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Nata

LumCAT: 2-1793-N
Luminaire: 92.70.135.00
Report No: NATA0100
Test No: GC2018062508
LampCAT: NICHIA NFCWJ120B-V3
Lamp flux(lm): 2272.0
Number of Lamps: 1
Length(mm): 69
Phm Type: C

Voltage(V): 33.8000
Current(A): 0.5000
Power (W): 16.9000
PF: 0.0000
Ballast type: DC
Width(mm): 69
Height(mm): 0

Photometric Results

Lumens(lm): 1913.76
Efficiency(%): 84.23%
Lumens(lm)/Power(W): 113.83
Central intensity(cd): 10802.960
Maximum intensity(cd): 10802.960
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=18.0
[C90/270]Total=18.0
Field angle(10%Imax): [C0/180]Total=43.9
[C90/270]Total=43.9
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.33 C90_270=0.33
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 84.67%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.655%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10802.960	10.338	10.338	.455%	.540%
2.0	10338.904	79.133	89.471	3.483%	4.675%
4.0	9222.773	141.095	230.566	6.210%	12.048%
6.0	7760.062	177.895	408.462	7.830%	21.343%
8.0	6204.237	189.369	597.831	8.335%	31.239%
10.0	4625.357	176.149	773.98	7.753%	40.443%
12.0	3469.930	158.221	932.201	6.964%	48.711%
14.0	2544.225	134.988	1067.189	5.941%	55.764%
16.0	1971.914	119.204	1186.393	5.247%	61.993%
18.0	1599.526	108.402	1294.796	4.771%	67.657%
20.0	1319.378	98.966	1393.762	4.356%	72.829%
22.0	1075.265	88.340	1482.102	3.888%	77.445%
24.0	930.247	82.981	1565.082	3.652%	81.781%
26.0	808.352	77.715	1642.798	3.421%	85.842%
28.0	660.312	67.987	1710.784	2.992%	89.394%
30.0	499.114	54.731	1765.515	2.409%	92.254%
32.0	320.669	37.268	1802.783	1.640%	94.201%
34.0	177.791	21.804	1824.587	.960%	95.341%
36.0	76.226	9.826	1834.413	.432%	95.854%
38.0	47.927	6.471	1840.884	.285%	96.192%
40.0	37.913	5.345	1846.229	.235%	96.472%
42.0	31.485	4.620	1850.85	.203%	96.713%
44.0	26.131	3.981	1854.831	.175%	96.921%
46.0	22.208	3.504	1858.334	.154%	97.104%
48.0	19.765	3.221	1861.556	.142%	97.272%
50.0	17.845	2.998	1864.554	.132%	97.429%
52.0	16.703	2.887	1867.44	.127%	97.580%
54.0	15.918	2.824	1870.265	.124%	97.727%
56.0	15.450	2.809	1873.074	.124%	97.874%
58.0	15.065	2.802	1875.876	.123%	98.021%
60.0	14.783	2.808	1878.683	.124%	98.167%
62.0	14.556	2.819	1881.502	.124%	98.315%
64.0	14.349	2.828	1884.33	.124%	98.462%
66.0	13.778	2.760	1887.091	.121%	98.607%
68.0	13.103	2.665	1889.755	.117%	98.746%
70.0	12.518	2.580	1892.335	.114%	98.881%
72.0	11.995	2.502	1894.837	.110%	99.011%
74.0	11.534	2.432	1897.269	.107%	99.139%

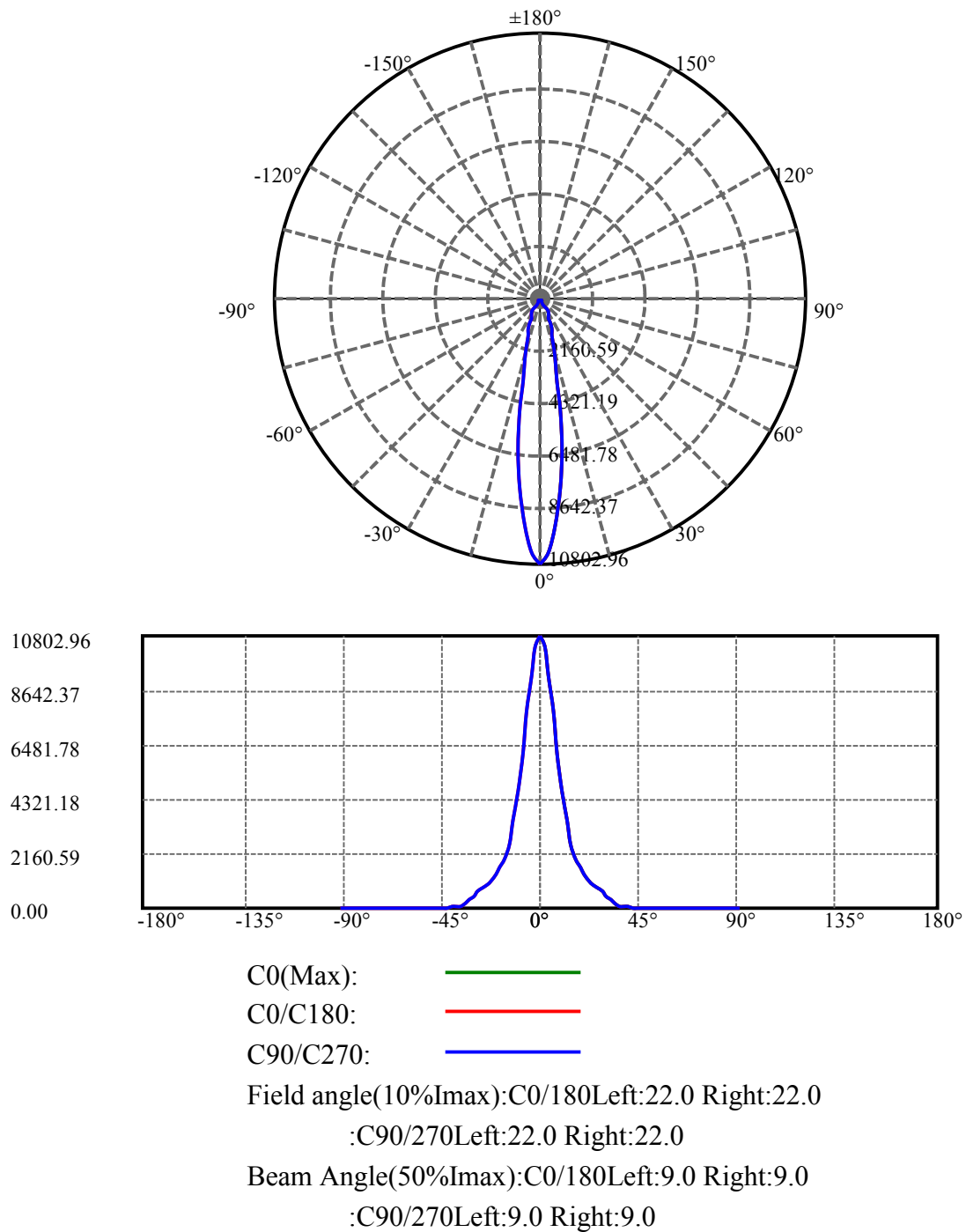
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.087	2.359	1899.628	.104%	99.262%
78.0	10.791	2.315	1901.943	.102%	99.383%
80.0	10.502	2.268	1904.211	.100%	99.501%
82.0	10.392	2.257	1906.468	.099%	99.619%
84.0	10.041	2.190	1908.658	.096%	99.734%
86.0	9.848	2.155	1910.813	.095%	99.846%
88.0	9.071	1.988	1912.801	.088%	99.950%
90.0	8.706	0.955	1913.755	.042%	100.000%

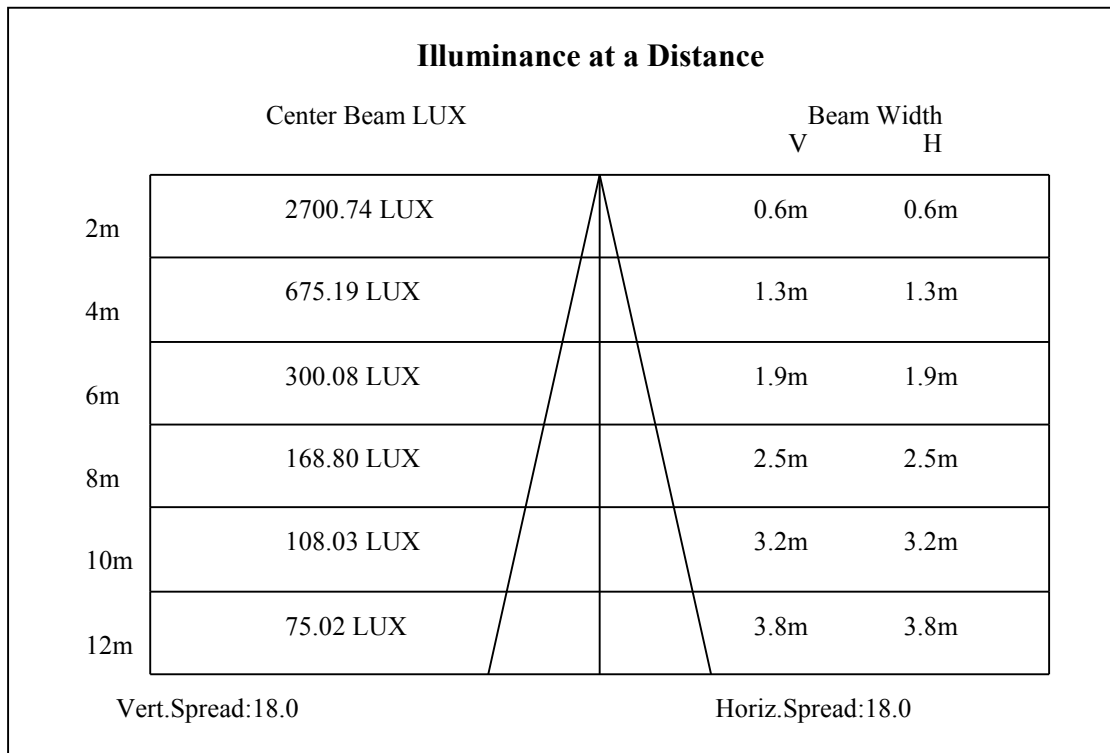
ZONAL LUMEN SUMMARY

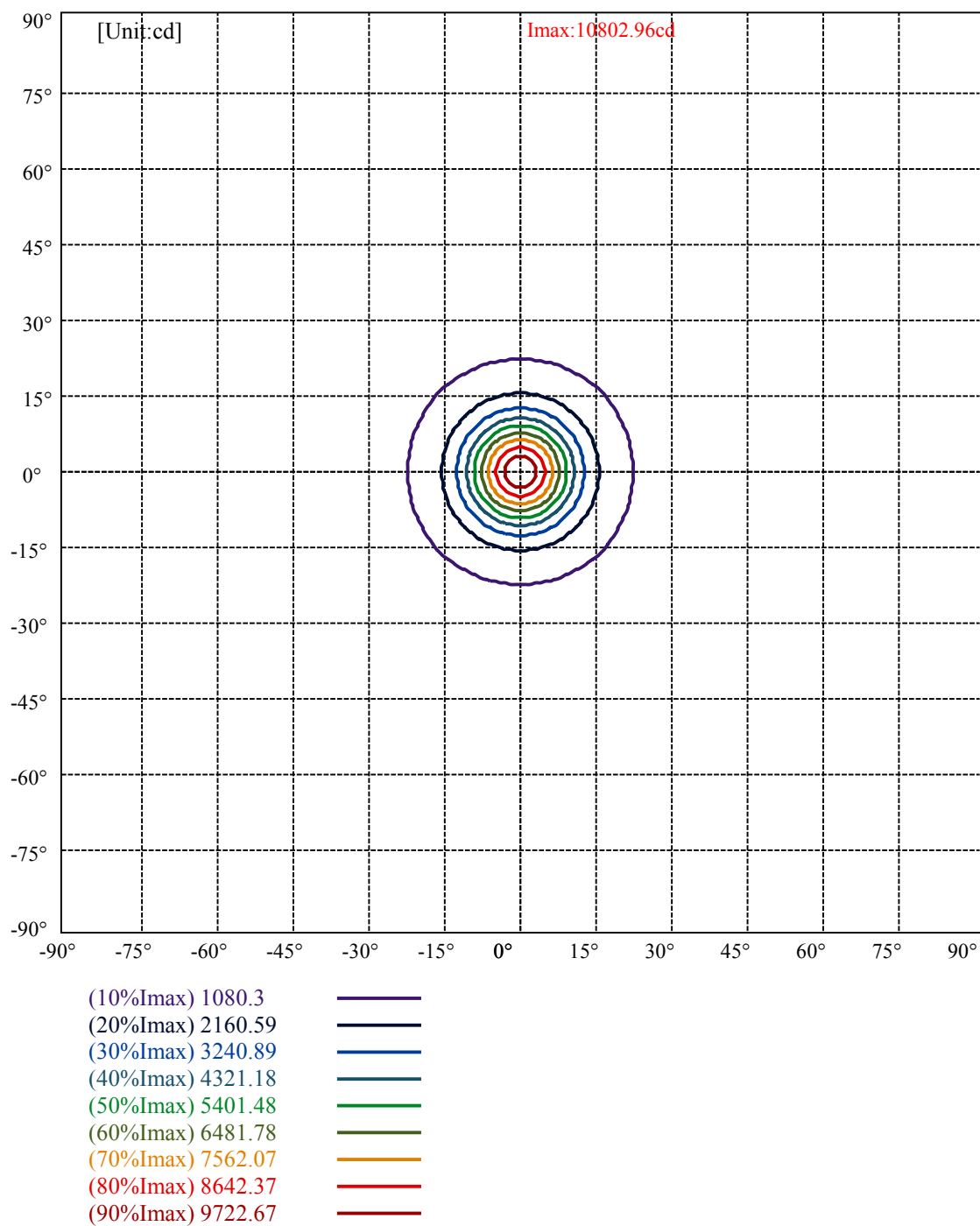
Zone	Lumens	%Lamp	%Fixt
0-30	1765.52	77.71%	92.25%
0-40	1846.23	81.26%	96.47%
0-60	1878.68	82.69%	98.17%
0-90	1912.80	84.19%	99.95%
0-120	1912.80	84.19%	99.95%
0-180	1913.76	84.23%	100.00%
60-90	36.93	1.63%	1.93%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-23.18	1531.00	67.39%	80.00%

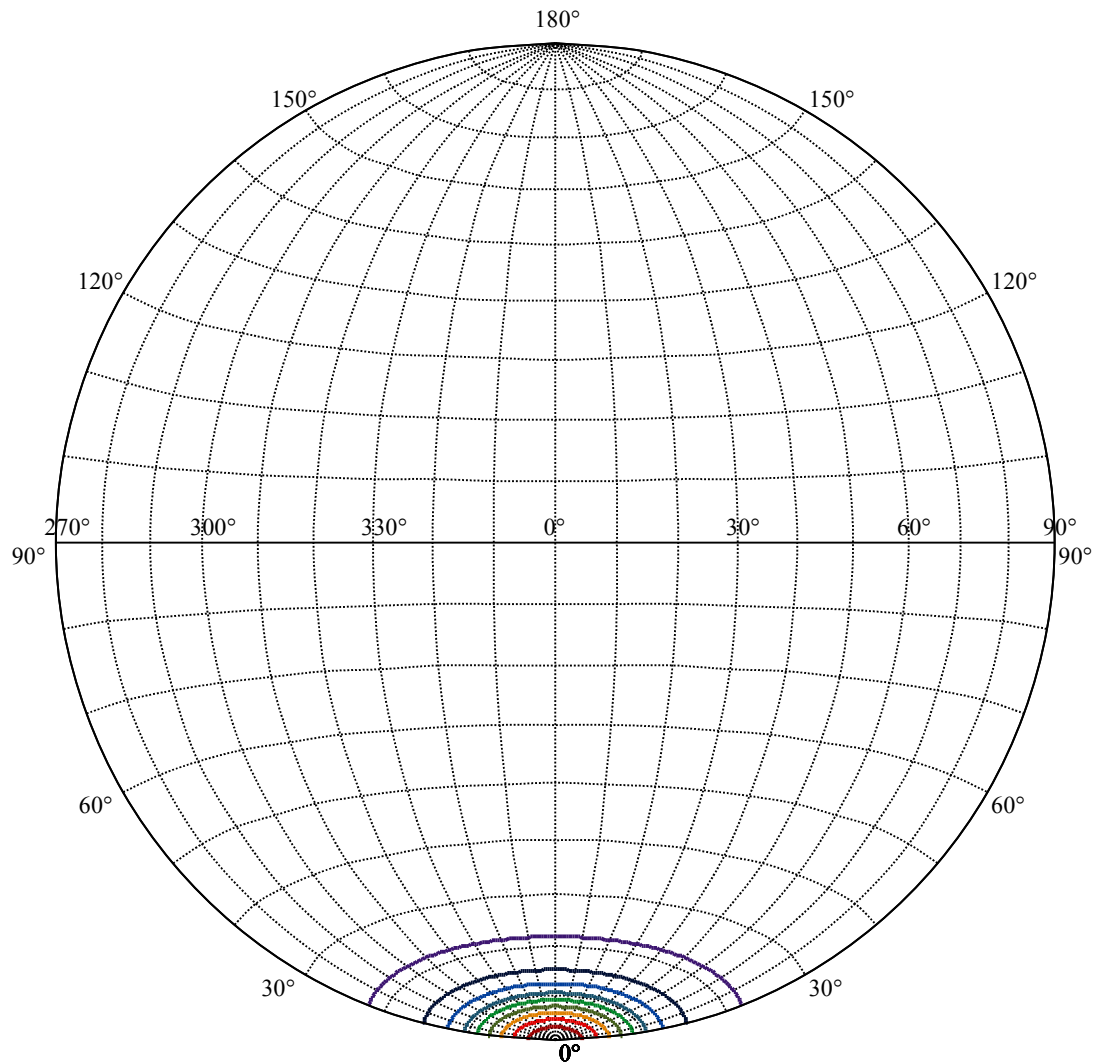
ZONAL LUMEN SUMMARY

0-10	773.98
10-20	619.78
20-30	371.75
30-40	80.71
40-50	18.32
50-60	14.13
60-70	13.65
70-80	11.88
80-90	8.59
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









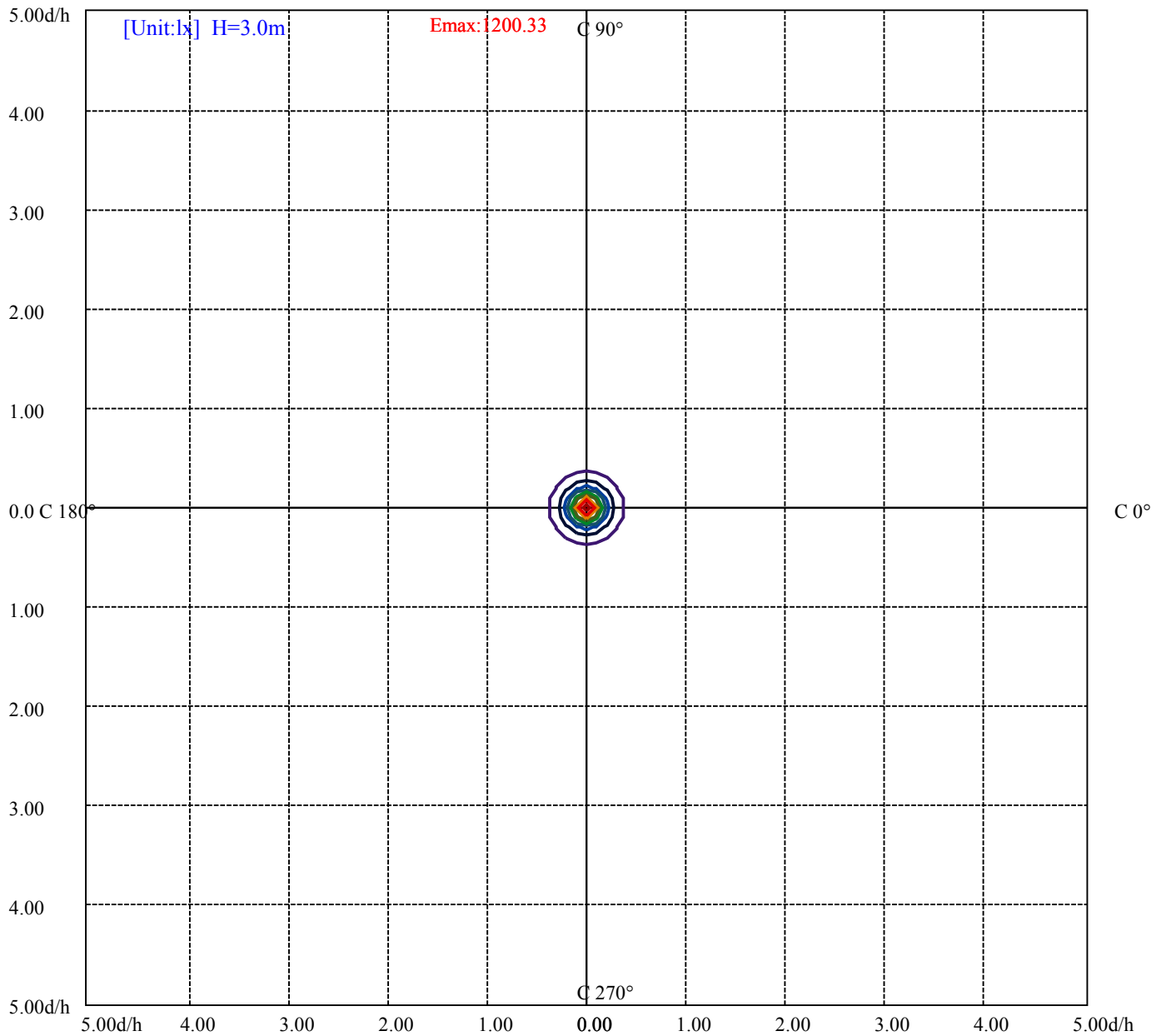
House

[Unit:cd]

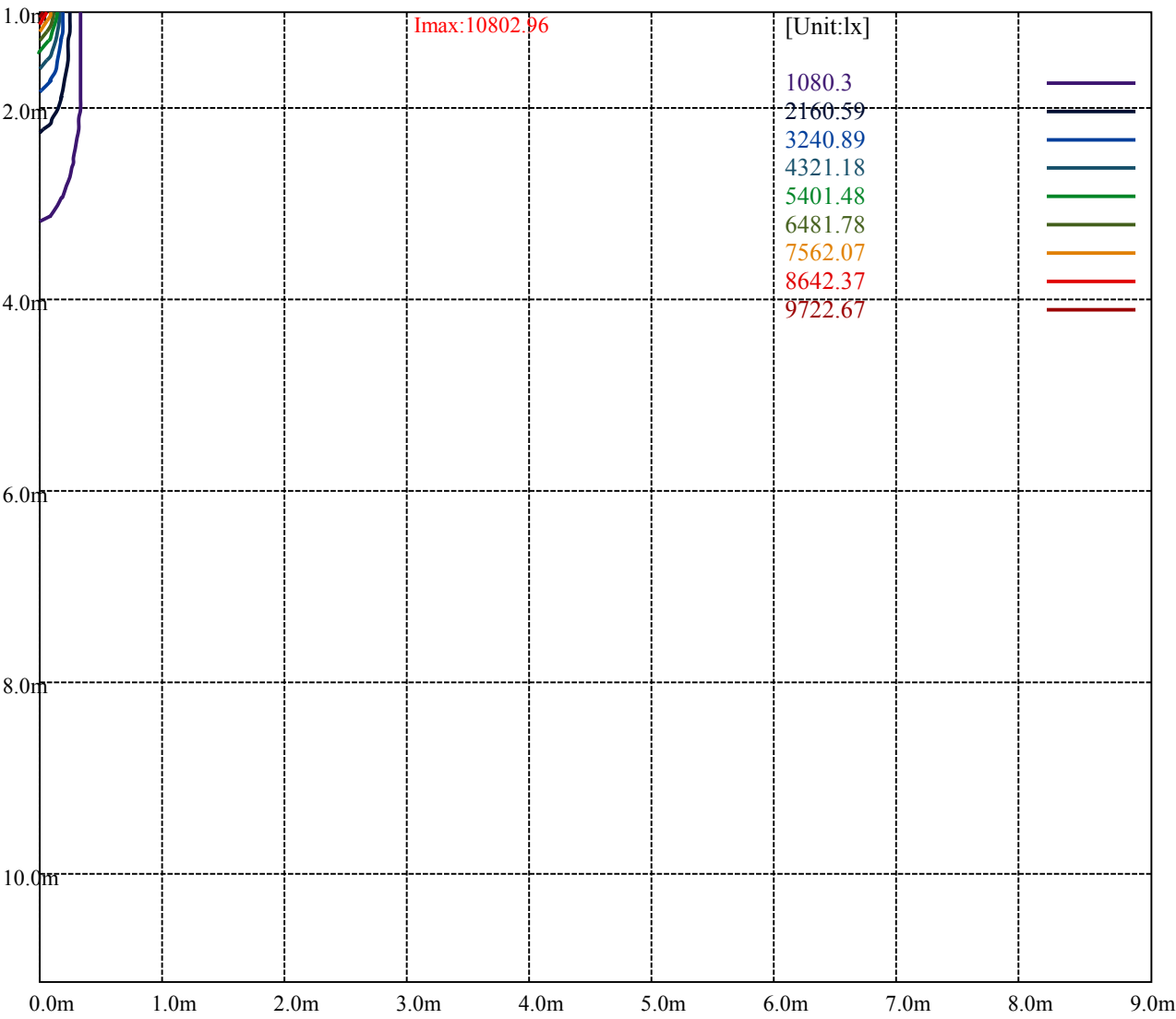
Road

Imax:10802.96

(10%Imax)	1080.3	—
(20%Imax)	2160.59	—
(30%Imax)	3240.89	—
(40%Imax)	4321.18	—
(50%Imax)	5401.48	—
(60%Imax)	6481.78	—
(70%Imax)	7562.07	—
(80%Imax)	8642.37	—
(90%Imax)	9722.67	—



(10%Emax) 120.0322	—
(20%Emax) 240.0656	—
(30%Emax) 360.0978	—
(40%Emax) 480.13	—
(50%Emax) 600.1622	—
(60%Emax) 720.1956	—
(70%Emax) 840.2278	—
(80%Emax) 960.26	—
(90%Emax) 1080.292	—



Luminance Table

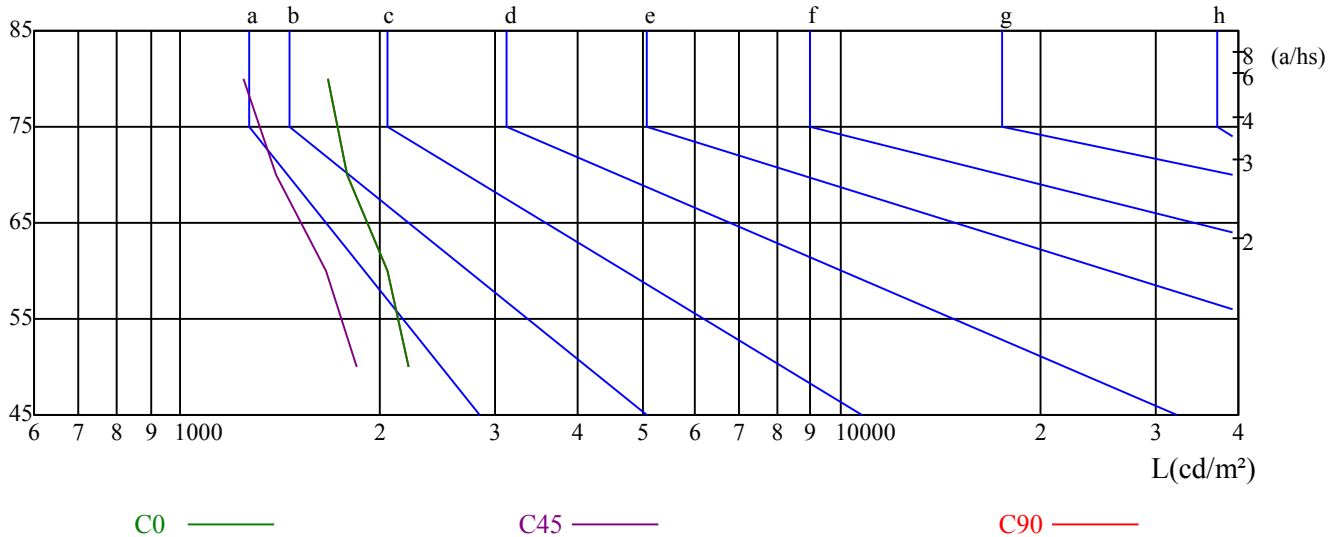
γ	45	50	55	60	65	70	75	80	85
C0	0	2215	0	2054	0	1792	0	1672	0
C45	0	1845	0	1657	0	1396	0	1249	0
C90	0	2215	0	2054	0	1792	0	1672	0

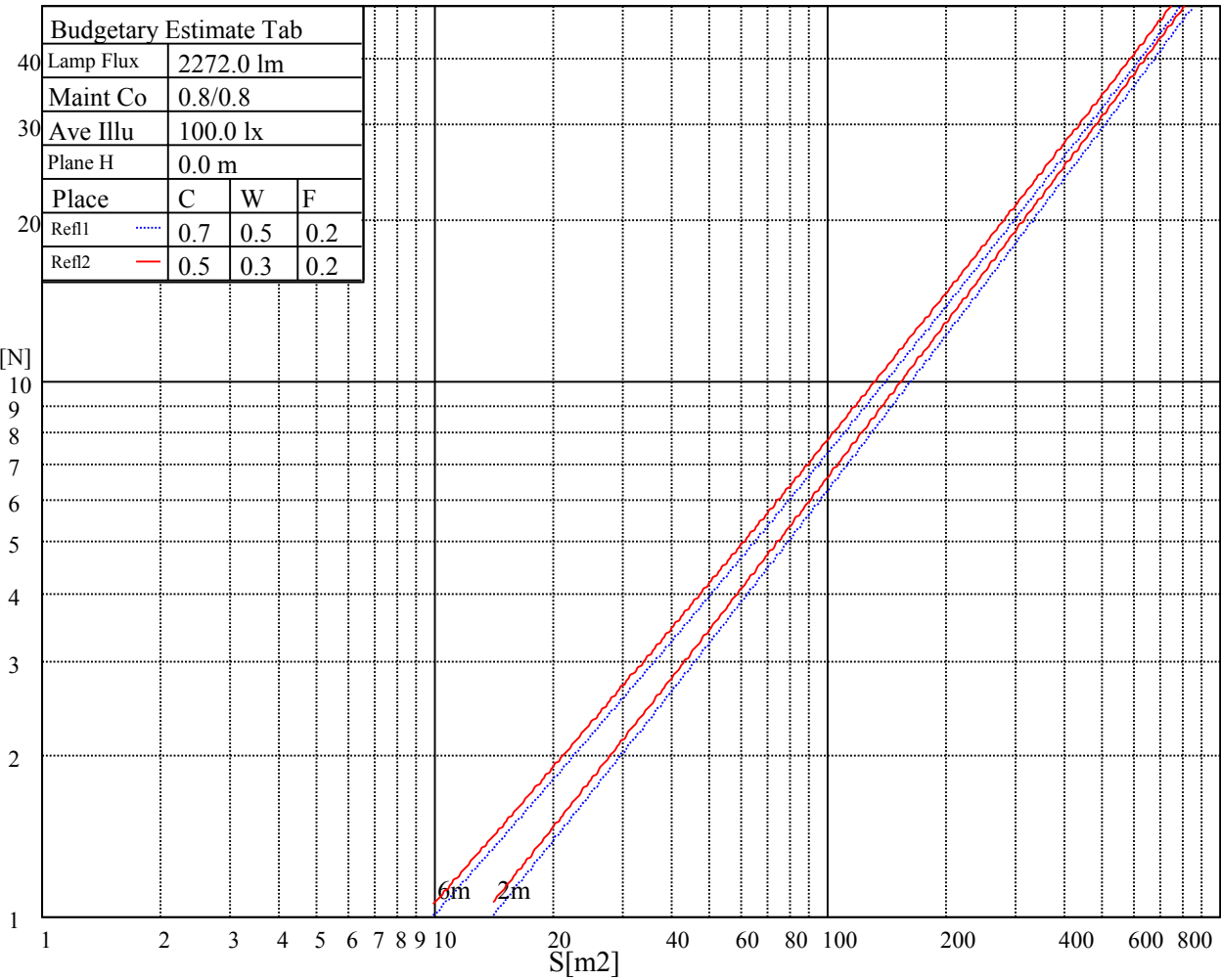
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
15329	15329	15329	22015	22015	22015	63257	63257	63257

Glare Table

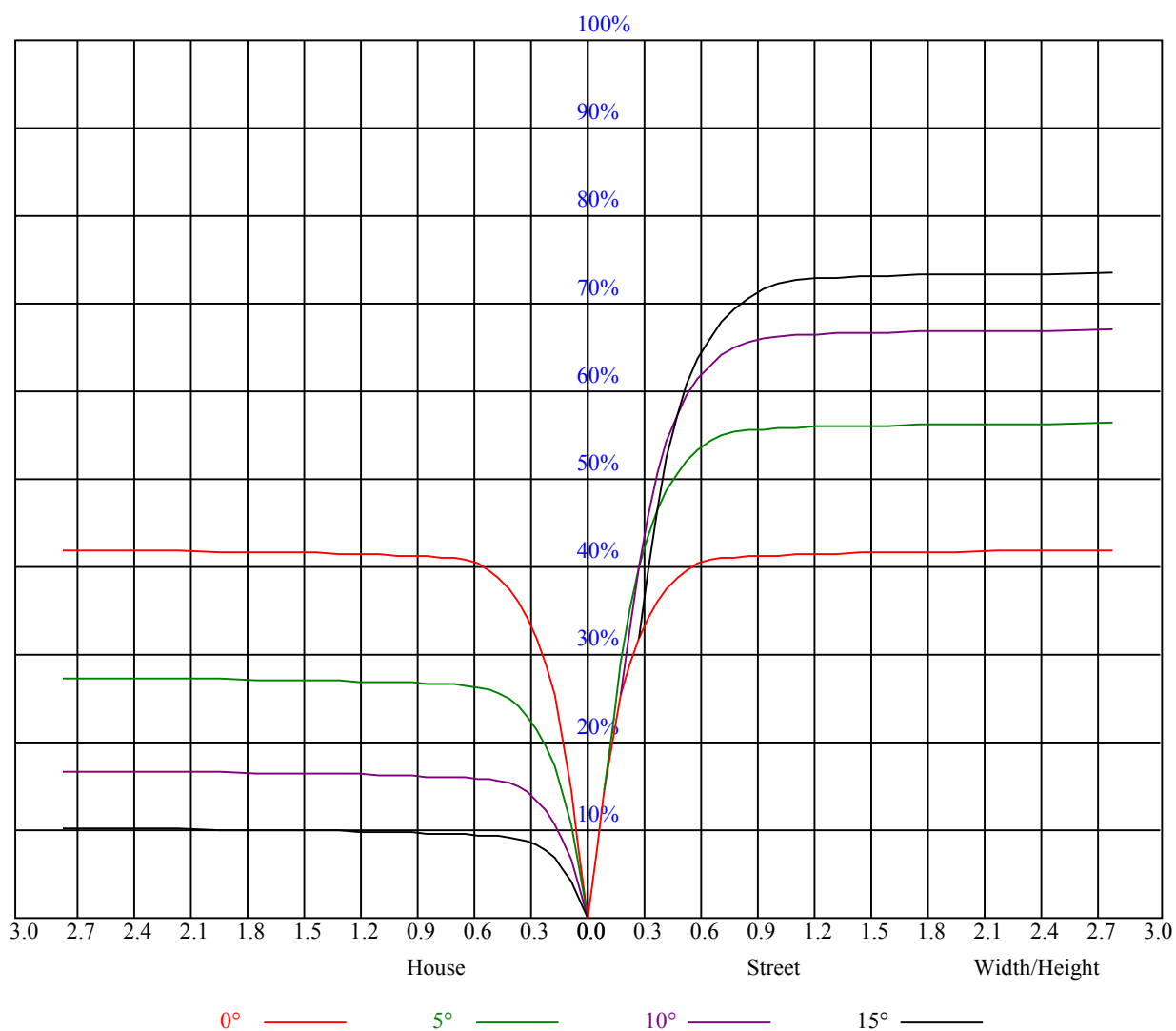
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

 $\gamma(^{\circ})$ 



RHOC	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	1.01	1.01	1.01	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.85
1	0.95	0.93	0.91	0.93	0.91	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.80
2	0.90	0.87	0.85	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.81	0.80	0.78	0.77
3	0.86	0.82	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.78	0.77	0.79	0.77	0.76	0.74
4	0.82	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.77	0.75	0.73	0.72
5	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.72	0.71	0.70
6	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.68
7	0.74	0.70	0.68	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.67	0.66
8	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
9	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
10	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.66	0.63	0.61	0.61



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	10791.60	10246.55	9094.22	7645.13	6126.13	4613.73	3548.38	2565.63	1970.47		
45.0	10839.50	10146.89	8913.08	7417.75	5812.85	4272.38	3180.61	2359.72	1862.01		
90.0	10769.03	9823.71	8463.82	6784.05	5247.98	3750.44	2777.60	2048.10	1614.25		
135.0	10826.84	10260.31	9081.00	7500.88	5988.48	4408.92	3287.97	2418.63	1914.31		
180.0	10791.60	10399.05	9261.04	7918.21	6248.35	4655.57	3523.06	2607.47	2042.04		
225.0	10839.50	10609.92	9577.61	8161.56	6623.84	4984.81	3685.48	2742.91	2110.86		
270.0	10738.75	10807.02	9990.53	8669.18	7165.04	5511.70	4171.62	2988.46	2230.33		
315.0	10826.84	10417.77	9400.88	7983.73	6421.23	4805.32	3584.72	2622.89	2031.03		
360.0	10791.60	10246.55	9094.22	7645.13	6126.13	4613.73	3548.38	2565.63	1970.47		
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0		
0.0	1639.03	1329.61	1115.44	962.39	836.86	687.10	521.93	339.15	183.34		
45.0	1548.19	1280.06	1074.15	919.99	807.13	646.36	478.44	300.61	147.77		
90.0	1314.75	1085.33	891.03	764.29	647.79	492.04	348.23	201.12	99.87		
135.0	1567.46	1305.39	1082.96	921.64	804.37	642.51	484.50	302.26	148.10		
180.0	1651.69	1360.99	1090.01	947.96	818.80	665.08	497.16	304.57	166.22		
225.0	1685.83	1409.44	1089.24	979.56	854.81	717.00	543.79	357.43	199.14		
270.0	1745.84	1422.11	1166.09	983.31	852.82	735.55	589.65	414.57	286.29		
315.0	1643.43	1362.10	1093.20	962.83	844.23	696.85	529.20	345.64	191.60		
360.0	1639.03	1329.61	1115.44	962.39	836.86	687.10	521.93	339.15	183.34		
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0		
0.0	76.03	48.12	38.04	31.66	26.26	22.35	19.88	17.67	16.30		
45.0	62.49	45.15	36.89	30.17	25.16	21.80	19.66	17.73	16.68		
90.0	56.82	44.38	36.39	30.61	25.77	22.41	20.59	19.21	18.22		
135.0	61.17	44.27	35.29	29.29	24.94	21.20	18.88	17.12	16.30		
180.0	65.30	45.48	35.62	29.35	24.28	20.54	18.44	16.79	15.75		
225.0	81.76	50.32	38.70	32.32	26.15	22.30	19.38	17.40	16.19		
270.0	125.03	57.09	44.10	36.61	30.23	25.16	21.80	19.27	17.78		
315.0	81.21	48.61	38.26	31.88	26.26	21.91	19.49	17.56	16.41		
360.0	76.03	48.12	38.04	31.66	26.26	22.35	19.88	17.67	16.30		
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0		
0.0	15.53	15.03	14.53	14.31	14.31	14.04	13.71	13.10	12.55		
45.0	15.97	15.53	15.09	14.81	14.53	14.31	13.60	12.94	12.33		
90.0	17.51	16.68	15.97	15.53	14.98	14.20	13.43	12.83	12.28		
135.0	15.64	15.47	15.47	15.42	15.20	14.92	14.15	13.32	12.66		
180.0	15.20	14.81	14.65	14.53	14.53	14.53	14.20	13.49	12.94		
225.0	15.36	14.98	14.87	14.59	14.42	14.53	14.04	13.32	12.61		
270.0	16.68	16.08	15.36	14.87	14.48	14.31	13.76	13.10	12.66		
315.0	15.47	15.03	14.59	14.20	13.98	13.93	13.32	12.72	12.11		
360.0	15.53	15.03	14.53	14.31	14.31	14.04	13.71	13.10	12.55		
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0		
0.0	12.00	11.56	11.12	10.85	10.63	10.41	10.24	10.08	9.47		
45.0	11.73	11.29	10.85	10.52	10.24	10.02	9.86	9.69	8.97		
90.0	11.84	11.45	11.01	10.74	10.35	10.63	9.80	9.63	8.59		
135.0	12.06	11.51	11.07	10.74	10.46	10.30	10.08	10.08	8.97		
180.0	12.44	11.95	11.56	11.29	11.01	11.45	10.96	10.68	9.30		
225.0	12.17	11.73	11.23	10.90	10.63	10.24	9.91	9.74	9.14		
270.0	12.06	11.62	11.12	10.85	10.52	10.13	9.69	9.25	8.86		
315.0	11.67	11.18	10.74	10.46	10.19	9.97	9.80	9.63	9.25		
360.0	12.00	11.56	11.12	10.85	10.63	10.41	10.24	10.08	9.47		

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	9.08
45.0	8.59
90.0	8.53
135.0	8.64
180.0	8.70
225.0	8.64
270.0	8.59
315.0	8.86
360.0	9.08