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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,Ching

Nata

LumCAT: 2-2428-M
Luminaire: 99.70.131.00
Report No: 220816-B008
Test No: 220816-C008
LampCAT: CITIZEN CLU038
Lamp flux(lm): 2249.0
Number of Lamps: 1
Length(mm): 43
Phm Type: C

Voltage(V): 35.4500
Current(A): 0.4810
Power (W): 17.0510
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 1918.57
Efficiency(%): 85.31%
Lumens(lm)/Power(W): 112.52
Central intensity(cd): 9663.389
Maximum intensity(cd): 9663.389
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.9
[C90/270]Total=18.9
Field angle(10%Imax): [C0/180]Total=48.1
[C90/270]Total=48.1
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 85.31%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.010%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9663.388	0.000	0	.000%	.000%
1.0	9620.366	9.227	9.227	.410%	.481%
2.0	9426.319	27.338	36.565	1.216%	1.906%
3.0	9099.545	44.308	80.872	1.970%	4.215%
4.0	8696.661	59.570	140.442	2.649%	7.320%
5.0	8120.344	72.346	212.788	3.217%	11.091%
6.0	7380.155	81.459	294.247	3.622%	15.337%
7.0	6684.408	87.299	381.546	3.882%	19.887%
8.0	5887.528	89.975	471.52	4.001%	24.577%
9.0	5138.600	89.361	560.881	3.973%	29.234%
10.0	4435.383	86.641	647.522	3.853%	33.750%
11.0	3800.135	82.290	729.812	3.659%	38.039%
12.0	3325.846	77.897	807.709	3.464%	42.100%
13.0	2882.853	73.682	881.391	3.276%	45.940%
14.0	2537.855	69.385	950.775	3.085%	49.556%
15.0	2284.652	66.206	1016.981	2.944%	53.007%
16.0	2064.537	63.728	1080.709	2.834%	56.329%
17.0	1837.178	60.760	1141.469	2.702%	59.496%
18.0	1687.198	58.109	1199.578	2.584%	62.525%
19.0	1547.227	56.272	1255.851	2.502%	65.458%
20.0	1385.199	53.672	1309.522	2.387%	68.255%
21.0	1274.963	51.080	1360.603	2.271%	70.917%
22.0	1155.651	48.844	1409.447	2.172%	73.463%
23.0	1060.614	46.503	1455.95	2.068%	75.887%
24.0	970.357	44.404	1500.354	1.974%	78.202%
25.0	898.646	42.497	1542.851	1.890%	80.417%
26.0	823.537	40.652	1583.504	1.808%	82.536%
27.0	742.168	38.305	1621.809	1.703%	84.532%
28.0	648.685	35.213	1657.023	1.566%	86.368%
29.0	564.120	31.730	1688.753	1.411%	88.021%
30.0	482.654	28.263	1717.016	1.257%	89.494%
31.0	399.762	24.556	1741.572	1.092%	90.774%
32.0	323.584	20.723	1762.295	.921%	91.855%
33.0	246.966	16.809	1779.104	.747%	92.731%
34.0	189.566	13.211	1792.314	.587%	93.419%
35.0	135.654	10.100	1802.415	.449%	93.946%
36.0	106.562	7.712	1810.127	.343%	94.348%
37.0	91.258	6.452	1816.579	.287%	94.684%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	80.786	5.743	1822.321	.255%	94.983%
39.0	69.635	5.134	1827.455	.228%	95.251%
40.0	61.807	4.584	1832.04	.204%	95.490%
41.0	55.458	4.176	1836.215	.186%	95.707%
42.0	48.743	3.786	1840.001	.168%	95.905%
43.0	43.694	3.424	1843.425	.152%	96.083%
44.0	39.945	3.157	1846.582	.140%	96.248%
45.0	36.233	2.928	1849.51	.130%	96.400%
46.0	33.133	2.713	1852.222	.121%	96.542%
47.0	30.937	2.548	1854.771	.113%	96.675%
48.0	28.771	2.414	1857.184	.107%	96.800%
49.0	27.090	2.294	1859.478	.102%	96.920%
50.0	25.537	2.194	1861.673	.098%	97.034%
51.0	24.103	2.100	1863.773	.093%	97.144%
52.0	23.005	2.021	1865.794	.090%	97.249%
53.0	22.049	1.960	1867.754	.087%	97.351%
54.0	21.108	1.902	1869.656	.085%	97.450%
55.0	20.435	1.854	1871.511	.082%	97.547%
56.0	19.845	1.820	1873.331	.081%	97.642%
57.0	19.300	1.790	1875.121	.080%	97.735%
58.0	18.919	1.767	1876.888	.079%	97.827%
59.0	18.650	1.756	1878.644	.078%	97.919%
60.0	18.389	1.750	1880.394	.078%	98.010%
61.0	18.135	1.743	1882.137	.078%	98.101%
62.0	17.881	1.735	1883.873	.077%	98.191%
63.0	17.508	1.721	1885.594	.077%	98.281%
64.0	16.925	1.690	1887.283	.075%	98.369%
65.0	16.372	1.648	1888.931	.073%	98.455%
66.0	15.685	1.599	1890.531	.071%	98.538%
67.0	15.035	1.545	1892.075	.069%	98.619%
68.0	14.363	1.489	1893.565	.066%	98.697%
69.0	13.766	1.435	1895	.064%	98.771%
70.0	13.265	1.388	1896.388	.062%	98.844%
71.0	12.787	1.347	1897.734	.060%	98.914%
72.0	12.361	1.308	1899.042	.058%	98.982%
73.0	12.048	1.276	1900.319	.057%	99.049%
74.0	11.734	1.250	1901.569	.056%	99.114%
75.0	11.420	1.223	1902.792	.054%	99.178%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.174	1.199	1903.992	.053%	99.240%
77.0	10.920	1.178	1905.169	.052%	99.301%
78.0	10.666	1.156	1906.325	.051%	99.362%
79.0	10.397	1.132	1907.457	.050%	99.421%
80.0	10.165	1.109	1908.565	.049%	99.478%
81.0	9.934	1.087	1909.652	.048%	99.535%
82.0	9.747	1.067	1910.719	.047%	99.591%
83.0	9.531	1.048	1911.767	.047%	99.645%
84.0	9.314	1.027	1912.794	.046%	99.699%
85.0	9.120	1.006	1913.8	.045%	99.751%
86.0	8.926	0.986	1914.787	.044%	99.803%
87.0	8.754	0.968	1915.754	.043%	99.853%
88.0	8.619	0.952	1916.706	.042%	99.903%
89.0	8.492	0.938	1917.644	.042%	99.952%
90.0	8.433	0.928	1918.572	.041%	100.000%

Zonal flux distribution table

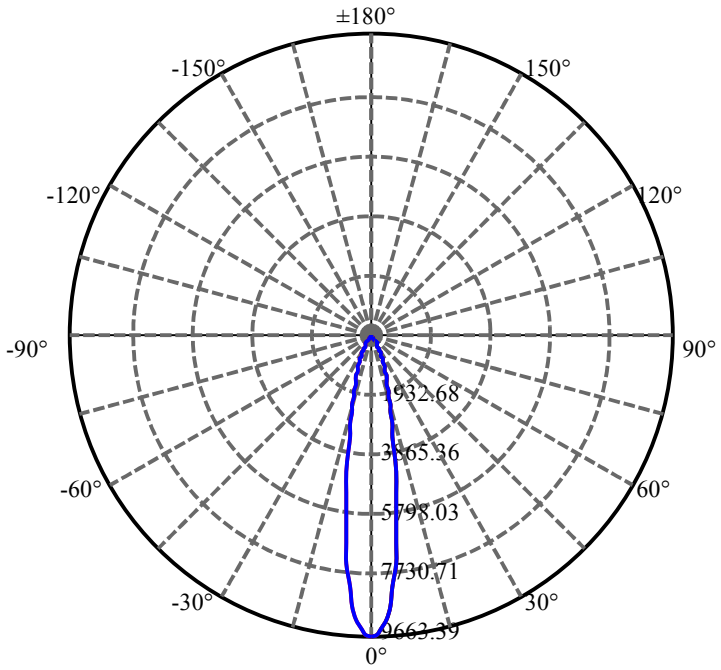
ZONAL LUMEN SUMMARY

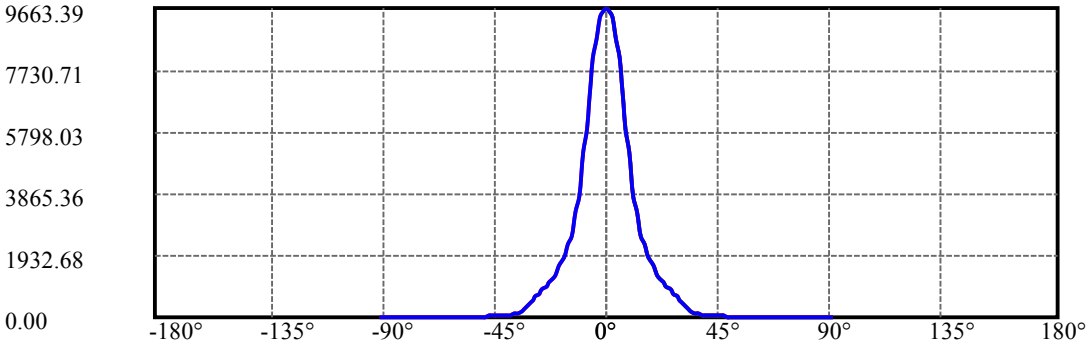
Zone	Lumens	%Lamp	%Fixt
0-30	1717.02	76.35%	89.49%
0-40	1832.04	81.46%	95.49%
0-60	1880.39	83.61%	98.01%
0-90	1917.64	85.27%	99.95%
0-120	1917.64	85.27%	99.95%
0-180	1918.57	85.31%	100.00%
60-90	39.00	1.73%	2.03%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.81	1534.86	68.25%	80.00%

ZONAL LUMEN SUMMARY

0-10	647.52
10-20	662.00
20-30	407.49
30-40	115.02
40-50	29.63
50-60	18.72
60-70	15.99
70-80	12.18
80-90	9.08
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):

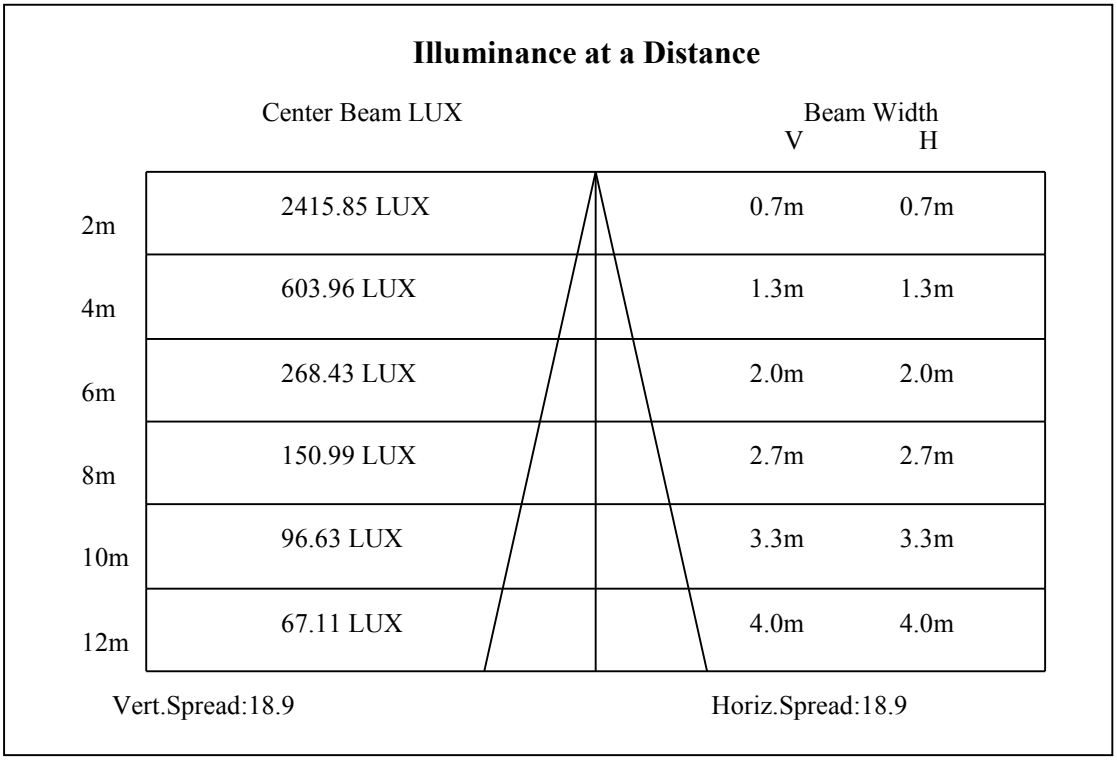
C0/C180:

C90/C270:

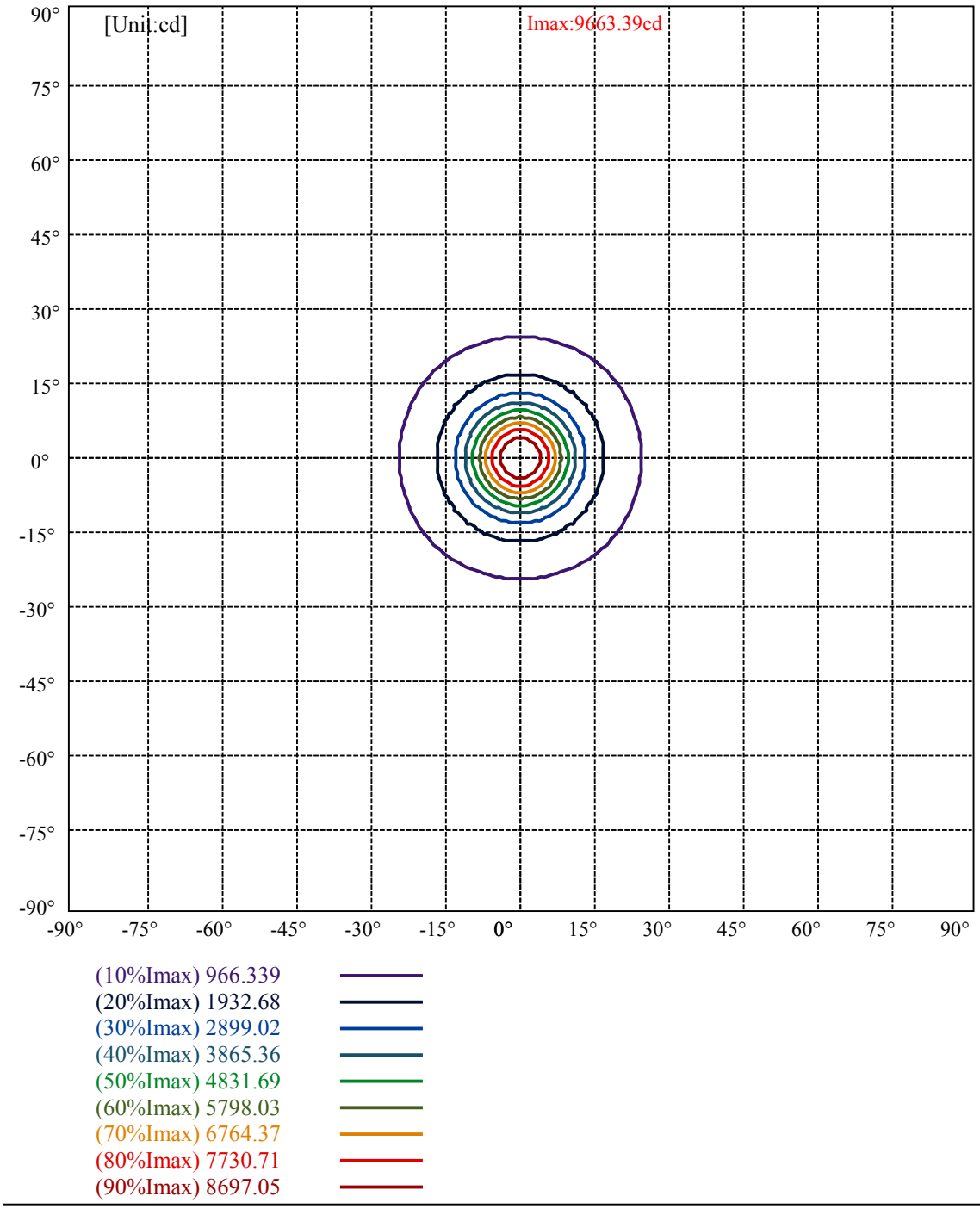
Field angle(10%Imax):C0/180Left:24.1 Right:24.1
:C90/270Left:24.1 Right:24.1

Beam Angle(50%Imax):C0/180Left:9.4 Right:9.4
:C90/270Left:9.4 Right:9.4

Lux distance Curve



ISO-Intensity(V-H)



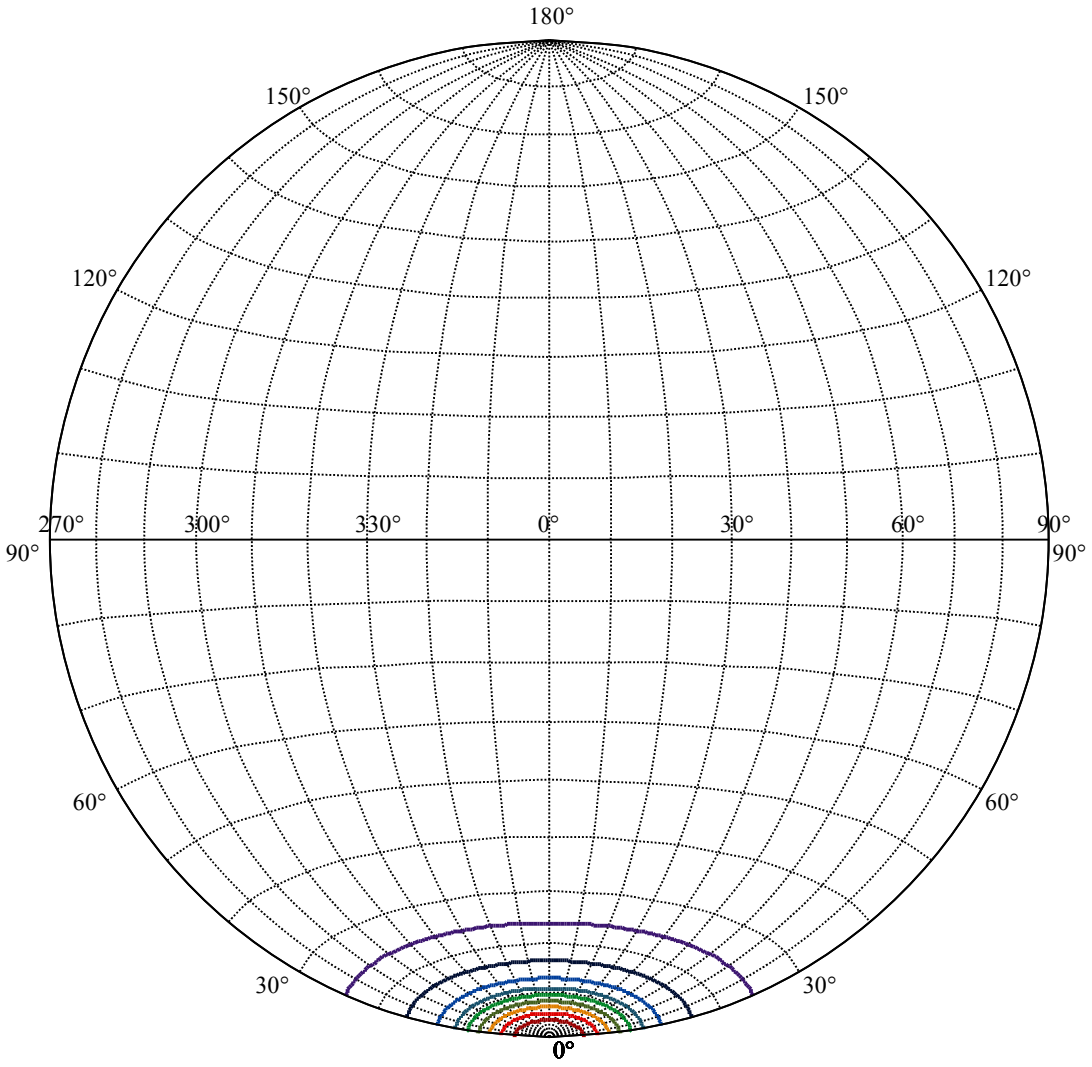
(10%Imax) 966.339
(20%Imax) 1932.68
(30%Imax) 2899.02
(40%Imax) 3865.36
(50%Imax) 4831.69
(60%Imax) 5798.03
(70%Imax) 6764.37
(80%Imax) 7730.71
(90%Imax) 8697.05

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/8/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:9663.39

(10%Imax) 966.339
(20%Imax) 1932.68
(30%Imax) 2899.02
(40%Imax) 3865.36
(50%Imax) 4831.69
(60%Imax) 5798.03
(70%Imax) 6764.37
(80%Imax) 7730.71
(90%Imax) 8697.05

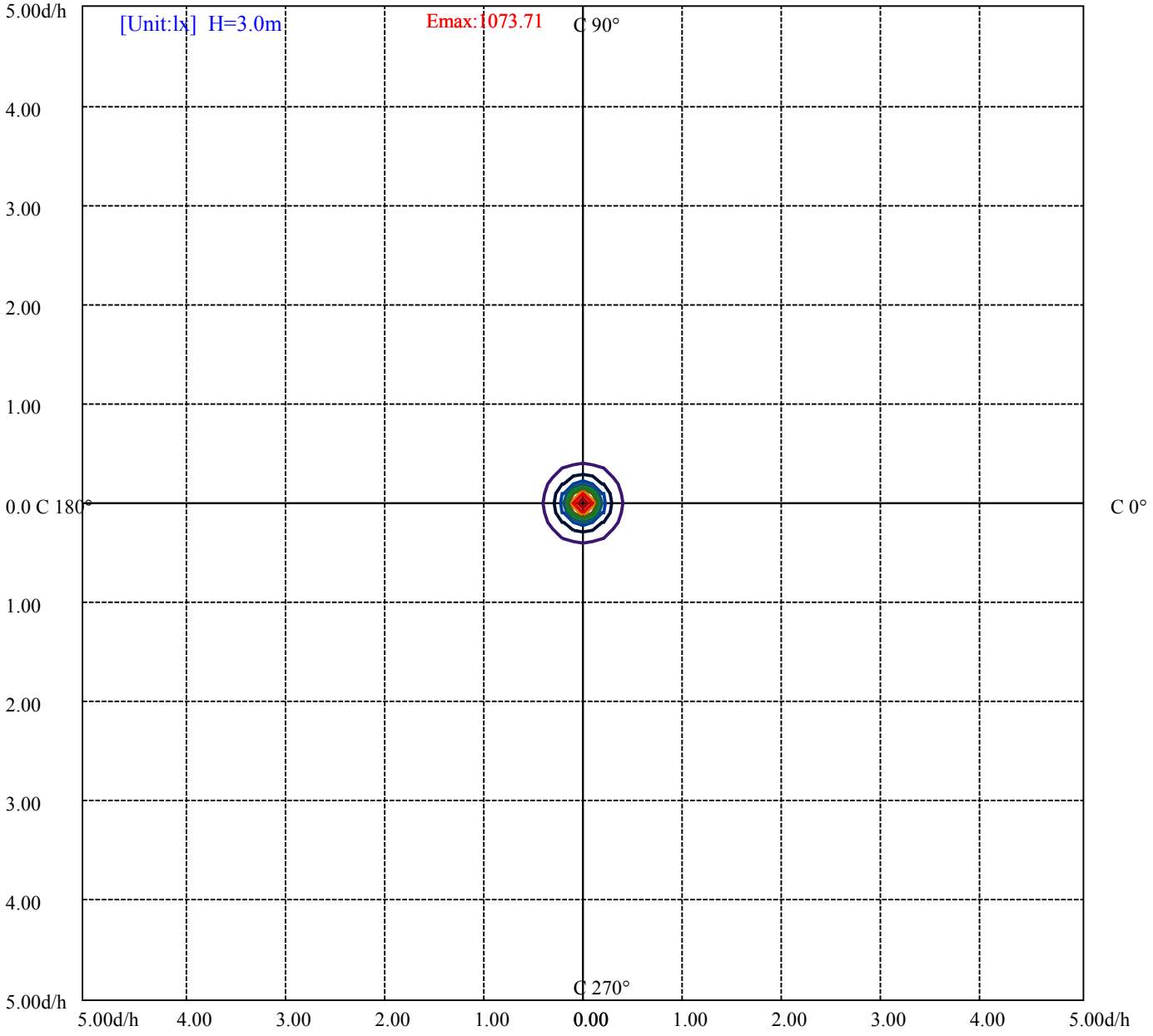
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/8/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Nata 2-2428-M

ISO illuminance diagram

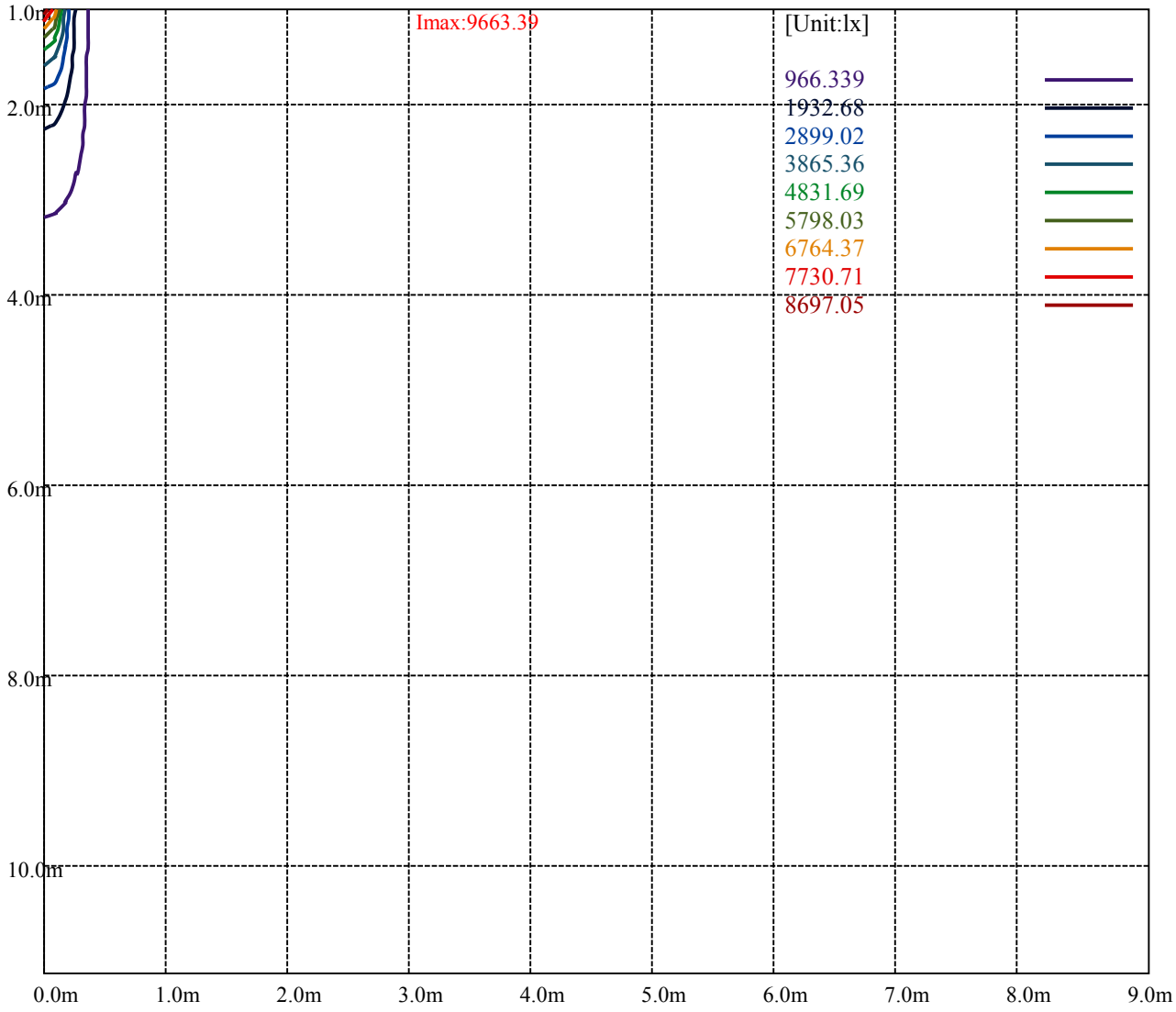


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/8/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/8/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

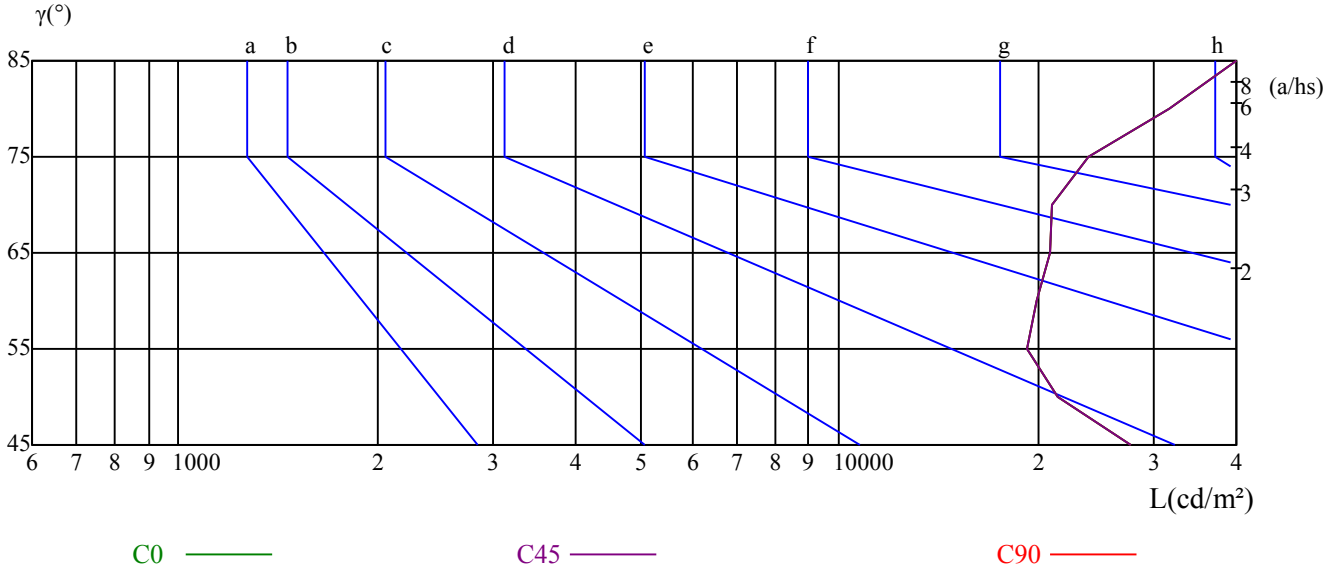
γ	45	50	55	60	65	70	75	80	85
C0	27713	21486	19269	19891	20952	20976	23864	31661	56592
C45	27713	21486	19269	19891	20952	20976	23864	31661	56592
C90	27713	21486	19269	19891	20952	20976	23864	31661	56592

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
20952	20952	20952	23864	23864	23864	56592	56592	56592

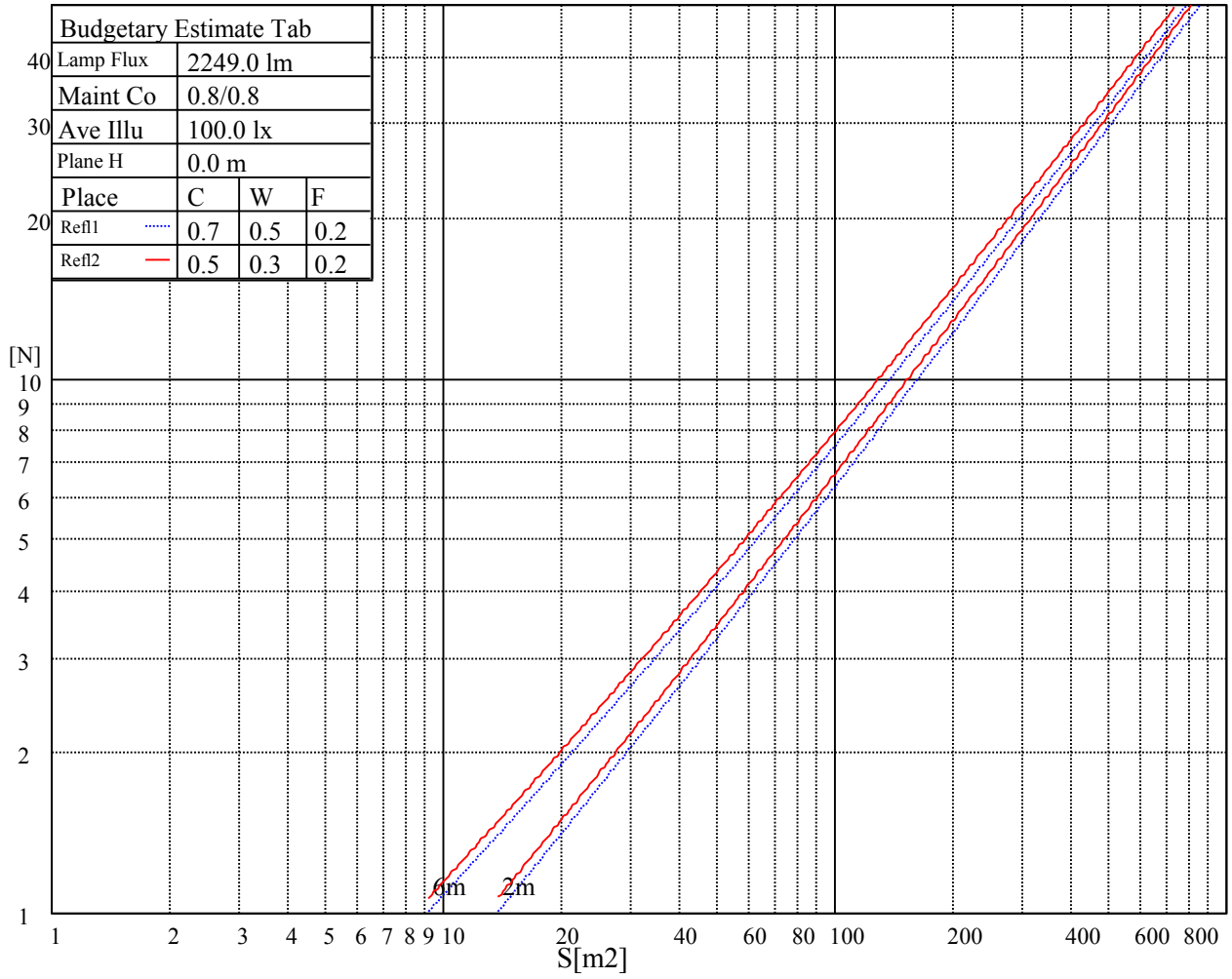
Glare Table

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

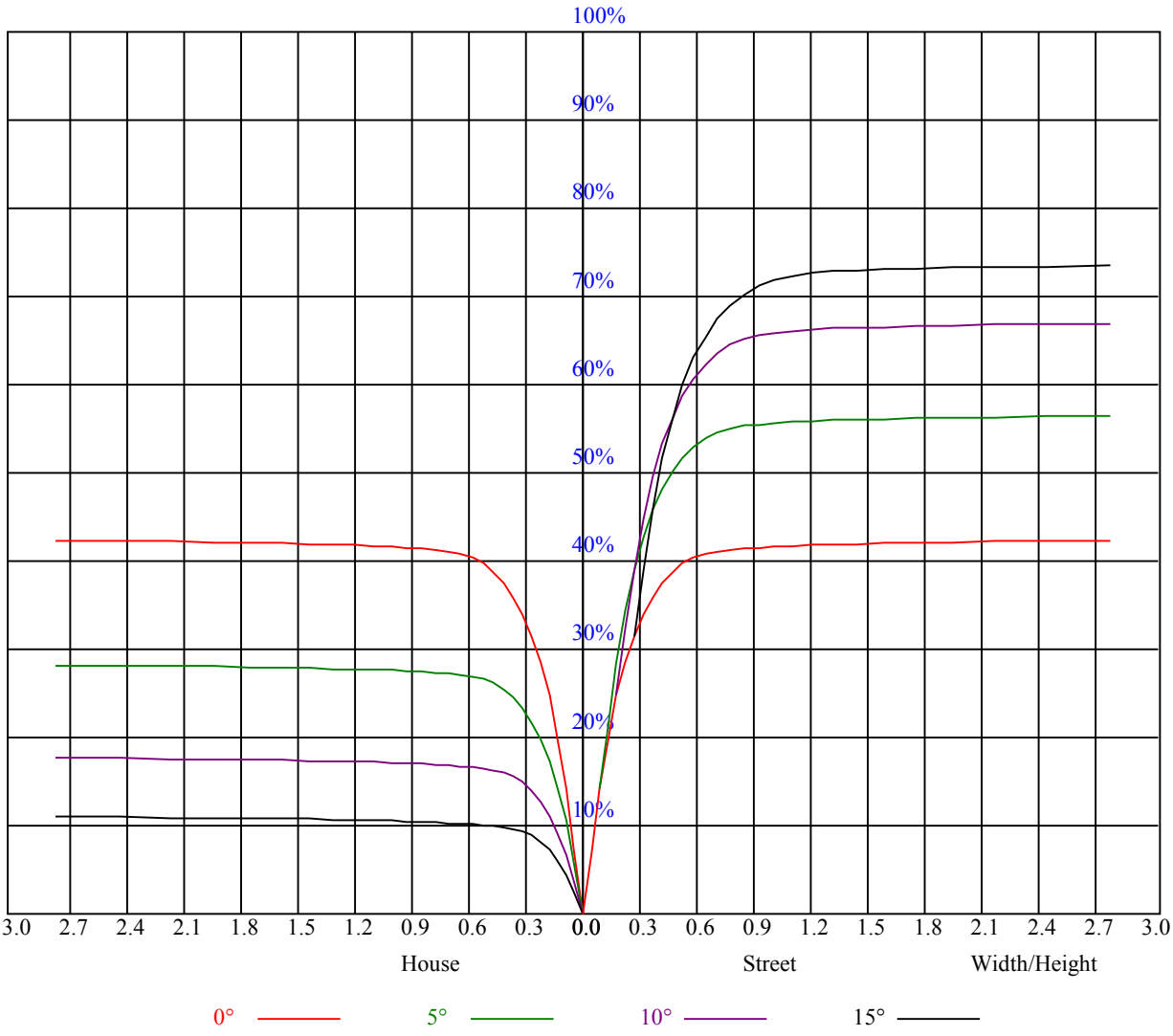


Equipment: GMS1980 Date: 2022/8/16 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	1.02	1.02	1.02	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.85
1	0.96	0.94	0.92	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.81
2	0.90	0.88	0.85	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.81	0.82	0.80	0.79	0.78
3	0.86	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.79	0.77	0.76	0.74
4	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.73	0.72
5	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.75	0.73	0.71	0.74	0.72	0.70	0.69
6	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.67
7	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
8	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.63	0.68	0.65	0.63	0.62
9	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.59

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/8/16	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

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	9583.77	9705.07	9686.54	9553.29	9274.85	8903.78	8333.74	7632.84	6937.31
45.0	9718.21	9608.86	9338.78	9005.36	8556.02	7926.82	7179.31	6464.67	5653.82
90.0	9665.63	9521.03	9191.19	8797.42	8284.74	7602.36	6804.06	6075.08	5254.67
135.0	9685.95	9602.29	9328.62	8958.15	8504.63	7846.15	7077.13	6352.93	5546.86
180.0	9583.77	9401.52	9086.62	8449.66	7954.31	7285.67	6268.08	5627.53	4907.51
225.0	9718.21	9701.48	9570.62	9269.47	8906.77	8360.03	7657.33	6962.41	6153.95
270.0	9665.63	9722.39	9639.34	9448.73	9132.63	8625.93	7981.19	7313.75	6501.12
315.0	9685.95	9700.29	9568.83	9314.28	8959.35	8412.01	7740.39	7046.06	6144.99
360.0	9583.77	9705.07	9686.54	9553.29	9274.85	8903.78	8333.74	7632.84	6937.31

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6132.44	5331.15	4646.98	4039.30	3412.49	3000.79	2663.78	2351.28	2100.31
45.0	4853.73	4213.77	3592.34	3145.39	2744.45	2424.77	2191.74	1990.37	1776.45
90.0	4564.52	3892.90	3337.80	2947.61	2584.31	2294.51	2080.00	1894.76	1694.59
135.0	4753.94	4118.77	3510.48	3075.48	2688.88	2373.39	2149.91	1949.14	1738.81
180.0	4171.35	3567.85	3130.45	2734.29	2423.58	2192.33	1970.65	1799.76	1631.85
225.0	5427.36	4643.40	3955.04	3448.34	2987.65	2618.97	2357.85	2134.97	1879.23
270.0	5685.49	4981.60	4257.39	3701.09	3186.02	2782.69	2487.51	2245.51	1987.38
315.0	5519.97	4733.62	3970.58	3515.26	3035.45	2615.38	2375.78	2150.51	1888.79
360.0	6132.44	5331.15	4646.98	4039.30	3412.49	3000.79	2663.78	2351.28	2100.31

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1913.89	1735.22	1578.07	1453.79	1321.14	1207.01	1091.09	1001.46	937.52
45.0	1631.85	1502.19	1336.67	1231.51	1113.20	1020.58	942.90	877.17	795.31
90.0	1554.17	1427.50	1260.19	1165.42	1066.83	987.48	904.36	838.09	762.39
135.0	1603.17	1474.70	1322.33	1208.20	1103.04	1000.86	921.99	856.86	778.58
180.0	1481.27	1358.18	1181.73	1115.23	1014.19	942.36	867.91	782.88	705.02
225.0	1744.19	1604.37	1441.84	1321.14	1186.21	1094.97	994.83	927.42	852.67
270.0	1818.88	1667.11	1500.40	1374.91	1256.60	1137.70	1039.70	970.39	890.92
315.0	1750.16	1608.55	1460.36	1329.50	1184.00	1093.96	1000.08	934.89	865.88
360.0	1913.89	1735.22	1578.07	1453.79	1321.14	1207.01	1091.09	1001.46	937.52

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	859.25	768.42	687.16	607.09	508.50	430.82	356.72	302.95	201.13
45.0	721.22	628.00	537.18	458.30	374.05	304.74	221.09	169.28	119.92
90.0	673.30	582.89	503.30	415.64	340.17	261.06	190.01	139.76	105.11
135.0	703.89	608.88	516.27	440.38	357.92	302.95	201.19	152.67	109.17
180.0	623.70	525.11	447.19	371.48	291.18	216.78	160.08	116.22	94.71
225.0	761.25	668.52	587.55	501.27	425.68	342.56	263.99	198.50	140.54
270.0	810.85	717.03	626.21	547.34	458.30	372.86	307.73	227.90	164.38
315.0	783.90	690.62	608.11	519.73	442.29	356.90	274.92	209.25	150.28
360.0	859.25	768.42	687.16	607.09	508.50	430.82	356.72	302.95	201.13

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	148.07	114.73	95.19	82.58	72.54	63.22	55.51	49.00	44.10
45.0	97.52	86.16	77.20	65.19	57.84	52.46	45.29	41.05	37.94
90.0	88.49	79.65	71.40	62.32	56.05	50.55	45.29	40.87	37.58
135.0	91.18	82.10	74.69	64.35	58.02	53.18	46.55	42.48	39.44
180.0	84.61	74.87	67.10	59.57	52.88	47.92	43.56	39.02	35.97
225.0	107.26	94.05	83.95	72.60	64.47	57.78	51.15	45.59	41.41
270.0	122.37	102.30	91.42	77.50	68.24	61.25	52.16	46.79	42.66
315.0	112.99	96.20	85.33	72.96	64.41	57.30	50.43	44.75	40.45
360.0	148.07	114.73	95.19	82.58	72.54	63.22	55.51	49.00	44.10

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	39.97	35.73	32.92	30.65	28.68	26.59	25.16	23.96	22.65
45.0	34.18	31.55	29.70	27.55	25.99	24.68	23.18	22.23	21.39
90.0	34.60	32.03	30.12	28.20	26.71	25.22	23.84	22.83	21.93
135.0	35.73	33.04	31.19	28.92	27.37	25.99	24.50	23.30	22.35
180.0	33.46	30.95	28.92	27.37	25.81	24.44	23.30	22.17	21.39
225.0	37.52	34.18	31.79	29.52	27.79	26.11	24.62	23.54	22.53
270.0	37.88	34.36	32.09	29.40	27.49	25.99	24.26	23.12	22.17
315.0	36.51	33.22	30.77	28.56	26.89	25.28	23.96	22.89	21.99
360.0	39.97	35.73	32.92	30.65	28.68	26.59	25.16	23.96	22.65

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	21.75	21.03	20.26	19.66	19.18	18.76	18.46	18.28	18.05
45.0	20.50	19.90	19.42	18.94	18.64	18.46	18.22	17.99	17.75
90.0	20.97	20.38	19.84	19.36	19.00	18.82	18.58	18.28	17.99
135.0	21.27	20.61	20.08	19.48	19.18	18.94	18.64	18.46	18.11
180.0	20.61	19.96	19.48	19.12	18.82	18.64	18.40	17.99	17.51
225.0	21.51	20.85	20.20	19.60	19.18	18.88	18.58	18.34	18.16
270.0	21.21	20.44	19.78	19.18	18.70	18.34	18.11	17.87	17.75
315.0	21.03	20.32	19.72	19.06	18.64	18.34	18.11	17.87	17.75
360.0	21.75	21.03	20.26	19.66	19.18	18.76	18.46	18.28	18.05

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	17.93	17.57	17.09	16.55	16.01	15.12	14.58	13.98	13.27
45.0	17.33	16.67	16.07	15.36	14.76	14.04	13.50	13.03	12.67
90.0	17.39	16.73	16.07	15.30	14.58	13.98	13.38	12.97	12.55
135.0	17.51	16.85	16.19	15.42	14.76	14.10	13.50	13.03	12.61
180.0	17.03	16.19	15.48	14.88	14.16	13.62	13.15	12.67	12.31
225.0	17.93	17.39	16.91	16.19	15.48	14.82	14.16	13.62	13.15
270.0	17.51	17.03	16.61	15.95	15.36	14.70	13.98	13.50	12.91
315.0	17.45	16.97	16.55	15.83	15.18	14.52	13.86	13.32	12.85
360.0	17.93	17.57	17.09	16.55	16.01	15.12	14.58	13.98	13.27

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.85	12.43	12.01	11.71	11.47	11.17	10.93	10.70	10.40
45.0	12.25	12.01	11.71	11.41	11.17	10.93	10.64	10.34	10.10
90.0	12.19	11.89	11.59	11.23	10.99	10.76	10.46	10.22	10.04
135.0	12.25	11.95	11.65	11.29	11.05	10.82	10.52	10.28	10.04
180.0	11.95	11.65	11.35	11.11	10.82	10.52	10.34	10.04	9.86
225.0	12.67	12.37	12.07	11.77	11.53	11.29	11.05	10.76	10.52
270.0	12.43	12.13	11.77	11.47	11.23	10.99	10.76	10.52	10.28
315.0	12.31	11.95	11.71	11.35	11.11	10.88	10.64	10.34	10.10
360.0	12.85	12.43	12.01	11.71	11.47	11.17	10.93	10.70	10.40

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.16	9.98	9.68	9.50	9.26	9.08	8.90	8.78	8.66
45.0	9.92	9.68	9.50	9.20	9.02	8.84	8.72	8.60	8.43
90.0	9.80	9.62	9.44	9.20	9.02	8.84	8.66	8.54	8.37
135.0	9.80	9.62	9.44	9.20	9.02	8.84	8.66	8.54	8.37
180.0	9.68	9.50	9.26	9.08	8.90	8.72	8.54	8.37	8.37
225.0	10.28	10.10	9.86	9.68	9.38	9.08	8.90	8.72	8.60
270.0	9.98	9.80	9.62	9.38	9.20	9.02	8.84	8.72	8.60
315.0	9.86	9.68	9.44	9.26	9.14	8.96	8.78	8.66	8.54
360.0	10.16	9.98	9.68	9.50	9.26	9.08	8.90	8.78	8.66

Intensity data(cd)

C/γ(°)	90.0
0.0	8.60
45.0	8.43
90.0	8.43
135.0	8.37
180.0	8.37
225.0	8.48
270.0	8.43
315.0	8.37
360.0	8.60