



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: 1709-M	
Luminaire: 92.70.126.00	
Report No: NATA0100	Voltage(V): 36.2000
Test No: GC2018082009	Current(A): 0.4000
LampCAT: LUMINUS CHM-9-AA10	Power (W): 15.4800
Lamp flux(lm): 1813.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1659.41
Efficiency(%): 91.53%
Lumens(lm)/Power(W): 107.62
Central intensity(cd): 7144.807
Maximum intensity(cd): 7144.807
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=15.9
[C90/270]Total=15.9
Field angle(10%Imax): [C0/180]Total=50.2
[C90/270]Total=50.2
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
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(%): 91.89%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.297%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7144.807	6.837	6.837	.377%	.412%
2.0	6869.869	52.581	59.419	2.900%	3.581%
4.0	6034.594	92.320	151.739	5.092%	9.144%
6.0	4751.643	108.929	260.668	6.008%	15.708%
8.0	3545.150	108.207	368.875	5.968%	22.229%
10.0	2511.122	95.632	464.507	5.275%	27.992%
12.0	1821.197	83.043	547.55	4.580%	32.997%
14.0	1397.744	74.160	621.709	4.090%	37.466%
16.0	1154.381	69.783	691.493	3.849%	41.671%
18.0	1000.905	67.833	759.326	3.741%	45.759%
20.0	894.825	67.120	826.446	3.702%	49.804%
22.0	812.736	66.771	893.218	3.683%	53.827%
24.0	742.511	66.234	959.452	3.653%	57.819%
26.0	690.848	66.419	1025.87	3.663%	61.821%
28.0	653.513	67.287	1093.157	3.711%	65.876%
30.0	625.337	68.572	1161.729	3.782%	70.009%
32.0	601.305	69.883	1231.612	3.855%	74.220%
34.0	579.303	71.045	1302.657	3.919%	78.501%
36.0	557.873	71.915	1374.572	3.967%	82.835%
38.0	528.018	71.295	1445.866	3.932%	87.131%
40.0	452.908	63.847	1509.714	3.522%	90.979%
42.0	347.729	51.029	1560.743	2.815%	94.054%
44.0	233.370	35.553	1596.296	1.961%	96.197%
46.0	119.087	18.787	1615.083	1.036%	97.329%
48.0	46.165	7.524	1622.607	.415%	97.782%
50.0	24.830	4.172	1626.779	.230%	98.034%
52.0	17.508	3.026	1629.805	.167%	98.216%
54.0	12.450	2.209	1632.014	.122%	98.349%
56.0	10.901	1.982	1633.996	.109%	98.469%
58.0	9.931	1.847	1635.843	.102%	98.580%
60.0	9.387	1.783	1637.626	.098%	98.687%
62.0	8.864	1.716	1639.342	.095%	98.791%
64.0	8.451	1.666	1641.008	.092%	98.891%
66.0	7.956	1.594	1642.602	.088%	98.987%
68.0	7.639	1.553	1644.155	.086%	99.081%
70.0	7.357	1.516	1645.671	.084%	99.172%
72.0	7.137	1.489	1647.16	.082%	99.262%
74.0	6.978	1.471	1648.631	.081%	99.350%

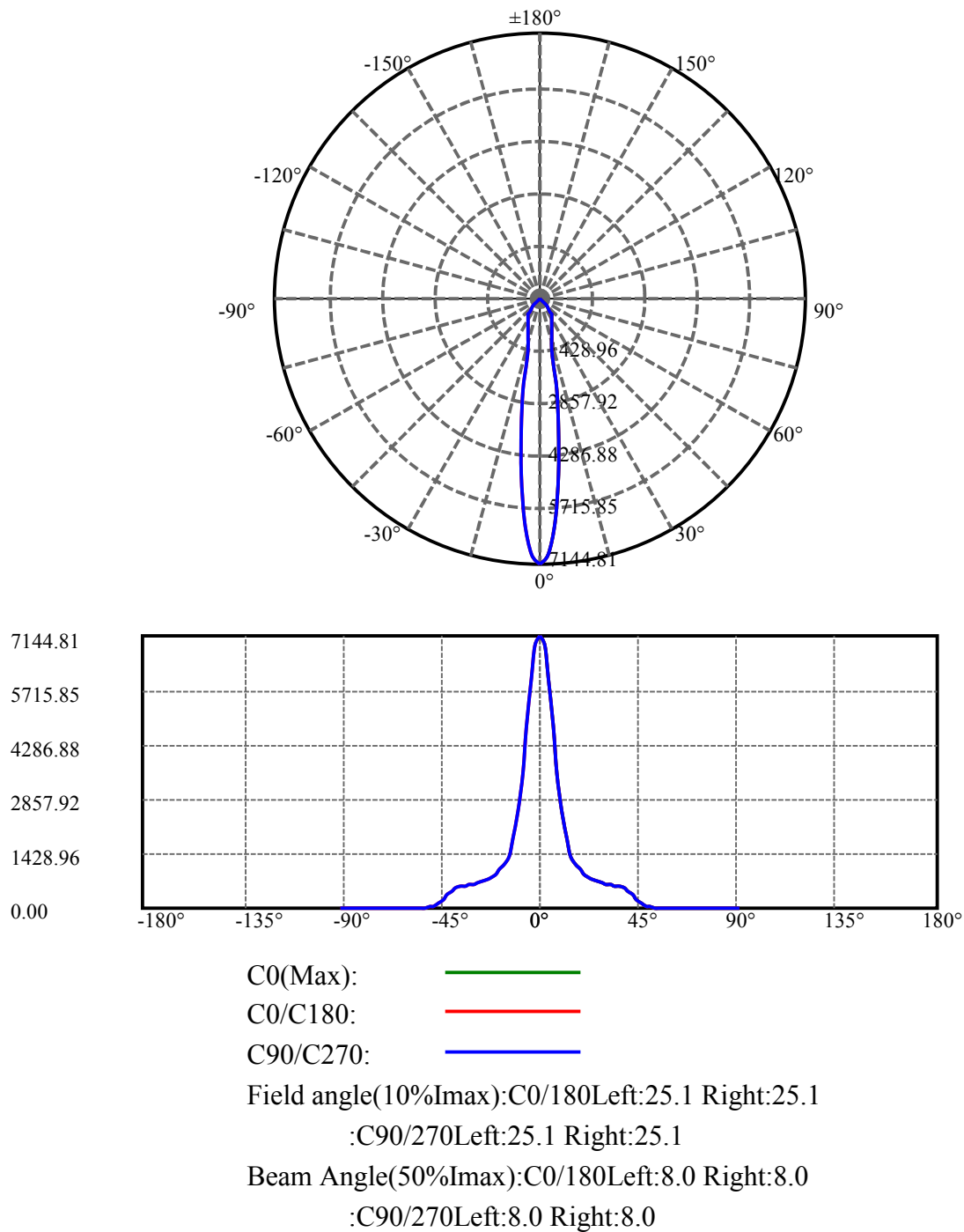
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.861	1.460	1650.091	.081%	99.438%
78.0	6.765	1.451	1651.543	.080%	99.526%
80.0	6.696	1.446	1652.989	.080%	99.613%
82.0	6.648	1.444	1654.433	.080%	99.700%
84.0	6.593	1.438	1655.871	.079%	99.787%
86.0	6.490	1.420	1657.29	.078%	99.872%
88.0	6.448	1.413	1658.704	.078%	99.957%
90.0	6.435	0.706	1659.409	.039%	100.000%

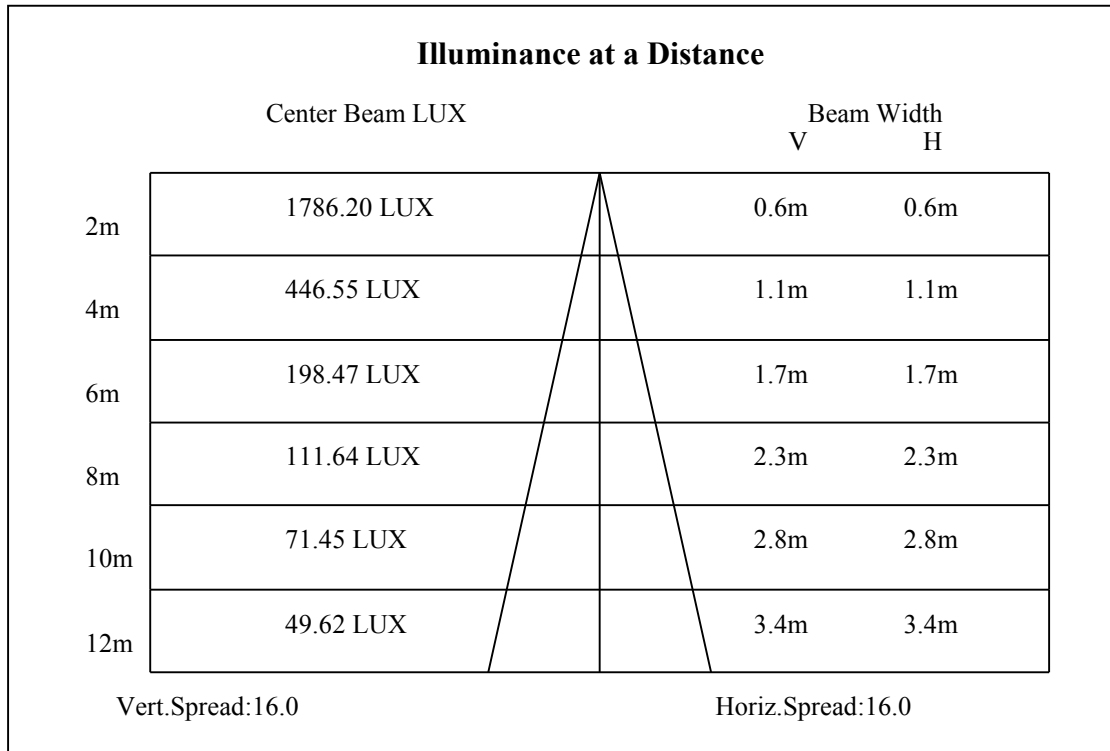
ZONAL LUMEN SUMMARY

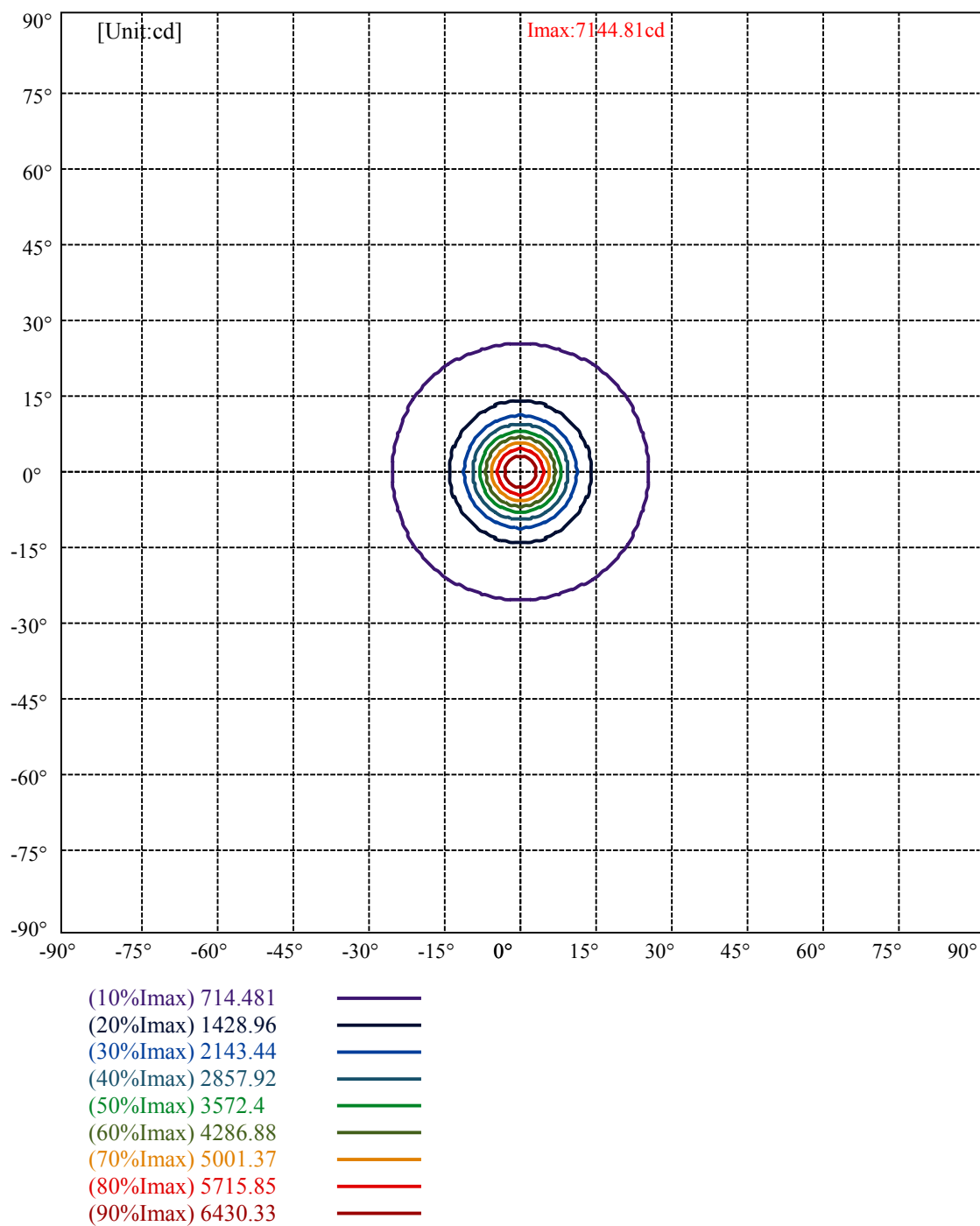
Zone	Lumens	%Lamp	%Fixt
0-30	1161.73	64.08%	70.01%
0-40	1509.71	83.27%	90.98%
0-60	1637.63	90.33%	98.69%
0-90	1658.70	91.49%	99.96%
0-120	1658.70	91.49%	99.96%
0-180	1659.41	91.53%	100.00%
60-90	22.86	1.26%	1.38%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.69	1327.53	73.22%	80.00%

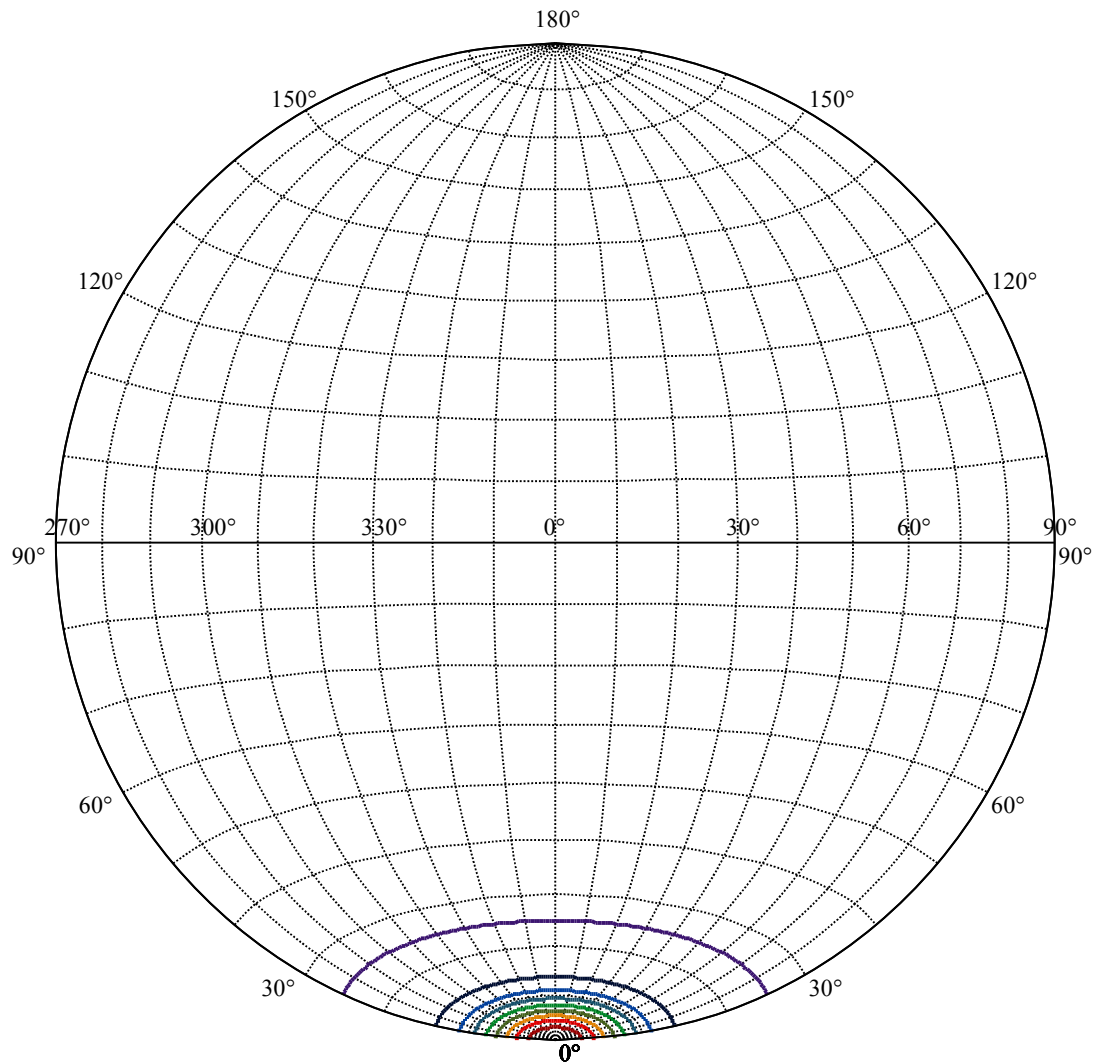
ZONAL LUMEN SUMMARY

0-10	464.51
10-20	361.94
20-30	335.28
30-40	347.98
40-50	117.07
50-60	10.85
60-70	8.05
70-80	7.32
80-90	5.72
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









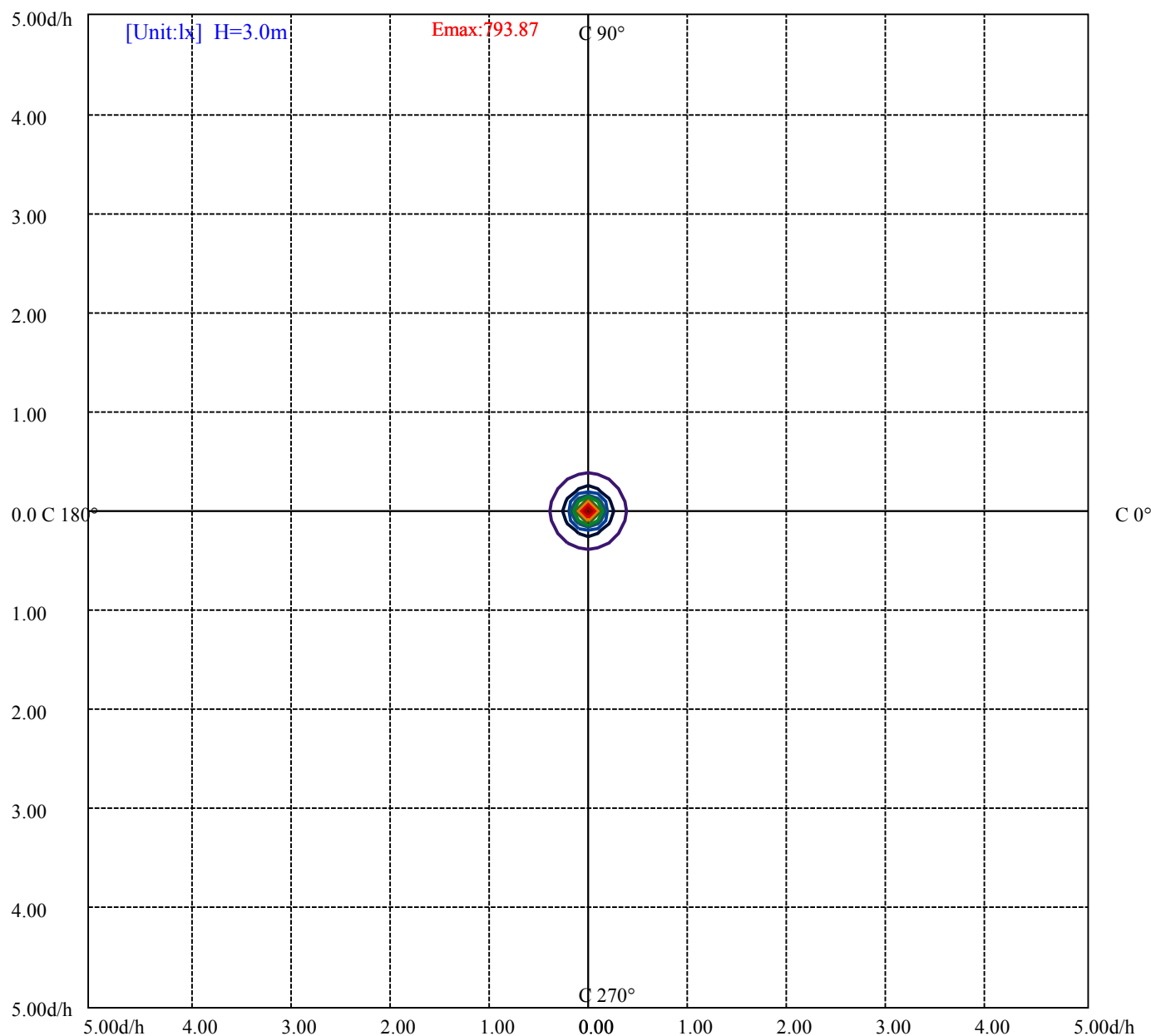
House

[Unit:cd]

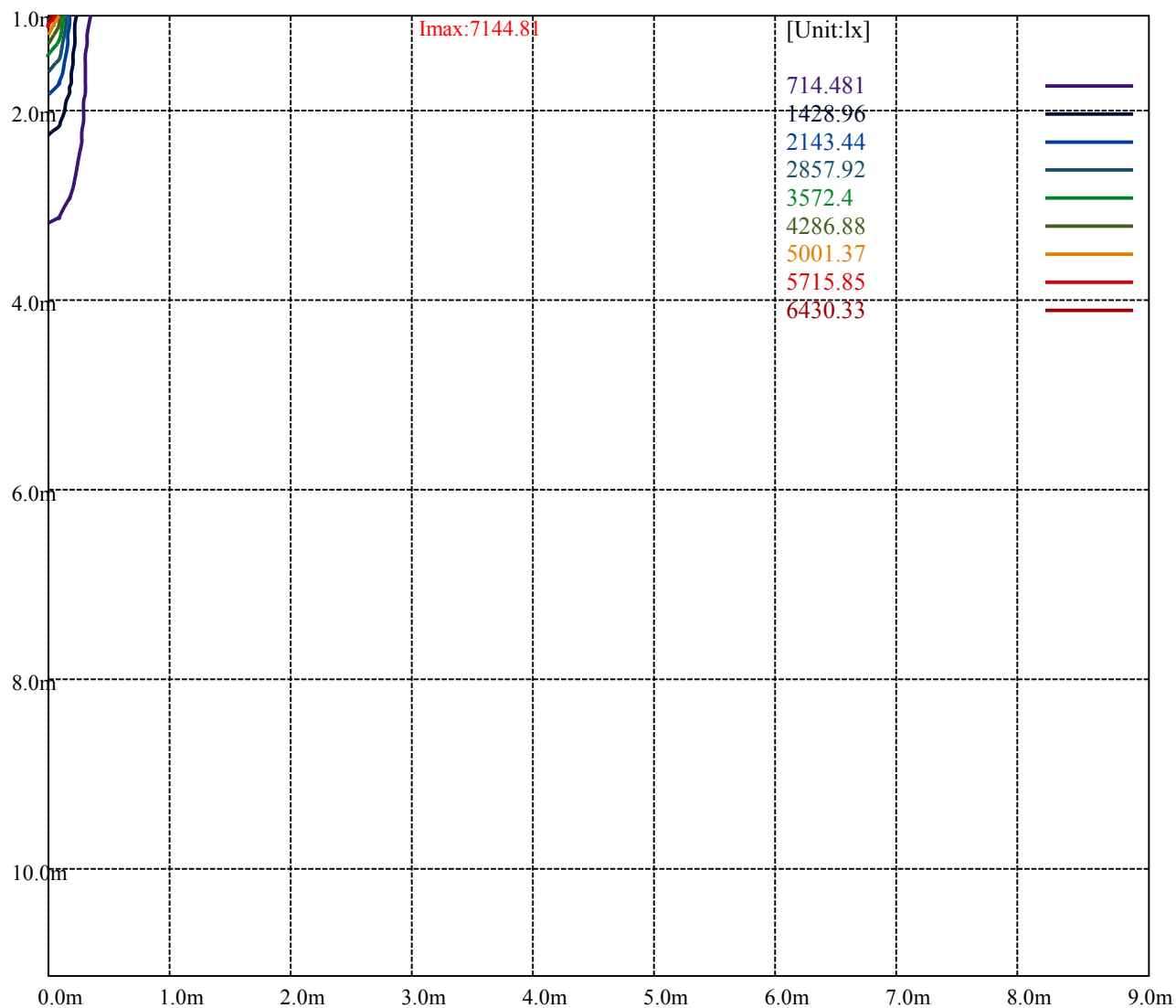
Road

Imax:7144.81

(10%Imax)	714.481	—
(20%Imax)	1428.96	—
(30%Imax)	2143.44	—
(40%Imax)	2857.92	—
(50%Imax)	3572.4	—
(60%Imax)	4286.88	—
(70%Imax)	5001.37	—
(80%Imax)	5715.85	—
(90%Imax)	6430.33	—



(10%Emax)	79.38656	—
(20%Emax)	158.7733	—
(30%Emax)	238.16	—
(40%Emax)	317.5455	—
(50%Emax)	396.9322	—
(60%Emax)	476.3189	—
(70%Emax)	555.7056	—
(80%Emax)	635.0922	—
(90%Emax)	714.4789	—



Luminance Table

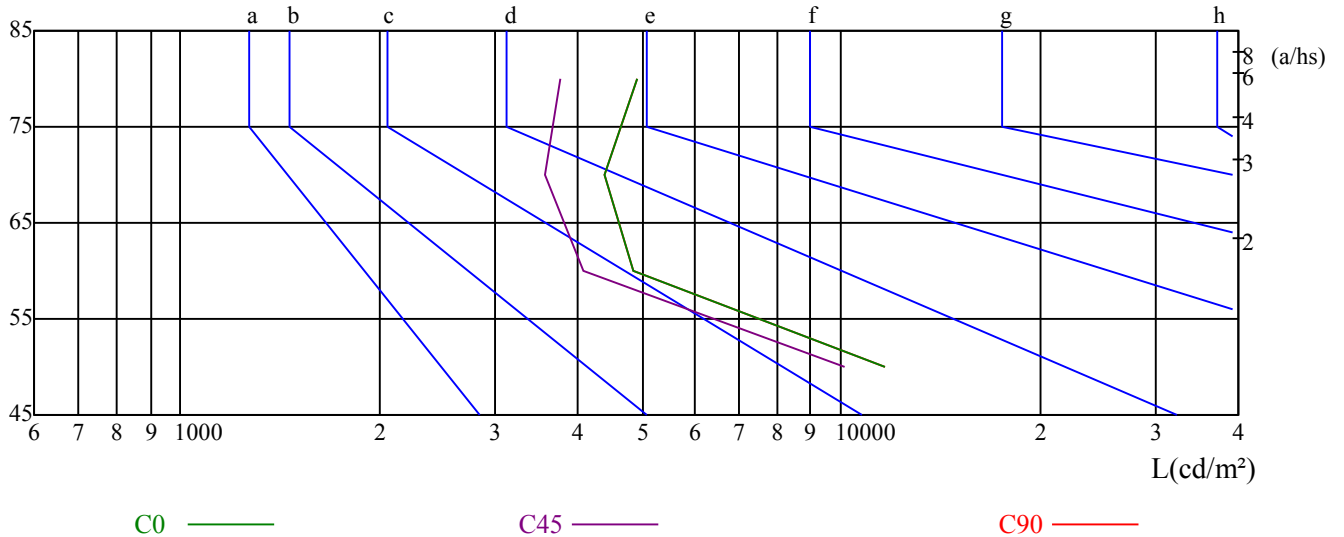
γ	45	50	55	60	65	70	75	80	85
C0	0	11628	0	4853	0	4393	0	4909	0
C45	0	10108	0	4086	0	3556	0	3769	0
C90	0	11628	0	4853	0	4393	0	4909	0

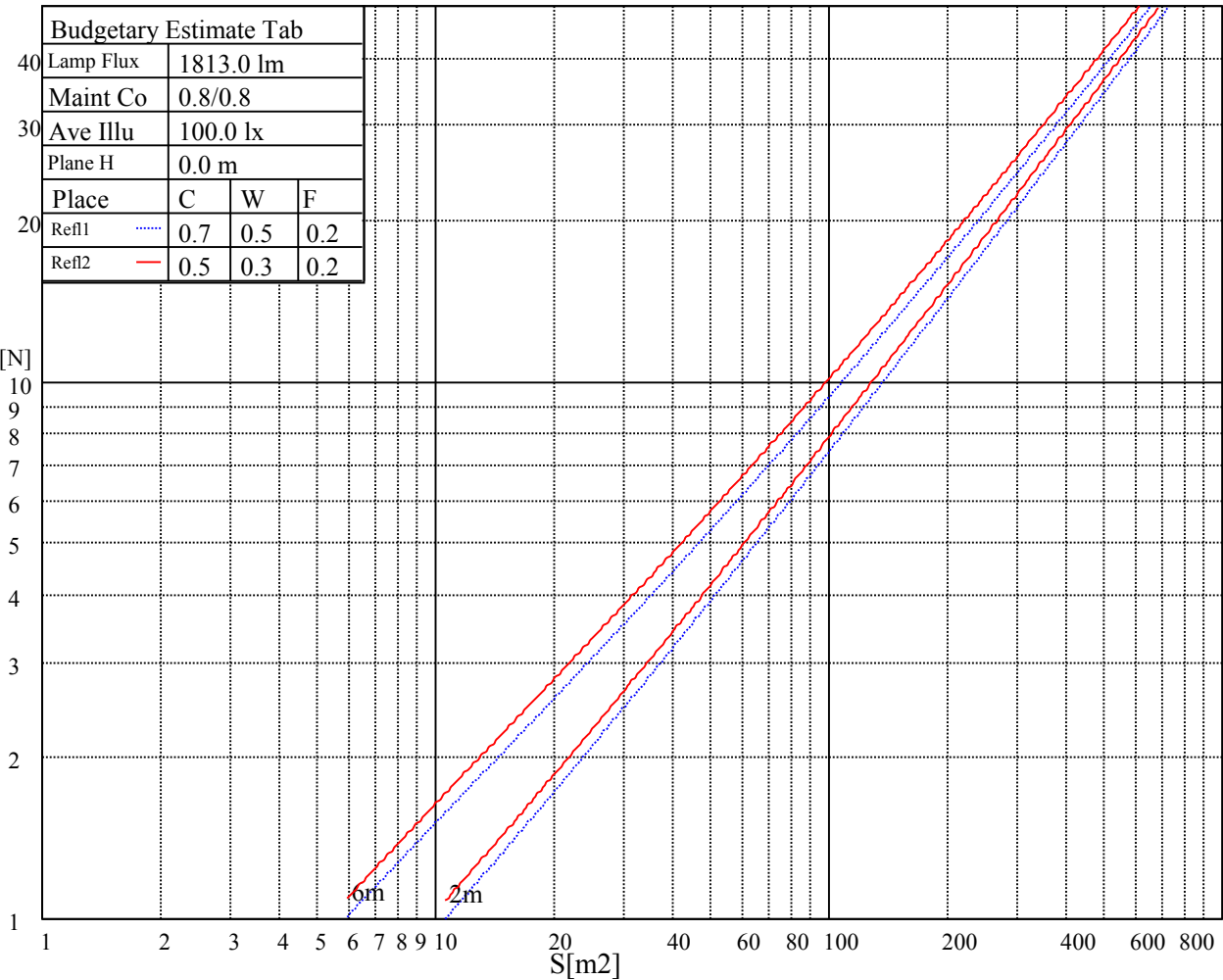
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10728	10728	10728	12742	12742	12742	34966	34966	34966

Glare Table

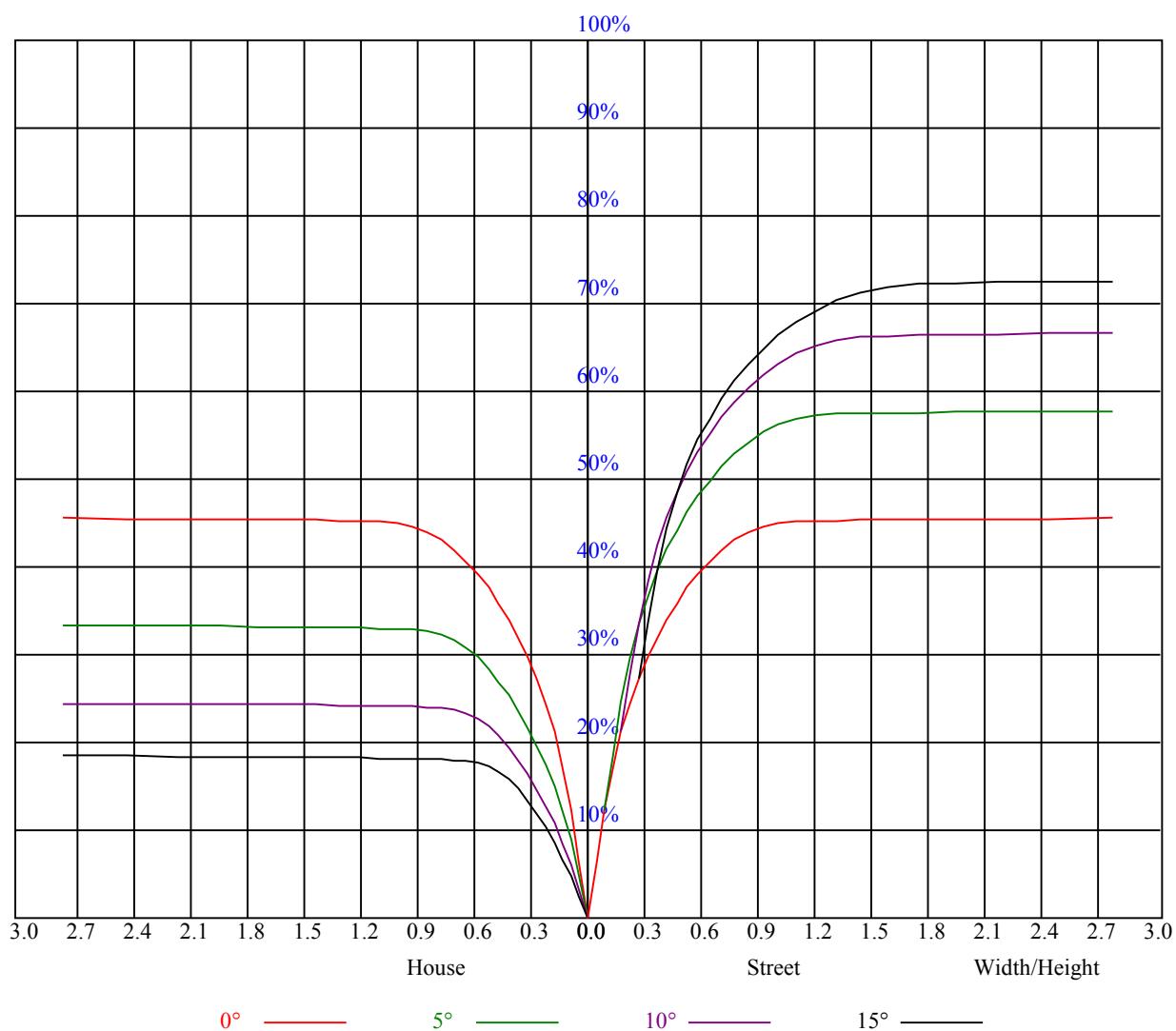
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

 $\gamma(^{\circ})$ 



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	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	0.99	0.97	1.00	0.98	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.92	0.89	0.94	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	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.82	0.80	0.84	0.81	0.78	0.81	0.79	0.77	0.76
4	0.84	0.79	0.76	0.83	0.79	0.75	0.81	0.78	0.75	0.79	0.76	0.74	0.78	0.75	0.73	0.71
5	0.80	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.68
6	0.76	0.71	0.67	0.75	0.70	0.67	0.74	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.64
7	0.72	0.67	0.63	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.61
8	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.58
9	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.56
10	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.54	0.60	0.57	0.54	0.53



Nata 1709-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	7149.07	6918.39	6120.07	4861.48	3633.17	2590.95	1911.56	1441.38	1174.90
45.0	7163.39	6735.05	5791.93	4419.38	3302.28	2316.77	1718.86	1329.61	1117.64
90.0	7105.03	6568.23	5521.61	4124.83	3042.42	2107.56	1561.40	1255.29	1070.85
135.0	7161.74	6832.50	5965.36	4684.20	3443.23	2399.36	1745.29	1331.26	1114.34
180.0	7149.07	6861.68	5940.03	4646.21	3399.18	2411.47	1717.76	1342.28	1092.21
225.0	7163.39	7041.71	6312.22	5088.31	3799.99	2742.91	1929.73	1473.86	1211.79
270.0	7105.03	7094.02	6506.57	5381.21	4089.59	2925.15	2138.39	1563.60	1258.59
315.0	7161.74	6907.38	6118.97	4807.52	3651.34	2594.81	1846.59	1444.68	1194.72
360.0	7149.07	6918.39	6120.07	4861.48	3633.17	2590.95	1911.56	1441.38	1174.90
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1029.00	914.49	835.76	768.59	712.98	671.69	643.61	619.38	597.36
45.0	973.95	872.64	799.42	728.95	682.70	648.56	622.14	599.56	578.09
90.0	940.58	856.07	776.35	708.58	668.55	633.81	608.87	586.63	564.71
135.0	972.30	870.99	798.87	732.25	681.60	646.91	618.28	594.06	573.14
180.0	973.73	873.03	789.29	725.59	670.86	637.28	610.41	585.97	564.00
225.0	1026.47	914.65	821.72	744.09	692.39	653.96	622.36	601.00	577.76
270.0	1070.85	938.16	848.97	773.54	714.08	671.14	641.41	614.98	592.96
315.0	1020.36	918.56	831.52	758.51	703.62	664.75	635.63	608.87	586.41
360.0	1029.00	914.49	835.76	768.59	712.98	671.69	643.61	619.38	597.36
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	576.44	549.46	477.89	371.63	280.24	129.60	50.98	25.77	17.34
45.0	556.62	516.98	437.15	316.57	196.83	93.87	32.87	22.79	15.36
90.0	544.34	499.14	403.23	288.99	172.44	72.62	28.63	21.53	14.31
135.0	551.67	523.04	437.70	328.14	211.14	105.87	38.54	24.17	18.28
180.0	543.19	512.96	426.63	322.41	202.00	100.75	37.77	24.45	16.19
225.0	552.88	533.22	465.67	365.85	252.54	141.11	51.86	27.47	18.77
270.0	572.59	547.81	503.77	414.57	301.16	179.65	80.00	28.35	22.41
315.0	565.26	541.53	471.23	373.67	250.62	129.22	48.67	24.11	17.40
360.0	576.44	549.46	477.89	371.63	280.24	129.60	50.98	25.77	17.34
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	12.44	10.79	9.63	9.08	8.59	8.26	7.87	7.60	7.32
45.0	12.06	10.46	9.86	9.30	8.86	8.48	8.09	7.71	7.43
90.0	11.45	10.63	9.97	9.47	8.92	8.48	8.15	7.82	7.49
135.0	12.94	11.89	10.13	9.47	8.97	8.53	8.04	7.71	7.43
180.0	11.73	10.68	10.02	9.41	8.81	8.31	7.87	7.54	7.27
225.0	13.27	10.85	10.08	9.63	9.03	8.59	7.76	7.49	7.21
270.0	14.20	11.62	10.13	9.58	9.08	8.75	8.04	7.71	7.43
315.0	11.51	10.30	9.63	9.14	8.64	8.20	7.82	7.54	7.27
360.0	12.44	10.79	9.63	9.08	8.59	8.26	7.87	7.60	7.32
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	7.10	6.94	6.83	6.72	6.66	6.61	6.55	6.50	6.44
45.0	7.21	6.99	6.88	6.72	6.66	6.61	6.55	6.50	6.44
90.0	7.27	7.16	6.99	6.94	6.83	6.88	6.77	6.44	6.44
135.0	7.21	6.99	6.88	6.77	6.66	6.61	6.55	6.50	6.44
180.0	6.99	6.88	6.72	6.66	6.61	6.55	6.55	6.44	6.44
225.0	7.05	6.88	6.83	6.72	6.66	6.55	6.55	6.50	6.44
270.0	7.21	7.10	6.94	6.88	6.83	6.77	6.66	6.55	6.50
315.0	7.05	6.88	6.83	6.72	6.66	6.61	6.55	6.50	6.44
360.0	7.10	6.94	6.83	6.72	6.66	6.61	6.55	6.50	6.44

Intensity data(cd)

Appendix Page: 16 Total:16

C/ $\gamma(^{\circ})$	90.0
0.0	6.44
45.0	6.44
90.0	6.44
135.0	6.44
180.0	6.44
225.0	6.44
270.0	6.44
315.0	6.39
360.0	6.44