



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1698-N

Luminaire: 92.70.045.00+92.70.089.00

Report No: NATA0100

Test No: GC2018070213

LampCAT: NICHIA NFCWD096B-V3

Lamp flux(lm): 2246.0

Number of Lamps: 1

Length(mm): 79

Phm Type: C

Voltage(V): 33.9000

Current(A): 0.5000

Power (W): 16.9500

PF: 0.0000

Ballast type: DC

Width(mm): 79

Height(mm): 0

Photometric Results

Lumens(lm): 1774.42

Efficiency(%): 79.00%

Lumens(lm)/Power(W): 104.69

Central intensity(cd): 12327.130

Maximum intensity(cd): 12327.130

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=16.8

[C90/270]Total=16.8

Field angle(10%Imax): [C0/180]Total=31.9

[C90/270]Total=31.9

Maximum s/h(1/2): C0_180=0.29 C90_270=0.29

Maximum s/h(1/4): C0_180=0.29 C90_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 79.52%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.465%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12327.128	11.797	11.797	.525%	.665%
2.0	11814.209	90.425	102.222	4.026%	5.761%
4.0	10663.874	163.142	265.363	7.264%	14.955%
6.0	8846.187	202.794	468.158	9.029%	26.384%
8.0	6603.327	201.550	669.708	8.974%	37.742%
10.0	4361.637	166.106	835.814	7.396%	47.103%
12.0	2848.068	129.866	965.679	5.782%	54.422%
14.0	1756.987	93.220	1058.899	4.150%	59.676%
16.0	1213.911	73.382	1132.281	3.267%	63.811%
18.0	972.502	65.908	1198.189	2.934%	67.526%
20.0	815.447	61.166	1259.356	2.723%	70.973%
22.0	693.194	56.950	1316.306	2.536%	74.182%
24.0	585.876	52.262	1368.568	2.327%	77.127%
26.0	495.735	47.660	1416.228	2.122%	79.813%
28.0	418.319	43.071	1459.299	1.918%	82.241%
30.0	355.313	38.962	1498.261	1.735%	84.436%
32.0	297.139	34.533	1532.794	1.538%	86.383%
34.0	252.661	30.986	1563.78	1.380%	88.129%
36.0	215.532	27.784	1591.564	1.237%	89.695%
38.0	183.820	24.820	1616.384	1.105%	91.093%
40.0	158.975	22.411	1638.795	.998%	92.356%
42.0	136.134	19.978	1658.773	.889%	93.482%
44.0	114.455	17.437	1676.21	.776%	94.465%
46.0	94.415	14.895	1691.105	.663%	95.304%
48.0	76.735	12.506	1703.611	.557%	96.009%
50.0	60.018	10.083	1713.694	.449%	96.577%
52.0	47.500	8.209	1721.903	.365%	97.040%
54.0	36.502	6.477	1728.38	.288%	97.405%
56.0	27.680	5.033	1733.413	.224%	97.689%
58.0	21.369	3.974	1737.387	.177%	97.913%
60.0	17.315	3.289	1740.676	.146%	98.098%
62.0	15.292	2.961	1743.637	.132%	98.265%
64.0	14.328	2.824	1746.461	.126%	98.424%
66.0	13.606	2.726	1749.187	.121%	98.578%
68.0	12.952	2.634	1751.821	.117%	98.726%
70.0	12.388	2.553	1754.374	.114%	98.870%
72.0	11.844	2.470	1756.844	.110%	99.009%
74.0	11.362	2.395	1759.24	.107%	99.144%

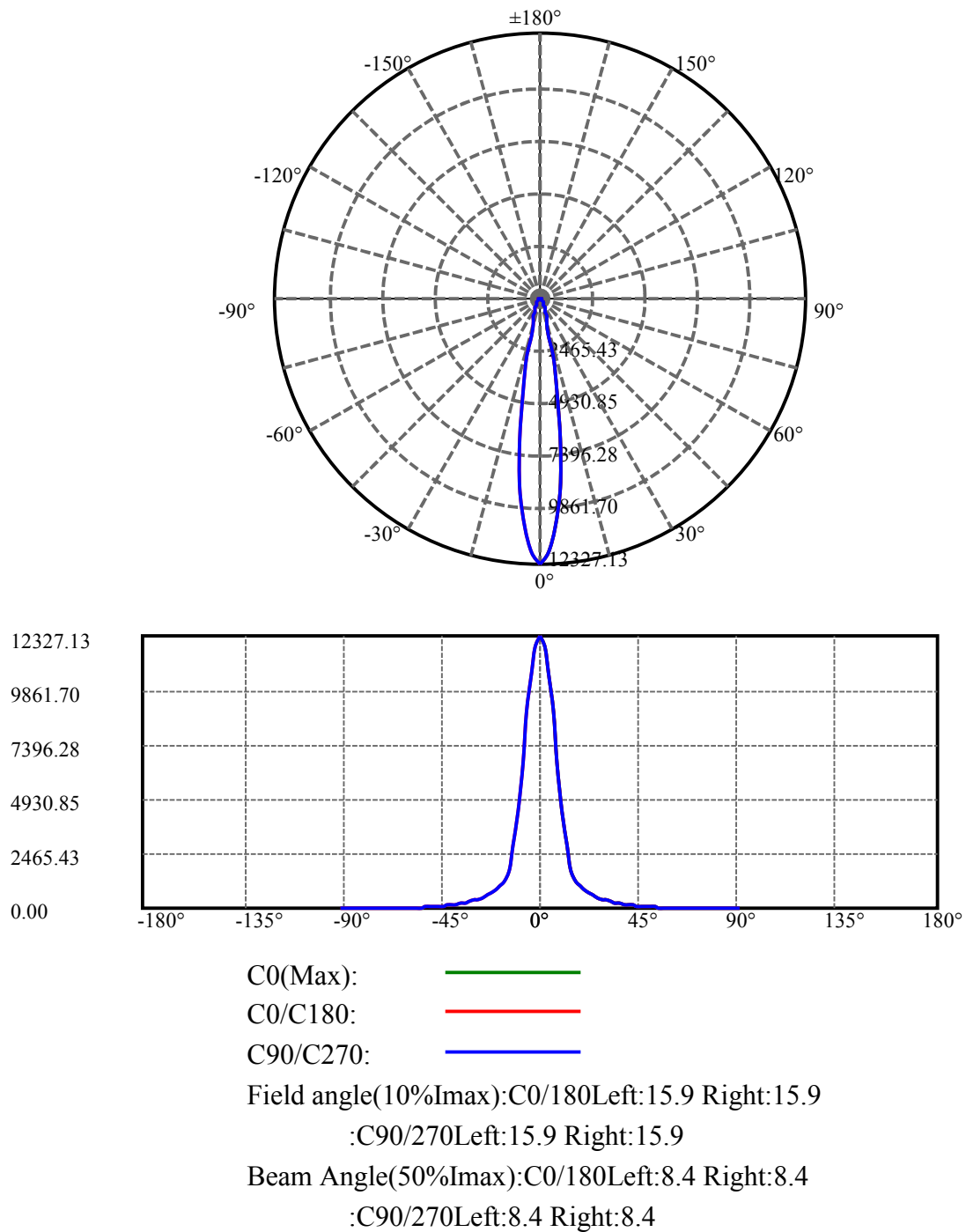
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.949	2.330	1761.57	.104%	99.276%
78.0	10.612	2.277	1763.846	.101%	99.404%
80.0	10.206	2.204	1766.051	.098%	99.528%
82.0	9.731	2.113	1768.164	.094%	99.647%
84.0	9.043	1.972	1770.136	.088%	99.758%
86.0	8.272	1.810	1771.946	.081%	99.860%
88.0	7.632	1.673	1773.619	.074%	99.955%
90.0	7.343	0.805	1774.424	.036%	100.000%

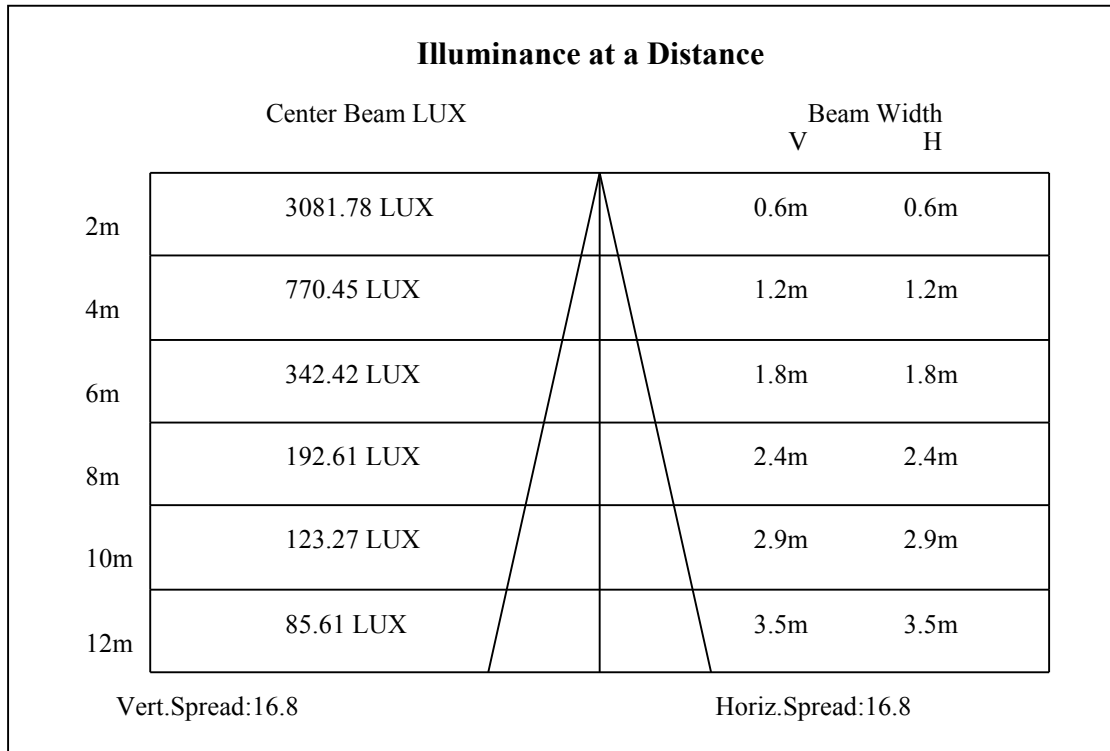
ZONAL LUMEN SUMMARY

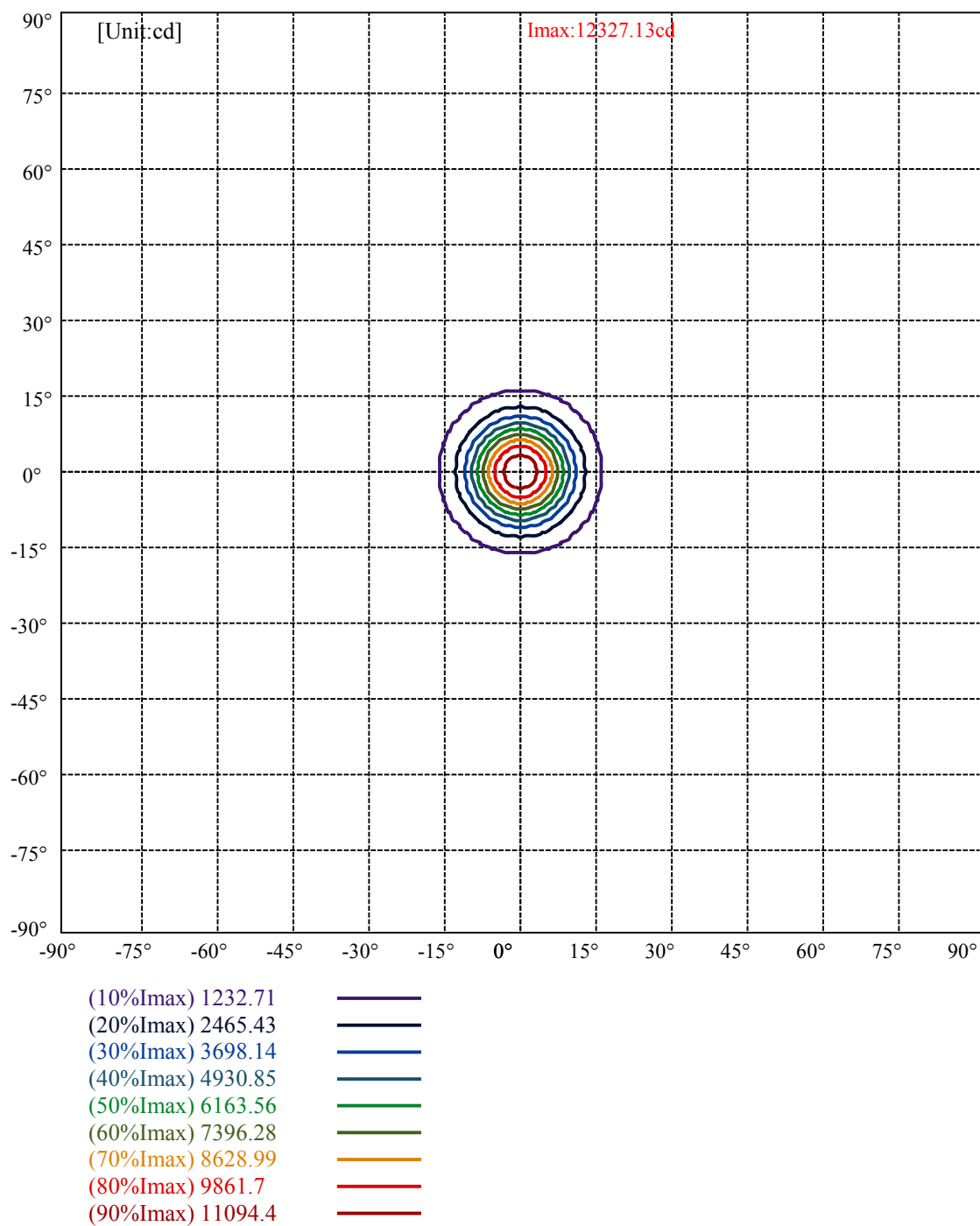
Zone	Lumens	%Lamp	%Fixt
0-30	1498.26	66.71%	84.44%
0-40	1638.80	72.97%	92.36%
0-60	1740.68	77.50%	98.10%
0-90	1773.62	78.97%	99.95%
0-120	1773.62	78.97%	99.95%
0-180	1774.42	79.00%	100.00%
60-90	36.23	1.61%	2.04%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.15	1419.54	63.20%	80.00%

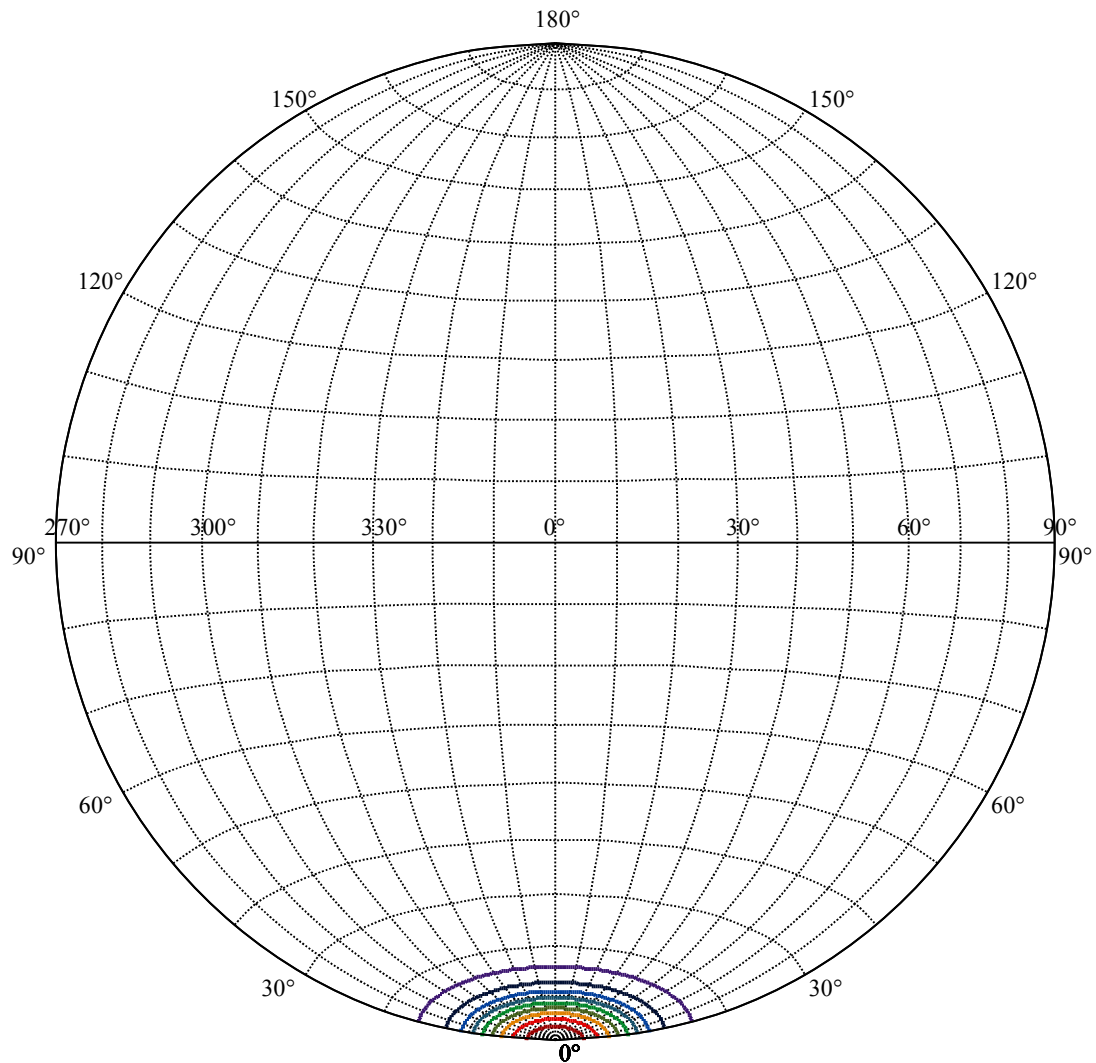
ZONAL LUMEN SUMMARY

0-10	835.81
10-20	423.54
20-30	238.91
30-40	140.53
40-50	74.90
50-60	26.98
60-70	13.70
70-80	11.68
80-90	7.57
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









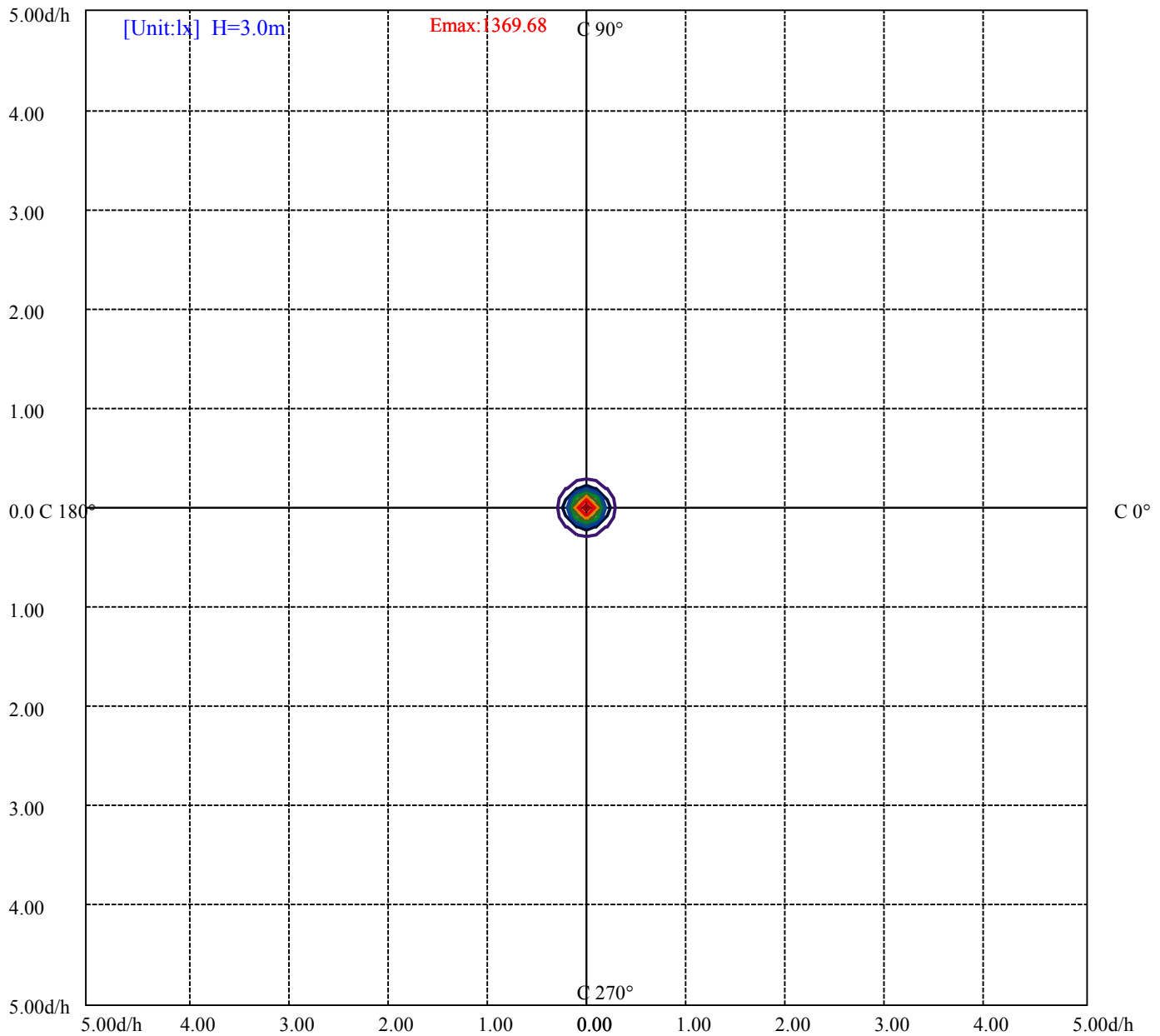
House

[Unit:cd]

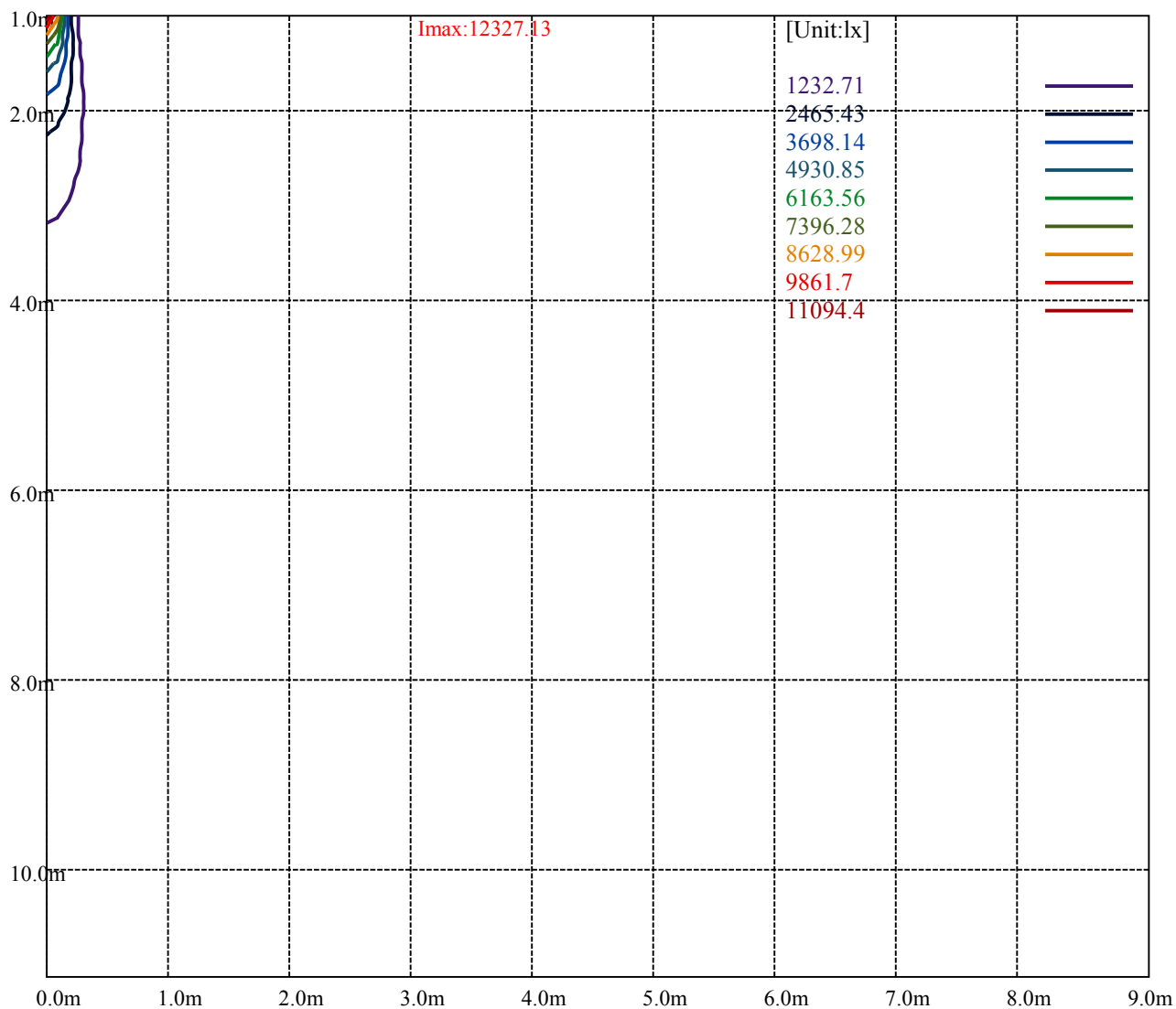
Road

Imax:12327.13

(10%Imax)	1232.71	—
(20%Imax)	2465.43	—
(30%Imax)	3698.14	—
(40%Imax)	4930.85	—
(50%Imax)	6163.56	—
(60%Imax)	7396.28	—
(70%Imax)	8628.99	—
(80%Imax)	9861.7	—
(90%Imax)	11094.4	—



(10%Emax) 136.9678	—
(20%Emax) 273.9355	—
(30%Emax) 410.9033	—
(40%Emax) 547.8711	—
(50%Emax) 684.8378	—
(60%Emax) 821.8055	—
(70%Emax) 958.7733	—
(80%Emax) 1095.741	—
(90%Emax) 1232.711	—



Luminance Table

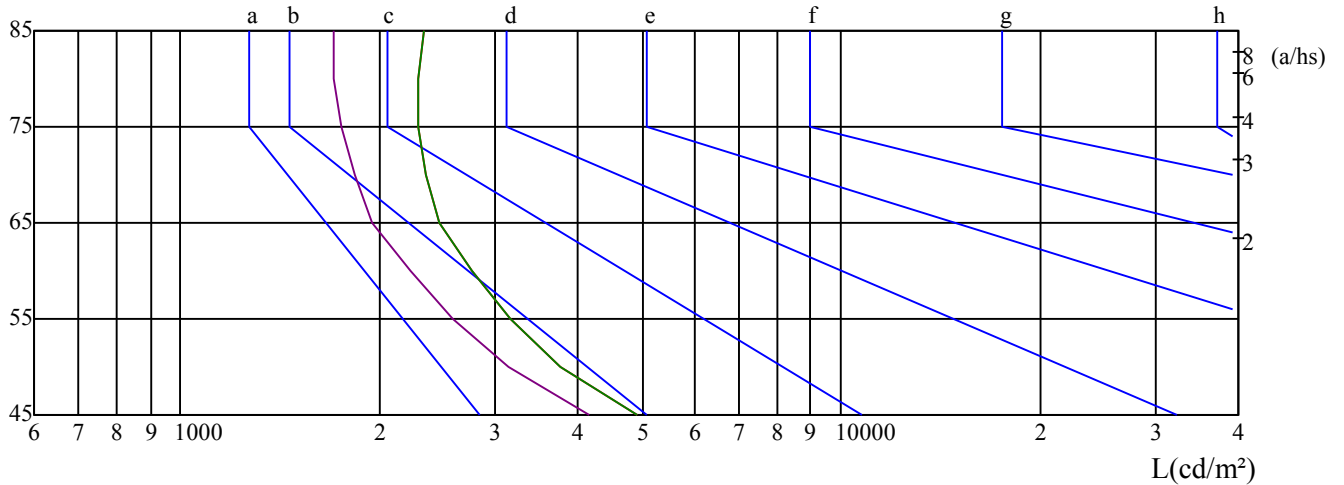
γ	45	50	55	60	65	70	75	80	85
C0	4917	3770	3151	2759	2462	2351	2291	2290	2335
C45	4161	3142	2586	2228	1955	1832	1750	1711	1701
C90	4917	3770	3151	2759	2462	2351	2291	2290	2335

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6594	6594	6594	8981	8981	8981	23219	23219	23219

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

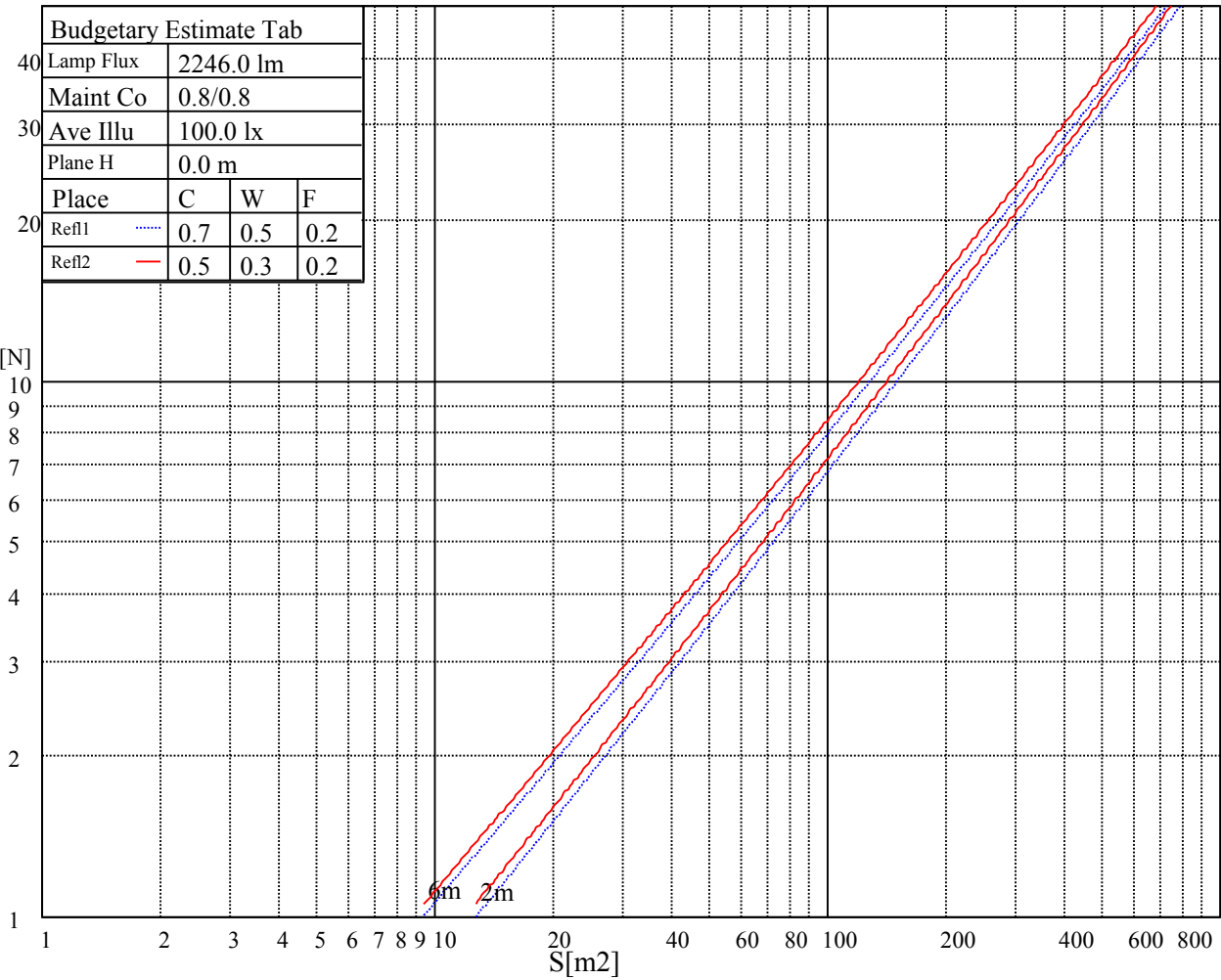
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

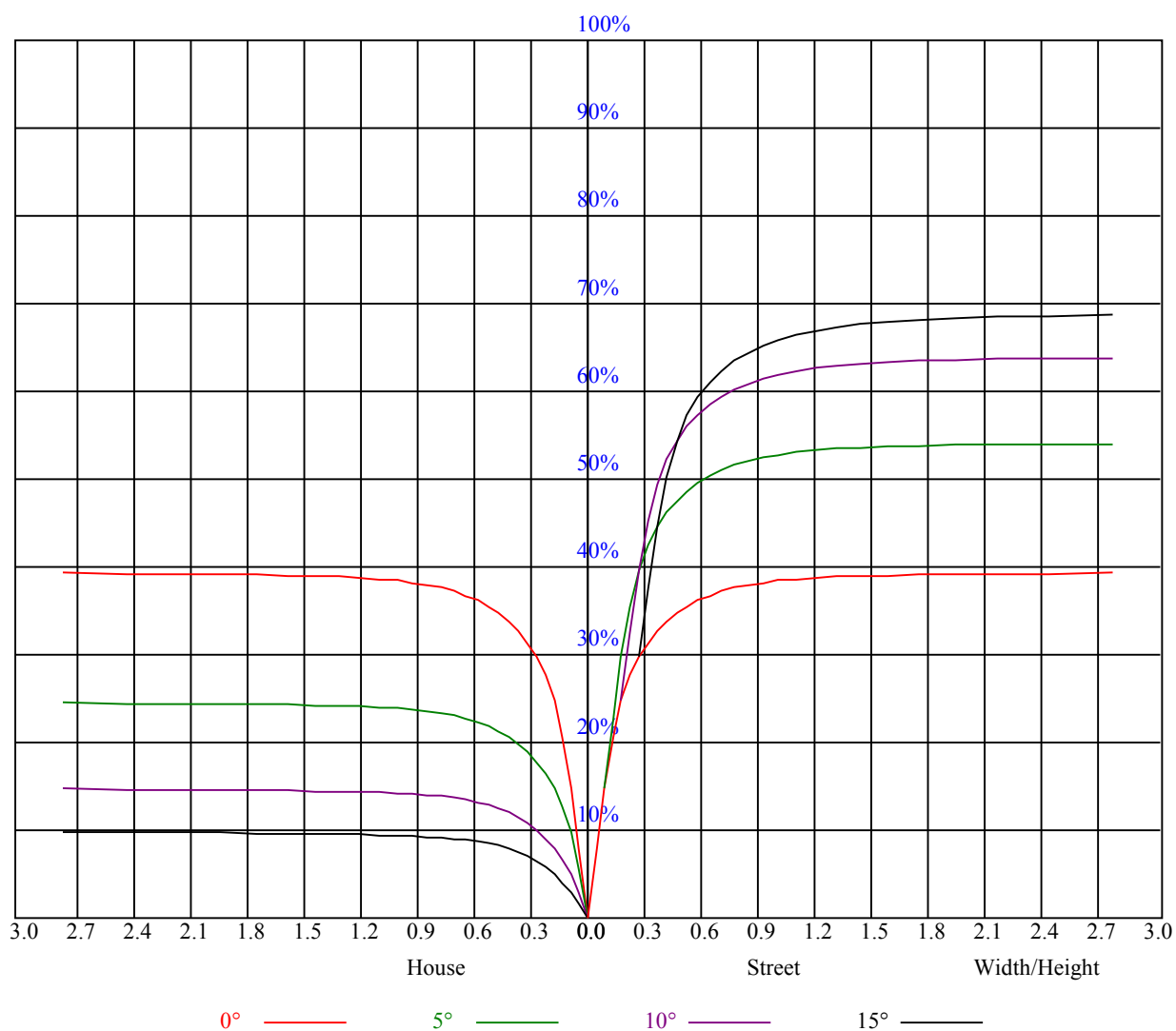
C0 ———

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



Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	12404.21	12002.30	10780.04	8847.56	6518.68	4272.38	2857.43	1753.55	1272.90
45.0	12200.50	12338.14	11589.37	10042.29	8060.26	5604.74	3628.22	2492.40	1447.98
90.0	12360.16	12305.11	10913.83	9786.83	7590.63	5147.22	3384.32	2050.85	1380.81
135.0	12338.14	12305.11	11462.74	9838.58	7757.45	5296.43	3341.92	2018.92	1317.50
180.0	12415.22	12002.30	10750.86	8983.00	6461.42	4113.81	2583.80	1559.75	1085.27
225.0	12200.50	10985.95	9717.45	7542.73	5140.07	3257.69	1957.26	1263.54	1003.95
270.0	12360.16	11622.41	10141.39	7933.63	5802.94	3738.33	2835.40	1495.88	1114.34
315.0	12338.14	10952.37	9955.30	7794.89	5495.18	3462.50	2196.20	1421.01	1088.52
360.0	12404.21	12002.30	10780.04	8847.56	6518.68	4272.38	2857.43	1753.55	1272.90
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1043.32	868.24	738.31	627.09	530.19	449.26	388.70	329.24	278.03
45.0	1108.84	922.75	778.50	658.47	567.08	475.14	401.36	336.39	285.19
90.0	1035.61	855.85	727.41	612.83	519.62	441.17	376.86	311.18	264.77
135.0	1021.85	847.87	723.99	617.18	521.93	436.05	373.28	303.91	256.01
180.0	917.46	772.11	654.46	560.47	467.81	398.00	338.43	283.60	240.16
225.0	835.15	712.43	606.50	509.00	423.27	359.52	297.58	250.67	216.37
270.0	900.72	763.08	649.11	543.41	462.47	389.25	328.69	278.03	235.70
315.0	917.07	781.25	667.28	558.55	473.49	398.17	337.61	284.09	245.06
360.0	1043.32	868.24	738.31	627.09	530.19	449.26	388.70	329.24	278.03
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	235.97	197.60	172.11	146.62	123.55	100.20	80.38	61.61	48.12
45.0	243.57	207.18	179.65	156.14	132.80	110.33	91.45	71.90	56.60
90.0	223.64	191.82	165.66	143.04	119.97	100.75	82.58	65.13	51.81
135.0	219.18	186.53	160.54	138.69	118.54	98.50	82.09	65.57	52.36
180.0	204.59	173.59	149.09	126.79	105.60	87.37	70.69	55.66	44.21
225.0	183.61	158.23	137.04	116.39	97.06	80.33	63.92	49.77	39.48
270.0	204.37	173.87	149.31	127.51	106.53	87.10	70.64	54.51	42.56
315.0	209.32	181.74	158.40	133.90	111.60	90.73	72.12	55.99	44.87
360.0	235.97	197.60	172.11	146.62	123.55	100.20	80.38	61.61	48.12
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	37.11	27.80	21.58	17.23	15.47	14.48	13.76	13.05	12.44
45.0	44.10	33.31	25.27	19.71	16.13	14.92	14.20	13.43	12.83
90.0	39.48	29.95	22.96	18.11	15.53	14.59	13.76	13.10	12.55
135.0	41.40	31.33	23.89	18.88	15.91	14.76	13.98	13.27	12.72
180.0	34.13	25.99	20.10	16.68	14.98	14.09	13.38	12.77	12.22
225.0	29.62	22.52	18.06	15.42	14.31	13.60	12.94	12.39	11.89
270.0	32.43	24.78	19.16	16.08	14.92	13.98	13.38	12.77	12.22
315.0	33.75	25.77	19.93	16.41	15.09	14.20	13.43	12.83	12.22
360.0	37.11	27.80	21.58	17.23	15.47	14.48	13.76	13.05	12.44
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	11.95	11.51	11.12	10.74	10.41	9.86	9.25	8.37	7.71
45.0	12.28	11.67	11.12	10.79	10.46	10.13	9.52	8.81	7.93
90.0	12.00	11.51	11.07	10.68	10.30	9.86	9.25	8.48	7.71
135.0	12.17	11.67	11.12	10.68	10.24	9.74	9.19	8.48	7.76
180.0	11.62	11.12	10.74	10.30	9.86	9.41	8.75	8.09	7.60
225.0	11.34	10.90	10.57	10.35	9.86	9.36	8.53	7.82	7.38
270.0	11.73	11.29	10.96	10.74	10.35	9.80	8.97	8.04	7.49
315.0	11.67	11.23	10.90	10.63	10.19	9.69	8.86	8.09	7.49
360.0	11.95	11.51	11.12	10.74	10.41	9.86	9.25	8.37	7.71

Intensity data(cd)

Appendix Page: 16 Total:16

C/ $\gamma(^{\circ})$	90.0
0.0	7.38
45.0	7.38
90.0	7.27
135.0	7.32
180.0	7.32
225.0	7.32
270.0	7.38
315.0	7.38
360.0	7.38