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Nata

LumCAT: 3-1943-E
Luminaire: BJB 47.319.2011
Report No: NATA0100 Voltage(V): 35.9700
Test No: GC2019112011 Current(A): 0.3970
LampCAT: LUMILEDS LUXEON CoB 1204 LES13 Power (W): 14.2800
Lamp flux(lm): 1930.0 PF: 1.0000
Number of Lamps: 1 Ballast type: DC
Length(mm): 0 Width(mm): 0
Phm Type: C Height(mm): 0

Photometric Results

Lumens(lm): 1703.54
Efficiency(%): 88.27%
Lumens(lm)/Power(W): 119.30
Central intensity(cd): 6265.125
Maximum intensity(cd): 6265.125
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=26.1
 [C90/270]Total=26.1
Field angle(10%Imax): [C0/180]Total=55.4
 [C90/270]Total=55.4
Maximum s/h(1/2): C0_180=0.44 C90_270=0.44
Maximum s/h(1/4): C0_180=0.42 C90_270=0.42
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.27%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.475%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6265.125	0.000	0	.000%	.000%
1.0	6236.227	5.982	5.982	.310%	.351%
2.0	6156.211	17.787	23.768	.922%	1.395%
3.0	6034.852	29.157	52.925	1.511%	3.107%
4.0	5892.188	39.924	92.849	2.069%	5.450%
5.0	5717.039	49.942	142.791	2.588%	8.382%
6.0	5487.820	58.885	201.676	3.051%	11.839%
7.0	5237.648	66.573	268.249	3.449%	15.747%
8.0	4967.648	73.037	341.286	3.784%	20.034%
9.0	4656.656	78.000	419.286	4.041%	24.613%
10.0	4313.883	81.180	500.466	4.206%	29.378%
11.0	3968.016	82.753	583.219	4.288%	34.236%
12.0	3586.781	82.585	665.804	4.279%	39.084%
13.0	3143.813	79.875	745.679	4.139%	43.772%
14.0	2701.477	74.819	820.498	3.877%	48.164%
15.0	2281.289	68.406	888.904	3.544%	52.180%
16.0	1891.055	61.137	950.04	3.168%	55.769%
17.0	1556.367	53.686	1003.726	2.782%	58.920%
18.0	1288.638	46.908	1050.634	2.430%	61.674%
19.0	1123.903	41.973	1092.607	2.175%	64.138%
20.0	1004.182	38.950	1131.557	2.018%	66.424%
21.0	906.012	36.680	1168.237	1.900%	68.577%
22.0	834.286	34.972	1203.209	1.812%	70.630%
23.0	773.930	33.745	1236.953	1.748%	72.611%
24.0	725.794	32.789	1269.743	1.699%	74.536%
25.0	689.885	32.189	1301.932	1.668%	76.425%
26.0	661.605	31.902	1333.834	1.653%	78.298%
27.0	638.866	31.816	1365.651	1.649%	80.166%
28.0	620.747	31.891	1397.541	1.652%	82.038%
29.0	605.827	32.091	1429.632	1.663%	83.921%
30.0	593.262	32.375	1462.007	1.677%	85.822%
31.0	580.901	32.675	1494.682	1.693%	87.740%
32.0	548.796	32.364	1527.047	1.677%	89.640%
33.0	490.605	30.621	1557.668	1.587%	91.437%
34.0	415.898	27.433	1585.102	1.421%	93.048%
35.0	327.825	23.097	1608.199	1.197%	94.404%
36.0	254.566	18.543	1626.742	.961%	95.492%
37.0	165.213	13.691	1640.433	.709%	96.296%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	89.459	8.501	1648.934	.440%	96.795%
39.0	40.563	4.438	1653.372	.230%	97.055%
40.0	25.404	2.301	1655.672	.119%	97.190%
41.0	22.697	1.713	1657.385	.089%	97.291%
42.0	20.229	1.560	1658.945	.081%	97.382%
43.0	18.070	1.419	1660.364	.074%	97.466%
44.0	16.284	1.297	1661.66	.067%	97.542%
45.0	14.885	1.198	1662.858	.062%	97.612%
46.0	13.880	1.125	1663.983	.058%	97.678%
47.0	13.240	1.079	1665.062	.056%	97.741%
48.0	12.677	1.048	1666.109	.054%	97.803%
49.0	12.263	1.024	1667.134	.053%	97.863%
50.0	11.883	1.007	1668.14	.052%	97.922%
51.0	11.566	0.992	1669.132	.051%	97.980%
52.0	11.271	0.980	1670.112	.051%	98.038%
53.0	10.983	0.968	1671.08	.050%	98.095%
54.0	10.702	0.956	1672.036	.050%	98.151%
55.0	10.441	0.944	1672.98	.049%	98.206%
56.0	10.209	0.933	1673.913	.048%	98.261%
57.0	9.984	0.923	1674.836	.048%	98.315%
58.0	9.802	0.915	1675.751	.047%	98.369%
59.0	9.626	0.908	1676.66	.047%	98.422%
60.0	9.478	0.903	1677.562	.047%	98.475%
61.0	9.316	0.897	1678.459	.046%	98.528%
62.0	9.190	0.892	1679.351	.046%	98.580%
63.0	9.063	0.888	1680.238	.046%	98.632%
64.0	8.951	0.884	1681.122	.046%	98.684%
65.0	8.845	0.881	1682.003	.046%	98.736%
66.0	8.754	0.878	1682.881	.045%	98.787%
67.0	8.670	0.876	1683.757	.045%	98.839%
68.0	8.571	0.873	1684.631	.045%	98.890%
69.0	8.487	0.870	1685.501	.045%	98.941%
70.0	8.416	0.868	1686.369	.045%	98.992%
71.0	8.346	0.866	1687.235	.045%	99.043%
72.0	8.283	0.865	1688.1	.045%	99.094%
73.0	8.234	0.864	1688.964	.045%	99.145%
74.0	8.191	0.864	1689.827	.045%	99.195%
75.0	8.156	0.864	1690.691	.045%	99.246%

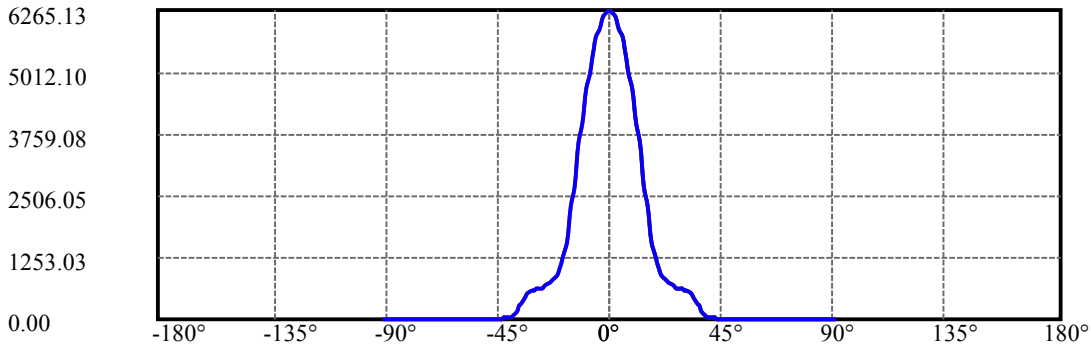
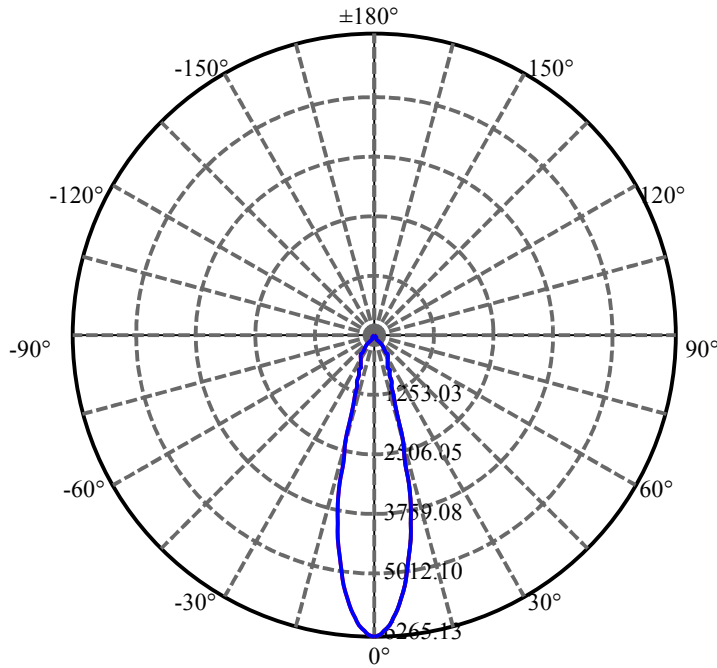
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.100	0.863	1691.554	.045%	99.297%
77.0	8.072	0.862	1692.416	.045%	99.347%
78.0	8.023	0.862	1693.278	.045%	99.398%
79.0	7.988	0.860	1694.138	.045%	99.448%
80.0	7.945	0.859	1694.997	.045%	99.499%
81.0	7.924	0.858	1695.855	.044%	99.549%
82.0	7.896	0.858	1696.713	.044%	99.599%
83.0	7.882	0.858	1697.571	.044%	99.650%
84.0	7.847	0.857	1698.428	.044%	99.700%
85.0	7.826	0.855	1699.283	.044%	99.750%
86.0	7.805	0.854	1700.137	.044%	99.800%
87.0	7.777	0.853	1700.99	.044%	99.850%
88.0	7.748	0.850	1701.841	.044%	99.900%
89.0	7.727	0.848	1702.689	.044%	99.950%
90.0	7.741	0.848	1703.537	.044%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1462.01	75.75%	85.82%
0-40	1655.67	85.79%	97.19%
0-60	1677.56	86.92%	98.48%
0-90	1702.69	88.22%	99.95%
0-120	1702.69	88.22%	99.95%
0-180	1703.54	88.27%	100.00%
60-90	26.03	1.35%	1.53%
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%
0-26.91	1362.83	70.61%	80.00%

ZONAL LUMEN SUMMARY

0-10	500.47
10-20	631.09
20-30	330.45
30-40	193.67
40-50	12.47
50-60	9.42
60-70	8.81
70-80	8.63
80-90	7.69
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: ———

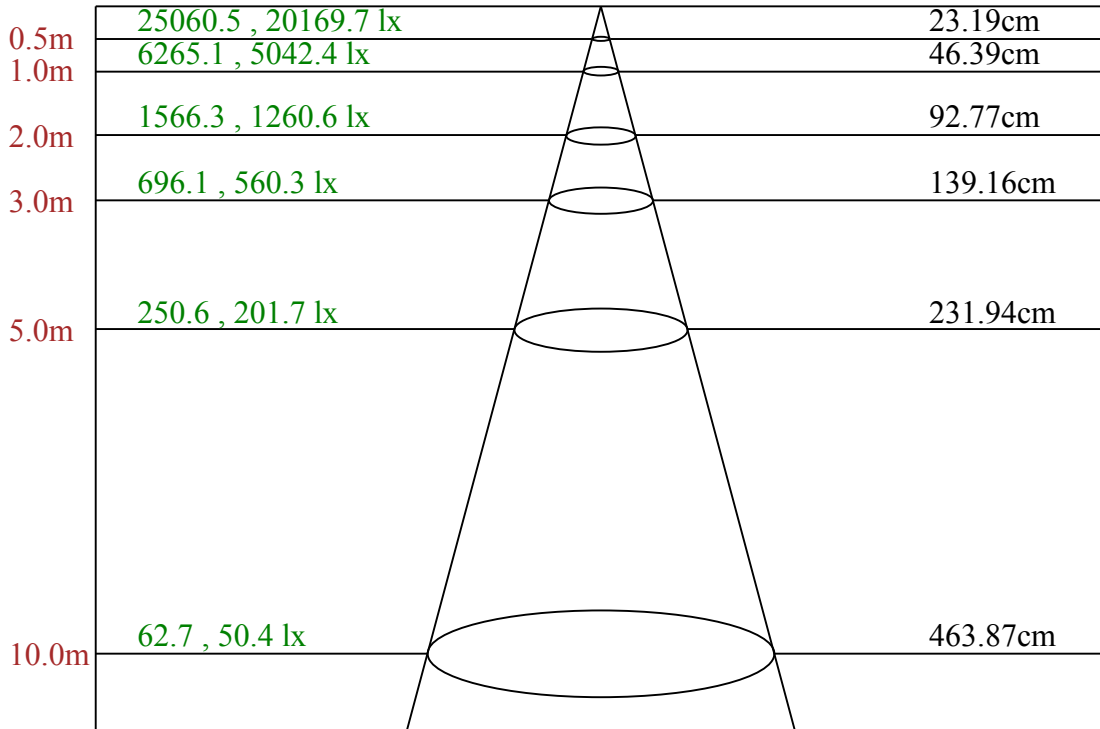
C90/C270: ———

Field angle(10%Imax):C0/180Left:27.7 Right:27.7

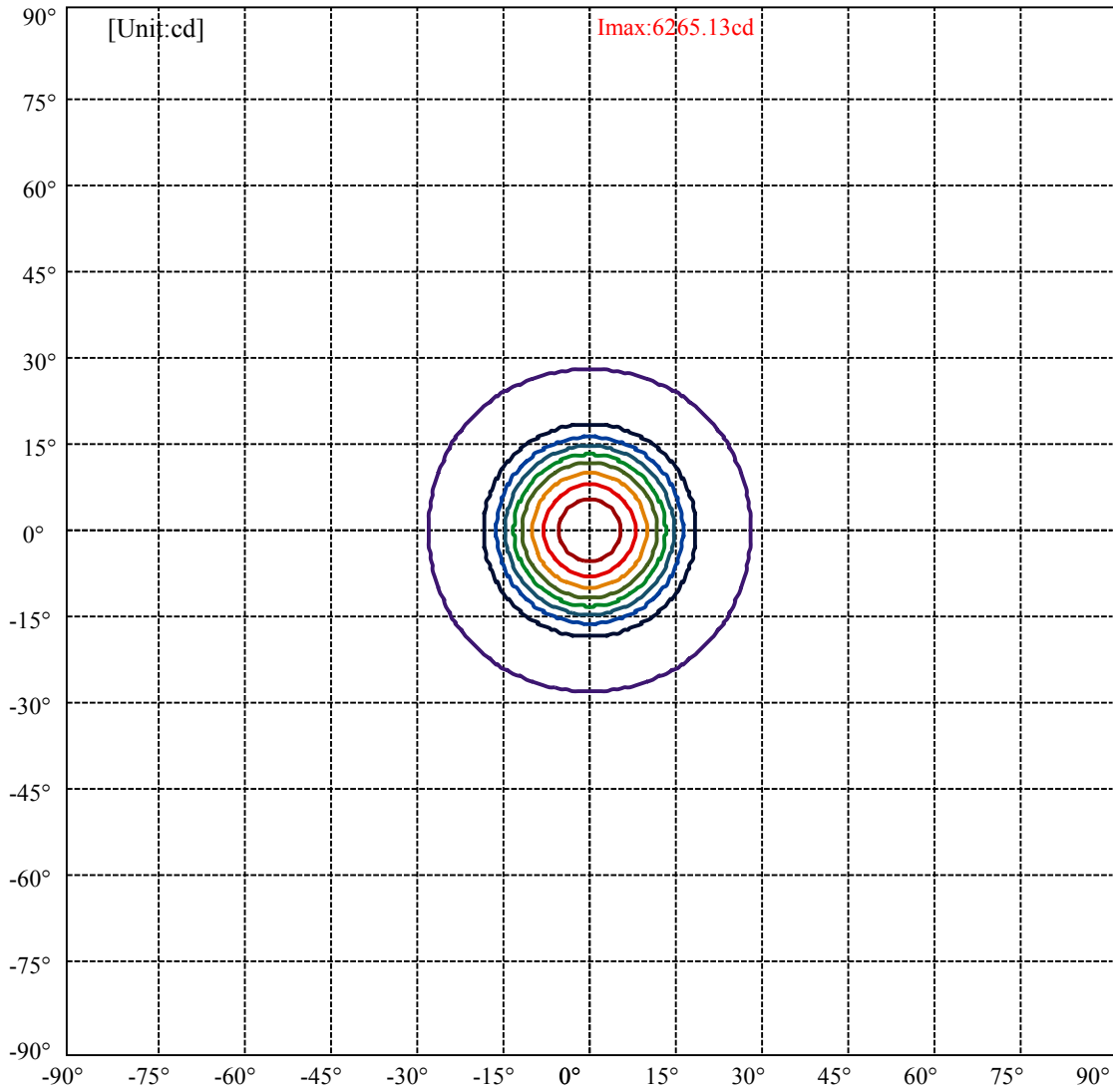
:C90/270Left:27.7 Right:27.7

Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0

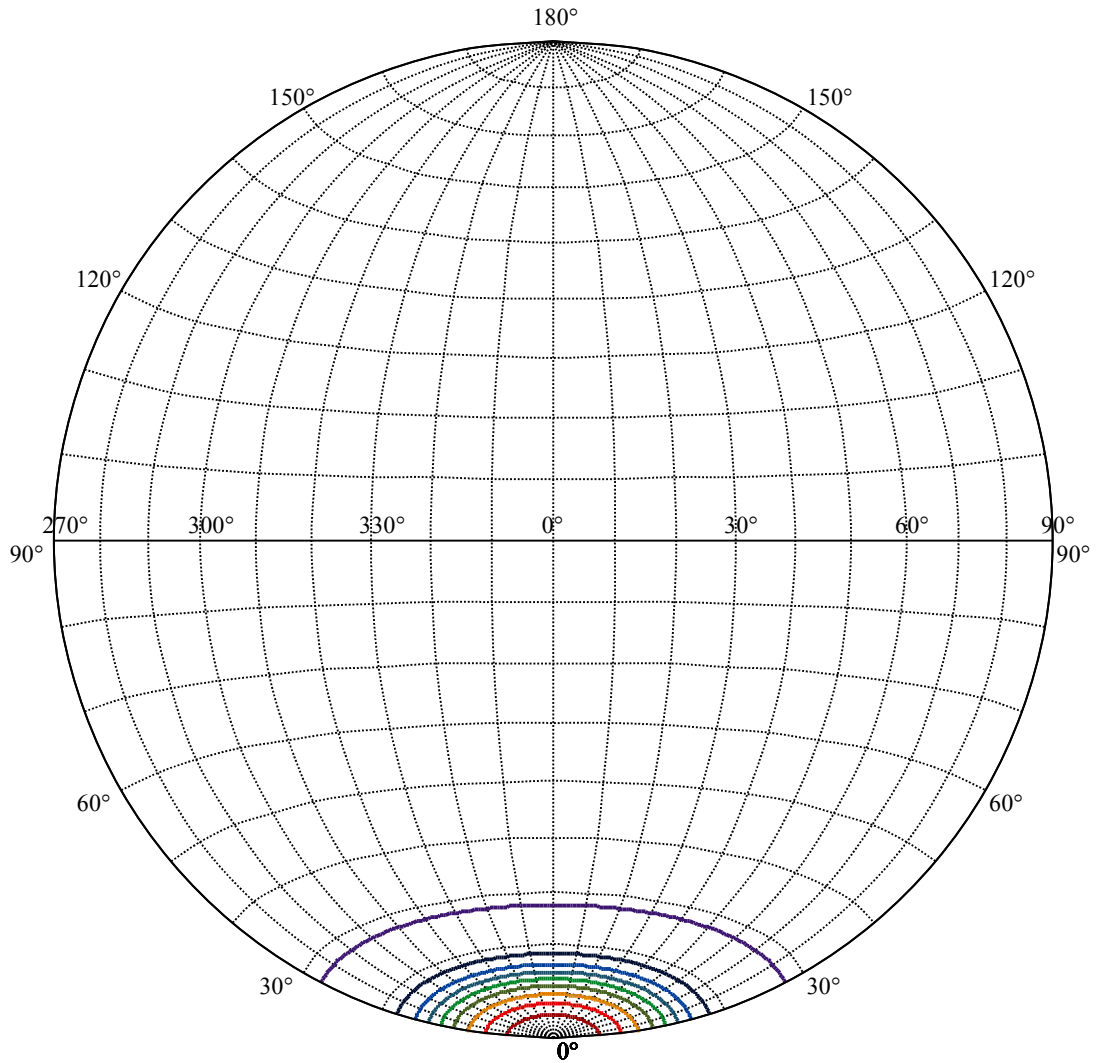
:C90/270Left:13.0 Right:13.0



Max , Ave Beam angle of C0 plane 26.12



(10%Imax) 626.513	—
(20%Imax) 1253.03	—
(30%Imax) 1879.54	—
(40%Imax) 2506.05	—
(50%Imax) 3132.56	—
(60%Imax) 3759.08	—
(70%Imax) 4385.59	—
(80%Imax) 5012.1	—
(90%Imax) 5638.61	—



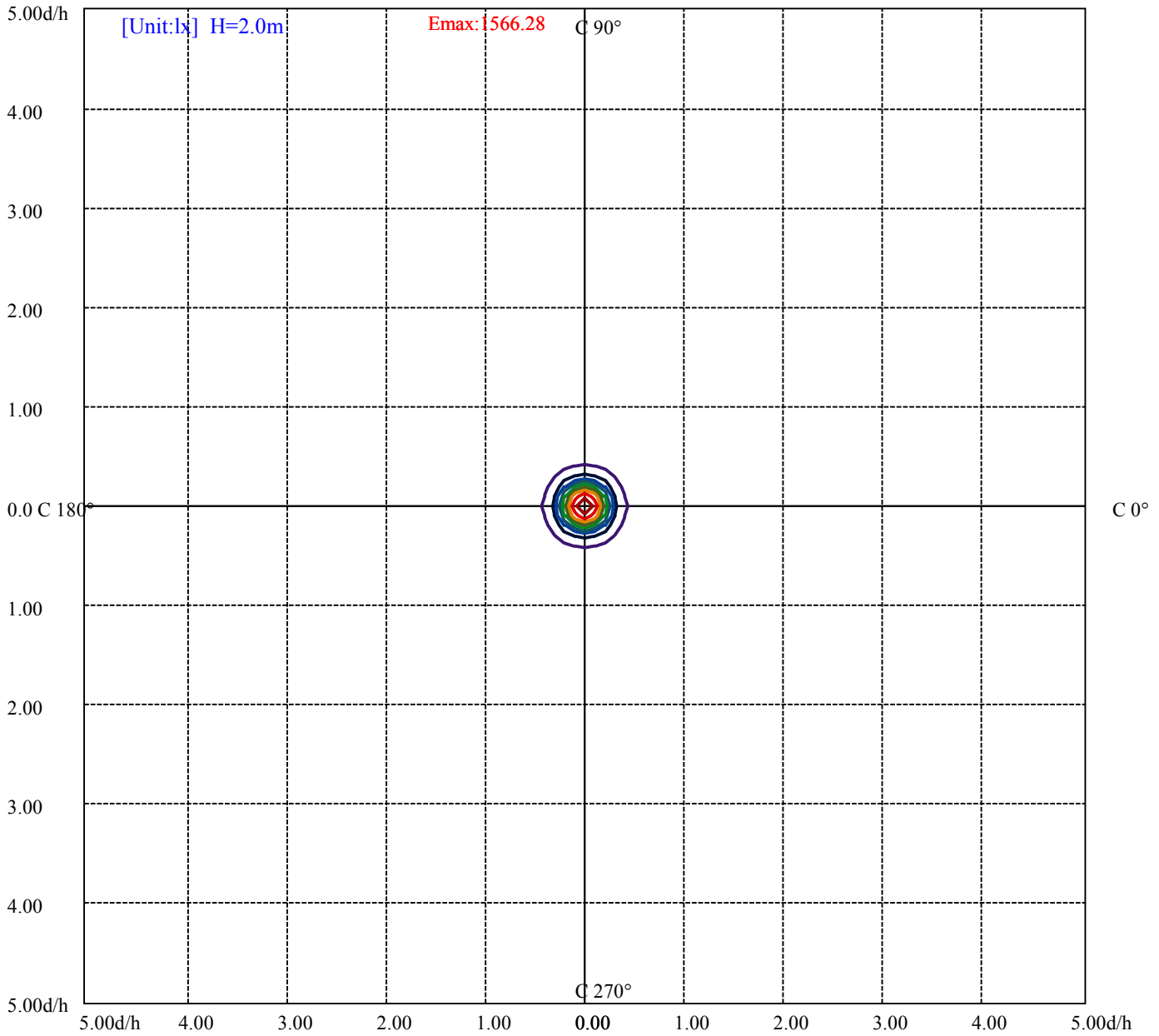
House

[Unit:cd]

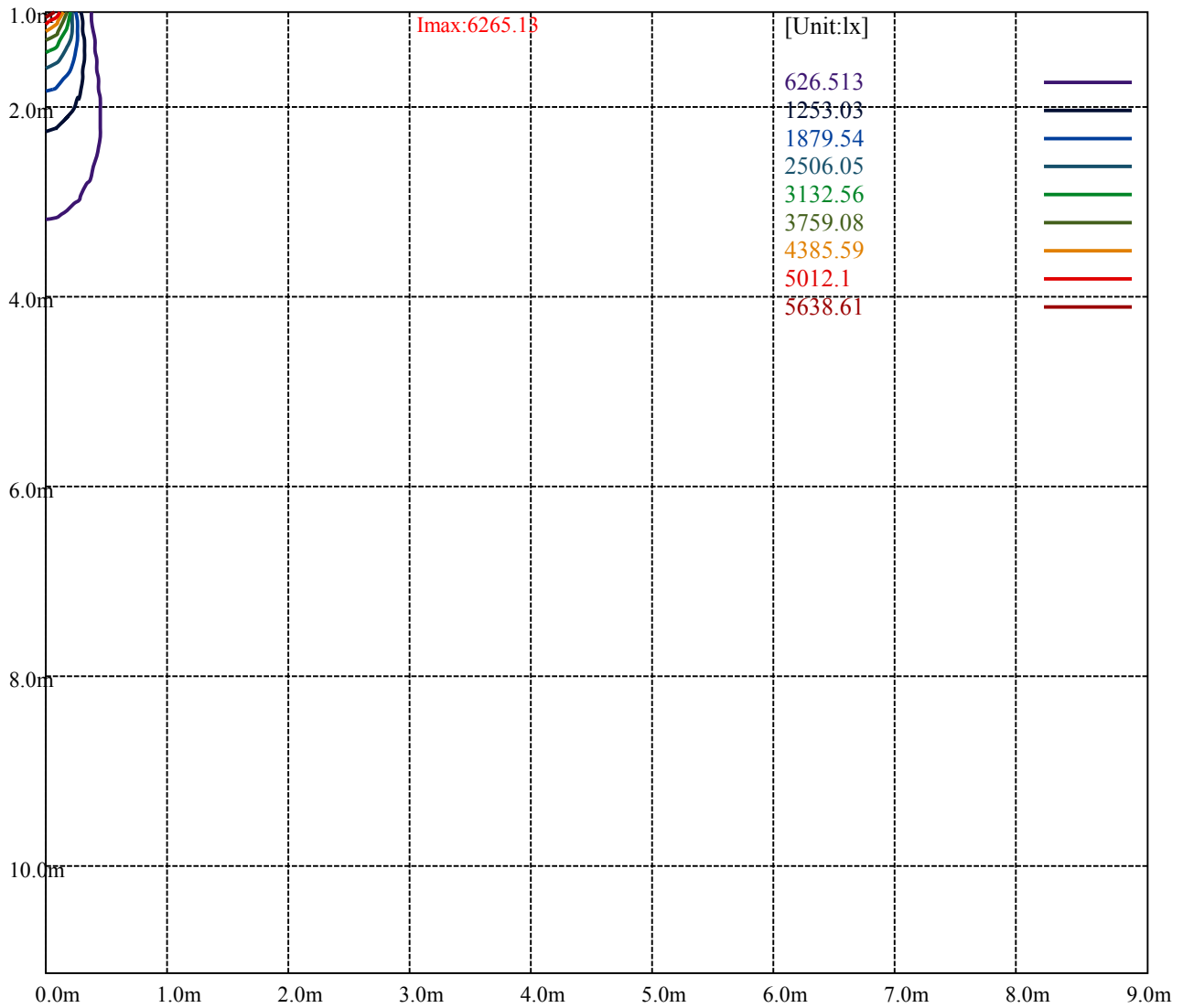
Road

Imax:6265.13

(10%Imax) 626.513	—
(20%Imax) 1253.03	—
(30%Imax) 1879.54	—
(40%Imax) 2506.05	—
(50%Imax) 3132.56	—
(60%Imax) 3759.08	—
(70%Imax) 4385.59	—
(80%Imax) 5012.1	—
(90%Imax) 5638.61	—



- (10%Emax) 156.628
- (20%Emax) 313.255
- (30%Emax) 469.885
- (40%Emax) 626.5125
- (50%Emax) 783.14
- (60%Emax) 939.7675
- (70%Emax) 1096.395
- (80%Emax) 1253.025
- (90%Emax) 1409.652



Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

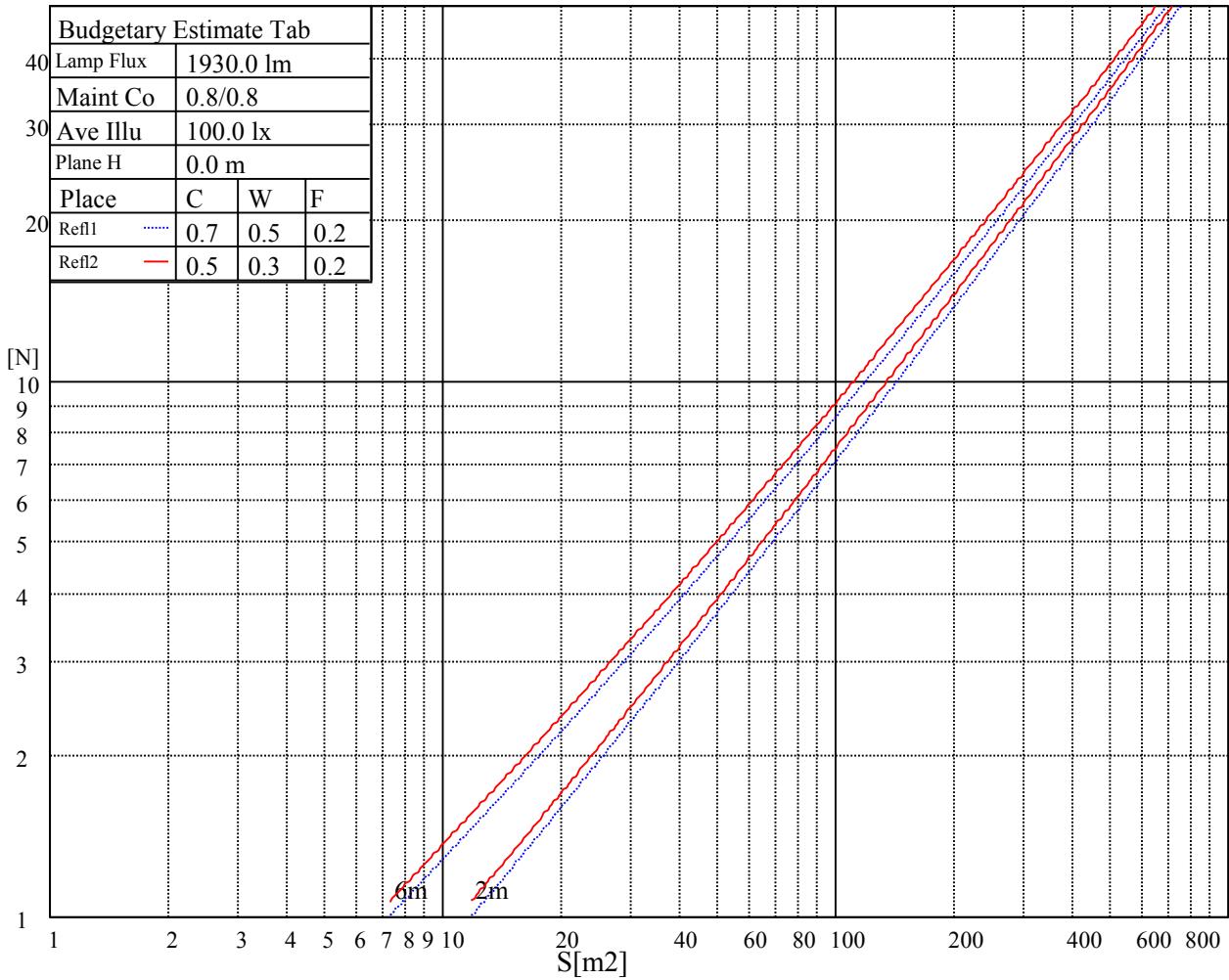
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

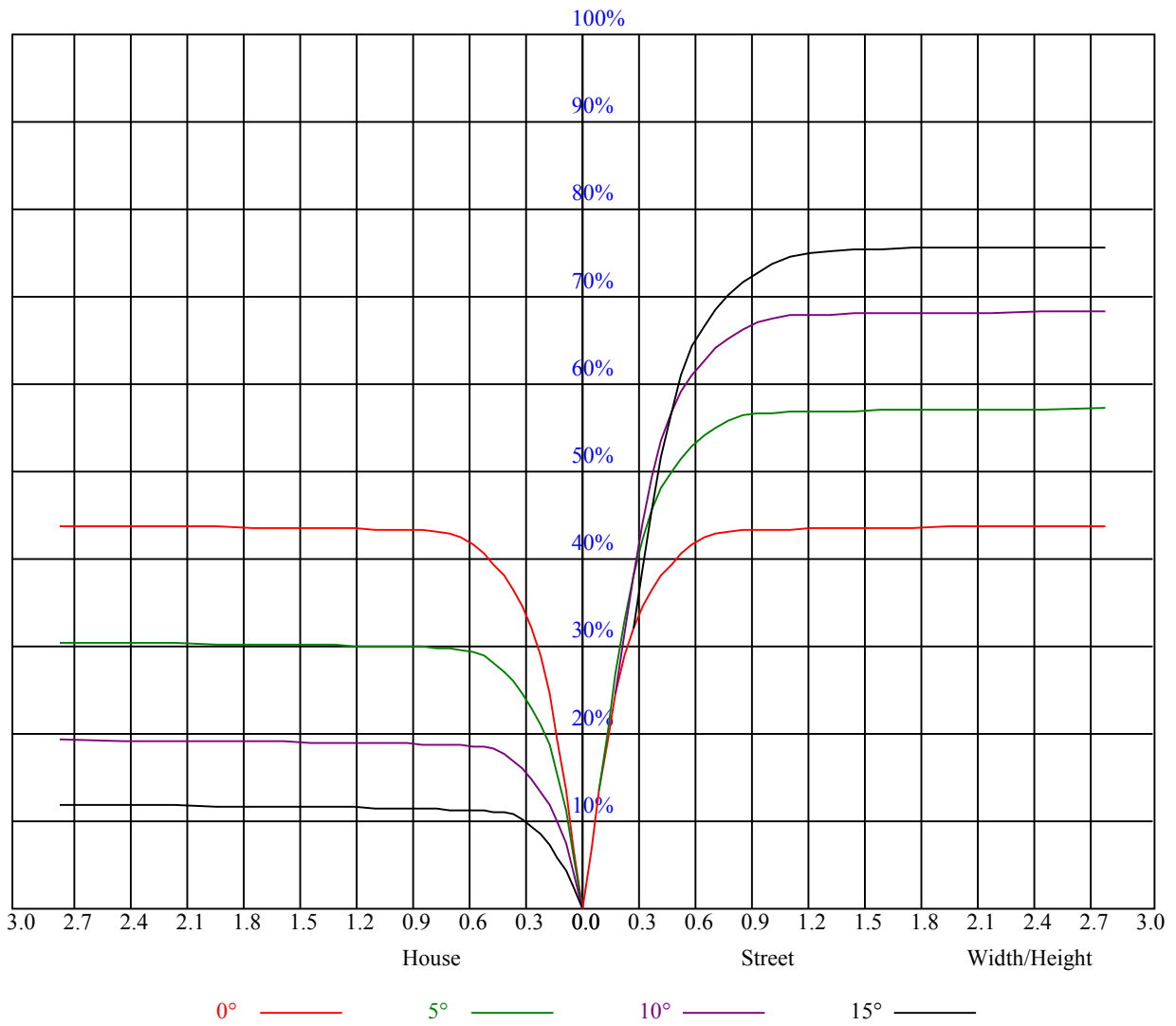
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.97	0.95	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.80
3	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.73
5	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.71	0.69	0.73	0.71	0.69	0.68
7	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
9	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.60	0.66	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59



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	6273.56	6224.06	6104.25	5977.69	5824.13	5642.44	5374.13	5141.25	4863.38
45.0	6265.69	6188.06	6063.75	5922.00	5783.63	5615.44	5347.69	5104.13	4848.75
90.0	6251.63	6156.00	6063.19	5925.94	5739.19	5574.38	5349.94	5037.75	4763.81
135.0	6269.63	6263.44	6199.88	6093.56	5978.25	5823.56	5625.00	5402.25	5151.94
180.0	6273.56	6269.06	6204.94	6100.31	5980.50	5814.56	5604.19	5375.81	5078.81
225.0	6265.69	6291.56	6256.69	6163.31	6032.81	5880.94	5670.00	5410.69	5151.38
270.0	6251.63	6276.94	6244.88	6131.81	5997.38	5809.50	5584.50	5357.25	5107.50
315.0	6269.63	6220.69	6112.13	5964.19	5801.63	5575.50	5347.13	5072.06	4775.63
360.0	6273.56	6224.06	6104.25	5977.69	5824.13	5642.44	5374.13	5141.25	4863.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4573.13	4293.00	3940.88	3588.19	3152.25	2683.13	2270.81	1893.94	1522.13
45.0	4508.44	4207.50	3877.31	3468.38	3026.81	2617.88	2175.19	1820.81	1498.50
90.0	4471.31	4032.56	3729.94	3356.44	2898.00	2428.88	2035.69	1659.94	1400.06
135.0	4808.25	4505.06	4176.56	3774.38	3331.69	2912.06	2449.13	2008.69	1670.06
180.0	4781.25	4420.69	4037.06	3673.13	3228.19	2760.75	2347.88	1965.38	1568.25
225.0	4865.06	4464.56	4110.75	3735.00	3241.69	2840.63	2439.56	2014.31	1653.75
270.0	4757.06	4449.94	4120.88	3719.81	3287.25	2878.31	2418.19	1990.69	1673.44
315.0	4488.75	4137.75	3750.75	3378.94	2984.63	2490.19	2113.88	1774.69	1464.75
360.0	4573.13	4293.00	3940.88	3588.19	3152.25	2683.13	2270.81	1893.94	1522.13
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1306.69	1152.56	1011.94	923.63	850.50	789.75	729.00	692.44	663.75
45.0	1262.25	1099.69	975.94	874.13	801.56	745.88	696.94	667.69	644.63
90.0	1109.03	1031.23	929.42	840.99	780.86	728.61	693.00	662.51	639.56
135.0	1374.75	1173.94	1015.88	905.63	825.75	763.88	713.25	682.31	658.69
180.0	1333.13	1114.59	1019.87	935.49	868.61	800.83	754.48	715.11	674.72
225.0	1406.25	1119.04	1057.39	949.16	868.84	812.14	765.06	717.41	686.42
270.0	1395.56	1212.19	1059.75	948.94	874.13	806.06	750.94	711.56	680.06
315.0	1121.46	1087.99	963.28	870.13	804.04	744.30	703.69	670.05	645.02
360.0	1306.69	1152.56	1011.94	923.63	850.50	789.75	729.00	692.44	663.75
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	640.69	622.69	609.75	597.38	584.44	546.75	480.38	406.69	314.44
45.0	625.50	609.75	597.94	586.13	569.81	527.06	453.94	376.31	285.19
90.0	623.70	609.98	594.39	583.65	573.75	529.09	468.90	396.73	305.83
135.0	631.13	616.50	604.69	590.63	579.38	569.81	517.50	444.38	380.81
180.0	651.54	627.58	605.70	593.27	581.34	545.34	496.58	426.38	319.89
225.0	659.70	633.21	616.73	602.72	589.67	569.87	520.71	444.15	354.60
270.0	650.25	631.69	617.63	603.00	591.19	576.56	527.63	452.25	374.06
315.0	628.43	614.59	599.79	589.33	577.63	525.88	459.23	380.31	287.78
360.0	640.69	622.69	609.75	597.38	584.44	546.75	480.38	406.69	314.44
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	293.06	141.64	78.13	30.32	25.14	22.78	20.14	18.23	16.48
45.0	234.73	120.09	62.89	28.63	24.41	22.11	19.58	17.61	16.14
90.0	214.14	140.29	71.04	30.88	24.64	21.99	19.63	17.38	15.69
135.0	284.06	235.41	120.60	59.12	27.90	23.85	20.87	18.79	16.99
180.0	248.40	171.34	97.99	45.23	25.09	22.50	20.19	18.17	16.14
225.0	271.80	192.54	111.26	50.51	25.59	23.23	21.09	18.51	16.65
270.0	290.81	193.61	113.06	51.30	26.44	23.68	21.04	18.79	16.93
315.0	199.52	126.79	60.69	28.52	24.02	21.43	19.29	17.10	15.24
360.0	293.06	141.64	78.13	30.32	25.14	22.78	20.14	18.23	16.48

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	15.08	13.95	13.33	12.83	12.38	12.04	11.64	11.36	11.08
45.0	15.02	14.01	13.22	12.83	12.38	12.04	11.76	11.42	11.14
90.0	14.57	13.84	13.28	12.88	12.49	12.15	11.81	11.53	11.25
135.0	15.24	14.40	13.84	12.94	12.54	12.15	11.87	11.59	11.25
180.0	14.85	13.67	12.94	12.54	12.15	11.70	11.42	11.14	10.91
225.0	15.02	13.61	12.99	12.49	12.09	11.70	11.36	11.08	10.80
270.0	15.13	14.12	13.50	12.54	12.04	11.64	11.31	10.97	10.69
315.0	14.18	13.44	12.83	12.38	12.04	11.64	11.36	11.08	10.74
360.0	15.08	13.95	13.33	12.83	12.38	12.04	11.64	11.36	11.08
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.80	10.58	10.35	10.07	9.90	9.68	9.56	9.39	9.28
45.0	10.86	10.58	10.41	10.18	10.01	9.84	9.68	9.51	9.39
90.0	10.97	10.69	10.46	10.24	10.07	9.84	9.68	9.51	9.34
135.0	10.97	10.74	10.46	10.24	10.01	9.90	9.68	9.56	9.39
180.0	10.58	10.29	10.07	9.79	9.62	9.51	9.34	9.17	9.06
225.0	10.46	10.24	9.96	9.73	9.51	9.34	9.23	9.06	8.94
270.0	10.46	10.18	9.96	9.79	9.62	9.39	9.28	9.11	9.00
315.0	10.52	10.24	10.01	9.84	9.68	9.51	9.39	9.23	9.11
360.0	10.80	10.58	10.35	10.07	9.90	9.68	9.56	9.39	9.28
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.17	9.00	8.94	8.83	8.72	8.61	8.49	8.44	8.38
45.0	9.23	9.06	8.94	8.83	8.78	8.66	8.55	8.49	8.38
90.0	9.23	9.11	8.94	8.89	8.78	8.72	8.61	8.49	8.38
135.0	9.23	9.11	9.00	8.89	8.83	8.72	8.66	8.55	8.49
180.0	8.94	8.83	8.78	8.66	8.61	8.49	8.44	8.38	8.33
225.0	8.83	8.78	8.66	8.61	8.55	8.44	8.38	8.33	8.27
270.0	8.89	8.83	8.72	8.61	8.49	8.44	8.38	8.33	8.27
315.0	9.00	8.89	8.78	8.72	8.61	8.49	8.38	8.33	8.27
360.0	9.17	9.00	8.94	8.83	8.72	8.61	8.49	8.44	8.38
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.27	8.21	8.16	8.04	8.04	7.99	7.99	7.93	7.88
45.0	8.33	8.27	8.21	8.16	8.04	8.04	7.99	7.99	7.93
90.0	8.38	8.27	8.27	8.16	8.10	8.04	7.99	7.99	7.93
135.0	8.44	8.38	8.38	8.49	8.38	8.33	8.21	8.10	8.04
180.0	8.27	8.27	8.21	8.16	8.16	8.10	8.10	8.04	7.99
225.0	8.21	8.16	8.10	8.10	8.04	8.04	7.99	7.93	7.93
270.0	8.21	8.21	8.16	8.10	8.04	8.04	7.99	7.99	7.99
315.0	8.16	8.10	8.04	8.04	7.99	7.99	7.93	7.93	7.88
360.0	8.27	8.21	8.16	8.04	8.04	7.99	7.99	7.93	7.88
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.88	7.88	7.88	7.82	7.82	7.76	7.71	7.76	7.71
45.0	7.93	7.88	7.88	7.82	7.82	7.76	7.76	7.76	7.76
90.0	7.93	7.93	7.88	7.82	7.82	7.82	7.76	7.71	7.71
135.0	8.04	7.99	7.93	7.88	7.88	7.82	7.82	7.76	7.71
180.0	7.93	7.93	7.93	7.88	7.88	7.88	7.76	7.76	7.71
225.0	7.93	7.88	7.88	7.88	7.82	7.82	7.82	7.76	7.76
270.0	7.88	7.88	7.88	7.88	7.82	7.82	7.82	7.76	7.76
315.0	7.88	7.82	7.82	7.82	7.76	7.76	7.76	7.71	7.71
360.0	7.88	7.88	7.88	7.82	7.82	7.76	7.71	7.76	7.71

Intensity data(cd)

C/γ(°)	90.0
0.0	7.71
45.0	7.76
90.0	7.76
135.0	7.76
180.0	7.71
225.0	7.76
270.0	7.71
315.0	7.76
360.0	7.71