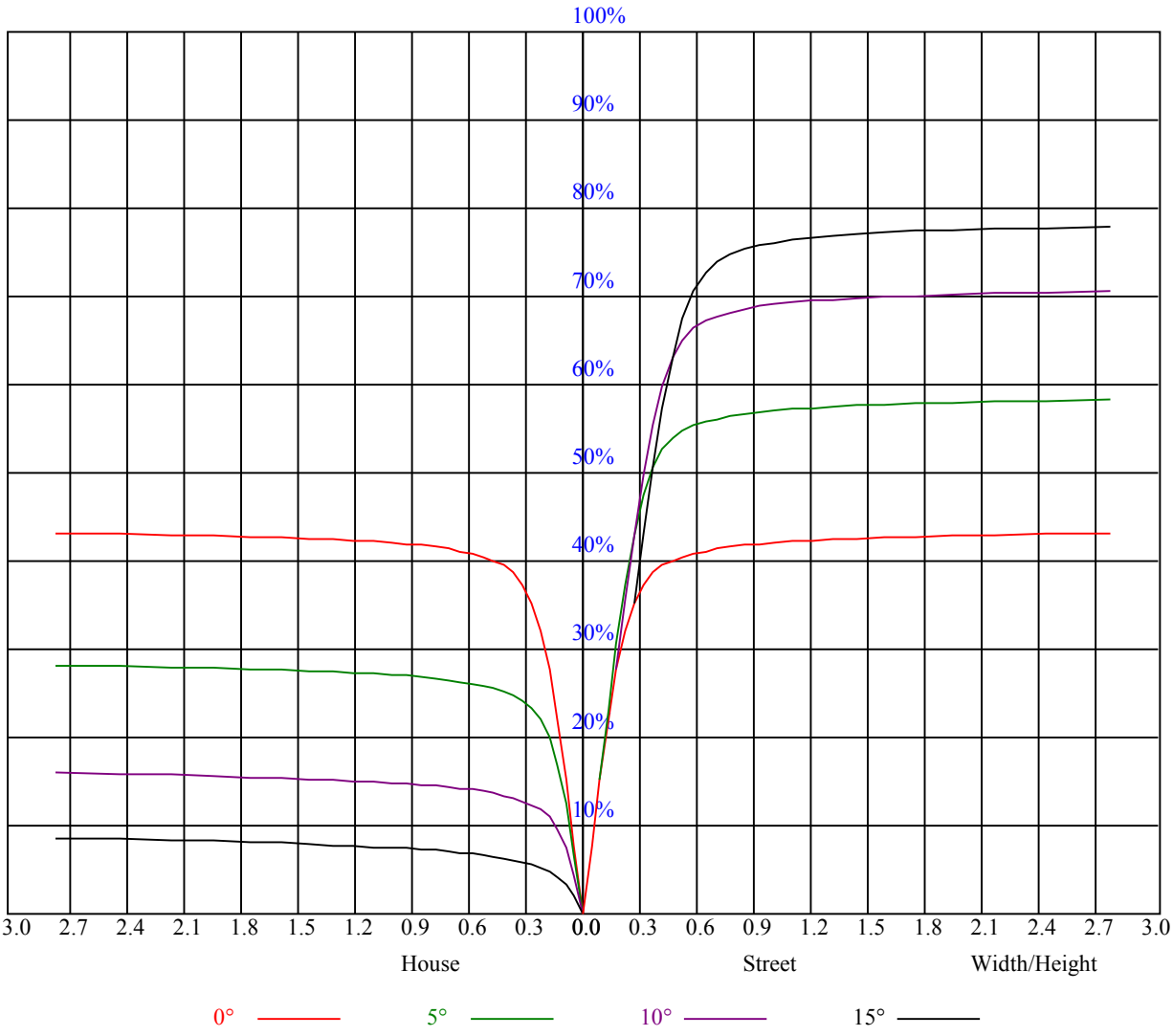


Equipment: GMS1980 Date: 2020/7/9 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.98	0.96	0.94	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.83
2	0.93	0.90	0.87	0.91	0.89	0.86	0.89	0.86	0.85	0.86	0.84	0.83	0.84	0.82	0.81	0.80
3	0.89	0.85	0.82	0.87	0.84	0.82	0.85	0.83	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
7	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68
8	0.74	0.70	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.66
9	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.63

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
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	2032.31	2031.75	2027.25	2020.50	2006.44	1986.75	1954.13	1914.19	1848.38
45.0	2028.94	2026.69	2017.69	2005.88	1988.44	1963.69	1925.44	1878.75	1821.38
90.0	2027.25	2019.38	2005.88	1985.63	1958.06	1918.13	1863.00	1798.88	1706.06
135.0	2032.88	2031.19	2015.44	1997.44	1973.81	1930.50	1879.31	1814.06	1721.81
180.0	2032.31	2025.56	2014.31	1991.25	1960.31	1906.31	1834.31	1744.88	1625.63
225.0	2028.94	2026.13	2017.69	1996.31	1963.69	1915.88	1853.44	1749.38	1645.31
270.0	2027.25	2028.38	2024.44	2016.56	1993.50	1957.50	1902.94	1834.31	1759.50
315.0	2032.88	2034.56	2031.19	2020.50	2000.81	1968.19	1924.88	1857.94	1770.19
360.0	2032.31	2031.75	2027.25	2020.50	2006.44	1986.75	1954.13	1914.19	1848.38

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1755.56	1663.88	1529.44	1395.56	1239.19	1076.06	931.50	788.63	628.31
45.0	1724.06	1625.06	1506.38	1359.00	1203.75	1064.25	906.75	756.56	630.56
90.0	1600.88	1461.94	1310.06	1116.68	1011.15	857.59	727.65	605.03	467.16
135.0	1604.81	1479.38	1323.56	1163.25	1020.38	862.88	730.69	594.00	473.63
180.0	1494.00	1333.69	1112.23	1020.94	858.94	709.03	588.66	481.50	369.56
225.0	1519.88	1347.19	1108.74	1052.04	910.07	736.82	609.81	496.46	390.54
270.0	1613.25	1483.31	1343.81	1179.56	1018.13	874.13	720.56	575.44	465.75
315.0	1668.94	1534.50	1378.69	1105.20	1086.47	907.88	769.73	638.94	497.64
360.0	1755.56	1663.88	1529.44	1395.56	1239.19	1076.06	931.50	788.63	628.31

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	517.50	422.44	322.88	289.69	202.67	155.48	120.09	96.92	77.85
45.0	502.88	408.38	320.63	287.44	193.61	147.60	113.51	90.73	75.54
90.0	374.74	297.96	228.49	174.60	138.26	108.39	86.68	72.79	61.88
135.0	381.94	305.44	288.56	178.93	141.92	110.70	88.31	73.80	64.69
180.0	295.71	234.51	184.78	137.76	110.14	89.83	72.51	62.78	55.69
225.0	304.26	241.54	185.06	141.75	112.33	88.59	74.03	62.78	54.73
270.0	362.25	288.00	217.80	167.06	132.75	106.82	83.64	70.65	61.31
315.0	402.64	323.55	243.28	192.88	152.21	114.19	94.73	76.78	63.34
360.0	517.50	422.44	322.88	289.69	202.67	155.48	120.09	96.92	77.85

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	66.04	56.81	50.34	45.62	41.18	37.35	34.20	31.39	28.18
45.0	62.49	55.24	49.56	44.16	39.83	36.51	33.19	30.32	27.90
90.0	54.96	48.88	44.04	40.33	37.13	33.58	30.99	28.63	26.10
135.0	54.68	48.88	44.78	39.94	36.11	33.58	30.15	27.62	25.76
180.0	49.50	44.44	40.50	36.51	33.36	30.21	27.39	25.26	23.29
225.0	49.11	44.49	39.83	36.56	33.64	30.32	27.96	25.82	23.68
270.0	52.93	47.76	43.59	39.77	36.17	33.53	30.66	28.35	26.04
315.0	56.48	50.34	44.04	40.73	37.24	33.13	30.77	28.29	25.88
360.0	66.04	56.81	50.34	45.62	41.18	37.35	34.20	31.39	28.18

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	25.99	24.08	22.16	20.48	19.18	17.83	16.65	15.69	14.68
45.0	25.65	23.74	21.94	20.42	19.13	17.94	16.54	15.58	14.63
90.0	24.24	22.61	20.87	19.41	18.11	16.82	15.81	14.74	13.73
135.0	23.46	21.83	20.42	18.79	17.61	16.48	15.30	14.34	13.50
180.0	21.49	20.08	18.79	17.33	16.20	15.24	14.18	13.22	12.38
225.0	21.88	20.53	19.07	17.89	16.65	15.53	14.63	13.67	12.77
270.0	23.96	22.33	20.64	19.13	17.94	16.82	15.64	14.74	13.84
315.0	23.85	22.22	20.59	19.29	18.00	16.82	15.81	14.79	13.84
360.0	25.99	24.08	22.16	20.48	19.18	17.83	16.65	15.69	14.68

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	13.73	12.83	11.93	11.14	10.46	9.68	9.06	8.49	7.99
45.0	13.61	12.77	12.09	11.25	10.46	9.90	9.39	8.66	8.21
90.0	12.94	12.09	11.25	10.63	10.01	9.28	8.78	8.27	7.82
135.0	12.60	11.87	11.19	10.52	9.84	9.28	8.66	8.16	7.76
180.0	11.53	10.74	10.07	9.45	8.89	8.33	7.82	7.43	7.09
225.0	11.98	11.31	10.41	9.84	9.28	8.61	8.16	7.82	7.43
270.0	12.94	12.04	11.31	10.52	9.84	9.23	8.66	8.21	7.76
315.0	12.99	12.26	11.42	10.74	10.13	9.34	8.78	8.27	7.82
360.0	13.73	12.83	11.93	11.14	10.46	9.68	9.06	8.49	7.99

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.54	7.20	6.92	6.58	6.41	6.19	5.96	5.79	5.63
45.0	7.76	7.37	7.03	6.75	6.53	6.30	6.08	5.91	5.68
90.0	7.43	7.14	6.86	6.64	6.47	6.24	6.13	5.91	5.74
135.0	7.31	7.09	6.81	6.53	6.36	6.13	5.91	5.74	5.57
180.0	6.81	6.58	6.36	6.13	6.02	5.79	5.68	5.51	5.34
225.0	7.09	6.86	6.58	6.41	6.19	5.96	5.79	5.63	5.46
270.0	7.43	7.09	6.86	6.64	6.41	6.30	6.13	5.91	5.74
315.0	7.37	7.14	6.81	6.58	6.36	6.08	5.96	5.74	5.51
360.0	7.54	7.20	6.92	6.58	6.41	6.19	5.96	5.79	5.63

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.46	5.29	5.18	5.06	5.01	4.95	4.95	5.91	9.00
45.0	5.51	5.34	5.12	5.01	4.89	4.78	4.61	4.50	4.33
90.0	5.57	5.40	5.18	5.12	4.95	4.73	4.61	4.50	4.33
135.0	5.40	5.23	5.12	4.95	4.78	4.67	4.50	4.44	4.33
180.0	5.29	5.18	5.06	5.01	5.18	7.03	10.24	13.84	17.49
225.0	5.29	5.12	5.01	4.84	4.73	4.61	4.44	4.39	4.22
270.0	5.57	5.40	5.23	5.06	4.89	4.78	4.67	4.50	4.39
315.0	5.34	5.23	5.06	4.89	4.78	4.67	4.56	4.44	4.33
360.0	5.46	5.29	5.18	5.06	5.01	4.95	4.95	5.91	9.00

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.33	17.38	20.36	25.20	27.51	29.03	28.74	26.21	24.19
45.0	4.28	4.16	3.99	3.88	3.77	3.66	3.60	3.49	3.32
90.0	4.16	4.11	3.99	3.83	3.77	3.66	3.60	3.49	3.38
135.0	4.16	4.05	3.99	3.83	3.71	3.60	3.54	3.43	3.32
180.0	21.77	25.20	27.90	29.98	28.52	26.10	23.63	21.09	18.96
225.0	4.11	3.99	3.83	3.77	3.60	3.54	3.43	3.32	3.15
270.0	4.28	4.16	3.99	3.88	3.83	3.71	3.60	3.49	3.43
315.0	4.22	4.11	3.99	3.88	3.77	3.66	3.54	3.43	3.26
360.0	13.33	17.38	20.36	25.20	27.51	29.03	28.74	26.21	24.19

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	21.49	19.24	16.48	10.69	4.89	3.09	2.87	2.70	2.42
45.0	3.21	3.09	2.98	2.87	2.76	2.59	2.42	2.31	2.14
90.0	3.26	3.21	3.09	2.93	2.81	2.64	2.48	2.31	2.25
135.0	3.15	3.04	2.93	2.81	2.64	2.53	2.36	2.25	2.19
180.0	16.65	12.15	5.85	3.04	2.81	2.70	2.59	2.25	2.08
225.0	3.04	2.93	2.76	2.64	2.53	2.42	2.25	2.14	2.08
270.0	3.26	3.15	3.09	2.93	2.76	2.64	2.48	2.36	2.25
315.0	3.15	3.04	2.93	2.81	2.70	2.59	2.42	2.36	2.14
360.0	21.49	19.24	16.48	10.69	4.89	3.09	2.87	2.70	2.42

Intensity data(cd)

C/γ(°)	90.0
0.0	2.14
45.0	2.03
90.0	2.14
135.0	2.14
180.0	2.03
225.0	2.08
270.0	2.19
315.0	2.08
360.0	2.14