
Nata

LumCAT: 2-1566-M	
Luminaire: BJB47.319.2131	
Report No: NT2017080810	Voltage(V): 38.5000
Test No: GC2017080810	Current(A): 0.5000
LampCAT: CREE CXA1816	Power (W): 19.2500
Lamp flux(lm): 2010.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1825.69
Efficiency(%): 90.83%
Lumens(lm)/Power(W): 95.18
Central intensity(cd): 7122.570
Maximum intensity(cd): 7122.570
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=14.3
[C90/270]Total=14.3
Field angle(10%Imax): [C0/180]Total=67.2
[C90/270]Total=67.2
Maximum s/h(1/2): C0_180=0.25 C90_270=0.25
Maximum s/h(1/4): C0_180=0.37 C90_270=0.37
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.16%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.354%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7122.570	6.816	6.816	.339%	.373%
2.0	6772.104	51.833	58.649	2.579%	3.212%
4.0	5695.663	87.135	145.784	4.335%	7.985%
6.0	4223.887	96.830	242.615	4.817%	13.289%
8.0	3070.507	93.720	336.335	4.663%	18.422%
10.0	2407.488	91.685	428.02	4.561%	23.444%
12.0	2164.430	98.693	526.713	4.910%	28.850%
14.0	2001.510	106.194	632.907	5.283%	34.667%
16.0	1840.468	111.258	744.165	5.535%	40.761%
18.0	1663.496	112.738	856.902	5.609%	46.936%
20.0	1475.880	110.705	967.608	5.508%	53.000%
22.0	1302.456	107.005	1074.613	5.324%	58.861%
24.0	1155.863	103.106	1177.719	5.130%	64.508%
26.0	1038.890	99.880	1277.598	4.969%	69.979%
28.0	935.552	96.326	1373.924	4.792%	75.255%
30.0	854.948	93.751	1467.675	4.664%	80.390%
32.0	782.948	90.993	1558.668	4.527%	85.374%
34.0	693.614	85.064	1643.732	4.232%	90.034%
36.0	523.362	67.466	1711.198	3.357%	93.729%
38.0	331.948	44.821	1756.018	2.230%	96.184%
40.0	147.080	20.734	1776.753	1.032%	97.320%
42.0	44.278	6.498	1783.25	.323%	97.676%
44.0	23.095	3.519	1786.769	.175%	97.868%
46.0	17.579	2.773	1789.542	.138%	98.020%
48.0	13.795	2.248	1791.79	.112%	98.143%
50.0	11.353	1.907	1793.698	.095%	98.248%
52.0	10.143	1.753	1795.45	.087%	98.344%
54.0	9.523	1.690	1797.14	.084%	98.436%
56.0	9.141	1.662	1798.802	.083%	98.527%
58.0	8.807	1.638	1800.44	.081%	98.617%
60.0	8.577	1.629	1802.069	.081%	98.706%
62.0	8.327	1.612	1803.682	.080%	98.795%
64.0	8.174	1.611	1805.293	.080%	98.883%
66.0	8.056	1.614	1806.907	.080%	98.971%
68.0	7.930	1.613	1808.519	.080%	99.060%
70.0	7.840	1.616	1810.135	.080%	99.148%
72.0	7.763	1.619	1811.754	.081%	99.237%
74.0	7.708	1.625	1813.379	.081%	99.326%

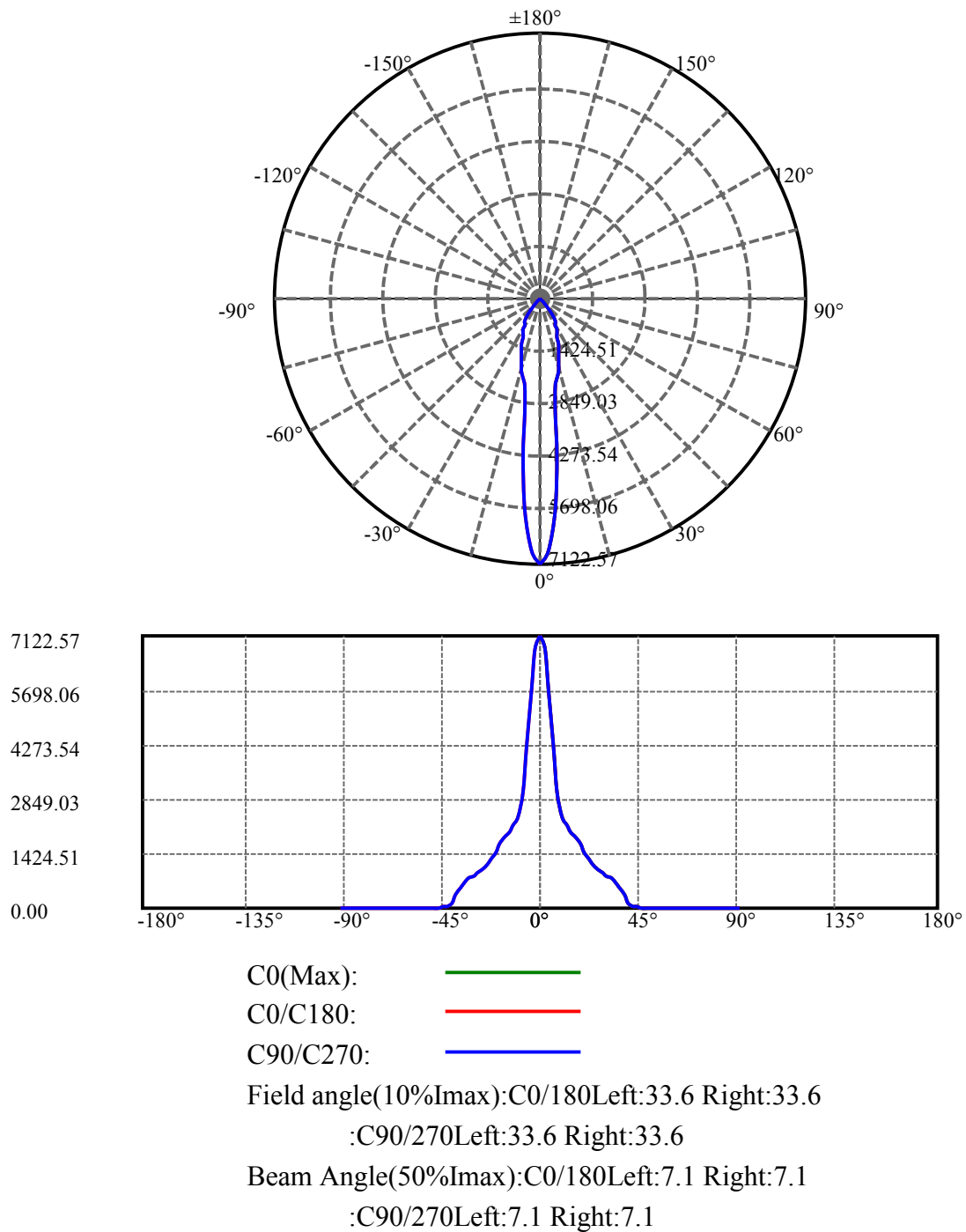
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.659	1.630	1815.009	.081%	99.415%
78.0	7.624	1.636	1816.645	.081%	99.505%
80.0	7.603	1.642	1818.287	.082%	99.595%
82.0	7.589	1.648	1819.935	.082%	99.685%
84.0	7.534	1.643	1821.578	.082%	99.775%
86.0	7.534	1.648	1823.227	.082%	99.865%
88.0	7.485	1.641	1824.867	.082%	99.955%
90.0	7.471	0.819	1825.687	.041%	100.000%

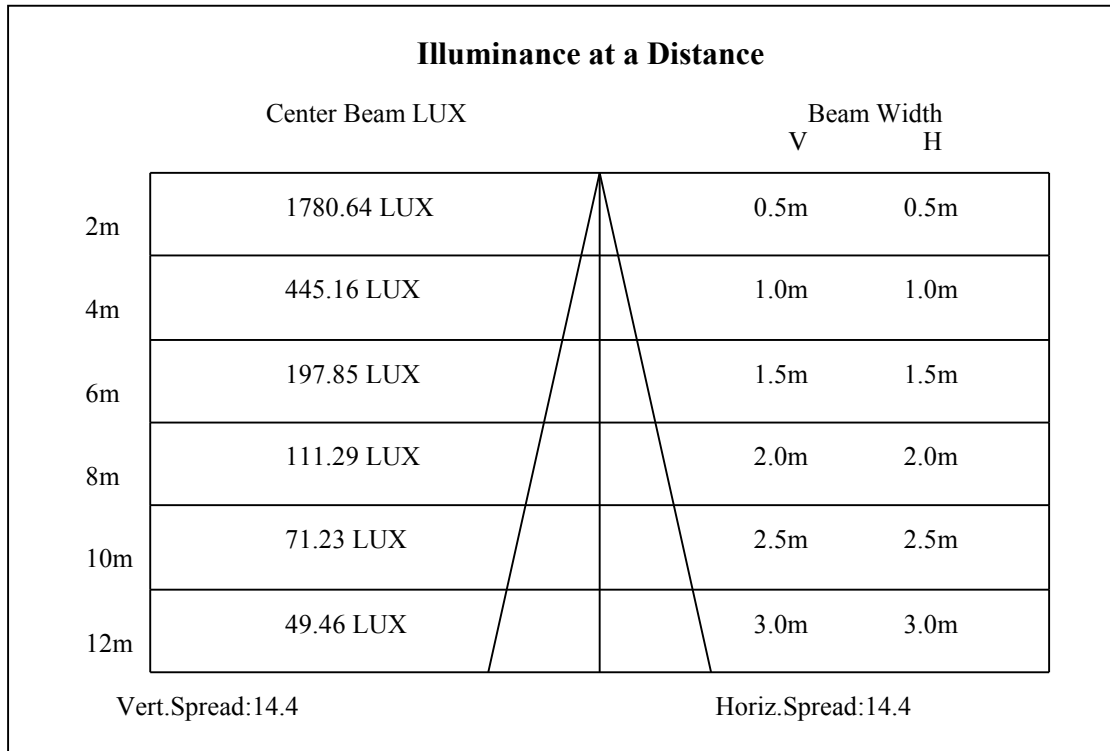
ZONAL LUMEN SUMMARY

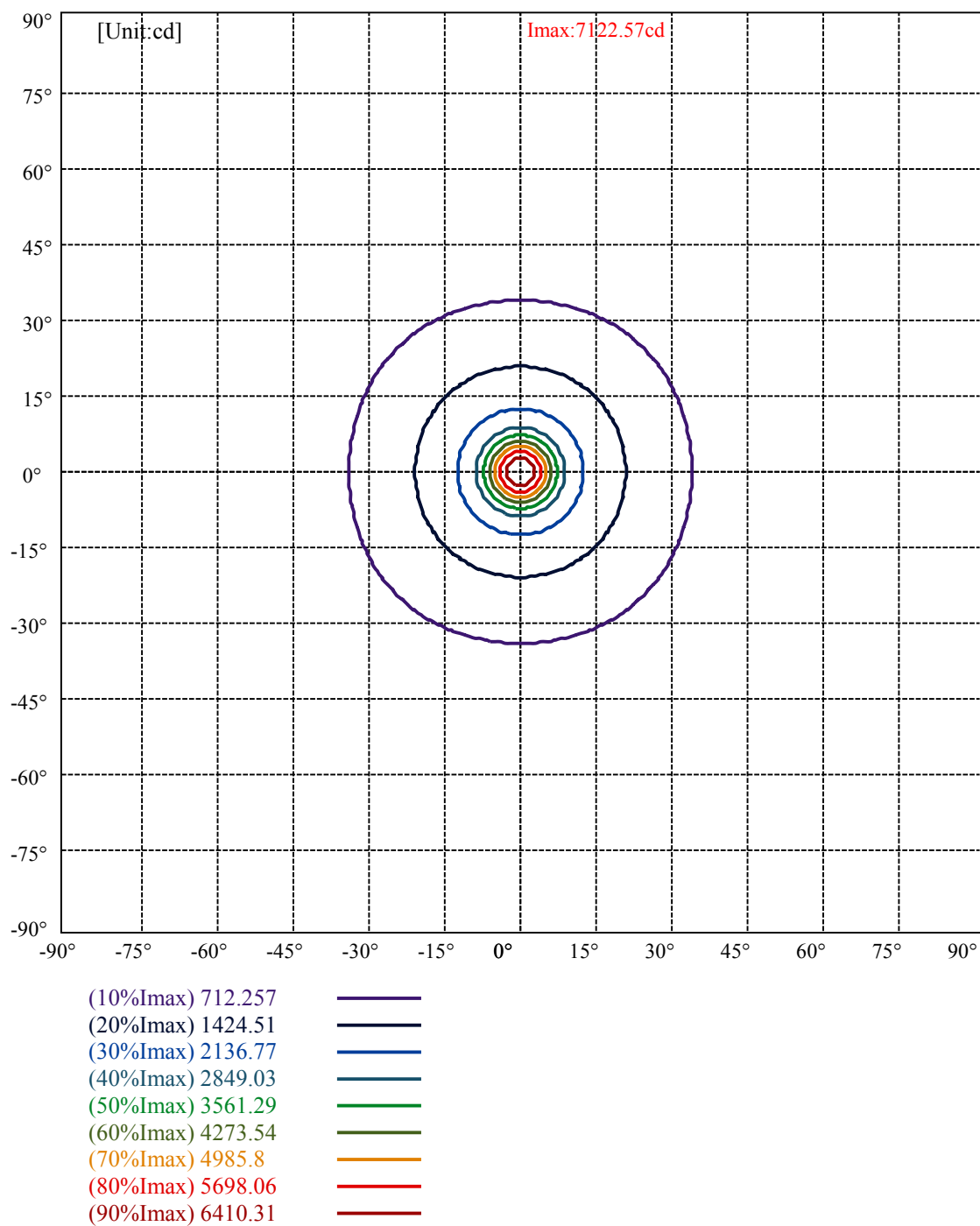
Zone	Lumens	%Lamp	%Fixt
0-30	1467.67	73.02%	80.39%
0-40	1776.75	88.40%	97.32%
0-60	1802.07	89.66%	98.71%
0-90	1824.87	90.79%	99.96%
0-120	1824.87	90.79%	99.96%
0-180	1825.69	90.83%	100.00%
60-90	24.43	1.22%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-29.85	1460.55	72.66%	80.00%

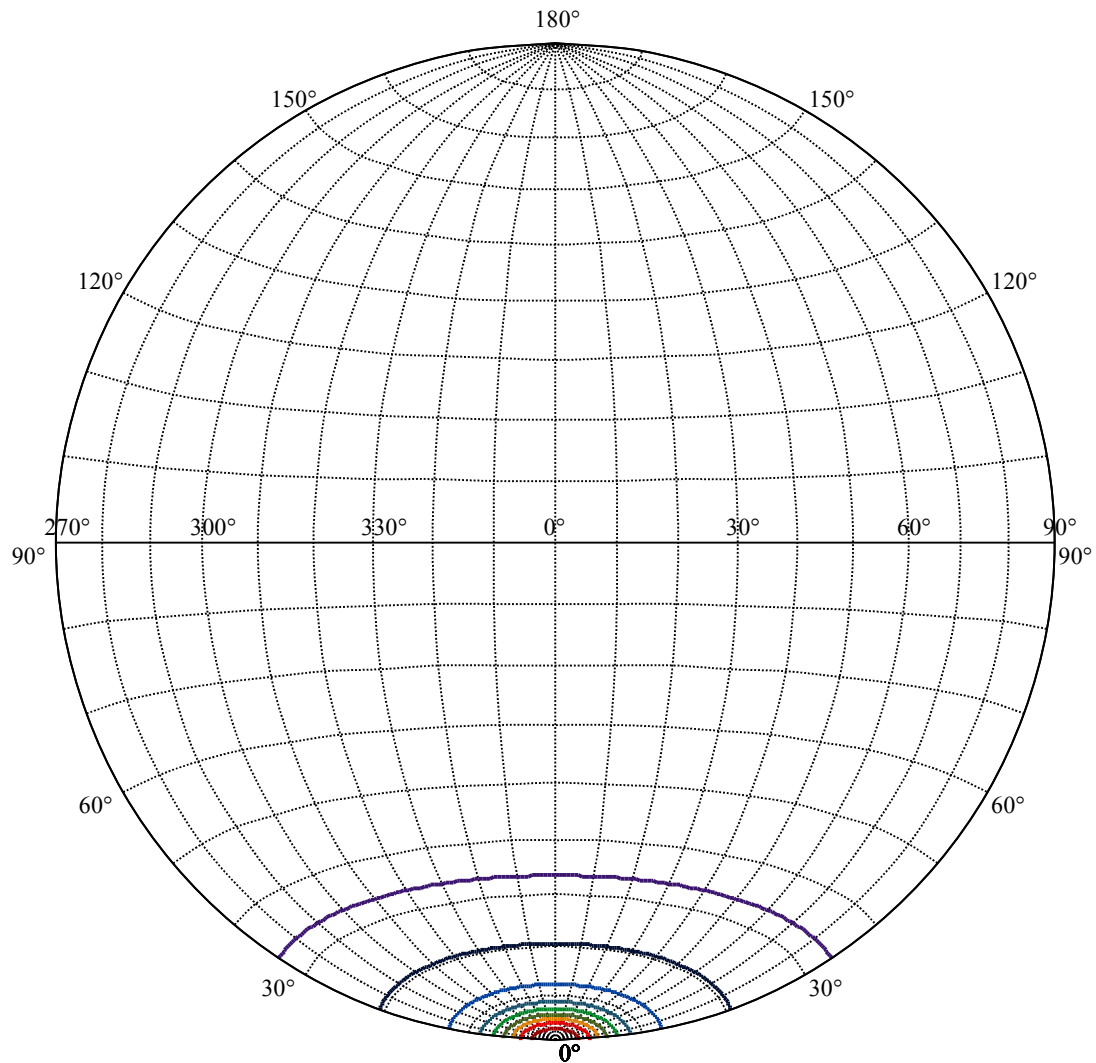
ZONAL LUMEN SUMMARY

0-10	428.02
10-20	539.59
20-30	500.07
30-40	309.08
40-50	16.95
50-60	8.37
60-70	8.07
70-80	8.15
80-90	6.58
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









House

[Unit:cd]

Road

Imax:7122.57

(10%Imax) 712.257

(20%Imax) 1424.51

(30%Imax) 2136.77

(40%Imax) 2849.03

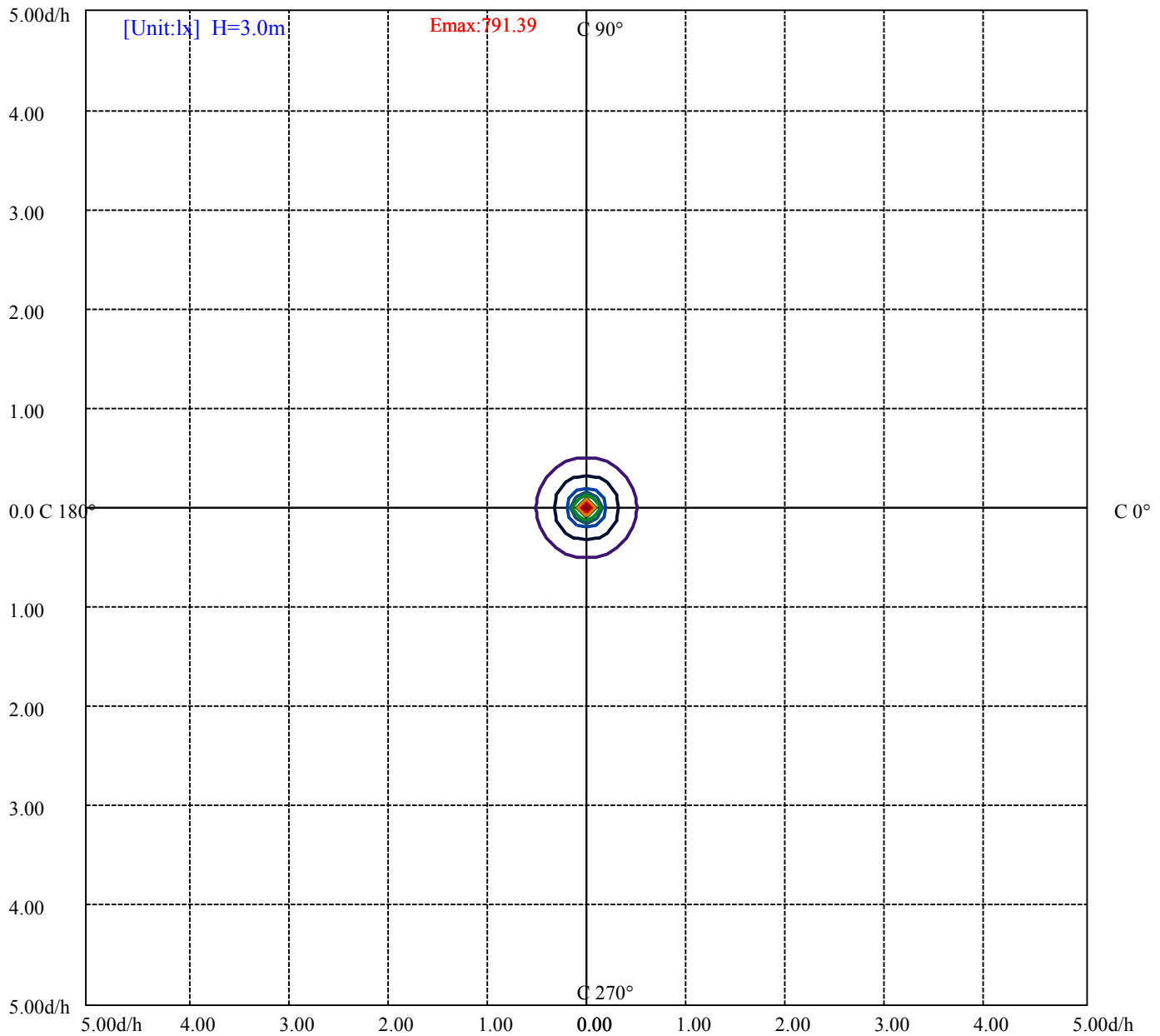
(50%Imax) 3561.29

(60%Imax) 4273.54

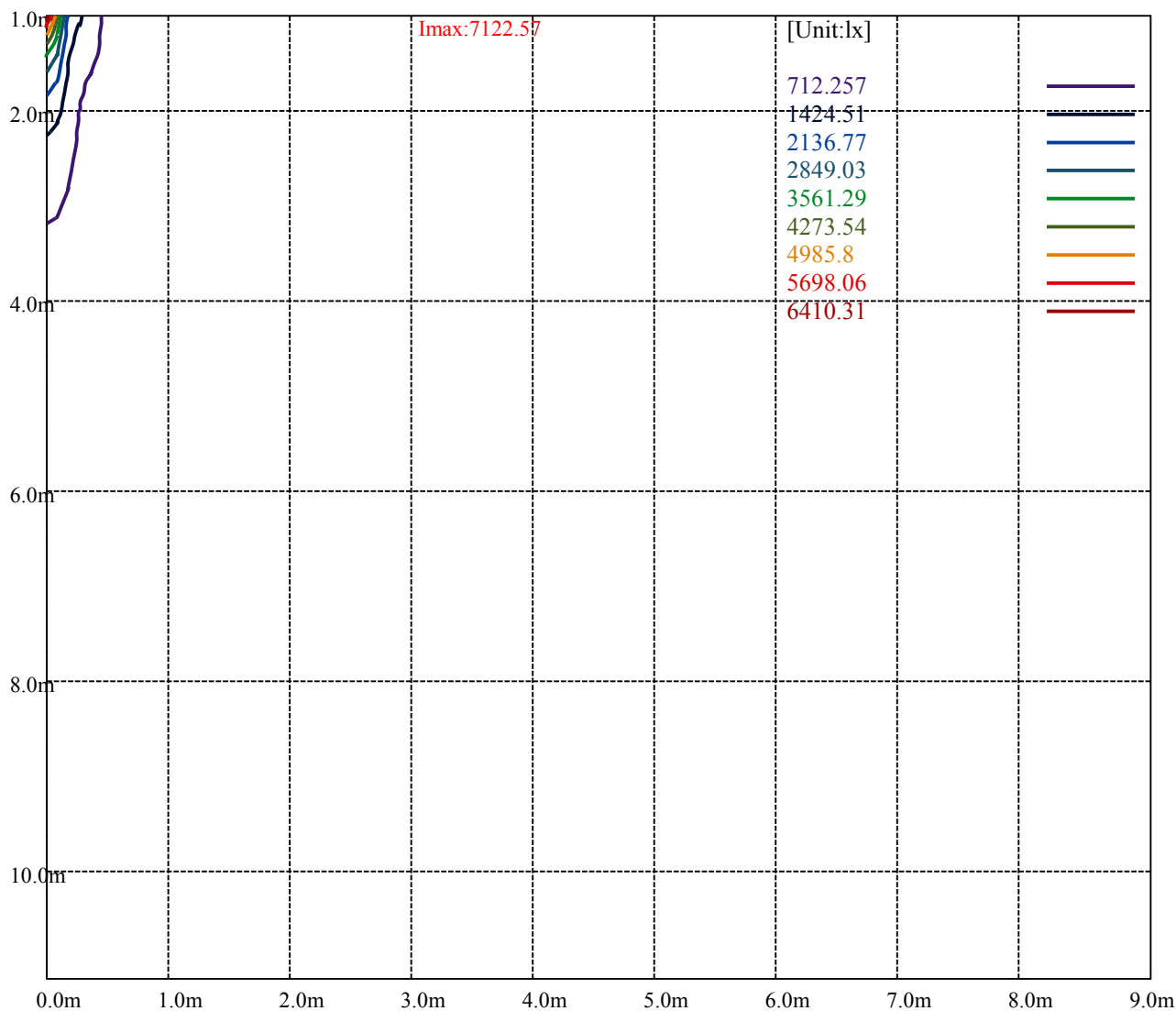
(70%Imax) 4985.8

(80%Imax) 5698.06

(90%Imax) 6410.31



(10%Emax)	79.13934	—
(20%Emax)	158.2789	—
(30%Emax)	237.4178	—
(40%Emax)	316.5578	—
(50%Emax)	395.6967	—
(60%Emax)	474.8366	—
(70%Emax)	553.9755	—
(80%Emax)	633.1155	—
(90%Emax)	712.2545	—



Luminance Table

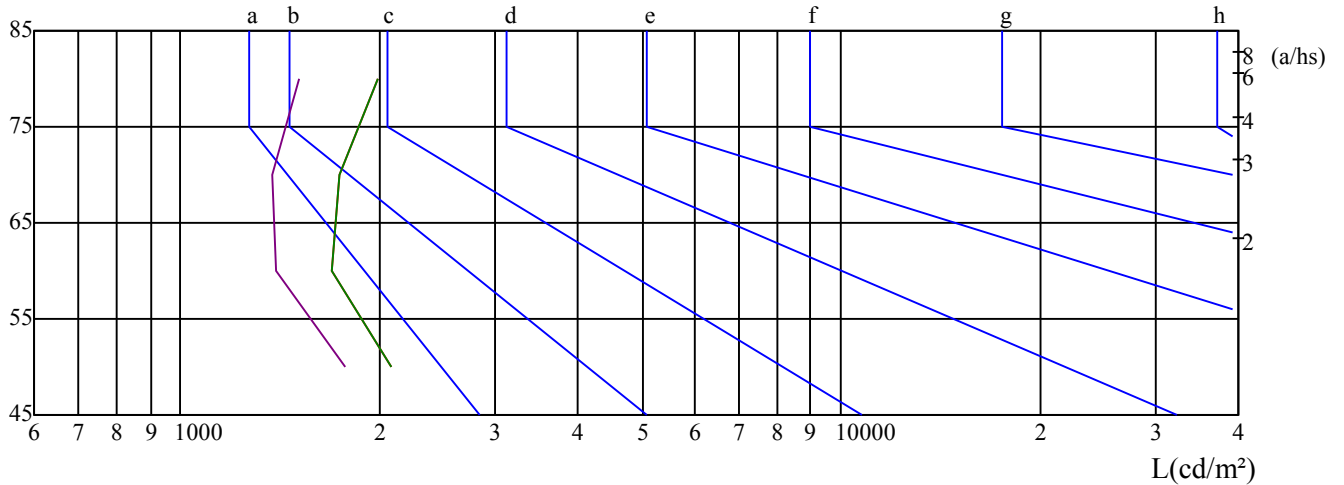
γ	45	50	55	60	65	70	75	80	85
C0	0	2081	0	1696	0	1741	0	1993	0
C45	0	1771	0	1398	0	1381	0	1508	0
C90	0	2081	0	1696	0	1741	0	1993	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4538	4538	4538	7169	7169	7169	21127	21127	21127

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

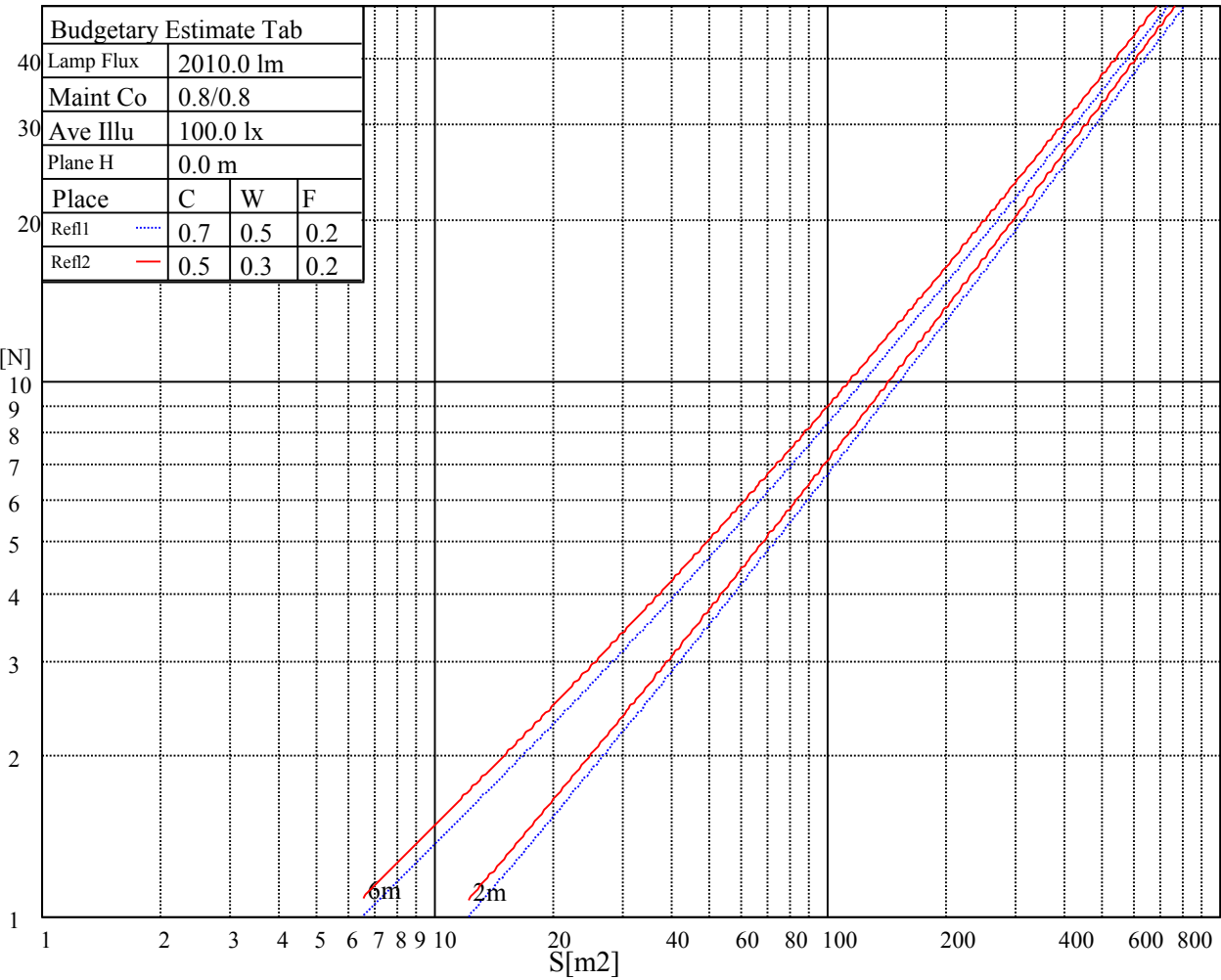
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

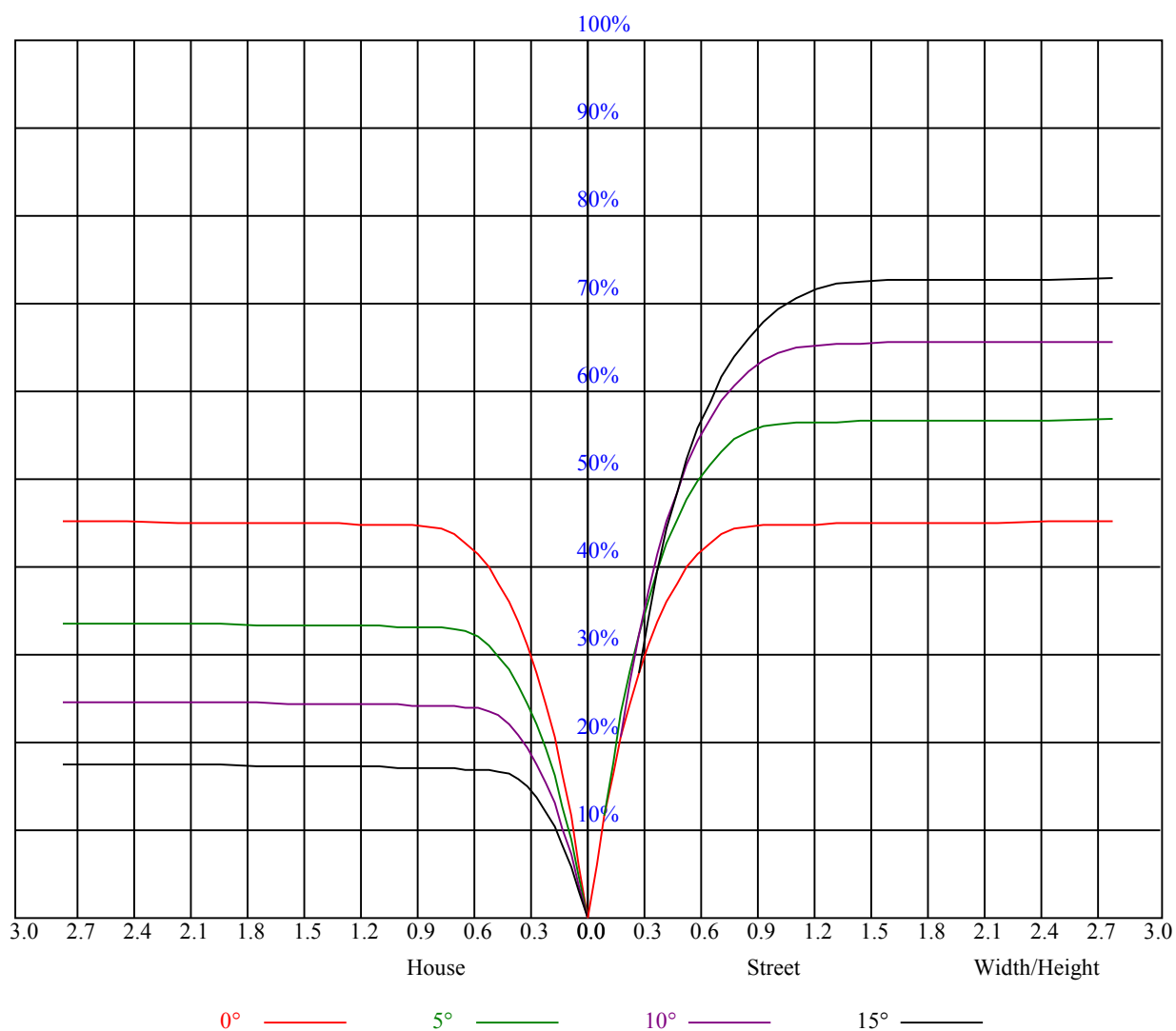
C0 ———

C45 ———

C90 ———



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	1.09	1.09	1.09	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.95	0.92	0.89	0.93	0.90	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.85	0.82	0.88	0.85	0.82	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.76
4	0.85	0.80	0.77	0.84	0.80	0.76	0.82	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.72	0.80	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.69
6	0.77	0.72	0.68	0.76	0.71	0.68	0.75	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.62
8	0.70	0.65	0.62	0.69	0.65	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
10	0.64	0.59	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.62	0.58	0.56	0.55



Nata 2-1566-M

Intensity data(cd)										Appendix Page: 15 Total:16	
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0		
0.0	7156.24	6810.09	5744.91	4149.38	3050.26	2399.14	2167.07	2023.49	1872.68		
45.0	7054.95	6365.43	5037.58	3626.81	2667.38	2237.19	2075.25	1903.28	1740.78		
90.0	7116.73	6625.88	5369.82	3980.76	2802.06	2281.16	2104.74	1957.27	1799.77		
135.0	7162.36	7022.68	6239.10	4791.60	3553.35	2670.16	2315.66	2132.57	1962.28		
180.0	7156.24	6834.57	5770.51	4426.53	3158.23	2481.50	2241.09	2064.12	1886.59		
225.0	7054.95	7005.42	6179.55	4675.29	3427.03	2554.41	2221.06	2054.10	1894.38		
270.0	7116.73	6909.15	5958.06	4359.19	3147.10	2386.34	2130.34	1972.29	1814.80		
315.0	7162.36	6603.62	5265.75	3781.53	2758.65	2249.99	2060.22	1904.95	1752.47		
360.0	7156.24	6810.09	5744.91	4149.38	3050.26	2399.14	2167.07	2023.49	1872.68		
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0		
0.0	1703.50	1524.85	1360.13	1201.52	1083.54	966.11	872.06	795.82	687.30		
45.0	1569.93	1377.38	1221.55	1103.57	995.05	899.89	829.77	757.97	628.31		
90.0	1614.45	1429.13	1256.61	1107.58	1010.97	914.24	830.32	752.69	661.98		
135.0	1771.39	1564.92	1376.82	1204.30	1082.98	967.78	881.52	806.95	731.82		
180.0	1705.17	1505.93	1310.04	1173.69	1039.40	946.19	857.54	787.25	702.99		
225.0	1716.30	1542.11	1356.79	1205.97	1074.35	963.89	882.86	808.34	748.79		
270.0	1652.30	1452.51	1290.00	1147.54	1026.77	926.60	858.70	795.26	736.83		
315.0	1574.94	1410.21	1247.71	1102.74	998.06	899.72	826.82	759.31	650.90		
360.0	1703.50	1524.85	1360.13	1201.52	1083.54	966.11	872.06	795.82	687.30		
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0		
0.0	504.20	301.08	121.38	32.95	23.37	17.59	13.86	11.46	10.13		
45.0	430.74	286.05	75.85	25.49	19.87	14.97	11.91	10.46	9.74		
90.0	476.71	286.22	109.08	33.39	21.20	16.14	12.74	10.85	9.79		
135.0	570.99	385.11	183.37	58.60	24.49	18.48	14.41	11.35	10.13		
180.0	513.22	309.42	130.00	35.39	22.48	17.47	13.30	10.91	9.85		
225.0	618.57	424.90	218.21	81.81	26.82	20.31	15.86	12.41	10.74		
270.0	614.39	396.80	236.02	57.21	24.99	19.09	15.03	12.08	10.69		
315.0	458.07	266.01	102.73	29.38	21.54	16.58	13.25	11.30	10.07		
360.0	504.20	301.08	121.38	32.95	23.37	17.59	13.86	11.46	10.13		
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0		
0.0	9.57	9.24	8.90	8.63	8.40	8.29	8.13	7.96	7.90		
45.0	9.29	8.96	8.74	8.51	8.29	8.18	8.07	8.01	7.90		
90.0	9.35	8.96	8.74	8.57	8.24	8.13	8.01	7.90	7.85		
135.0	9.57	9.24	8.79	8.57	8.40	8.18	8.07	7.96	7.85		
180.0	9.41	9.02	8.68	8.51	8.24	8.13	8.01	7.90	7.79		
225.0	9.68	9.24	8.85	8.63	8.35	8.18	8.07	7.90	7.85		
270.0	9.68	9.29	8.90	8.57	8.40	8.13	8.01	7.96	7.79		
315.0	9.63	9.18	8.85	8.63	8.29	8.18	8.07	7.85	7.79		
360.0	9.57	9.24	8.90	8.63	8.40	8.29	8.13	7.96	7.90		
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0		
0.0	7.79	7.68	7.68	7.68	7.57	7.62	7.51	7.46	7.51		
45.0	7.79	7.79	7.74	7.74	7.62	7.68	7.62	7.57	7.46		
90.0	7.79	7.68	7.68	7.62	7.62	7.62	7.57	7.57	7.51		
135.0	7.79	7.74	7.62	7.57	7.62	7.51	7.57	7.51	7.46		
180.0	7.68	7.68	7.62	7.51	7.57	7.57	7.46	7.51	7.46		
225.0	7.79	7.74	7.62	7.62	7.68	7.57	7.57	7.57	7.57		
270.0	7.74	7.74	7.62	7.62	7.62	7.57	7.51	7.57	7.46		
315.0	7.74	7.62	7.68	7.62	7.51	7.57	7.46	7.51	7.46		
360.0	7.79	7.68	7.68	7.68	7.57	7.62	7.51	7.46	7.51		

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	7.46
45.0	7.46
90.0	7.51
135.0	7.46
180.0	7.40
225.0	7.51
270.0	7.51
315.0	7.46
360.0	7.46