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Nata

LumCAT: 1426-N
Luminaire: 92.70.064.00+92.70.147.00
Report No: NATA0100
Test No: GC20180712306
LampCAT: CITIZEN CLU028
Lamp flux(lm): 1840.4
Number of Lamps: 1
Length(mm): 46
Phm Type: C

Voltage(V): 36.4000
Current(A): 0.4000
Power (W): 14.5600
PF: 0.0000
Ballast type: DC
Width(mm): 46
Height(mm): 0

Photometric Results

Lumens(lm): 1519.89
Efficiency(%): 82.58%
Lumens(lm)/Power(W): 104.39
Central intensity(cd): 6521.156
Maximum intensity(cd): 6521.156
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.9
 [C90/270]Total=19.9
Field angle(10%Imax): [C0/180]Total=46.0
 [C90/270]Total=46.0
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.91%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.187%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6521.155	6.240	6.24	.339%	.411%
2.0	6339.813	48.524	54.765	2.637%	3.603%
4.0	5818.223	89.010	143.775	4.836%	9.460%
6.0	5033.050	115.380	259.155	6.269%	17.051%
8.0	4119.320	125.732	384.887	6.832%	25.323%
10.0	3232.017	123.086	507.973	6.688%	33.422%
12.0	2472.583	112.744	620.718	6.126%	40.840%
14.0	1833.860	97.299	718.016	5.287%	47.241%
16.0	1373.526	83.031	801.047	4.512%	52.704%
18.0	1058.776	71.755	872.802	3.899%	57.425%
20.0	855.308	64.156	936.959	3.486%	61.647%
22.0	710.262	58.352	995.311	3.171%	65.486%
24.0	593.818	52.970	1048.281	2.878%	68.971%
26.0	507.069	48.750	1097.031	2.649%	72.178%
28.0	433.549	44.639	1141.67	2.425%	75.115%
30.0	369.043	40.468	1182.138	2.199%	77.778%
32.0	314.929	36.601	1218.739	1.989%	80.186%
34.0	274.277	33.637	1252.376	1.828%	82.399%
36.0	235.029	30.297	1282.673	1.646%	84.393%
38.0	203.199	27.437	1310.11	1.491%	86.198%
40.0	177.089	24.965	1335.074	1.356%	87.840%
42.0	151.722	22.265	1357.339	1.210%	89.305%
44.0	131.509	20.035	1377.374	1.089%	90.623%
46.0	114.627	18.084	1395.458	.983%	91.813%
48.0	99.205	16.169	1411.627	.879%	92.877%
50.0	84.353	14.172	1425.798	.770%	93.809%
52.0	70.369	12.161	1437.96	.661%	94.610%
54.0	56.137	9.960	1447.92	.541%	95.265%
56.0	44.431	8.078	1455.998	.439%	95.796%
58.0	34.589	6.433	1462.431	.350%	96.220%
60.0	27.817	5.283	1467.715	.287%	96.567%
62.0	23.660	4.582	1472.296	.249%	96.869%
64.0	20.557	4.052	1476.348	.220%	97.135%
66.0	18.671	3.741	1480.089	.203%	97.381%
68.0	17.955	3.651	1483.74	.198%	97.622%
70.0	17.604	3.628	1487.368	.197%	97.860%
72.0	17.494	3.649	1491.017	.198%	98.100%
74.0	17.549	3.700	1494.717	.201%	98.344%

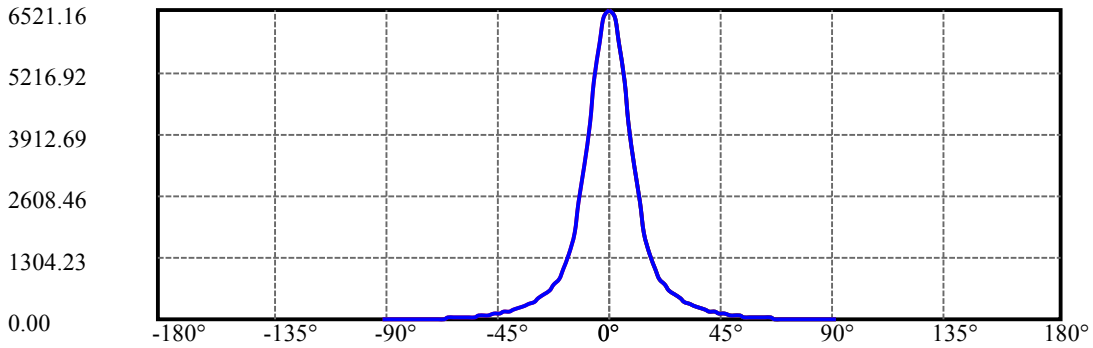
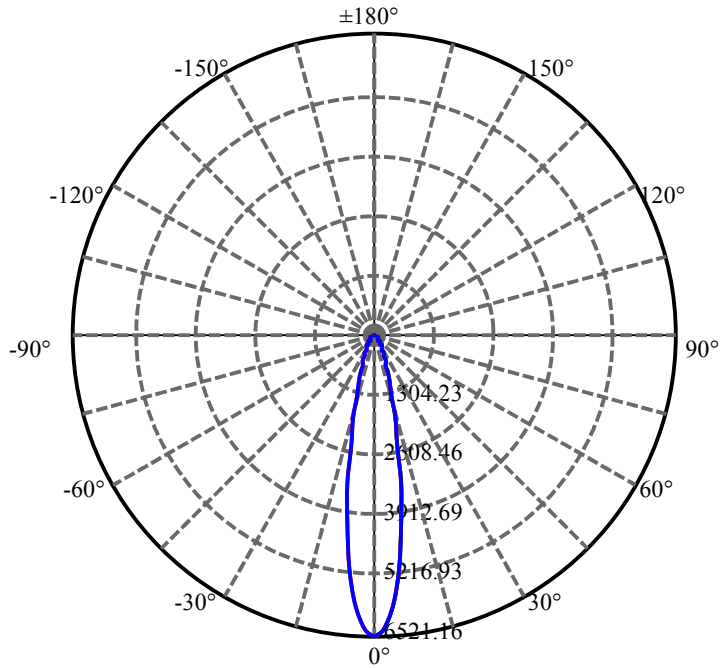
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	17.880	3.805	1498.522	.207%	98.594%
78.0	18.403	3.948	1502.469	.215%	98.854%
80.0	19.187	4.144	1506.614	.225%	99.127%
82.0	19.063	4.140	1510.754	.225%	99.399%
84.0	17.666	3.853	1514.607	.209%	99.652%
86.0	13.998	3.062	1517.669	.166%	99.854%
88.0	6.910	1.514	1519.184	.082%	99.954%
90.0	6.428	0.705	1519.889	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1182.14	64.23%	77.78%
0-40	1335.07	72.54%	87.84%
0-60	1467.71	79.75%	96.57%
0-90	1519.18	82.55%	99.95%
0-120	1519.18	82.55%	99.95%
0-180	1519.89	82.58%	100.00%
60-90	56.75	3.08%	3.73%
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%
0-31.85	1215.91	66.07%	80.00%

ZONAL LUMEN SUMMARY

0-10	507.97
10-20	428.99
20-30	245.18
30-40	152.94
40-50	90.72
50-60	41.92
60-70	19.65
70-80	19.25
80-90	12.57
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



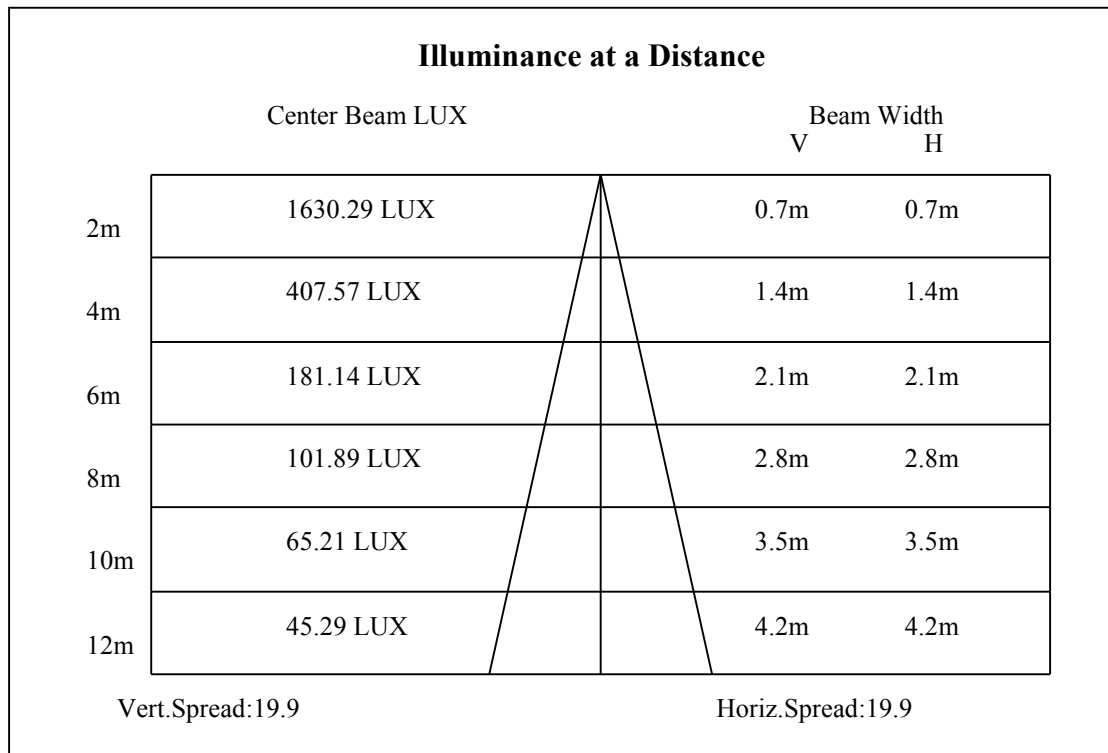
C0(Max): —————

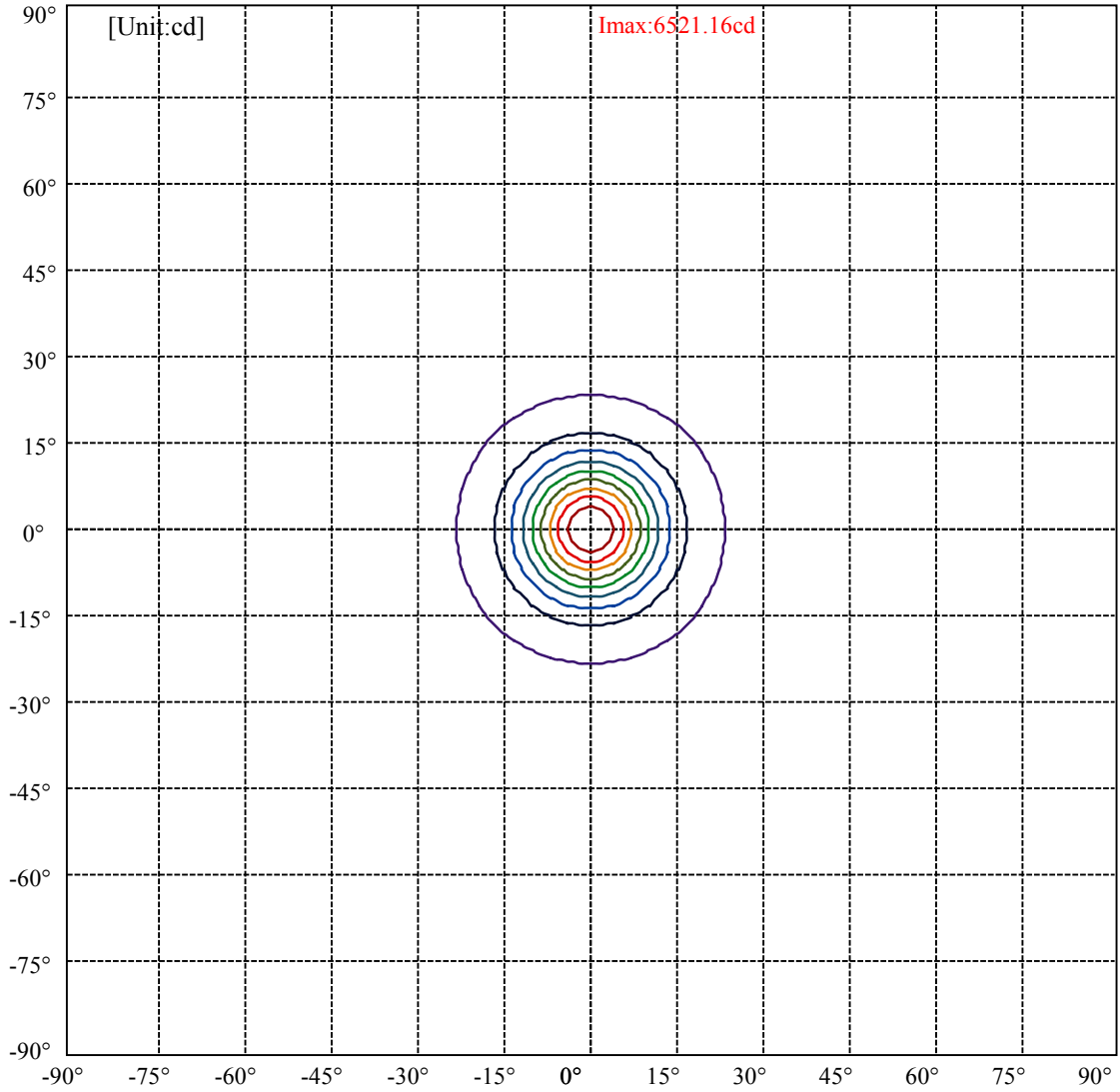
C0/C180: —————

C90/C270: —————

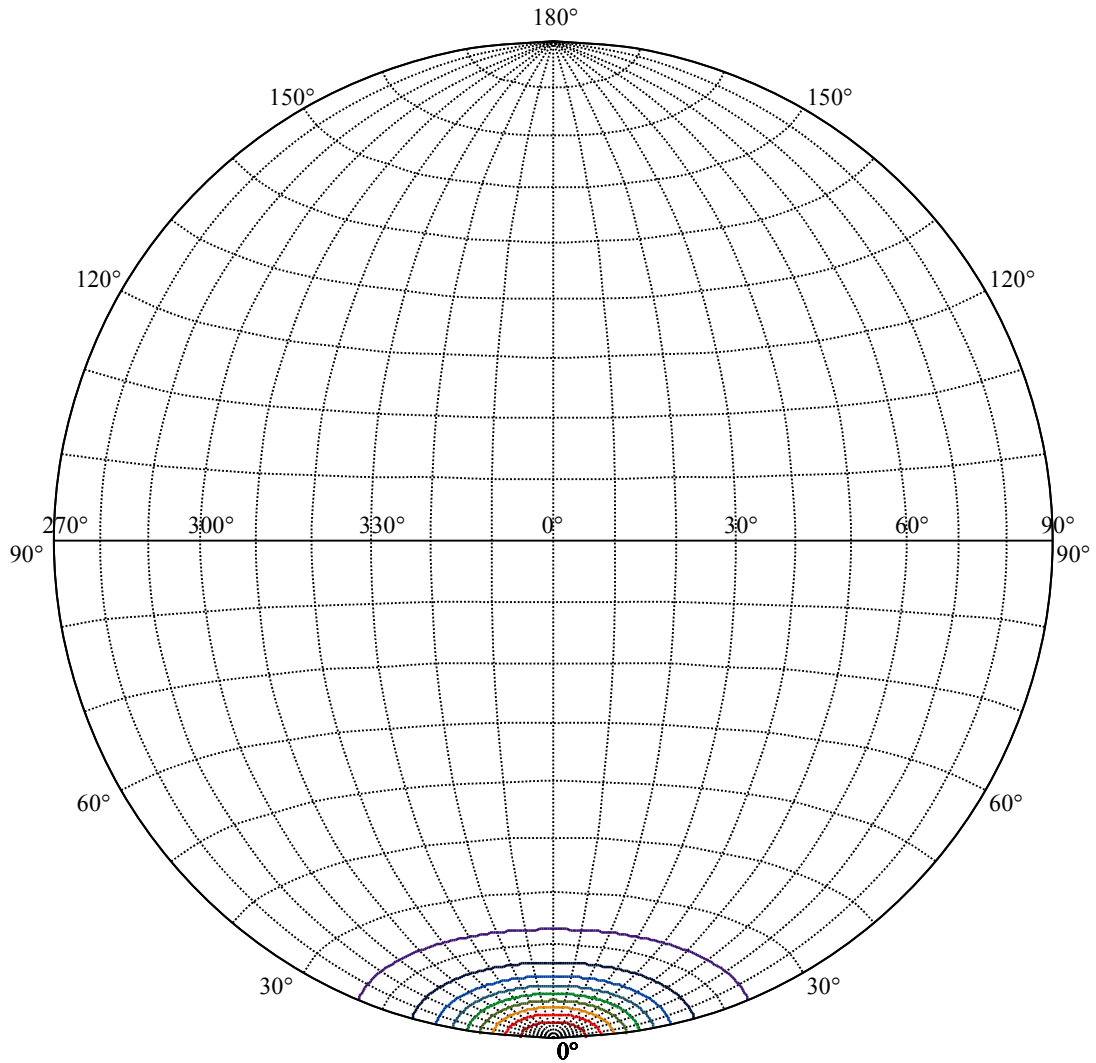
Field angle(10%Imax):C0/180Left:23.0 Right:23.0
:C90/270Left:23.0 Right:23.0

Beam Angle(50%Imax):C0/180Left:9.9 Right:9.9
:C90/270Left:9.9 Right:9.9





(10%Imax) 652.116	—
(20%Imax) 1304.23	—
(30%Imax) 1956.35	—
(40%Imax) 2608.46	—
(50%Imax) 3260.58	—
(60%Imax) 3912.69	—
(70%Imax) 4564.81	—
(80%Imax) 5216.92	—
(90%Imax) 5869.04	—



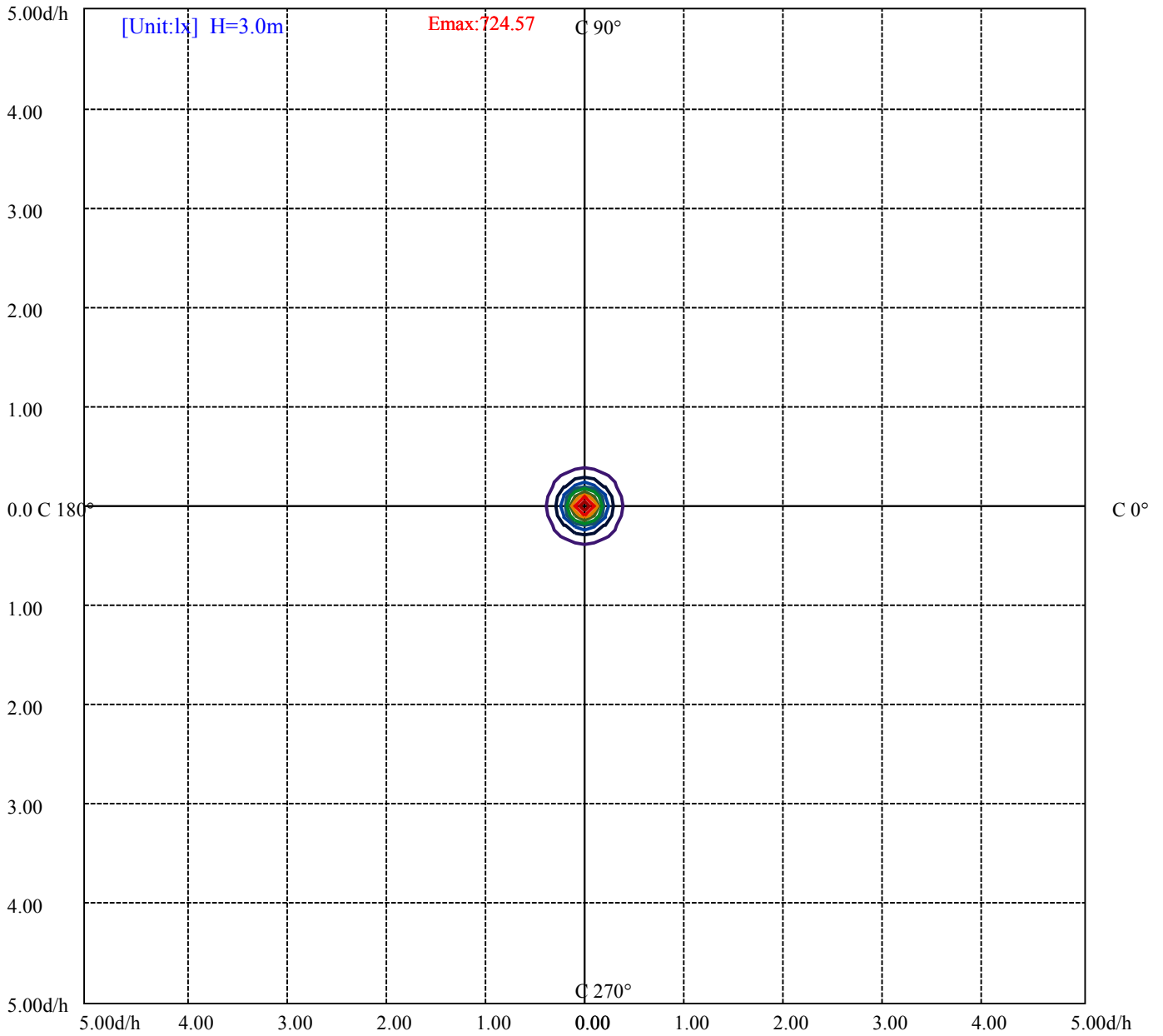
House

[Unit:cd]

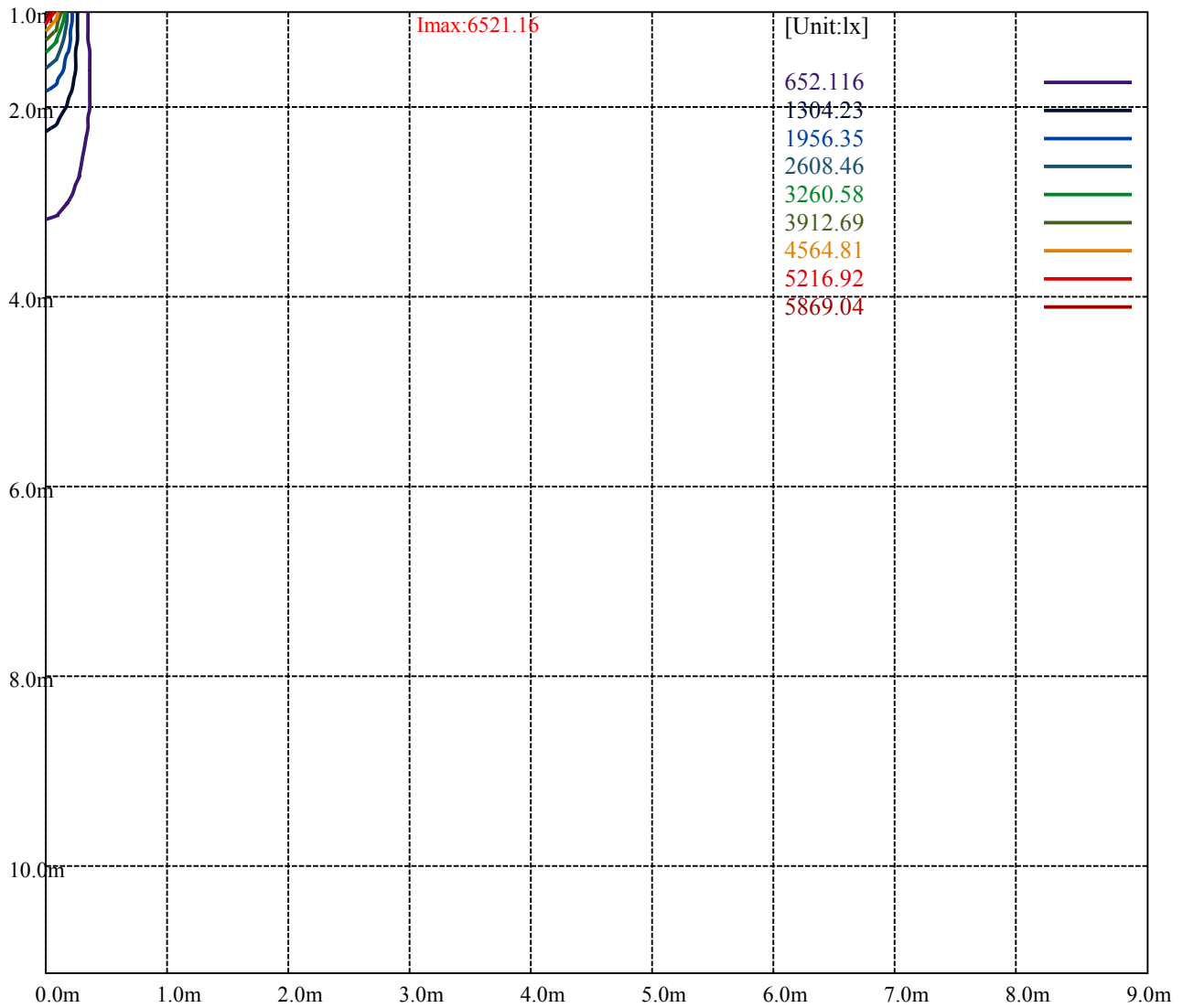
Road

I_{max}:6521.16

(10%I _{max}) 652.116	—
(20%I _{max}) 1304.23	—
(30%I _{max}) 1956.35	—
(40%I _{max}) 2608.46	—
(50%I _{max}) 3260.58	—
(60%I _{max}) 3912.69	—
(70%I _{max}) 4564.81	—
(80%I _{max}) 5216.92	—
(90%I _{max}) 5869.04	—



(10%Emax) 72.45712	—
(20%Emax) 144.9144	—
(30%Emax) 217.3711	—
(40%Emax) 289.8289	—
(50%Emax) 362.2856	—
(60%Emax) 434.7433	—
(70%Emax) 507.2	—
(80%Emax) 579.6567	—
(90%Emax) 652.1144	—



Luminance Table

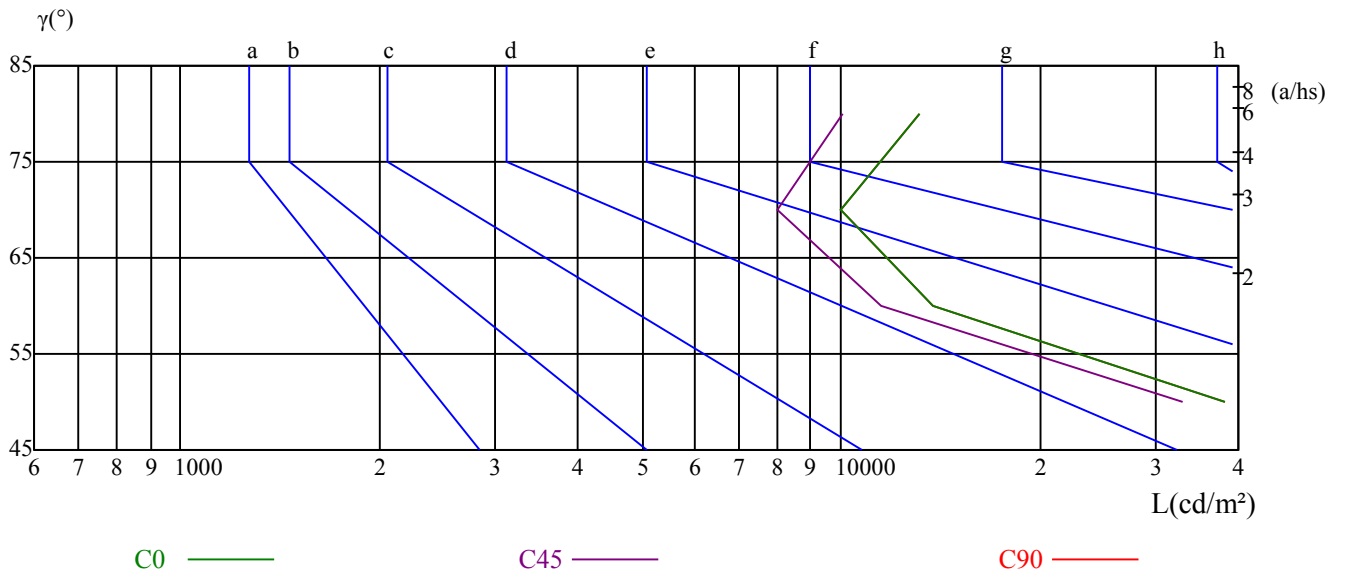
γ	45	50	55	60	65	70	75	80	85
C0	0	38241	0	13811	0	9996	0	13190	0
C45	0	33000	0	11542	0	8035	0	10072	0
C90	0	38241	0	13811	0	9996	0	13190	0

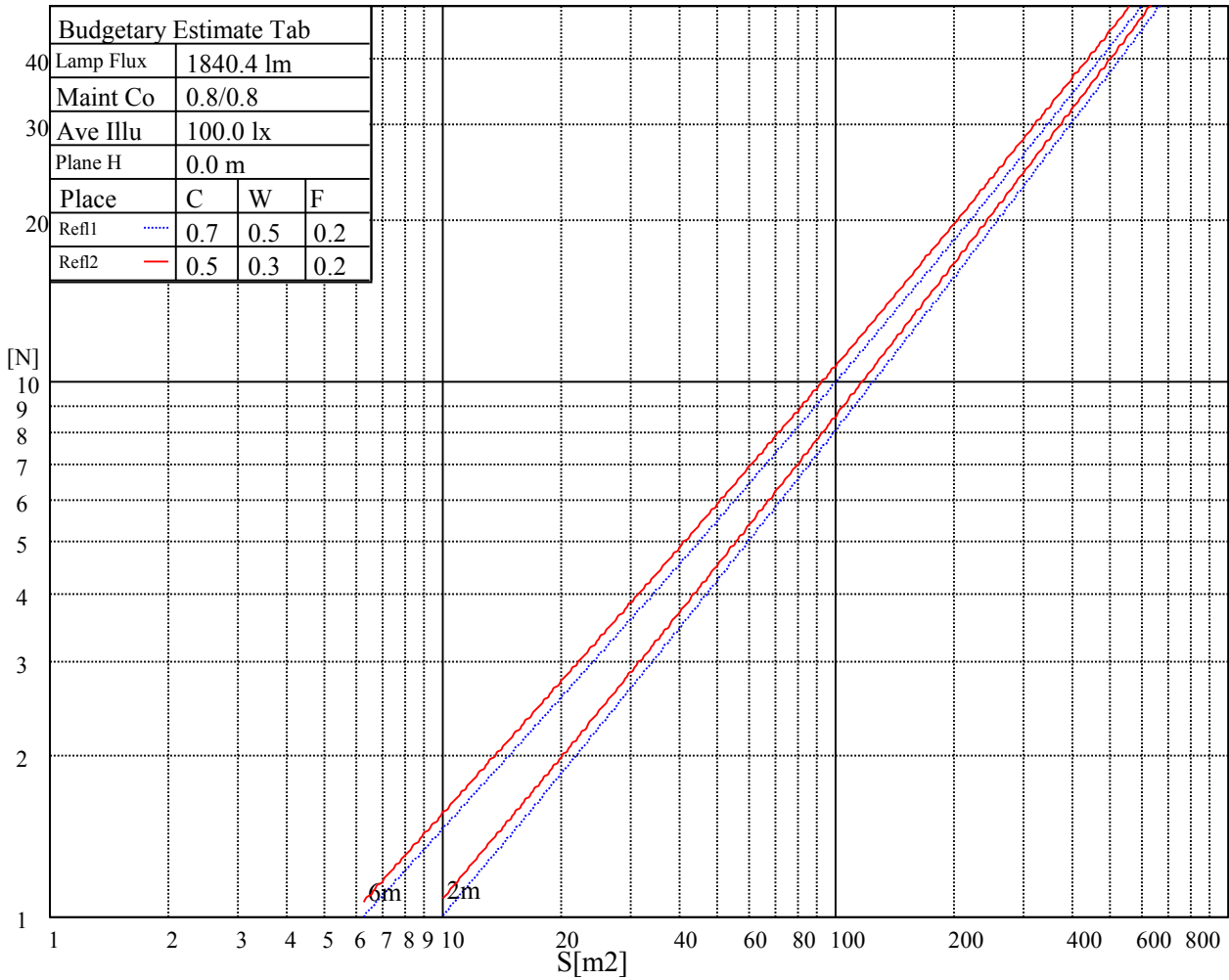
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
248698	251591	249005	169192	170097	169217	82993	82993	83665

Glare Table

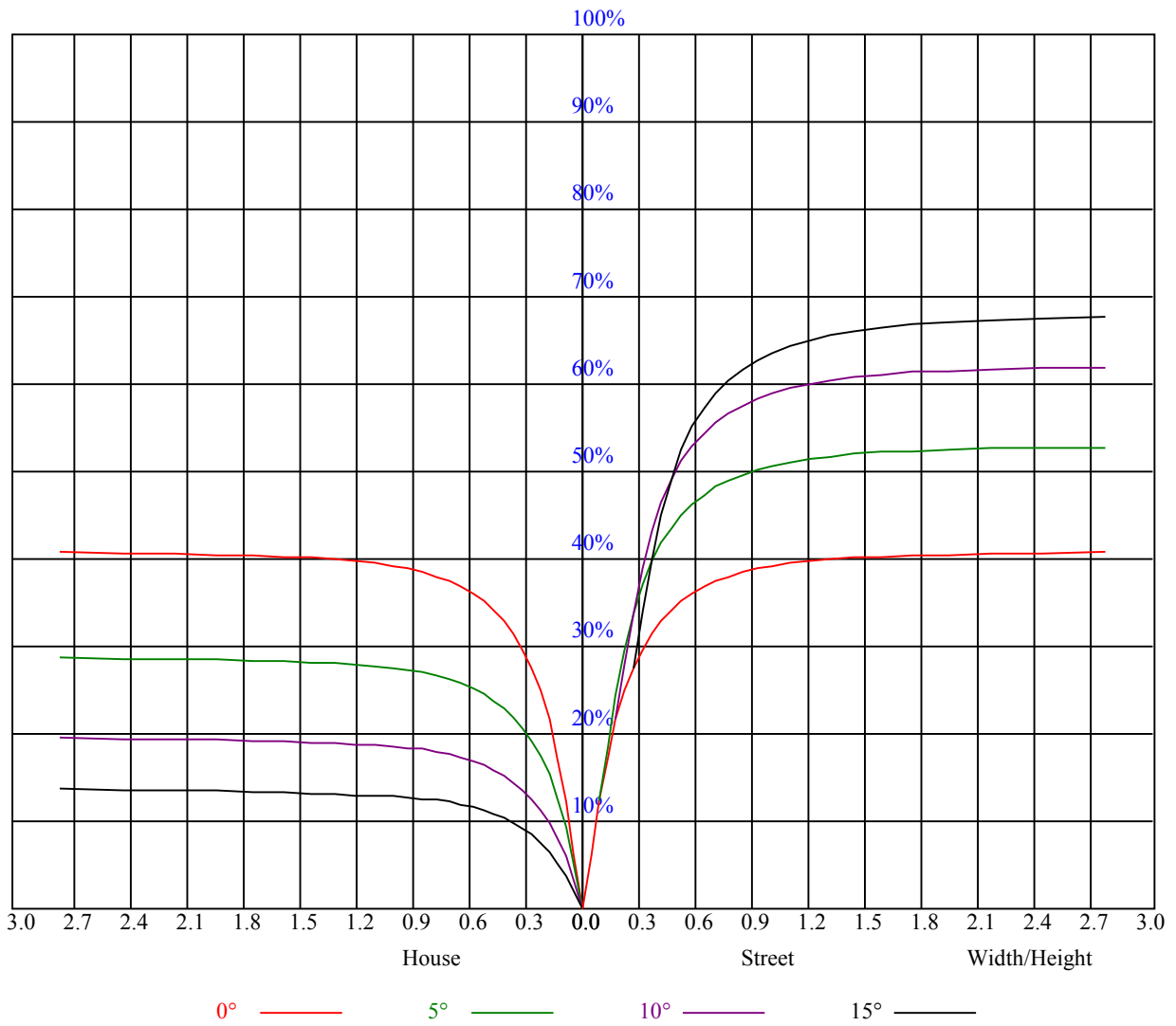
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	COEFFICIENTS OF UTILIZATION RHOFC=20 CU															
0	0.99	0.99	0.99	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85	0.83
1	0.92	0.89	0.88	0.90	0.88	0.86	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.80	0.79	0.77
2	0.86	0.83	0.80	0.85	0.82	0.79	0.82	0.79	0.77	0.79	0.77	0.76	0.77	0.76	0.74	0.73
3	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.72	0.76	0.73	0.71	0.74	0.72	0.70	0.69
4	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.71	0.69	0.67	0.66
5	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
6	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.60
7	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
8	0.65	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
9	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.58	0.55	0.60	0.57	0.55	0.60	0.57	0.55	0.54
10	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.59	0.55	0.53	0.58	0.55	0.53	0.52



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	6452.61	6555.01	6263.77	5643.83	4820.19	3865.51	3043.52	2252.91	1640.68
45.0	6551.16	6517.58	6123.92	5372.95	4476.09	3557.19	2730.80	2015.06	1505.24
90.0	6548.96	6301.76	5741.28	4942.96	3911.76	3087.56	2338.80	1730.97	1324.11
135.0	6531.89	6257.71	5687.33	4820.19	3897.44	3027.55	2291.45	1689.68	1285.57
180.0	6452.61	6022.07	5263.39	4378.64	3469.10	2613.53	1965.51	1482.12	1086.32
225.0	6551.16	6212.56	5557.94	4721.09	3755.95	2920.74	2214.92	1635.73	1258.59
270.0	6548.96	6397.55	5917.46	5125.20	4245.95	3365.60	2584.90	1906.05	1424.31
315.0	6531.89	6454.26	5990.69	5259.54	4378.08	3418.45	2610.77	1958.36	1463.40
360.0	6452.61	6555.01	6263.77	5643.83	4820.19	3865.51	3043.52	2252.91	1640.68
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1255.29	971.19	798.87	665.63	567.63	479.54	415.68	354.01	302.26
45.0	1144.07	900.72	750.42	622.69	530.74	457.52	390.35	332.54	286.84
90.0	1012.87	837.19	688.43	582.94	499.58	428.50	361.11	309.64	267.41
135.0	1013.59	825.85	701.42	580.29	493.86	426.69	358.97	304.46	278.59
180.0	890.65	743.65	615.97	518.80	449.92	382.86	325.05	279.85	241.31
225.0	967.78	790.22	656.49	554.53	469.30	403.62	343.28	293.84	255.52
270.0	1093.97	869.34	728.95	603.97	516.43	439.35	376.04	318.78	279.69
315.0	1091.99	904.30	741.55	621.70	529.09	450.31	381.87	326.32	282.60
360.0	1255.29	971.19	798.87	665.63	567.63	479.54	415.68	354.01	302.26
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	278.03	224.52	198.15	170.84	148.16	129.00	112.92	96.73	82.97
45.0	245.66	213.56	186.86	160.16	140.72	121.34	106.59	92.71	77.63
90.0	229.48	200.96	174.36	149.04	128.28	111.93	95.96	81.43	67.00
135.0	223.69	193.08	167.48	141.11	120.68	105.38	90.73	76.03	64.03
180.0	208.33	185.60	159.39	138.19	121.56	106.64	91.61	77.41	62.71
225.0	219.12	194.46	168.25	146.73	128.94	113.14	98.00	82.91	68.49
270.0	235.31	202.72	179.54	152.67	132.08	115.67	100.37	84.79	70.91
315.0	240.60	210.70	182.68	155.04	131.64	113.91	97.45	82.80	69.21
360.0	278.03	224.52	198.15	170.84	148.16	129.00	112.92	96.73	82.97
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	68.21	54.18	42.61	32.48	26.54	22.63	19.88	18.50	18.06
45.0	61.83	49.22	37.71	29.79	25.60	22.46	20.37	19.38	18.83
90.0	52.80	42.01	32.65	26.81	23.01	20.10	18.44	18.06	17.84
135.0	50.98	39.48	31.60	26.04	22.41	19.66	18.00	17.34	17.01
180.0	48.56	38.21	29.68	25.00	21.14	18.66	17.84	17.34	17.18
225.0	53.51	42.45	32.43	26.76	22.85	20.04	18.61	18.22	18.00
270.0	57.09	44.43	35.18	27.91	23.95	20.48	18.33	17.56	17.12
315.0	56.10	45.48	34.85	27.75	23.78	20.43	17.89	17.23	16.79
360.0	68.21	54.18	42.61	32.48	26.54	22.63	19.88	18.50	18.06
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	17.73	17.73	17.84	18.99	18.66	17.67	16.57	14.81	7.32
45.0	18.66	18.66	18.72	18.99	19.49	19.05	18.33	17.01	7.10
90.0	17.73	17.73	18.77	19.66	18.99	18.50	17.62	13.16	6.83
135.0	16.90	16.85	16.90	17.34	19.71	17.12	16.46	12.72	6.66
180.0	17.23	17.45	17.89	17.95	17.78	17.34	15.97	7.16	6.44
225.0	18.11	18.39	18.88	18.94	18.94	18.99	18.99	13.98	6.77
270.0	16.90	16.85	17.23	18.17	19.32	20.48	20.26	17.45	7.05
315.0	16.68	16.74	16.79	17.18	20.59	23.34	17.12	15.69	7.10
360.0	17.73	17.73	17.84	18.99	18.66	17.67	16.57	14.81	7.32

Intensity data(cd)

C/ γ ($^{\circ}$)	90.0
0.0	6.66
45.0	6.50
90.0	6.39
135.0	6.39
180.0	6.33
225.0	6.33
270.0	6.44
315.0	6.39
360.0	6.66