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Nata

LumCAT: 2-1674-M
Luminaire: 92.70.135.00
Report No: NATA0100
Test No: GC2018062704
LampCAT: NICHIA NFCWJ120B-V3
Lamp flux(lm): 2279.0
Number of Lamps: 1
Length(mm): 71
Phm Type: C

Voltage(V): 33.7000
Current(A): 0.5000
Power (W): 16.8500
PF: 0.0000
Ballast type: DC
Width(mm): 71
Height(mm): 0

Photometric Results

Lumens(lm): 2055.50
Efficiency(%): 90.19%
Lumens(lm)/Power(W): 122.71
Central intensity(cd): 13118.560
Maximum intensity(cd): 13118.560
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=16.5
[C90/270]Total=16.5
Field angle(10%Imax): [C0/180]Total=33.7
[C90/270]Total=33.7
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.73%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.132%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13118.564	12.554	12.554	.551%	.611%
2.0	12742.804	97.532	110.086	4.280%	5.356%
4.0	11479.741	175.623	285.71	7.706%	13.900%
6.0	9395.788	215.394	501.103	9.451%	24.379%
8.0	6877.301	209.913	711.016	9.211%	34.591%
10.0	4424.332	168.493	879.509	7.393%	42.788%
12.0	2864.722	130.625	1010.134	5.732%	49.143%
14.0	1918.234	101.775	1111.91	4.466%	54.094%
16.0	1436.284	86.825	1198.734	3.810%	58.318%
18.0	1137.300	77.077	1275.811	3.382%	62.068%
20.0	986.707	74.013	1349.824	3.248%	65.669%
22.0	890.675	73.175	1422.998	3.211%	69.229%
24.0	824.249	73.525	1496.523	3.226%	72.806%
26.0	776.316	74.636	1571.159	3.275%	76.437%
28.0	739.765	76.167	1647.326	3.342%	80.143%
30.0	711.597	78.031	1725.358	3.424%	83.939%
32.0	680.793	79.121	1804.478	3.472%	87.788%
34.0	599.179	73.482	1877.961	3.224%	91.363%
36.0	460.554	59.370	1937.33	2.605%	94.251%
38.0	314.964	42.527	1979.858	1.866%	96.320%
40.0	171.088	24.119	2003.976	1.058%	97.494%
42.0	56.612	8.308	2012.284	.365%	97.898%
44.0	19.339	2.946	2015.23	.129%	98.041%
46.0	13.324	2.102	2017.332	.092%	98.143%
48.0	10.585	1.725	2019.057	.076%	98.227%
50.0	9.821	1.650	2020.707	.072%	98.308%
52.0	9.600	1.659	2022.366	.073%	98.388%
54.0	9.380	1.664	2024.03	.073%	98.469%
56.0	9.229	1.678	2025.708	.074%	98.551%
58.0	9.105	1.693	2027.402	.074%	98.633%
60.0	8.995	1.708	2029.11	.075%	98.716%
62.0	8.905	1.724	2030.835	.076%	98.800%
64.0	8.843	1.743	2032.578	.076%	98.885%
66.0	8.795	1.762	2034.34	.077%	98.971%
68.0	8.740	1.777	2036.117	.078%	99.057%
70.0	8.706	1.794	2037.912	.079%	99.145%
72.0	8.678	1.810	2039.722	.079%	99.233%
74.0	8.651	1.824	2041.545	.080%	99.321%

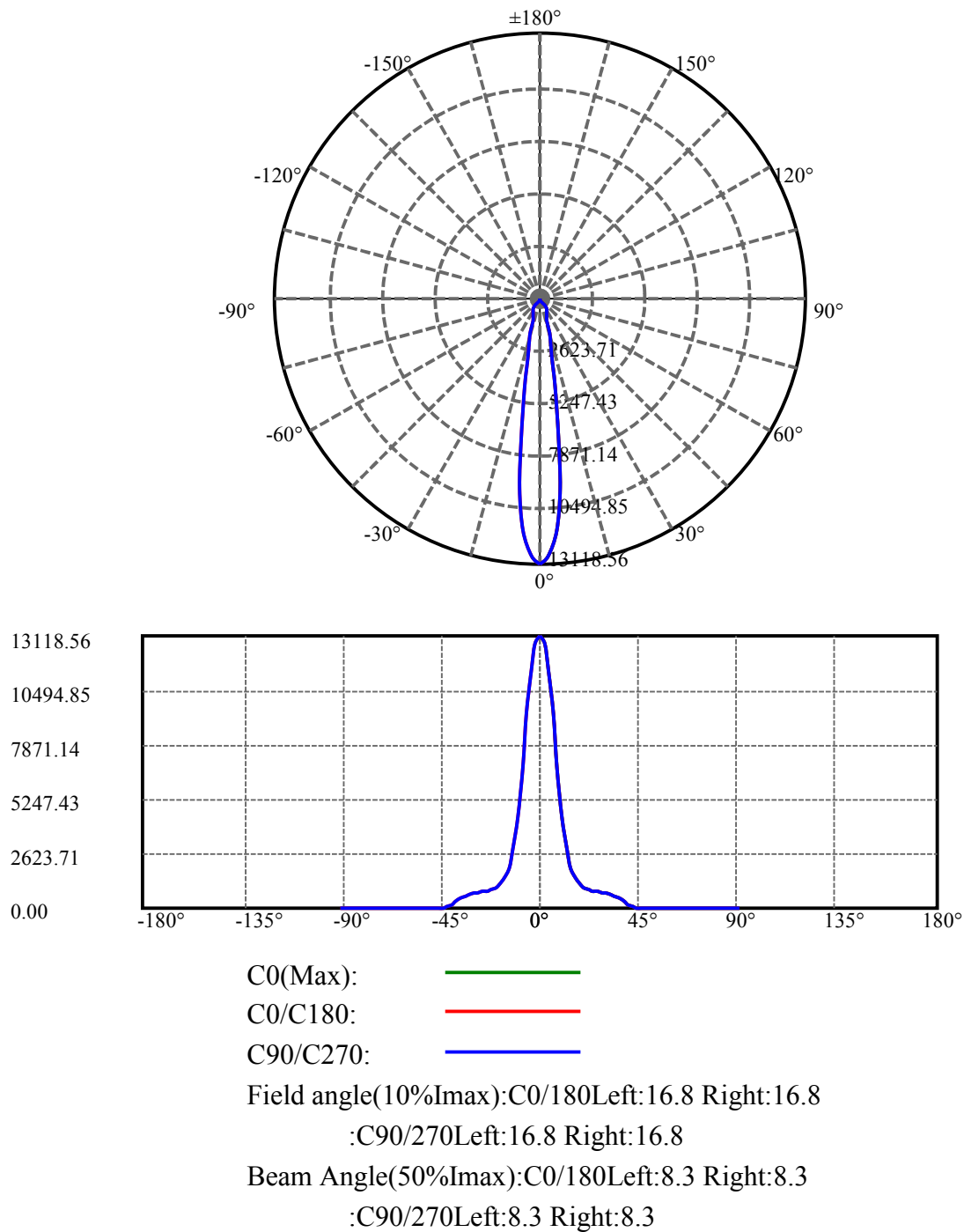
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.637	1.838	2043.383	.081%	99.411%
78.0	8.616	1.848	2045.232	.081%	99.501%
80.0	8.603	1.858	2047.09	.082%	99.591%
82.0	8.596	1.867	2048.956	.082%	99.682%
84.0	8.568	1.869	2050.825	.082%	99.773%
86.0	8.541	1.869	2052.694	.082%	99.864%
88.0	8.527	1.869	2054.563	.082%	99.955%
90.0	8.513	0.934	2055.496	.041%	100.000%

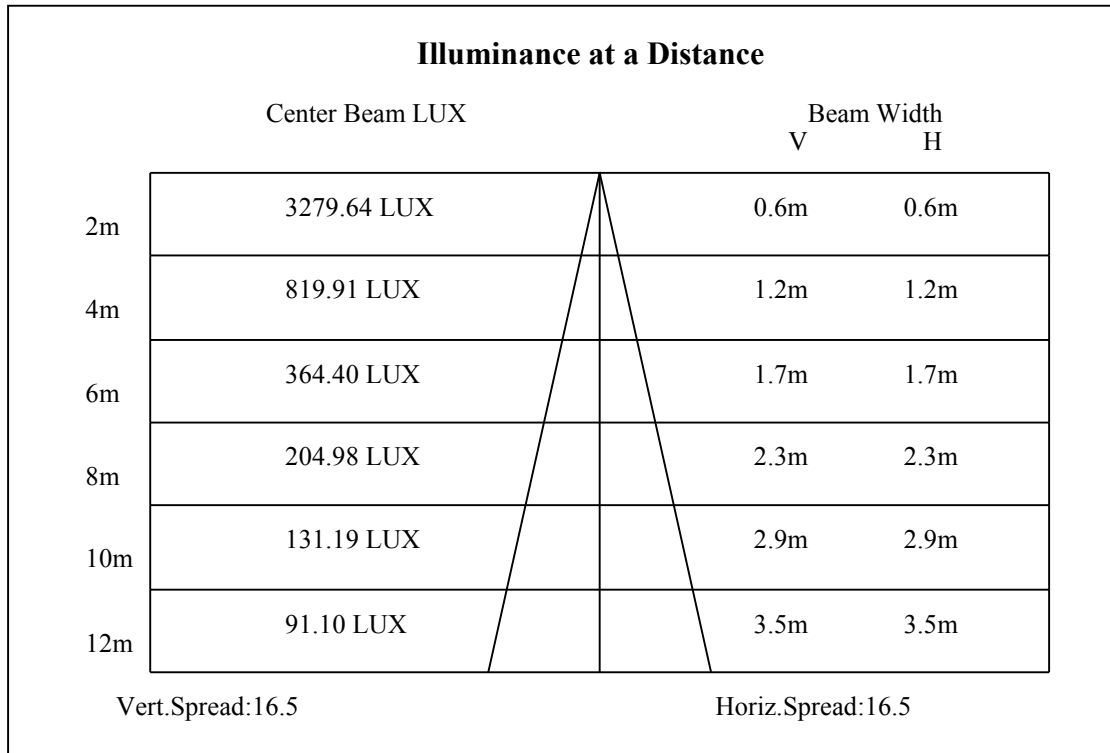
ZONAL LUMEN SUMMARY

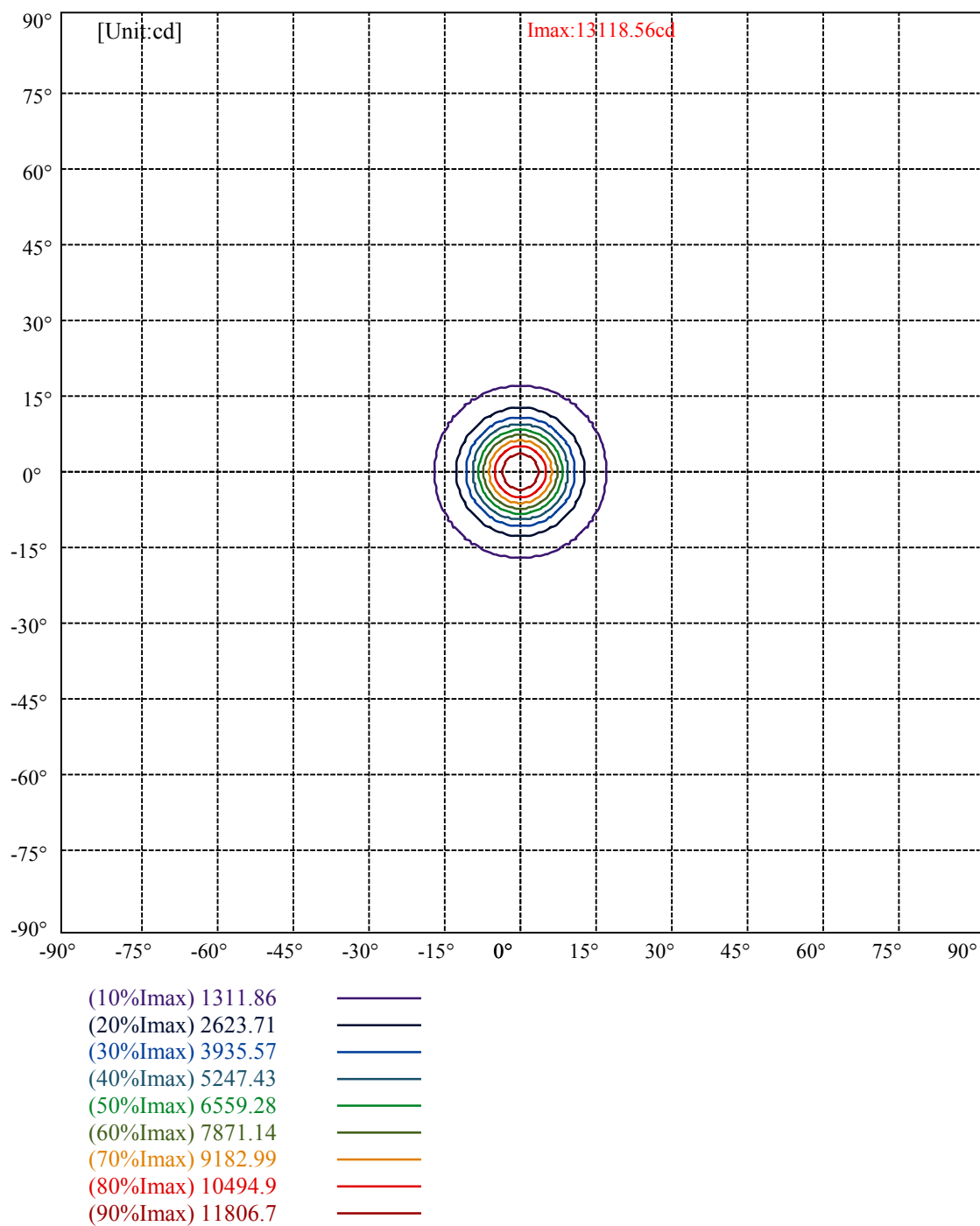
Zone	Lumens	%Lamp	%Fixt
0-30	1725.36	75.71%	83.94%
0-40	2003.98	87.93%	97.49%
0-60	2029.11	89.04%	98.72%
0-90	2054.56	90.15%	99.95%
0-120	2054.56	90.15%	99.95%
0-180	2055.50	90.19%	100.00%
60-90	27.16	1.19%	1.32%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.92	1644.40	72.15%	80.00%

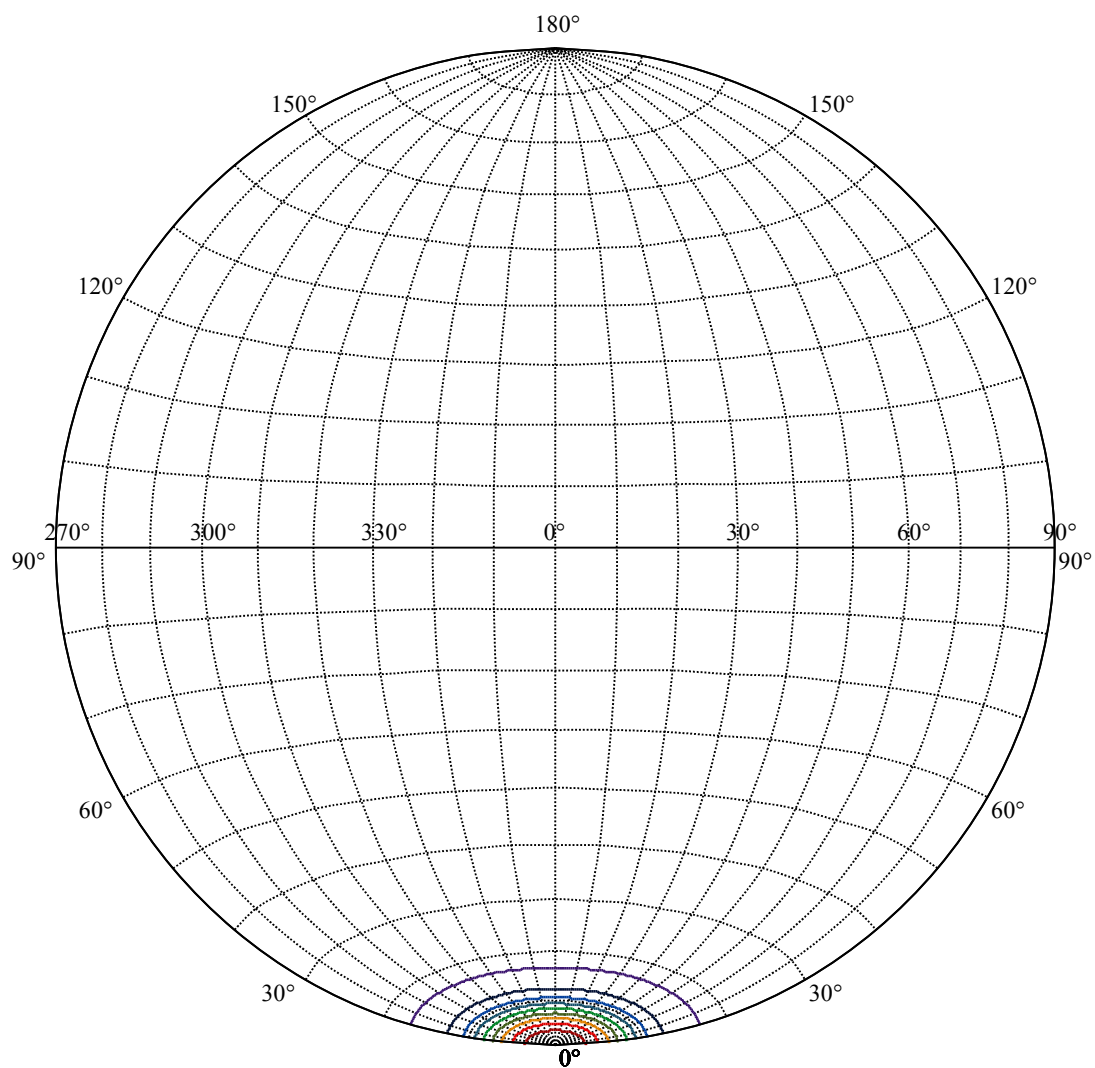
ZONAL LUMEN SUMMARY

0-10	879.51
10-20	470.31
20-30	375.53
30-40	278.62
40-50	16.73
50-60	8.40
60-70	8.80
70-80	9.18
80-90	7.47
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









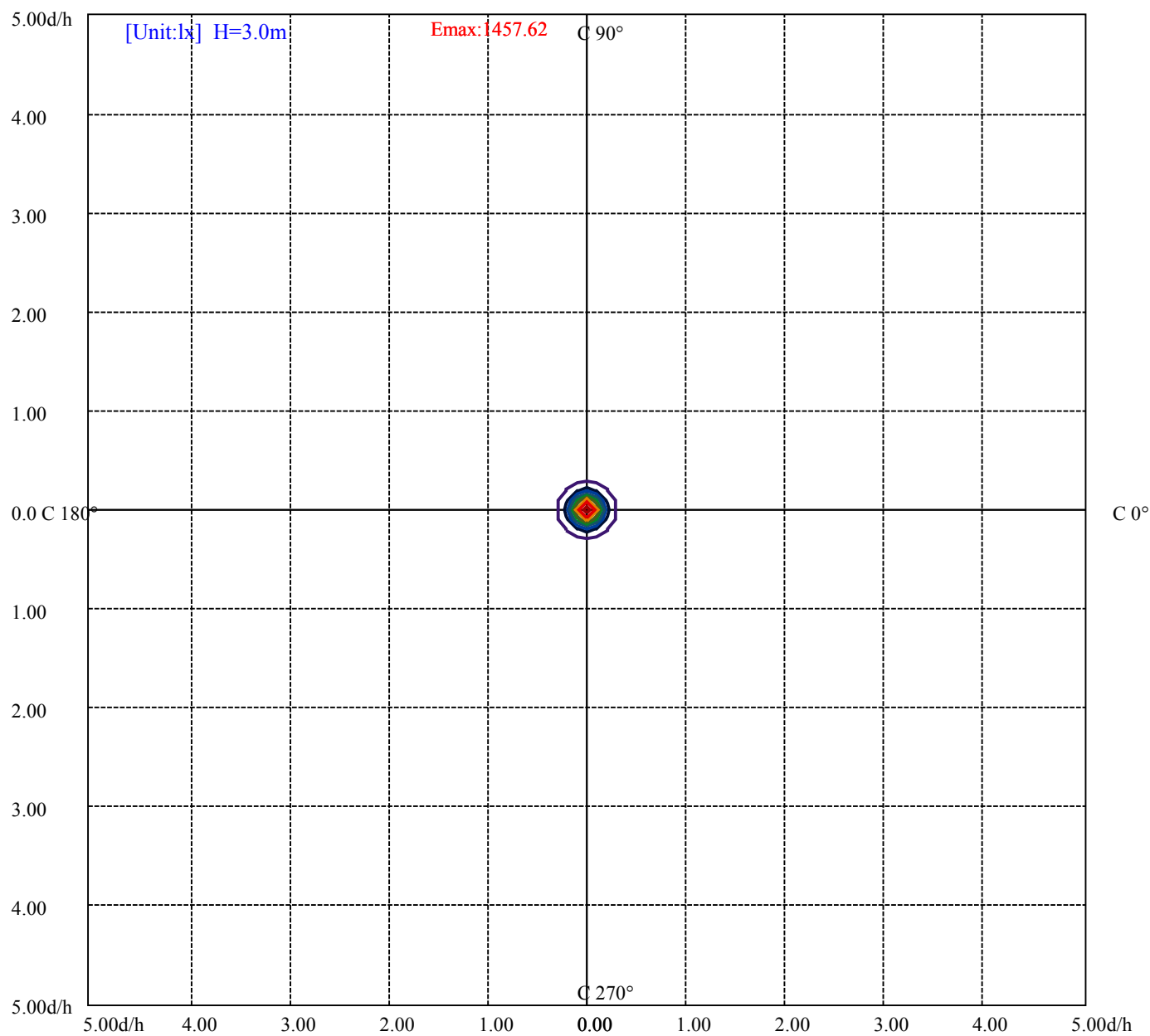
House

[Unit:cd]

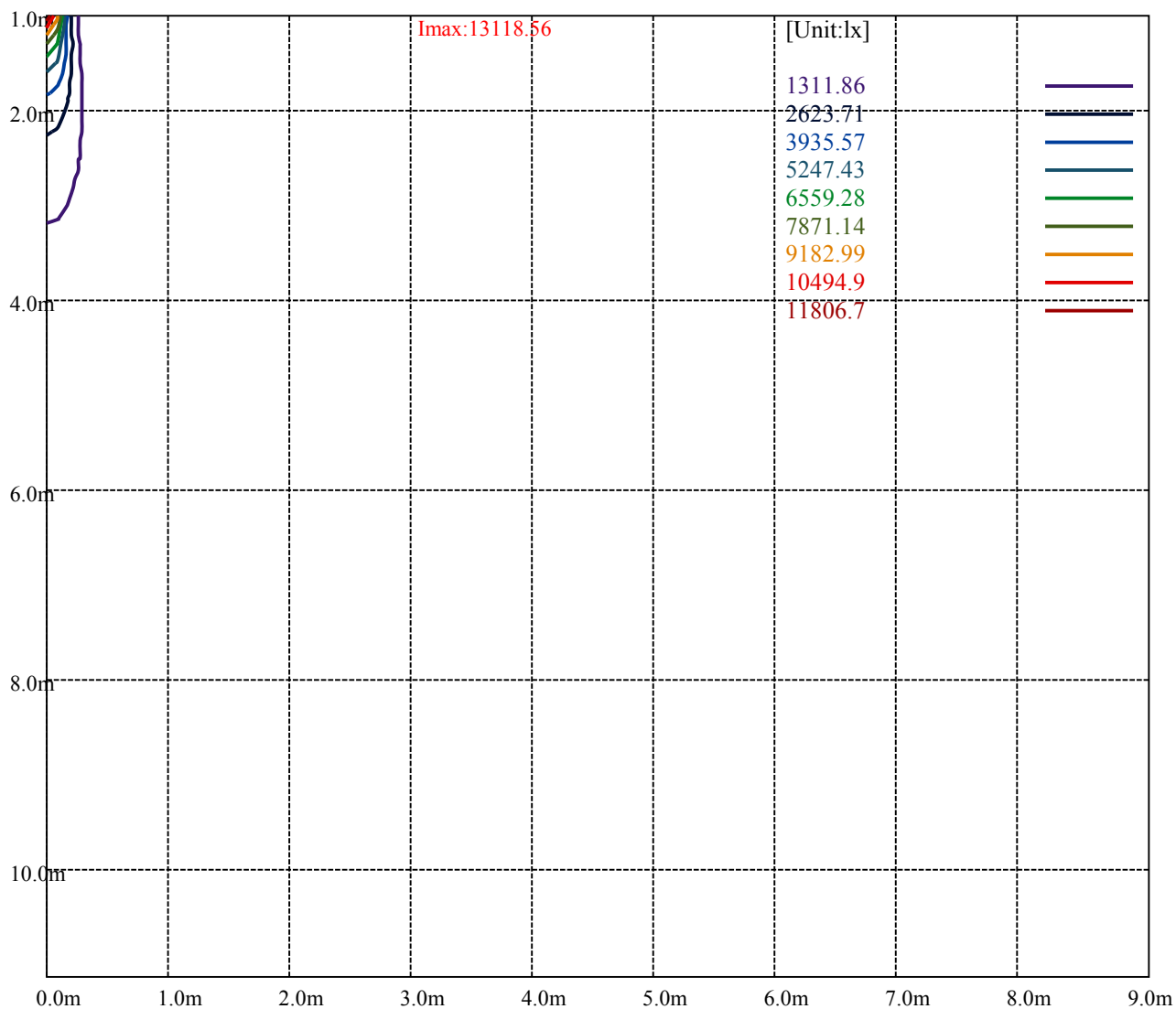
Road

Imax:13118.56

(10%Imax)	1311.86	—
(20%Imax)	2623.71	—
(30%Imax)	3935.57	—
(40%Imax)	5247.43	—
(50%Imax)	6559.28	—
(60%Imax)	7871.14	—
(70%Imax)	9182.99	—
(80%Imax)	10494.9	—
(90%Imax)	11806.7	—



(10%E _{max}) 145.7611	—
(20%E _{max}) 291.5233	—
(30%E _{max}) 437.2845	—
(40%E _{max}) 583.0456	—
(50%E _{max}) 728.8078	—
(60%E _{max}) 874.5689	—
(70%E _{max}) 1020.33	—
(80%E _{max}) 1166.089	—
(90%E _{max}) 1311.856	—



Luminance Table

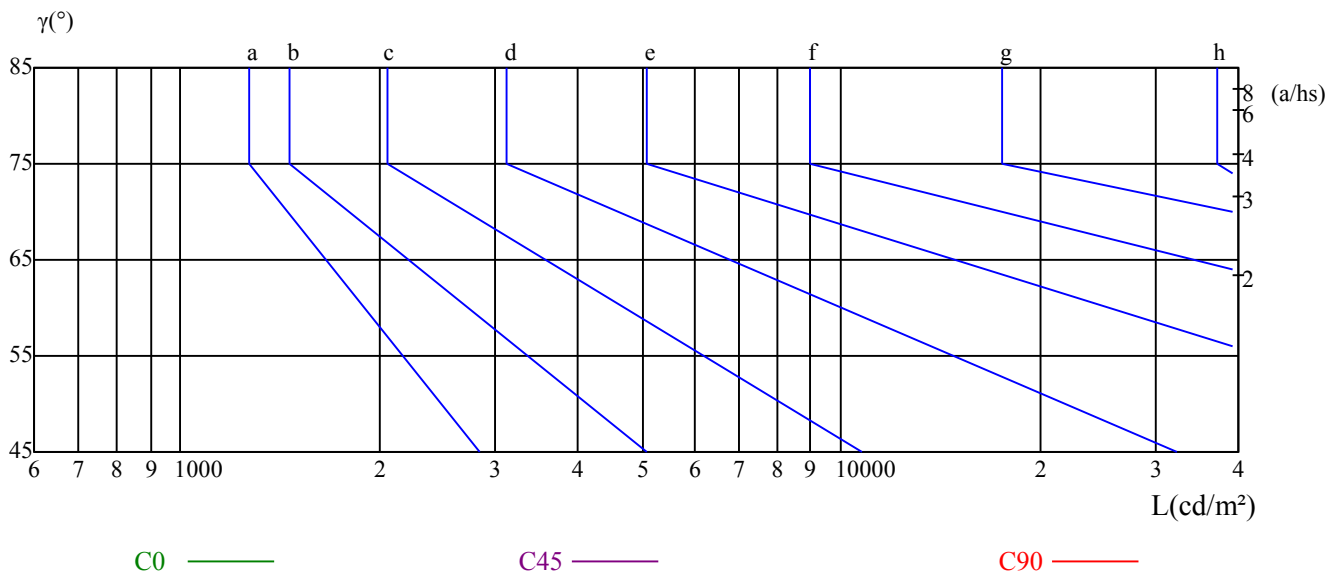
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

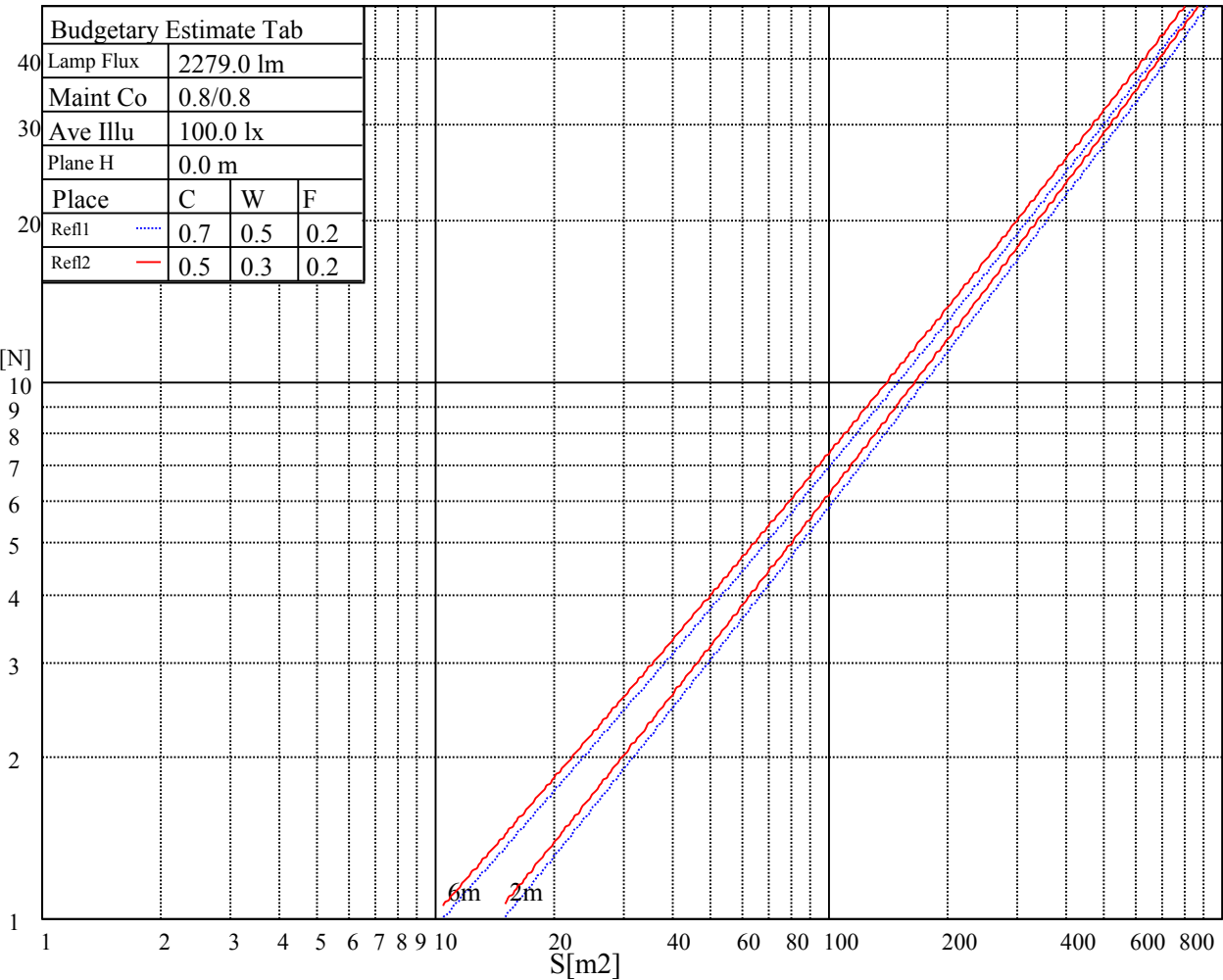
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

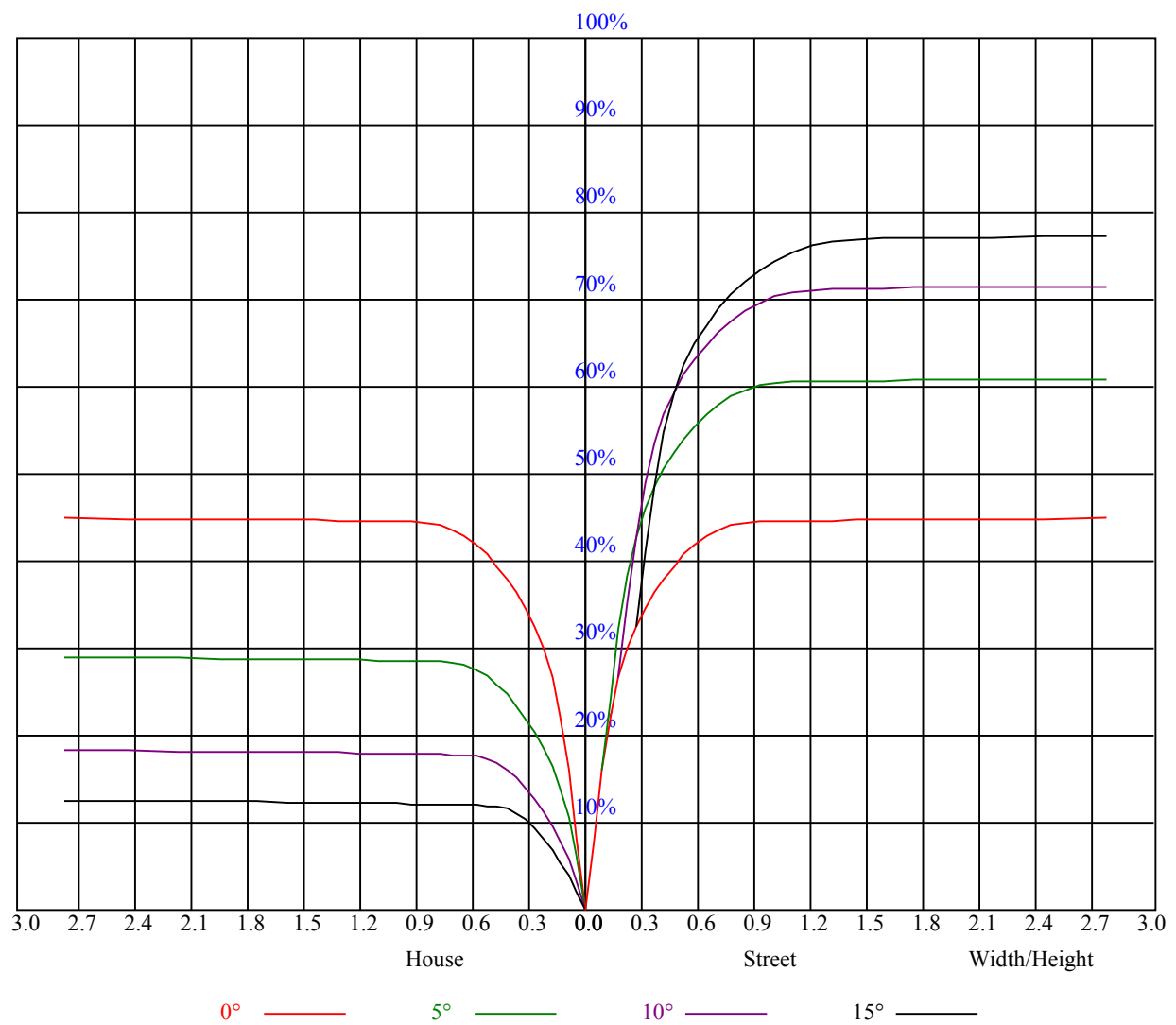
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	1.08	1.08	1.08	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	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.96	0.93	0.90	0.94	0.92	0.89	0.91	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.84	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.80	0.77	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69
8	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.67
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63



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	13136.46	12998.82	12046.34	10003.75	7691.38	5048.67	3193.27	2108.11	1509.10
45.0	13075.90	13108.93	12481.29	10785.55	8258.46	5615.75	3457.54	2203.36	1556.99
90.0	13136.46	12987.80	11969.26	10004.30	7384.71	4776.14	2968.09	1930.28	1446.88
135.0	13125.45	12910.73	11870.16	9882.62	7465.65	4844.96	3061.14	2059.11	1484.87
180.0	13136.46	12547.35	10870.34	8698.36	6060.61	3661.25	2516.63	1749.69	1357.69
225.0	13075.90	12266.57	10601.66	8053.65	5517.20	3504.34	2326.68	1666.56	1332.36
270.0	13136.46	12530.84	11176.45	8798.01	6408.56	4046.65	2813.38	1855.40	1423.21
315.0	13125.45	12591.40	10822.44	8940.06	6231.83	3896.89	2581.04	1773.37	1379.16
360.0	13136.46	12998.82	12046.34	10003.75	7691.38	5048.67	3193.27	2108.11	1509.10
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1177.11	1002.03	904.58	837.41	790.06	747.67	720.14	695.36	630.40
45.0	1198.03	1008.63	904.03	837.41	792.81	749.32	720.69	697.01	635.90
90.0	1098.43	973.51	880.30	816.82	764.79	733.02	707.14	674.22	600.33
135.0	1182.61	1006.43	902.37	833.00	782.90	743.81	713.53	687.65	614.43
180.0	1096.78	972.08	879.25	811.20	763.74	731.31	703.51	669.87	586.63
225.0	1098.27	959.52	870.88	806.91	764.24	732.69	704.12	662.00	547.87
270.0	1150.68	1001.48	904.03	831.35	782.35	743.26	715.18	684.90	589.65
315.0	1096.50	969.98	879.97	819.90	769.63	737.04	708.47	675.32	588.22
360.0	1177.11	1002.03	904.58	837.41	790.06	747.67	720.14	695.36	630.40
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	498.81	356.21	196.06	81.43	20.70	14.53	11.29	9.80	9.58
45.0	503.22	366.68	237.35	80.71	22.90	15.03	11.45	9.91	9.69
90.0	462.31	318.01	178.93	61.55	19.16	13.32	10.35	9.86	9.63
135.0	490.55	347.96	198.86	70.97	20.54	13.93	11.29	9.91	9.69
180.0	447.22	294.61	152.12	44.65	18.17	12.39	10.08	9.74	9.58
225.0	394.09	248.36	108.35	28.19	16.96	12.17	10.02	9.74	9.52
270.0	443.20	295.65	144.25	38.54	18.11	12.44	10.13	9.86	9.58
315.0	445.02	292.24	152.78	46.85	18.17	12.77	10.08	9.74	9.52
360.0	498.81	356.21	196.06	81.43	20.70	14.53	11.29	9.80	9.58
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	9.36	9.19	9.08	8.92	8.86	8.81	8.75	8.70	8.64
45.0	9.47	9.30	9.19	9.03	8.92	8.86	8.81	8.75	8.70
90.0	9.41	9.25	9.08	9.03	8.92	8.86	8.81	8.75	8.70
135.0	9.47	9.30	9.14	9.08	8.97	8.92	8.86	8.81	8.75
180.0	9.36	9.25	9.14	9.03	8.97	8.86	8.81	8.75	8.75
225.0	9.30	9.19	9.08	8.97	8.86	8.86	8.81	8.75	8.70
270.0	9.36	9.19	9.08	8.97	8.92	8.81	8.81	8.75	8.75
315.0	9.30	9.14	9.03	8.92	8.81	8.75	8.70	8.64	8.64
360.0	9.36	9.19	9.08	8.92	8.86	8.81	8.75	8.70	8.64
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	8.64	8.64	8.59	8.59	8.59	8.59	8.53	8.59	8.53
45.0	8.70	8.64	8.64	8.64	8.64	8.59	8.59	8.59	8.53
90.0	8.70	8.70	8.64	8.64	8.64	8.64	8.64	8.53	8.53
135.0	8.70	8.70	8.64	8.64	8.59	8.59	8.59	8.53	8.53
180.0	8.70	8.64	8.64	8.59	8.59	8.59	8.53	8.53	8.48
225.0	8.70	8.64	8.64	8.59	8.59	8.59	8.53	8.53	8.53
270.0	8.70	8.64	8.70	8.64	8.64	8.64	8.59	8.53	8.53
315.0	8.59	8.59	8.59	8.59	8.53	8.53	8.53	8.48	8.53
360.0	8.64	8.64	8.59	8.59	8.59	8.59	8.53	8.59	8.53

Intensity data(cd)

Appendix Page: 16 Total:16

C/ $\gamma(^{\circ})$	90.0
0.0	8.53
45.0	8.53
90.0	8.53
135.0	8.53
180.0	8.48
225.0	8.53
270.0	8.48
315.0	8.48
360.0	8.53