NATA LIGHTNG CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,Ching

Nata

LumCAT: 1-1217-M
Luminaire:
Report No: 220624-B001
Test No: 220624-C001
LampCAT: CITIZEN CLU028
Lamp flux(lm): 1182.0
Number of Lamps: 1
Length(mm): 43
Phm Type: C

Voltage(V): 35.4700
Current(A): 0.2810
Power (W): 9.9670
PF: 0.0000
Ballast type: DC
Width(mm): 43
Height(mm): 0

Photometric Results

Lumens(lm): 1011.87
Efficiency(%): 85.61%
Lumens(lm)/Power(W): 101.52
Central intensity(cd): 4431.275
Maximum intensity(cd): 4431.275
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.5
[C90/270]Total=18.5
Field angle(10%Imax): [C0/180]Total=54.1
[C90/270]Total=54.1
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.39 C90_270=0.39
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 85.61%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.026%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2022/6/24
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.73

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4431.275	0.000	0	.000%	.000%
1.0	4398.336	4.225	4.225	.357%	.418%
2.0	4280.175	12.456	16.681	1.054%	1.649%
3.0	4091.655	20.023	36.704	1.694%	3.627%
4.0	3839.273	26.547	63.251	2.246%	6.251%
5.0	3519.446	31.657	94.908	2.678%	9.379%
6.0	3182.514	35.221	130.128	2.980%	12.860%
7.0	2852.305	37.458	167.586	3.169%	16.562%
8.0	2539.424	38.588	206.174	3.265%	20.376%
9.0	2267.473	38.957	245.131	3.296%	24.226%
10.0	2038.620	38.969	284.1	3.297%	28.077%
11.0	1850.099	38.856	322.956	3.287%	31.917%
12.0	1693.024	38.731	361.688	3.277%	35.745%
13.0	1543.044	38.404	400.092	3.249%	39.540%
14.0	1400.533	37.678	437.769	3.188%	43.264%
15.0	1273.924	36.716	474.485	3.106%	46.892%
16.0	1175.735	35.894	510.38	3.037%	50.439%
17.0	1080.385	35.134	545.513	2.972%	53.912%
18.0	994.318	34.207	579.721	2.894%	57.292%
19.0	920.142	33.308	613.029	2.818%	60.584%
20.0	839.595	32.208	645.237	2.725%	63.767%
21.0	767.033	30.851	676.087	2.610%	66.816%
22.0	702.873	29.538	705.626	2.499%	69.735%
23.0	634.837	28.069	733.694	2.375%	72.509%
24.0	576.922	26.493	760.188	2.241%	75.127%
25.0	532.436	25.224	785.412	2.134%	77.620%
26.0	490.116	24.137	809.549	2.042%	80.006%
27.0	444.651	22.869	832.419	1.935%	82.266%
28.0	397.058	21.310	853.729	1.803%	84.372%
29.0	346.178	19.445	873.174	1.645%	86.293%
30.0	301.707	17.493	890.667	1.480%	88.022%
31.0	258.782	15.598	906.265	1.320%	89.564%
32.0	204.467	13.272	919.536	1.123%	90.875%
33.0	163.096	10.829	930.365	.916%	91.945%
34.0	126.474	8.763	939.128	.741%	92.811%
35.0	93.222	6.823	945.951	.577%	93.486%
36.0	69.425	5.179	951.13	.438%	93.998%
37.0	56.213	4.098	955.227	.347%	94.403%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	47.481	3.461	958.688	.293%	94.745%
39.0	40.348	2.998	961.686	.254%	95.041%
40.0	35.344	2.640	964.326	.223%	95.302%
41.0	31.400	2.377	966.703	.201%	95.537%
42.0	28.032	2.159	968.862	.183%	95.750%
43.0	25.380	1.979	970.841	.167%	95.946%
44.0	23.087	1.829	972.67	.155%	96.126%
45.0	20.958	1.693	974.363	.143%	96.294%
46.0	19.196	1.570	975.933	.133%	96.449%
47.0	17.679	1.467	977.4	.124%	96.594%
48.0	16.268	1.372	978.772	.116%	96.729%
49.0	15.177	1.291	980.063	.109%	96.857%
50.0	14.146	1.223	981.286	.103%	96.978%
51.0	13.317	1.162	982.448	.098%	97.093%
52.0	12.675	1.115	983.563	.094%	97.203%
53.0	12.130	1.079	984.642	.091%	97.309%
54.0	11.697	1.050	985.692	.089%	97.413%
55.0	11.428	1.032	986.725	.087%	97.515%
56.0	11.226	1.024	987.748	.087%	97.616%
57.0	11.129	1.022	988.77	.086%	97.717%
58.0	11.092	1.028	989.798	.087%	97.819%
59.0	11.151	1.040	990.838	.088%	97.922%
60.0	11.114	1.052	991.89	.089%	98.026%
61.0	10.972	1.054	992.944	.089%	98.130%
62.0	10.509	1.035	993.979	.088%	98.232%
63.0	9.934	0.994	994.973	.084%	98.330%
64.0	9.157	0.937	995.91	.079%	98.423%
65.0	8.463	0.872	996.782	.074%	98.509%
66.0	7.872	0.815	997.597	.069%	98.590%
67.0	7.439	0.770	998.367	.065%	98.666%
68.0	7.036	0.733	999.1	.062%	98.738%
69.0	6.737	0.703	999.803	.059%	98.808%
70.0	6.543	0.682	1000.485	.058%	98.875%
71.0	6.334	0.666	1001.15	.056%	98.941%
72.0	6.162	0.650	1001.8	.055%	99.005%
73.0	6.043	0.638	1002.438	.054%	99.068%
74.0	5.916	0.629	1003.067	.053%	99.130%
75.0	5.796	0.619	1003.686	.052%	99.192%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.699	0.610	1004.296	.052%	99.252%
77.0	5.602	0.603	1004.898	.051%	99.311%
78.0	5.497	0.594	1005.492	.050%	99.370%
79.0	5.385	0.585	1006.077	.049%	99.428%
80.0	5.266	0.574	1006.651	.049%	99.485%
81.0	5.176	0.565	1007.216	.048%	99.540%
82.0	5.064	0.555	1007.771	.047%	99.595%
83.0	4.959	0.545	1008.316	.046%	99.649%
84.0	4.833	0.533	1008.85	.045%	99.702%
85.0	4.743	0.523	1009.372	.044%	99.754%
86.0	4.646	0.513	1009.885	.043%	99.804%
87.0	4.549	0.503	1010.389	.043%	99.854%
88.0	4.541	0.498	1010.887	.042%	99.903%
89.0	4.474	0.494	1011.381	.042%	99.952%
90.0	4.384	0.486	1011.866	.041%	100.000%

Zonal flux distribution table

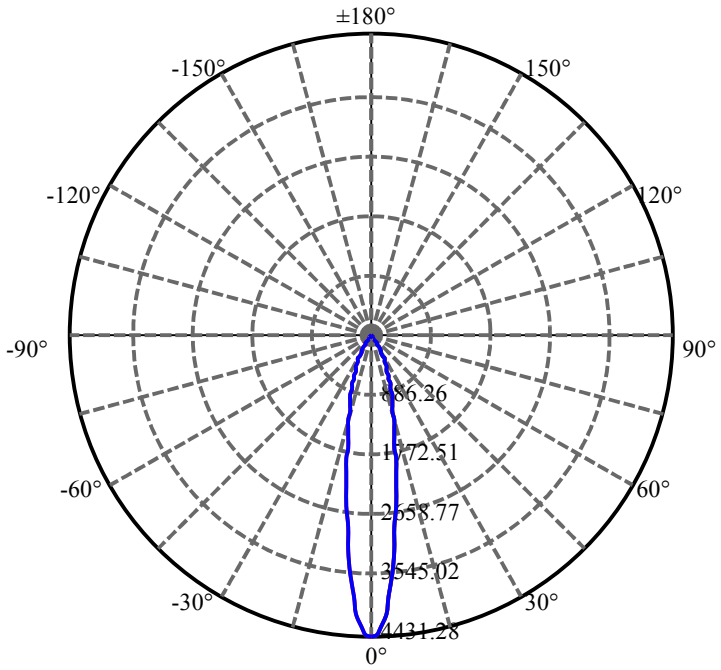
ZONAL LUMEN SUMMARY

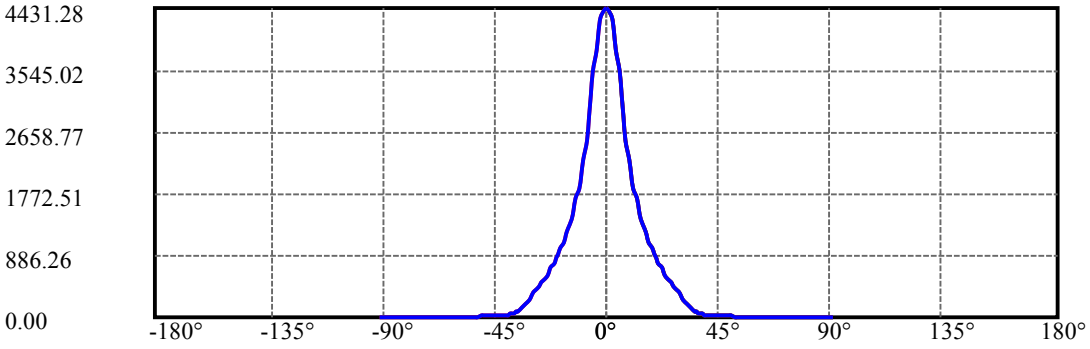
Zone	Lumens	%Lamp	%Fixt
0-30	890.67	75.35%	88.02%
0-40	964.33	81.59%	95.30%
0-60	991.89	83.92%	98.03%
0-90	1011.38	85.57%	99.95%
0-120	1011.38	85.57%	99.95%
0-180	1011.87	85.61%	100.00%
60-90	20.54	1.74%	2.03%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.00	809.49	68.49%	80.00%

ZONAL LUMEN SUMMARY

0-10	284.10
10-20	361.14
20-30	245.43
30-40	73.66
40-50	16.96
50-60	10.60
60-70	8.59
70-80	6.17
80-90	4.73
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):

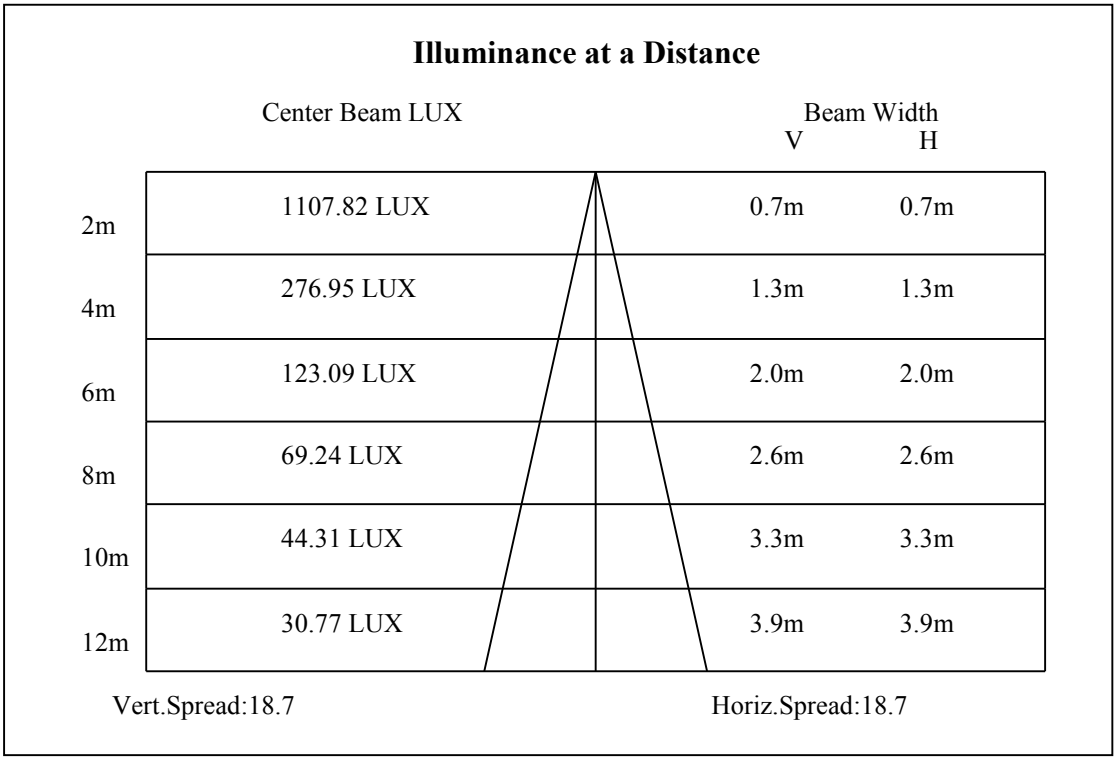
C0/C180:

C90/C270:

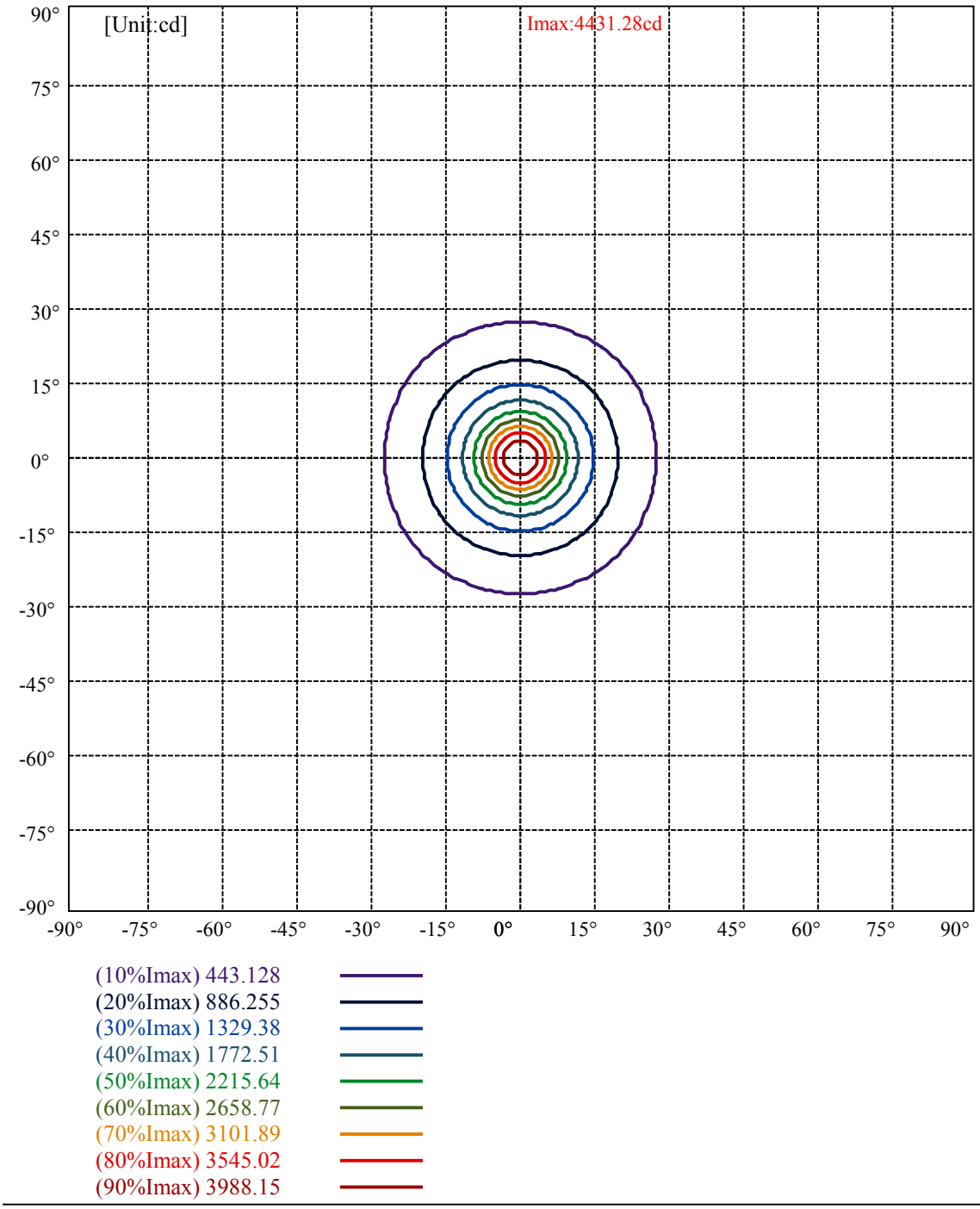
Field angle(10%Imax):C0/180Left:27.0 Right:27.0
:C90/270Left:27.0 Right:27.0

Beam Angle(50%Imax):C0/180Left:9.2 Right:9.2
:C90/270Left:9.2 Right:9.2

Lux distance Curve



ISO-Intensity(V-H)

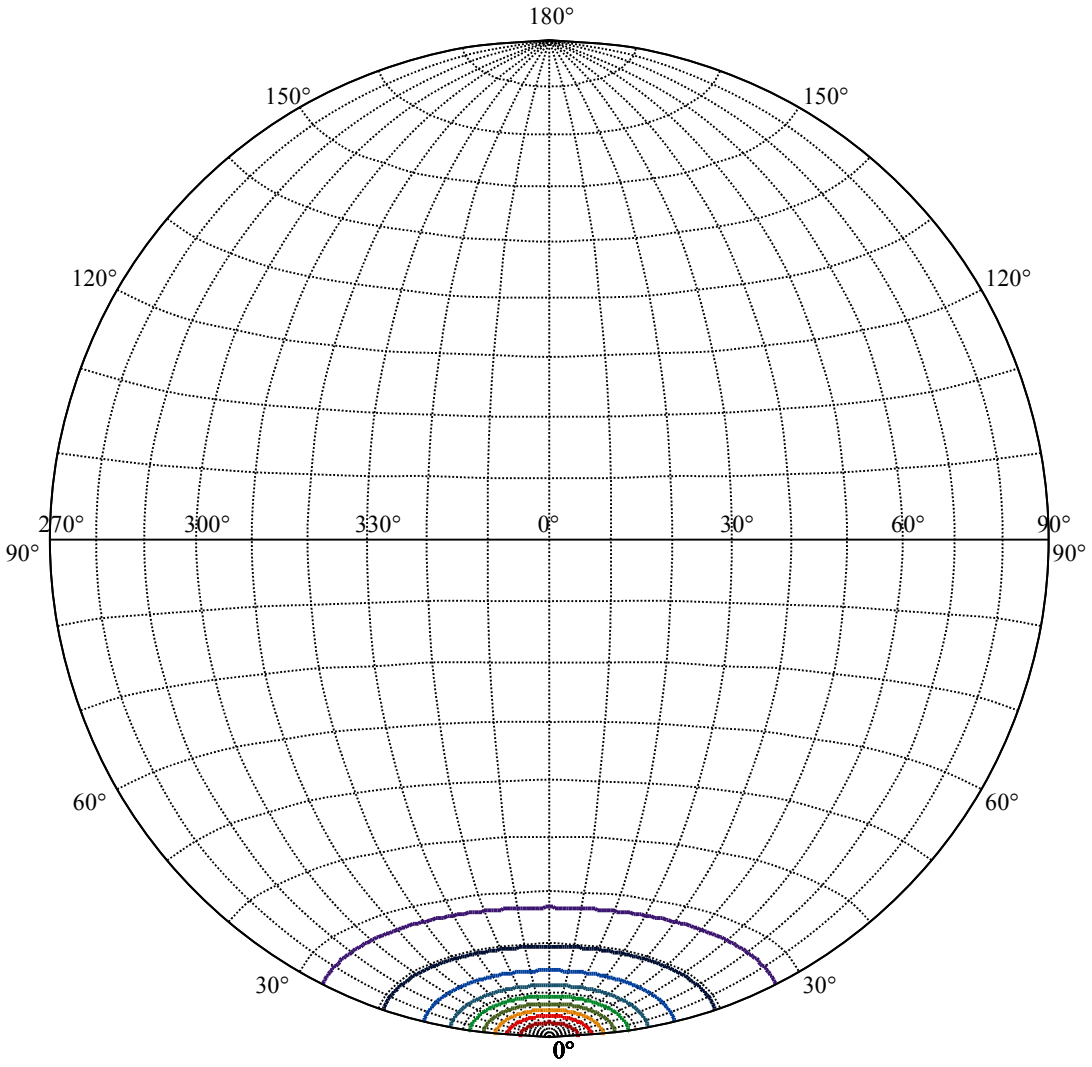


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/24
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4431.28

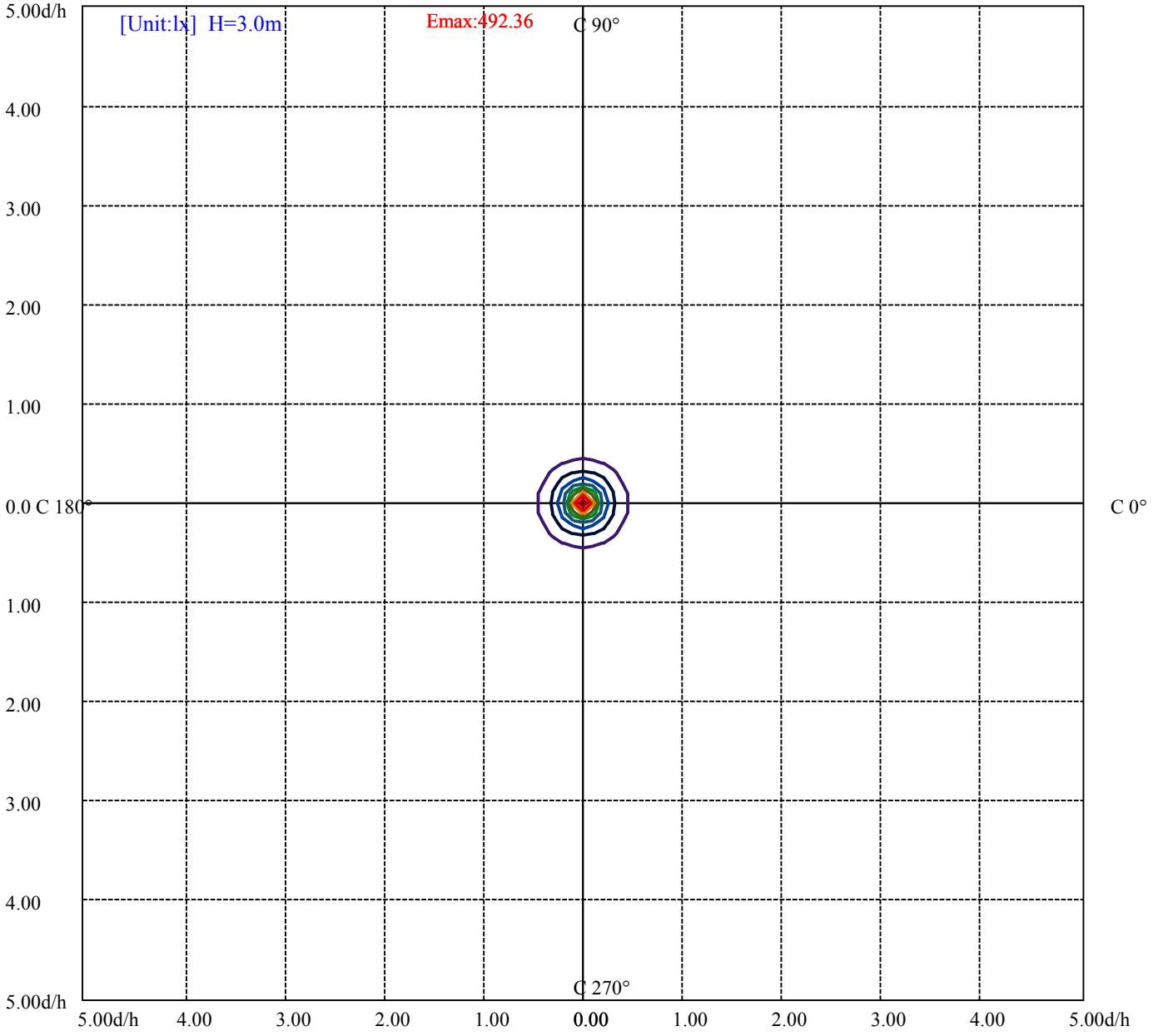
(10%Imax) 443.128
(20%Imax) 886.255
(30%Imax) 1329.38
(40%Imax) 1772.51
(50%Imax) 2215.64
(60%Imax) 2658.77
(70%Imax) 3101.89
(80%Imax) 3545.02
(90%Imax) 3988.15

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/24
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO illuminance diagram

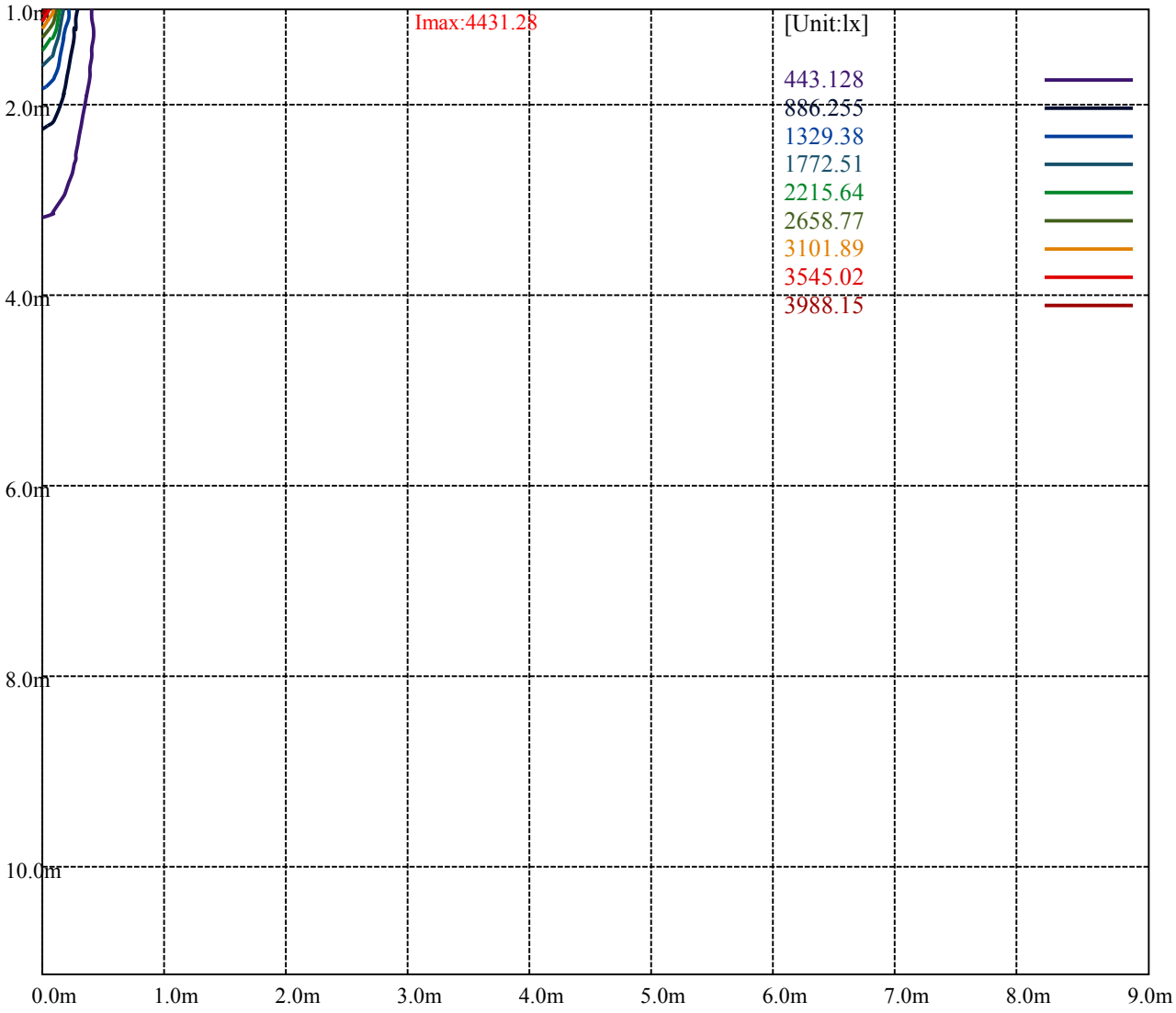


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/24
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/24
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

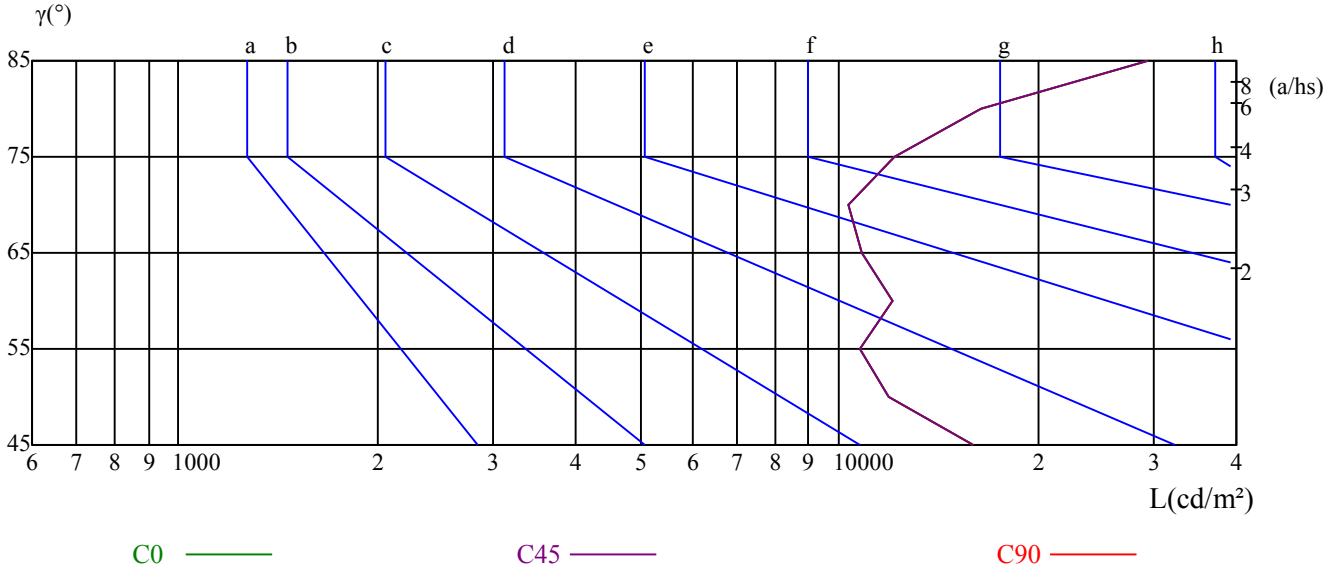
γ	45	50	55	60	65	70	75	80	85
C0	16030	11903	10775	12022	10830	10346	12111	16400	29431
C45	16030	11903	10775	12022	10830	10346	12111	16400	29431
C90	16030	11903	10775	12022	10830	10346	12111	16400	29431

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10830	10830	10830	12111	12111	12111	29431	29431	29431

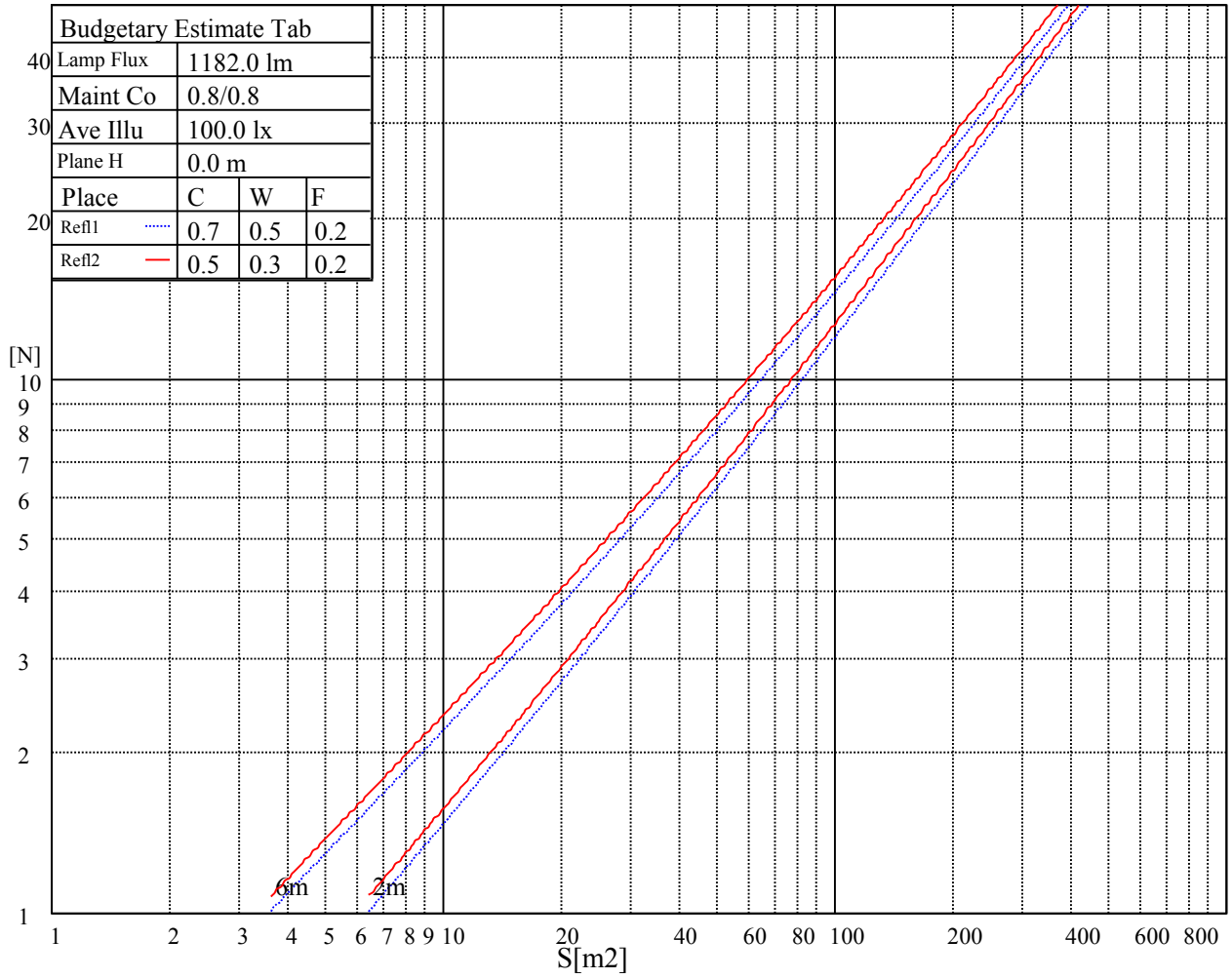
Glare Table

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

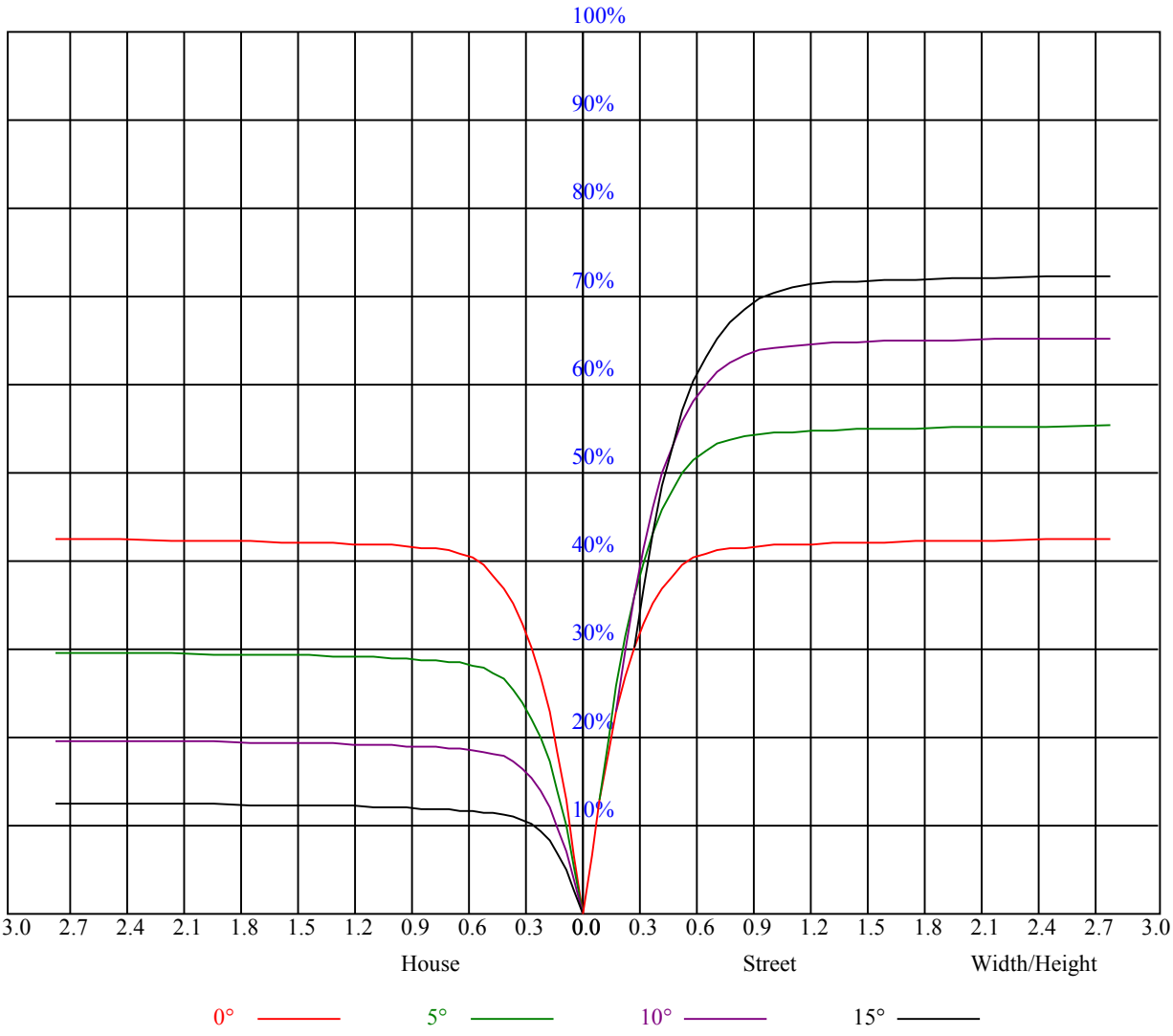


Equipment: GMS1980 Date: 2022/6/24 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.86
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	0.87	0.85	0.89	0.86	0.84	0.86	0.84	0.82	0.84	0.82	0.80	0.81	0.80	0.79	0.77
3	0.86	0.82	0.79	0.84	0.81	0.79	0.82	0.80	0.77	0.80	0.78	0.76	0.78	0.77	0.75	0.74
4	0.81	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.77	0.75	0.72	0.76	0.73	0.72	0.71
5	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.71	0.69	0.73	0.71	0.69	0.68
6	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
7	0.72	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
8	0.69	0.65	0.62	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
9	0.66	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.56

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/6/24	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	4423.51	4443.23	4369.13	4237.68	4032.13	3732.76	3380.82	3065.32	2715.17
45.0	4414.54	4327.90	4182.11	3910.23	3641.34	3337.80	2938.65	2630.32	2360.84
90.0	4430.08	4354.19	4186.29	3972.97	3662.85	3311.51	2988.84	2633.91	2327.97
135.0	4456.97	4427.69	4317.15	4146.25	3912.62	3560.68	3241.00	2927.89	2586.70
180.0	4423.51	4349.41	4154.02	3924.57	3643.73	3258.33	2941.04	2633.91	2299.89
225.0	4414.54	4431.28	4370.92	4232.90	3978.35	3751.29	3420.85	3037.84	2771.34
270.0	4430.08	4443.82	4370.92	4231.70	4016.59	3708.26	3367.08	3055.17	2745.65
315.0	4456.97	4409.17	4290.86	4076.94	3826.58	3494.95	3181.84	2834.08	2507.83
360.0	4423.51	4443.23	4369.13	4237.68	4032.13	3732.76	3380.82	3065.32	2715.17

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2406.25	2175.60	1958.10	1796.17	1630.06	1486.65	1368.94	1262.58	1141.88
45.0	2078.80	1897.75	1740.00	1580.46	1436.46	1324.72	1212.98	1120.96	1026.55
90.0	2105.09	1897.75	1725.07	1587.63	1462.75	1321.14	1189.50	1119.53	1023.33
135.0	2287.94	2069.84	1861.90	1704.15	1539.23	1403.00	1291.86	1177.13	1075.55
180.0	2105.09	1895.36	1698.77	1575.68	1428.69	1260.19	1184.30	1104.47	1010.54
225.0	2490.50	2166.64	1997.54	1821.27	1668.90	1498.01	1377.90	1188.37	1140.44
270.0	2406.85	2181.58	1989.77	1803.34	1639.62	1524.30	1374.91	1253.62	1156.22
315.0	2259.26	2024.43	1829.63	1675.47	1538.64	1386.27	1190.99	1179.22	1068.56
360.0	2406.25	2175.60	1958.10	1796.17	1630.06	1486.65	1368.94	1262.58	1141.88

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1057.63	978.75	892.11	823.39	758.86	687.76	619.64	568.85	523.44
45.0	937.52	867.01	792.32	717.63	651.31	593.94	534.19	495.95	457.11
90.0	937.70	866.12	789.46	716.56	655.37	590.12	542.38	501.98	459.20
135.0	993.09	919.60	831.16	764.84	698.51	624.42	576.02	531.80	490.57
180.0	925.39	856.32	789.63	711.42	650.71	594.12	537.96	501.09	463.03
225.0	1053.86	975.71	894.08	817.48	753.36	681.36	613.12	564.01	519.25
270.0	1058.82	980.55	898.09	819.81	753.48	682.38	614.26	565.86	529.41
315.0	990.52	917.09	829.91	765.14	701.38	624.60	577.81	529.95	478.92
360.0	1057.63	978.75	892.11	823.39	758.86	687.76	619.64	568.85	523.44

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	482.21	431.42	379.43	332.82	304.14	232.68	194.26	153.92	111.68
45.0	407.51	358.52	310.12	277.31	209.49	172.03	130.68	98.59	72.18
90.0	417.49	372.86	314.18	271.88	228.26	178.12	140.12	106.42	77.62
135.0	443.37	399.75	350.75	305.93	257.77	213.26	165.75	127.69	98.95
180.0	415.34	363.95	317.41	268.41	226.10	181.65	138.21	105.05	76.07
225.0	480.29	432.13	382.42	338.56	293.98	238.53	196.05	156.91	113.41
270.0	470.85	424.84	384.21	326.25	304.14	231.36	184.52	141.44	107.56
315.0	440.14	392.99	330.91	292.49	246.36	188.10	155.18	121.78	88.31
360.0	482.21	431.42	379.43	332.82	304.14	232.68	194.26	153.92	111.68

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	85.15	66.45	55.51	47.20	41.17	35.85	31.91	28.86	26.29
45.0	56.23	49.36	43.26	36.45	32.57	29.70	26.41	24.02	21.81
90.0	60.17	51.51	44.70	38.42	34.06	30.47	27.84	25.34	23.12
135.0	68.66	54.97	46.31	39.44	34.30	30.89	27.01	24.50	22.59
180.0	57.78	48.76	42.31	35.37	31.07	28.02	25.28	23.00	21.03
225.0	83.89	64.00	51.51	43.74	37.76	32.63	29.22	26.11	23.54
270.0	77.92	60.29	49.12	41.89	36.27	31.79	27.73	25.22	22.89
315.0	65.61	54.38	47.15	40.27	35.55	31.85	28.86	25.99	23.42
360.0	85.15	66.45	55.51	47.20	41.17	35.85	31.91	28.86	26.29

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	23.78	21.39	19.54	17.75	16.49	15.12	13.98	13.21	12.43
45.0	19.90	18.16	16.79	15.42	14.46	13.56	12.73	12.19	11.71
90.0	21.27	19.60	17.99	16.79	15.72	14.58	13.92	13.27	12.67
135.0	20.08	18.64	17.33	15.83	14.64	13.98	13.03	12.37	11.89
180.0	19.18	17.63	16.49	15.30	14.40	13.50	12.73	12.25	11.77
225.0	21.57	19.66	17.93	16.55	15.42	14.16	13.38	12.67	12.07
270.0	20.38	18.70	17.27	15.83	14.70	13.80	13.03	12.37	11.83
315.0	21.51	19.78	18.11	16.67	15.60	14.46	13.74	13.09	12.67
360.0	23.78	21.39	19.54	17.75	16.49	15.12	13.98	13.21	12.43

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.95	11.47	11.23	10.93	10.88	10.76	10.88	10.82	10.70
45.0	11.41	11.17	10.99	10.99	10.99	11.11	10.93	10.76	10.04
90.0	12.25	12.01	11.77	11.71	11.59	11.65	11.53	11.35	10.46
135.0	11.41	11.23	11.05	10.93	10.93	10.99	10.99	10.82	10.46
180.0	11.47	11.23	11.17	11.11	11.05	11.11	10.93	10.64	10.04
225.0	11.53	11.23	10.99	10.88	10.88	10.99	11.05	10.93	10.70
270.0	11.47	11.23	11.05	10.99	11.05	11.11	11.17	11.17	10.93
315.0	12.07	11.83	11.53	11.47	11.35	11.47	11.41	11.29	10.76
360.0	11.95	11.47	11.23	10.93	10.88	10.76	10.88	10.82	10.70

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.22	9.62	8.96	8.19	7.71	7.17	6.87	6.63	6.45
45.0	9.62	8.60	8.07	7.47	7.23	6.87	6.57	6.39	6.21
90.0	9.98	9.08	8.31	7.83	7.41	7.05	6.81	6.57	6.39
135.0	9.80	9.08	8.43	7.83	7.35	6.99	6.69	6.45	6.27
180.0	9.38	8.54	7.95	7.41	7.05	6.69	6.45	6.33	6.09
225.0	10.10	9.44	8.66	8.13	7.65	7.17	6.81	6.63	6.39
270.0	10.28	9.56	8.78	8.19	7.59	7.23	6.87	6.69	6.45
315.0	10.10	9.32	8.54	7.95	7.53	7.11	6.81	6.63	6.39
360.0	10.22	9.62	8.96	8.19	7.71	7.17	6.87	6.63	6.45

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.21	6.09	5.98	5.80	5.74	5.62	5.56	5.44	5.32
45.0	6.09	5.98	5.86	5.80	5.68	5.62	5.44	5.32	5.20
90.0	6.21	6.15	5.98	5.86	5.74	5.68	5.56	5.44	5.32
135.0	6.09	5.98	5.80	5.68	5.62	5.50	5.38	5.32	5.20
180.0	5.98	5.86	5.74	5.62	5.50	5.38	5.32	5.20	5.08
225.0	6.21	6.04	5.98	5.86	5.74	5.62	5.56	5.44	5.32
270.0	6.27	6.15	6.04	5.92	5.86	5.74	5.62	5.50	5.44
315.0	6.21	6.09	5.98	5.86	5.74	5.68	5.56	5.44	5.26
360.0	6.21	6.09	5.98	5.80	5.74	5.62	5.56	5.44	5.32

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.20	5.08	5.02	4.90	4.78	4.66	4.54	4.48	4.48
45.0	5.14	5.02	4.90	4.78	4.66	4.60	4.54	4.78	4.42
90.0	5.26	5.08	4.96	4.78	4.72	4.60	4.54	4.54	4.42
135.0	5.08	5.02	4.90	4.78	4.66	4.54	4.54	4.48	4.48
180.0	5.02	4.90	4.78	4.66	4.60	4.54	4.48	4.42	4.30
225.0	5.20	5.14	5.02	4.90	4.78	4.72	4.60	4.60	4.54
270.0	5.32	5.20	5.14	5.02	4.96	4.78	4.60	4.54	4.66
315.0	5.20	5.08	4.96	4.84	4.78	4.72	4.54	4.48	4.48
360.0	5.20	5.08	5.02	4.90	4.78	4.66	4.54	4.48	4.48

Intensity data(cd)

C/γ(°)	90.0
0.0	4.36
45.0	4.42
90.0	4.36
135.0	4.36
180.0	4.36
225.0	4.48
270.0	4.36
315.0	4.36
360.0	4.36