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Nata

LumCAT: 1676-A
Luminaire: 92.70.064.00+92.70.147.00

Report No: NT2017092512	Voltage(V): 35.5000
Test No: GC2017092512	Current(A): 0.3000
LampCAT: CITIZEN CLU028	Power (W): 10.6500
Lamp flux(lm): 1463.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1192.25
Efficiency(%): 81.49%
Lumens(lm)/Power(W): 111.95
Central intensity(cd): 5331.800
Maximum intensity(cd): 5331.800
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=20.8
[C90/270]Total=20.8
Field angle(10%Imax): [C0/180]Total=45.8
[C90/270]Total=45.8
Maximum s/h(1/2): C0_180=0.35 C90_270=0.35
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 81.49%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.380%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5331.799	0.000	0	.000%	.000%
1.0	5303.721	5.089	5.089	.348%	.427%
2.0	5227.468	15.115	20.204	1.033%	1.695%
3.0	5098.223	24.696	44.9	1.688%	3.766%
4.0	4908.760	33.497	78.396	2.290%	6.576%
5.0	4649.100	41.117	119.514	2.810%	10.024%
6.0	4314.082	47.104	166.618	3.220%	13.975%
7.0	3944.378	51.260	217.878	3.504%	18.275%
8.0	3591.467	53.933	271.811	3.686%	22.798%
9.0	3200.153	55.042	326.853	3.762%	27.415%
10.0	2814.001	54.426	381.279	3.720%	31.980%
11.0	2460.815	52.706	433.985	3.603%	36.401%
12.0	2114.510	50.015	484	3.419%	40.596%
13.0	1785.135	46.279	530.279	3.163%	44.477%
14.0	1505.655	42.122	572.401	2.879%	48.010%
15.0	1247.633	37.798	610.199	2.584%	51.181%
16.0	1085.540	34.188	644.387	2.337%	54.048%
17.0	954.121	31.763	676.15	2.171%	56.712%
18.0	843.574	29.640	705.79	2.026%	59.198%
19.0	758.904	27.880	733.67	1.906%	61.537%
20.0	684.537	26.419	760.088	1.806%	63.753%
21.0	624.849	25.143	785.231	1.719%	65.862%
22.0	571.713	24.045	809.277	1.644%	67.878%
23.0	528.073	23.076	832.353	1.577%	69.814%
24.0	489.389	22.245	854.599	1.521%	71.680%
25.0	453.589	21.441	876.04	1.466%	73.478%
26.0	421.994	20.668	896.708	1.413%	75.212%
27.0	388.519	19.829	916.537	1.355%	76.875%
28.0	354.040	18.800	935.338	1.285%	78.452%
29.0	319.754	17.628	952.966	1.205%	79.930%
30.0	289.886	16.460	969.426	1.125%	81.311%
31.0	259.942	15.301	984.727	1.046%	82.594%
32.0	232.517	14.108	998.835	.964%	83.778%
33.0	208.705	12.999	1011.834	.888%	84.868%
34.0	188.437	12.019	1023.853	.822%	85.876%
35.0	171.831	11.189	1035.041	.765%	86.814%
36.0	156.656	10.459	1045.5	.715%	87.692%
37.0	142.844	9.768	1055.268	.668%	88.511%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	128.295	9.050	1064.319	.619%	89.270%
39.0	116.685	8.362	1072.68	.572%	89.971%
40.0	106.747	7.793	1080.473	.533%	90.625%
41.0	98.234	7.299	1087.772	.499%	91.237%
42.0	90.107	6.843	1094.615	.468%	91.811%
43.0	82.130	6.380	1100.995	.436%	92.346%
44.0	75.352	5.944	1106.939	.406%	92.845%
45.0	68.669	5.535	1112.474	.378%	93.309%
46.0	62.434	5.127	1117.601	.350%	93.739%
47.0	56.474	4.729	1122.33	.323%	94.136%
48.0	51.657	4.371	1126.701	.299%	94.502%
49.0	47.293	4.063	1130.765	.278%	94.843%
50.0	43.790	3.798	1134.563	.260%	95.162%
51.0	40.962	3.586	1138.148	.245%	95.463%
52.0	38.422	3.406	1141.555	.233%	95.748%
53.0	36.000	3.237	1144.792	.221%	96.020%
54.0	33.598	3.068	1147.86	.210%	96.277%
55.0	31.286	2.896	1150.756	.198%	96.520%
56.0	28.815	2.716	1153.472	.186%	96.748%
57.0	25.326	2.475	1155.947	.169%	96.955%
58.0	20.288	2.109	1158.057	.144%	97.132%
59.0	15.264	1.662	1159.719	.114%	97.272%
60.0	12.092	1.292	1161.011	.088%	97.380%
61.0	10.378	1.072	1162.083	.073%	97.470%
62.0	10.151	0.989	1163.073	.068%	97.553%
63.0	10.068	0.983	1164.056	.067%	97.636%
64.0	10.007	0.985	1165.041	.067%	97.718%
65.0	9.993	0.990	1166.031	.068%	97.801%
66.0	10.013	0.998	1167.029	.068%	97.885%
67.0	10.020	1.007	1168.036	.069%	97.969%
68.0	10.013	1.015	1169.051	.069%	98.055%
69.0	10.000	1.021	1170.072	.070%	98.140%
70.0	9.986	1.026	1171.099	.070%	98.226%
71.0	10.020	1.034	1172.133	.071%	98.313%
72.0	10.103	1.046	1173.179	.072%	98.401%
73.0	10.282	1.066	1174.245	.073%	98.490%
74.0	10.495	1.092	1175.337	.075%	98.582%
75.0	10.908	1.131	1176.468	.077%	98.677%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.562	1.193	1177.661	.082%	98.777%
77.0	12.044	1.259	1178.919	.086%	98.882%
78.0	12.030	1.289	1180.208	.088%	98.990%
79.0	11.390	1.258	1181.466	.086%	99.096%
80.0	10.881	1.201	1182.667	.082%	99.197%
81.0	10.832	1.174	1183.841	.080%	99.295%
82.0	10.729	1.169	1185.01	.080%	99.393%
83.0	10.605	1.160	1186.17	.079%	99.490%
84.0	10.454	1.147	1187.318	.078%	99.587%
85.0	10.199	1.127	1188.445	.077%	99.681%
86.0	9.676	1.086	1189.531	.074%	99.772%
87.0	7.006	0.913	1190.444	.062%	99.849%
88.0	5.361	0.677	1191.122	.046%	99.906%
89.0	5.072	0.572	1191.693	.039%	99.954%
90.0	4.996	0.552	1192.245	.038%	100.000%

Zonal flux distribution table

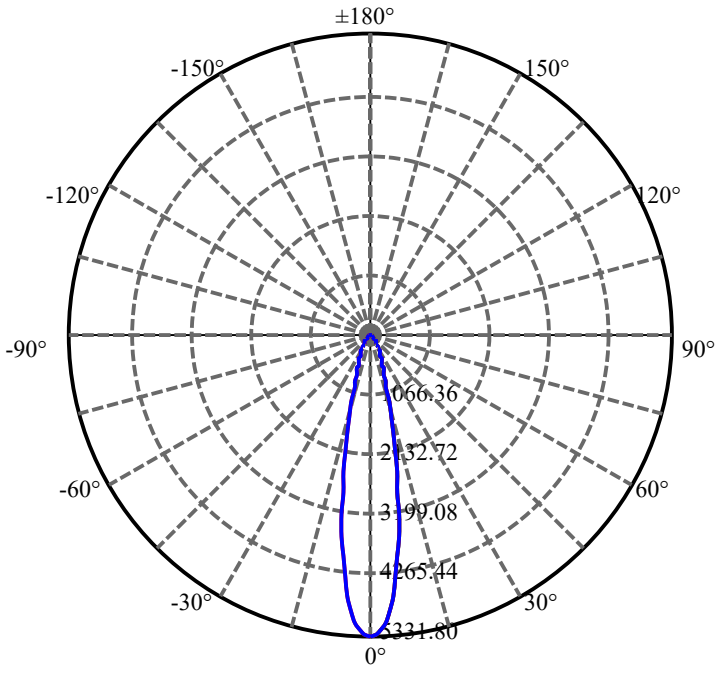
ZONAL LUMEN SUMMARY

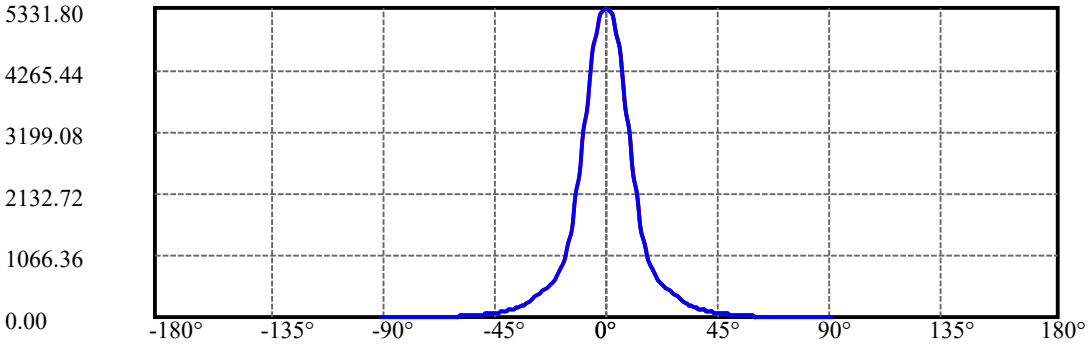
Zone	Lumens	%Lamp	%Fixt
0-30	969.43	66.26%	81.31%
0-40	1080.47	73.85%	90.63%
0-60	1161.01	79.36%	97.38%
0-90	1191.69	81.46%	99.95%
0-120	1191.69	81.46%	99.95%
0-180	1192.25	81.49%	100.00%
60-90	31.97	2.19%	2.68%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-29.05	953.80	65.19%	80.00%

ZONAL LUMEN SUMMARY

0-10	381.28
10-20	378.81
20-30	209.34
30-40	111.05
40-50	54.09
50-60	26.45
60-70	10.09
70-80	11.57
80-90	9.03
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):

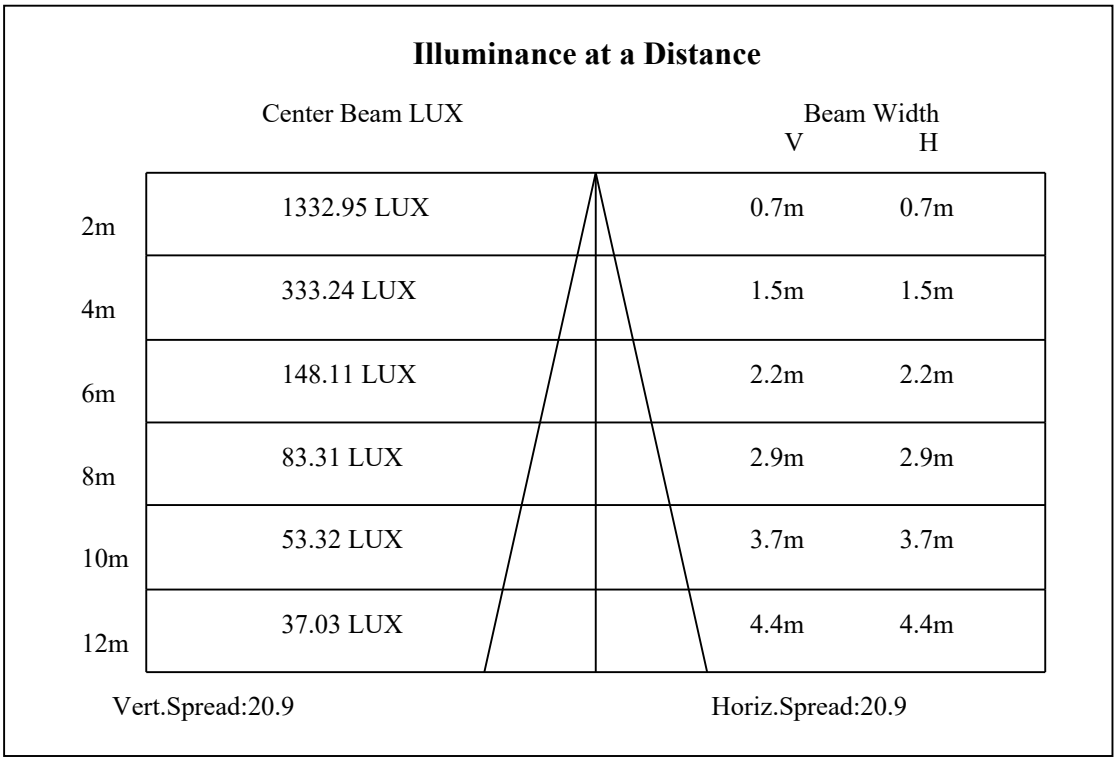
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:22.9 Right:22.9
:C90/270Left:22.9 Right:22.9

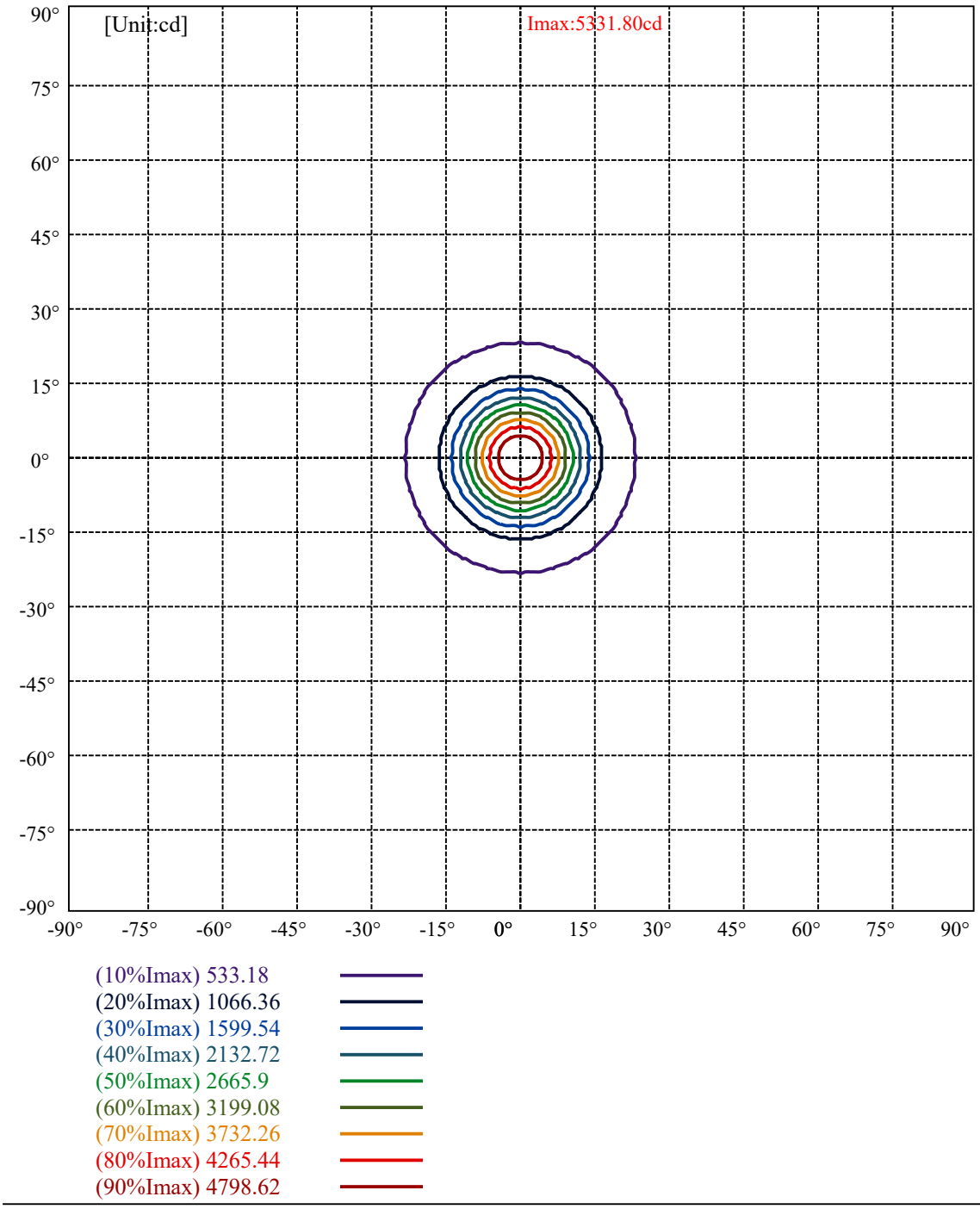
Beam Angle(50%Imax):C0/180Left:10.4 Right:10.4
:C90/270Left:10.4 Right:10.4

Lux distance Curve



Equipment: GMS1980 Date: 2017/9/25 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

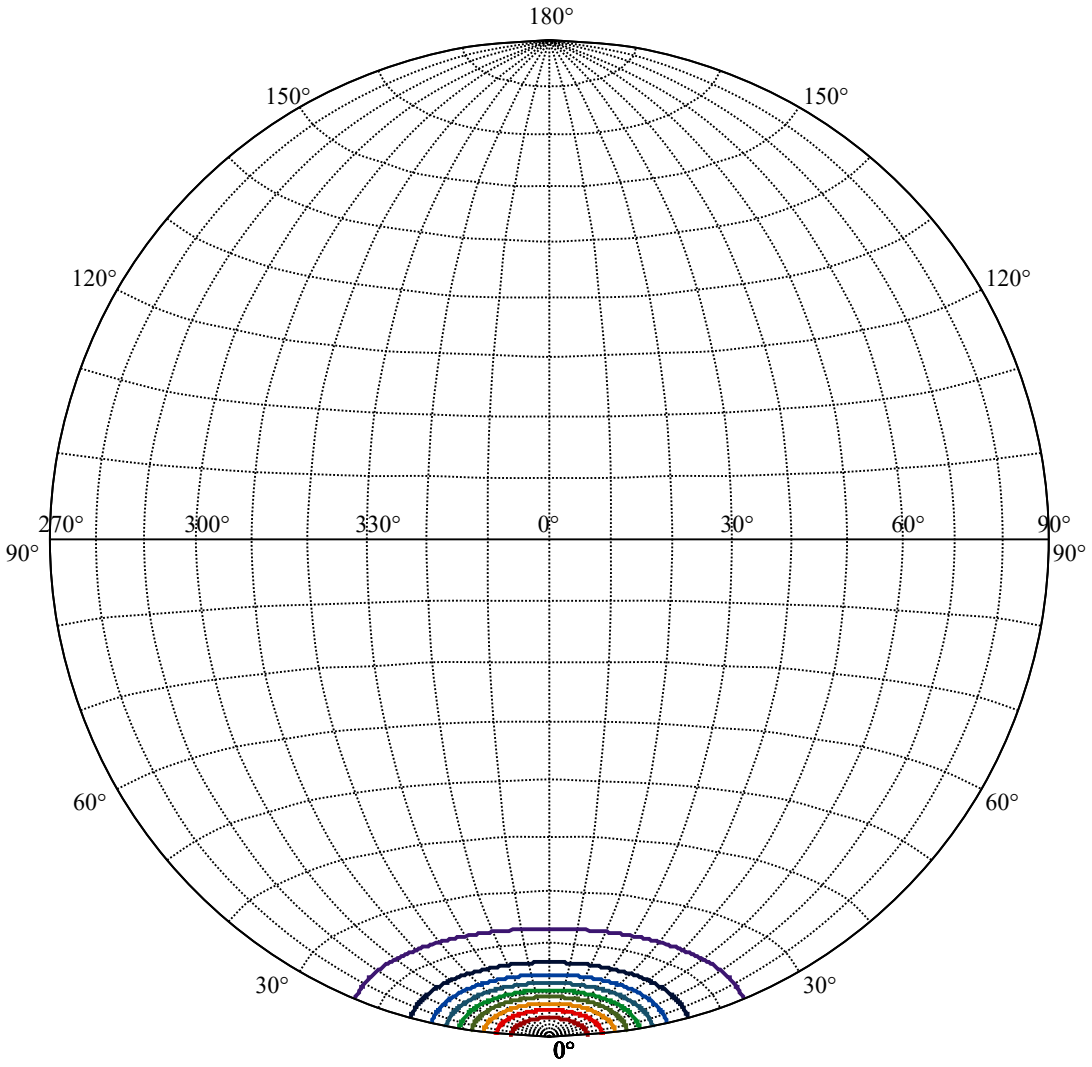


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/9/25
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5331.80

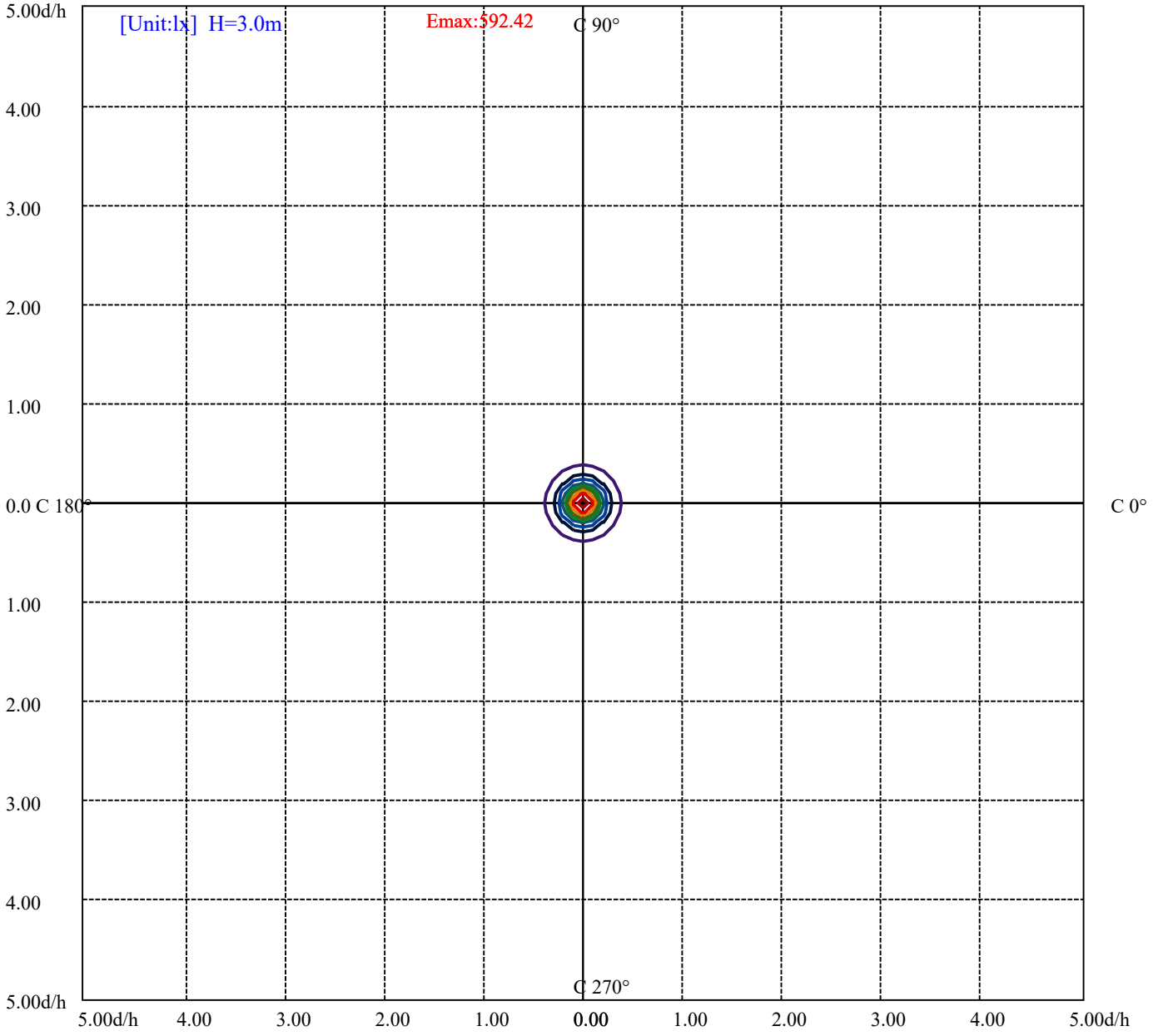
(10%Imax) 533.18
(20%Imax) 1066.36
(30%Imax) 1599.54
(40%Imax) 2132.72
(50%Imax) 2665.9
(60%Imax) 3199.08
(70%Imax) 3732.26
(80%Imax) 4265.44
(90%Imax) 4798.62

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/9/25
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

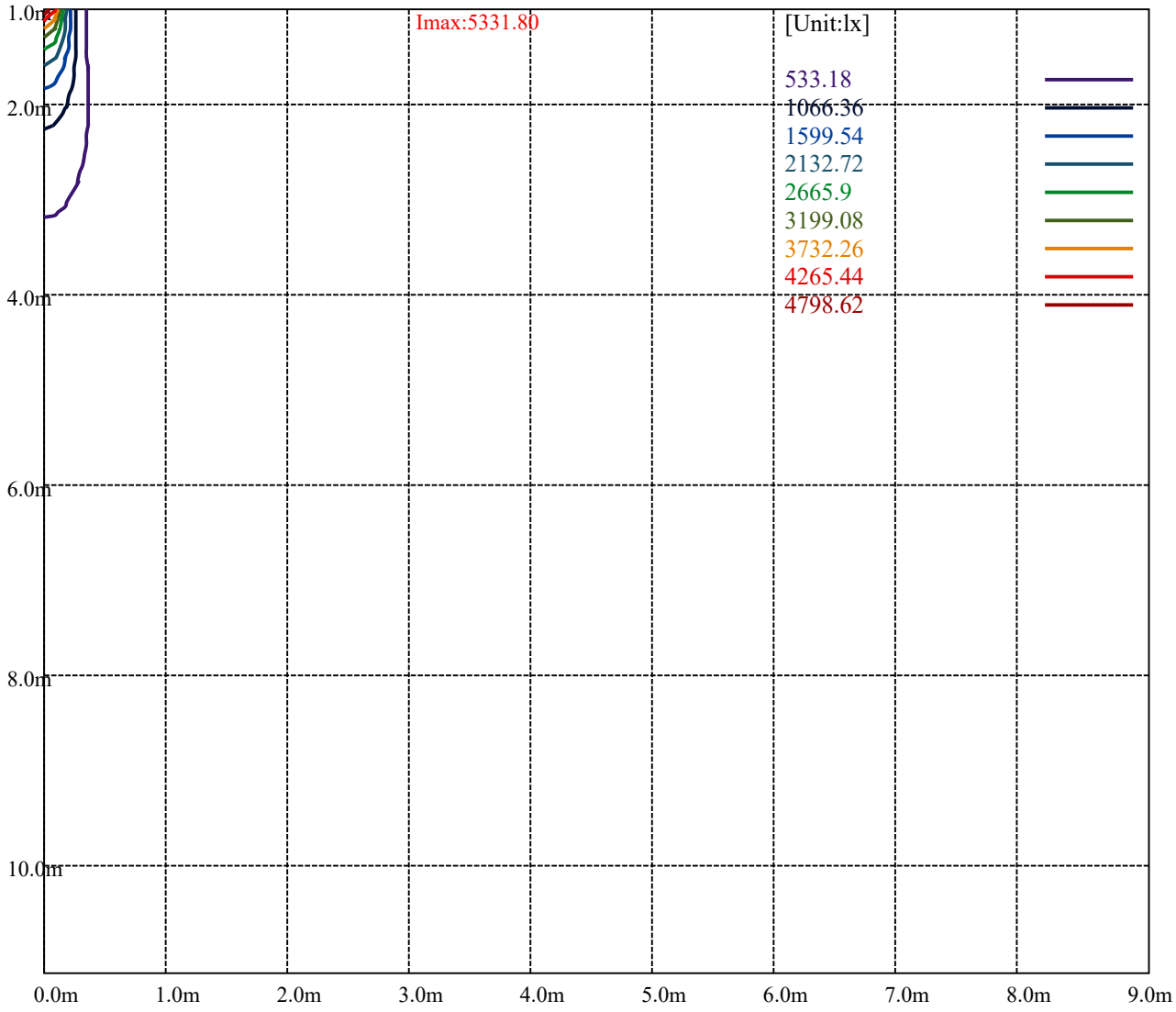
ISO illuminance diagram



(10%Emax) 59.24222
(20%Emax) 118.4844
(30%Emax) 177.7267
(40%Emax) 236.9689
(50%Emax) 296.2111
(60%Emax) 355.4533
(70%Emax) 414.6956
(80%Emax) 473.9378
(90%Emax) 533.18

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2017/9/25
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/9/25
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Luminance Limitting Curve(no luminous side)

Luminance Table

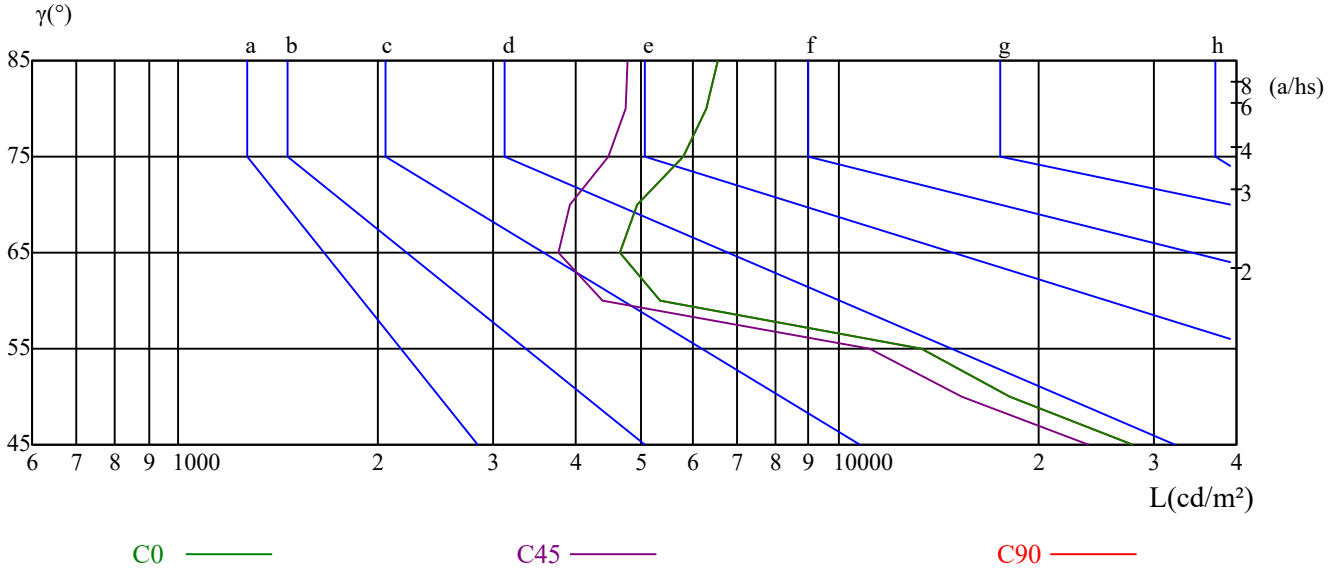
γ	45	50	55	60	65	70	75	80	85
C0	27778	18116	13347	5367	4659	4942	5800	6302	6541
C45	23875	15337	11124	4400	3752	3904	4484	4753	4791
C90	27778	18116	13347	5367	4659	4942	5800	6302	6541

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11174	11174	11174	19918	19918	19918	55304	55304	55304

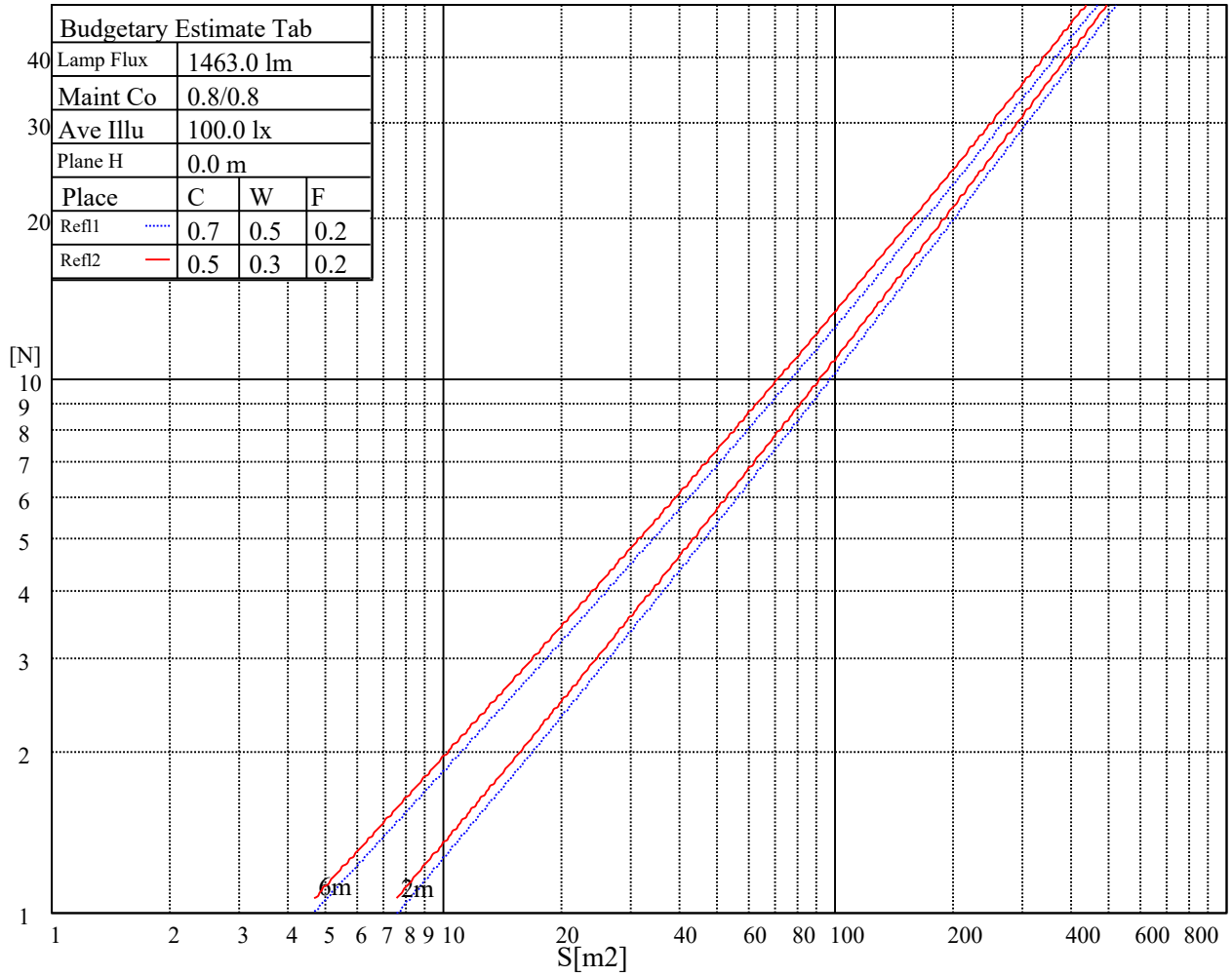
Glare Table

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: 2017/9/25 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	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.81
1	0.91	0.89	0.87	0.89	0.87	0.86	0.86	0.84	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77
2	0.85	0.82	0.80	0.84	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.76	0.77	0.75	0.74	0.73
3	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.73	0.72	0.74	0.72	0.70	0.69
4	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.71	0.69	0.73	0.70	0.68	0.71	0.69	0.67	0.66
5	0.73	0.69	0.66	0.73	0.69	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
6	0.70	0.66	0.63	0.70	0.66	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
7	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.58
8	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.56
9	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.55	0.60	0.57	0.55	0.54
10	0.60	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.53

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	5326.71	5307.99	5234.76	5146.12	4955.08	4689.15	4395.15	4026.27	3684.37
45.0	5335.52	5340.47	5266.70	5166.49	5019.49	4754.12	4467.83	4149.60	3764.76
90.0	5341.57	5290.37	5226.50	5077.85	4892.86	4654.47	4308.71	3926.07	3583.62
135.0	5323.40	5311.84	5254.58	5154.38	4967.19	4740.91	4429.29	4059.31	3704.19
180.0	5326.71	5273.30	5194.02	5019.49	4797.61	4527.29	4162.81	3758.15	3403.04
225.0	5335.52	5293.12	5179.16	5011.23	4795.41	4508.57	4139.14	3748.79	3395.88
270.0	5341.57	5326.16	5254.03	5142.82	4960.03	4693.01	4389.65	4010.31	3665.66
315.0	5323.40	5286.52	5209.99	5067.39	4882.40	4625.29	4220.07	3876.52	3530.22
360.0	5326.71	5307.99	5234.76	5146.12	4955.08	4689.15	4395.15	4026.27	3684.37

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3291.82	2897.07	2548.01	2262.27	1835.03	1562.50	1353.29	1091.77	949.72
45.0	3380.46	3025.90	2627.29	2283.74	1918.72	1601.59	1362.10	1150.13	983.31
90.0	3191.62	2802.92	2463.77	2097.10	1798.69	1506.34	1275.66	1094.47	984.13
135.0	3324.86	2937.81	2595.36	2267.77	1891.74	1620.86	1395.68	1173.80	1037.26
180.0	3049.02	2615.18	2287.04	1945.14	1673.16	1409.44	1095.13	1043.81	924.29
225.0	2997.82	2607.47	2229.23	1908.25	1625.26	1363.20	1094.03	1004.89	887.51
270.0	3276.41	2885.51	2541.95	2165.92	1813.56	1542.68	1311.99	1091.22	961.28
315.0	3089.21	2740.16	2393.85	1985.88	1724.92	1438.62	1093.20	1034.23	905.46
360.0	3291.82	2897.07	2548.01	2262.27	1835.03	1562.50	1353.29	1091.77	949.72

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	848.42	742.71	666.18	617.18	558.82	518.08	482.29	441.00	409.07
45.0	866.59	782.90	672.79	616.08	568.18	509.82	469.63	442.10	404.66
90.0	850.79	783.95	715.95	640.58	584.75	545.55	499.47	465.67	435.55
135.0	924.95	824.74	739.41	683.80	624.34	569.83	536.80	497.71	466.33
180.0	822.54	741.11	679.45	620.82	570.99	532.29	496.83	454.99	420.80
225.0	778.39	698.06	642.56	576.99	531.73	494.41	457.35	423.99	395.80
270.0	866.59	779.05	703.62	645.81	588.00	544.51	501.56	466.33	436.05
315.0	790.33	718.71	656.33	597.53	546.88	510.10	471.17	436.93	407.69
360.0	848.42	742.71	666.18	617.18	558.82	518.08	482.29	441.00	409.07

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	376.59	334.74	301.16	280.24	239.00	218.02	198.81	178.22	164.45
45.0	373.83	347.41	307.77	279.69	247.09	217.69	197.65	177.50	160.71
90.0	399.05	367.67	333.15	298.79	270.33	240.27	214.11	194.35	177.06
135.0	429.44	392.55	360.07	328.69	291.80	278.03	237.13	212.35	194.24
180.0	388.20	351.26	317.07	288.00	259.10	233.38	213.34	194.02	177.94
225.0	361.00	328.96	295.05	263.00	236.47	211.25	190.99	173.81	159.61
270.0	401.91	367.78	334.19	302.26	283.54	236.85	214.00	194.57	172.93
315.0	378.13	341.96	309.58	278.42	252.21	224.63	203.60	182.68	167.70
360.0	376.59	334.74	301.16	280.24	239.00	218.02	198.81	178.22	164.45

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	151.41	138.96	124.70	114.57	104.66	96.95	88.97	81.59	75.43
45.0	147.99	135.82	121.78	110.61	101.03	91.83	83.69	77.41	71.24
90.0	158.01	145.02	131.47	117.77	108.19	99.65	91.56	82.58	75.32
135.0	178.66	162.75	144.52	132.69	121.23	111.93	102.29	92.27	84.13
180.0	162.09	145.79	133.18	121.56	111.49	103.29	95.74	86.99	79.83
225.0	143.81	130.32	117.71	105.10	96.07	88.64	81.04	74.49	69.15
270.0	158.12	145.84	126.35	114.90	105.43	95.74	87.15	80.11	72.67
315.0	153.17	138.25	126.63	116.28	105.87	97.84	90.40	81.59	75.04
360.0	151.41	138.96	124.70	114.57	104.66	96.95	88.97	81.59	75.43

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	69.10	62.76	57.26	52.36	47.24	44.21	41.95	39.92	38.15
45.0	65.90	61.00	55.72	51.31	46.85	43.05	40.03	37.44	34.52
90.0	67.50	60.95	54.51	49.00	44.93	41.51	38.65	36.50	34.47
135.0	75.65	68.66	61.72	56.16	51.04	46.52	43.00	39.70	36.17
180.0	72.73	65.08	58.30	53.29	48.72	45.37	42.17	39.48	36.94
225.0	63.48	58.69	53.79	49.55	46.25	42.45	39.31	36.39	34.08
270.0	65.90	60.01	54.23	49.88	45.86	43.00	41.02	39.31	37.44
315.0	69.10	62.32	56.27	51.70	47.46	44.21	41.57	38.65	36.23
360.0	69.10	62.76	57.26	52.36	47.24	44.21	41.95	39.92	38.15

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	36.61	35.02	32.87	29.62	24.39	18.99	14.31	11.56	11.18
45.0	32.48	30.50	28.19	25.33	21.31	16.30	12.33	10.63	10.19
90.0	31.66	29.51	27.36	24.00	18.22	13.38	11.12	9.91	9.80
135.0	33.31	30.17	27.64	24.61	20.37	14.65	11.84	10.57	10.57
180.0	33.64	30.39	27.69	24.00	17.51	13.16	11.12	10.08	9.91
225.0	31.00	27.97	24.89	20.48	16.35	12.99	10.46	9.91	9.69
270.0	36.17	34.63	31.71	28.19	24.00	17.89	13.60	10.57	10.02
315.0	33.91	32.10	30.17	26.37	20.15	14.76	11.95	9.80	9.86
360.0	36.61	35.02	32.87	29.62	24.39	18.99	14.31	11.56	11.18

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.90	10.74	10.74	10.74	10.79	10.85	10.96	11.01	11.12
45.0	10.08	9.97	9.91	9.91	9.91	9.91	9.91	9.91	9.97
90.0	9.69	9.63	9.63	9.69	9.74	9.74	9.69	9.63	9.63
135.0	10.68	10.74	10.79	10.85	10.79	10.74	10.68	10.74	10.74
180.0	9.86	9.80	9.80	9.86	9.91	9.91	9.91	9.86	9.91
225.0	9.63	9.58	9.47	9.47	9.47	9.52	9.52	9.52	9.63
270.0	9.74	9.52	9.41	9.47	9.47	9.47	9.52	9.52	9.58
315.0	9.97	10.08	10.19	10.13	10.08	9.97	9.80	9.69	9.58
360.0	10.90	10.74	10.74	10.74	10.79	10.85	10.96	11.01	11.12

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.18	11.29	11.45	11.62	11.78	12.00	12.17	12.22	12.33
45.0	10.02	10.24	10.57	11.01	11.34	11.51	11.51	11.29	11.18
90.0	9.63	9.52	9.58	10.74	12.72	14.26	14.26	12.11	10.41
135.0	10.96	11.34	11.78	12.00	12.11	12.11	11.62	11.29	11.29
180.0	9.97	10.19	10.35	10.68	10.85	10.79	10.63	10.57	10.46
225.0	9.97	10.41	10.85	11.29	11.51	11.45	11.45	11.29	11.23
270.0	9.58	9.69	9.80	10.30	12.61	14.70	15.20	13.05	10.90
315.0	9.52	9.58	9.58	9.63	9.58	9.52	9.41	9.30	9.25
360.0	11.18	11.29	11.45	11.62	11.78	12.00	12.17	12.22	12.33

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	12.39	12.06	11.67	11.34	11.07	10.35	5.51	5.07	5.01
45.0	10.96	10.85	10.57	10.30	9.97	9.36	5.95	5.12	4.90
90.0	10.30	10.24	10.13	10.13	10.08	10.08	6.28	5.23	5.07
135.0	11.40	11.51	11.62	11.67	11.51	11.01	10.24	6.17	5.40
180.0	10.24	10.02	9.86	9.69	9.41	9.03	8.64	5.62	5.07
225.0	11.07	10.85	10.63	10.30	9.74	9.08	7.65	5.23	4.90
270.0	10.96	10.90	10.90	10.79	10.57	10.19	6.33	5.23	5.07
315.0	9.36	9.41	9.47	9.41	9.25	8.31	5.45	5.23	5.18
360.0	12.39	12.06	11.67	11.34	11.07	10.35	5.51	5.07	5.01

Intensity data(cd)

C/γ(°)	90.0
0.0	5.01
45.0	4.84
90.0	5.01
135.0	5.18
180.0	5.01
225.0	4.90
270.0	5.01
315.0	5.01
360.0	5.01