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Nata

LumCAT: 1632-M
Luminaire: BJB47.319.6105

Report No: NT2017072802	Voltage(V): 38.0000
Test No: GC2017072802	Current(A): 0.3500
LampCAT: CREE CXA1512	Power (W): 13.3000
Lamp flux(lm): 1430.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1301.05
Efficiency(%): 90.98%
Lumens(lm)/Power(W): 97.82
Central intensity(cd): 5732.394
Maximum intensity(cd): 5732.394
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.6
[C90/270]Total=15.6
Field angle(10%Imax): [C0/180]Total=50.6
[C90/270]Total=50.6
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.29 C90_270=0.29
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.07%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.688%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5732.393	1.371	1.371	.096%	.105%
1.0	5675.698	10.862	12.234	.760%	.940%
2.0	5496.222	21.035	33.268	1.471%	2.557%
3.0	5187.494	29.772	63.041	2.082%	4.845%
4.0	4787.220	36.620	99.661	2.561%	7.660%
5.0	4328.303	41.368	141.029	2.893%	10.840%
6.0	3728.170	42.735	183.764	2.988%	14.124%
7.0	3217.845	43.004	226.768	3.007%	17.430%
8.0	2766.093	42.216	268.984	2.952%	20.674%
9.0	2311.141	39.647	308.631	2.773%	23.722%
10.0	1934.380	36.835	345.466	2.576%	26.553%
11.0	1648.957	34.503	379.969	2.413%	29.205%
12.0	1402.024	31.966	411.935	2.235%	31.662%
13.0	1208.405	29.809	441.744	2.085%	33.953%
14.0	1072.789	28.460	470.205	1.990%	36.140%
15.0	973.430	27.628	497.833	1.932%	38.264%
16.0	892.958	26.991	524.824	1.887%	40.338%
17.0	821.522	26.339	551.163	1.842%	42.363%
18.0	769.383	26.072	577.236	1.823%	44.367%
19.0	730.079	26.065	603.301	1.823%	46.370%
20.0	692.800	25.984	629.285	1.817%	48.367%
21.0	661.266	25.987	655.272	1.817%	50.365%
22.0	635.986	26.126	681.398	1.827%	52.373%
23.0	612.940	26.263	707.662	1.837%	54.392%
24.0	592.397	26.423	734.084	1.848%	56.422%
25.0	576.815	26.732	760.817	1.869%	58.477%
26.0	564.405	27.132	787.949	1.897%	60.563%
27.0	552.878	27.525	815.474	1.925%	62.678%
28.0	541.581	27.882	843.356	1.950%	64.821%
29.0	530.708	28.215	871.571	1.973%	66.990%
30.0	519.640	28.492	900.063	1.992%	69.180%
31.0	507.591	28.669	928.731	2.005%	71.383%
32.0	494.451	28.733	957.465	2.009%	73.592%
33.0	481.748	28.773	986.237	2.012%	75.803%
34.0	469.108	28.766	1015.004	2.012%	78.014%
35.0	453.734	28.539	1043.543	1.996%	80.208%
36.0	439.182	28.308	1071.851	1.980%	82.384%
37.0	425.276	28.066	1099.918	1.963%	84.541%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	406.403	27.438	1127.356	1.919%	86.650%
39.0	380.608	26.266	1153.622	1.837%	88.669%
40.0	348.824	24.588	1178.21	1.719%	90.558%
41.0	311.454	22.407	1200.618	1.567%	92.281%
42.0	264.853	19.434	1220.052	1.359%	93.774%
43.0	218.739	16.359	1236.411	1.144%	95.032%
44.0	177.431	13.516	1249.927	.945%	96.071%
45.0	130.246	10.099	1260.027	.706%	96.847%
46.0	89.376	7.050	1267.077	.493%	97.389%
47.0	55.603	4.459	1271.536	.312%	97.732%
48.0	33.732	2.749	1274.285	.192%	97.943%
49.0	21.224	1.757	1276.042	.123%	98.078%
50.0	15.742	1.322	1277.364	.092%	98.179%
51.0	13.572	1.157	1278.521	.081%	98.268%
52.0	12.021	1.039	1279.56	.073%	98.348%
53.0	10.650	0.933	1280.492	.065%	98.420%
54.0	9.544	0.847	1281.339	.059%	98.485%
55.0	8.703	0.782	1282.121	.055%	98.545%
56.0	7.923	0.720	1282.841	.050%	98.600%
57.0	7.200	0.662	1283.503	.046%	98.651%
58.0	6.692	0.622	1284.126	.044%	98.699%
59.0	6.316	0.594	1284.719	.042%	98.745%
60.0	6.010	0.571	1285.29	.040%	98.789%
61.0	5.823	0.558	1285.849	.039%	98.832%
62.0	5.635	0.546	1286.394	.038%	98.874%
63.0	5.572	0.544	1286.939	.038%	98.915%
64.0	5.461	0.538	1287.477	.038%	98.957%
65.0	5.363	0.533	1288.01	.037%	98.998%
66.0	5.287	0.530	1288.54	.037%	99.038%
67.0	5.245	0.529	1289.069	.037%	99.079%
68.0	5.196	0.528	1289.597	.037%	99.120%
69.0	5.155	0.528	1290.125	.037%	99.160%
70.0	5.120	0.528	1290.653	.037%	99.201%
71.0	5.085	0.527	1291.18	.037%	99.241%
72.0	5.120	0.534	1291.714	.037%	99.282%
73.0	5.127	0.538	1292.252	.038%	99.324%
74.0	5.134	0.541	1292.793	.038%	99.365%
75.0	5.113	0.542	1293.334	.038%	99.407%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.099	0.543	1293.877	.038%	99.449%
77.0	5.071	0.542	1294.419	.038%	99.490%
78.0	5.023	0.539	1294.958	.038%	99.532%
79.0	4.960	0.534	1295.492	.037%	99.573%
80.0	4.946	0.534	1296.026	.037%	99.614%
81.0	4.904	0.531	1296.557	.037%	99.655%
82.0	4.911	0.533	1297.09	.037%	99.696%
83.0	4.897	0.533	1297.623	.037%	99.737%
84.0	4.890	0.533	1298.157	.037%	99.778%
85.0	4.863	0.531	1298.688	.037%	99.818%
86.0	4.870	0.533	1299.22	.037%	99.859%
87.0	4.821	0.528	1299.748	.037%	99.900%
88.0	4.765	0.522	1300.271	.037%	99.940%
89.0	4.744	0.520	1300.791	.036%	99.980%
90.0	4.737	0.260	1301.051	.018%	100.000%

Zonal flux distribution table

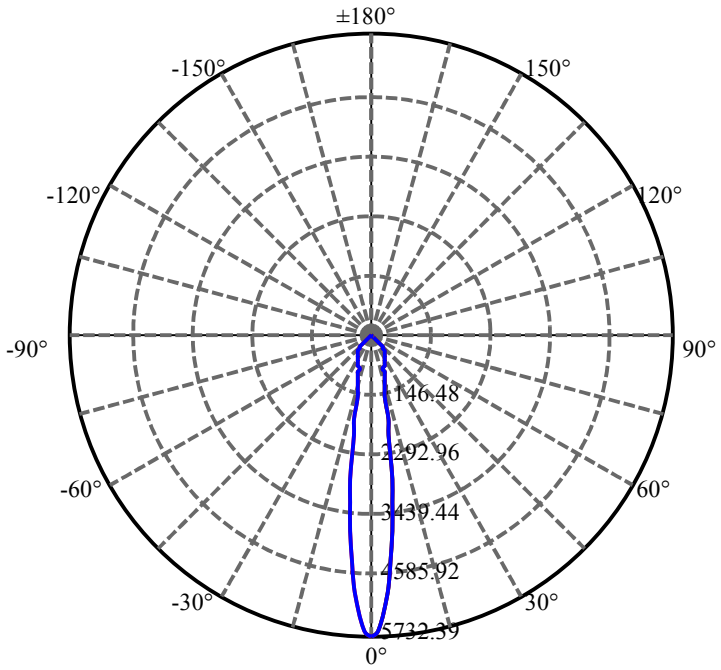
ZONAL LUMEN SUMMARY

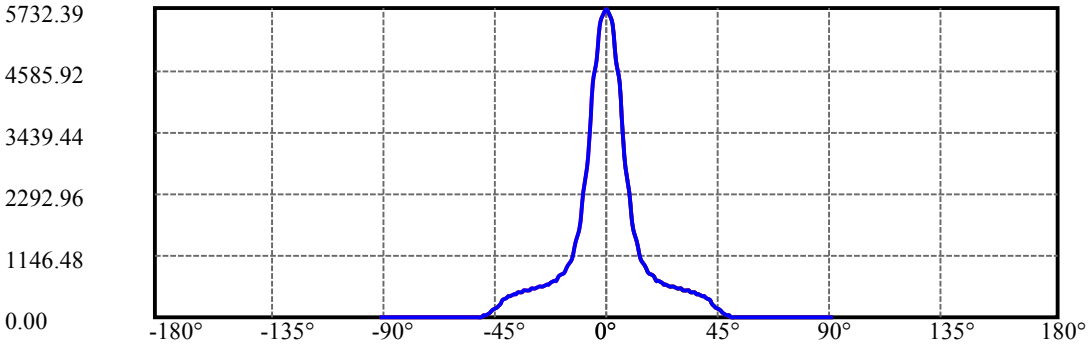
Zone	Lumens	%Lamp	%Fixt
0-30	900.06	62.94%	69.18%
0-40	1178.21	82.39%	90.56%
0-60	1285.29	89.88%	98.79%
0-90	1300.79	90.96%	99.98%
0-120	1300.79	90.96%	99.98%
0-180	1301.05	90.98%	100.00%
60-90	16.07	1.12%	1.24%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.91	1040.84	72.79%	80.00%

ZONAL LUMEN SUMMARY

0-10	345.47
10-20	283.82
20-30	270.78
30-40	278.15
40-50	99.15
50-60	7.93
60-70	5.36
70-80	5.37
80-90	4.77
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):

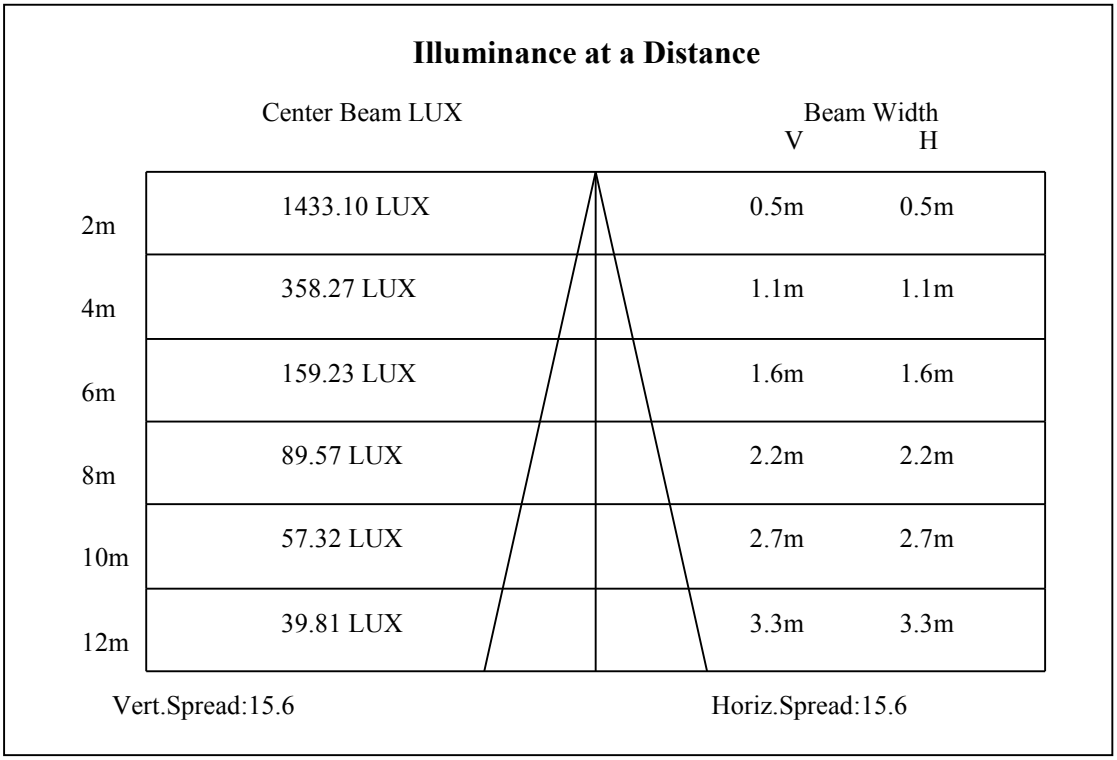
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:25.3 Right:25.3
:C90/270Left:25.3 Right:25.3

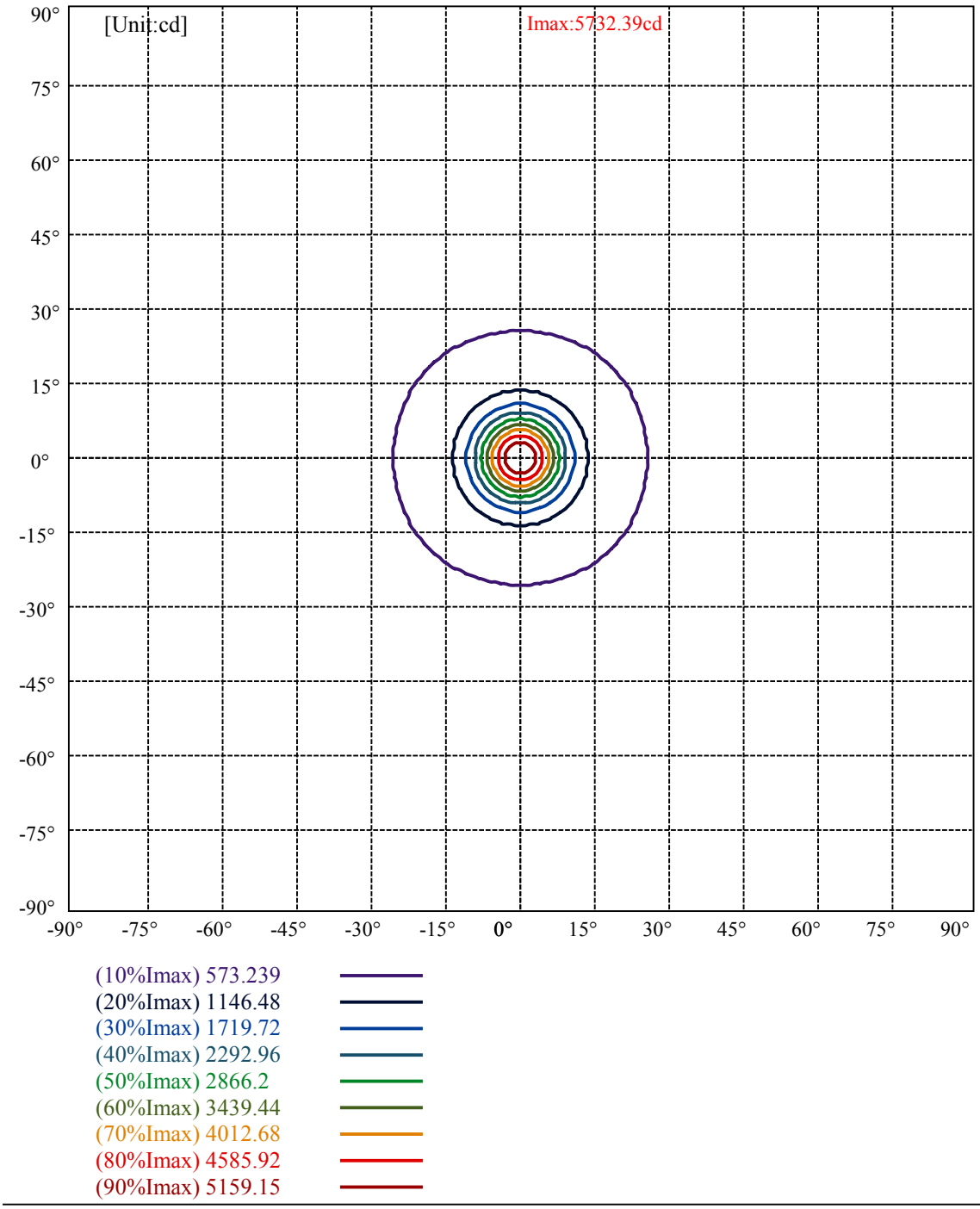
Beam Angle(50%Imax):C0/180Left:7.8 Right:7.8
:C90/270Left:7.8 Right:7.8

Lux distance Curve



Equipment: GMS1980 Date: 2017/7/28 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.46

ISO-Intensity(V-H)



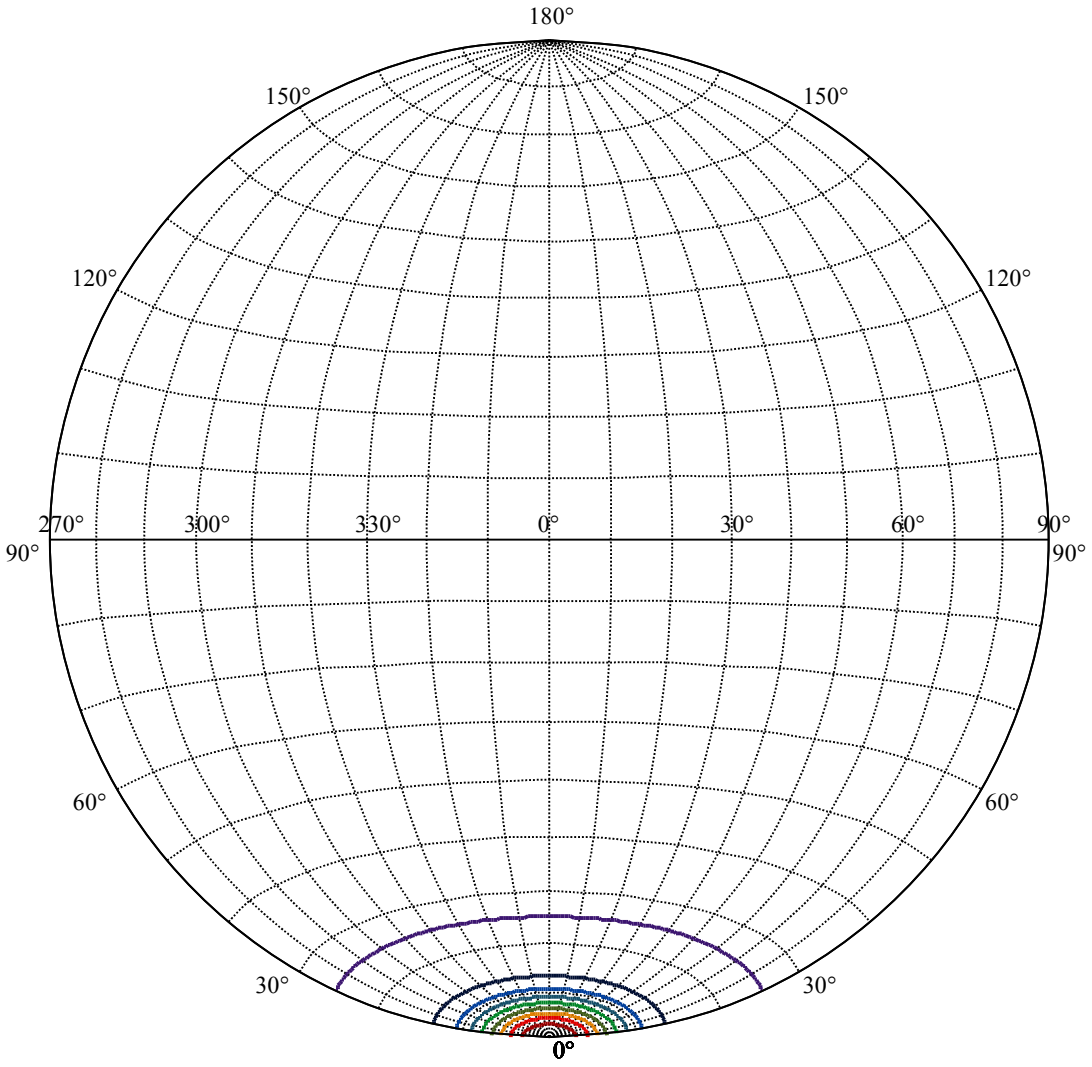
(10%Imax) 573.239
(20%Imax) 1146.48
(30%Imax) 1719.72
(40%Imax) 2292.96
(50%Imax) 2866.2
(60%Imax) 3439.44
(70%Imax) 4012.68
(80%Imax) 4585.92
(90%Imax) 5159.15

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/7/28
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.46

ISO candela diagram on circular web



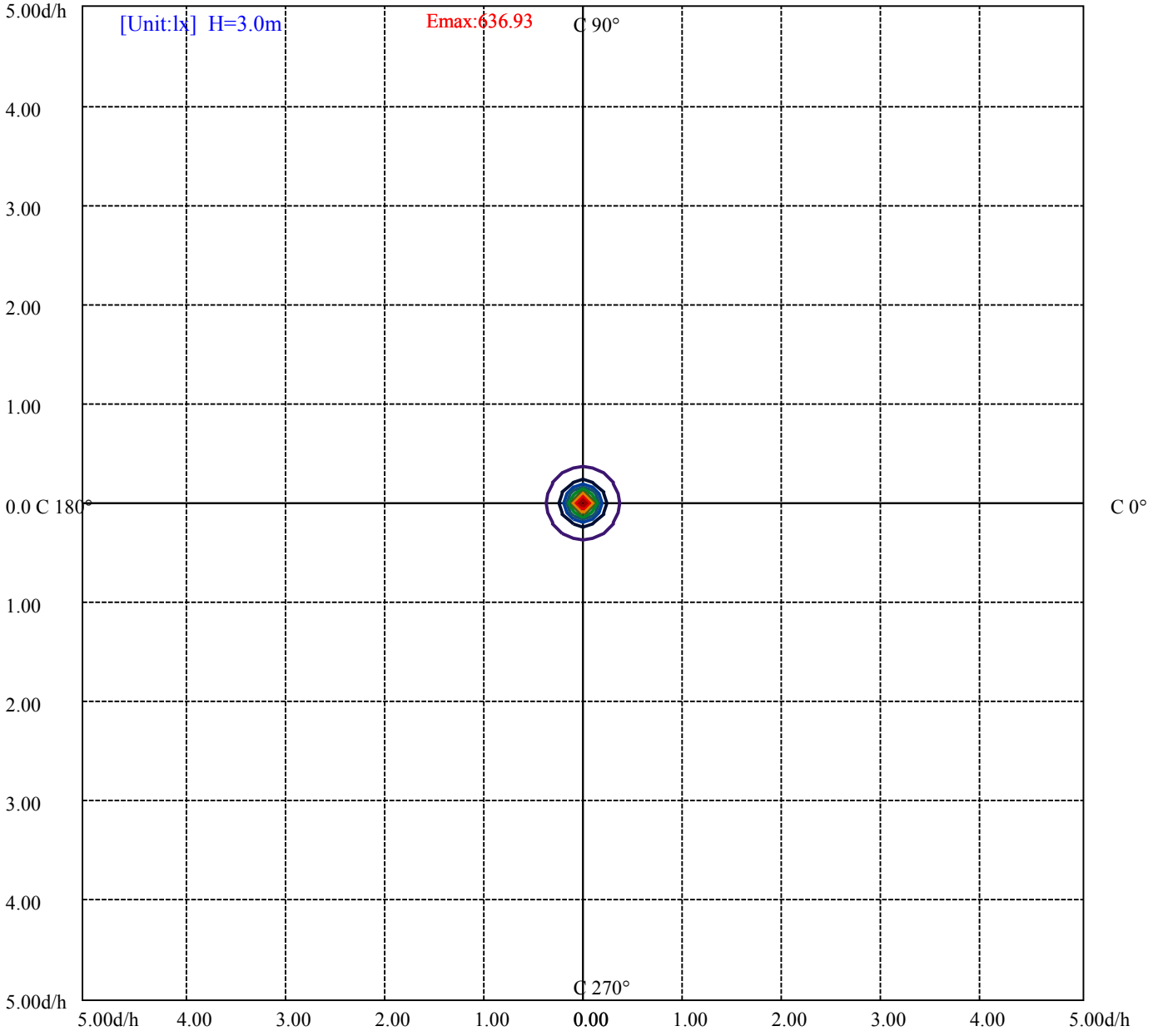
House [Unit:cd] Road

Imax:5732.39

(10%Imax) 573.239
(20%Imax) 1146.48
(30%Imax) 1719.72
(40%Imax) 2292.96
(50%Imax) 2866.2
(60%Imax) 3439.44
(70%Imax) 4012.68
(80%Imax) 4585.92
(90%Imax) 5159.15

Nata 1632-M

ISO illuminance diagram

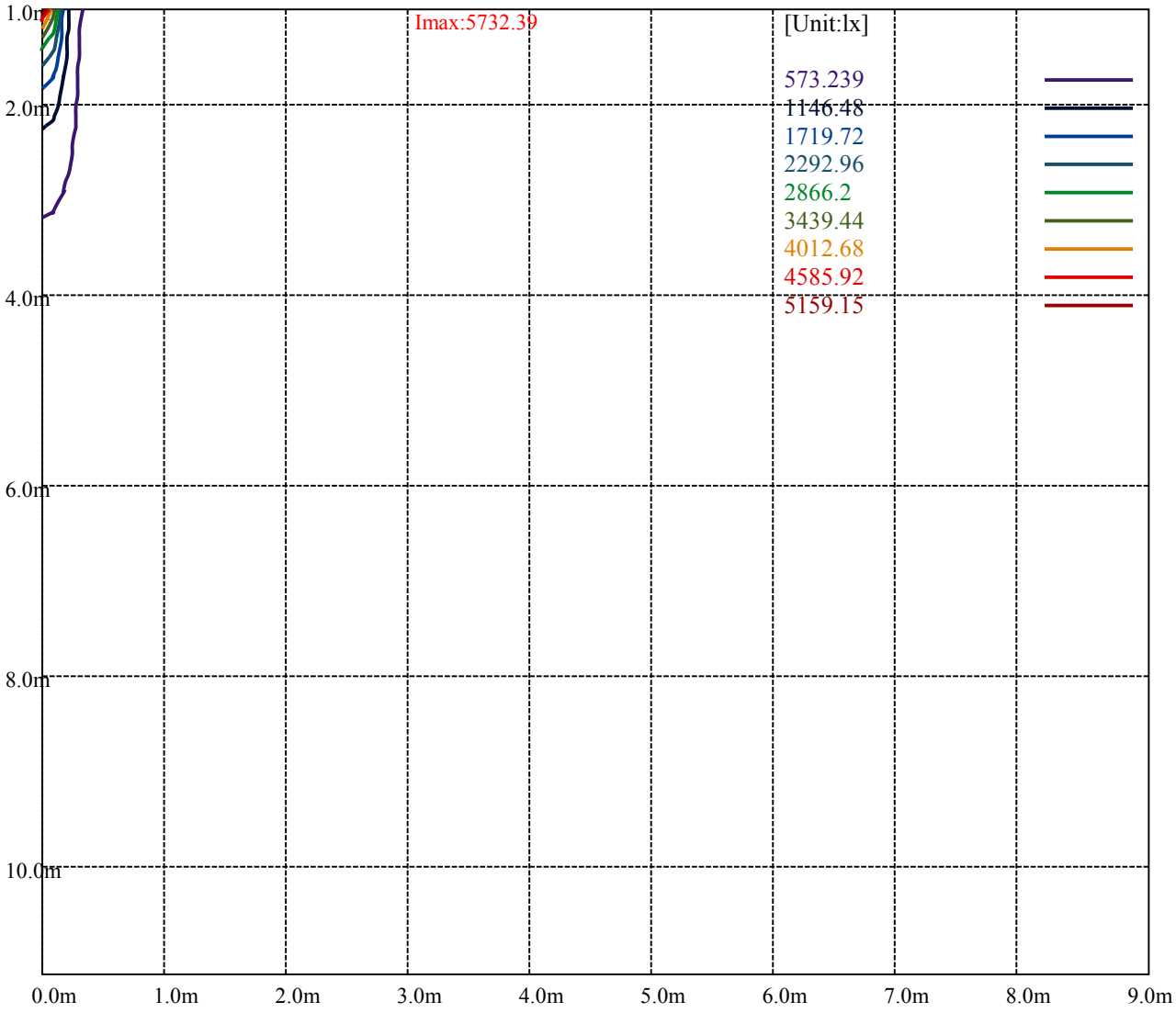


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/7/28
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.46

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/7/28
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.46

Nata 1632-M

Luminance Limitting Curve(no luminous side)

Luminance Table

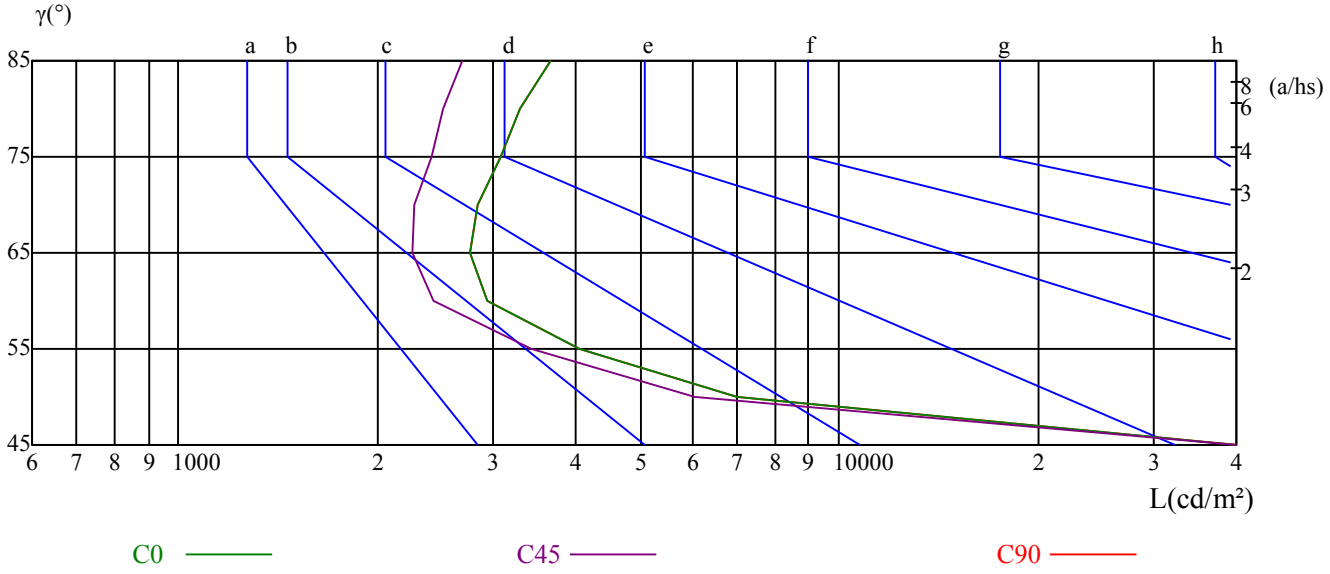
γ	45	50	55	60	65	70	75	80	85
C0	56398	7024	4037	2926	2770	2838	3083	3297	3656
C45	49219	6041	3418	2437	2265	2274	2413	2512	2695
C90	56398	7024	4037	2926	2770	2838	3083	3297	3656

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5998	5998	5998	9336	9336	9336	26367	26367	26367

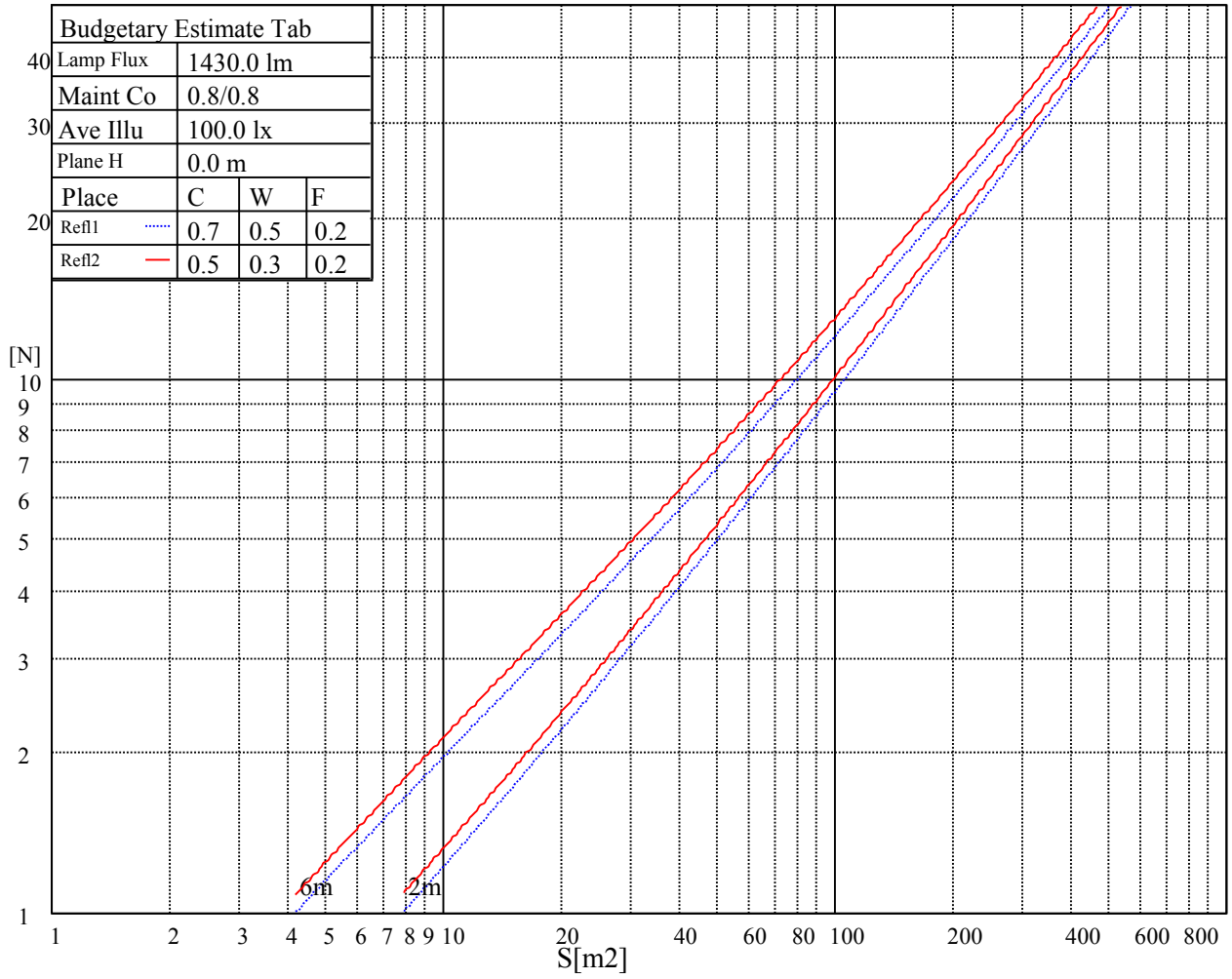
Glare Table

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

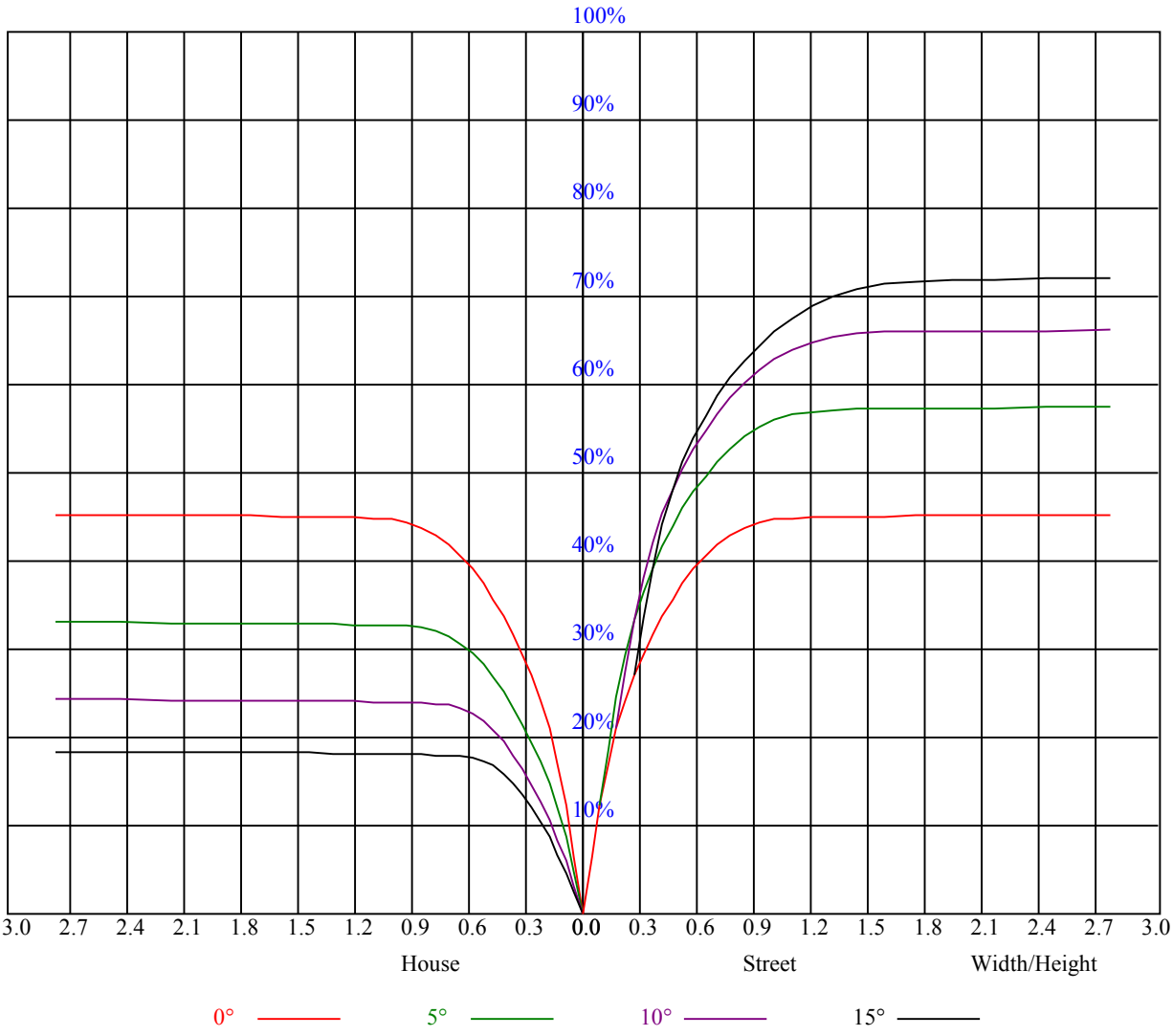


Equipment: GMS1980 Date: 2017/7/28 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.46

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	1.08	1.08	1.08	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.84	0.81	0.87	0.84	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.75
4	0.84	0.79	0.75	0.83	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.77	0.74	0.72	0.71
5	0.79	0.74	0.70	0.78	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.68	0.67
6	0.75	0.70	0.66	0.74	0.69	0.66	0.73	0.69	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.63
7	0.71	0.66	0.62	0.70	0.66	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.60
8	0.68	0.63	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57
9	0.65	0.60	0.56	0.64	0.60	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.55
10	0.62	0.57	0.54	0.61	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.53	0.52

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2017/7/28	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.46

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	5733.23	5710.41	5538.45	5278.00	4907.36	4434.32	3779.86	3280.11	2813.19
45.0	5751.04	5616.92	5343.67	4927.39	4466.04	4027.51	3321.29	2843.24	2465.37
90.0	5687.59	5443.28	5121.62	4630.77	4071.47	3559.48	3012.42	2513.78	2138.69
135.0	5757.71	5640.29	5392.08	5003.64	4567.88	4080.38	3455.41	2982.93	2561.64
180.0	5733.23	5658.10	5439.39	5117.72	4712.02	4174.43	3608.45	3120.94	2630.09
225.0	5751.04	5777.19	5675.35	5459.98	5109.37	4679.74	4119.89	3555.02	3070.86
270.0	5687.59	5794.44	5794.44	5654.20	5416.01	5072.09	4502.77	3996.90	3482.12
315.0	5757.71	5764.95	5664.78	5428.26	5047.60	4598.49	4025.28	3449.84	2966.79
360.0	5733.23	5710.41	5538.45	5278.00	4907.36	4434.32	3779.86	3280.11	2813.19

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2298.41	1950.03	1652.85	1395.19	1203.74	1076.30	963.89	877.63	816.41
45.0	1970.62	1674.56	1433.59	1226.56	1077.41	990.04	892.65	833.10	781.90
90.0	1818.14	1503.15	1310.60	1102.07	1049.26	941.01	873.01	817.36	760.15
135.0	2110.87	1804.78	1551.57	1331.74	1167.01	1054.04	953.31	870.95	814.18
180.0	2248.32	1883.25	1591.64	1382.94	1103.35	1049.59	969.67	892.99	819.64
225.0	2635.10	2152.05	1829.82	1563.25	1327.85	1103.40	1034.17	946.24	853.53
270.0	2885.54	2457.02	2087.49	1732.99	1454.18	1264.40	1103.57	992.82	895.99
315.0	2522.13	2050.20	1734.10	1481.45	1284.44	1103.52	997.17	912.57	830.38
360.0	2298.41	1950.03	1652.85	1395.19	1203.74	1076.30	963.89	877.63	816.41

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	764.10	725.70	692.31	661.70	636.65	614.95	594.36	579.89	570.43
45.0	730.71	696.76	664.48	636.65	613.84	596.03	577.11	565.42	557.07
90.0	721.86	689.19	657.08	628.86	606.94	586.85	572.60	560.19	548.00
135.0	760.76	724.03	690.08	658.91	634.98	613.28	589.35	574.32	562.64
180.0	771.33	729.98	687.24	659.19	632.48	605.82	588.63	571.43	555.74
225.0	800.72	757.59	715.01	677.95	650.68	623.24	603.37	584.56	569.04
270.0	825.31	778.01	734.60	698.43	671.16	649.45	620.52	603.26	590.46
315.0	780.29	739.39	701.60	668.43	641.16	613.89	593.25	575.44	561.86
360.0	764.10	725.70	692.31	661.70	636.65	614.95	594.36	579.89	570.43

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	561.52	552.62	544.83	534.81	522.57	510.88	498.64	485.28	467.47
45.0	545.39	534.26	524.24	510.88	495.30	480.83	463.58	448.55	430.19
90.0	536.59	521.68	507.43	493.85	480.22	462.46	449.22	436.31	422.62
135.0	548.72	536.48	525.91	513.11	500.31	486.95	471.37	458.01	439.65
180.0	546.94	535.59	521.18	512.22	500.20	484.11	472.48	458.74	444.16
225.0	558.30	546.39	534.48	524.91	514.17	501.87	491.35	479.38	465.36
270.0	574.32	564.86	555.96	544.27	533.14	524.79	513.66	503.65	491.96
315.0	551.23	540.77	531.64	523.07	514.83	503.70	493.69	482.94	468.48
360.0	561.52	552.62	544.83	534.81	522.57	510.88	498.64	485.28	467.47

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	450.78	435.20	418.50	391.23	357.28	320.00	281.60	220.05	176.58
45.0	417.39	402.92	380.66	347.82	310.54	282.15	215.04	176.42	133.90
90.0	409.48	393.35	364.52	328.62	290.78	245.20	202.52	155.38	112.36
135.0	423.51	410.71	389.56	359.51	324.45	291.61	232.68	193.00	150.43
180.0	428.24	416.22	400.47	377.15	344.87	305.19	263.57	215.98	167.46
225.0	450.33	438.03	423.23	406.09	381.10	345.60	306.81	261.51	212.70
270.0	478.05	463.02	449.11	430.19	409.04	376.20	328.34	288.28	282.71
315.0	455.68	442.76	425.18	404.25	372.53	325.67	288.28	239.30	183.32
360.0	450.78	435.20	418.50	391.23	357.28	320.00	281.60	220.05	176.58

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	129.95	87.60	55.87	31.22	18.75	15.58	13.30	11.74	10.46
45.0	96.50	54.82	32.95	20.09	14.69	12.63	11.35	10.13	9.29
90.0	76.63	45.19	24.93	16.42	14.41	12.58	11.19	10.02	8.74
135.0	106.13	69.01	41.02	22.87	15.58	14.02	12.41	10.91	9.63
180.0	125.94	88.32	48.75	29.22	18.37	14.91	12.91	11.35	10.13
225.0	168.90	121.26	78.58	48.64	29.22	17.14	15.19	13.30	11.74
270.0	192.28	143.75	104.35	64.44	35.67	22.15	17.03	15.03	13.08
315.0	145.64	105.07	58.38	36.95	23.10	16.92	15.19	13.69	12.13
360.0	129.95	87.60	55.87	31.22	18.75	15.58	13.30	11.74	10.46

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.41	8.68	8.01	7.35	6.85	6.40	5.95	5.79	5.68
45.0	8.51	7.79	7.12	6.40	5.90	5.68	5.62	5.57	5.45
90.0	7.85	7.12	6.57	6.23	6.07	5.84	5.45	5.29	5.29
135.0	8.46	7.62	7.01	6.29	5.84	5.68	5.57	5.45	5.40
180.0	9.24	8.51	7.79	7.12	6.62	6.23	5.84	5.68	5.51
225.0	10.63	9.79	8.90	8.18	7.46	6.79	6.34	6.12	5.84
270.0	11.52	10.35	9.24	8.07	7.40	6.96	6.62	6.34	6.07
315.0	10.74	9.74	8.74	7.96	7.40	6.96	6.68	6.34	5.84
360.0	9.41	8.68	8.01	7.35	6.85	6.40	5.95	5.79	5.68

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.62	5.51	5.45	5.29	5.23	5.18	5.18	5.18	5.18
45.0	5.40	5.29	5.23	5.18	5.18	5.12	5.12	5.01	5.01
90.0	5.23	5.18	5.06	5.06	5.06	5.06	5.01	5.01	5.01
135.0	5.34	5.29	5.23	5.12	5.12	5.06	5.06	5.06	5.06
180.0	5.51	5.40	5.34	5.29	5.23	5.18	5.12	5.12	5.01
225.0	5.79	5.68	5.45	5.40	5.34	5.34	5.29	5.23	5.12
270.0	5.95	5.73	5.62	5.51	5.45	5.40	5.29	5.23	5.18
315.0	5.73	5.62	5.51	5.45	5.34	5.23	5.18	5.12	5.12
360.0	5.62	5.51	5.45	5.29	5.23	5.18	5.18	5.18	5.18

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.57	5.79	5.73	5.84	5.79	5.79	5.29	4.95	4.90
45.0	5.01	5.01	5.01	5.01	4.90	4.90	4.95	5.01	5.01
90.0	5.01	4.95	4.95	4.90	4.95	5.01	5.01	4.95	4.95
135.0	5.01	4.95	5.01	4.95	4.95	4.90	5.01	5.01	5.01
180.0	5.06	5.06	5.12	5.18	5.23	5.18	5.06	4.95	4.95
225.0	5.06	5.06	5.06	5.01	5.06	4.95	4.95	4.95	4.95
270.0	5.12	5.12	5.12	5.01	4.95	4.95	5.01	4.95	4.90
315.0	5.12	5.06	5.06	5.01	4.95	4.90	4.90	4.90	4.90
360.0	5.57	5.79	5.73	5.84	5.79	5.79	5.29	4.95	4.90

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.84	4.84	4.84	4.84	4.79	4.84	4.84	4.73	4.73
45.0	5.01	4.95	4.90	4.95	4.90	4.90	4.84	4.73	4.73
90.0	4.95	5.01	4.95	5.01	4.95	4.95	4.73	4.67	4.73
135.0	4.90	4.90	4.95	4.90	4.84	4.84	4.84	4.73	4.73
180.0	4.95	4.90	4.95	4.84	4.90	4.90	4.84	4.79	4.73
225.0	4.90	4.95	4.84	4.90	4.84	4.84	4.79	4.79	4.79
270.0	4.84	4.90	4.90	4.90	4.90	4.84	4.84	4.90	4.79
315.0	4.84	4.84	4.84	4.79	4.79	4.84	4.84	4.79	4.73
360.0	4.84	4.84	4.84	4.84	4.79	4.84	4.84	4.73	4.73

Intensity data(cd)

C/γ(°)	90.0
0.0	4.67
45.0	4.73
90.0	4.73
135.0	4.79
180.0	4.73
225.0	4.73
270.0	4.79
315.0	4.73
360.0	4.67