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Nata

LumCAT: 1-0918-M
Luminaire: 92.70.124.00

Report No: NATA0100	Voltage(V): 35.4900
Test No: GC2019091820	Current(A): 0.3000
LampCAT: CITIZEN CLU028	Power (W): 10.6470
Lamp flux(lm): 1018.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 39	Width(mm): 39
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 762.69
Efficiency(%): 74.92%
Lumens(lm)/Power(W): 71.63
Central intensity(cd): 5446.406
Maximum intensity(cd): 5446.406
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.9
[C90/270]Total=17.9
Field angle(10%Imax): [C0/180]Total=39.2
[C90/270]Total=39.2
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 74.92%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.550%

Equipment: GMS1980	Date: 2019/9/18	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5446.406	0.000	0	.000%	.000%
1.0	5397.047	5.188	5.188	.510%	.680%
2.0	5236.453	15.262	20.451	1.499%	2.681%
3.0	4954.500	24.373	44.824	2.394%	5.877%
4.0	4633.242	32.093	76.917	3.153%	10.085%
5.0	4276.336	38.329	115.246	3.765%	15.110%
6.0	3844.969	42.680	157.925	4.192%	20.706%
7.0	3436.453	45.196	203.121	4.440%	26.632%
8.0	3088.125	46.695	249.816	4.587%	32.755%
9.0	2711.742	47.005	296.821	4.617%	38.918%
10.0	2371.570	46.002	342.823	4.519%	44.949%
11.0	2092.008	44.600	387.423	4.381%	50.797%
12.0	1798.594	42.530	429.953	4.178%	56.373%
13.0	1555.650	39.806	469.76	3.910%	61.593%
14.0	1350.900	37.204	506.963	3.655%	66.471%
15.0	1176.602	34.699	541.662	3.409%	71.020%
16.0	994.760	31.817	573.479	3.125%	75.192%
17.0	860.885	28.897	602.376	2.839%	78.981%
18.0	726.574	26.174	628.55	2.571%	82.412%
19.0	610.938	23.270	651.82	2.286%	85.464%
20.0	501.546	20.362	672.181	2.000%	88.133%
21.0	400.514	17.321	689.503	1.702%	90.404%
22.0	304.699	14.172	703.674	1.392%	92.262%
23.0	233.107	11.285	714.959	1.109%	93.742%
24.0	159.511	8.584	723.543	.843%	94.868%
25.0	105.645	6.029	729.572	.592%	95.658%
26.0	62.845	3.977	733.549	.391%	96.179%
27.0	37.673	2.459	736.008	.242%	96.502%
28.0	21.987	1.510	737.519	.148%	96.700%
29.0	14.843	0.964	738.482	.095%	96.826%
30.0	11.798	0.719	739.202	.071%	96.921%
31.0	10.413	0.618	739.82	.061%	97.002%
32.0	9.534	0.571	740.391	.056%	97.077%
33.0	8.775	0.539	740.931	.053%	97.147%
34.0	8.135	0.512	741.442	.050%	97.214%
35.0	7.587	0.488	741.931	.048%	97.278%
36.0	7.144	0.469	742.4	.046%	97.340%
37.0	6.764	0.454	742.853	.045%	97.399%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	6.420	0.440	743.293	.043%	97.457%
39.0	6.089	0.427	743.72	.042%	97.513%
40.0	5.836	0.416	744.136	.041%	97.568%
41.0	5.604	0.407	744.544	.040%	97.621%
42.0	5.400	0.400	744.943	.039%	97.673%
43.0	5.210	0.393	745.336	.039%	97.725%
44.0	5.063	0.388	745.724	.038%	97.776%
45.0	4.915	0.383	746.108	.038%	97.826%
46.0	4.788	0.379	746.487	.037%	97.876%
47.0	4.669	0.376	746.863	.037%	97.925%
48.0	4.577	0.374	747.237	.037%	97.974%
49.0	4.479	0.372	747.609	.037%	98.023%
50.0	4.380	0.369	747.978	.036%	98.071%
51.0	4.310	0.368	748.346	.036%	98.120%
52.0	4.233	0.367	748.712	.036%	98.168%
53.0	4.184	0.366	749.079	.036%	98.216%
54.0	4.120	0.366	749.445	.036%	98.264%
55.0	4.043	0.364	749.809	.036%	98.311%
56.0	4.001	0.363	750.172	.036%	98.359%
57.0	3.952	0.364	750.536	.036%	98.407%
58.0	3.902	0.363	750.899	.036%	98.454%
59.0	3.867	0.363	751.262	.036%	98.502%
60.0	3.825	0.363	751.626	.036%	98.550%
61.0	3.797	0.364	751.99	.036%	98.597%
62.0	3.762	0.364	752.354	.036%	98.645%
63.0	3.727	0.364	752.718	.036%	98.693%
64.0	3.691	0.364	753.082	.036%	98.741%
65.0	3.670	0.364	753.446	.036%	98.788%
66.0	3.642	0.365	753.811	.036%	98.836%
67.0	3.628	0.366	754.177	.036%	98.884%
68.0	3.607	0.367	754.543	.036%	98.932%
69.0	3.586	0.367	754.91	.036%	98.980%
70.0	3.572	0.368	755.278	.036%	99.028%
71.0	3.530	0.367	755.645	.036%	99.077%
72.0	3.516	0.366	756.011	.036%	99.125%
73.0	3.516	0.368	756.379	.036%	99.173%
74.0	3.509	0.369	756.748	.036%	99.221%
75.0	3.488	0.370	757.118	.036%	99.270%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.466	0.369	757.487	.036%	99.318%
77.0	3.466	0.370	757.857	.036%	99.367%
78.0	3.466	0.371	758.228	.036%	99.415%
79.0	3.438	0.371	758.599	.036%	99.464%
80.0	3.438	0.371	758.969	.036%	99.512%
81.0	3.445	0.372	759.342	.037%	99.561%
82.0	3.424	0.373	759.714	.037%	99.610%
83.0	3.424	0.372	760.086	.037%	99.659%
84.0	3.424	0.373	760.46	.037%	99.708%
85.0	3.424	0.374	760.833	.037%	99.757%
86.0	3.396	0.373	761.206	.037%	99.806%
87.0	3.389	0.371	761.577	.036%	99.854%
88.0	3.375	0.371	761.948	.036%	99.903%
89.0	3.375	0.370	762.318	.036%	99.952%
90.0	3.368	0.370	762.688	.036%	100.000%

Zonal flux distribution table

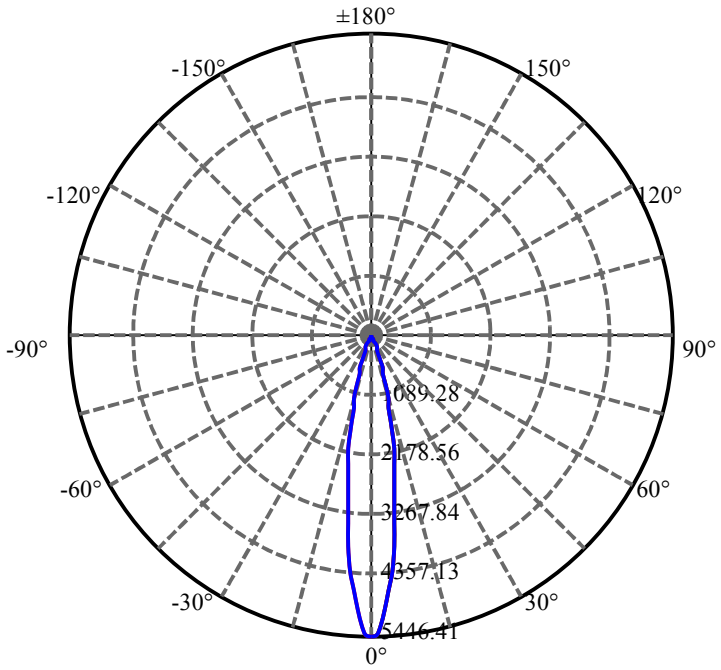
ZONAL LUMEN SUMMARY

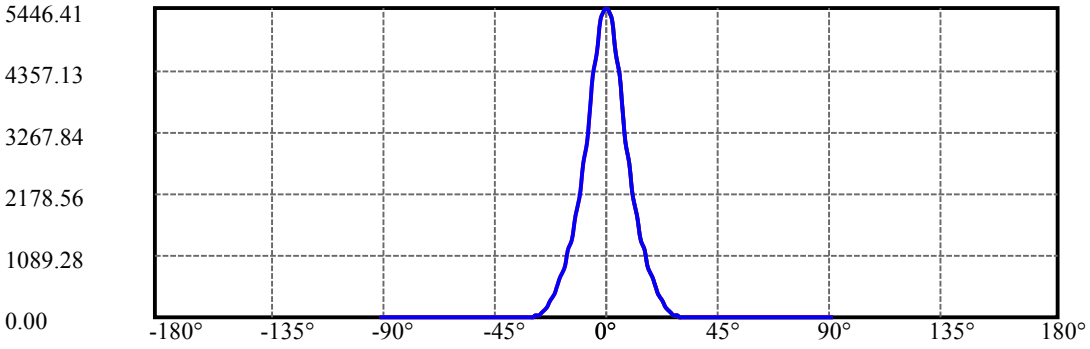
Zone	Lumens	%Lamp	%Fixt
0-30	739.20	72.61%	96.92%
0-40	744.14	73.10%	97.57%
0-60	751.63	73.83%	98.55%
0-90	762.32	74.88%	99.95%
0-120	762.32	74.88%	99.95%
0-180	762.69	74.92%	100.00%
60-90	11.06	1.09%	1.45%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-17.30	610.15	59.94%	80.00%

ZONAL LUMEN SUMMARY

0-10	342.82
10-20	329.36
20-30	67.02
30-40	4.93
40-50	3.84
50-60	3.65
60-70	3.65
70-80	3.69
80-90	3.35
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):

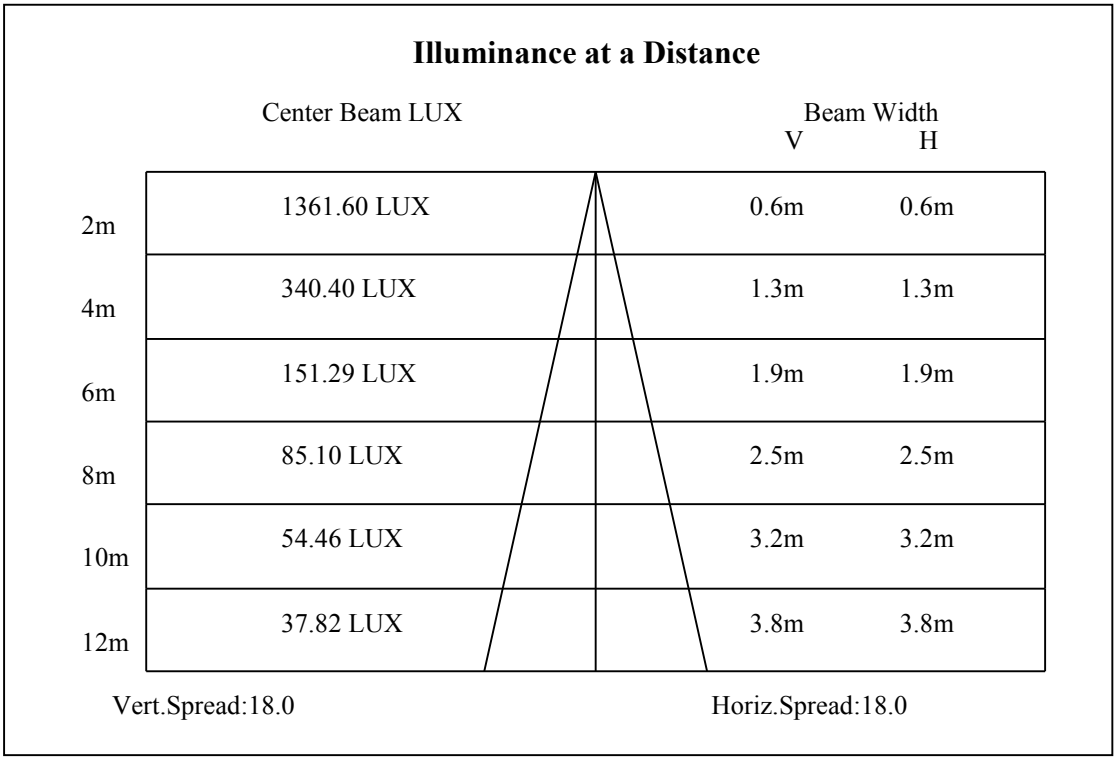
C0/C180:

C90/C270:

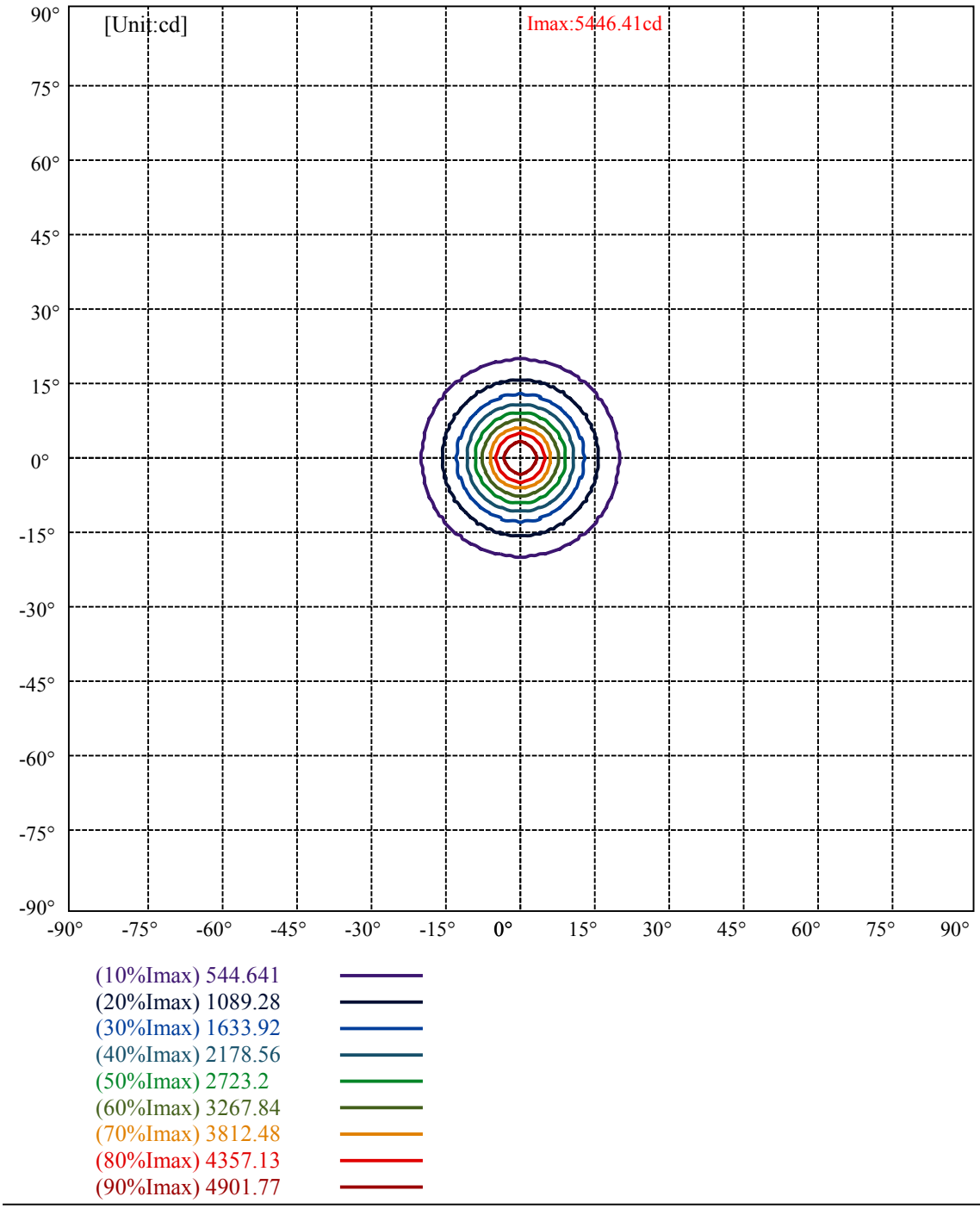
Field angle(10%Imax):C0/180Left:19.6 Right:19.6
:C90/270Left:19.6 Right:19.6

Beam Angle(50%Imax):C0/180Left:9.0 Right:9.0
:C90/270Left:9.0 Right:9.0

Lux distance Curve



ISO-Intensity(V-H)

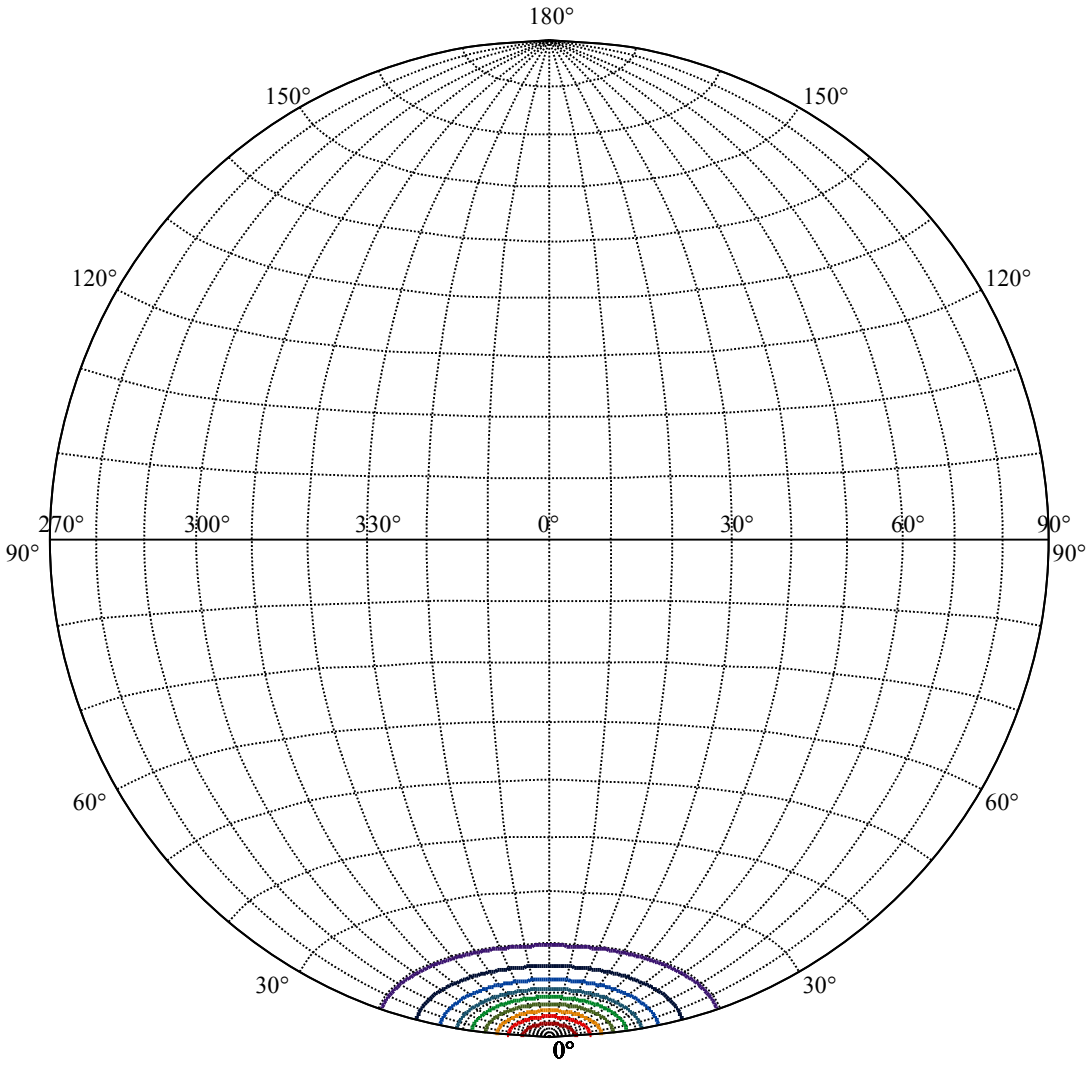


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/18
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5446.41

(10%Imax) 544.641
(20%Imax) 1089.28
(30%Imax) 1633.92
(40%Imax) 2178.56
(50%Imax) 2723.2
(60%Imax) 3267.84
(70%Imax) 3812.48
(80%Imax) 4357.13
(90%Imax) 4901.77

Equipment: GMS1980 Date: 2019/9/18 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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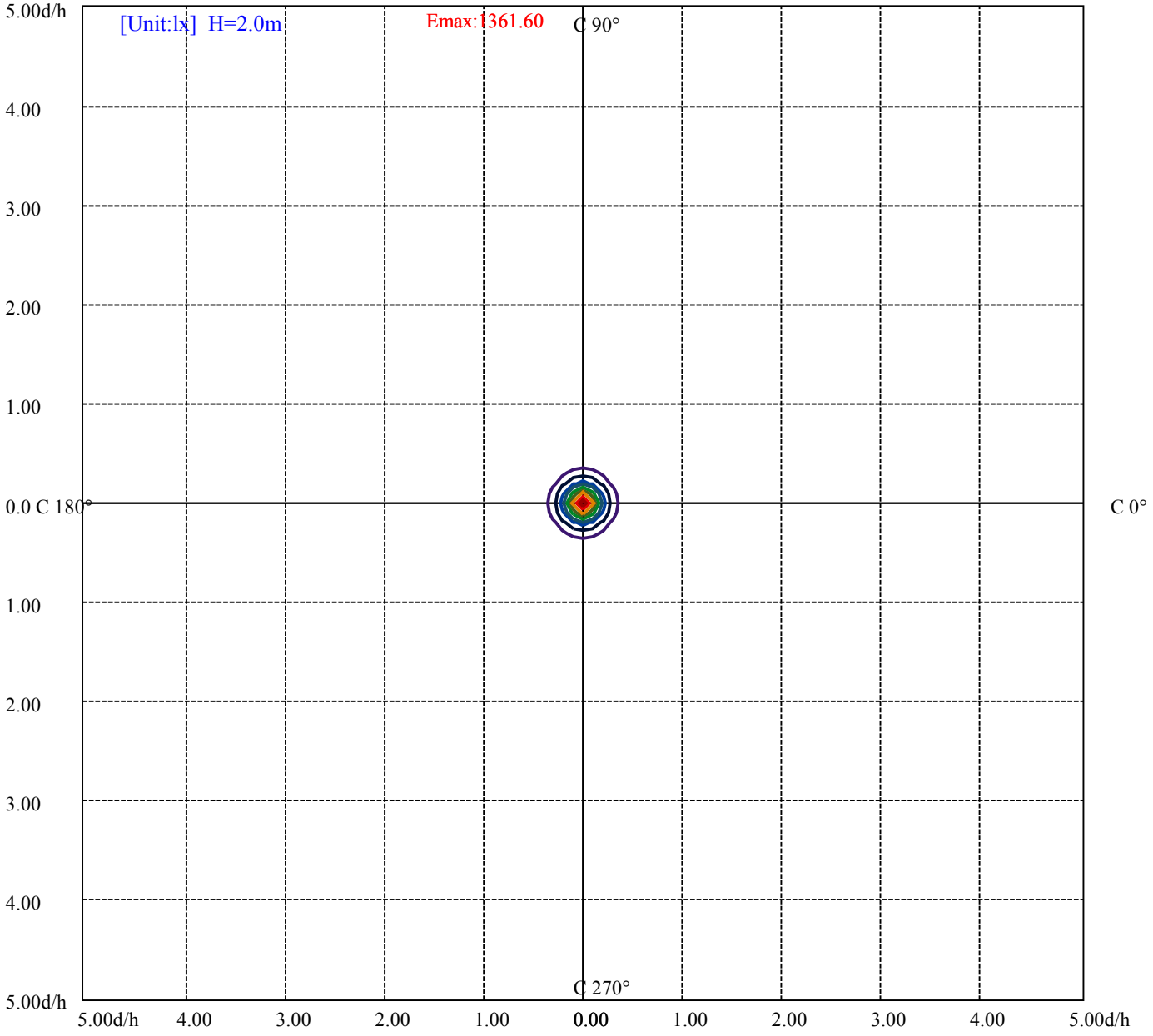
ISO illuminance diagram

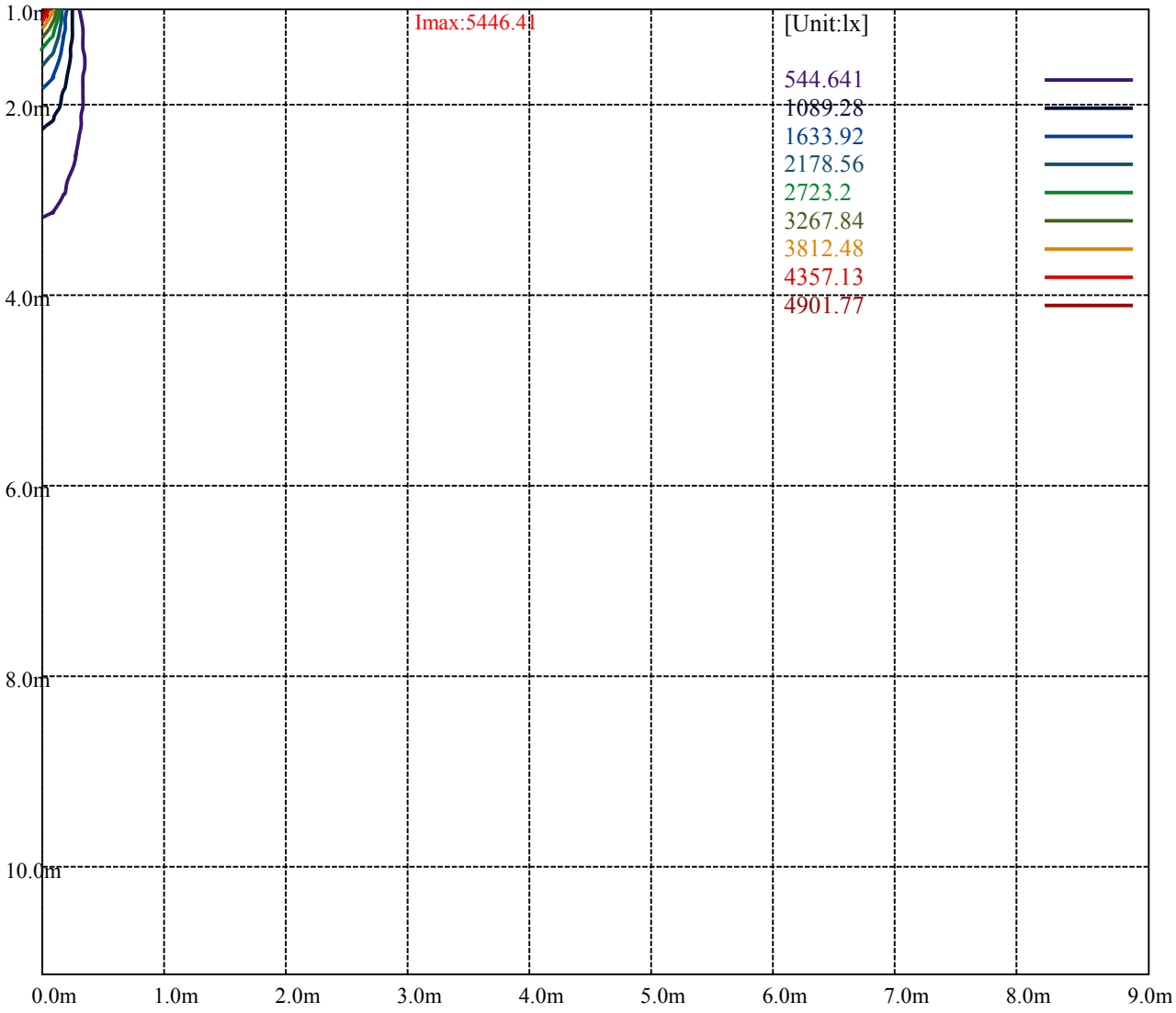


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/18
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/18
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

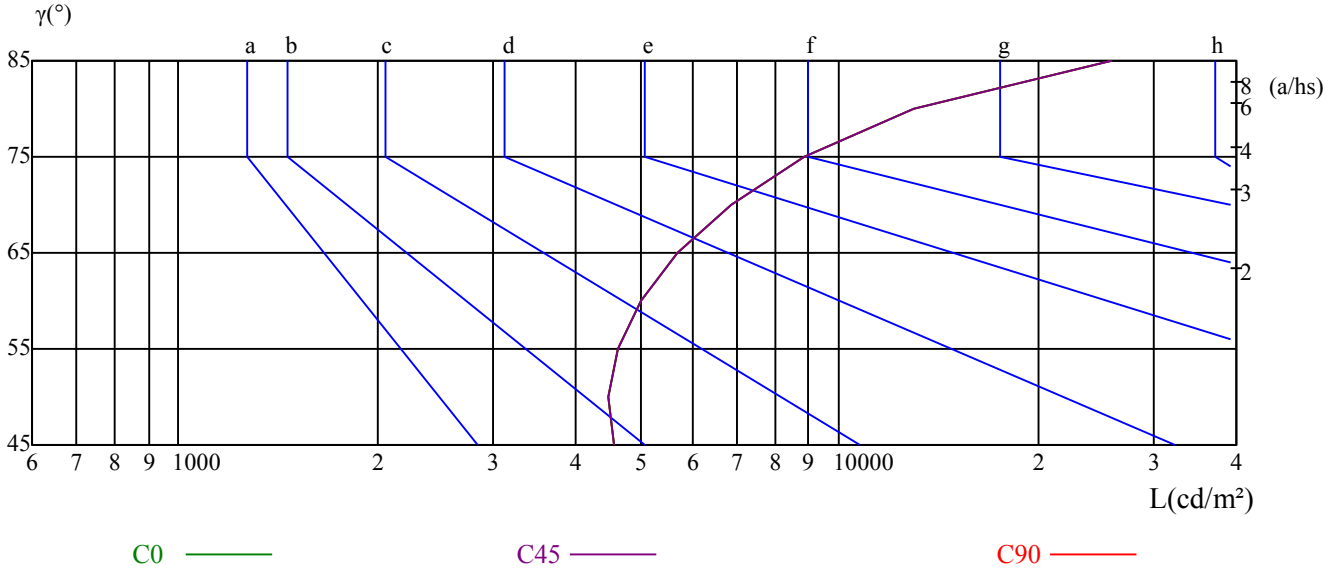
γ	45	50	55	60	65	70	75	80	85
C0	4570	4480	4634	5030	5710	6866	8859	13018	25831
C45	4570	4480	4634	5030	5710	6866	8859	13018	25831
C90	4570	4480	4634	5030	5710	6866	8859	13018	25831

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5710	5710	5710	8859	8859	8859	25831	25831	25831

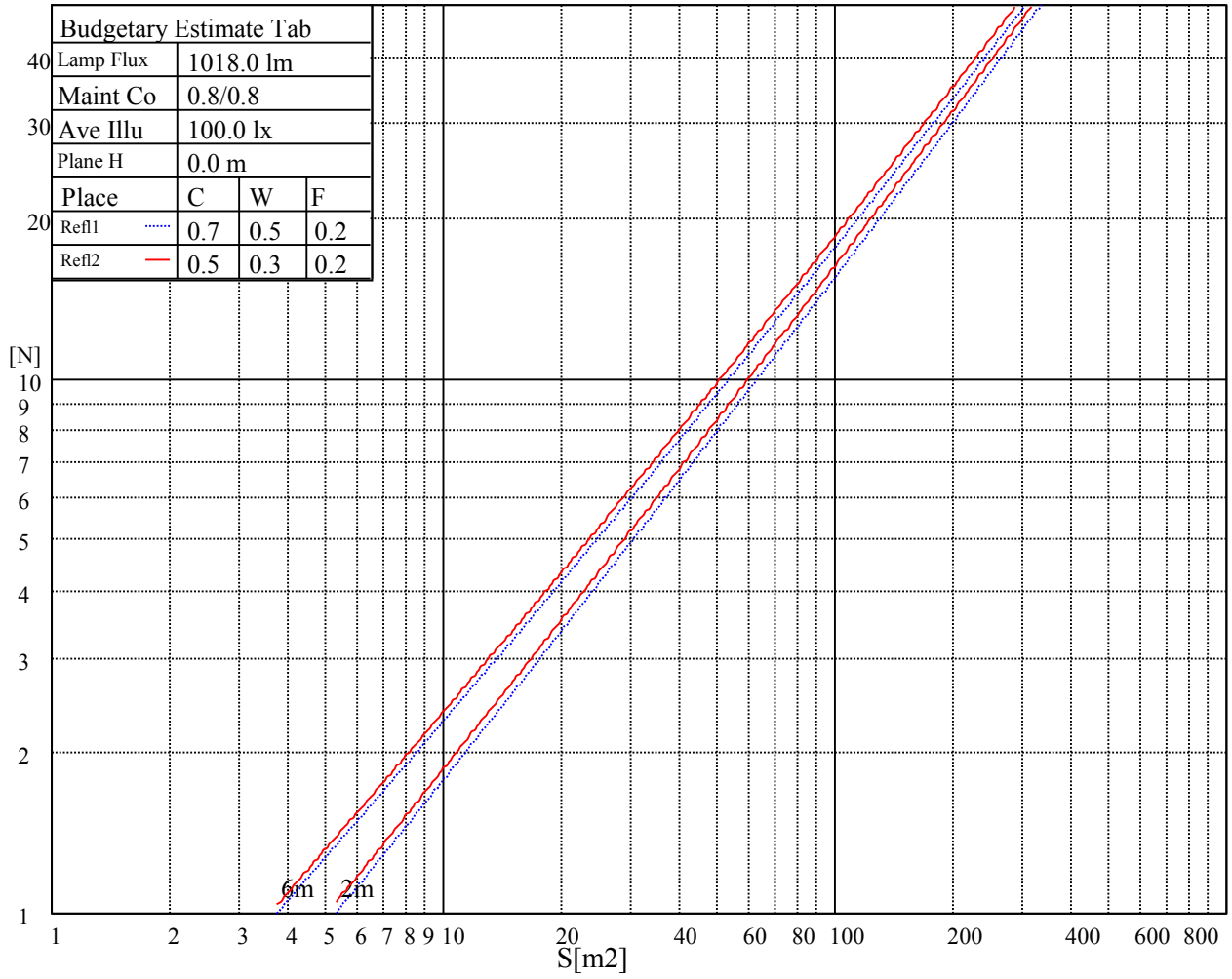
Glare Table

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

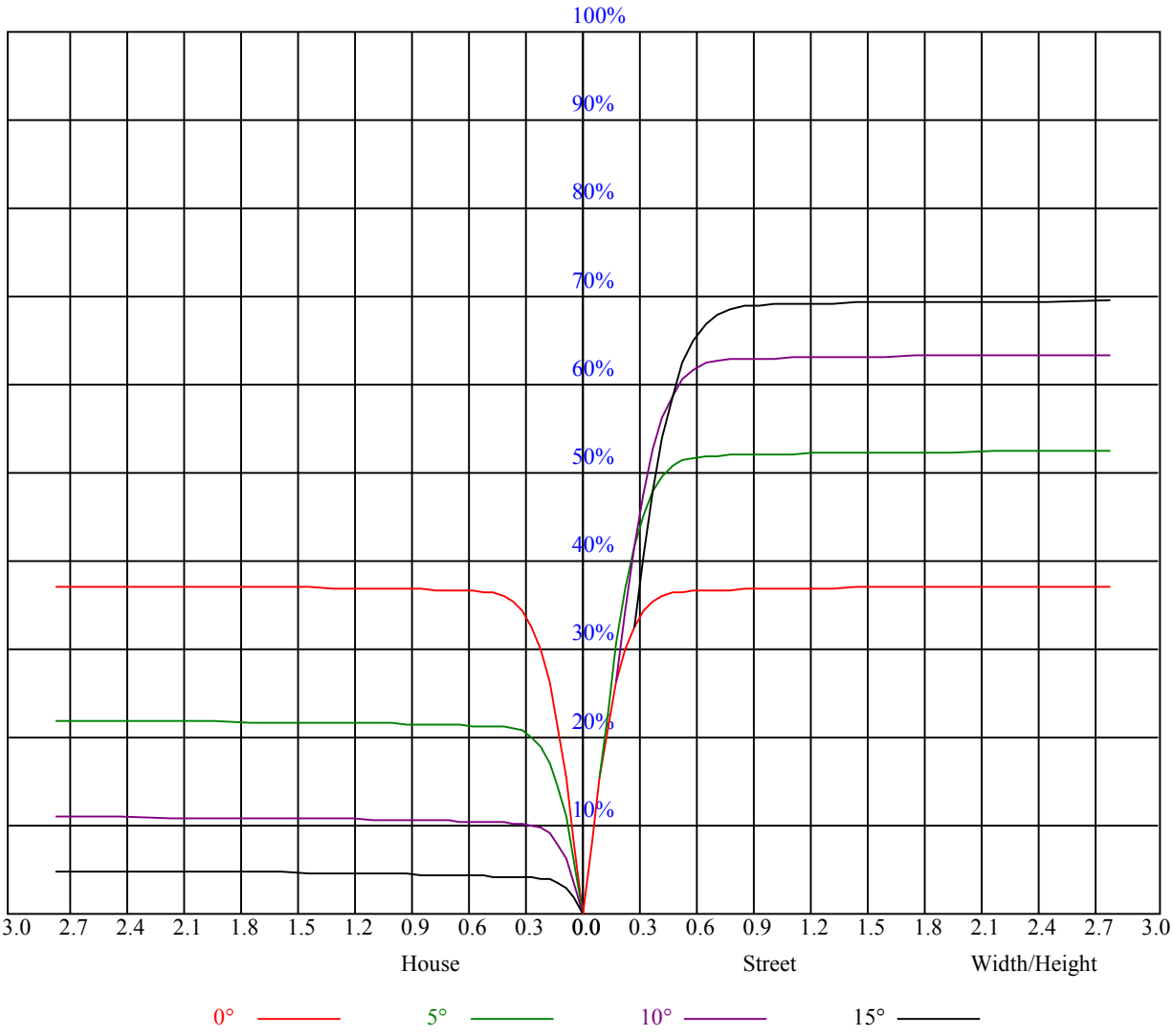


Equipment: GMS1980 Date: 2019/9/18 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.89	0.89	0.89	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.76	0.76	0.76	0.75
1	0.85	0.83	0.82	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.74	0.74	0.72
2	0.81	0.79	0.77	0.80	0.78	0.76	0.77	0.76	0.74	0.75	0.74	0.73	0.73	0.72	0.71	0.70
3	0.78	0.75	0.73	0.77	0.75	0.73	0.75	0.73	0.72	0.73	0.72	0.71	0.72	0.71	0.69	0.69
4	0.75	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.68	0.67
5	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.70	0.68	0.67	0.69	0.67	0.66	0.65
6	0.71	0.68	0.66	0.70	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.65	0.68	0.66	0.65	0.64
7	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.66	0.65	0.63	0.62
8	0.67	0.64	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.61
9	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.64	0.62	0.61	0.60
10	0.64	0.62	0.60	0.64	0.61	0.60	0.64	0.61	0.60	0.63	0.61	0.59	0.63	0.61	0.59	0.59

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/9/18	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	5399.44	5601.38	5653.69	5630.06	5486.63	5247.56	4789.13	4432.50	4105.69
45.0	5424.19	5560.88	5547.94	5410.13	5157.56	4847.06	4448.25	4015.13	3643.88
90.0	5460.75	5353.88	5137.31	4716.00	4410.56	4034.25	3597.75	3162.94	2808.56
135.0	5501.25	5307.75	5025.38	4578.19	4196.81	3810.38	3304.13	2921.06	2573.44
180.0	5399.44	5079.38	4707.00	4277.81	3834.00	3421.69	2975.63	2572.88	2256.75
225.0	5424.19	5214.38	4914.00	4467.94	4084.88	3683.25	3196.69	2835.56	2505.38
270.0	5460.75	5460.19	5342.63	5156.44	4770.00	4375.13	4056.19	3574.69	3207.94
315.0	5501.25	5598.56	5563.69	5399.44	5125.50	4791.38	4392.00	3976.88	3603.38
360.0	5399.44	5601.38	5653.69	5630.06	5486.63	5247.56	4789.13	4432.50	4105.69

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3601.13	3238.88	2943.00	2532.94	2203.31	1965.94	1661.06	1444.50	1258.31
45.0	3226.50	2832.75	2511.00	2213.44	1887.75	1654.31	1449.00	1237.50	1067.63
90.0	2476.69	2148.75	1856.25	1604.25	1406.81	1109.87	1057.28	903.09	779.85
135.0	2228.63	1922.06	1680.19	1443.38	1256.63	1074.94	915.75	790.88	668.25
180.0	1973.25	1690.31	1450.13	1118.25	1097.21	919.29	793.46	682.26	550.80
225.0	2133.00	1869.19	1634.63	1379.25	1119.49	1045.35	890.27	765.96	643.44
270.0	2858.63	2460.94	2171.25	1905.75	1613.81	1409.06	1226.81	1028.25	888.19
315.0	3196.13	2809.69	2489.63	2191.50	1860.19	1628.44	1419.19	1105.65	1030.61
360.0	3601.13	3238.88	2943.00	2532.94	2203.31	1965.94	1661.06	1444.50	1258.31

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1054.13	911.81	786.38	642.94	538.88	441.56	326.81	284.06	163.07
45.0	920.81	782.44	659.81	551.25	438.75	350.44	293.06	165.32	106.48
90.0	656.10	543.49	443.42	351.73	246.38	171.17	113.91	59.23	31.73
135.0	546.19	452.81	365.63	285.75	174.21	115.88	66.60	32.85	18.68
180.0	454.95	363.26	267.81	180.00	121.67	70.82	36.06	19.97	13.89
225.0	527.85	431.49	340.26	240.24	167.18	108.23	54.51	28.86	17.27
270.0	763.31	637.88	524.81	429.19	327.38	284.63	156.83	94.11	54.96
315.0	889.26	764.33	624.26	523.01	423.17	322.14	228.32	160.76	96.69
360.0	1054.13	911.81	786.38	642.94	538.88	441.56	326.81	284.06	163.07

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	100.97	55.63	28.80	16.26	13.05	11.59	10.35	9.56	8.78
45.0	63.51	28.86	16.93	13.22	11.53	10.58	9.79	8.94	8.33
90.0	18.73	13.78	12.26	11.25	10.24	9.51	8.72	8.10	7.65
135.0	14.01	12.54	11.48	10.46	9.73	8.94	8.27	7.76	7.31
180.0	12.49	11.36	10.41	9.62	8.94	8.27	7.82	7.37	6.92
225.0	13.56	11.81	10.86	10.01	9.11	8.44	7.88	7.31	6.86
270.0	27.23	15.69	12.77	11.19	10.07	9.23	8.49	7.76	7.26
315.0	50.91	26.21	15.24	12.38	10.63	9.73	8.89	8.27	7.59
360.0	100.97	55.63	28.80	16.26	13.05	11.59	10.35	9.56	8.78

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.10	7.65	7.20	6.69	6.41	6.13	5.85	5.63	5.46
45.0	7.88	7.43	6.98	6.53	6.30	5.96	5.74	5.51	5.34
90.0	7.14	6.75	6.47	6.19	5.85	5.63	5.40	5.23	5.06
135.0	6.92	6.58	6.30	6.02	5.74	5.51	5.34	5.12	5.01
180.0	6.58	6.30	6.08	5.79	5.57	5.40	5.23	5.06	4.95
225.0	6.53	6.19	5.91	5.63	5.40	5.29	5.12	4.95	4.78
270.0	6.86	6.47	6.08	5.79	5.57	5.34	5.18	5.01	4.89
315.0	7.14	6.75	6.36	6.08	5.85	5.57	5.34	5.18	5.01
360.0	8.10	7.65	7.20	6.69	6.41	6.13	5.85	5.63	5.46

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	5.23	5.12	4.95	4.89	4.78	4.61	4.50	4.44	4.33
45.0	5.18	5.01	4.84	4.73	4.61	4.50	4.44	4.33	4.28
90.0	4.89	4.78	4.67	4.56	4.44	4.39	4.28	4.22	4.16
135.0	4.89	4.73	4.67	4.56	4.44	4.33	4.28	4.22	4.16
180.0	4.84	4.73	4.56	4.50	4.44	4.33	4.28	4.22	4.16
225.0	4.67	4.56	4.44	4.39	4.33	4.22	4.16	4.11	4.11
270.0	4.73	4.61	4.56	4.44	4.33	4.28	4.22	4.11	4.11
315.0	4.89	4.78	4.67	4.56	4.44	4.39	4.33	4.22	4.16
360.0	5.23	5.12	4.95	4.89	4.78	4.61	4.50	4.44	4.33

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.28	4.22	4.16	4.11	4.05	3.99	3.94	3.94	3.88
45.0	4.22	4.11	4.05	3.99	3.99	3.94	3.88	3.88	3.83
90.0	4.11	3.99	3.99	3.94	3.88	3.83	3.77	3.77	3.71
135.0	4.11	4.05	3.99	3.94	3.88	3.88	3.83	3.77	3.77
180.0	4.11	4.05	3.99	3.94	3.88	3.88	3.83	3.83	3.77
225.0	3.99	3.94	3.94	3.88	3.83	3.77	3.77	3.71	3.71
270.0	4.05	3.94	3.88	3.88	3.83	3.83	3.77	3.71	3.71
315.0	4.11	4.05	3.99	3.94	3.88	3.83	3.83	3.77	3.71
360.0	4.28	4.22	4.16	4.11	4.05	3.99	3.94	3.94	3.88

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.83	3.83	3.77	3.77	3.71	3.71	3.71	3.66	3.60
45.0	3.77	3.71	3.71	3.66	3.66	3.66	3.60	3.60	3.54
90.0	3.71	3.66	3.66	3.60	3.60	3.60	3.60	3.54	3.54
135.0	3.77	3.66	3.66	3.66	3.60	3.60	3.54	3.54	3.54
180.0	3.71	3.71	3.71	3.66	3.66	3.66	3.60	3.60	3.54
225.0	3.66	3.66	3.60	3.60	3.60	3.54	3.54	3.54	3.49
270.0	3.66	3.66	3.60	3.60	3.60	3.54	3.54	3.49	3.49
315.0	3.71	3.66	3.66	3.60	3.60	3.54	3.54	3.60	3.49
360.0	3.83	3.83	3.77	3.77	3.71	3.71	3.71	3.66	3.60

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.60	3.60	3.60	3.54	3.54	3.54	3.54	3.54	3.49
45.0	3.54	3.54	3.49	3.49	3.49	3.49	3.49	3.43	3.43
90.0	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.43	3.43
135.0	3.49	3.49	3.49	3.49	3.43	3.43	3.43	3.38	3.43
180.0	3.54	3.54	3.54	3.49	3.49	3.49	3.49	3.49	3.43
225.0	3.49	3.49	3.49	3.49	3.43	3.43	3.43	3.38	3.43
270.0	3.49	3.49	3.49	3.43	3.43	3.43	3.43	3.43	3.43
315.0	3.49	3.49	3.49	3.49	3.43	3.43	3.43	3.43	3.43
360.0	3.60	3.60	3.60	3.54	3.54	3.54	3.54	3.54	3.49

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.49	3.54	3.49	3.49	3.49	3.49	3.49	3.43	3.43
45.0	3.43	3.43	3.43	3.38	3.43	3.43	3.38	3.38	3.38
90.0	3.43	3.43	3.43	3.49	3.43	3.32	3.32	3.32	3.32
135.0	3.43	3.38	3.43	3.43	3.49	3.38	3.38	3.38	3.38
180.0	3.49	3.43	3.43	3.49	3.43	3.43	3.43	3.43	3.43
225.0	3.43	3.43	3.43	3.38	3.38	3.38	3.38	3.38	3.38
270.0	3.43	3.38	3.38	3.38	3.38	3.38	3.38	3.32	3.32
315.0	3.43	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
360.0	3.49	3.54	3.49	3.49	3.49	3.49	3.49	3.43	3.43

Intensity data(cd)

C/γ(°)	90.0
0.0	3.43
45.0	3.38
90.0	3.32
135.0	3.38
180.0	3.43
225.0	3.38
270.0	3.32
315.0	3.32
360.0	3.43