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

Nata

Client:
LumCAT: 3-1698-N
Luminaire: 92.70.065.00+92.70.089.00

Report No: nata-0100	Voltage(V): 35.2000
Test No:	Current(A): 0.6000
LampCAT: CREE CMT1922	Power (W): 22.1200
Lamp flux(lm): 2762.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2163.04, Efficiency(%): 78.32% , Luminous Efficacy(lm/W): 97.79
Central intensity(cd): 13996.710, Maximum intensity(cd): 13996.710
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.8
[C90/270]Total=17.8
Field angle(10%Imax): [C0/180]Total=33.6
[C90/270]Total=33.6
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.79%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.710%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13996.713	13.394	13.394	.485%	.619%
2.0	13623.706	104.275	117.669	3.775%	5.440%
4.0	12464.769	190.693	308.362	6.904%	14.256%
6.0	10606.615	243.151	551.513	8.804%	25.497%
8.0	8131.211	248.185	799.698	8.986%	36.971%
10.0	5576.594	212.376	1012.074	7.689%	46.790%
12.0	3570.132	162.790	1174.864	5.894%	54.316%
14.0	2334.598	123.866	1298.73	4.485%	60.042%
16.0	1536.486	92.882	1391.612	3.363%	64.336%
18.0	1192.996	80.851	1472.463	2.927%	68.074%
20.0	1000.760	75.067	1547.53	2.718%	71.544%
22.0	853.360	70.109	1617.639	2.538%	74.786%
24.0	719.257	64.160	1681.799	2.323%	77.752%
26.0	605.848	58.247	1740.045	2.109%	80.445%
28.0	511.137	52.627	1792.673	1.905%	82.878%
30.0	431.181	47.282	1839.954	1.712%	85.064%
32.0	360.461	41.892	1881.847	1.517%	87.000%
34.0	303.560	37.228	1919.075	1.348%	88.721%
36.0	257.712	33.221	1952.296	1.203%	90.257%
38.0	216.592	29.245	1981.541	1.059%	91.609%
40.0	187.625	26.450	2007.991	.958%	92.832%
42.0	159.643	23.427	2031.419	.848%	93.915%
44.0	134.840	20.543	2051.961	.744%	94.865%
46.0	112.226	17.705	2069.666	.641%	95.683%
48.0	89.749	14.627	2084.293	.530%	96.360%
50.0	69.853	11.736	2096.029	.425%	96.902%
52.0	54.630	9.441	2105.47	.342%	97.339%
54.0	41.182	7.307	2112.777	.265%	97.676%
56.0	30.887	5.616	2118.393	.203%	97.936%
58.0	23.516	4.374	2122.766	.158%	98.138%
60.0	18.389	3.493	2126.259	.126%	98.300%
62.0	16.366	3.169	2129.428	.115%	98.446%
64.0	15.361	3.028	2132.456	.110%	98.586%
66.0	14.556	2.916	2135.372	.106%	98.721%
68.0	13.922	2.831	2138.203	.103%	98.852%
70.0	13.310	2.743	2140.946	.099%	98.979%
72.0	12.766	2.663	2143.609	.096%	99.102%
74.0	12.298	2.593	2146.202	.094%	99.222%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.885	2.529	2148.731	.092%	99.339%
78.0	11.617	2.492	2151.223	.090%	99.454%
80.0	11.335	2.448	2153.671	.089%	99.567%
82.0	10.805	2.347	2156.018	.085%	99.676%
84.0	10.082	2.199	2158.217	.080%	99.777%
86.0	9.256	2.025	2160.242	.073%	99.871%
88.0	8.589	1.882	2162.124	.068%	99.958%
90.0	8.314	0.912	2163.036	.033%	100.000%

Zonal flux distribution table

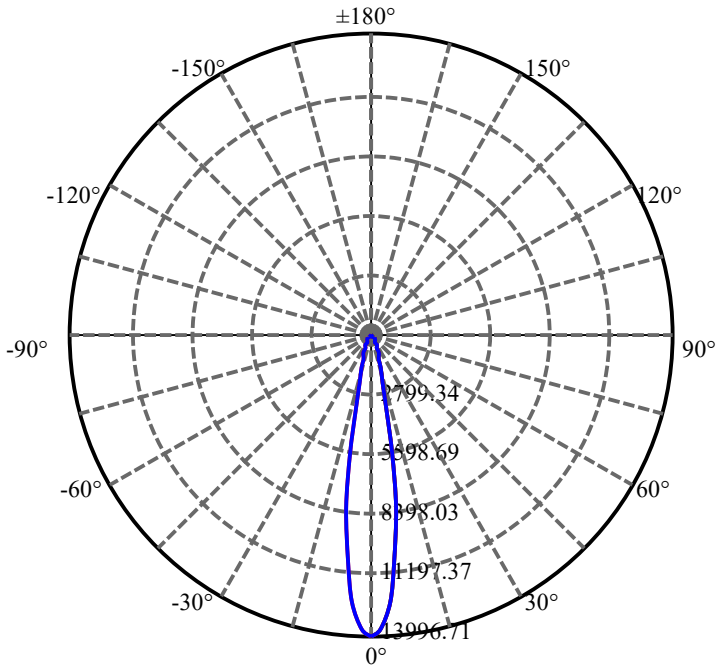
ZONAL LUMEN SUMMARY

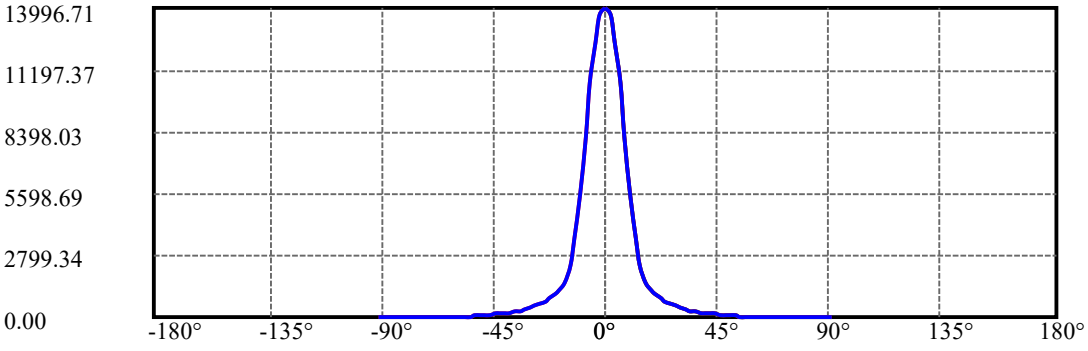
Zone	Lumens	%Lamp	%Fixt
0-30	1839.95	66.62%	85.06%
0-40	2007.99	72.70%	92.83%
0-60	2126.26	76.98%	98.30%
0-90	2162.12	78.28%	99.96%
0-120	2162.12	78.28%	99.96%
0-180	2163.04	78.32%	100.00%
60-90	39.36	1.43%	1.82%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.67	1730.43	62.65%	80.00%

ZONAL LUMEN SUMMARY

0-10	1012.07
10-20	535.46
20-30	292.42
30-40	168.04
40-50	88.04
50-60	30.23
60-70	14.69
70-80	12.72
80-90	8.45
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):

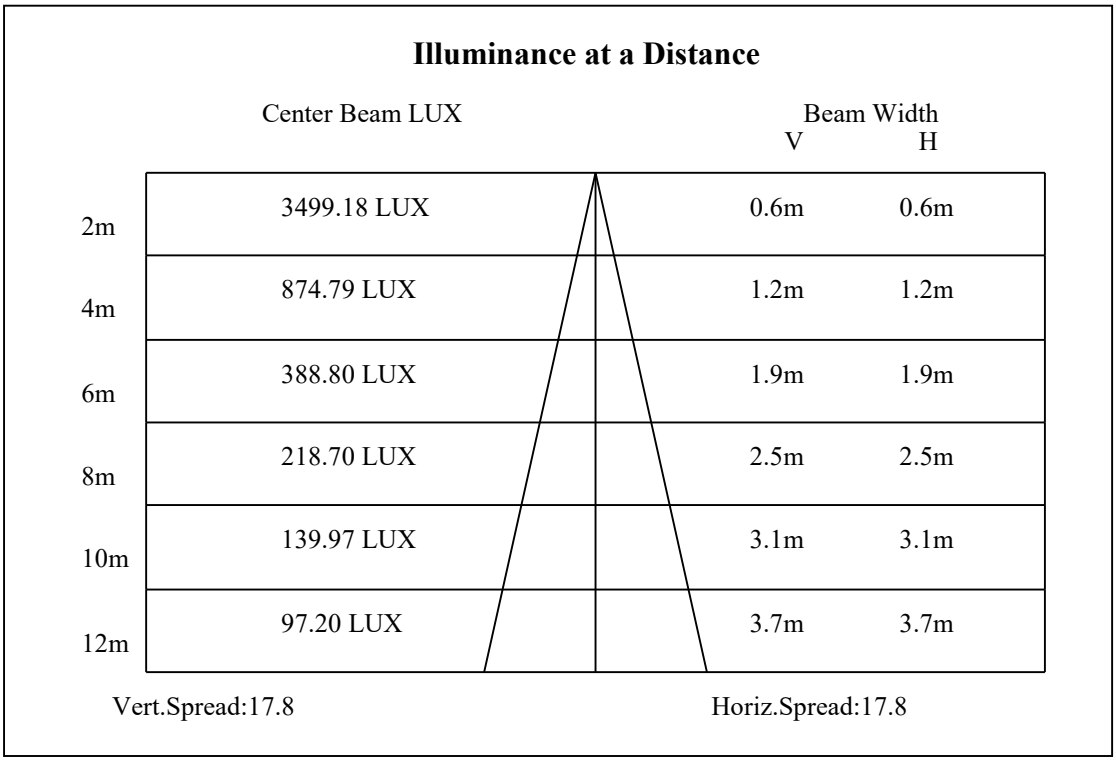
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:16.8 Right:16.8
:C90/270Left:16.8 Right:16.8

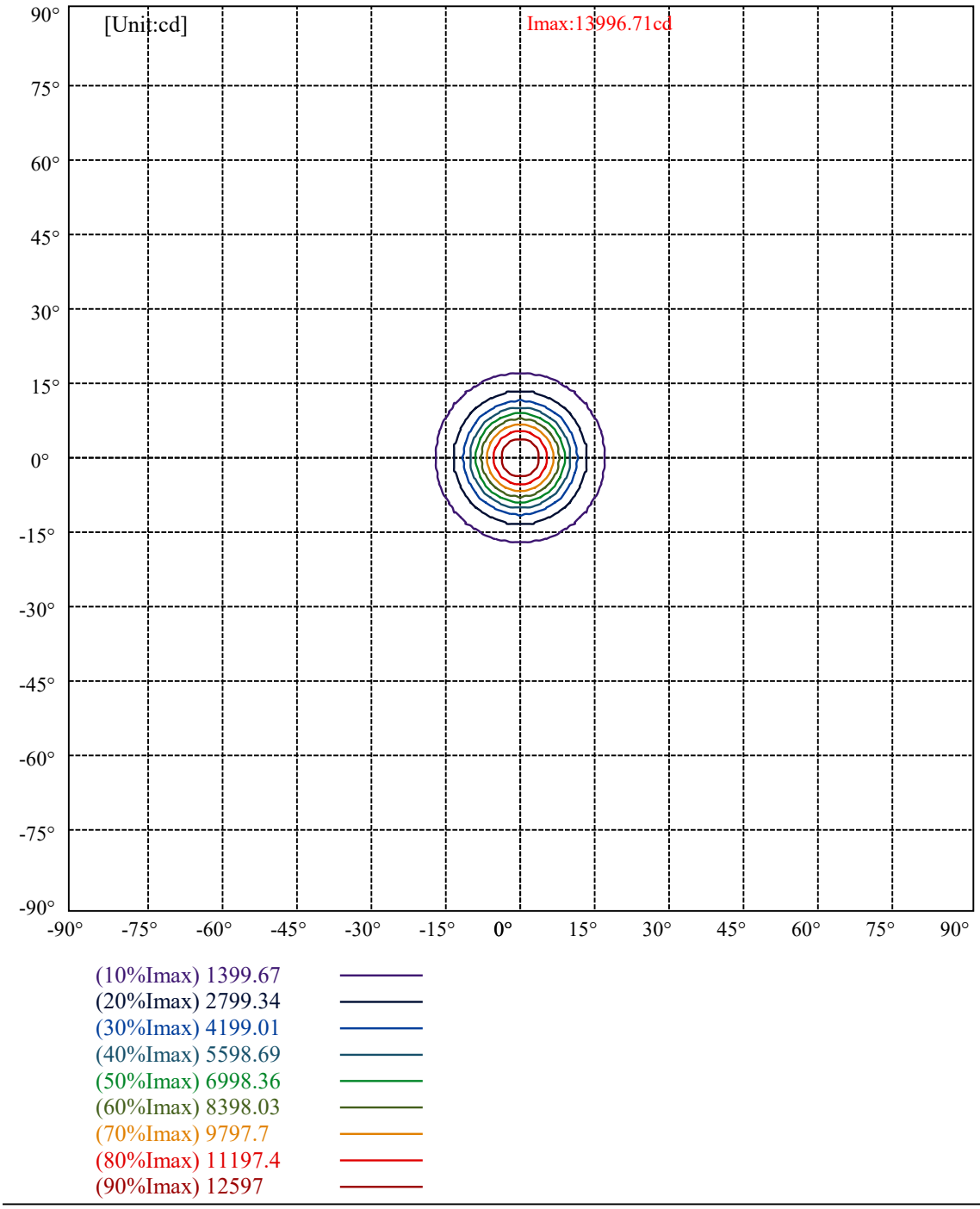
Beam Angle(50%Imax):C0/180Left:8.9 Right:8.9
:C90/270Left:8.9 Right:8.9

Lux distance Curve



Equipment: GMS1980 Date: 2018/5/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)



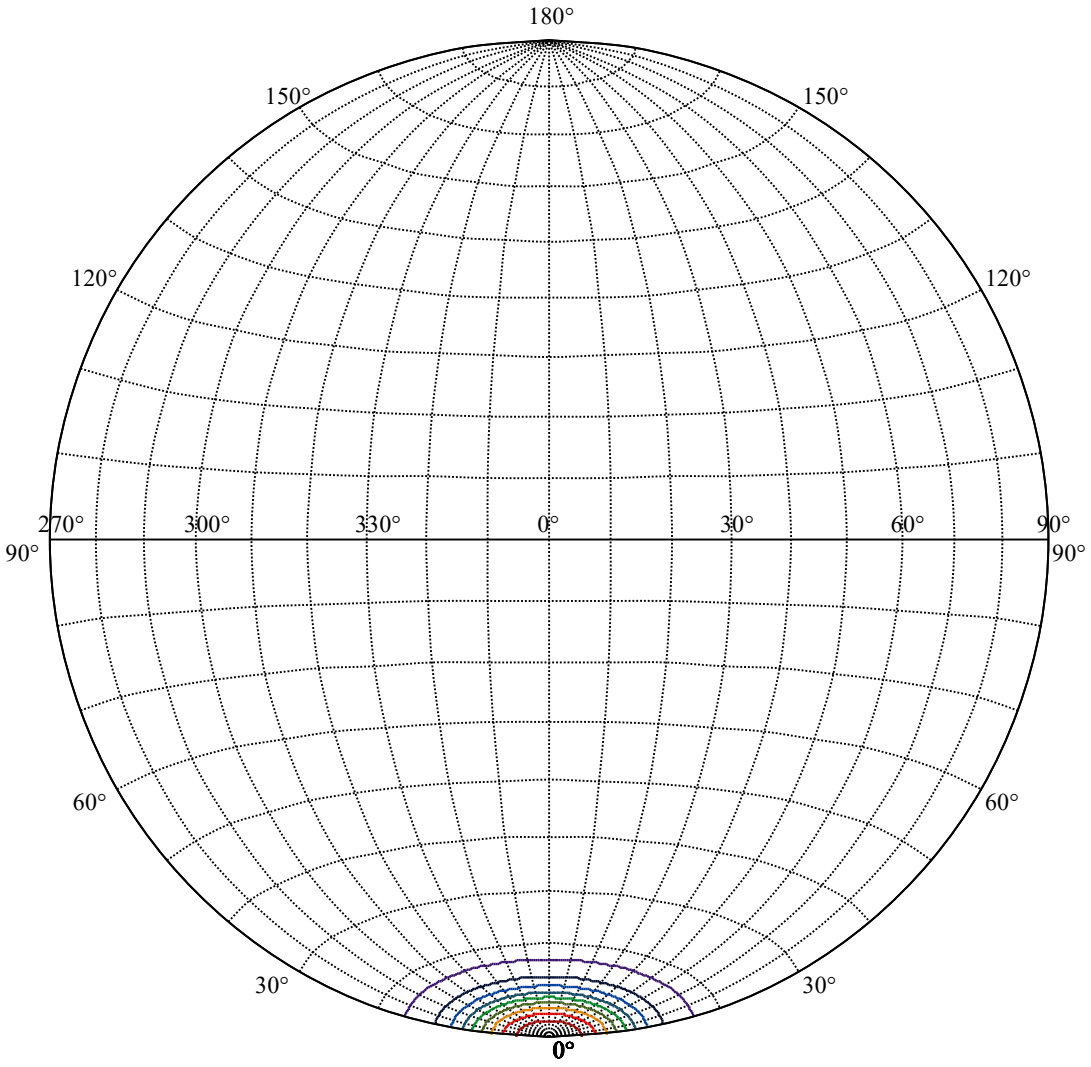
(10%Imax) 1399.67
(20%Imax) 2799.34
(30%Imax) 4199.01
(40%Imax) 5598.69
(50%Imax) 6998.36
(60%Imax) 8398.03
(70%Imax) 9797.7
(80%Imax) 11197.4
(90%Imax) 12597

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/5/5
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:13996.71

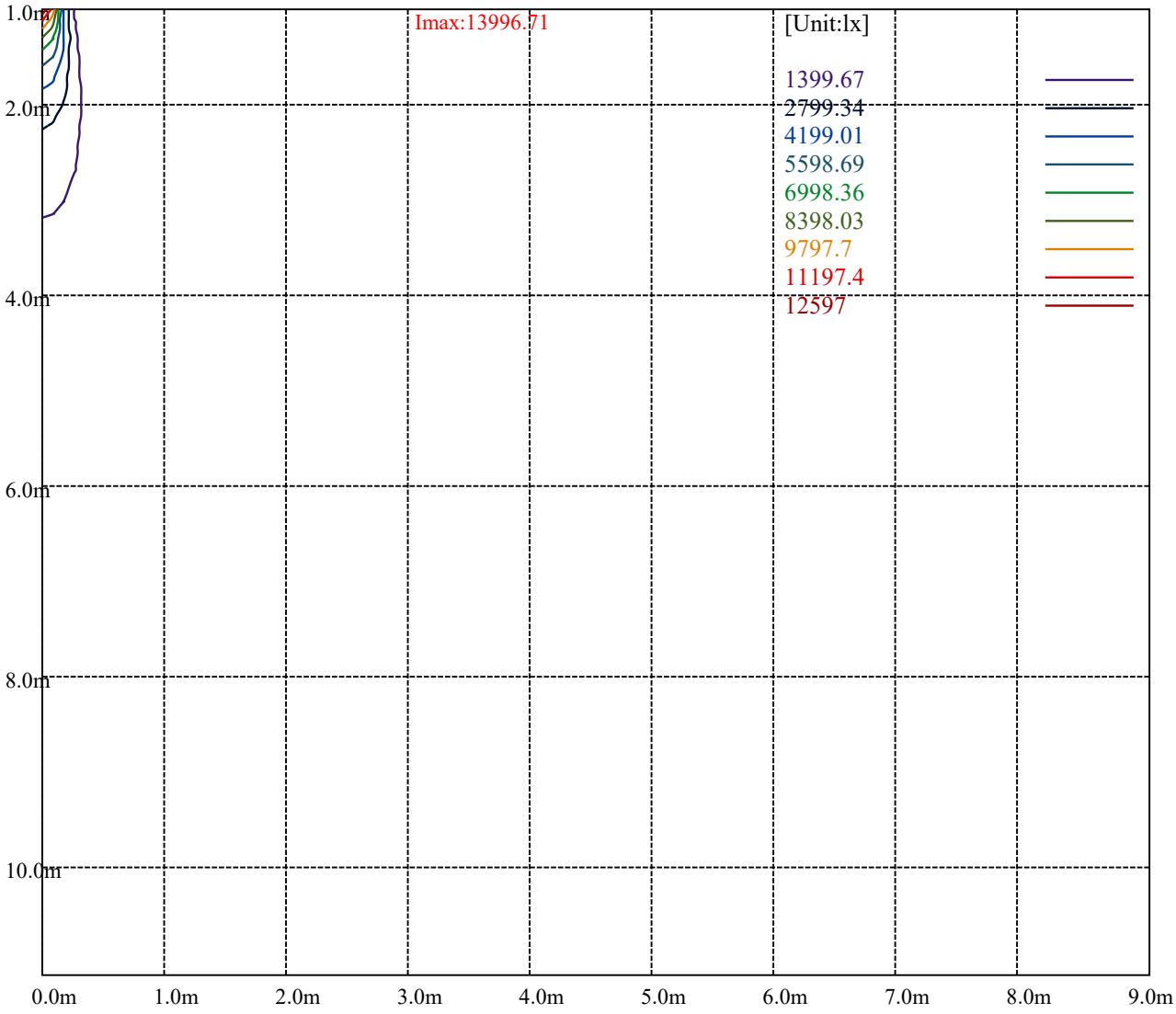
(10%Imax) 1399.67
(20%Imax) 2799.34
(30%Imax) 4199.01
(40%Imax) 5598.69
(50%Imax) 6998.36
(60%Imax) 8398.03
(70%Imax) 9797.7
(80%Imax) 11197.4
(90%Imax) 12597

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/5/5
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/5/5
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Luminance Limitting Curve(no luminous side)

Luminance Table

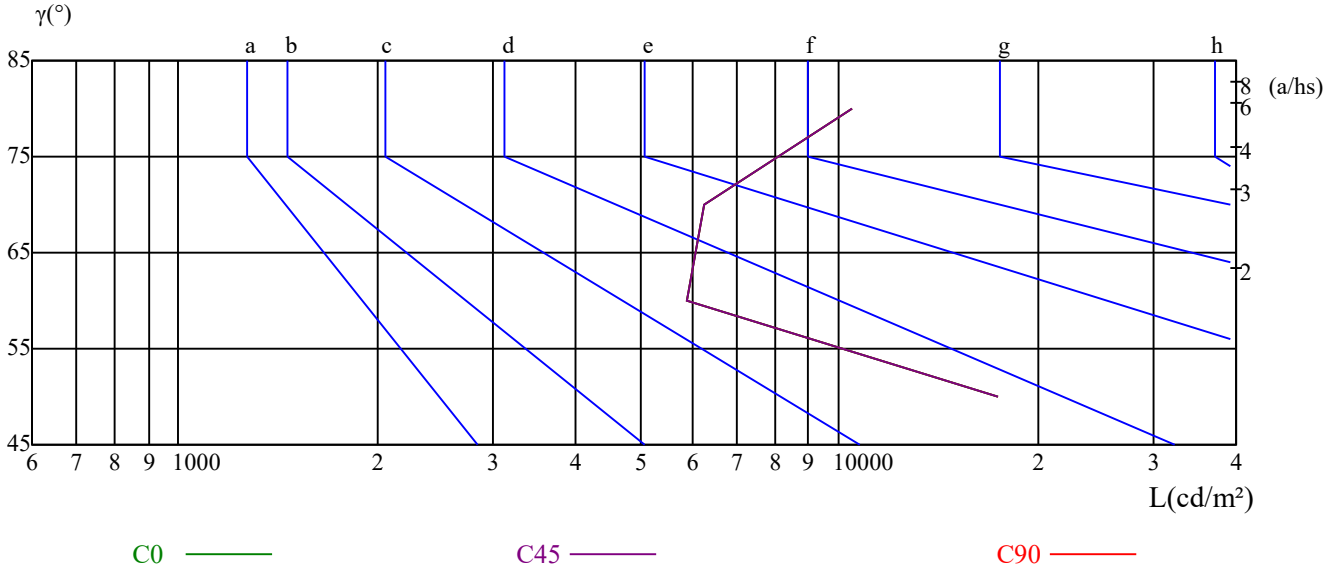
γ	45	50	55	60	65	70	75	80	85
C0	0	17413	0	5893	0	6235	0	10459	0
C45	0	17413	0	5893	0	6235	0	10459	0
C90	0	17413	0	5893	0	6235	0	10459	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2667	2667	2667	4312	4312	4312	13310	13310	13310

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

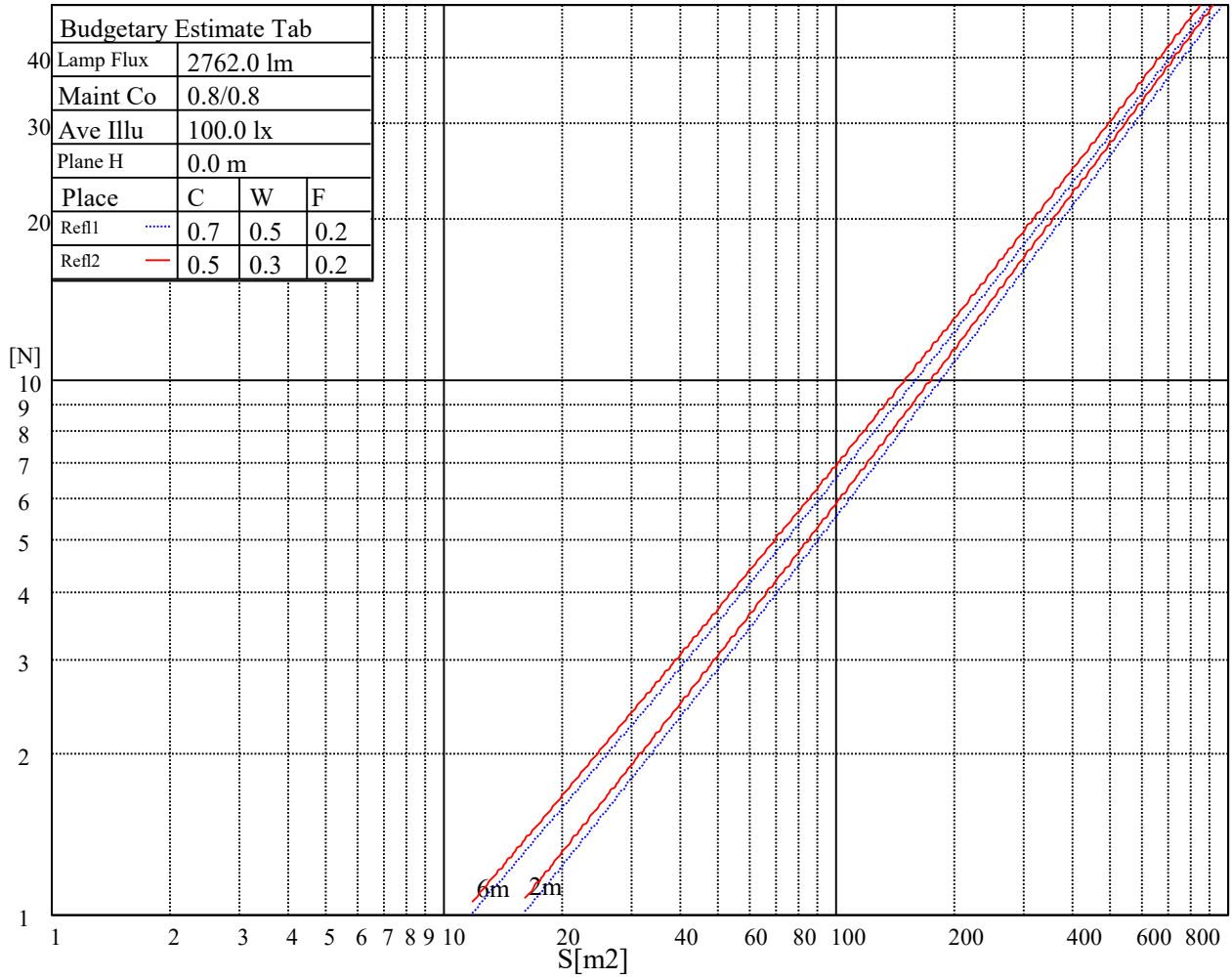


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/5/5
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

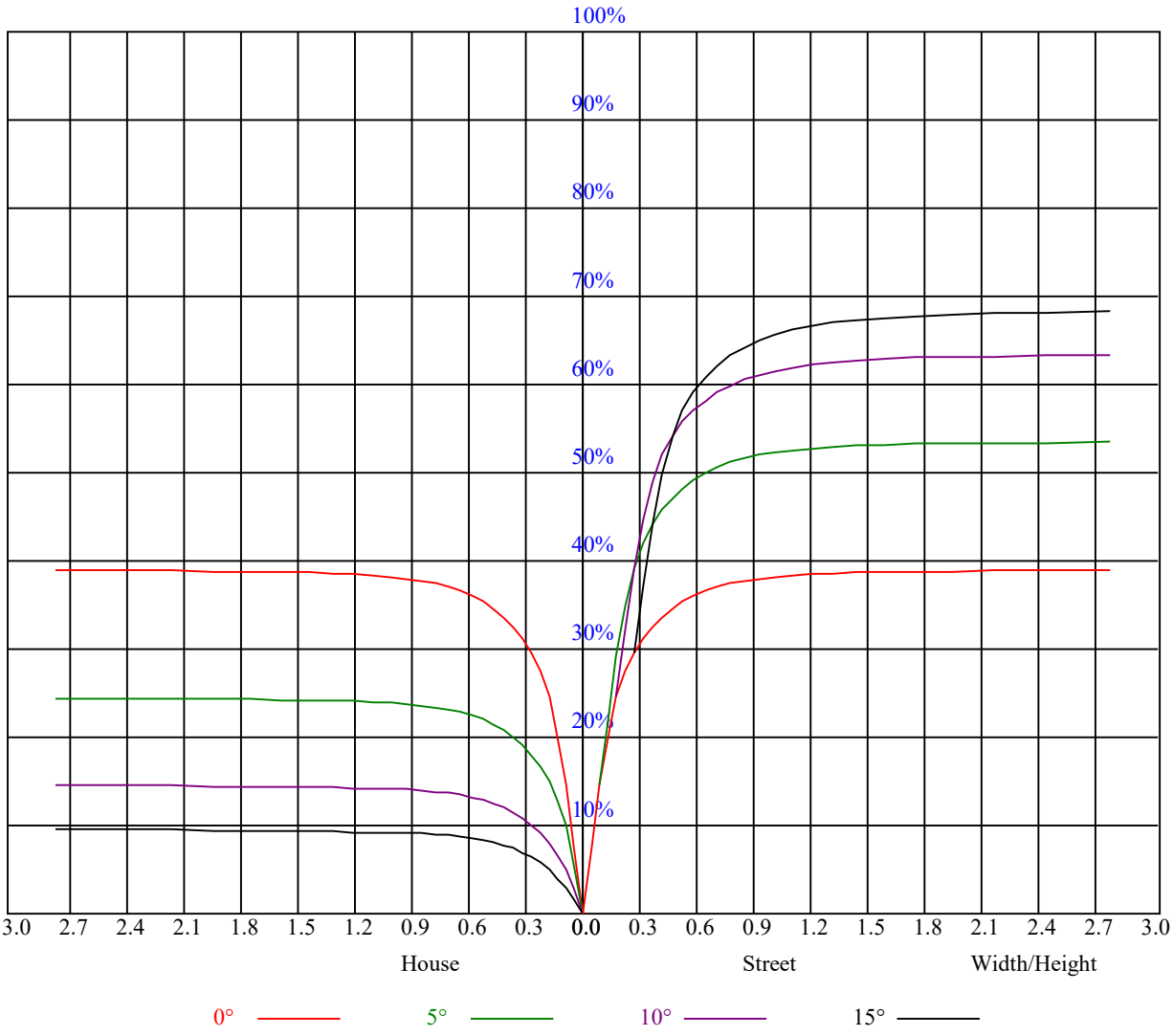


Equipment: GMS1980 Date: 2018/5/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Utilization factor table for indoor luminaire

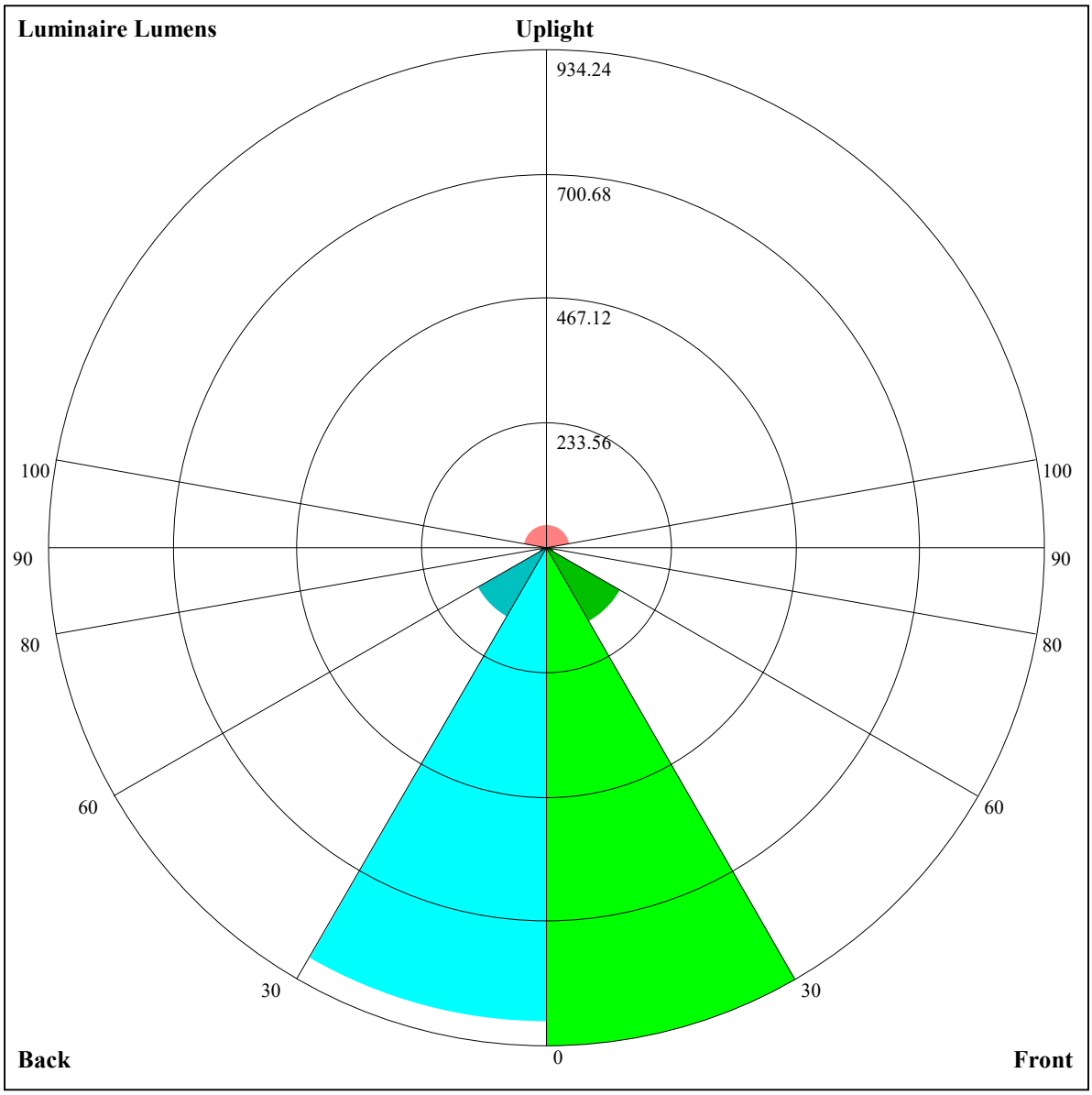
RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.80	0.80	0.80	0.79
1	0.88	0.86	0.84	0.86	0.85	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75
2	0.83	0.81	0.78	0.82	0.80	0.78	0.80	0.78	0.76	0.77	0.76	0.74	0.75	0.74	0.73	0.72
3	0.79	0.76	0.74	0.78	0.76	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.69
4	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.71	0.69	0.67	0.66
5	0.73	0.70	0.67	0.73	0.69	0.67	0.71	0.68	0.66	0.70	0.68	0.66	0.69	0.67	0.65	0.64
6	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.63	0.62
7	0.68	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.61	0.61
8	0.66	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59
9	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.60	0.58	0.62	0.60	0.58	0.58
10	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2018/5/5	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

LCS Graph



Luminaire Lumens:
FL=934.24,FM=158.79,FH=14.01,FVH=5.28
BL=890.68,BM=151.1,BH=13.97,BVH=5.32
UL=9.07,UH=43.16

BUG Rating:B2-U2-G0

Equipment: GMS1980	Date: 2018/5/5	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	13962.30	13846.68	12894.21	11077.35	8842.06	6182.83	4046.65	2835.40	1674.82
45.0	14000.84	13813.65	12916.23	11165.44	8781.50	6221.37	4030.13	2818.89	1688.58
90.0	14028.37	13720.05	12684.99	10921.54	8330.58	5808.45	3763.10	2301.36	1602.69
135.0	13995.34	13769.61	12839.15	11033.30	8935.65	6111.26	3942.04	2796.87	1609.30
180.0	13962.30	13367.69	11677.46	10001.55	7228.35	4800.37	2984.61	1851.55	1381.37
225.0	14000.84	13395.22	12084.88	10008.70	7287.82	4867.54	3014.89	1860.91	1381.37
270.0	14028.37	13571.40	12442.75	10378.13	8021.72	5434.07	3474.06	2163.17	1465.60
315.0	13995.34	13505.33	12178.48	10266.92	7622.01	5186.86	3305.59	2048.65	1488.17
360.0	13962.30	13846.68	12894.21	11077.35	8842.06	6182.83	4046.65	2835.40	1674.82

C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1289.97	1060.39	896.87	755.37	641.41	534.05	452.56	381.54	319.88
45.0	1310.89	1075.80	911.18	766.39	658.47	546.71	463.57	394.20	323.73
90.0	1231.61	1010.89	874.90	745.68	615.97	529.70	441.83	362.33	310.46
135.0	1254.18	1037.81	883.10	740.51	632.05	532.95	452.56	380.99	320.98
180.0	1097.99	921.59	784.94	661.61	549.85	468.20	391.01	322.85	275.06
225.0	1094.08	936.18	801.18	674.39	559.81	472.55	400.59	334.96	281.01
270.0	1167.20	981.66	841.26	706.37	599.56	498.81	421.73	352.91	296.20
315.0	1098.04	981.77	833.44	703.73	589.65	506.13	425.59	353.90	301.16
360.0	1289.97	1060.39	896.87	755.37	641.41	534.05	452.56	381.54	319.88

C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	279.69	231.02	199.91	171.50	146.12	120.24	98.11	75.70	58.80
45.0	280.24	232.34	200.96	170.56	143.70	117.60	94.59	74.16	57.86
90.0	259.92	222.65	193.58	166.00	138.69	116.83	93.10	73.28	56.54
135.0	278.59	221.82	190.00	161.43	138.63	115.84	93.54	73.89	57.97
180.0	230.96	198.75	172.66	145.68	121.18	102.68	81.15	61.94	49.33
225.0	235.04	203.65	175.19	147.83	125.03	103.29	81.26	63.48	49.06
270.0	246.27	210.92	183.23	155.42	133.57	110.22	89.14	70.03	54.18
315.0	251.00	211.58	185.49	158.73	131.81	111.10	87.10	66.34	53.29
360.0	279.69	231.02	199.91	171.50	146.12	120.24	98.11	75.70	58.80

C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	45.75	33.75	25.49	19.55	16.57	15.47	14.76	14.04	13.49
45.0	43.33	32.87	24.78	19.10	16.74	15.58	14.76	14.09	13.49
90.0	42.50	32.10	24.06	18.72	16.46	15.36	14.53	13.93	13.32
135.0	44.16	32.65	25.00	18.88	16.52	15.42	14.59	13.87	13.27
180.0	36.61	27.47	21.42	17.45	15.91	15.14	14.31	13.71	13.10
225.0	36.67	28.13	21.53	17.67	16.30	15.36	14.53	13.98	13.32
270.0	40.80	30.61	23.45	18.11	16.46	15.47	14.65	13.98	13.32
315.0	39.64	29.51	22.41	17.62	15.97	15.09	14.31	13.76	13.16
360.0	45.75	33.75	25.49	19.55	16.57	15.47	14.76	14.04	13.49

C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	12.94	12.39	11.89	11.51	11.12	10.63	10.02	9.30	8.70
45.0	12.99	12.50	11.95	11.51	11.12	10.63	10.08	9.36	8.70
90.0	12.72	12.28	11.78	11.51	11.29	10.79	10.02	9.19	8.53
135.0	12.72	12.22	11.89	11.67	11.51	10.96	10.24	9.41	8.64
180.0	12.55	12.17	11.84	11.73	11.40	10.85	10.02	9.08	8.42
225.0	12.83	12.44	12.22	11.95	11.62	11.07	10.35	9.25	8.59
270.0	12.77	12.22	11.73	11.56	11.45	10.90	10.13	9.30	8.59
315.0	12.61	12.17	11.78	11.51	11.18	10.63	9.80	9.14	8.53
360.0	12.94	12.39	11.89	11.51	11.12	10.63	10.02	9.30	8.70

Intensity data(cd)

C/γ(°)	90.0
0.0	8.26
45.0	8.37
90.0	8.31
135.0	8.31
180.0	8.26
225.0	8.37
270.0	8.31
315.0	8.31
360.0	8.26