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## Nata

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LumCAT: 1-0914-S	
Luminaire: 92.70.185.00	
Report No: 220525-B013	Voltage(V): 34.3300
Test No: 220525-C013	Current(A): 0.2280
LampCAT: CREE CXA1512	Power (W): 7.8270
Lamp flux(lm): 1143.1	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 879.40  
Efficiency(%): 76.93%  
Lumens(lm)/Power(W): 112.35  
Central intensity(cd): 2136.465  
Maximum intensity(cd): 2136.465  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=37.0  
                                  [C90/270]Total=37.0  
Field angle(10%Imax): [C0/180]Total=60.0  
                                  [C90/270]Total=60.0  
Maximum s/h(1/2): C0\_180=0.61 C90\_270=0.61  
Maximum s/h(1/4): C0\_180=0.59 C90\_270=0.59  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 76.93%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.458%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2136.465	0.000	0	.000%	.000%
1.0	2134.523	2.044	2.044	.179%	.232%
2.0	2121.751	6.109	8.153	.534%	.927%
3.0	2102.107	10.102	18.255	.884%	2.076%
4.0	2078.281	13.993	32.248	1.224%	3.667%
5.0	2040.935	17.721	49.968	1.550%	5.682%
6.0	1999.780	21.235	71.203	1.858%	8.097%
7.0	1955.936	24.553	95.757	2.148%	10.889%
8.0	1901.785	27.609	123.366	2.415%	14.028%
9.0	1848.232	30.392	153.757	2.659%	17.484%
10.0	1786.388	32.892	186.649	2.878%	21.225%
11.0	1714.460	34.981	221.63	3.060%	25.203%
12.0	1645.670	36.731	258.361	3.213%	29.379%
13.0	1574.041	38.210	296.571	3.343%	33.724%
14.0	1483.291	39.134	335.704	3.424%	38.174%
15.0	1400.055	39.584	375.288	3.463%	42.676%
16.0	1317.424	39.819	415.107	3.484%	47.204%
17.0	1215.493	39.444	454.551	3.451%	51.689%
18.0	1109.171	38.329	492.88	3.353%	56.048%
19.0	1026.122	37.150	530.03	3.250%	60.272%
20.0	924.064	35.694	565.724	3.123%	64.331%
21.0	827.757	33.639	599.362	2.943%	68.156%
22.0	744.685	31.599	630.961	2.764%	71.749%
23.0	660.538	29.485	660.446	2.580%	75.102%
24.0	585.855	27.251	687.697	2.384%	78.201%
25.0	516.683	25.069	712.766	2.193%	81.052%
26.0	448.558	22.785	735.551	1.993%	83.643%
27.0	385.018	20.394	755.944	1.784%	85.962%
28.0	325.683	17.993	773.938	1.574%	88.008%
29.0	264.967	15.453	789.391	1.352%	89.765%
30.0	213.325	12.914	802.305	1.130%	91.234%
31.0	161.699	10.436	812.741	.913%	92.420%
32.0	117.153	7.989	820.73	.699%	93.329%
33.0	83.542	5.913	826.642	.517%	94.001%
34.0	57.736	4.275	830.918	.374%	94.487%
35.0	40.236	3.043	833.961	.266%	94.833%
36.0	28.973	2.204	836.164	.193%	95.084%
37.0	23.080	1.698	837.862	.149%	95.277%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	18.419	1.385	839.247	.121%	95.434%
39.0	15.103	1.144	840.391	.100%	95.565%
40.0	12.817	0.974	841.365	.085%	95.675%
41.0	11.577	0.869	842.234	.076%	95.774%
42.0	10.950	0.818	843.052	.072%	95.867%
43.0	10.427	0.792	843.844	.069%	95.957%
44.0	10.009	0.771	844.615	.067%	96.045%
45.0	9.695	0.757	845.372	.066%	96.131%
46.0	9.471	0.750	846.122	.066%	96.216%
47.0	9.284	0.746	846.868	.065%	96.301%
48.0	9.180	0.746	847.614	.065%	96.386%
49.0	9.112	0.751	848.365	.066%	96.471%
50.0	9.045	0.757	849.123	.066%	96.557%
51.0	8.985	0.763	849.885	.067%	96.644%
52.0	8.948	0.770	850.655	.067%	96.732%
53.0	8.911	0.777	851.432	.068%	96.820%
54.0	8.821	0.782	852.213	.068%	96.909%
55.0	8.724	0.783	852.996	.069%	96.998%
56.0	8.716	0.788	853.785	.069%	97.088%
57.0	8.784	0.800	854.585	.070%	97.179%
58.0	8.746	0.811	855.395	.071%	97.271%
59.0	8.761	0.818	856.214	.072%	97.364%
60.0	8.739	0.827	857.041	.072%	97.458%
61.0	8.724	0.833	857.874	.073%	97.553%
62.0	8.694	0.839	858.713	.073%	97.648%
63.0	8.679	0.845	859.558	.074%	97.744%
64.0	8.560	0.846	860.404	.074%	97.840%
65.0	8.530	0.846	861.25	.074%	97.937%
66.0	8.470	0.848	862.098	.074%	98.033%
67.0	8.403	0.848	862.946	.074%	98.129%
68.0	8.321	0.847	863.794	.074%	98.226%
69.0	8.238	0.845	864.638	.074%	98.322%
70.0	8.134	0.841	865.479	.074%	98.417%
71.0	8.037	0.836	866.315	.073%	98.512%
72.0	7.910	0.829	867.144	.073%	98.607%
73.0	7.738	0.818	867.962	.072%	98.700%
74.0	7.648	0.809	868.771	.071%	98.792%
75.0	7.536	0.802	869.574	.070%	98.883%

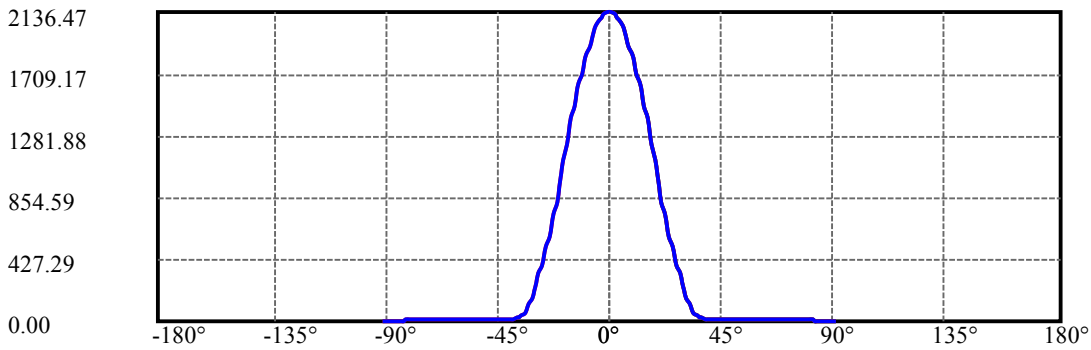
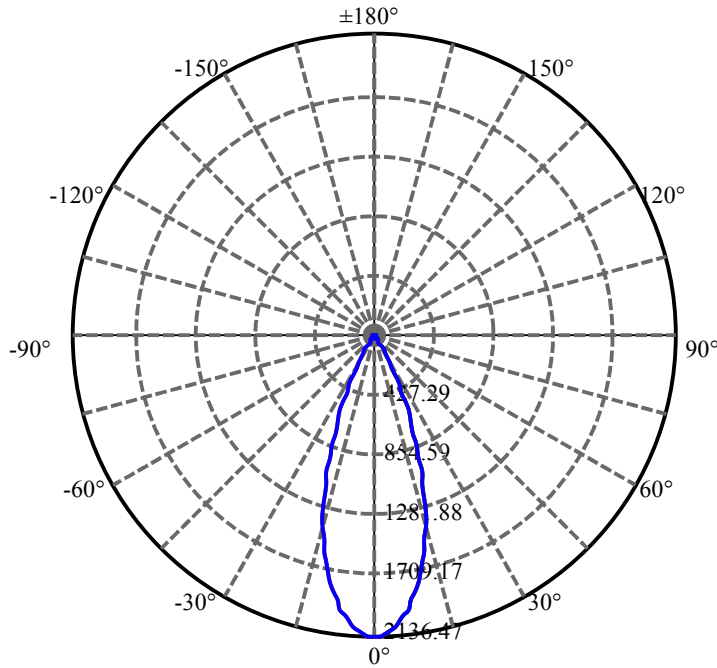
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.387	0.792	870.366	.069%	98.973%
77.0	7.253	0.781	871.146	.068%	99.062%
78.0	7.096	0.768	871.914	.067%	99.149%
79.0	6.984	0.756	872.671	.066%	99.235%
80.0	6.872	0.747	873.418	.065%	99.320%
81.0	6.737	0.736	874.154	.064%	99.404%
82.0	6.633	0.725	874.879	.063%	99.486%
83.0	6.491	0.713	875.592	.062%	99.567%
84.0	6.282	0.696	876.288	.061%	99.647%
85.0	5.632	0.650	876.938	.057%	99.721%
86.0	5.221	0.593	877.531	.052%	99.788%
87.0	4.511	0.533	878.064	.047%	99.849%
88.0	4.011	0.467	878.531	.041%	99.902%
89.0	3.936	0.436	878.966	.038%	99.951%
90.0	3.899	0.430	879.396	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	802.30	70.19%	91.23%
0-40	841.36	73.61%	95.68%
0-60	857.04	74.98%	97.46%
0-90	878.97	76.90%	99.95%
0-120	878.97	76.90%	99.95%
0-180	879.40	76.93%	100.00%
60-90	22.75	1.99%	2.59%
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%
0-24.63	703.52	61.55%	80.00%

ZONAL LUMEN SUMMARY

0-10	186.65
10-20	379.07
20-30	236.58
30-40	39.06
40-50	7.76
50-60	7.92
60-70	8.44
70-80	7.94
80-90	5.55
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: —————

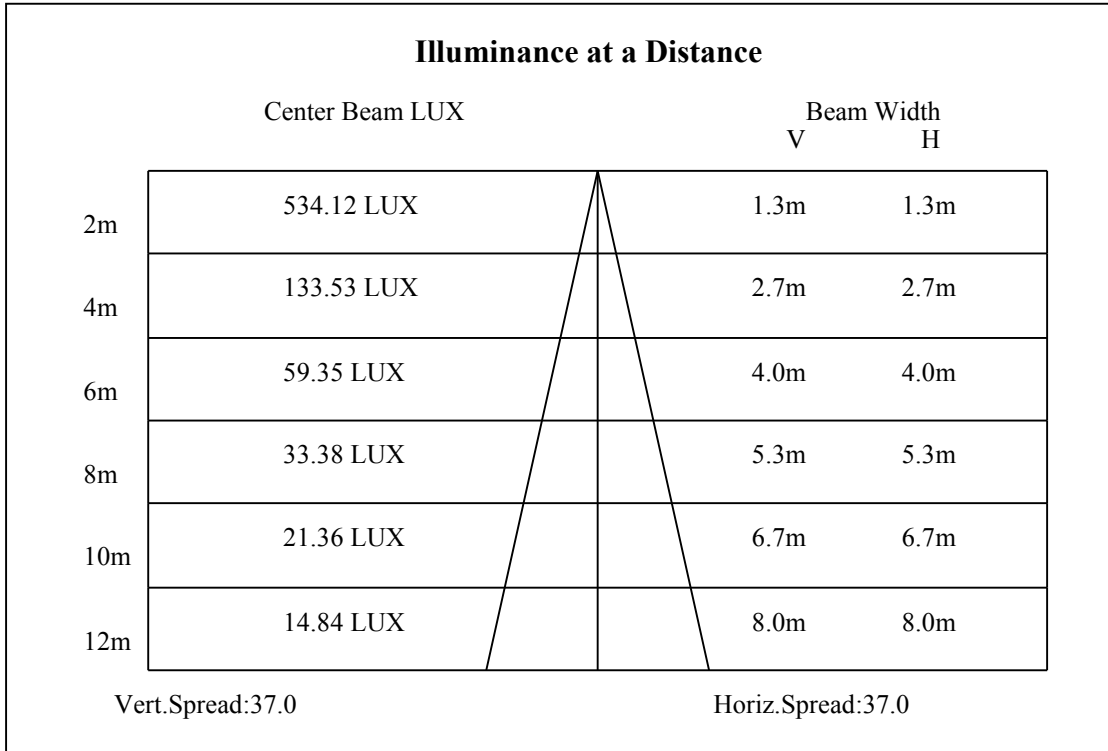
C90/C270: —————

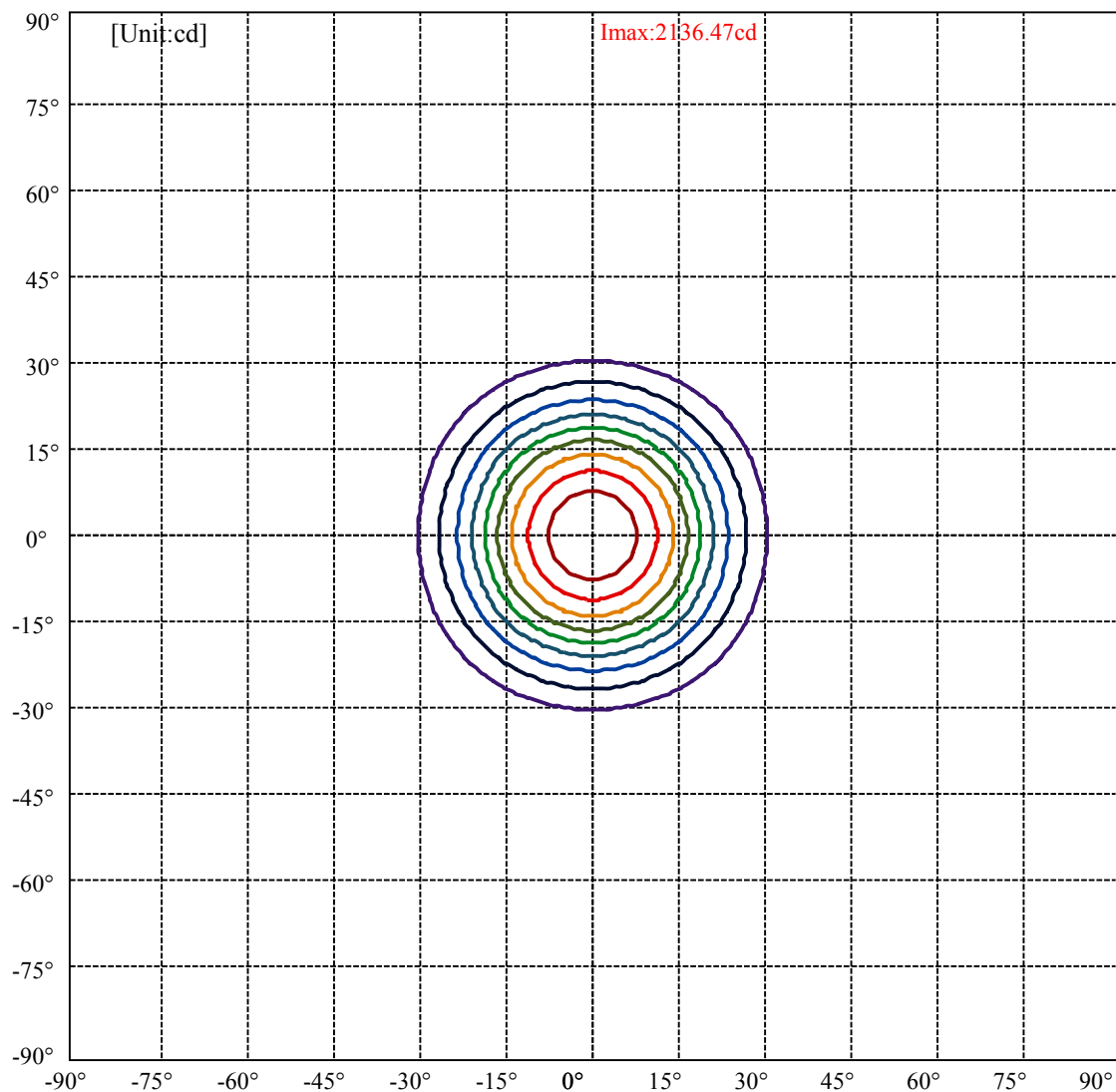
Field angle(10%Imax):C0/180Left:30.0 Right:30.0

:C90/270Left:30.0 Right:30.0

Beam Angle(50%Imax):C0/180Left:18.5 Right:18.5

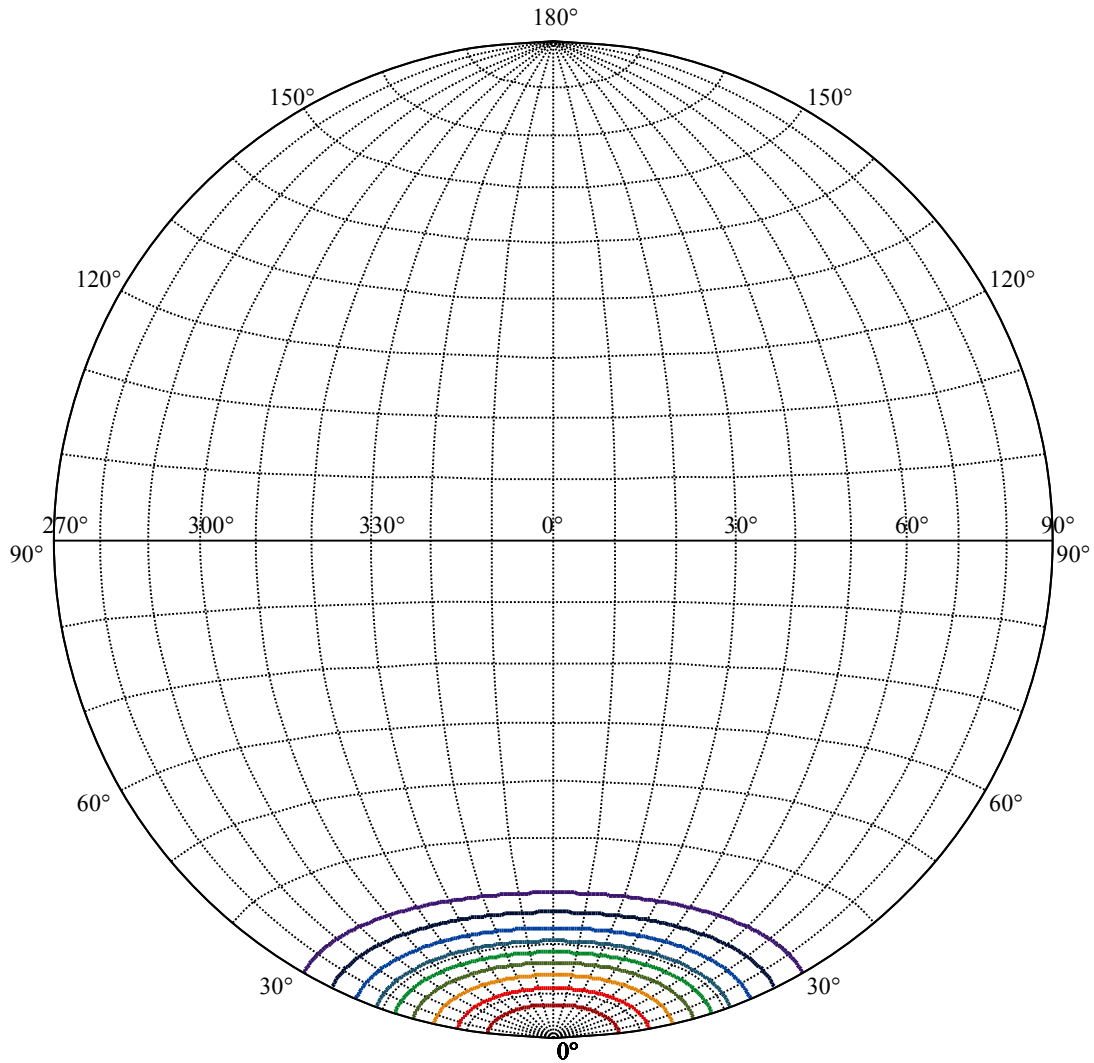
:C90/270Left:18.5 Right:18.5





(10%Imax) 213.647	—
(20%Imax) 427.293	—
(30%Imax) 640.94	—
(40%Imax) 854.586	—
(50%Imax) 1068.23	—
(60%Imax) 1281.88	—
(70%Imax) 1495.53	—
(80%Imax) 1709.17	—
(90%Imax) 1922.82	—





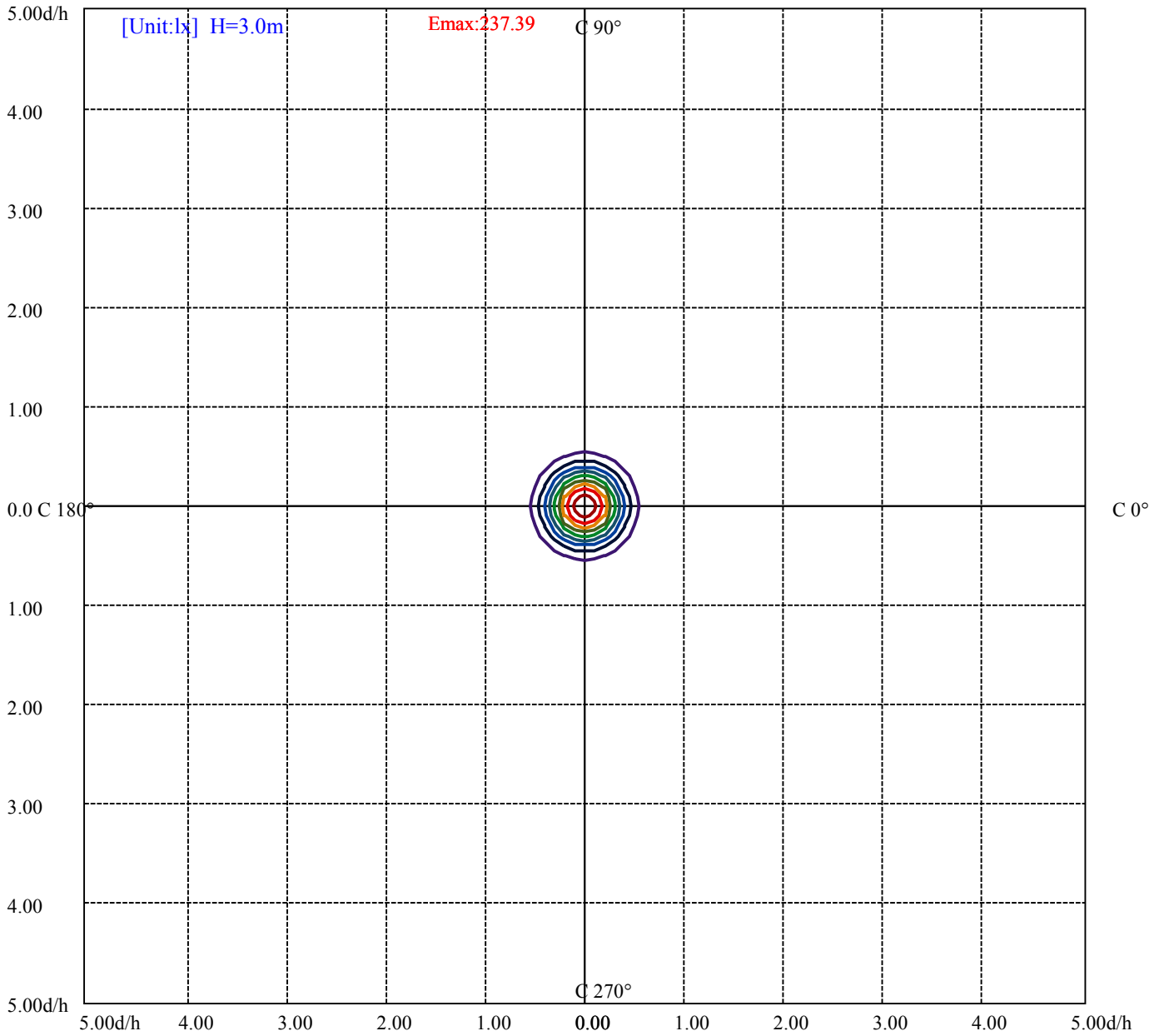
House

[Unit:cd]

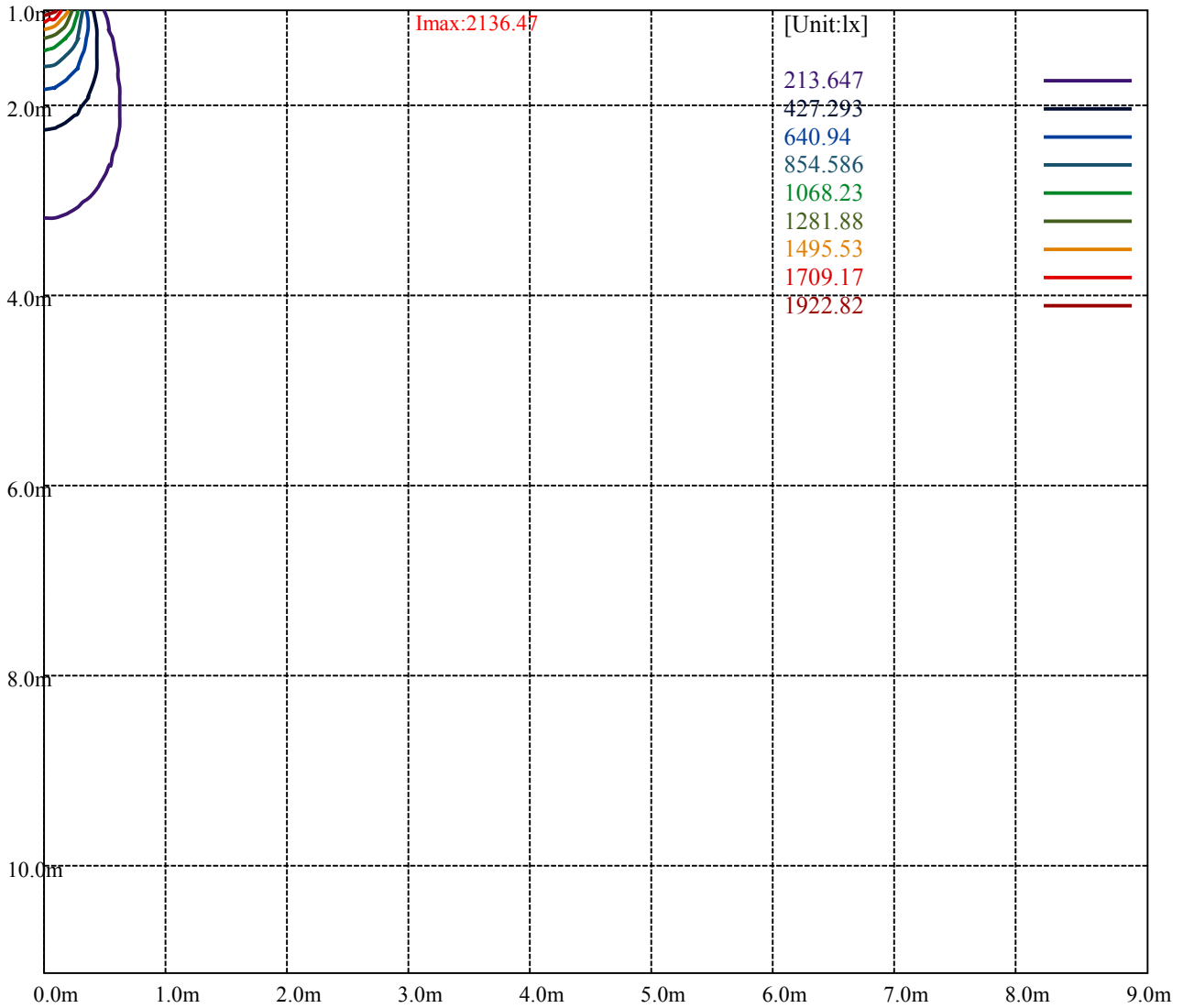
Road

**Imax:2136.47**

(10%Imax) 213.647	—
(20%Imax) 427.293	—
(30%Imax) 640.94	—
(40%Imax) 854.586	—
(50%Imax) 1068.23	—
(60%Imax) 1281.88	—
(70%Imax) 1495.53	—
(80%Imax) 1709.17	—
(90%Imax) 1922.82	—



(10%Emax) 23.73844	—
(20%Emax) 47.477	—
(30%Emax) 71.21545	—
(40%Emax) 94.954	—
(50%Emax) 118.6922	—
(60%Emax) 142.4311	—
(70%Emax) 166.17	—
(80%Emax) 189.9078	—
(90%Emax) 213.6467	—



Luminance Table

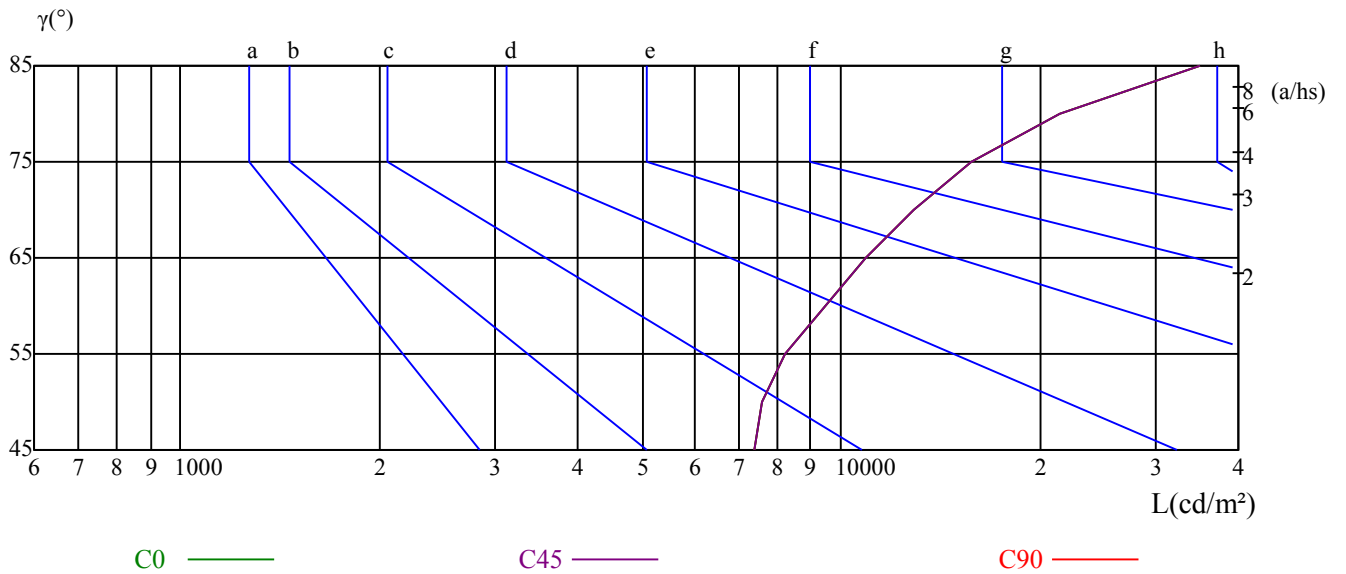
$\gamma$	45	50	55	60	65	70	75	80	85
C0	7415	7610	8226	9453	10916	12862	15748	21402	34947
C45	7415	7610	8226	9453	10916	12862	15748	21402	34947
C90	7415	7610	8226	9453	10916	12862	15748	21402	34947

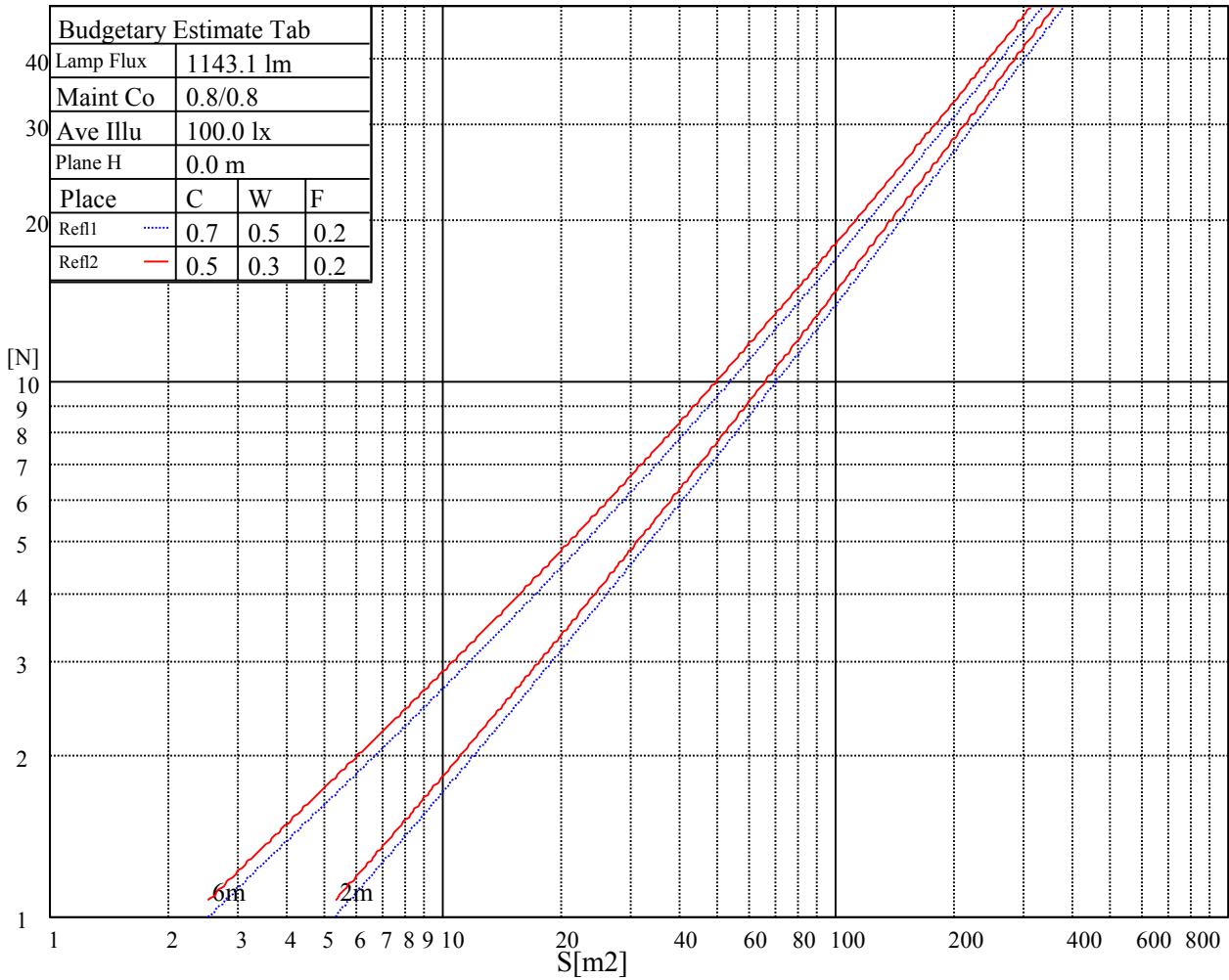
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10916	10916	10916	15748	15748	15748	34947	34947	34947

Glare Table

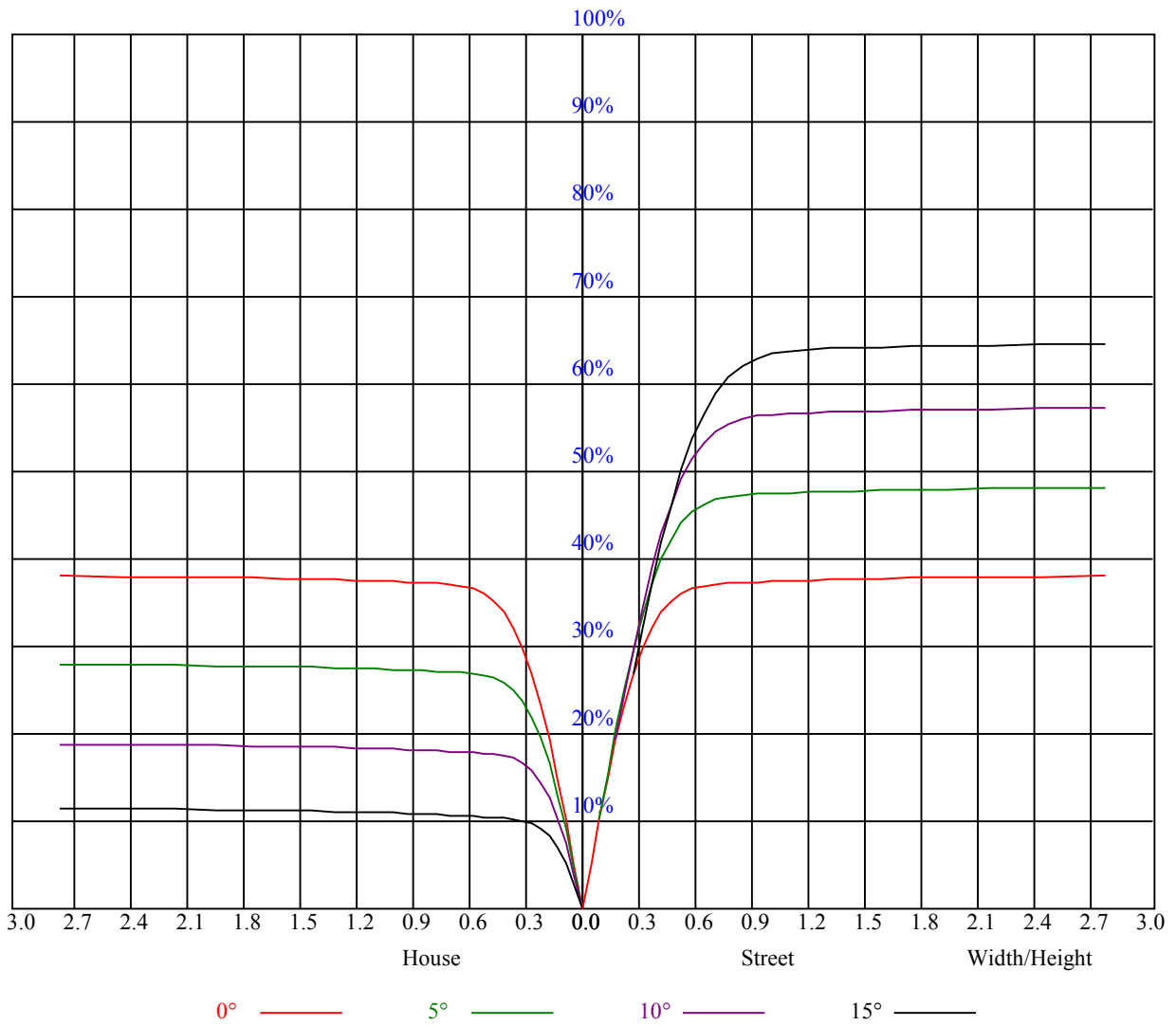
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.92	0.92	0.92	0.89	0.89	0.89	0.85	0.85	0.85	0.82	0.82	0.82	0.79	0.79	0.79	0.77
1	0.86	0.84	0.82	0.84	0.82	0.81	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73
2	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.73	0.75	0.73	0.72	0.73	0.71	0.70	0.69
3	0.77	0.73	0.71	0.76	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.70	0.68	0.67	0.66
4	0.73	0.69	0.66	0.72	0.69	0.66	0.70	0.68	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.63
5	0.69	0.66	0.63	0.69	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.61	0.60
6	0.66	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.63	0.60	0.59	0.58
7	0.64	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.61	0.59	0.56	0.61	0.58	0.56	0.55
8	0.61	0.57	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.59	0.56	0.54	0.59	0.56	0.54	0.53
9	0.59	0.55	0.53	0.58	0.55	0.52	0.58	0.55	0.52	0.57	0.54	0.52	0.57	0.54	0.52	0.51
10	0.57	0.53	0.50	0.56	0.53	0.50	0.56	0.52	0.50	0.55	0.52	0.50	0.55	0.52	0.50	0.49



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	2145.73	2145.13	2131.98	2120.03	2099.12	2063.27	2030.40	1996.34	1949.74
45.0	2129.59	2121.23	2100.31	2071.63	2044.15	1998.73	1941.37	1891.78	1838.00
90.0	2130.19	2124.81	2098.52	2064.46	2026.22	1974.24	1921.06	1864.89	1791.39
135.0	2140.35	2140.35	2127.80	2104.50	2079.40	2041.16	1993.36	1945.55	1881.62
180.0	2145.73	2132.58	2115.85	2097.92	2067.45	2031.00	1986.78	1937.79	1891.78
225.0	2129.59	2140.95	2140.35	2120.03	2103.90	2083.58	2053.11	2008.89	1966.47
270.0	2130.19	2133.18	2133.78	2126.01	2112.86	2074.02	2051.32	2027.42	1970.05
315.0	2140.35	2137.96	2125.41	2112.27	2093.14	2061.48	2020.84	1974.83	1925.24
360.0	2145.73	2145.13	2131.98	2120.03	2099.12	2063.27	2030.40	1996.34	1949.74
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1904.32	1856.52	1786.01	1725.66	1660.53	1571.50	1496.81	1416.14	1306.20
45.0	1764.50	1696.38	1625.28	1542.82	1460.96	1376.71	1285.88	1188.49	1107.82
90.0	1724.47	1650.97	1561.34	1481.27	1403.00	1299.03	1187.65	1121.14	1019.32
135.0	1820.67	1757.93	1676.07	1600.78	1514.74	1426.30	1346.83	1250.03	1145.46
180.0	1828.44	1763.91	1692.80	1625.88	1556.56	1461.56	1381.49	1295.44	1181.73
225.0	1932.41	1867.88	1811.11	1748.97	1685.63	1594.80	1518.32	1450.20	1361.17
270.0	1932.41	1882.22	1816.49	1753.15	1689.21	1604.37	1528.48	1443.63	1345.04
315.0	1878.63	1815.29	1746.58	1686.82	1621.69	1532.06	1454.98	1374.32	1257.20
360.0	1904.32	1856.52	1786.01	1725.66	1660.53	1571.50	1496.81	1416.14	1306.20
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1212.98	1119.77	999.67	905.26	816.22	706.28	632.78	565.26	490.57
45.0	993.69	902.27	800.09	697.91	626.81	563.47	481.01	415.88	357.92
90.0	916.49	826.38	728.81	647.84	573.45	503.06	440.74	376.50	315.67
135.0	1052.85	963.22	855.06	769.62	685.37	607.09	544.95	484.00	414.69
180.0	1084.10	987.78	894.32	791.49	707.30	639.24	564.61	492.42	429.74
225.0	1186.10	1174.80	1075.91	975.35	886.73	793.04	711.30	635.17	561.02
270.0	1251.82	1152.04	1060.02	954.25	864.03	760.06	680.59	608.28	536.58
315.0	1175.34	1082.72	978.63	880.34	797.58	712.08	630.87	555.94	482.27
360.0	1212.98	1119.77	999.67	905.26	816.22	706.28	632.78	565.26	490.57
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	418.27	359.11	307.73	238.71	182.84	134.38	96.02	61.72	39.62
45.0	307.73	235.13	185.11	135.04	91.12	62.86	38.66	27.19	22.83
90.0	264.53	215.83	160.14	120.64	86.76	55.15	37.76	27.55	22.23
135.0	349.55	302.35	231.54	184.22	133.85	92.62	64.77	42.84	30.59
180.0	362.10	303.13	242.42	186.07	142.15	98.17	64.35	45.29	34.30
225.0	494.87	429.74	354.33	296.97	245.35	182.90	139.46	100.33	64.83
270.0	462.49	399.75	342.98	307.13	223.12	177.76	132.23	92.92	64.53
315.0	420.60	360.43	295.48	237.82	188.40	133.37	95.07	64.06	42.96
360.0	418.27	359.11	307.73	238.71	182.84	134.38	96.02	61.72	39.62
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	29.46	25.22	19.96	14.64	12.13	11.35	10.76	10.28	9.80
45.0	17.87	13.74	11.77	11.05	10.58	10.10	9.68	9.44	9.32
90.0	18.40	14.28	12.43	11.77	10.99	10.46	10.04	9.62	9.20
135.0	25.39	21.39	14.22	12.55	11.71	11.05	10.46	9.98	9.56
180.0	27.79	22.77	15.95	12.79	11.83	11.23	10.64	10.16	9.74
225.0	42.42	32.09	26.89	21.45	15.95	12.97	12.19	11.47	10.88
270.0	41.05	29.88	24.56	21.15	16.55	13.38	12.43	11.77	11.23
315.0	29.40	25.28	21.57	15.42	12.79	12.07	11.41	10.70	10.34
360.0	29.46	25.22	19.96	14.64	12.13	11.35	10.76	10.28	9.80



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	9.44	9.20	8.96	8.78	8.72	8.66	8.72	8.72	8.72
45.0	9.32	9.38	9.50	9.56	9.56	9.62	9.68	9.80	9.92
90.0	9.08	8.90	8.78	8.72	8.66	8.60	8.54	8.66	8.72
135.0	9.26	9.02	8.96	8.84	8.72	8.66	8.54	8.43	8.31
180.0	9.38	9.14	8.84	8.66	8.54	8.43	8.43	8.37	8.31
225.0	10.46	10.10	9.74	9.56	9.44	9.38	9.32	9.26	9.08
270.0	10.64	10.34	10.04	9.80	9.80	9.68	9.44	9.26	9.20
315.0	9.98	9.68	9.44	9.50	9.44	9.32	9.20	9.08	9.02
360.0	9.44	9.20	8.96	8.78	8.72	8.66	8.72	8.72	8.72
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.78	8.78	8.84	8.84	8.90	9.02	9.02	9.08	9.20
45.0	10.04	10.16	10.52	10.76	10.88	11.05	11.17	11.23	11.29
90.0	8.37	7.95	7.95	8.84	8.78	9.14	9.20	9.26	9.26
135.0	8.19	8.01	7.95	7.83	7.71	7.65	7.59	7.53	7.41
180.0	8.25	8.25	8.19	8.07	8.07	7.95	7.89	7.89	7.77
225.0	9.02	8.96	8.84	8.72	8.60	8.48	8.37	8.25	8.19
270.0	9.02	8.90	8.72	8.54	8.43	8.25	8.25	8.19	8.13
315.0	8.90	8.78	8.72	8.66	8.60	8.54	8.43	8.37	8.31
360.0	8.78	8.78	8.84	8.84	8.90	9.02	9.02	9.08	9.20
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.26	9.26	9.26	9.26	9.14	9.02	8.96	8.84	8.66
45.0	11.35	11.23	11.11	10.99	10.76	10.58	10.40	10.16	9.86
90.0	9.44	8.90	9.08	9.02	9.08	8.96	8.78	8.66	8.60
135.0	7.35	7.29	7.23	7.17	7.11	7.11	7.05	6.99	6.93
180.0	7.71	7.65	7.59	7.53	7.47	7.41	7.35	7.23	7.23
225.0	8.07	8.01	7.89	7.83	7.77	7.71	7.71	7.59	7.47
270.0	8.07	8.01	8.01	7.95	7.95	7.89	7.89	7.89	7.89
315.0	8.19	8.13	8.07	8.01	7.95	7.89	7.77	7.71	7.65
360.0	9.26	9.26	9.26	9.26	9.14	9.02	8.96	8.84	8.66
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.54	8.43	8.25	8.19	8.01	7.77	7.59	7.41	7.23
45.0	9.56	9.26	9.02	8.60	8.25	7.95	7.53	7.23	6.99
90.0	8.43	7.89	7.89	7.71	7.47	7.29	7.11	6.93	6.87
135.0	6.81	6.81	6.69	6.63	6.57	6.51	6.45	6.39	6.33
180.0	7.11	6.99	6.93	6.87	6.81	6.69	6.57	6.51	6.39
225.0	7.41	7.29	7.23	7.17	7.05	6.99	6.87	6.81	6.69
270.0	7.83	7.71	7.71	7.65	7.59	7.53	7.47	7.41	7.35
315.0	7.59	7.53	7.47	7.47	7.35	7.29	7.17	7.17	7.11
360.0	8.54	8.43	8.25	8.19	8.01	7.77	7.59	7.41	7.23
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.05	6.93	6.75	6.63	6.57	6.39	6.27	4.24	4.06
45.0	6.81	6.63	6.45	6.33	6.04	4.06	3.94	3.88	3.82
90.0	6.75	6.63	6.33	6.09	4.18	4.00	3.94	3.88	3.82
135.0	6.21	6.09	5.98	5.80	4.30	4.06	4.00	3.94	3.88
180.0	6.33	6.21	6.09	5.38	4.24	4.06	4.00	3.94	3.88
225.0	6.57	6.51	6.45	6.33	6.27	6.04	4.18	4.06	4.00
270.0	7.11	7.11	7.05	6.93	6.81	6.63	4.96	4.06	4.00
315.0	7.05	6.93	6.81	6.75	6.63	6.51	4.78	4.06	4.00
360.0	7.05	6.93	6.75	6.63	6.57	6.39	6.27	4.24	4.06

Intensity data(cd)

C/ $\gamma$ ( $^{\circ}$ )	90.0
0.0	3.94
45.0	3.82
90.0	3.82
135.0	3.88
180.0	3.88
225.0	3.94
270.0	3.94
315.0	3.94
360.0	3.94