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## Nata

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LumCAT: 2-2076-M	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 33.2900
Test No: GC2019092503	Current(A): 0.3970
LampCAT: BRIDGELUX V13B LES13	Power (W): 13.2000
Lamp flux(lm): 1938.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 1615.19  
Efficiency(%): 83.34%  
Lumens(lm)/Power(W): 122.36  
Central intensity(cd): 13462.030  
Maximum intensity(cd): 13462.030  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=16.3  
                                  [C90/270]Total=16.3  
Field angle(10%Imax): [C0/180]Total=36.3  
                                  [C90/270]Total=36.3  
Maximum s/h(1/2): C0\_180=0.28 C90\_270=0.28  
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(%): 83.34%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.550%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13462.031	0.000	0	.000%	.000%
1.0	13363.594	12.836	12.836	.662%	.795%
2.0	12959.297	37.781	50.617	1.949%	3.134%
3.0	12250.828	60.294	110.911	3.111%	6.867%
4.0	11321.016	78.902	189.814	4.071%	11.752%
5.0	10306.758	93.042	282.855	4.801%	17.512%
6.0	9143.438	102.216	385.071	5.274%	23.841%
7.0	8018.438	106.523	491.594	5.497%	30.436%
8.0	6852.305	106.427	598.022	5.492%	37.025%
9.0	5910.188	103.433	701.455	5.337%	43.428%
10.0	5059.898	99.275	800.73	5.123%	49.575%
11.0	4256.789	93.093	893.823	4.804%	55.338%
12.0	3665.250	86.599	980.422	4.468%	60.700%
13.0	3111.609	80.424	1060.846	4.150%	65.679%
14.0	2736.070	74.850	1135.696	3.862%	70.313%
15.0	2328.820	69.533	1205.229	3.588%	74.618%
16.0	1979.016	63.122	1268.351	3.257%	78.526%
17.0	1669.430	56.816	1325.167	2.932%	82.044%
18.0	1381.577	50.304	1375.472	2.596%	85.158%
19.0	1161.113	44.238	1419.709	2.283%	87.897%
20.0	968.920	38.986	1458.695	2.012%	90.311%
21.0	746.367	32.937	1491.632	1.700%	92.350%
22.0	567.028	26.393	1518.025	1.362%	93.984%
23.0	397.849	20.246	1538.271	1.045%	95.237%
24.0	262.259	14.432	1552.703	.745%	96.131%
25.0	144.345	9.245	1561.948	.477%	96.703%
26.0	63.520	4.907	1566.855	.253%	97.007%
27.0	24.497	2.153	1569.008	.111%	97.141%
28.0	16.903	1.048	1570.056	.054%	97.205%
29.0	15.398	0.845	1570.901	.044%	97.258%
30.0	14.034	0.795	1571.696	.041%	97.307%
31.0	13.029	0.753	1572.449	.039%	97.354%
32.0	12.150	0.721	1573.171	.037%	97.398%
33.0	11.433	0.695	1573.865	.036%	97.441%
34.0	10.863	0.675	1574.54	.035%	97.483%
35.0	10.392	0.660	1575.2	.034%	97.524%
36.0	9.956	0.648	1575.848	.033%	97.564%
37.0	9.647	0.639	1576.487	.033%	97.604%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.366	0.635	1577.122	.033%	97.643%
39.0	9.105	0.630	1577.753	.033%	97.682%
40.0	8.930	0.629	1578.382	.032%	97.721%
41.0	8.761	0.630	1579.012	.033%	97.760%
42.0	8.606	0.631	1579.643	.033%	97.799%
43.0	8.473	0.633	1580.275	.033%	97.838%
44.0	8.374	0.636	1580.911	.033%	97.877%
45.0	8.297	0.641	1581.552	.033%	97.917%
46.0	8.205	0.645	1582.197	.033%	97.957%
47.0	8.121	0.649	1582.846	.034%	97.997%
48.0	8.072	0.655	1583.501	.034%	98.038%
49.0	7.988	0.659	1584.161	.034%	98.079%
50.0	7.938	0.664	1584.825	.034%	98.120%
51.0	7.903	0.670	1585.495	.035%	98.161%
52.0	7.861	0.676	1586.171	.035%	98.203%
53.0	7.805	0.681	1586.853	.035%	98.245%
54.0	7.770	0.686	1587.539	.035%	98.288%
55.0	7.734	0.692	1588.231	.036%	98.331%
56.0	7.706	0.698	1588.929	.036%	98.374%
57.0	7.678	0.703	1589.632	.036%	98.417%
58.0	7.650	0.709	1590.341	.037%	98.461%
59.0	7.629	0.714	1591.055	.037%	98.505%
60.0	7.615	0.720	1591.776	.037%	98.550%
61.0	7.580	0.725	1592.501	.037%	98.595%
62.0	7.559	0.729	1593.23	.038%	98.640%
63.0	7.545	0.735	1593.965	.038%	98.686%
64.0	7.545	0.740	1594.705	.038%	98.731%
65.0	7.516	0.745	1595.45	.038%	98.778%
66.0	7.516	0.750	1596.2	.039%	98.824%
67.0	7.502	0.755	1596.956	.039%	98.871%
68.0	7.488	0.759	1597.715	.039%	98.918%
69.0	7.481	0.764	1598.479	.039%	98.965%
70.0	7.474	0.768	1599.247	.040%	99.013%
71.0	7.460	0.772	1600.019	.040%	99.060%
72.0	7.467	0.776	1600.795	.040%	99.108%
73.0	7.453	0.780	1601.575	.040%	99.157%
74.0	7.439	0.783	1602.358	.040%	99.205%
75.0	7.439	0.786	1603.144	.041%	99.254%

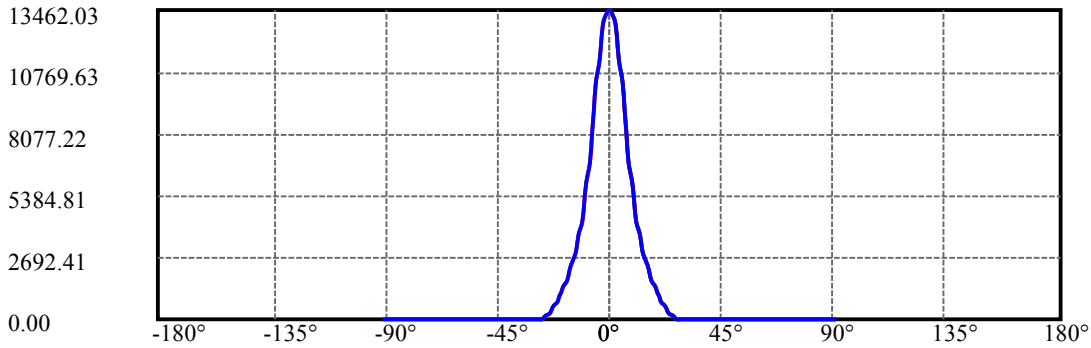
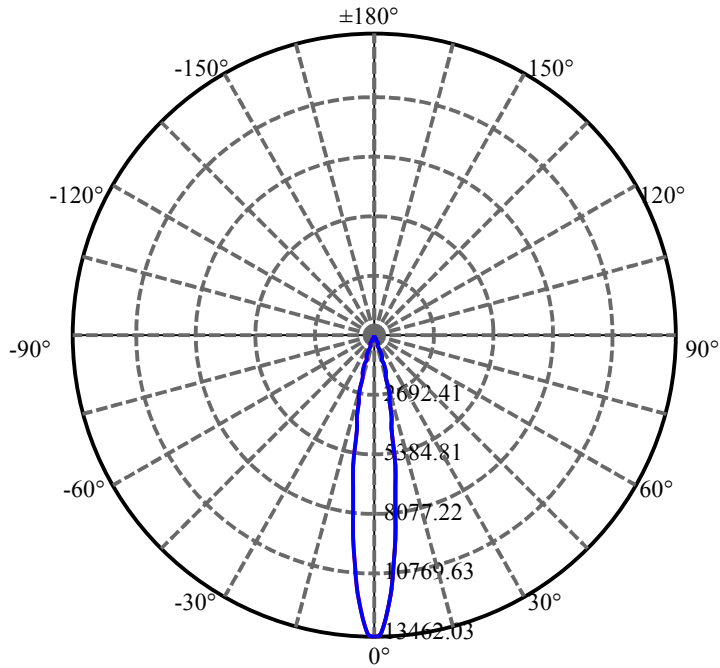
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.439	0.790	1603.934	.041%	99.303%
77.0	7.446	0.794	1604.728	.041%	99.352%
78.0	7.425	0.796	1605.524	.041%	99.401%
79.0	7.432	0.798	1606.322	.041%	99.451%
80.0	7.439	0.802	1607.124	.041%	99.500%
81.0	7.425	0.804	1607.927	.041%	99.550%
82.0	7.418	0.805	1608.732	.042%	99.600%
83.0	7.425	0.807	1609.539	.042%	99.650%
84.0	7.425	0.809	1610.348	.042%	99.700%
85.0	7.411	0.810	1611.158	.042%	99.750%
86.0	7.383	0.809	1611.967	.042%	99.800%
87.0	7.355	0.807	1612.773	.042%	99.850%
88.0	7.369	0.807	1613.58	.042%	99.900%
89.0	7.369	0.808	1614.387	.042%	99.950%
90.0	7.355	0.807	1615.195	.042%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1571.70	81.10%	97.31%
0-40	1578.38	81.44%	97.72%
0-60	1591.78	82.13%	98.55%
0-90	1614.39	83.30%	99.95%
0-120	1614.39	83.30%	99.95%
0-180	1615.19	83.34%	100.00%
60-90	23.33	1.20%	1.44%
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%
0-16.42	1292.16	66.67%	80.00%

ZONAL LUMEN SUMMARY

0-10	800.73
10-20	657.96
20-30	113.00
30-40	6.69
40-50	6.44
50-60	6.95
60-70	7.47
70-80	7.88
80-90	7.26
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



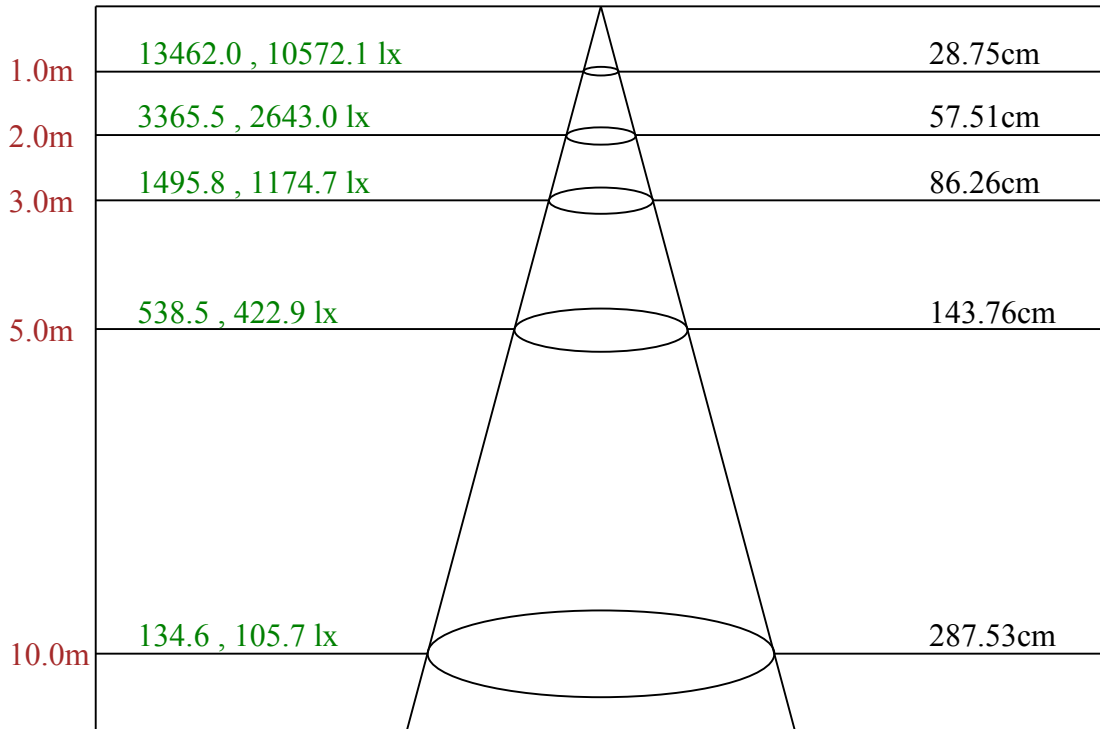
C0(Max): —————

C0/C180: —————

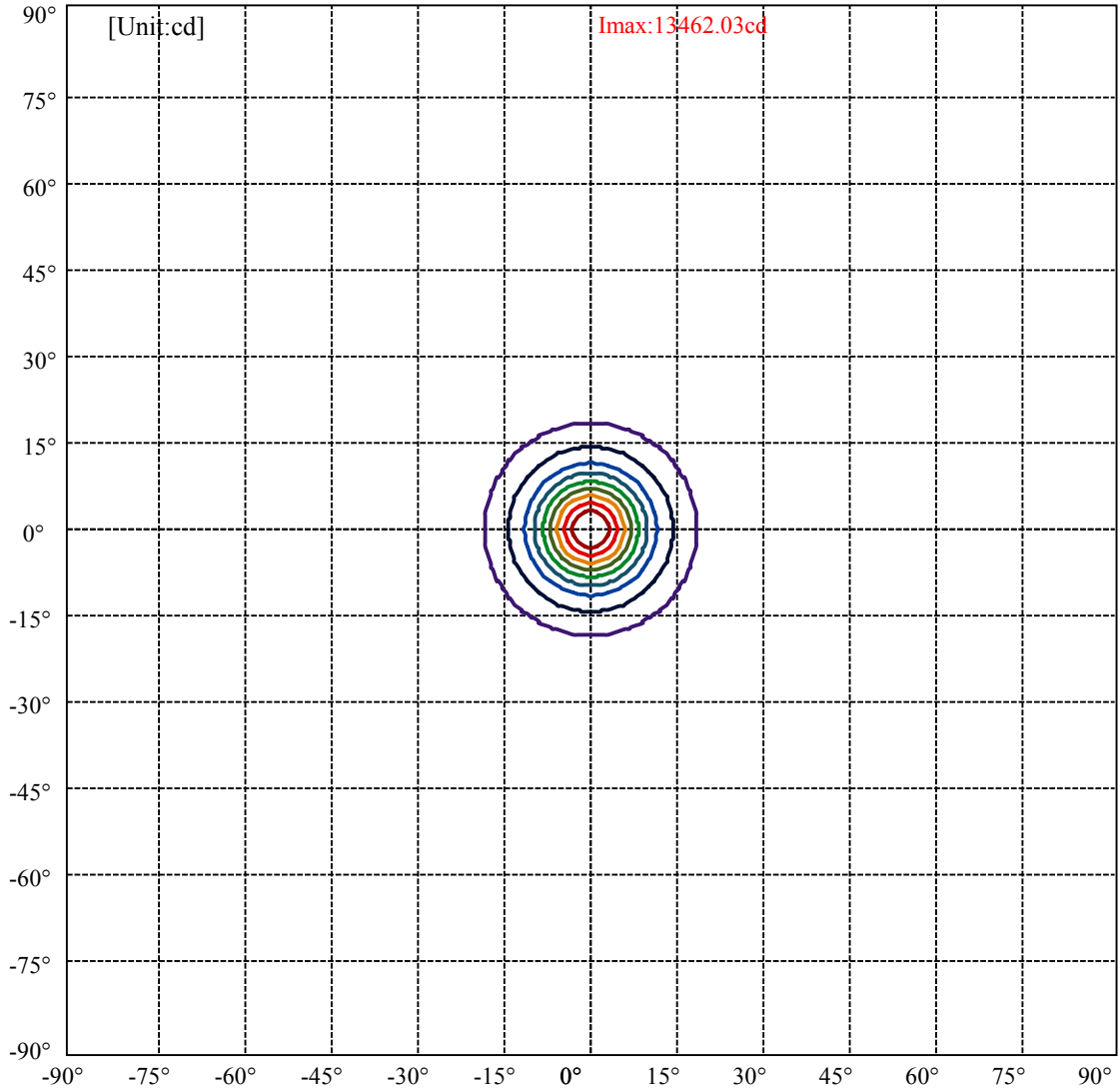
C90/C270: —————

Field angle(10%Imax):C0/180Left:18.2 Right:18.2  
:C90/270Left:18.2 Right:18.2

Beam Angle(50%Imax):C0/180Left:8.1 Right:8.1  
:C90/270Left:8.1 Right:8.1

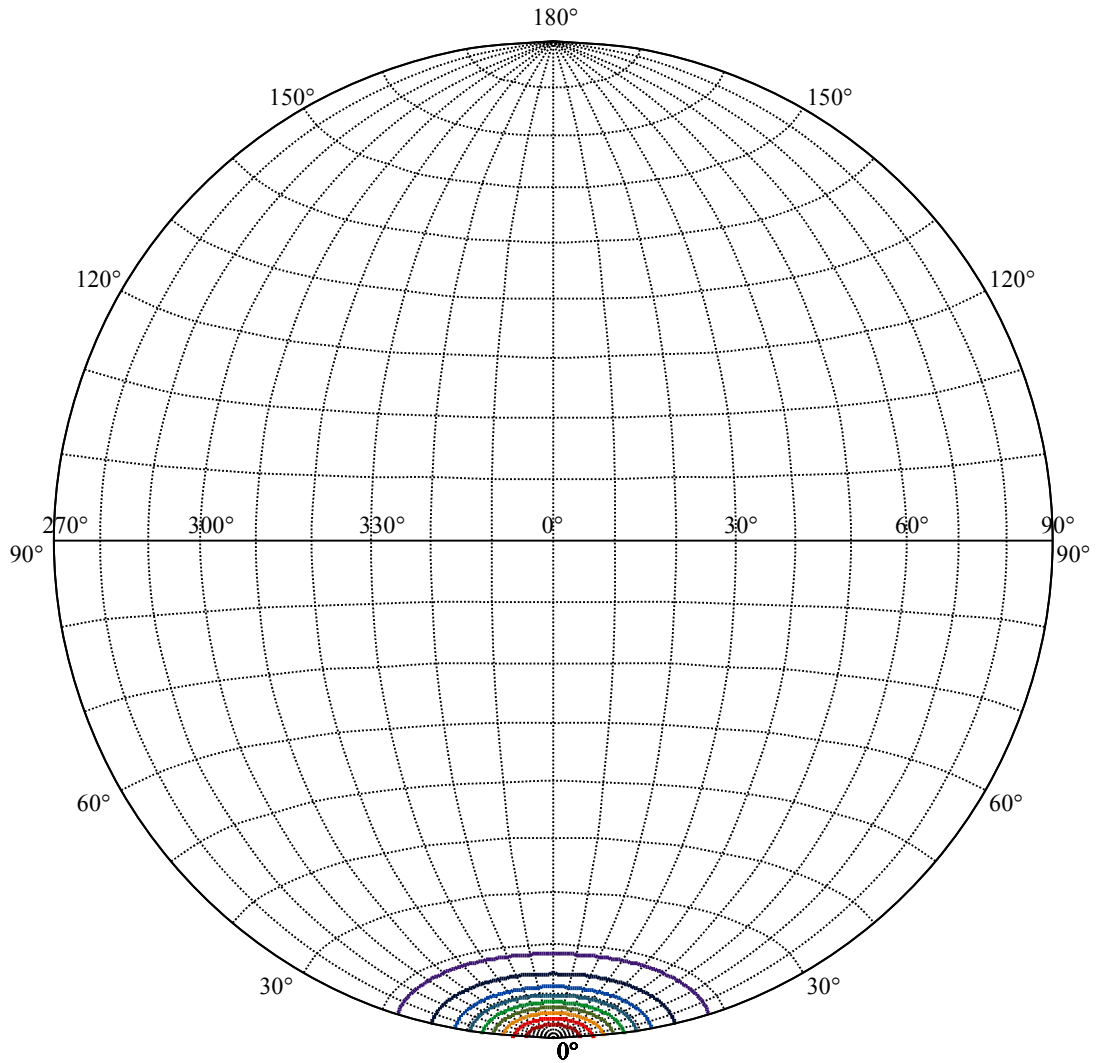


Max , Ave      Beam angle of C0 plane 16.36



(10%Imax) 1346.2	—
(20%Imax) 2692.41	—
(30%Imax) 4038.61	—
(40%Imax) 5384.81	—
(50%Imax) 6731.02	—
(60%Imax) 8077.22	—
(70%Imax) 9423.42	—
(80%Imax) 10769.6	—
(90%Imax) 12115.8	—





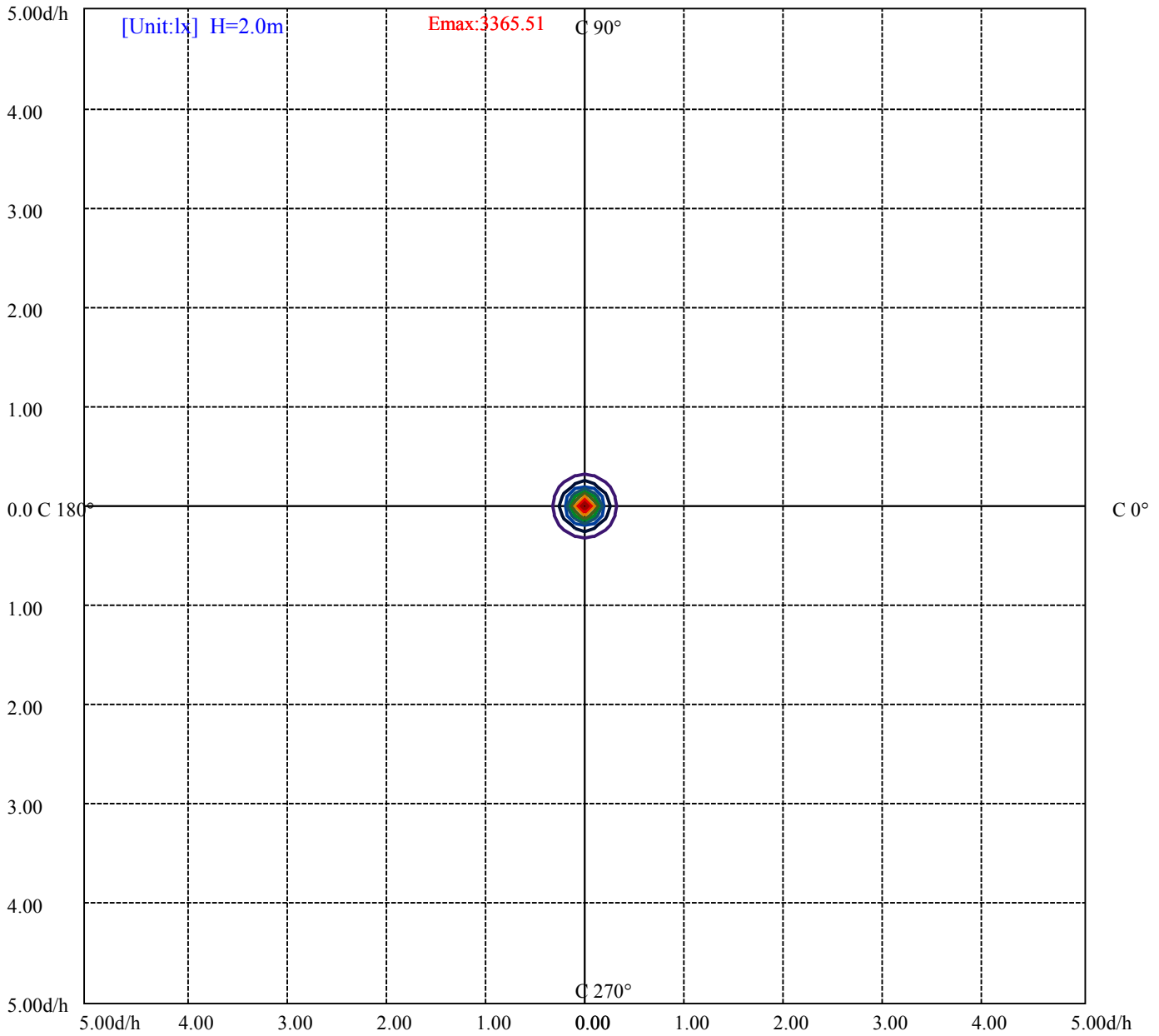
House

[Unit:cd]

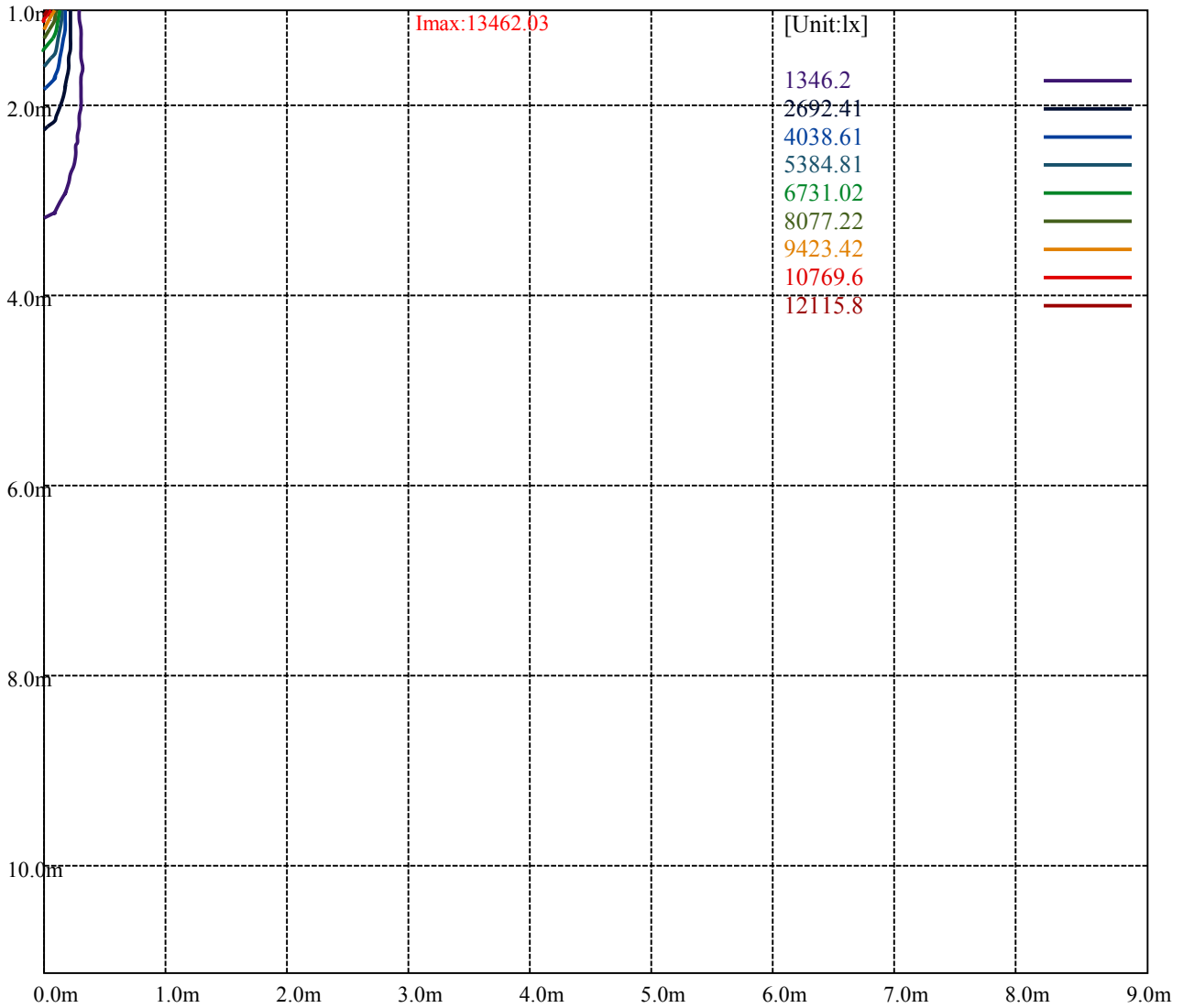
Road

**Imax:13462.03**

(10%Imax) 1346.2	—
(20%Imax) 2692.41	—
(30%Imax) 4038.61	—
(40%Imax) 5384.81	—
(50%Imax) 6731.02	—
(60%Imax) 8077.22	—
(70%Imax) 9423.42	—
(80%Imax) 10769.6	—
(90%Imax) 12115.8	—



- (10%Emax) 336.55
- (20%Emax) 673.1
- (30%Emax) 1009.65
- (40%Emax) 1346.203
- (50%Emax) 1682.752
- (60%Emax) 2019.302
- (70%Emax) 2355.853
- (80%Emax) 2692.4
- (90%Emax) 3028.95



Luminance Table

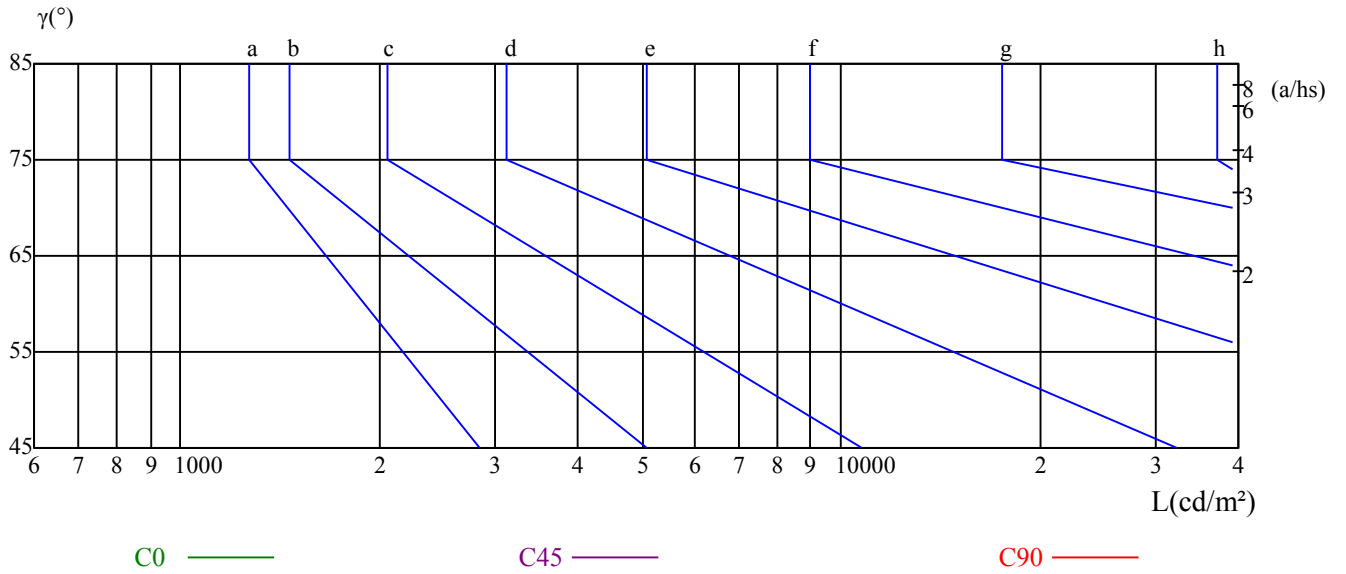
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

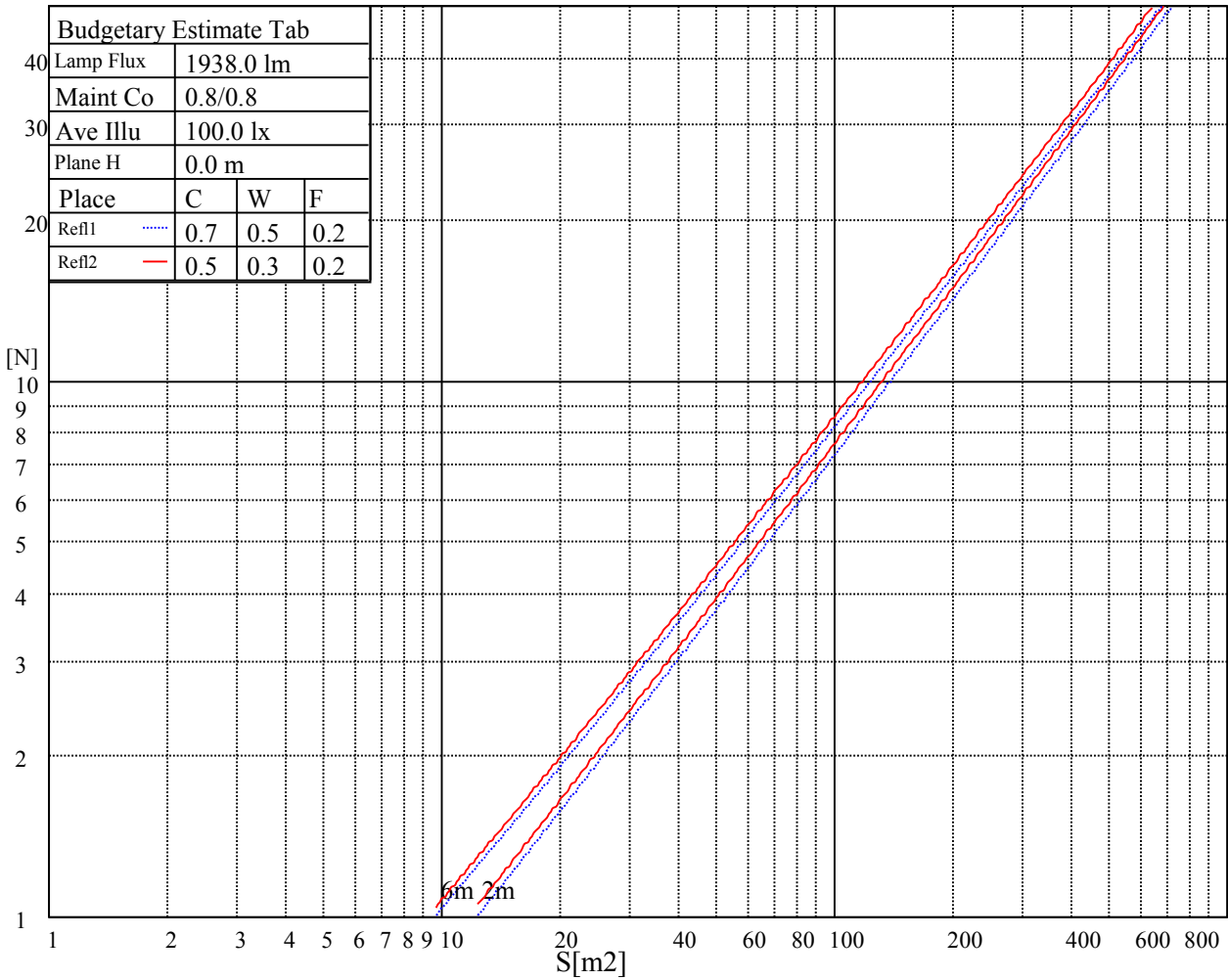
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

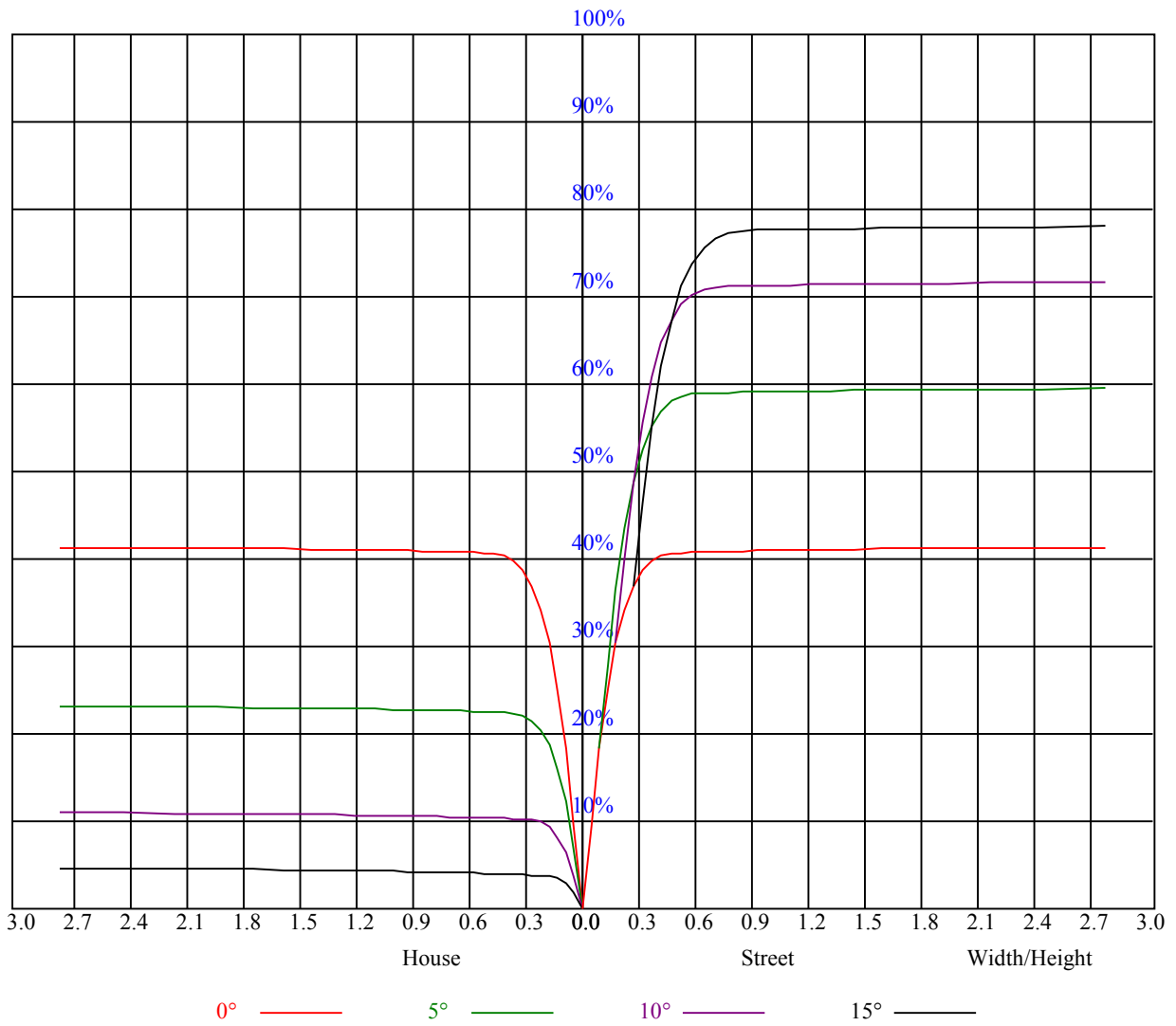
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.99	0.99	0.99	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.83
1	0.94	0.93	0.91	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.83	0.83	0.82	0.81
2	0.90	0.88	0.86	0.89	0.87	0.85	0.86	0.85	0.83	0.84	0.83	0.82	0.82	0.81	0.80	0.79
3	0.87	0.84	0.82	0.86	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.79	0.80	0.79	0.78	0.77
4	0.84	0.81	0.79	0.83	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.79	0.77	0.76	0.75
5	0.82	0.79	0.77	0.81	0.78	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.74
6	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.77	0.75	0.73	0.76	0.74	0.73	0.72
7	0.78	0.75	0.73	0.77	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.72	0.75	0.73	0.72	0.71
8	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.71	0.74	0.72	0.70	0.74	0.72	0.70	0.69
9	0.74	0.72	0.70	0.74	0.71	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.72	0.70	0.69	0.68
10	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.72	0.69	0.68	0.71	0.69	0.68	0.67



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	13483.13	13303.13	12796.88	12110.63	11193.75	9990.00	8741.25	7655.63	6553.13
45.0	13488.75	13359.38	12875.63	12211.88	11345.63	10046.25	8938.13	7807.50	6676.88
90.0	13426.88	13185.00	12571.88	11117.25	10853.44	9635.63	8373.94	7279.88	6206.06
135.0	13449.38	13398.75	13055.63	12521.25	11739.38	10513.13	9438.75	8313.75	7115.63
180.0	13483.13	13455.00	13117.50	12583.13	11115.56	10729.69	9513.56	8375.63	7176.38
225.0	13488.75	13426.88	13123.13	12510.00	11104.88	10441.69	9492.75	8246.25	6952.50
270.0	13426.88	13471.88	13258.13	12819.38	12105.00	11041.88	9832.50	8741.25	7526.25
315.0	13449.38	13308.75	12875.63	12133.13	11110.50	10055.81	8816.63	7727.63	6611.63
360.0	13483.13	13303.13	12796.88	12110.63	11193.75	9990.00	8741.25	7655.63	6553.13
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5596.88	4826.25	4072.50	3498.75	2958.75	2851.88	2182.50	1887.75	1593.56
45.0	5698.13	4921.88	4145.63	3560.63	3009.38	2896.88	2230.31	1910.81	1615.50
90.0	5359.50	4520.25	3817.13	3297.38	2798.44	2395.13	2090.81	1811.81	1495.13
135.0	6080.63	5265.00	4432.50	3802.50	3206.25	2925.00	2376.56	2036.25	1797.19
180.0	6226.31	5275.69	4457.81	3830.06	3234.94	2743.31	2377.69	2068.88	1723.50
225.0	6156.56	5237.44	4330.69	3788.44	3260.25	2673.00	2358.00	2051.44	1744.31
270.0	6435.00	5591.25	4730.63	4061.25	3425.63	2891.25	2840.63	2183.06	1856.81
315.0	5728.50	4841.44	4067.44	3483.00	2999.25	2512.13	2174.06	1882.13	1529.44
360.0	5596.88	4826.25	4072.50	3498.75	2958.75	2851.88	2182.50	1887.75	1593.56
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1329.19	1122.19	893.81	682.88	511.88	337.50	285.75	105.75	45.56
45.0	1372.50	1162.69	908.44	722.25	540.56	379.69	289.69	113.12	49.44
90.0	1116.62	1065.38	858.99	625.11	455.18	305.72	162.45	82.91	33.24
135.0	1479.94	1257.75	1045.13	795.38	613.13	451.13	290.81	149.68	75.71
180.0	1471.50	1115.83	1013.46	790.59	608.34	423.11	280.74	157.33	73.97
225.0	1463.06	1110.15	1033.43	793.74	608.46	438.41	273.60	152.10	78.30
270.0	1571.06	1341.56	1082.25	878.63	690.19	518.63	324.00	289.13	103.33
315.0	1248.75	1113.36	915.86	682.37	508.50	328.61	191.03	104.74	48.60
360.0	1329.19	1122.19	893.81	682.88	511.88	337.50	285.75	105.75	45.56
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	18.84	16.88	15.41	14.06	13.05	12.26	11.48	10.91	10.41
45.0	18.51	16.31	15.08	13.73	12.71	11.98	11.31	10.74	10.35
90.0	17.04	15.36	14.12	13.05	12.21	11.42	10.80	10.35	10.01
135.0	27.39	16.65	15.36	13.84	12.88	12.04	11.36	10.80	10.35
180.0	29.81	17.38	15.41	14.18	13.22	12.15	11.53	10.97	10.46
225.0	27.73	17.89	16.26	14.79	13.67	12.66	11.87	11.19	10.69
270.0	37.80	18.34	16.48	14.91	13.67	12.77	11.93	11.25	10.69
315.0	18.84	16.43	15.08	13.73	12.83	11.93	11.19	10.69	10.18
360.0	18.84	16.88	15.41	14.06	13.05	12.26	11.48	10.91	10.41
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	10.01	9.68	9.39	9.11	8.94	8.78	8.61	8.49	8.38
45.0	9.90	9.62	9.34	9.11	8.94	8.78	8.61	8.49	8.38
90.0	9.62	9.34	9.17	8.89	8.78	8.61	8.49	8.38	8.27
135.0	9.90	9.62	9.39	9.11	8.94	8.78	8.61	8.49	8.44
180.0	10.07	9.73	9.45	9.23	9.00	8.83	8.66	8.55	8.44
225.0	10.18	9.84	9.51	9.17	9.00	8.83	8.66	8.49	8.38
270.0	10.18	9.84	9.51	9.23	9.00	8.83	8.66	8.49	8.44
315.0	9.79	9.51	9.17	9.00	8.83	8.66	8.55	8.38	8.27
360.0	10.01	9.68	9.39	9.11	8.94	8.78	8.61	8.49	8.38



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	8.33	8.21	8.16	8.10	7.99	7.93	7.93	7.88	7.82
45.0	8.27	8.21	8.16	8.10	7.99	7.93	7.93	7.88	7.82
90.0	8.21	8.16	8.04	7.99	7.93	7.93	7.88	7.82	7.76
135.0	8.33	8.21	8.16	8.10	8.04	7.99	7.93	7.93	7.88
180.0	8.38	8.27	8.16	8.10	8.04	7.99	7.93	7.88	7.82
225.0	8.33	8.21	8.10	8.04	7.99	7.93	7.88	7.82	7.76
270.0	8.33	8.21	8.16	8.10	7.99	7.93	7.88	7.88	7.82
315.0	8.21	8.16	8.04	8.04	7.93	7.88	7.88	7.82	7.76
360.0	8.33	8.21	8.16	8.10	7.99	7.93	7.93	7.88	7.82
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.76	7.76	7.71	7.71	7.65	7.65	7.59	7.59	7.54
45.0	7.76	7.71	7.71	7.71	7.65	7.65	7.59	7.59	7.54
90.0	7.71	7.71	7.65	7.65	7.65	7.59	7.59	7.59	7.54
135.0	7.82	7.76	7.76	7.71	7.71	7.65	7.65	7.59	7.59
180.0	7.82	7.76	7.76	7.71	7.65	7.65	7.65	7.59	7.59
225.0	7.76	7.71	7.65	7.65	7.59	7.59	7.59	7.54	7.54
270.0	7.76	7.76	7.76	7.65	7.65	7.65	7.65	7.59	7.59
315.0	7.76	7.71	7.65	7.65	7.65	7.59	7.59	7.54	7.54
360.0	7.76	7.76	7.71	7.71	7.65	7.65	7.59	7.59	7.54
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.54	7.54	7.54	7.54	7.48	7.48	7.48	7.43	7.43
45.0	7.54	7.54	7.54	7.48	7.48	7.48	7.48	7.48	7.48
90.0	7.54	7.54	7.48	7.48	7.48	7.48	7.48	7.48	7.48
135.0	7.59	7.59	7.54	7.54	7.54	7.54	7.48	7.54	7.48
180.0	7.54	7.54	7.54	7.54	7.54	7.48	7.48	7.48	7.43
225.0	7.54	7.54	7.48	7.48	7.48	7.48	7.48	7.48	7.48
270.0	7.54	7.54	7.54	7.54	7.54	7.48	7.48	7.48	7.48
315.0	7.54	7.54	7.48	7.54	7.48	7.48	7.48	7.43	7.43
360.0	7.54	7.54	7.54	7.54	7.48	7.48	7.48	7.43	7.43
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43
45.0	7.48	7.48	7.43	7.48	7.48	7.48	7.43	7.43	7.48
90.0	7.43	7.43	7.43	7.43	7.43	7.43	7.37	7.43	7.43
135.0	7.48	7.48	7.48	7.43	7.43	7.48	7.43	7.43	7.43
180.0	7.48	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43
225.0	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48
270.0	7.48	7.48	7.43	7.43	7.43	7.43	7.43	7.43	7.43
315.0	7.48	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43
360.0	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.43	7.37	7.43	7.43	7.37	7.43	7.37	7.37	7.37
45.0	7.48	7.48	7.48	7.48	7.48	7.43	7.31	7.31	7.31
90.0	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37
135.0	7.43	7.43	7.43	7.43	7.43	7.43	7.37	7.43	7.43
180.0	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37	7.37
225.0	7.48	7.48	7.48	7.48	7.43	7.31	7.31	7.31	7.31
270.0	7.43	7.43	7.43	7.43	7.43	7.37	7.37	7.43	7.37
315.0	7.43	7.43	7.43	7.43	7.43	7.37	7.37	7.37	7.43
360.0	7.43	7.37	7.43	7.43	7.37	7.43	7.37	7.37	7.37

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>7.37</b>
<b>45.0</b>	<b>7.31</b>
<b>90.0</b>	<b>7.37</b>
<b>135.0</b>	<b>7.37</b>
<b>180.0</b>	<b>7.37</b>
<b>225.0</b>	<b>7.31</b>
<b>270.0</b>	<b>7.37</b>
<b>315.0</b>	<b>7.37</b>
<b>360.0</b>	<b>7.37</b>