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Nata

LumCAT: 2-2164-M
Luminaire: BJB 47.360.5080

Report No: 200326-B008	Voltage(V): 34.1600
Test No: 200326-C008	Current(A): 0.6020
LampCAT: NICHIA NFCWJ120B-V3	Power (W): 20.5600
Lamp flux(lm): 2623.0	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): 2004.43
Efficiency(%): 76.42%
Lumens(lm)/Power(W): 97.49
Central intensity(cd): 9028.125
Maximum intensity(cd): 9028.125
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.8
[C90/270]Total=24.8
Field angle(10%Imax): [C0/180]Total=47.3
[C90/270]Total=47.3
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(%): 76.42%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.799%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9028.125	0.000	0	.000%	.000%
1.0	8994.727	8.624	8.624	.329%	.430%
2.0	8865.914	25.635	34.259	.977%	1.709%
3.0	8674.313	41.950	76.209	1.599%	3.802%
4.0	8433.773	57.266	133.476	2.183%	6.659%
5.0	8085.023	71.063	204.539	2.709%	10.204%
6.0	7698.445	82.946	287.485	3.162%	14.342%
7.0	7281.984	92.983	380.468	3.545%	18.981%
8.0	6778.195	100.626	481.094	3.836%	24.002%
9.0	6277.289	105.808	586.902	4.034%	29.280%
10.0	5754.727	108.885	695.787	4.151%	34.712%
11.0	5208.117	109.541	805.328	4.176%	40.177%
12.0	4720.781	108.537	913.866	4.138%	45.592%
13.0	4216.711	106.066	1019.931	4.044%	50.884%
14.0	3726.211	101.669	1121.6	3.876%	55.956%
15.0	3319.805	96.731	1218.331	3.688%	60.782%
16.0	2938.852	91.707	1310.037	3.496%	65.357%
17.0	2555.578	85.563	1395.6	3.262%	69.626%
18.0	2240.016	79.069	1474.669	3.014%	73.571%
19.0	1972.688	73.292	1547.962	2.794%	77.227%
20.0	1695.164	67.132	1615.094	2.559%	80.576%
21.0	1446.405	60.324	1675.418	2.300%	83.586%
22.0	1222.270	53.628	1729.046	2.045%	86.261%
23.0	1036.069	47.386	1776.432	1.807%	88.625%
24.0	834.342	40.894	1817.326	1.559%	90.665%
25.0	657.183	33.914	1851.24	1.293%	92.357%
26.0	488.960	27.055	1878.295	1.031%	93.707%
27.0	336.607	20.198	1898.493	.770%	94.715%
28.0	211.887	13.887	1912.38	.529%	95.408%
29.0	130.542	8.959	1921.338	.342%	95.855%
30.0	61.066	5.173	1926.512	.197%	96.113%
31.0	30.579	2.550	1929.062	.097%	96.240%
32.0	19.554	1.436	1930.498	.055%	96.312%
33.0	17.177	1.082	1931.581	.041%	96.366%
34.0	16.460	1.018	1932.599	.039%	96.416%
35.0	15.785	1.001	1933.6	.038%	96.466%
36.0	15.279	0.989	1934.589	.038%	96.516%
37.0	14.878	0.984	1935.573	.037%	96.565%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	14.505	0.981	1936.553	.037%	96.614%
39.0	14.196	0.980	1937.533	.037%	96.663%
40.0	13.936	0.981	1938.514	.037%	96.711%
41.0	13.732	0.985	1939.499	.038%	96.761%
42.0	13.542	0.991	1940.49	.038%	96.810%
43.0	13.409	0.998	1941.489	.038%	96.860%
44.0	13.296	1.008	1942.497	.038%	96.910%
45.0	13.205	1.018	1943.515	.039%	96.961%
46.0	13.120	1.030	1944.545	.039%	97.012%
47.0	13.050	1.041	1945.585	.040%	97.064%
48.0	13.036	1.055	1946.64	.040%	97.117%
49.0	12.973	1.068	1947.708	.041%	97.170%
50.0	12.945	1.081	1948.789	.041%	97.224%
51.0	12.916	1.094	1949.883	.042%	97.279%
52.0	12.895	1.108	1950.99	.042%	97.334%
53.0	12.874	1.121	1952.111	.043%	97.390%
54.0	12.860	1.134	1953.246	.043%	97.446%
55.0	12.853	1.148	1954.393	.044%	97.504%
56.0	12.825	1.160	1955.554	.044%	97.562%
57.0	12.825	1.173	1956.726	.045%	97.620%
58.0	12.797	1.185	1957.911	.045%	97.679%
59.0	12.804	1.197	1959.108	.046%	97.739%
60.0	12.825	1.211	1960.319	.046%	97.799%
61.0	12.952	1.230	1961.549	.047%	97.861%
62.0	13.099	1.255	1962.804	.048%	97.923%
63.0	13.373	1.288	1964.092	.049%	97.988%
64.0	13.739	1.330	1965.422	.051%	98.054%
65.0	14.323	1.389	1966.811	.053%	98.123%
66.0	14.991	1.463	1968.274	.056%	98.196%
67.0	15.792	1.548	1969.821	.059%	98.273%
68.0	16.763	1.649	1971.471	.063%	98.356%
69.0	17.852	1.766	1973.236	.067%	98.444%
70.0	18.745	1.880	1975.116	.072%	98.538%
71.0	19.554	1.980	1977.096	.075%	98.636%
72.0	20.250	2.070	1979.165	.079%	98.740%
73.0	20.609	2.137	1981.302	.081%	98.846%
74.0	20.686	2.171	1983.473	.083%	98.954%
75.0	20.116	2.156	1985.629	.082%	99.062%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	19.090	2.081	1987.71	.079%	99.166%
77.0	17.487	1.950	1989.66	.074%	99.263%
78.0	15.251	1.752	1991.412	.067%	99.351%
79.0	12.938	1.515	1992.927	.058%	99.426%
80.0	11.588	1.322	1994.249	.050%	99.492%
81.0	10.371	1.187	1995.437	.045%	99.551%
82.0	9.851	1.097	1996.533	.042%	99.606%
83.0	9.450	1.049	1997.582	.040%	99.658%
84.0	9.232	1.018	1998.6	.039%	99.709%
85.0	9.162	1.004	1999.604	.038%	99.759%
86.0	9.211	1.004	2000.608	.038%	99.809%
87.0	9.281	1.012	2001.62	.039%	99.860%
88.0	8.655	0.983	2002.603	.037%	99.909%
89.0	8.297	0.929	2003.532	.035%	99.955%
90.0	8.079	0.898	2004.43	.034%	100.000%

Zonal flux distribution table

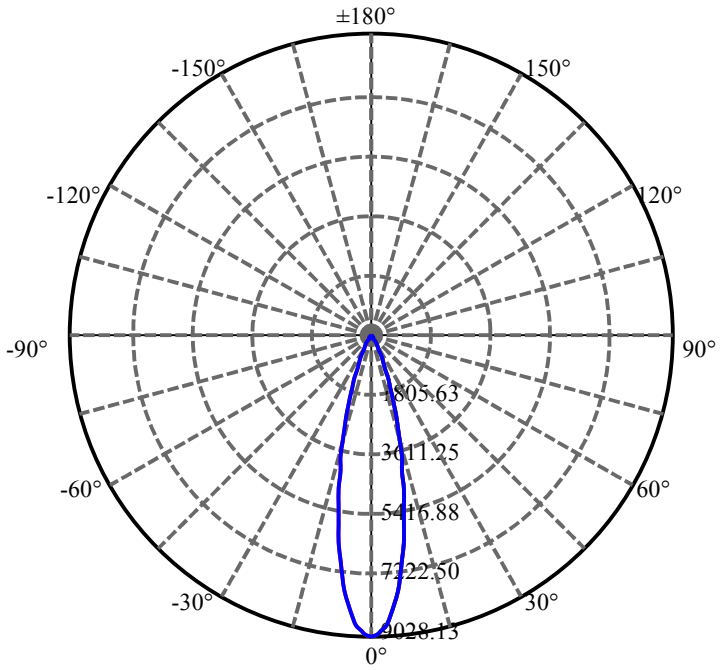
ZONAL LUMEN SUMMARY

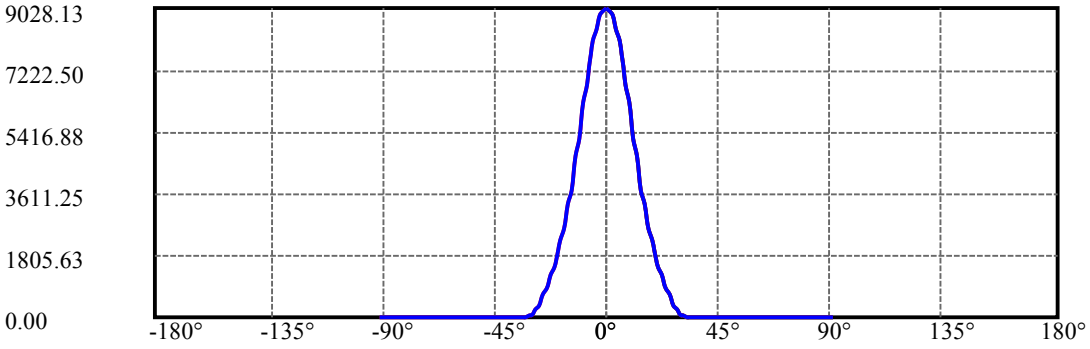
Zone	Lumens	%Lamp	%Fixt
0-30	1926.51	73.45%	96.11%
0-40	1938.51	73.90%	96.71%
0-60	1960.32	74.74%	97.80%
0-90	2003.53	76.38%	99.96%
0-120	2003.53	76.38%	99.96%
0-180	2004.43	76.42%	100.00%
60-90	44.42	1.69%	2.22%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-19.83	1603.54	61.13%	80.00%

ZONAL LUMEN SUMMARY

0-10	695.79
10-20	919.31
20-30	311.42
30-40	12.00
40-50	10.27
50-60	11.53
60-70	14.80
70-80	19.13
80-90	9.28
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):

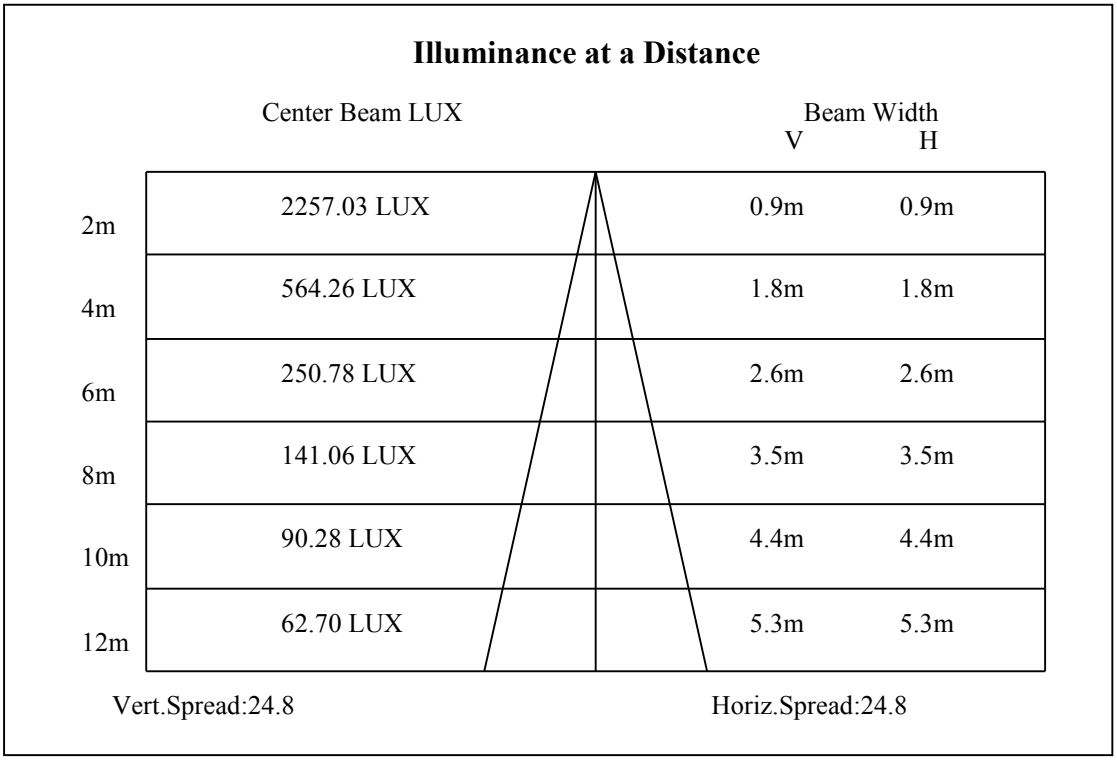
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:23.7 Right:23.7
:C90/270Left:23.7 Right:23.7

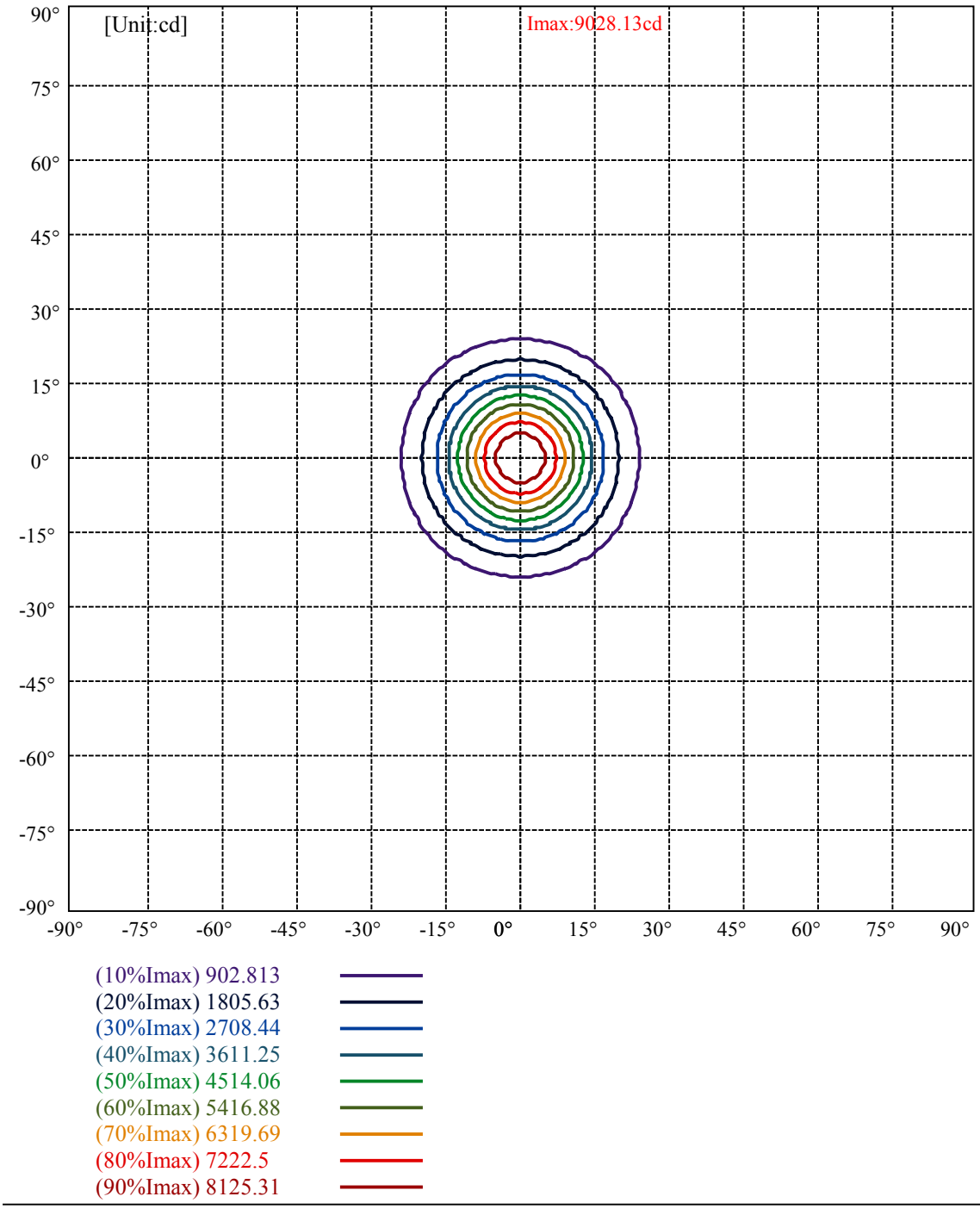
Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4
:C90/270Left:12.4 Right:12.4

Lux distance Curve



Equipment: GMS1980 Date: 2020/3/26 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)



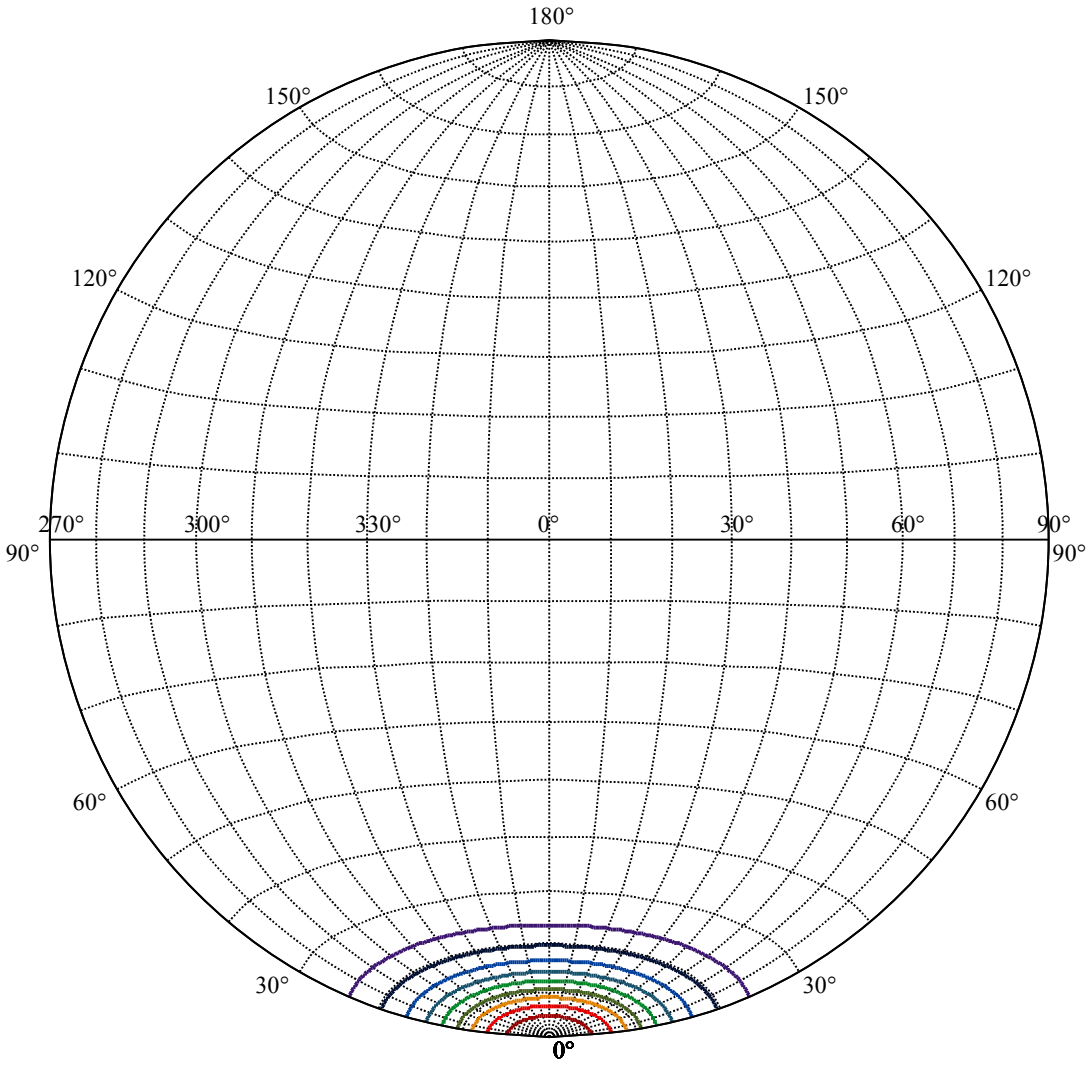
(10%Imax) 902.813
(20%Imax) 1805.63
(30%Imax) 2708.44
(40%Imax) 3611.25
(50%Imax) 4514.06
(60%Imax) 5416.88
(70%Imax) 6319.69
(80%Imax) 7222.5
(90%Imax) 8125.31

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/3/26
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

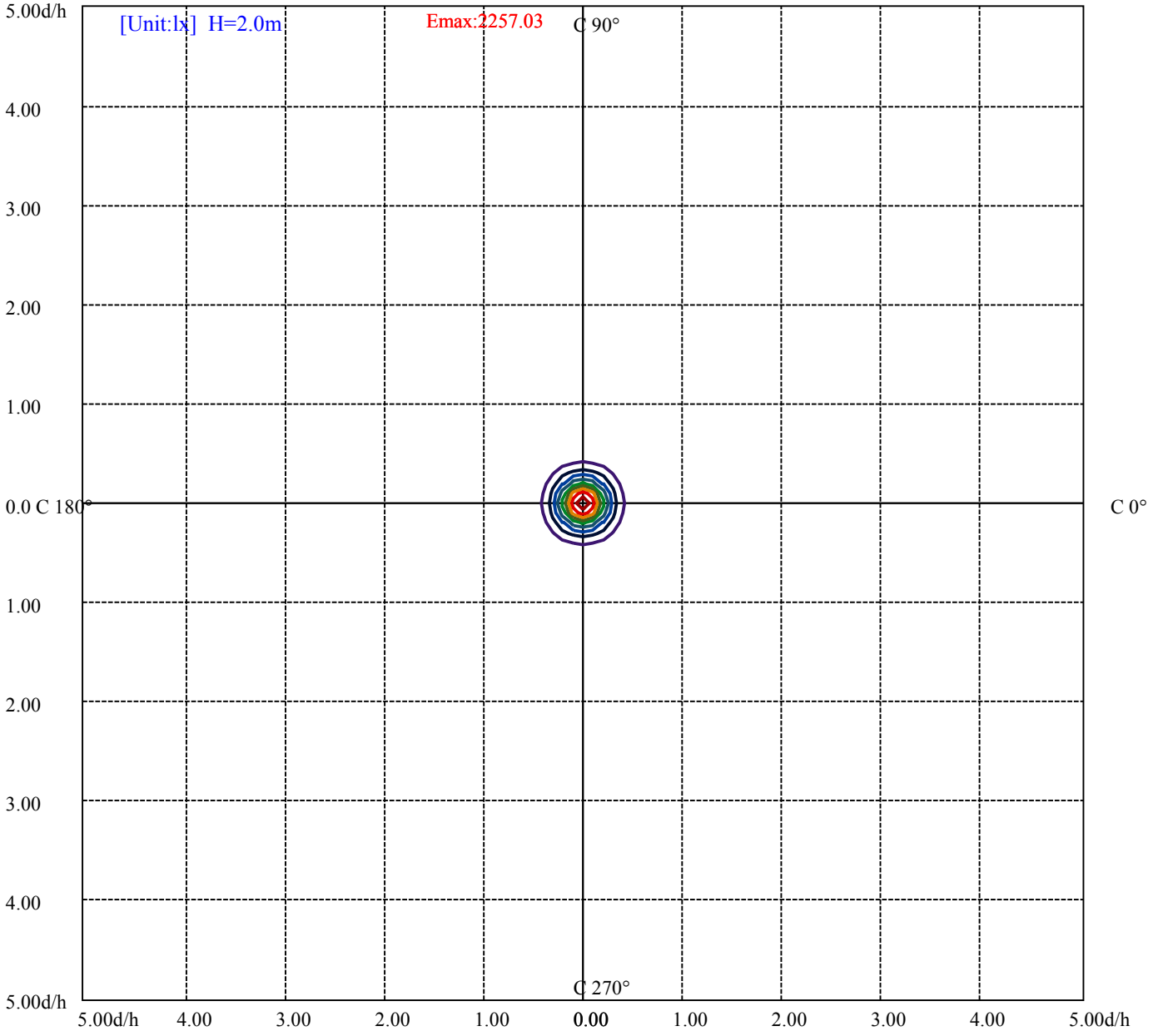
Imax:9028.13

(10%Imax) 902.813
(20%Imax) 1805.63
(30%Imax) 2708.44
(40%Imax) 3611.25
(50%Imax) 4514.06
(60%Imax) 5416.88
(70%Imax) 6319.69
(80%Imax) 7222.5
(90%Imax) 8125.31

Equipment: GMS1980 Date: 2020/3/26 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Nata 2-2164-M

ISO illuminance diagram

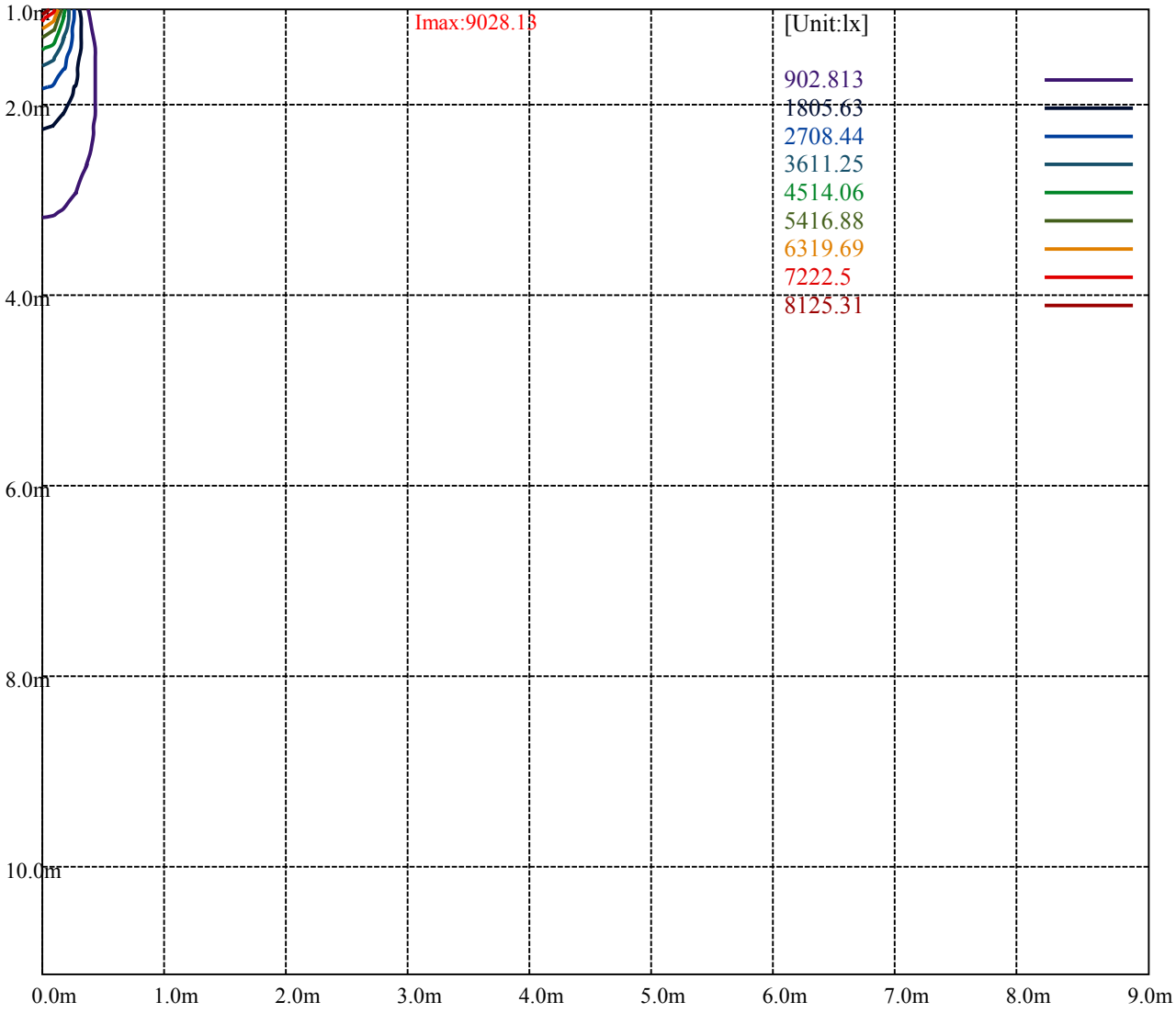


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/3/26
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/3/26
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

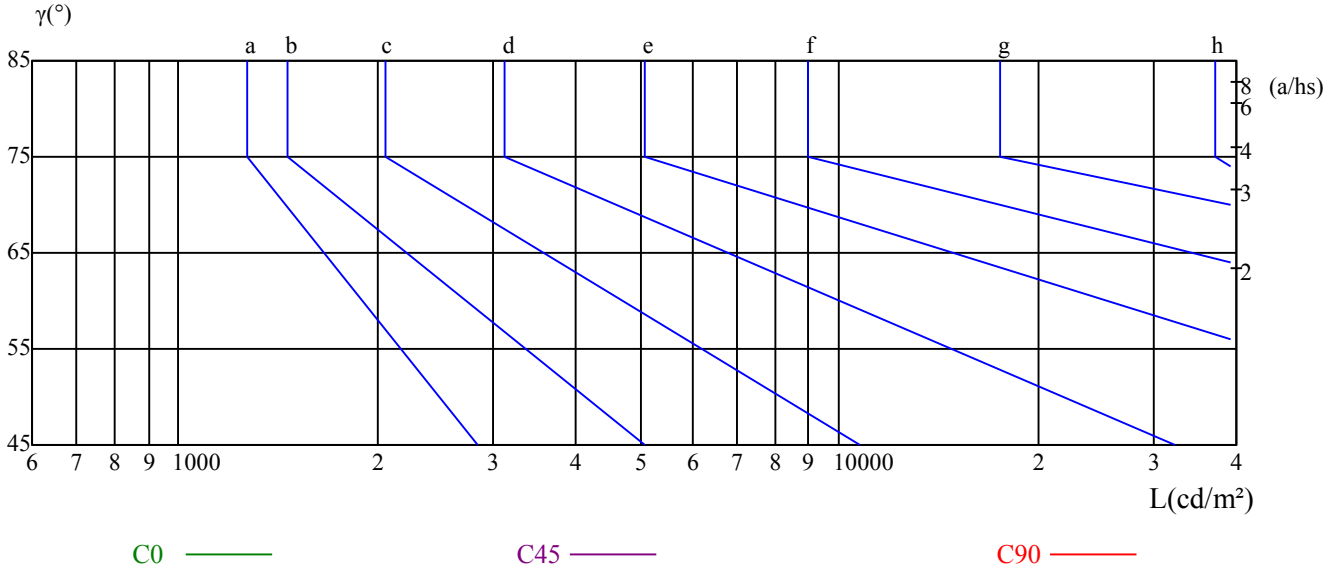
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

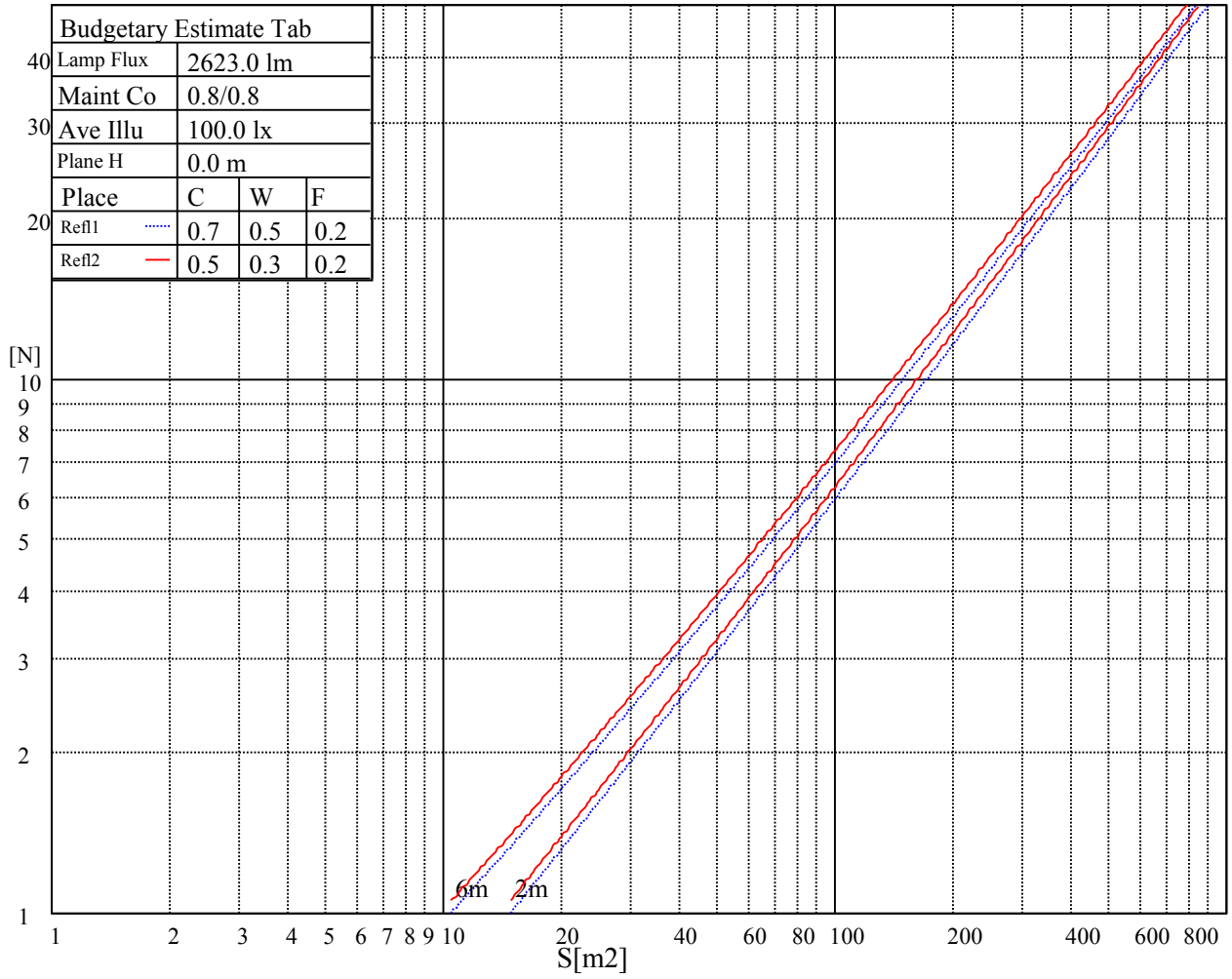
Glare Table

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

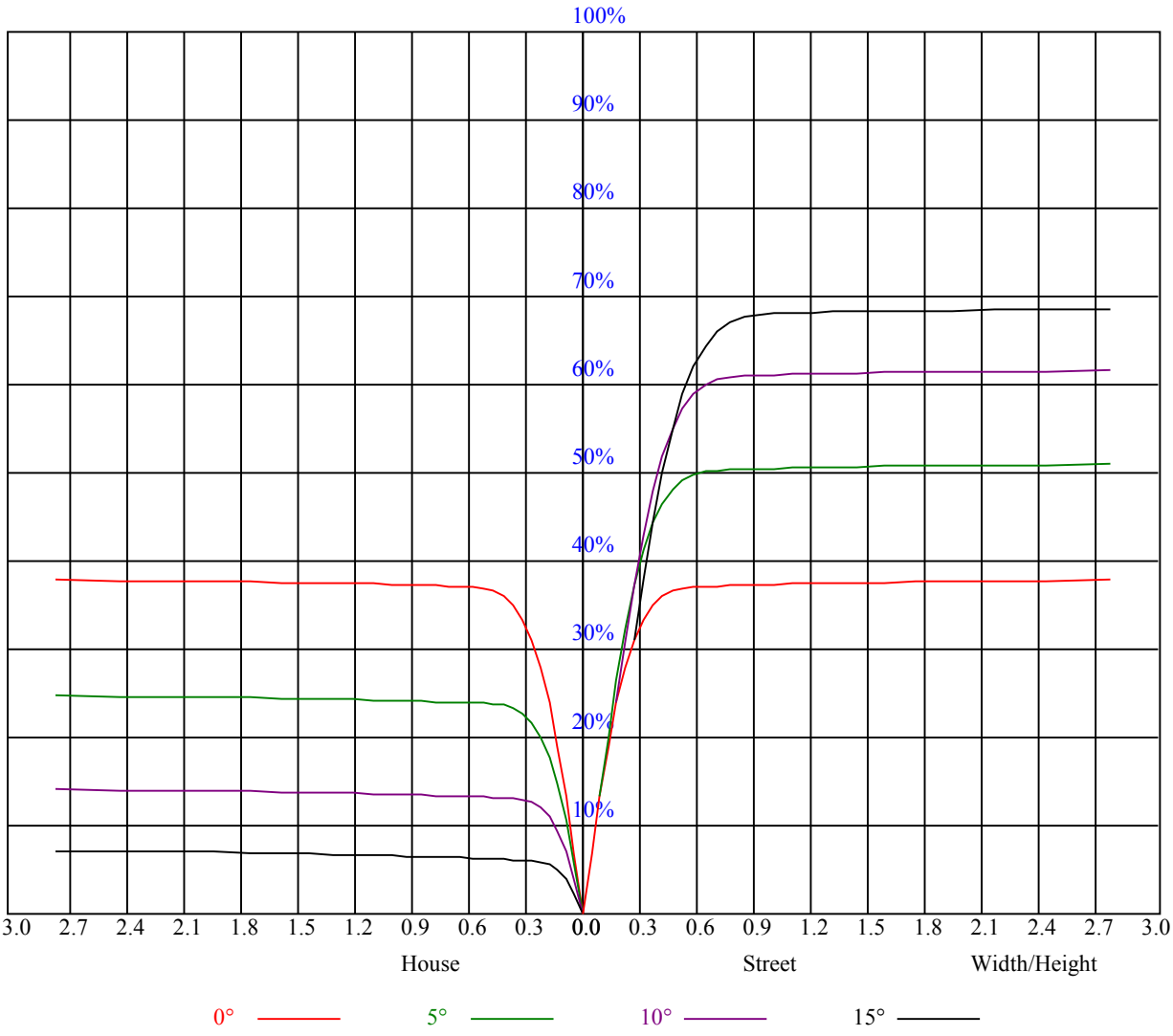


Equipment: GMS1980 Date: 2020/3/26 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/3/26	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	9007.31	9093.38	9091.69	9002.25	8846.44	8598.94	8286.19	7953.75	7521.19
45.0	9012.94	9095.06	9089.44	9000.00	8849.25	8583.75	8308.69	7967.81	7578.56
90.0	9043.88	9020.81	8913.38	8728.31	8505.56	8190.00	7797.38	7389.56	6881.63
135.0	9048.38	8989.88	8822.81	8623.69	8369.44	8019.00	7595.44	7159.50	6635.25
180.0	9007.31	8863.88	8632.69	8328.94	7998.19	7510.50	7065.56	6582.38	5955.19
225.0	9012.94	8867.81	8632.13	8331.19	8001.00	7557.19	7123.50	6600.38	6051.94
270.0	9043.88	8993.81	8833.50	8634.94	8377.88	8019.56	7596.56	7180.31	6671.81
315.0	9048.38	9033.19	8911.69	8745.19	8522.44	8201.25	7814.25	7422.19	6930.00
360.0	9007.31	9093.38	9091.69	9002.25	8846.44	8598.94	8286.19	7953.75	7521.19

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7034.63	6562.69	6005.25	5502.38	4942.13	4406.06	3960.56	3535.88	3053.25
45.0	7039.69	6563.81	6056.44	5482.13	4923.56	4447.13	3944.81	3477.38	3099.94
90.0	6397.88	5831.44	5267.81	4782.94	4262.63	3771.00	3363.19	2989.69	2573.44
135.0	6091.31	5590.69	5024.81	4542.75	4033.69	3557.25	3165.75	2769.75	2415.38
180.0	5516.44	4960.69	4430.25	3990.38	3573.00	3087.56	2736.00	2418.75	2099.25
225.0	5554.13	5001.19	4468.50	4021.31	3594.94	3108.38	2758.50	2437.88	2113.88
270.0	6131.81	5637.38	5087.25	4611.38	4100.63	3618.56	3222.56	2855.25	2486.81
315.0	6452.44	5889.94	5324.63	4833.00	4303.13	3813.75	3407.06	3026.25	2602.69
360.0	7034.63	6562.69	6005.25	5502.38	4942.13	4406.06	3960.56	3535.88	3053.25

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2710.69	2403.00	2060.44	1812.94	1589.06	1357.88	1145.81	957.94	769.50
45.0	2707.31	2391.75	2113.31	1776.94	1571.63	1343.25	1121.63	930.38	763.31
90.0	2271.94	1999.13	1724.06	1477.13	1109.70	1039.33	855.62	678.21	476.61
135.0	2125.13	1863.56	1575.00	1344.38	1168.88	961.31	748.13	582.75	428.63
180.0	1807.31	1574.44	1338.75	1121.63	935.55	735.19	570.15	401.79	254.87
225.0	1829.25	1601.44	1362.38	1113.24	945.79	735.81	564.24	394.09	250.88
270.0	2163.38	1908.56	1620.00	1405.69	1208.81	1019.81	785.81	610.31	452.81
315.0	2305.13	2039.63	1767.38	1519.31	1248.75	1095.98	883.35	702.00	515.08
360.0	2710.69	2403.00	2060.44	1812.94	1589.06	1357.88	1145.81	957.94	769.50

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	549.56	395.44	310.50	143.44	62.89	24.08	16.31	15.24	14.46
45.0	529.88	385.88	289.13	139.73	61.09	25.14	18.62	17.55	16.76
90.0	353.36	219.88	104.91	49.05	21.60	18.00	17.16	16.37	15.58
135.0	294.75	156.43	77.34	27.11	17.83	16.93	16.03	15.36	14.85
180.0	150.64	67.28	25.48	18.84	17.61	16.71	16.14	15.64	15.13
225.0	149.74	75.60	27.62	21.21	20.14	19.24	18.73	18.28	17.55
270.0	297.56	169.09	88.59	33.08	20.64	19.35	18.34	17.83	17.27
315.0	367.37	225.51	120.77	56.08	22.84	16.99	16.09	15.41	14.68
360.0	549.56	395.44	310.50	143.44	62.89	24.08	16.31	15.24	14.46

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	13.84	13.33	12.88	12.54	12.32	12.09	11.98	11.81	11.70
45.0	16.09	15.47	14.91	14.51	14.12	13.84	13.50	13.33	13.11
90.0	15.08	14.63	14.23	13.84	13.61	13.39	13.16	12.94	12.83
135.0	14.34	13.95	13.67	13.39	13.22	13.05	12.77	12.71	12.60
180.0	14.74	14.46	14.18	14.01	13.73	13.56	13.44	13.33	13.28
225.0	17.21	16.93	16.43	16.09	15.58	15.36	15.24	15.08	14.91
270.0	16.65	16.31	16.09	15.75	15.58	15.36	15.13	15.13	15.08
315.0	14.29	13.95	13.67	13.44	13.33	13.22	13.11	12.94	12.88
360.0	13.84	13.33	12.88	12.54	12.32	12.09	11.98	11.81	11.70

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	11.59	11.53	11.48	11.48	11.42	11.31	11.25	11.19	11.19
45.0	12.94	12.83	12.77	12.66	12.60	12.49	12.43	12.38	12.32
90.0	12.71	12.66	12.60	12.60	12.60	12.66	12.60	12.77	12.77
135.0	12.49	12.38	12.32	12.26	12.21	12.15	12.15	12.09	12.04
180.0	13.16	13.11	12.94	12.88	12.77	12.77	12.66	12.60	12.54
225.0	14.91	14.68	14.57	14.63	14.40	14.34	14.34	14.29	14.29
270.0	15.02	15.02	15.02	15.13	15.13	15.19	15.24	15.13	15.13
315.0	12.83	12.77	12.71	12.66	12.66	12.66	12.66	12.71	12.71
360.0	11.59	11.53	11.48	11.48	11.42	11.31	11.25	11.19	11.19

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.14	11.08	11.03	11.03	10.97	10.97	10.91	10.91	10.86
45.0	12.26	12.15	12.15	12.15	12.09	12.15	12.15	12.15	12.21
90.0	12.88	12.99	12.99	12.99	12.94	12.99	12.94	13.11	13.28
135.0	12.04	11.98	11.98	11.98	11.93	11.93	11.93	11.93	11.87
180.0	12.49	12.43	12.38	12.32	12.26	12.15	12.15	12.09	12.09
225.0	14.29	14.40	14.40	14.51	14.63	14.74	14.79	15.13	15.41
270.0	15.08	15.02	14.96	14.91	14.91	14.91	15.24	15.86	16.71
315.0	12.71	12.77	12.71	12.71	12.66	12.60	12.49	12.43	12.38
360.0	11.14	11.08	11.03	11.03	10.97	10.97	10.91	10.91	10.86

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.80	10.74	10.74	10.63	10.63	10.58	10.58	10.58	10.52
45.0	12.32	12.54	12.88	13.22	13.73	14.57	15.81	17.10	18.56
90.0	13.84	14.68	15.75	17.27	18.90	20.98	23.01	24.69	26.16
135.0	11.76	11.64	11.59	11.48	11.48	11.48	11.64	11.81	12.09
180.0	12.04	11.93	11.93	11.81	11.76	11.76	11.76	11.81	11.87
225.0	15.92	16.71	18.28	19.91	21.99	24.24	27.06	28.86	30.26
270.0	17.94	19.41	21.09	23.18	25.20	27.68	29.87	31.67	33.19
315.0	12.38	12.26	12.32	12.43	12.66	12.83	13.11	13.44	13.78
360.0	10.80	10.74	10.74	10.63	10.63	10.58	10.58	10.58	10.52

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.46	10.46	10.46	10.46	10.41	10.35	10.24	10.07	9.90
45.0	20.03	21.26	22.44	23.51	24.02	23.46	20.76	17.16	14.68
90.0	27.68	28.63	29.19	28.52	27.28	25.03	21.71	17.38	13.28
135.0	12.38	12.66	12.88	12.83	12.71	12.43	11.98	11.53	11.08
180.0	11.98	12.09	12.09	12.04	11.98	11.76	11.36	10.80	10.07
225.0	31.56	31.95	31.73	29.59	26.04	21.04	15.69	11.98	11.14
270.0	33.75	33.41	32.29	29.81	26.44	22.56	17.72	12.88	11.36
315.0	14.18	14.40	14.40	14.18	13.84	13.28	12.54	11.70	11.19
360.0	10.46	10.46	10.46	10.46	10.41	10.35	10.24	10.07	9.90

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.62	9.28	8.89	8.66	8.55	8.49	8.44	8.33	8.33
45.0	10.52	9.96	9.68	9.51	9.39	9.11	8.94	8.94	8.55
90.0	10.74	9.84	9.11	8.78	8.72	8.66	8.61	8.44	8.27
135.0	10.52	9.79	9.28	8.78	8.49	8.33	8.27	8.21	8.16
180.0	9.56	9.34	9.23	9.17	9.23	9.39	9.56	8.33	8.10
225.0	10.80	10.74	10.74	10.80	10.86	11.36	11.76	8.72	8.33
270.0	10.74	10.07	9.56	9.45	9.45	9.84	10.24	9.84	8.44
315.0	10.46	9.79	9.11	8.72	8.61	8.49	8.44	8.44	8.21
360.0	9.62	9.28	8.89	8.66	8.55	8.49	8.44	8.33	8.33

Intensity data(cd)

C/γ(°)	90.0
0.0	8.16
45.0	8.44
90.0	7.93
135.0	7.93
180.0	8.04
225.0	8.21
270.0	7.99
315.0	7.93
360.0	8.16