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Nata

LumCAT: 1678-A
Luminaire: 92.70.064.00+92.70.147.00

Report No: 200605-B009	Voltage(V): 33.8700
Test No: 200605-C009	Current(A): 0.3000
LampCAT: LUMINUS CXM-9-AC40	Power (W): 10.1600
Lamp flux(lm): 1131.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 904.51
Efficiency(%): 79.97%
Lumens(lm)/Power(W): 89.03
Central intensity(cd): 1536.609
Maximum intensity(cd): 1536.609
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=42.5
[C90/270]Total=42.5
Field angle(10%Imax): [C0/180]Total=74.0
[C90/270]Total=74.0
Maximum s/h(1/2): C0_180=0.70 C90_270=0.70
Maximum s/h(1/4): C0_180=0.66 C90_270=0.66
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 79.97%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.504%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1536.609	0.000	0	.000%	.000%
1.0	1535.484	1.470	1.47	.130%	.163%
2.0	1526.555	4.395	5.865	.389%	.648%
3.0	1515.656	7.276	13.141	.643%	1.453%
4.0	1504.547	10.110	23.25	.894%	2.571%
5.0	1483.102	12.853	36.103	1.136%	3.991%
6.0	1460.391	15.469	51.572	1.368%	5.702%
7.0	1439.156	17.997	69.569	1.591%	7.691%
8.0	1413.984	20.419	89.989	1.805%	9.949%
9.0	1386.633	22.697	112.686	2.007%	12.458%
10.0	1358.086	24.839	137.525	2.196%	15.204%
11.0	1324.969	26.809	164.334	2.370%	18.168%
12.0	1292.766	28.616	192.95	2.530%	21.332%
13.0	1255.922	30.246	223.196	2.674%	24.676%
14.0	1206.942	31.524	254.721	2.787%	28.161%
15.0	1158.117	32.469	287.189	2.871%	31.751%
16.0	1110.375	33.240	320.429	2.939%	35.426%
17.0	1045.610	33.574	354.004	2.969%	39.138%
18.0	989.037	33.547	387.55	2.966%	42.847%
19.0	925.966	33.317	420.868	2.946%	46.530%
20.0	853.966	32.578	453.445	2.880%	50.132%
21.0	783.703	31.447	484.892	2.780%	53.608%
22.0	719.529	30.208	515.1	2.671%	56.948%
23.0	648.710	28.709	543.809	2.538%	60.122%
24.0	581.006	26.886	570.695	2.377%	63.095%
25.0	522.513	25.092	595.787	2.219%	65.869%
26.0	463.170	23.267	619.054	2.057%	68.441%
27.0	409.113	21.341	640.395	1.887%	70.800%
28.0	363.038	19.549	659.944	1.728%	72.962%
29.0	323.592	17.964	677.908	1.588%	74.948%
30.0	290.159	16.571	694.479	1.465%	76.780%
31.0	262.385	15.376	709.856	1.360%	78.480%
32.0	239.098	14.367	724.223	1.270%	80.068%
33.0	215.430	13.391	737.613	1.184%	81.549%
34.0	198.366	12.523	750.136	1.107%	82.933%
35.0	181.983	11.812	761.948	1.044%	84.239%
36.0	167.070	11.114	773.062	.983%	85.468%
37.0	154.013	10.472	783.534	.926%	86.626%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	139.901	9.810	793.344	.867%	87.710%
39.0	125.445	9.057	802.401	.801%	88.711%
40.0	113.745	8.342	810.743	.738%	89.634%
41.0	102.438	7.698	818.442	.681%	90.485%
42.0	91.652	7.052	825.493	.623%	91.264%
43.0	82.294	6.443	831.937	.570%	91.977%
44.0	73.716	5.888	837.825	.521%	92.628%
45.0	65.644	5.356	843.181	.474%	93.220%
46.0	58.521	4.856	848.036	.429%	93.757%
47.0	52.024	4.397	852.433	.389%	94.243%
48.0	46.273	3.974	856.407	.351%	94.682%
49.0	41.463	3.603	860.01	.319%	95.080%
50.0	36.548	3.253	863.262	.288%	95.440%
51.0	32.646	2.928	866.19	.259%	95.764%
52.0	29.327	2.659	868.849	.235%	96.058%
53.0	25.945	2.404	871.253	.213%	96.324%
54.0	22.781	2.148	873.401	.190%	96.561%
55.0	20.264	1.921	875.323	.170%	96.773%
56.0	17.726	1.717	877.039	.152%	96.963%
57.0	15.033	1.498	878.537	.132%	97.129%
58.0	12.994	1.296	879.833	.115%	97.272%
59.0	11.095	1.126	880.959	.100%	97.397%
60.0	9.527	0.974	881.934	.086%	97.504%
61.0	8.585	0.864	882.798	.076%	97.600%
62.0	7.910	0.795	883.593	.070%	97.688%
63.0	7.566	0.753	884.345	.067%	97.771%
64.0	7.327	0.731	885.076	.065%	97.852%
65.0	7.186	0.718	885.794	.064%	97.931%
66.0	7.073	0.711	886.506	.063%	98.010%
67.0	7.017	0.709	887.214	.063%	98.088%
68.0	6.954	0.708	887.922	.063%	98.166%
69.0	6.926	0.708	888.63	.063%	98.245%
70.0	6.926	0.711	889.342	.063%	98.323%
71.0	6.968	0.718	890.06	.063%	98.403%
72.0	7.038	0.728	890.788	.064%	98.483%
73.0	7.066	0.738	891.526	.065%	98.565%
74.0	7.109	0.745	892.271	.066%	98.647%
75.0	7.186	0.755	893.026	.067%	98.731%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.298	0.769	893.795	.068%	98.816%
77.0	7.453	0.786	894.581	.070%	98.903%
78.0	7.671	0.810	895.391	.072%	98.992%
79.0	7.910	0.837	896.228	.074%	99.085%
80.0	8.276	0.873	897.101	.077%	99.181%
81.0	8.670	0.916	898.017	.081%	99.282%
82.0	8.599	0.936	898.954	.083%	99.386%
83.0	8.402	0.924	899.878	.082%	99.488%
84.0	8.205	0.905	900.783	.080%	99.588%
85.0	8.107	0.890	901.673	.079%	99.687%
86.0	7.059	0.829	902.502	.073%	99.778%
87.0	5.006	0.660	903.162	.058%	99.851%
88.0	4.113	0.500	903.662	.044%	99.907%
89.0	3.783	0.433	904.095	.038%	99.954%
90.0	3.741	0.412	904.507	.036%	100.000%

Zonal flux distribution table

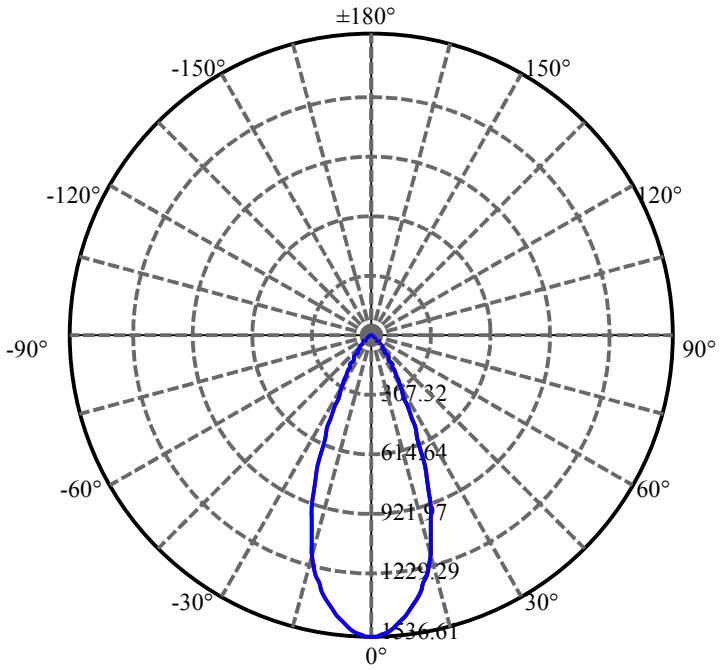
ZONAL LUMEN SUMMARY

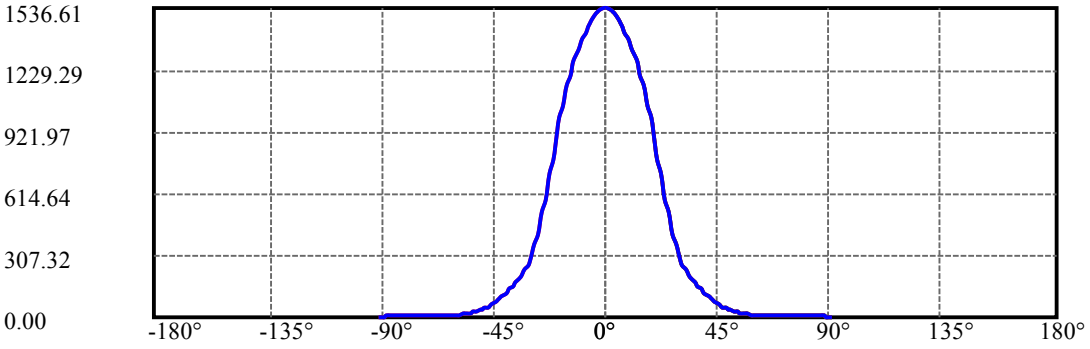
Zone	Lumens	%Lamp	%Fixt
0-30	694.48	61.40%	76.78%
0-40	810.74	71.68%	89.63%
0-60	881.93	77.98%	97.50%
0-90	904.09	79.94%	99.95%
0-120	904.09	79.94%	99.95%
0-180	904.51	79.97%	100.00%
60-90	23.14	2.05%	2.56%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-31.96	723.61	63.98%	80.00%

ZONAL LUMEN SUMMARY

0-10	137.52
10-20	315.92
20-30	241.03
30-40	116.26
40-50	52.52
50-60	18.67
60-70	7.41
70-80	7.76
80-90	6.99
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:37.0 Right:37.0
:C90/270Left:37.0 Right:37.0

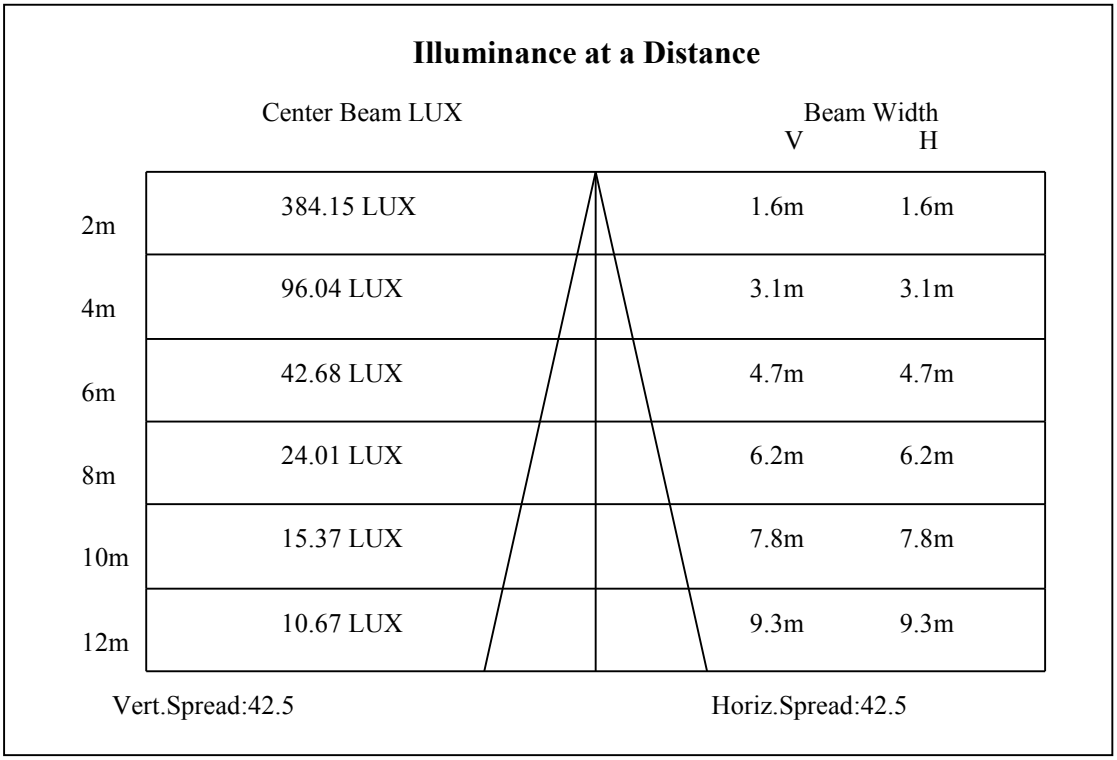
Beam Angle(50%Imax):C0/180Left:21.2 Right:21.2
:C90/270Left:21.2 Right:21.2

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/5
Humidity(%): 65.0%

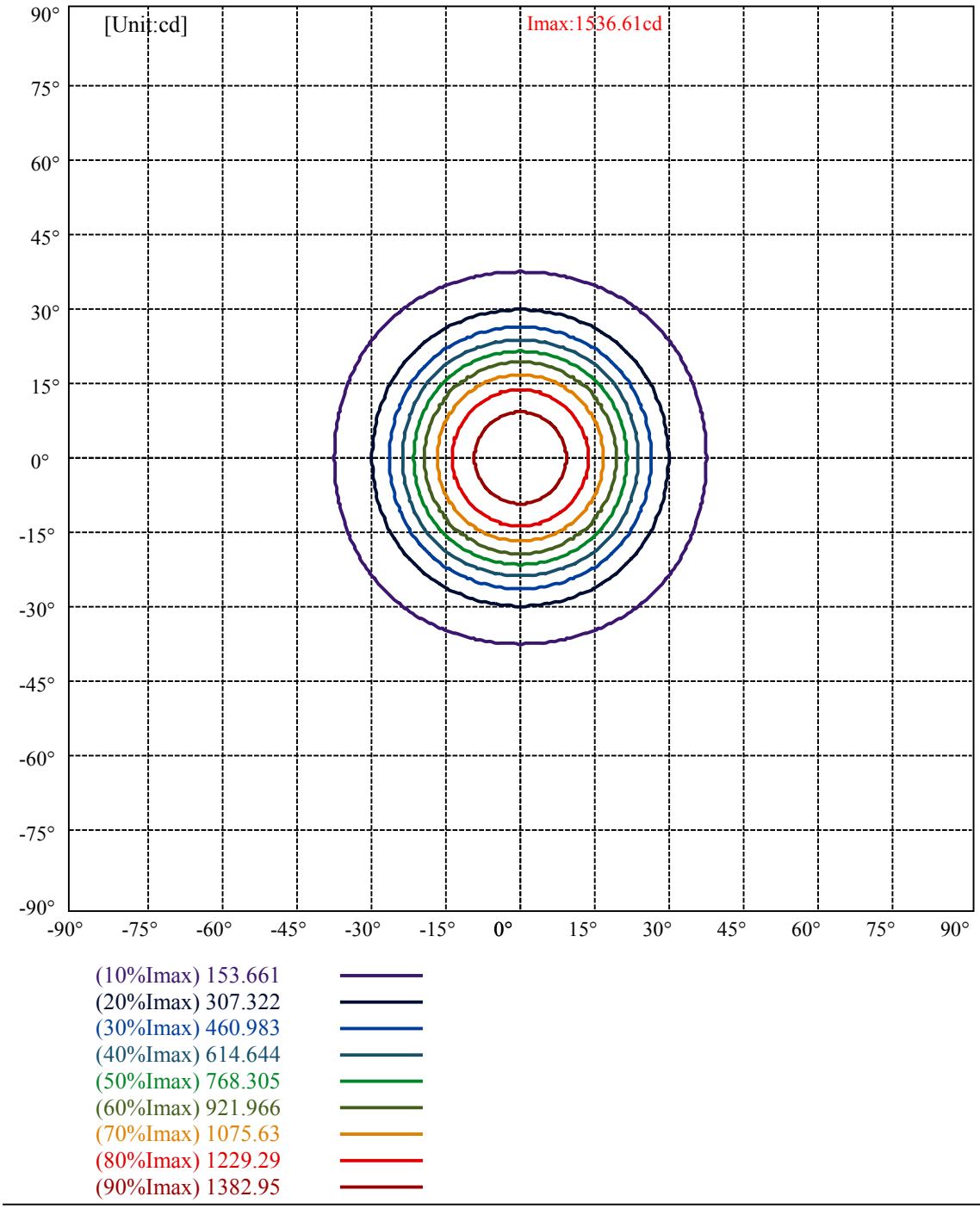
Operator: NT07
Distance(m): 7.50

Lux distance Curve



Equipment: GMS1980 Date: 2020/6/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

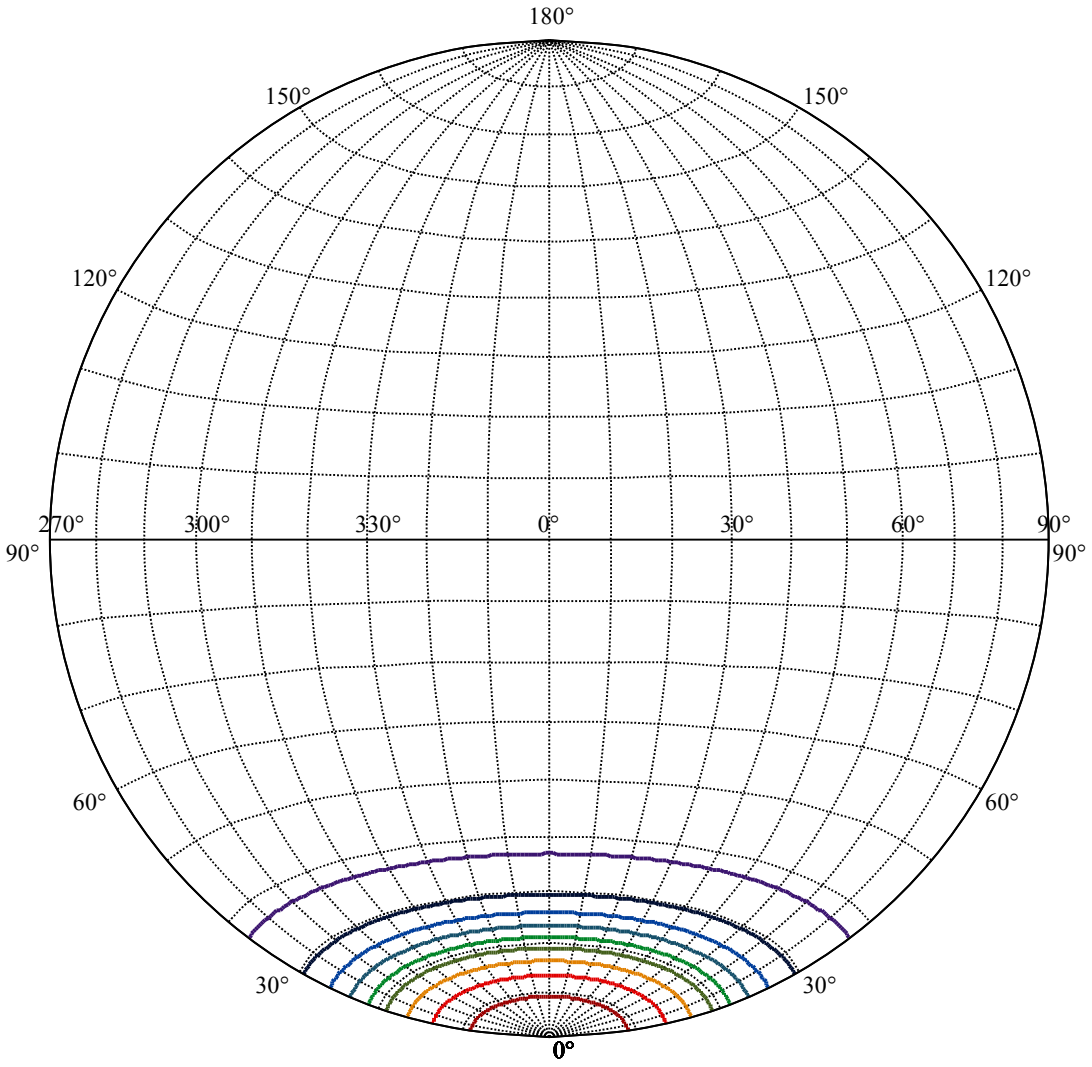


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



[Unit:cd]

Imax:1536.61

(10%Imax) 153.661
(20%Imax) 307.322
(30%Imax) 460.983
(40%Imax) 614.644
(50%Imax) 768.305
(60%Imax) 921.966
(70%Imax) 1075.63
(80%Imax) 1229.29
(90%Imax) 1382.95

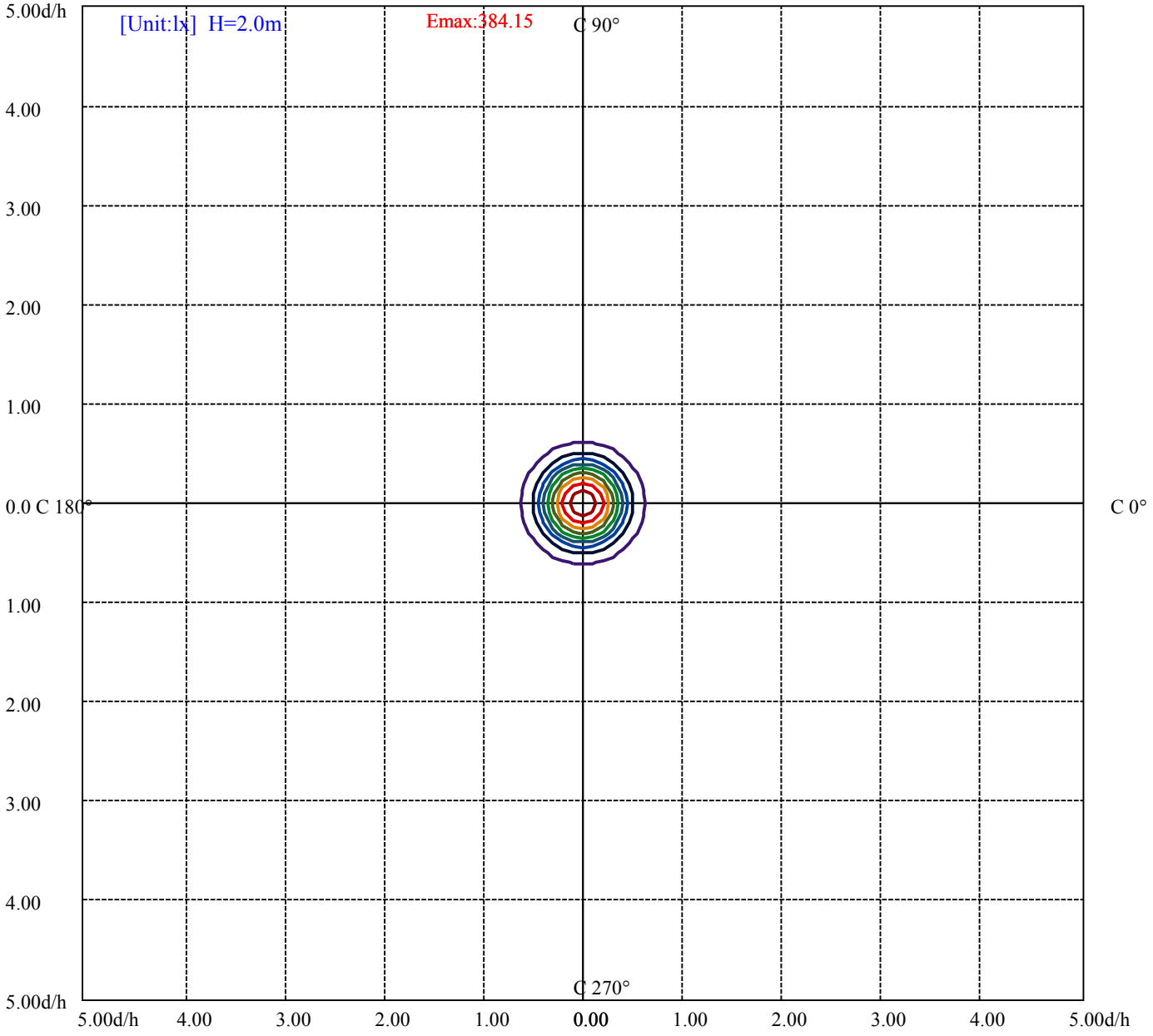
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata 1678-A

ISO illuminance diagram

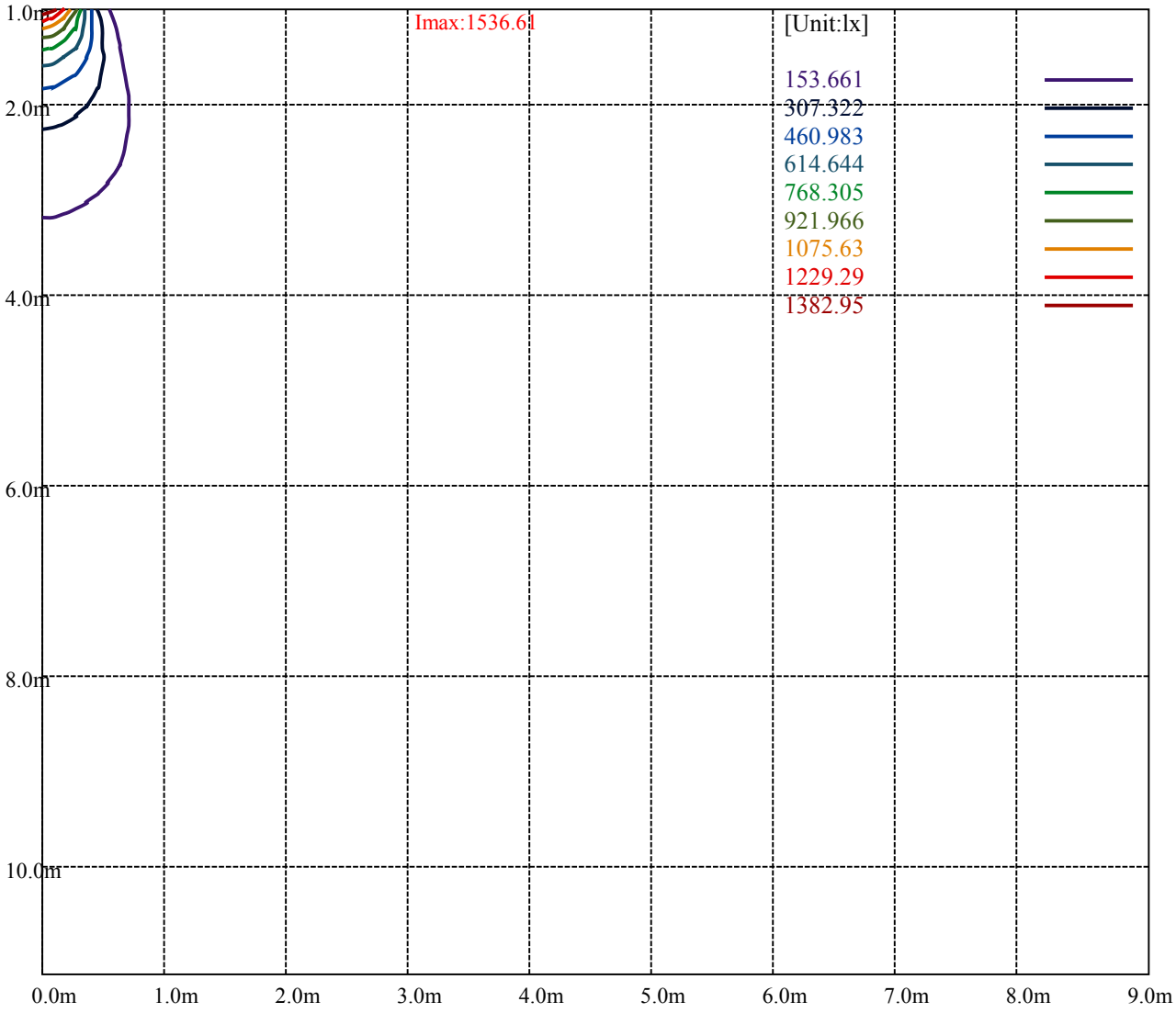


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/6/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

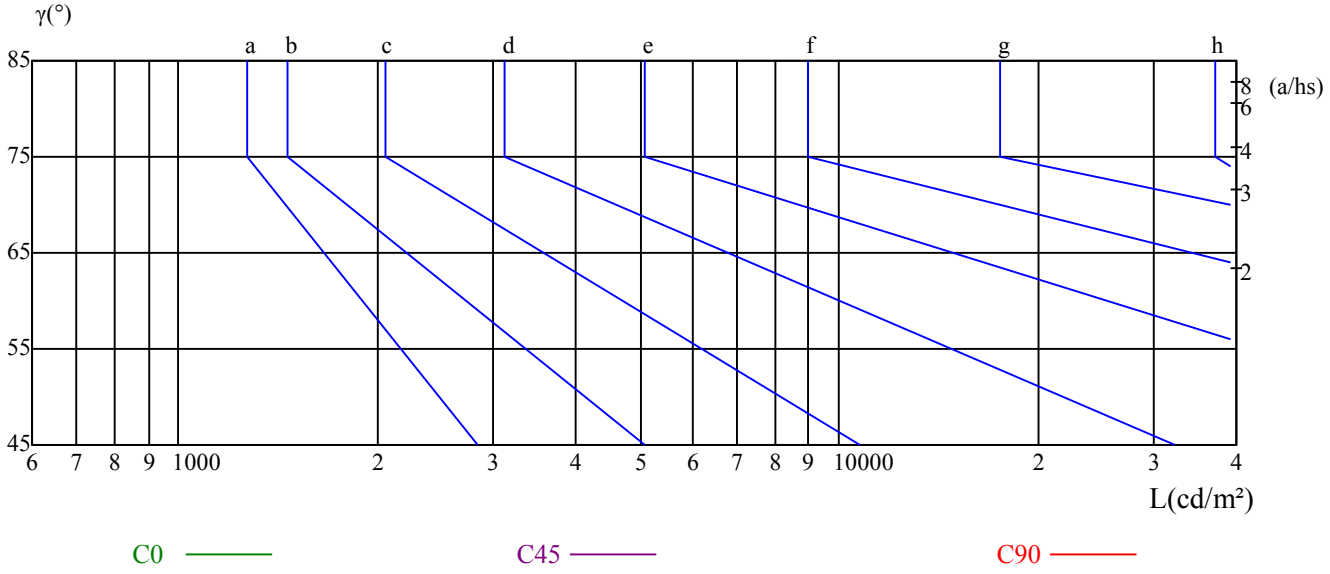
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

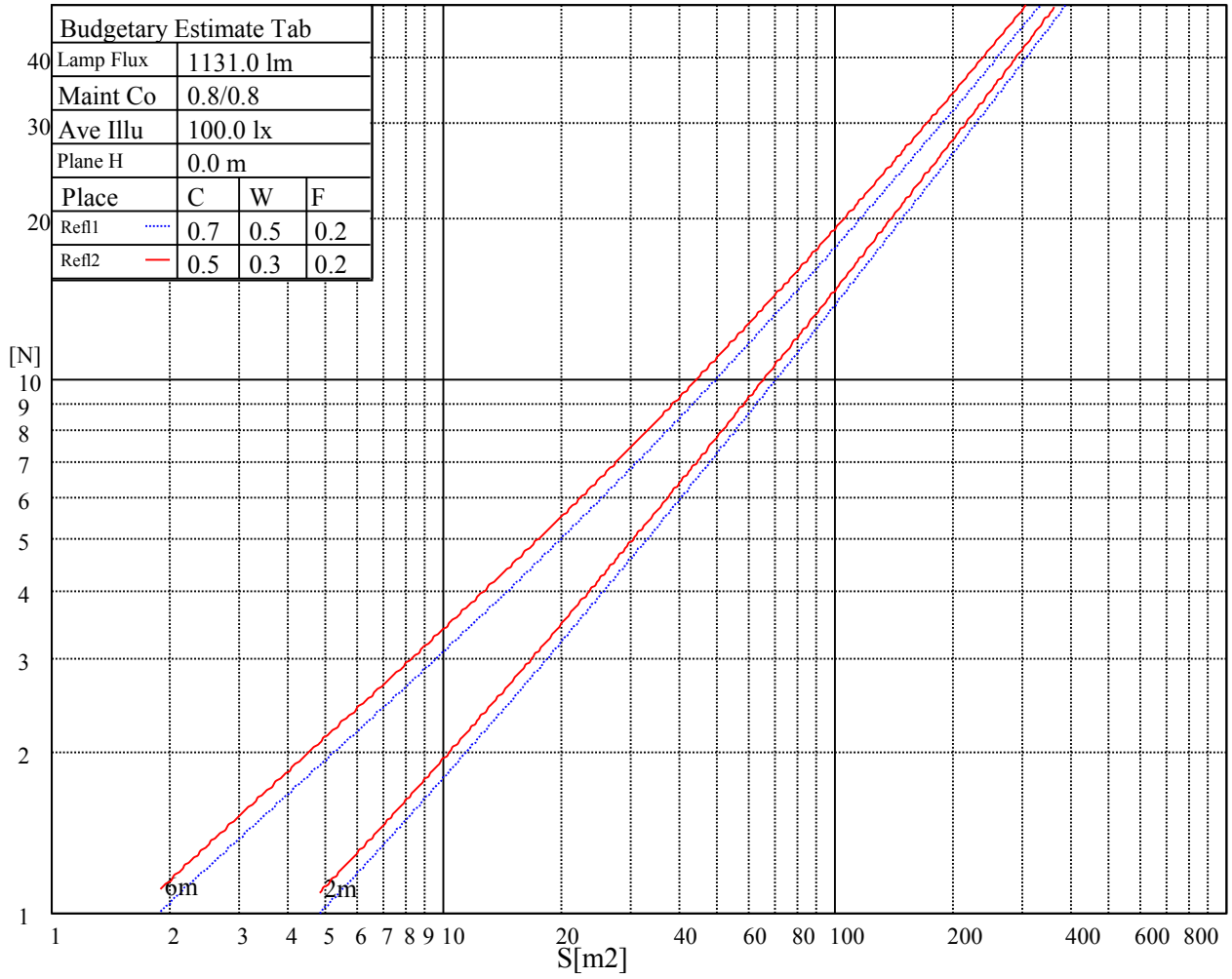
Glare Table

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

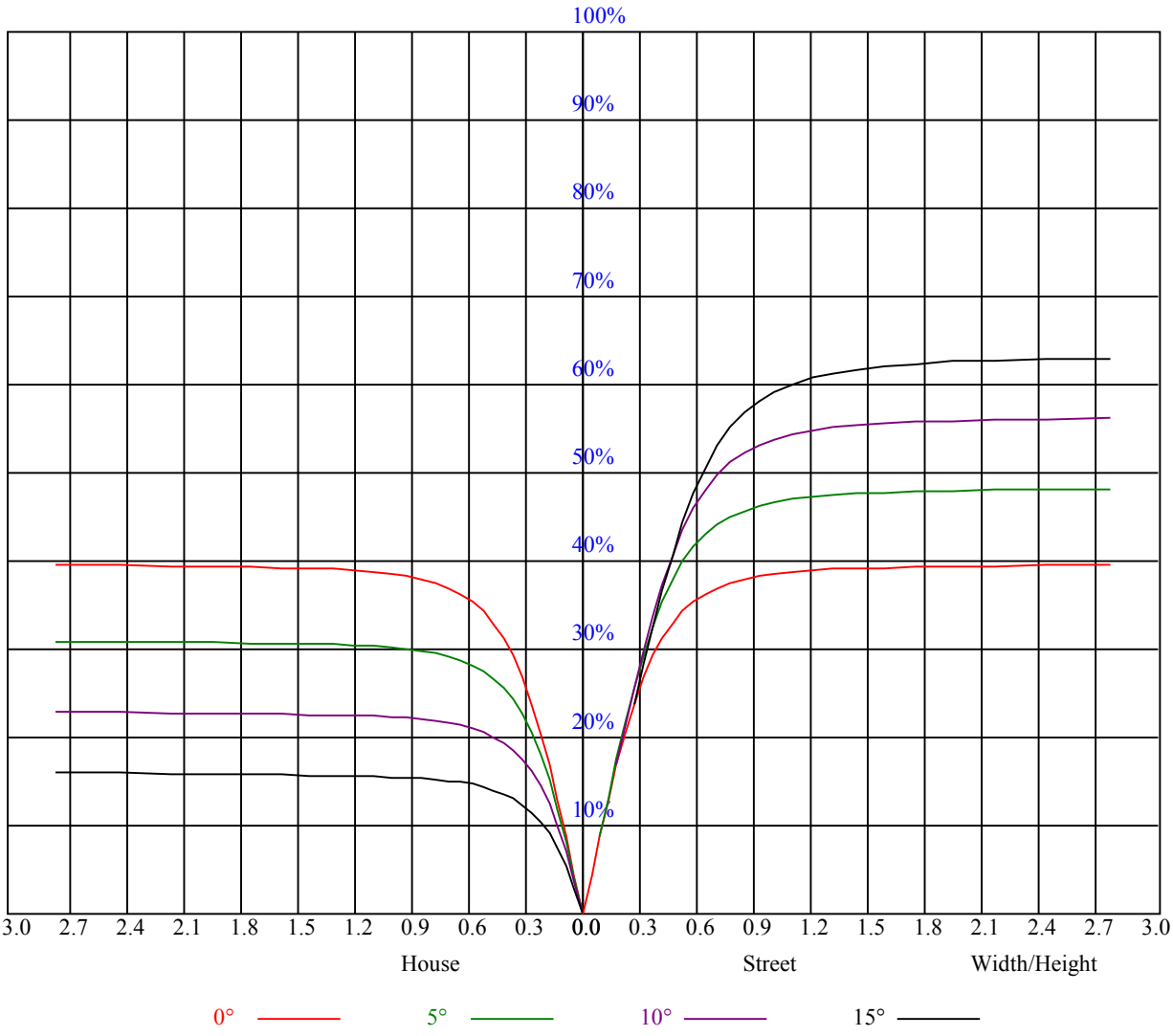


Equipment: GMS1980 Date: 2020/6/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.95	0.95	0.95	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.82	0.82	0.82	0.80
1	0.88	0.86	0.84	0.87	0.85	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.76	0.74
2	0.82	0.79	0.77	0.81	0.78	0.76	0.78	0.76	0.74	0.76	0.74	0.72	0.74	0.72	0.71	0.70
3	0.77	0.73	0.70	0.76	0.73	0.70	0.74	0.71	0.69	0.72	0.70	0.67	0.70	0.68	0.66	0.65
4	0.73	0.68	0.65	0.72	0.68	0.65	0.70	0.67	0.64	0.68	0.65	0.63	0.67	0.64	0.62	0.61
5	0.68	0.64	0.61	0.68	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.58
6	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.54
7	0.61	0.57	0.54	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.58	0.55	0.53	0.51
8	0.58	0.54	0.51	0.58	0.53	0.51	0.57	0.53	0.50	0.56	0.53	0.50	0.55	0.52	0.50	0.49
9	0.55	0.51	0.48	0.55	0.51	0.48	0.54	0.50	0.48	0.54	0.50	0.48	0.53	0.50	0.47	0.46
10	0.53	0.49	0.46	0.53	0.48	0.46	0.52	0.48	0.45	0.51	0.48	0.45	0.51	0.48	0.45	0.44

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/6/5	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	1540.69	1535.63	1524.38	1510.88	1495.13	1470.94	1446.75	1422.56	1395.56
45.0	1533.94	1518.19	1498.50	1484.44	1464.75	1428.75	1398.38	1371.38	1347.19
90.0	1533.38	1527.19	1509.19	1484.44	1469.25	1447.31	1418.06	1396.13	1368.00
135.0	1538.44	1535.63	1529.44	1515.94	1503.56	1488.94	1464.75	1449.00	1419.75
180.0	1540.69	1537.88	1535.06	1530.00	1518.75	1501.31	1478.81	1464.19	1448.44
225.0	1533.94	1544.06	1544.06	1537.31	1537.31	1521.00	1503.56	1479.94	1453.50
270.0	1533.38	1545.75	1543.50	1538.44	1535.63	1512.56	1501.31	1476.00	1456.88
315.0	1538.44	1539.56	1528.31	1523.81	1512.00	1494.00	1471.50	1454.06	1422.56
360.0	1540.69	1535.63	1524.38	1510.88	1495.13	1470.94	1446.75	1422.56	1395.56

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1366.31	1337.06	1296.56	1263.94	1219.50	1170.00	1128.38	1073.81	1007.44
45.0	1311.75	1277.44	1235.81	1194.75	1149.19	1092.94	1039.50	984.38	913.50
90.0	1337.06	1305.00	1270.69	1232.44	1194.75	1121.85	1092.77	1040.01	967.44
135.0	1388.81	1365.75	1334.81	1305.00	1279.13	1238.06	1191.38	1143.56	1067.06
180.0	1420.88	1384.88	1357.31	1327.50	1296.00	1251.00	1200.94	1118.14	1097.94
225.0	1440.00	1417.50	1384.88	1359.56	1330.31	1281.38	1247.63	1216.13	1120.84
270.0	1433.25	1410.75	1386.00	1357.88	1319.63	1289.25	1244.81	1194.75	1145.81
315.0	1395.00	1366.31	1333.69	1301.06	1258.88	1211.06	1119.54	1112.23	1044.84
360.0	1366.31	1337.06	1296.56	1263.94	1219.50	1170.00	1128.38	1073.81	1007.44

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	948.38	890.44	810.00	748.13	687.94	611.44	551.81	498.38	441.00
45.0	852.19	785.25	708.75	645.19	584.44	527.06	461.81	415.13	367.88
90.0	904.33	837.96	763.14	692.61	631.01	561.38	500.40	441.06	388.01
135.0	1009.13	943.31	863.44	799.31	738.00	662.63	593.44	533.81	466.88
180.0	1023.24	957.94	893.70	812.64	745.71	682.20	611.16	548.49	489.54
225.0	1106.49	1048.11	985.84	912.38	841.78	766.69	693.45	632.14	561.26
270.0	1092.38	1032.75	961.31	893.81	824.63	742.50	679.50	611.44	541.69
315.0	976.16	911.98	845.55	765.56	702.73	635.79	556.48	499.67	449.10
360.0	948.38	890.44	810.00	748.13	687.94	611.44	551.81	498.38	441.00

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	387.00	345.94	306.00	286.88	251.21	227.42	209.81	191.87	176.29
45.0	328.50	295.31	284.63	241.82	219.71	205.26	185.46	171.00	158.46
90.0	346.05	310.33	274.33	249.41	228.66	205.26	189.56	175.39	160.09
135.0	417.94	366.19	321.19	288.00	267.13	234.00	213.41	197.61	180.84
180.0	429.24	384.64	338.63	299.31	270.96	244.91	221.63	204.98	190.52
225.0	499.44	437.91	388.86	349.26	316.69	281.81	257.34	236.81	214.31
270.0	471.94	418.50	365.63	328.50	291.38	284.63	236.98	214.93	197.66
315.0	392.79	345.49	309.49	278.10	253.35	229.50	209.25	194.34	177.69
360.0	387.00	345.94	306.00	286.88	251.21	227.42	209.81	191.87	176.29

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	163.97	150.81	133.82	121.11	109.91	98.44	88.03	79.48	70.65
45.0	142.54	129.83	117.62	104.46	93.94	84.83	74.19	66.38	59.57
90.0	146.19	133.59	120.88	108.06	97.31	87.08	78.64	69.75	61.71
135.0	168.02	154.97	140.91	125.66	112.95	100.46	89.61	80.72	71.61
180.0	174.49	163.24	150.41	133.65	121.61	110.31	99.00	88.48	79.93
225.0	197.27	182.42	166.33	152.16	138.94	123.98	114.47	102.94	91.07
270.0	180.51	167.46	152.55	138.09	126.39	115.99	101.53	92.36	84.77
315.0	163.58	149.79	136.69	120.38	108.90	98.44	87.75	78.24	70.43
360.0	163.97	150.81	133.82	121.11	109.91	98.44	88.03	79.48	70.65

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	62.66	56.36	49.89	44.78	39.77	35.04	31.39	28.07	24.24
45.0	52.82	46.69	42.02	37.29	33.47	29.70	26.10	23.34	20.64
90.0	55.63	49.61	43.99	38.98	35.04	30.60	27.68	24.75	22.28
135.0	64.35	57.15	50.85	45.84	41.63	37.01	33.53	30.26	26.33
180.0	70.71	63.51	56.53	50.01	45.00	39.88	35.21	31.73	28.35
225.0	83.42	73.80	64.01	58.11	52.26	44.89	40.73	36.79	32.29
270.0	73.41	65.98	59.79	51.69	45.51	40.50	35.72	31.89	28.58
315.0	62.16	55.07	49.11	43.48	39.04	34.76	30.83	27.79	24.86
360.0	62.66	56.36	49.89	44.78	39.77	35.04	31.39	28.07	24.24

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	21.54	18.96	15.86	13.44	11.25	9.00	7.71	7.03	6.47
45.0	17.94	15.75	13.39	10.80	9.34	8.55	7.76	7.43	7.26
90.0	19.29	17.04	14.85	12.77	11.25	10.13	9.28	8.61	8.27
135.0	23.74	21.21	18.56	16.03	13.95	11.87	9.96	9.23	8.27
180.0	24.47	21.83	19.29	16.03	13.73	11.64	9.62	8.89	8.16
225.0	28.52	25.65	22.61	19.80	17.33	14.63	12.49	10.29	9.23
270.0	25.09	22.44	20.14	17.27	15.13	13.05	10.91	9.51	8.61
315.0	21.66	19.24	17.10	14.12	11.98	9.90	8.49	7.71	7.03
360.0	21.54	18.96	15.86	13.44	11.25	9.00	7.71	7.03	6.47

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.36	6.24	6.30	6.36	6.41	6.41	6.53	6.64	6.75
45.0	7.20	7.14	7.09	7.03	7.03	7.03	6.98	6.98	6.98
90.0	7.99	7.76	7.54	7.31	7.14	7.03	7.03	7.09	7.20
135.0	7.93	7.59	7.37	7.14	6.98	6.81	6.69	6.58	6.53
180.0	7.71	7.54	7.31	7.20	7.14	7.03	6.98	6.92	6.86
225.0	8.55	8.04	7.88	7.76	7.76	7.71	7.71	7.82	8.04
270.0	7.93	7.59	7.43	7.26	7.14	7.09	6.98	6.86	6.81
315.0	6.86	6.69	6.58	6.53	6.53	6.53	6.53	6.53	6.58
360.0	6.36	6.24	6.30	6.36	6.41	6.41	6.53	6.64	6.75

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.86	6.92	7.09	7.14	7.20	7.26	7.54	7.65	7.71
45.0	7.03	7.09	7.20	7.37	7.59	7.93	8.49	9.00	9.56
90.0	7.26	7.31	7.31	7.31	7.31	7.26	7.09	7.09	7.20
135.0	6.47	6.47	6.47	6.53	6.58	6.81	6.92	7.09	7.54
180.0	6.86	6.81	6.86	6.86	6.86	6.92	7.03	7.20	7.37
225.0	8.38	8.49	8.44	8.55	8.66	8.83	9.11	9.23	9.45
270.0	6.81	6.81	6.75	6.81	7.09	7.37	7.76	8.27	8.38
315.0	6.64	6.64	6.75	6.92	7.09	7.26	7.43	7.76	9.00
360.0	6.86	6.92	7.09	7.14	7.20	7.26	7.54	7.65	7.71

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.88	8.10	8.27	8.27	7.93	7.20	3.94	3.83	3.77
45.0	10.01	10.29	10.58	8.94	8.21	3.83	3.77	3.71	3.60
90.0	6.86	5.91	5.29	5.12	4.78	3.88	3.66	3.60	3.54
135.0	8.38	8.49	8.16	8.27	8.44	8.21	5.51	3.88	3.88
180.0	7.71	7.99	8.21	8.38	8.27	7.65	4.16	4.11	4.11
225.0	9.56	9.56	9.34	9.06	8.94	8.61	7.82	6.08	3.94
270.0	8.83	9.06	9.11	9.00	9.51	8.66	7.26	3.94	3.71
315.0	10.13	9.39	8.27	8.61	8.78	8.44	3.94	3.77	3.71
360.0	7.88	8.10	8.27	8.27	7.93	7.20	3.94	3.83	3.77

Intensity data(cd)

C/γ(°)	90.0
0.0	3.66
45.0	3.66
90.0	3.54
135.0	3.83
180.0	4.11
225.0	3.94
270.0	3.60
315.0	3.60
360.0	3.66