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Nata

LumCAT: 1-0928-M
Luminaire: 99.02.73.179+92.76.853.00

Report No: 220609-B001	Voltage(V): 35.3700
Test No: 220609-C001	Current(A): 0.3610
LampCAT: CREE CXA1516	Power (W): 12.7680
Lamp flux(lm): 1492.4	PF: 1.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1047.86
Efficiency(%): 70.21%
Lumens(lm)/Power(W): 82.07
Central intensity(cd): 3931.442
Maximum intensity(cd): 3931.442
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=31.7
[C90/270]Total=31.7
Field angle(10%Imax): [C0/180]Total=45.8
[C90/270]Total=45.8
Maximum s/h(1/2): C0_180=0.53 C90_270=0.53
Maximum s/h(1/4): C0_180=0.49 C90_270=0.49
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 70.21%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.579%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3931.442	0.000	0	.000%	.000%
1.0	3924.272	3.759	3.759	.252%	.359%
2.0	3902.910	11.234	14.993	.753%	1.431%
3.0	3860.560	18.568	33.561	1.244%	3.203%
4.0	3804.243	25.657	59.217	1.719%	5.651%
5.0	3732.614	32.423	91.641	2.173%	8.745%
6.0	3639.699	38.743	130.384	2.596%	12.443%
7.0	3526.467	44.480	174.864	2.980%	16.688%
8.0	3411.816	49.656	224.52	3.327%	21.427%
9.0	3264.824	54.111	278.631	3.626%	26.590%
10.0	3097.441	57.576	336.207	3.858%	32.085%
11.0	2942.233	60.349	396.556	4.044%	37.844%
12.0	2764.319	62.381	458.936	4.180%	43.797%
13.0	2570.495	63.311	522.247	4.242%	49.839%
14.0	2371.966	63.263	585.51	4.239%	55.877%
15.0	2165.819	62.297	647.807	4.174%	61.822%
16.0	1935.919	60.102	707.909	4.027%	67.558%
17.0	1699.537	56.614	764.523	3.794%	72.960%
18.0	1440.792	51.777	816.3	3.469%	77.902%
19.0	1215.747	46.218	862.518	3.097%	82.312%
20.0	986.707	40.311	902.829	2.701%	86.159%
21.0	751.475	33.377	936.206	2.236%	89.345%
22.0	535.035	25.853	962.059	1.732%	91.812%
23.0	377.384	19.145	981.204	1.283%	93.639%
24.0	241.544	13.532	994.736	.907%	94.930%
25.0	135.198	8.566	1003.302	.574%	95.748%
26.0	85.626	5.213	1008.515	.349%	96.245%
27.0	57.228	3.495	1012.01	.234%	96.579%
28.0	38.630	2.427	1014.437	.163%	96.810%
29.0	27.591	1.733	1016.169	.116%	96.976%
30.0	20.727	1.305	1017.474	.087%	97.100%
31.0	15.976	1.021	1018.495	.068%	97.198%
32.0	13.153	0.835	1019.33	.056%	97.277%
33.0	11.338	0.722	1020.051	.048%	97.346%
34.0	10.009	0.646	1020.697	.043%	97.408%
35.0	9.135	0.595	1021.292	.040%	97.464%
36.0	8.477	0.561	1021.853	.038%	97.518%
37.0	7.925	0.535	1022.388	.036%	97.569%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.529	0.516	1022.903	.035%	97.618%
39.0	7.163	0.501	1023.405	.034%	97.666%
40.0	6.842	0.488	1023.893	.033%	97.713%
41.0	6.595	0.478	1024.372	.032%	97.758%
42.0	6.364	0.471	1024.843	.032%	97.803%
43.0	6.140	0.463	1025.306	.031%	97.848%
44.0	5.983	0.458	1025.763	.031%	97.891%
45.0	5.848	0.455	1026.218	.030%	97.935%
46.0	5.706	0.452	1026.67	.030%	97.978%
47.0	5.587	0.449	1027.119	.030%	98.021%
48.0	5.490	0.448	1027.567	.030%	98.063%
49.0	5.393	0.447	1028.014	.030%	98.106%
50.0	5.303	0.446	1028.46	.030%	98.149%
51.0	5.251	0.447	1028.906	.030%	98.191%
52.0	5.184	0.448	1029.354	.030%	98.234%
53.0	5.116	0.448	1029.802	.030%	98.277%
54.0	5.064	0.449	1030.251	.030%	98.319%
55.0	5.012	0.450	1030.7	.030%	98.362%
56.0	4.967	0.451	1031.151	.030%	98.405%
57.0	4.937	0.453	1031.604	.030%	98.449%
58.0	4.885	0.454	1032.058	.030%	98.492%
59.0	4.870	0.456	1032.514	.031%	98.535%
60.0	4.840	0.459	1032.973	.031%	98.579%
61.0	4.833	0.462	1033.435	.031%	98.623%
62.0	4.795	0.464	1033.899	.031%	98.668%
63.0	4.795	0.466	1034.365	.031%	98.712%
64.0	4.773	0.469	1034.835	.031%	98.757%
65.0	4.758	0.472	1035.306	.032%	98.802%
66.0	4.743	0.474	1035.78	.032%	98.847%
67.0	4.728	0.476	1036.256	.032%	98.893%
68.0	4.728	0.479	1036.735	.032%	98.938%
69.0	4.720	0.482	1037.217	.032%	98.984%
70.0	4.713	0.484	1037.702	.032%	99.031%
71.0	4.720	0.488	1038.19	.033%	99.077%
72.0	4.728	0.491	1038.681	.033%	99.124%
73.0	4.706	0.493	1039.174	.033%	99.171%
74.0	4.728	0.496	1039.67	.033%	99.218%
75.0	4.758	0.501	1040.171	.034%	99.266%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.773	0.506	1040.677	.034%	99.314%
77.0	4.750	0.508	1041.185	.034%	99.363%
78.0	4.735	0.508	1041.693	.034%	99.411%
79.0	4.758	0.510	1042.203	.034%	99.460%
80.0	4.780	0.514	1042.717	.034%	99.509%
81.0	4.818	0.519	1043.236	.035%	99.559%
82.0	4.870	0.525	1043.761	.035%	99.609%
83.0	4.930	0.533	1044.294	.036%	99.660%
84.0	4.982	0.540	1044.834	.036%	99.711%
85.0	4.989	0.544	1045.378	.036%	99.763%
86.0	4.564	0.522	1045.9	.035%	99.813%
87.0	4.459	0.494	1046.394	.033%	99.860%
88.0	4.452	0.488	1046.882	.033%	99.907%
89.0	4.474	0.489	1047.372	.033%	99.953%
90.0	4.444	0.489	1047.86	.033%	100.000%

Zonal flux distribution table

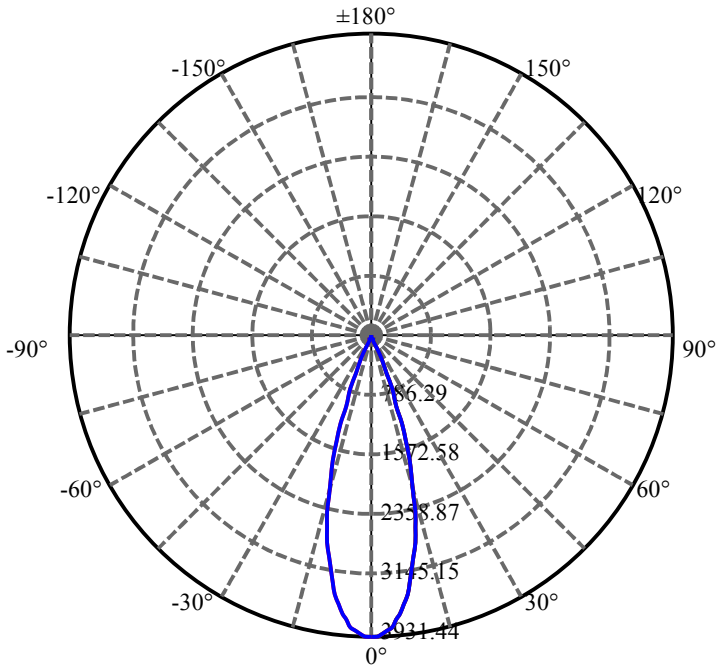
ZONAL LUMEN SUMMARY

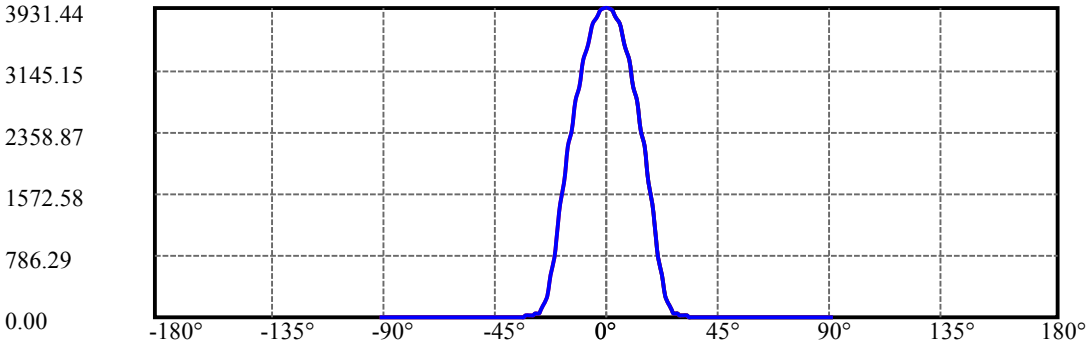
Zone	Lumens	%Lamp	%Fixt
0-30	1017.47	68.18%	97.10%
0-40	1023.89	68.61%	97.71%
0-60	1032.97	69.22%	98.58%
0-90	1047.37	70.18%	99.95%
0-120	1047.37	70.18%	99.95%
0-180	1047.86	70.21%	100.00%
60-90	14.86	1.00%	1.42%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.48	838.29	56.17%	80.00%

ZONAL LUMEN SUMMARY

0-10	336.21
10-20	566.62
20-30	114.64
30-40	6.42
40-50	4.57
50-60	4.51
60-70	4.73
70-80	5.02
80-90	4.65
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):

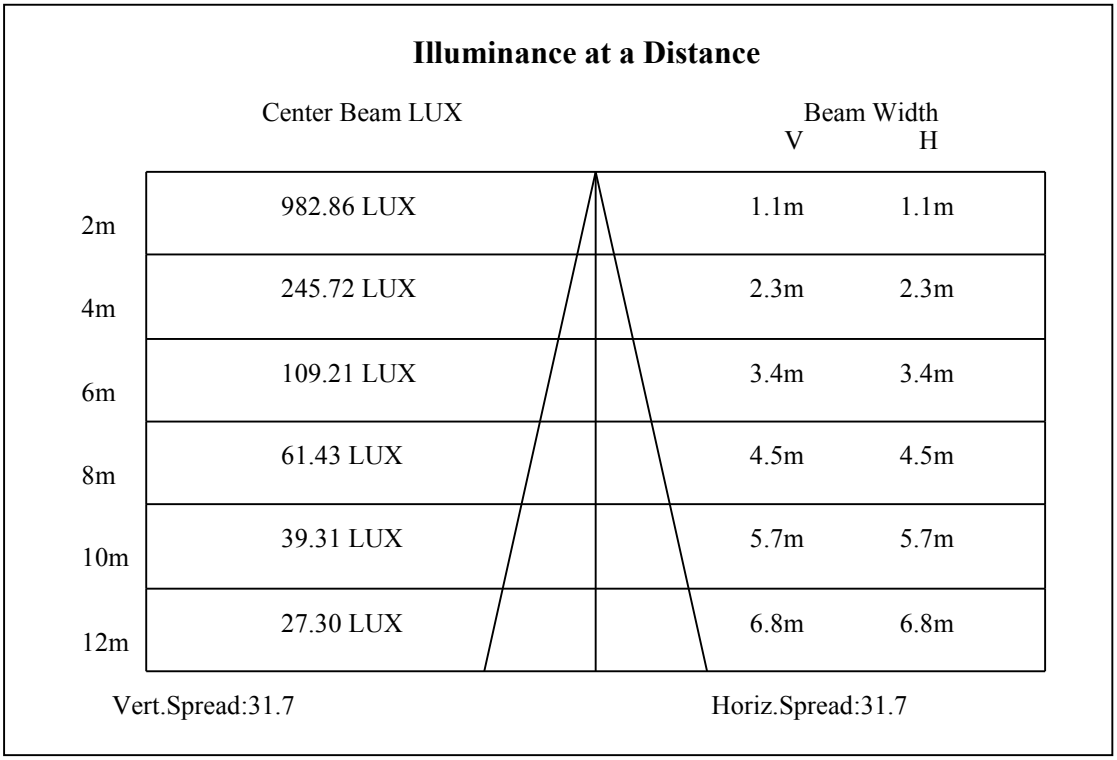
C0/C180:

C90/C270:

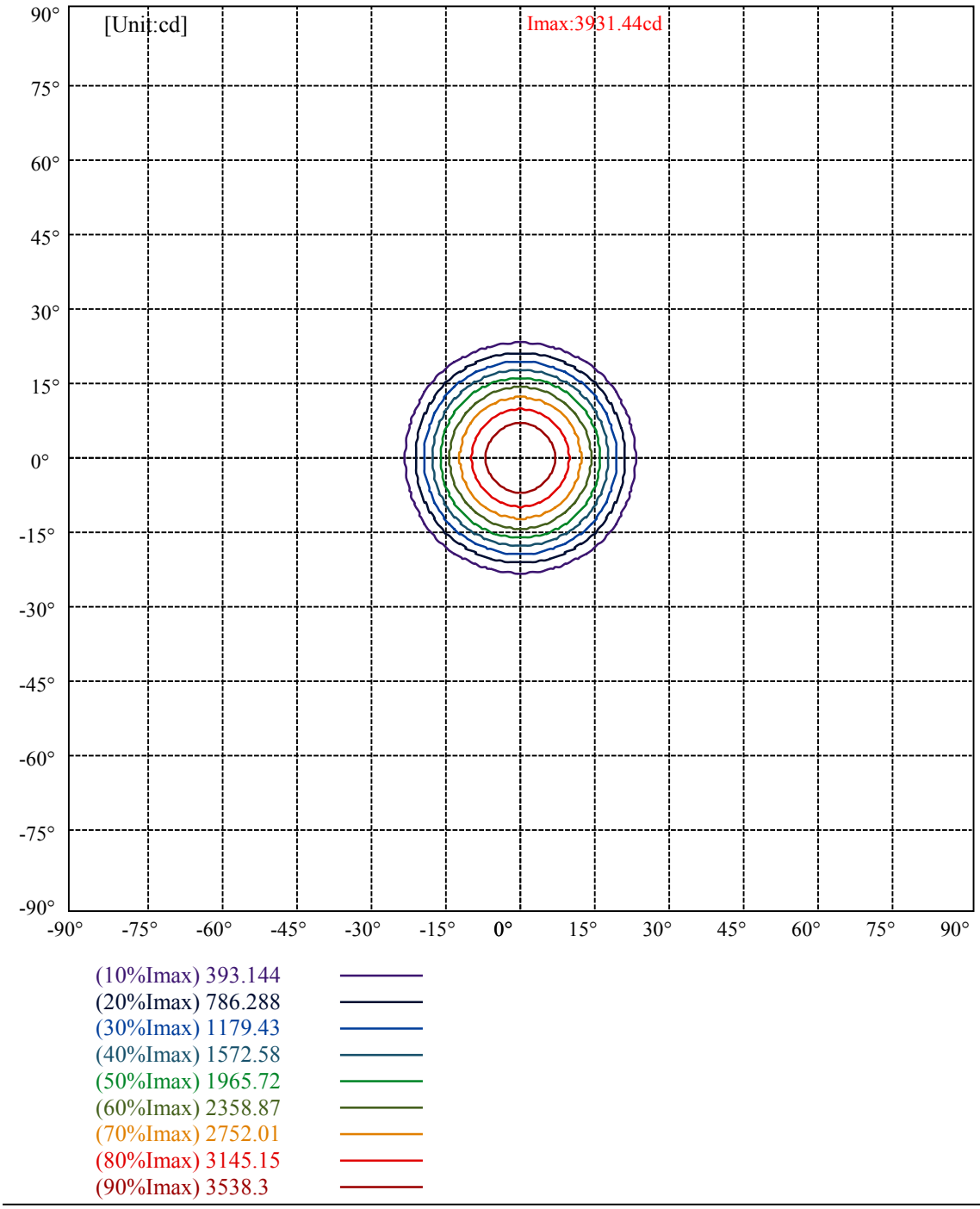
Field angle(10%Imax):C0/180Left:22.9 Right:22.9
:C90/270Left:22.9 Right:22.9

Beam Angle(50%Imax):C0/180Left:15.9 Right:15.9
:C90/270Left:15.9 Right:15.9

Lux distance Curve



ISO-Intensity(V-H)



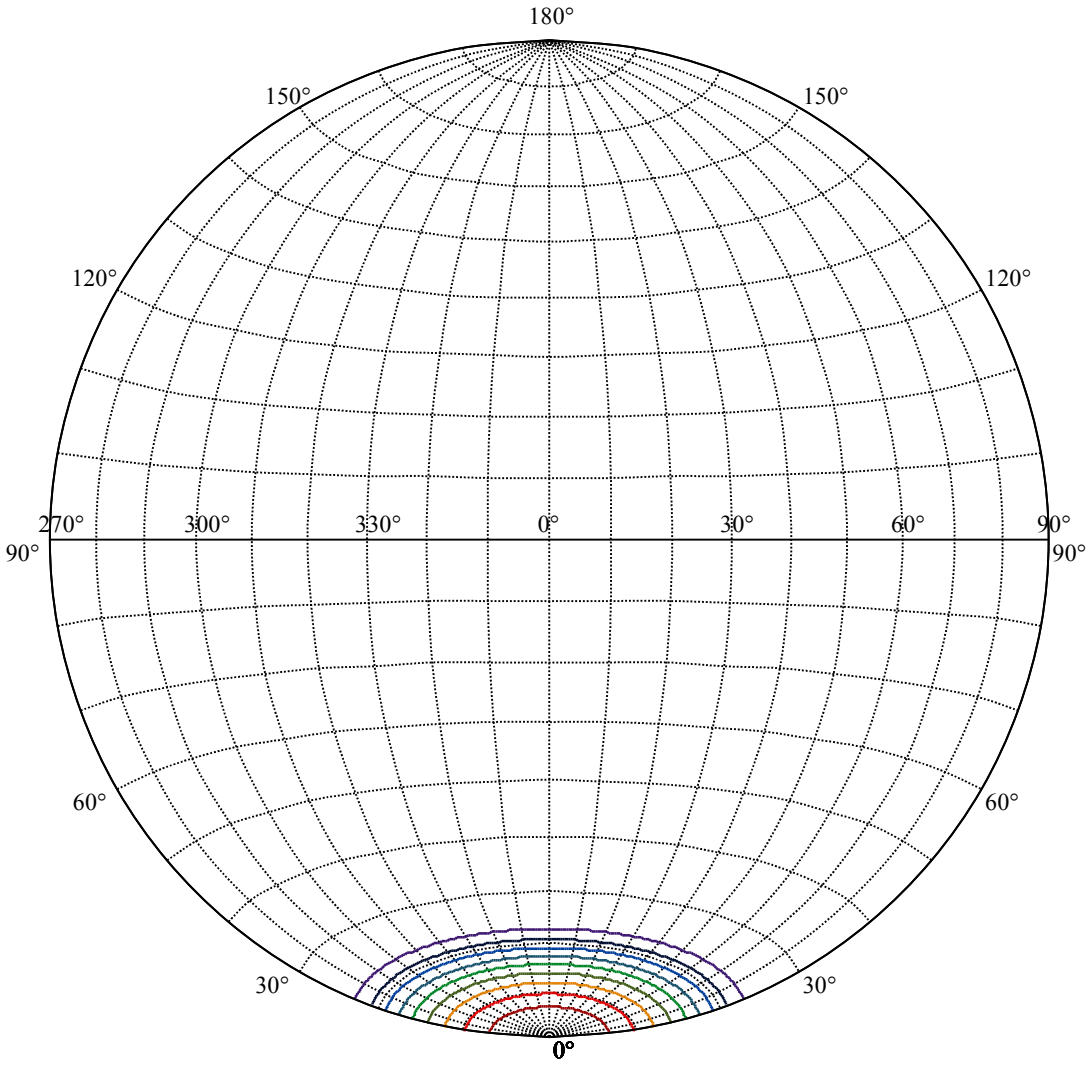
(10%Imax) 393.144
(20%Imax) 786.288
(30%Imax) 1179.43
(40%Imax) 1572.58
(50%Imax) 1965.72
(60%Imax) 2358.87
(70%Imax) 2752.01
(80%Imax) 3145.15
(90%Imax) 3538.3

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:3931.44

(10%Imax) 393.144
(20%Imax) 786.288
(30%Imax) 1179.43
(40%Imax) 1572.58
(50%Imax) 1965.72
(60%Imax) 2358.87
(70%Imax) 2752.01
(80%Imax) 3145.15
(90%Imax) 3538.3

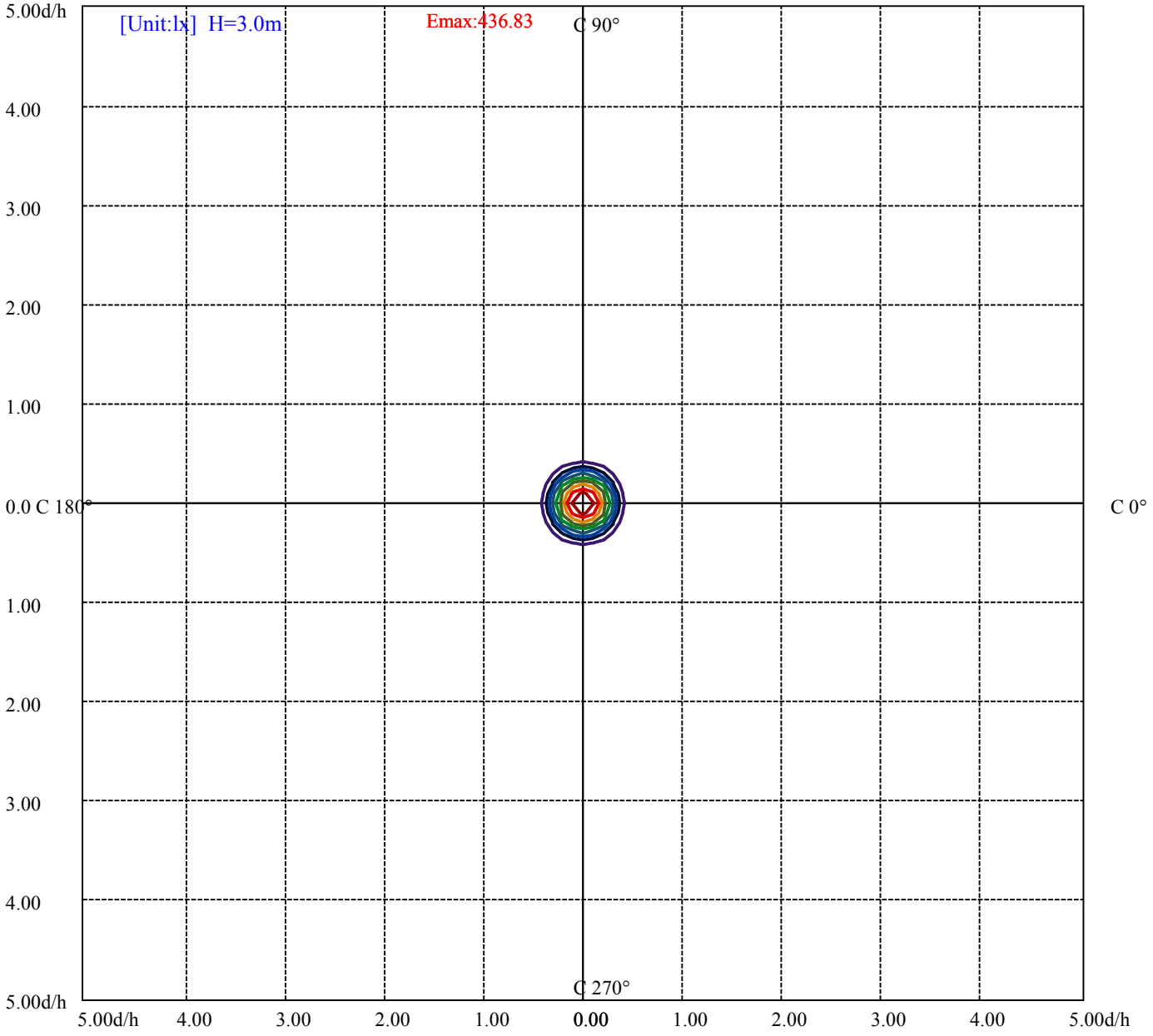
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Nata 1-0928-M

ISO illuminance diagram

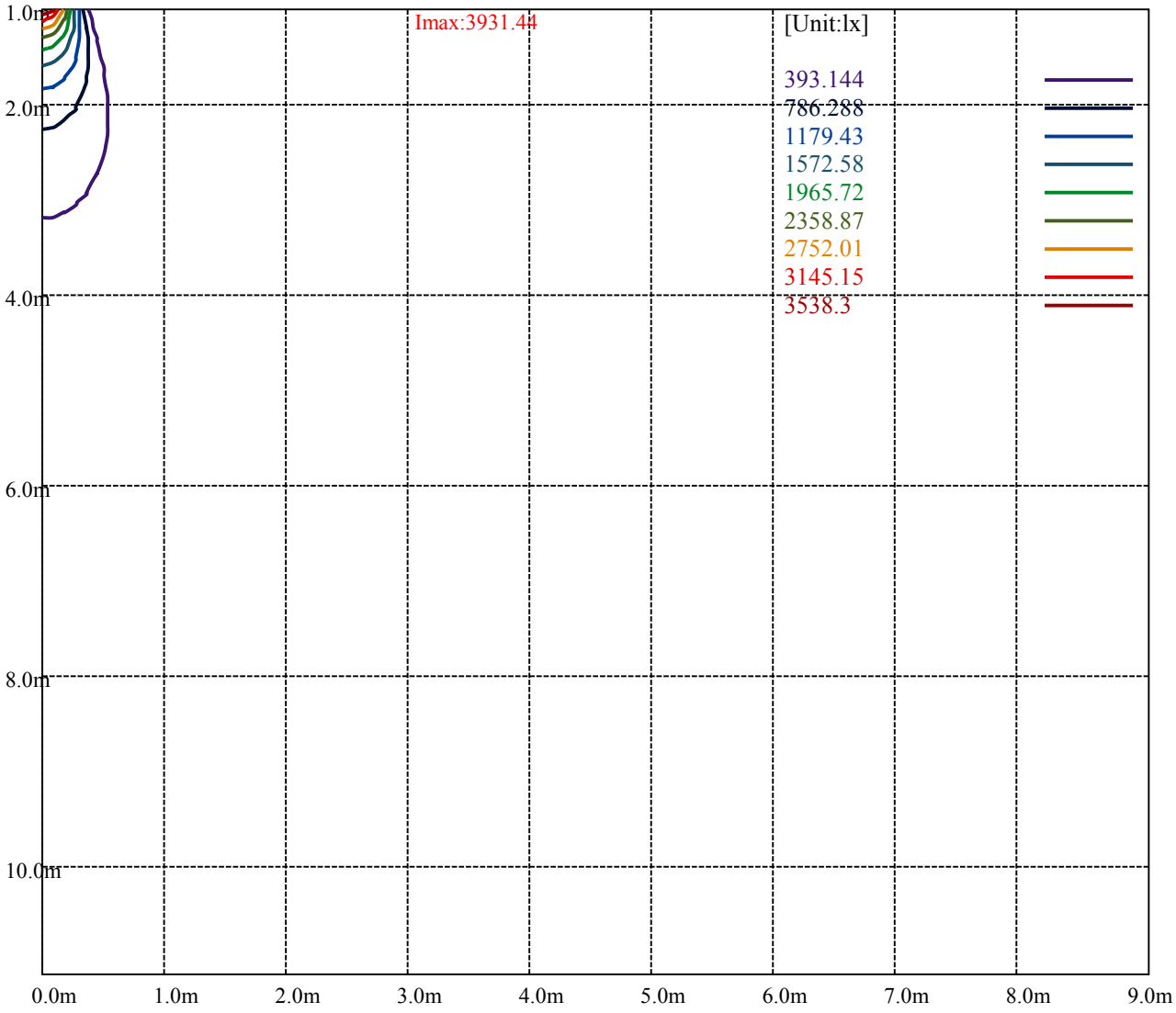


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

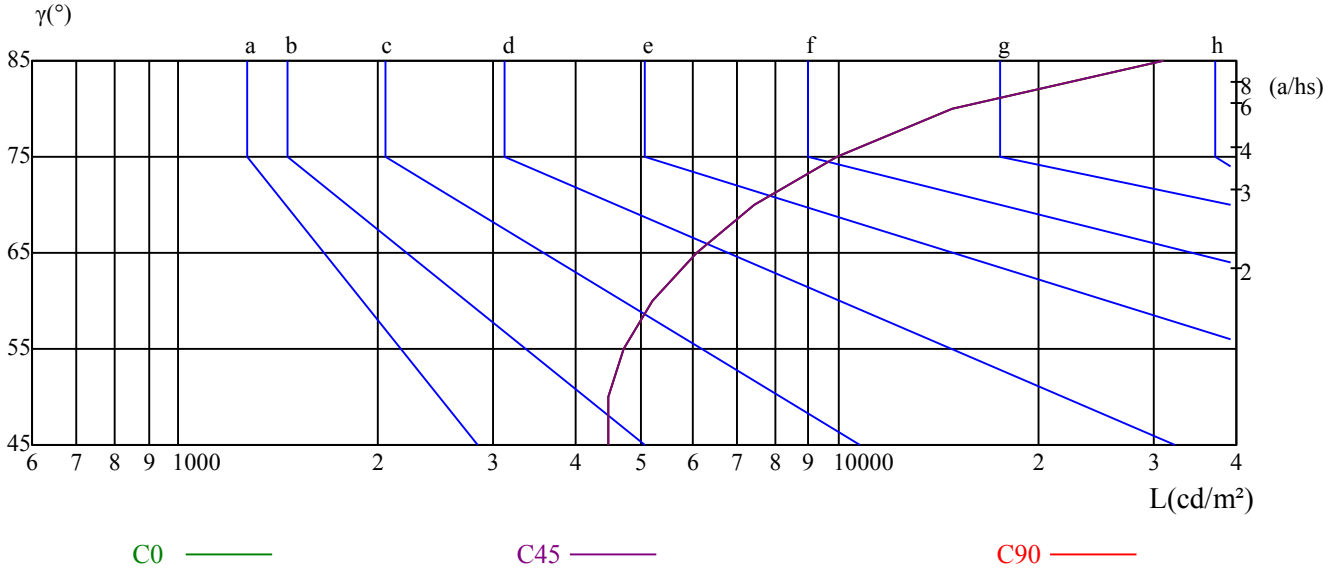
γ	45	50	55	60	65	70	75	80	85
C0	4473	4462	4726	5235	6089	7453	9942	14888	30961
C45	4473	4462	4726	5235	6089	7453	9942	14888	30961
C90	4473	4462	4726	5235	6089	7453	9942	14888	30961

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6089	6089	6089	9942	9942	9942	30961	30961	30961

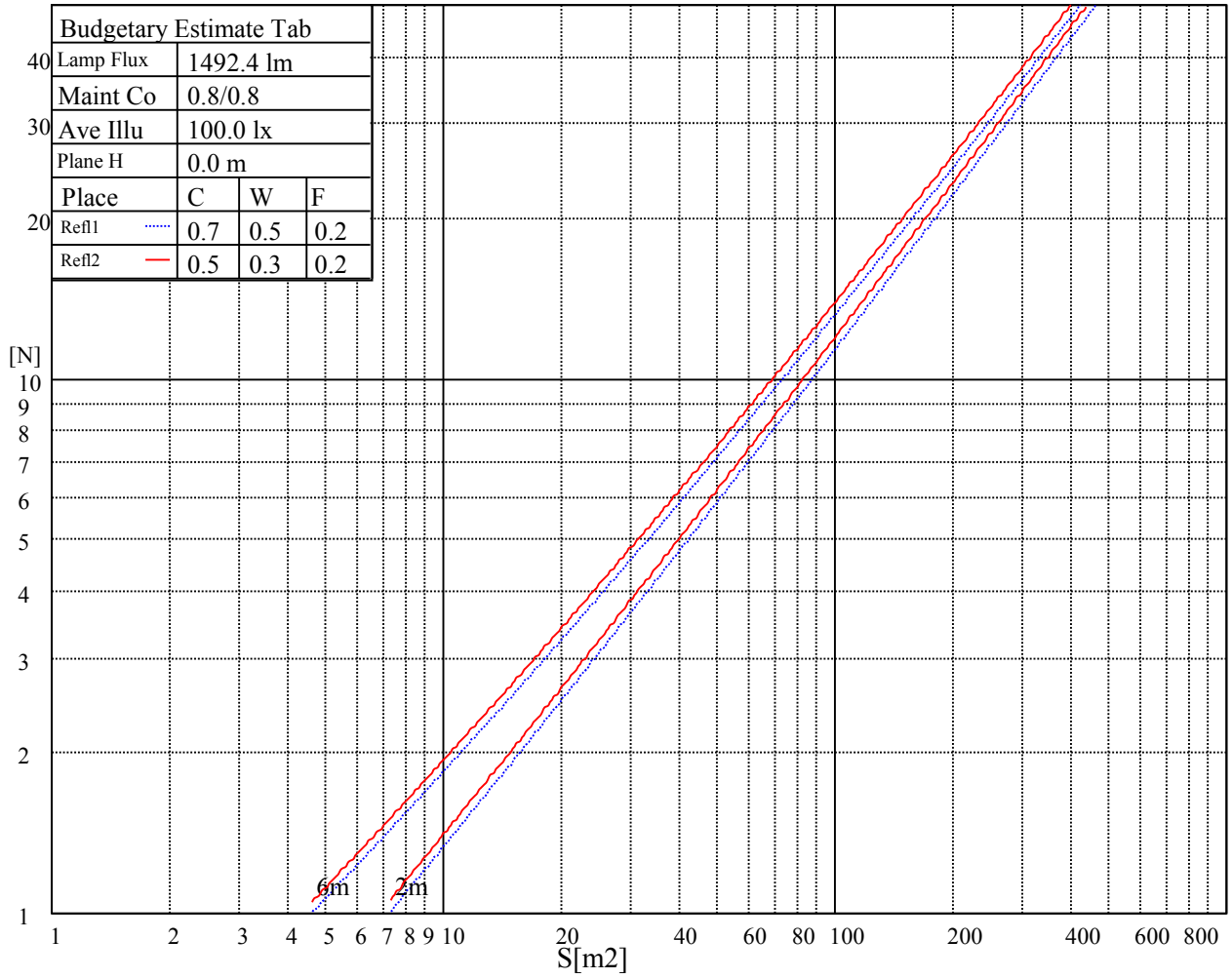
Glare Table

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

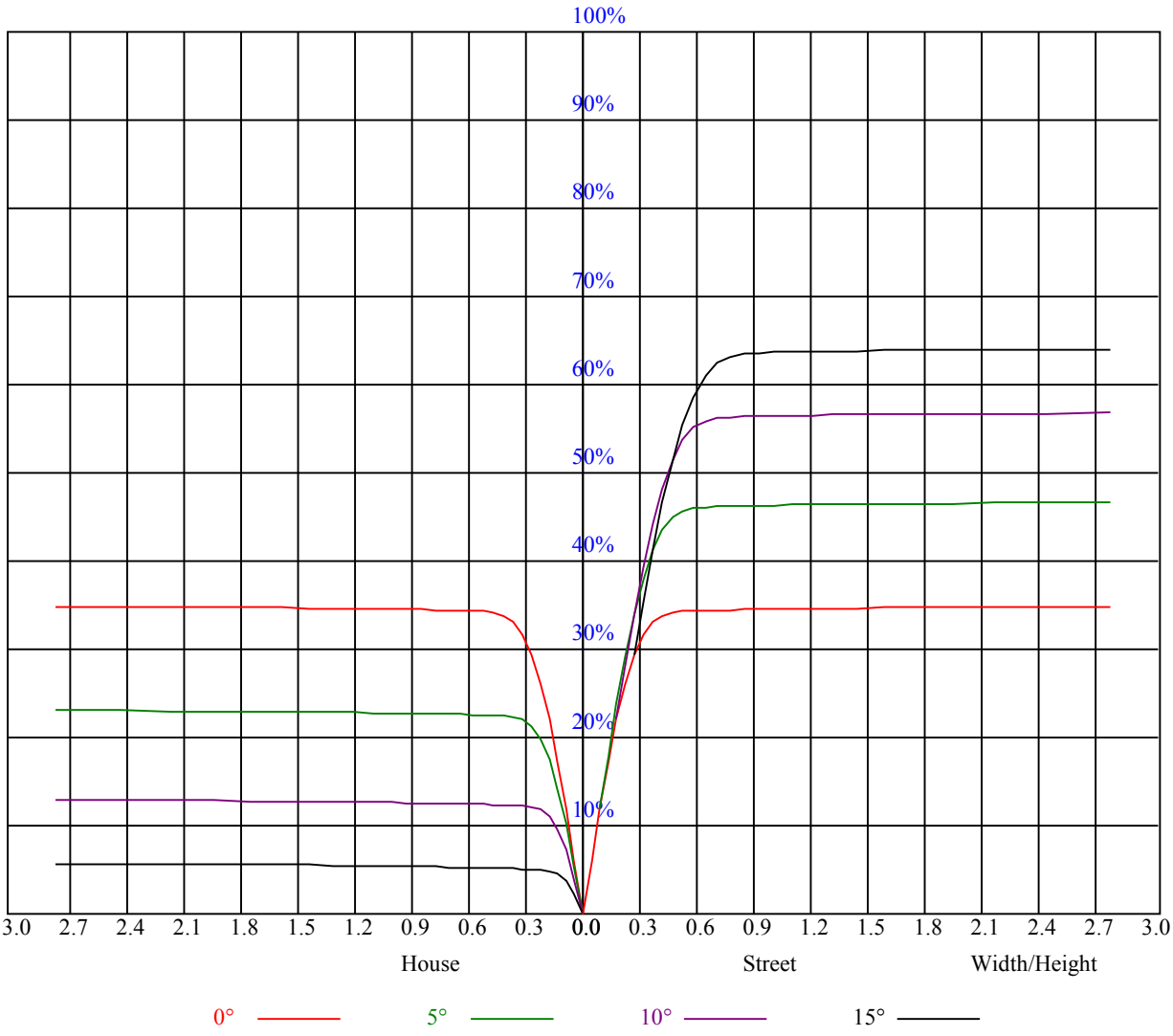


Equipment: GMS1980 Date: 2022/6/09 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.84	0.84	0.84	0.82	0.82	0.82	0.78	0.78	0.78	0.75	0.75	0.75	0.72	0.72	0.72	0.70
1	0.79	0.78	0.76	0.78	0.76	0.75	0.75	0.74	0.73	0.72	0.71	0.71	0.70	0.69	0.69	0.67
2	0.75	0.73	0.71	0.74	0.72	0.71	0.72	0.70	0.69	0.70	0.69	0.68	0.68	0.67	0.66	0.65
3	0.72	0.70	0.68	0.71	0.69	0.67	0.70	0.68	0.66	0.68	0.66	0.65	0.66	0.65	0.64	0.63
4	0.69	0.67	0.64	0.69	0.66	0.64	0.67	0.65	0.63	0.66	0.64	0.63	0.65	0.63	0.62	0.61
5	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.61	0.64	0.62	0.61	0.63	0.62	0.60	0.59
6	0.65	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.59	0.62	0.60	0.59	0.62	0.60	0.58	0.58
7	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.57	0.61	0.59	0.57	0.60	0.58	0.57	0.56
8	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.57	0.56	0.59	0.57	0.55	0.59	0.57	0.55	0.55
9	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.58	0.56	0.54	0.57	0.55	0.54	0.53
10	0.58	0.55	0.53	0.57	0.55	0.53	0.57	0.54	0.53	0.56	0.54	0.53	0.56	0.54	0.52	0.52

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/6/09	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	3916.80	3935.33	3938.31	3925.17	3900.67	3861.23	3788.93	3714.84	3629.99
45.0	3944.29	3939.51	3916.21	3883.34	3826.58	3746.51	3662.85	3552.31	3436.39
90.0	3930.55	3915.61	3882.15	3818.21	3750.09	3673.01	3577.41	3434.00	3304.34
135.0	3934.13	3915.61	3874.98	3821.20	3755.47	3663.45	3552.91	3436.99	3309.12
180.0	3916.80	3877.96	3836.14	3764.43	3662.26	3575.02	3446.55	3276.85	3147.78
225.0	3944.29	3937.12	3915.61	3869.00	3817.02	3741.13	3638.95	3539.76	3422.05
270.0	3930.55	3936.52	3929.35	3903.06	3863.62	3800.28	3719.62	3631.78	3527.81
315.0	3934.13	3936.52	3930.55	3900.07	3858.24	3800.28	3730.37	3625.21	3517.06
360.0	3916.80	3935.33	3938.31	3925.17	3900.67	3861.23	3788.93	3714.84	3629.99

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3500.92	3383.21	3250.56	3086.83	2909.97	2743.85	2546.07	2361.43	2137.36
45.0	3295.97	3137.62	2982.86	2815.56	2598.06	2421.19	2235.36	1973.04	1751.96
90.0	3161.53	2967.33	2803.61	2630.92	2432.54	2220.42	2019.05	1778.25	1526.69
135.0	3128.66	2971.51	2799.42	2604.63	2400.27	2205.48	1978.42	1735.22	1514.14
180.0	2988.84	2754.61	2603.43	2421.79	2231.77	1977.82	1765.10	1514.74	1192.19
225.0	3250.56	3095.20	2930.88	2712.18	2554.44	2344.11	2092.55	1907.31	1687.42
270.0	3392.17	3239.20	3086.83	2923.71	2708.60	2529.94	2341.12	2092.55	1875.05
315.0	3399.94	3230.84	3080.26	2918.93	2728.32	2532.93	2348.89	2124.81	1911.50
360.0	3500.92	3383.21	3250.56	3086.83	2909.97	2743.85	2546.07	2361.43	2137.36

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1898.95	1679.06	1425.70	1167.57	935.73	714.05	462.49	313.70	167.19
45.0	1527.88	1261.98	1014.01	774.40	537.18	336.41	318.48	114.61	77.86
90.0	1175.40	1033.25	807.62	570.76	365.75	224.43	131.99	82.10	57.84
135.0	1253.62	1027.75	780.97	548.53	358.52	302.35	113.05	83.42	58.62
180.0	1021.71	801.88	569.15	367.60	229.39	131.70	87.36	62.08	41.65
225.0	1322.33	1174.62	951.74	712.25	493.02	324.28	193.66	107.44	77.98
270.0	1659.34	1409.57	1156.22	935.13	693.73	495.95	308.92	166.35	102.30
315.0	1667.11	1337.87	1188.25	935.55	666.96	489.91	316.39	151.89	101.58
360.0	1898.95	1679.06	1425.70	1167.57	935.73	714.05	462.49	313.70	167.19

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	98.83	66.50	46.01	31.01	22.53	17.69	14.10	12.07	10.52
45.0	52.16	34.30	24.98	19.24	14.76	12.49	10.88	9.56	8.84
90.0	40.03	27.67	20.55	16.43	13.27	11.29	10.10	9.14	8.48
135.0	39.02	27.67	21.15	16.79	13.27	11.53	10.34	9.26	8.66
180.0	30.59	22.65	17.27	14.10	12.07	10.40	9.44	8.78	8.19
225.0	54.73	36.63	26.47	19.90	15.89	13.09	11.35	10.10	9.20
270.0	69.67	45.83	32.27	24.32	17.99	14.52	12.37	10.58	9.62
315.0	72.78	47.80	32.03	24.02	18.05	14.22	12.13	10.58	9.56
360.0	98.83	66.50	46.01	31.01	22.53	17.69	14.10	12.07	10.52

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	9.44	8.72	8.19	7.65	7.29	6.99	6.63	6.39	6.21
45.0	8.31	7.77	7.41	7.05	6.75	6.51	6.27	6.09	5.92
90.0	7.95	7.47	7.11	6.87	6.57	6.39	6.15	5.98	5.80
135.0	8.19	7.71	7.35	7.05	6.75	6.57	6.33	6.15	6.04
180.0	7.77	7.41	7.11	6.81	6.57	6.33	6.15	5.98	5.86
225.0	8.54	7.95	7.59	7.23	6.87	6.63	6.39	6.15	5.98
270.0	8.90	8.25	7.77	7.35	6.99	6.69	6.51	6.21	6.04
315.0	8.72	8.13	7.71	7.29	6.93	6.63	6.45	6.15	6.04
360.0	9.44	8.72	8.19	7.65	7.29	6.99	6.63	6.39	6.21

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	6.09	5.86	5.80	5.62	5.50	5.38	5.32	5.26	5.20
45.0	5.80	5.68	5.56	5.44	5.32	5.26	5.20	5.14	5.08
90.0	5.68	5.56	5.44	5.38	5.26	5.20	5.14	5.08	5.02
135.0	5.92	5.80	5.68	5.68	5.56	5.44	5.44	5.38	5.32
180.0	5.74	5.62	5.50	5.44	5.38	5.32	5.26	5.20	5.14
225.0	5.86	5.68	5.56	5.44	5.38	5.26	5.20	5.14	5.08
270.0	5.86	5.74	5.62	5.50	5.38	5.32	5.26	5.14	5.08
315.0	5.86	5.74	5.56	5.44	5.38	5.26	5.20	5.14	5.02
360.0	6.09	5.86	5.80	5.62	5.50	5.38	5.32	5.26	5.20

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.14	5.08	5.02	4.96	4.90	4.90	4.84	4.84	4.78
45.0	5.02	4.96	4.90	4.90	4.84	4.84	4.78	4.78	4.72
90.0	4.96	4.90	4.90	4.84	4.78	4.78	4.72	4.72	4.72
135.0	5.26	5.20	5.20	5.20	5.14	5.14	5.14	5.14	5.14
180.0	5.08	5.08	5.02	4.96	4.96	4.96	4.96	4.90	4.90
225.0	5.02	4.96	4.90	4.90	4.84	4.78	4.78	4.78	4.72
270.0	5.02	4.96	4.90	4.90	4.84	4.78	4.78	4.78	4.72
315.0	5.02	4.96	4.90	4.84	4.78	4.78	4.72	4.72	4.66
360.0	5.14	5.08	5.02	4.96	4.90	4.90	4.84	4.84	4.78

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.78	4.72	4.72	4.72	4.72	4.66	4.66	4.66	4.60
45.0	4.72	4.72	4.72	4.66	4.66	4.66	4.66	4.66	4.66
90.0	4.72	4.66	4.66	4.66	4.66	4.60	4.60	4.60	4.60
135.0	5.14	5.14	5.08	5.14	5.08	5.14	5.14	5.14	5.20
180.0	4.90	4.90	4.90	4.84	4.84	4.90	4.84	4.90	4.90
225.0	4.72	4.72	4.66	4.66	4.66	4.66	4.66	4.60	4.60
270.0	4.66	4.66	4.66	4.66	4.66	4.60	4.60	4.60	4.60
315.0	4.72	4.66	4.66	4.60	4.60	4.60	4.60	4.54	4.60
360.0	4.78	4.72	4.72	4.72	4.72	4.66	4.66	4.66	4.60

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.66	4.60	4.60	4.60	4.60	4.66	4.60	4.60	4.66
45.0	4.66	4.60	4.60	4.60	4.66	4.66	4.66	4.66	4.60
90.0	4.60	4.54	4.54	4.54	4.54	4.54	4.54	4.60	4.54
135.0	5.26	5.32	5.50	5.68	5.80	5.50	5.44	5.50	5.68
180.0	4.90	4.84	4.84	4.90	4.84	4.90	4.90	4.96	4.96
225.0	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.54	4.60
270.0	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.66	4.66
315.0	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54	4.54
360.0	4.66	4.60	4.60	4.60	4.60	4.66	4.60	4.60	4.66

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.60	4.60	4.66	4.66	4.72	4.72	4.48	4.48	4.48
45.0	4.66	4.66	4.72	4.72	4.78	4.42	4.48	4.42	4.48
90.0	4.54	4.60	4.60	4.60	4.54	4.42	4.42	4.42	4.42
135.0	5.86	6.09	6.15	6.27	6.39	4.42	4.48	4.42	4.42
180.0	5.02	5.14	5.38	5.68	5.44	4.48	4.48	4.54	4.66
225.0	4.60	4.60	4.60	4.60	4.66	4.66	4.48	4.48	4.48
270.0	4.72	4.66	4.72	4.72	4.78	4.78	4.42	4.42	4.42
315.0	4.54	4.60	4.60	4.60	4.60	4.60	4.42	4.42	4.42
360.0	4.60	4.60	4.66	4.66	4.72	4.72	4.48	4.48	4.48

Intensity data(cd)

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