
Nata

Client:

LumCAT: 3-2115-N

Luminaire: 92.70.135.00

Report No: nata-0100

Test No: GC2018053112

LampCAT: NICHIA NFCWD084B-V3

Lamp flux(lm): 2168.8

Number of Lamps: 1

Length(mm): 81

Phm Type: C

Voltage(V): 34.2000

Current(A): 0.5000

Power (W): 17.1000

PF: 0.0000

Ballast type: DC

Width(mm): 81

Height(mm): 0

Photometric Results

Lumens(lm): 1847.65, Efficiency(%): 85.19% , Luminous Efficacy(lm/W): 108.05

Central intensity(cd): 12364.290, Maximum intensity(cd): 12364.290

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=15.0

[C90/270]Total=15.0

Field angle(10%Imax): [C0/180]Total=40.0

[C90/270]Total=40.0

Maximum s/h(1/2): C0_180=0.26 C90_270=0.26

Maximum s/h(1/4): C0_180=0.30 C90_270=0.30

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 85.73%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.534%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12364.291	11.832	11.832	.546%	.640%
2.0	11766.310	90.058	101.891	4.153%	5.515%
4.0	10200.024	156.045	257.936	7.195%	13.960%
6.0	7713.470	176.827	434.763	8.153%	23.531%
8.0	5704.256	174.108	608.872	8.028%	32.954%
10.0	4243.678	161.614	770.485	7.452%	41.701%
12.0	3209.650	146.353	916.838	6.748%	49.622%
14.0	2472.789	131.198	1048.036	6.049%	56.723%
16.0	1933.099	116.858	1164.894	5.388%	63.047%
18.0	1528.503	103.589	1268.483	4.776%	68.654%
20.0	1238.728	92.916	1361.4	4.284%	73.683%
22.0	1044.977	85.851	1447.251	3.959%	78.329%
24.0	874.598	78.017	1525.268	3.597%	82.552%
26.0	756.819	72.761	1598.029	3.355%	86.490%
28.0	627.891	64.649	1662.677	2.981%	89.989%
30.0	457.464	50.164	1712.841	2.313%	92.704%
32.0	281.531	32.719	1745.56	1.509%	94.475%
34.0	142.335	17.456	1763.016	.805%	95.420%
36.0	61.058	7.871	1770.887	.363%	95.846%
38.0	44.100	5.955	1776.841	.275%	96.168%
40.0	33.929	4.783	1781.624	.221%	96.427%
42.0	27.384	4.019	1785.643	.185%	96.644%
44.0	23.433	3.570	1789.213	.165%	96.837%
46.0	20.660	3.259	1792.472	.150%	97.014%
48.0	18.933	3.086	1795.558	.142%	97.181%
50.0	17.763	2.984	1798.542	.138%	97.342%
52.0	16.978	2.934	1801.476	.135%	97.501%
54.0	16.455	2.920	1804.396	.135%	97.659%
56.0	16.249	2.954	1807.35	.136%	97.819%
58.0	16.056	2.986	1810.336	.138%	97.981%
60.0	15.822	3.005	1813.341	.139%	98.143%
62.0	15.547	3.010	1816.352	.139%	98.306%
64.0	15.285	3.013	1819.365	.139%	98.469%
66.0	14.335	2.872	1822.237	.132%	98.625%
68.0	13.179	2.680	1824.917	.124%	98.770%
70.0	12.236	2.522	1827.439	.116%	98.906%
72.0	11.548	2.409	1829.847	.111%	99.037%
74.0	11.135	2.347	1832.195	.108%	99.164%

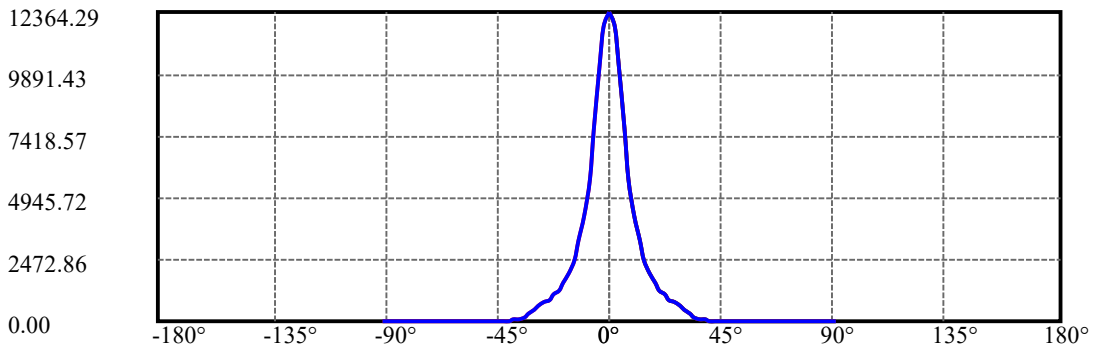
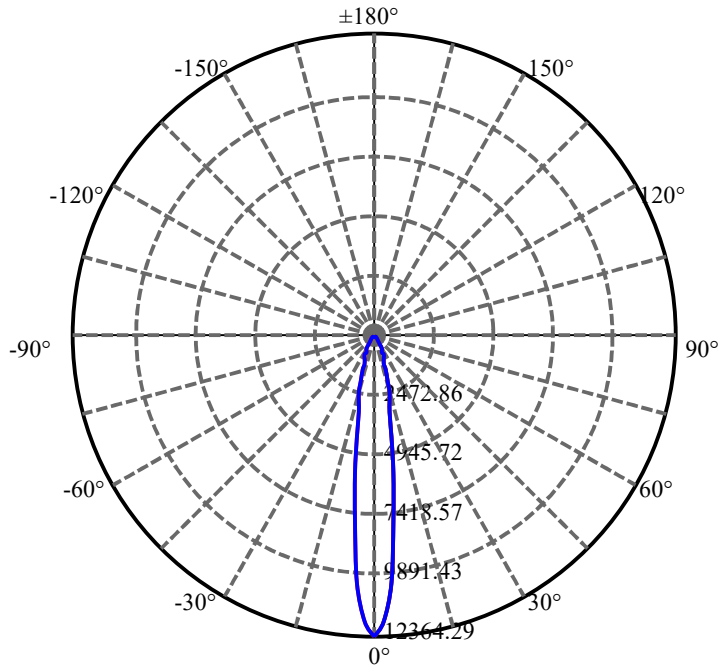
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.736	2.285	1834.479	.105%	99.287%
78.0	10.351	2.220	1836.7	.102%	99.408%
80.0	9.979	2.155	1838.855	.099%	99.524%
82.0	9.594	2.084	1840.939	.096%	99.637%
84.0	9.229	2.013	1842.952	.093%	99.746%
86.0	8.892	1.945	1844.897	.090%	99.851%
88.0	8.444	1.851	1846.748	.085%	99.951%
90.0	8.190	0.898	1847.646	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1712.84	78.98%	92.70%
0-40	1781.62	82.15%	96.43%
0-60	1813.34	83.61%	98.14%
0-90	1846.75	85.15%	99.95%
0-120	1846.75	85.15%	99.95%
0-180	1847.65	85.19%	100.00%
60-90	36.41	1.68%	1.97%
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%
0-22.79	1478.12	68.16%	80.00%

ZONAL LUMEN SUMMARY

0-10	770.49
10-20	590.91
20-30	351.44
30-40	68.78
40-50	16.92
50-60	14.80
60-70	14.10
70-80	11.42
80-90	7.89
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



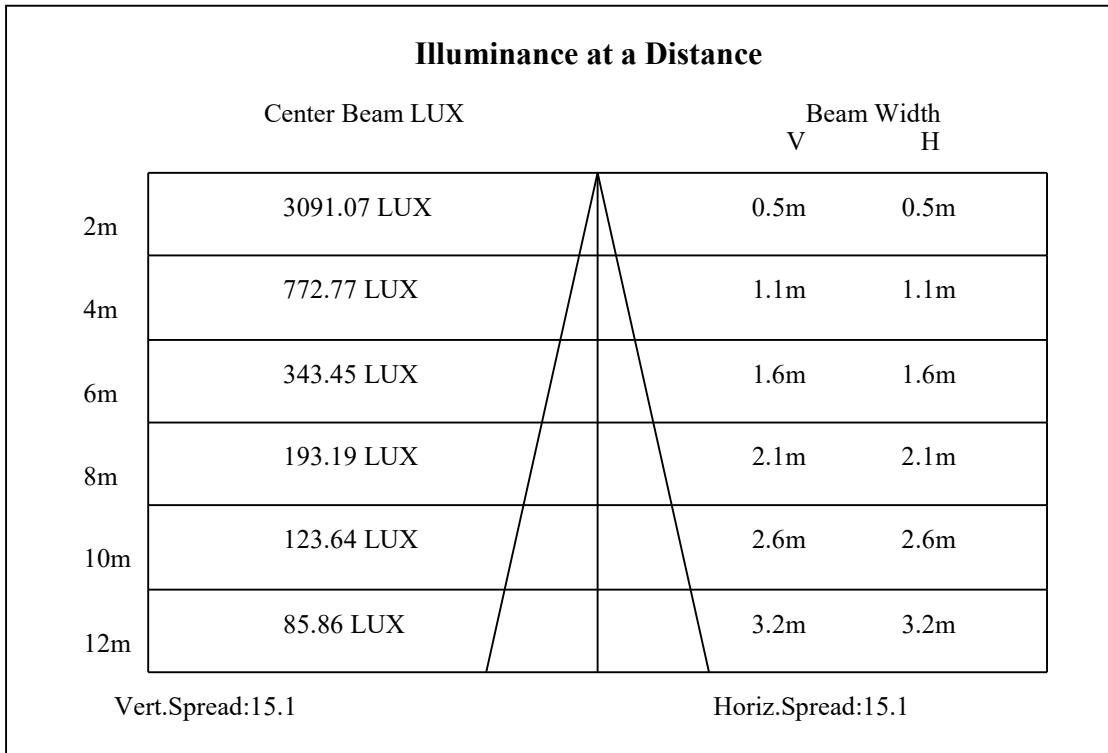
C0(Max): —————

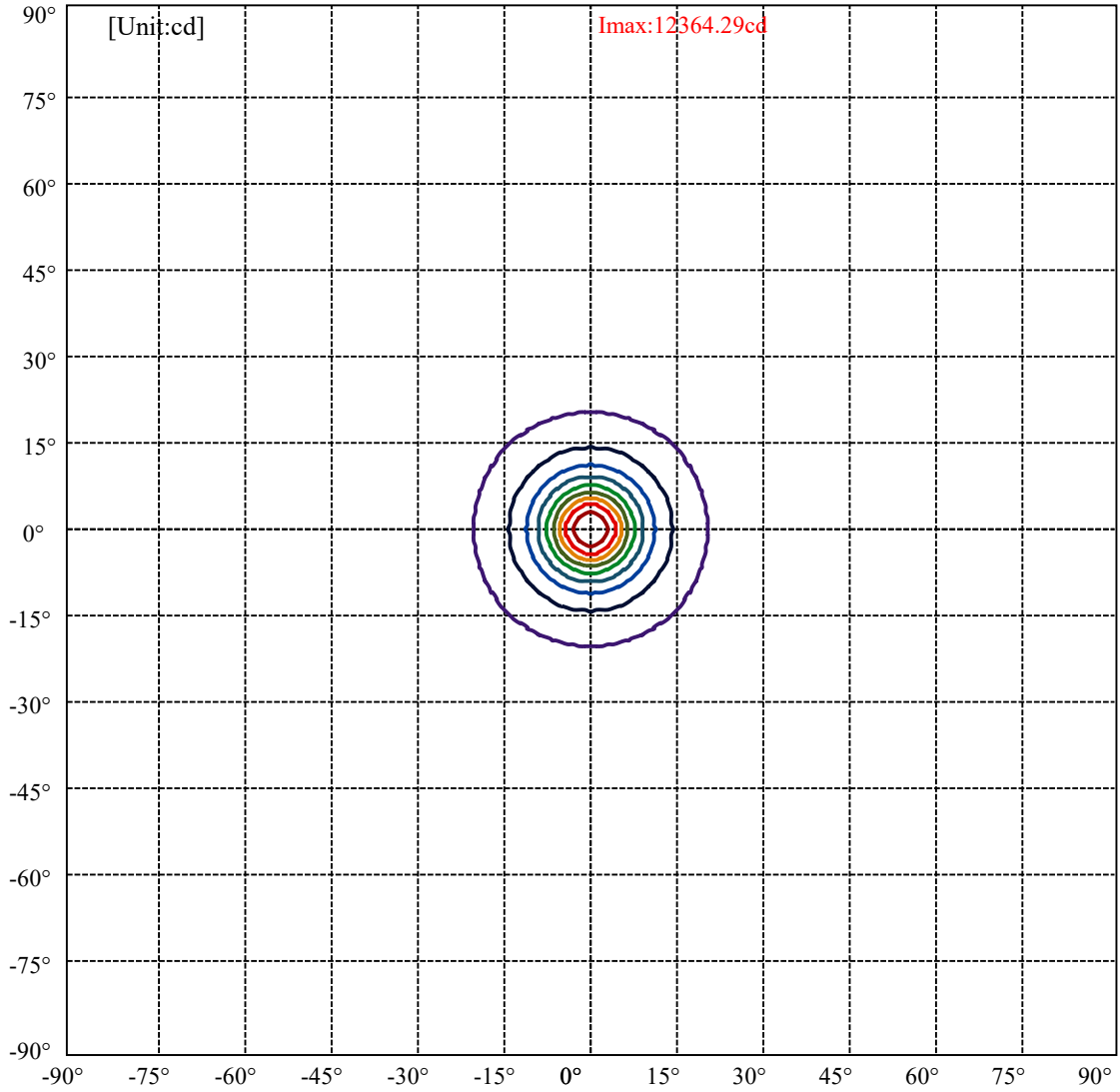
C0/C180: —————

C90/C270: —————

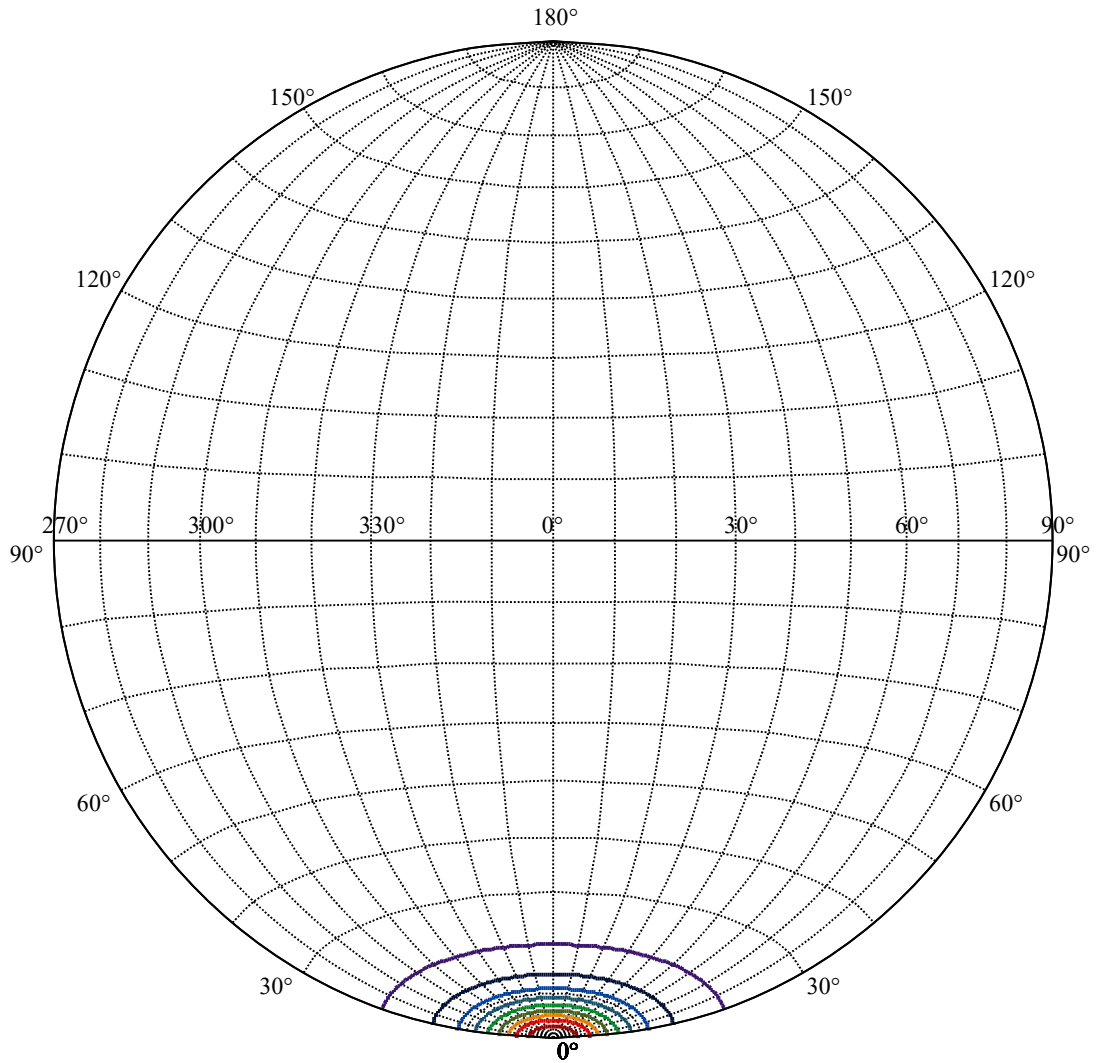
Field angle(10%Imax):C0/180Left:20.0 Right:20.0
:C90/270Left:20.0 Right:20.0

Beam Angle(50%Imax):C0/180Left:7.5 Right:7.5
:C90/270Left:7.5 Right:7.5





(10%I _{max}) 1236.43	—
(20%I _{max}) 2472.86	—
(30%I _{max}) 3709.29	—
(40%I _{max}) 4945.72	—
(50%I _{max}) 6182.15	—
(60%I _{max}) 7418.57	—
(70%I _{max}) 8655	—
(80%I _{max}) 9891.43	—
(90%I _{max}) 11127.9	—



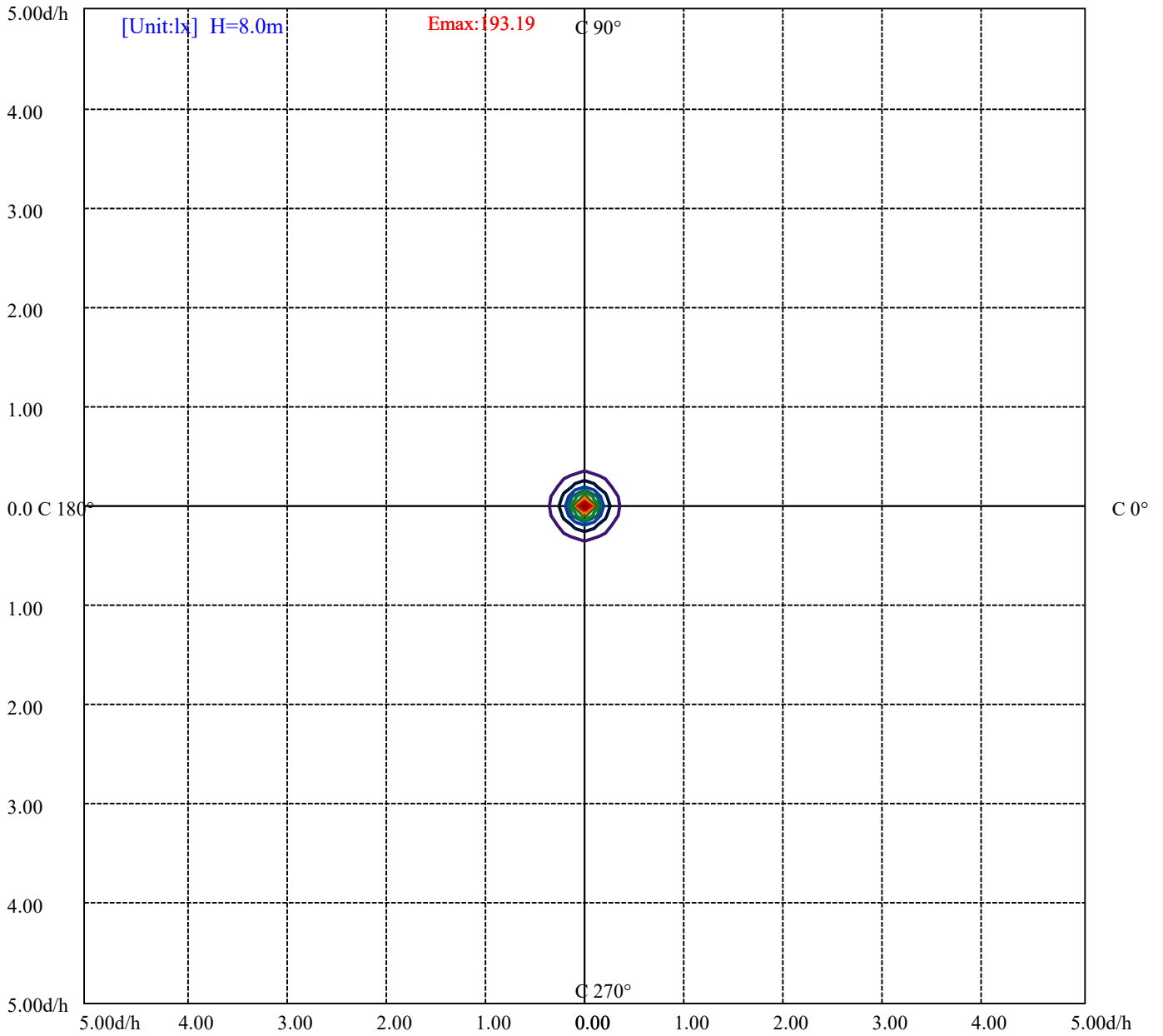
House

[Unit:cd]

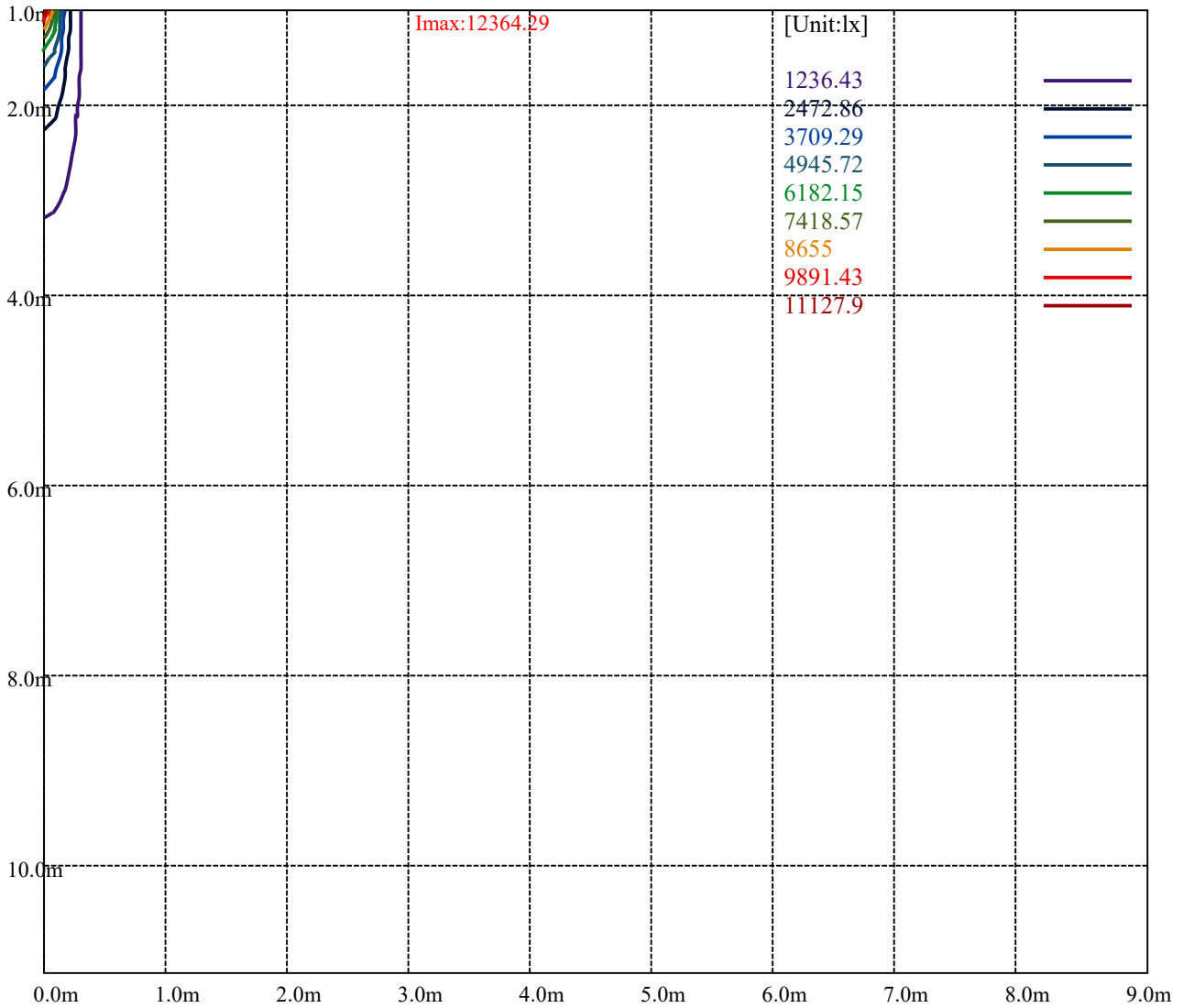
Road

Imax:12364.29

(10%Imax) 1236.43	—
(20%Imax) 2472.86	—
(30%Imax) 3709.29	—
(40%Imax) 4945.72	—
(50%Imax) 6182.15	—
(60%Imax) 7418.57	—
(70%Imax) 8655	—
(80%Imax) 9891.43	—
(90%Imax) 11127.9	—



- (10%Emax) 19.31906
- (20%Emax) 38.63828
- (30%Emax) 57.95734
- (40%Emax) 77.27657
- (50%Emax) 96.59563
- (60%Emax) 115.9148
- (70%Emax) 135.2339
- (80%Emax) 154.5531
- (90%Emax) 173.8719



Luminance Table

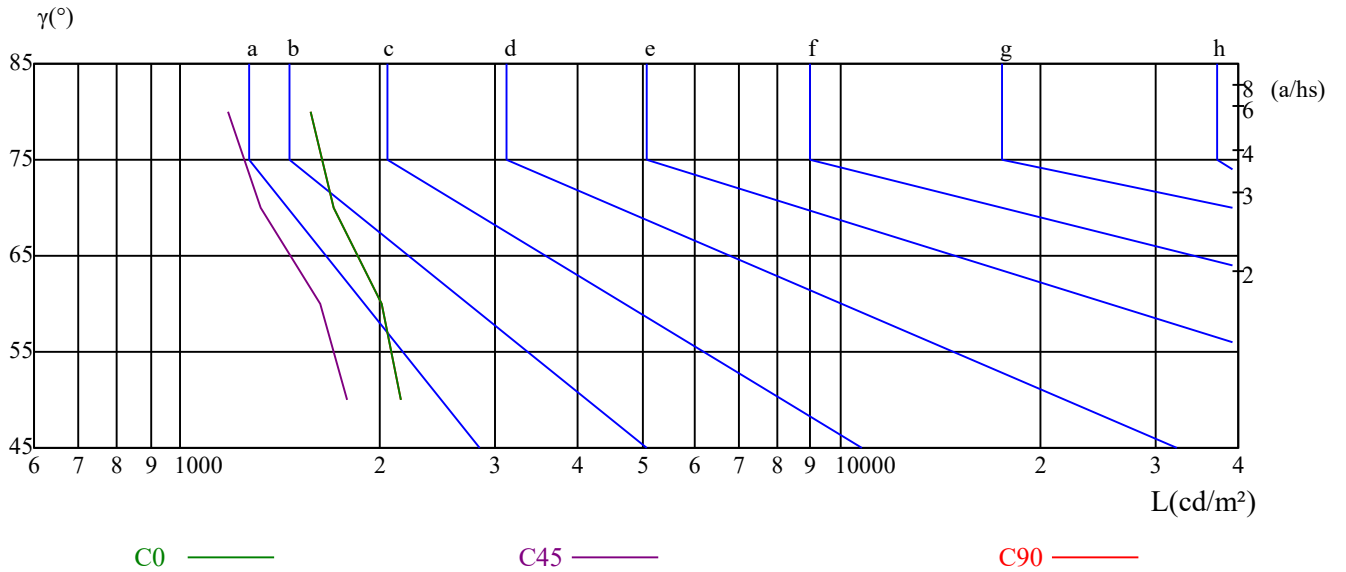
γ	45	50	55	60	65	70	75	80	85
C0	0	2153	0	2018	0	1701	0	1578	0
C45	0	1790	0	1626	0	1324	0	1178	0
C90	0	2153	0	2018	0	1701	0	1578	0

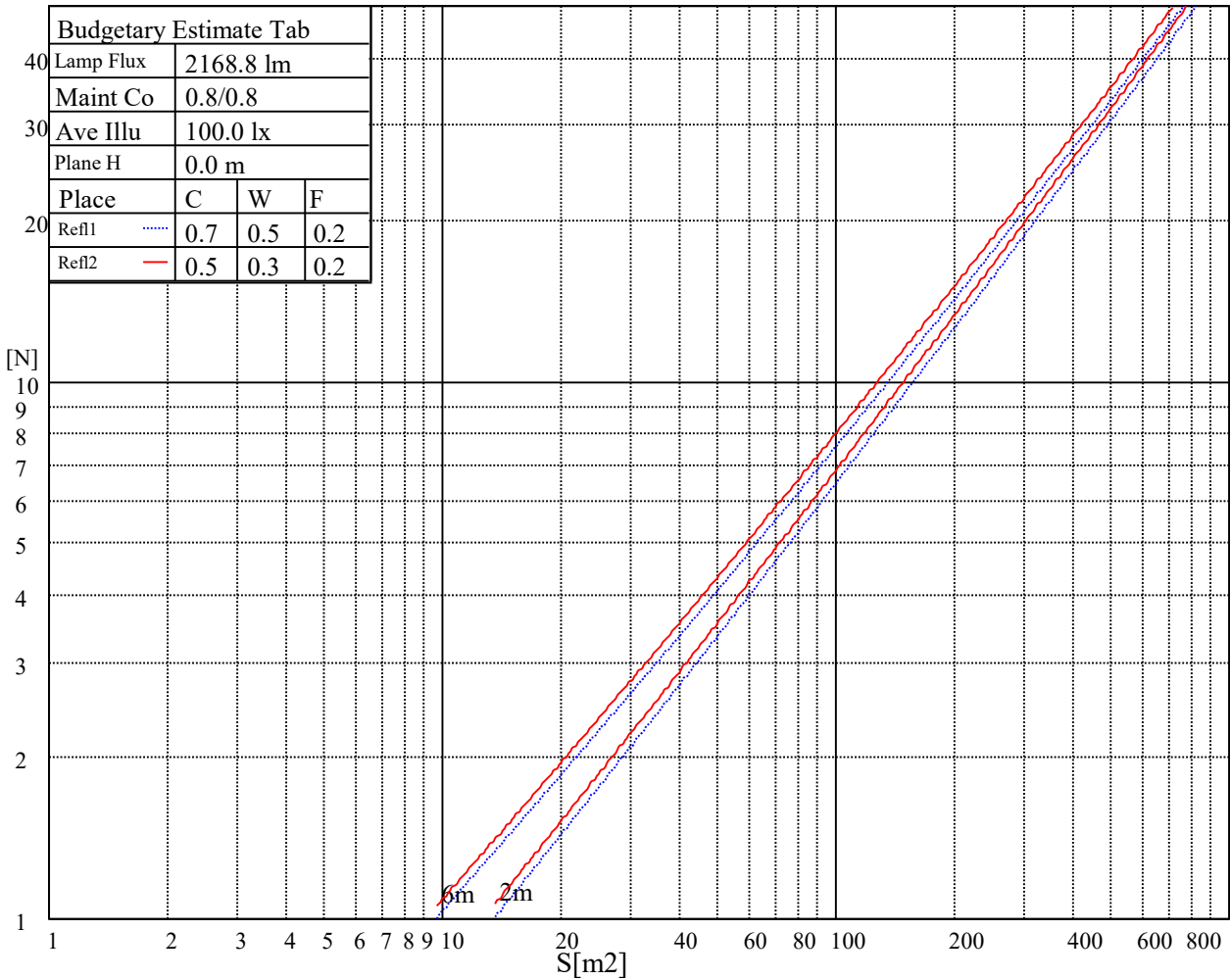
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3800	3800	3800	5532	5532	5532	14551	14551	14551

Glare Table

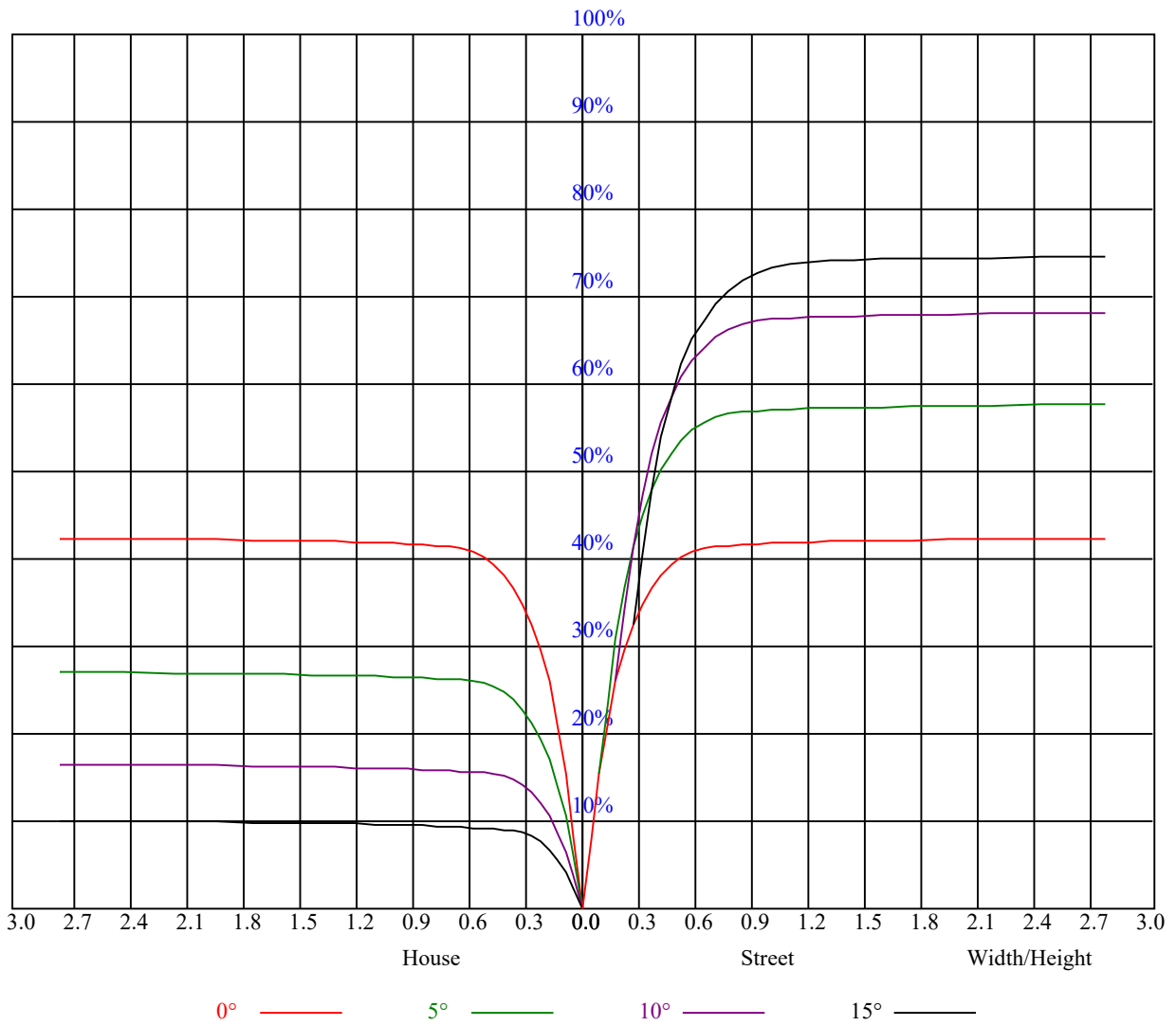
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

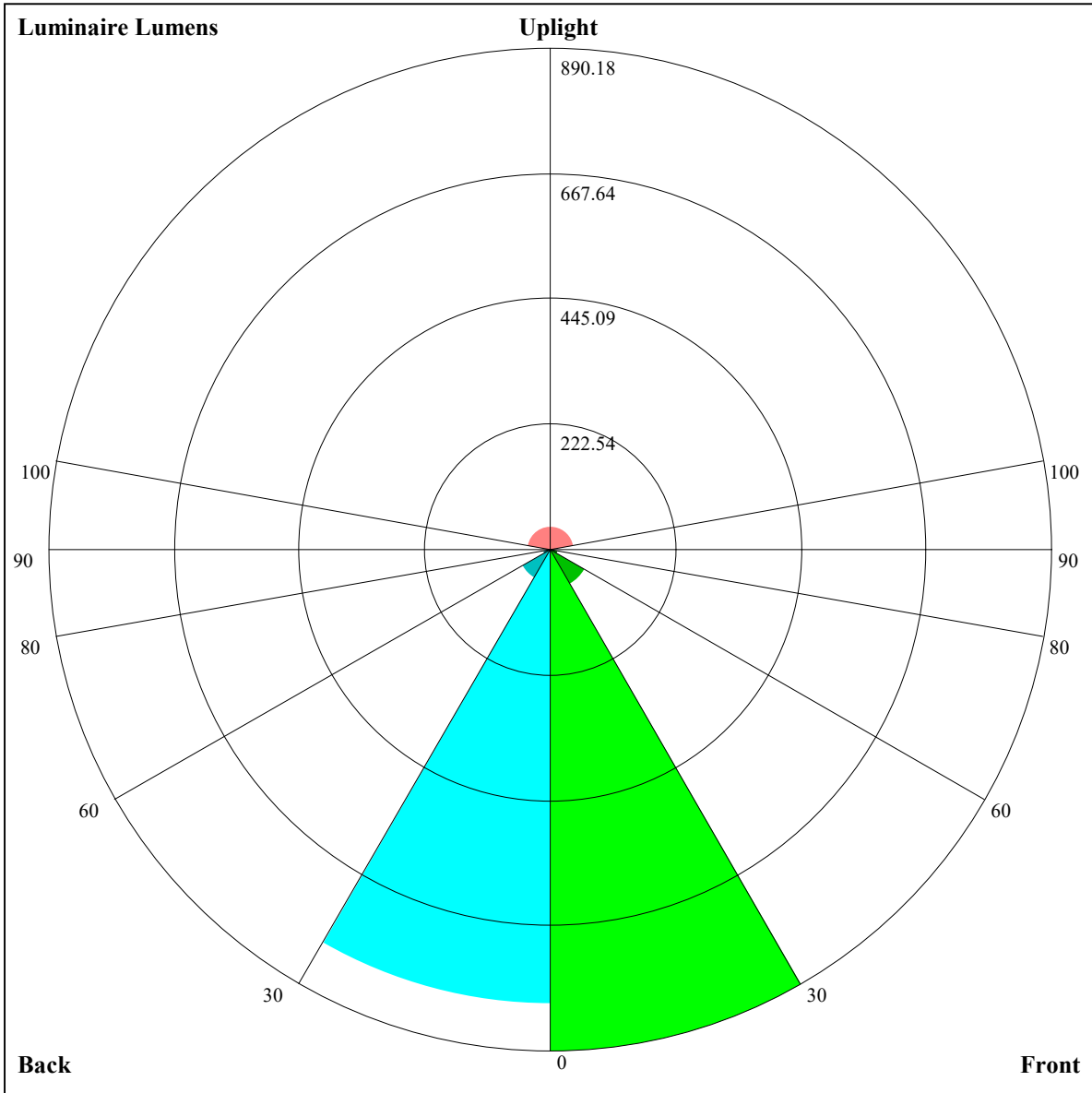
Luminance Limiting Curve





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	1.02	1.02	1.02	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.86
1	0.96	0.94	0.92	0.94	0.92	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.81
2	0.91	0.88	0.86	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.82	0.81	0.79	0.78
3	0.87	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.75
4	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.72	0.71
6	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	0.71	0.70	0.69
7	0.75	0.71	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.68	0.67
8	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.67	0.64	0.63	0.62





Luminaire Lumens:

FL=890.18,FM=71.7,FH=13.05,FVH=5

BL=805.99,BM=56.76,BH=12.98,BVH=4.86

UL=8.94,UH=42.52

BUG Rating:B2-U2-G0

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	12376.68	12360.16	11226.00	8698.91	6348.00	4718.33	3562.15	2807.88	2133.99
45.0	12266.57	12453.76	11649.93	9436.67	7003.17	5169.80	3837.43	2840.91	2221.53
90.0	12415.22	12134.43	10704.62	8378.48	6221.37	4549.86	3424.51	2617.38	2032.68
135.0	12398.70	11870.16	10268.02	7746.44	5703.84	4299.90	3270.35	2634.45	2000.20
180.0	12376.68	10967.79	9032.00	6491.15	4689.15	3592.43	2763.83	2103.71	1727.12
225.0	12266.57	10879.14	8641.65	6222.47	4723.29	3513.15	2693.91	2101.50	1666.01
270.0	12415.22	11682.97	10020.26	7311.49	5412.04	4057.66	3072.15	2333.29	1832.28
315.0	12398.70	11782.07	10057.70	7422.15	5533.17	4048.30	3052.88	2343.20	1851.00
360.0	12376.68	12360.16	11226.00	8698.91	6348.00	4718.33	3562.15	2807.88	2133.99
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1673.16	1342.83	1130.86	960.18	818.14	698.12	537.35	365.57	229.70
45.0	1716.11	1366.50	1153.43	977.25	839.61	739.41	601.22	400.81	283.54
90.0	1590.03	1307.04	1073.16	905.13	780.86	687.27	507.68	325.22	154.71
135.0	1578.47	1272.90	1070.30	882.55	758.68	638.65	469.63	279.69	126.85
180.0	1385.77	1089.79	954.62	790.39	692.17	524.58	346.08	177.78	70.80
225.0	1335.12	1095.07	927.31	777.34	683.30	509.05	323.13	154.21	61.83
270.0	1473.86	1196.38	1016.34	839.61	723.44	594.61	415.13	280.24	96.62
315.0	1475.51	1239.32	1033.79	864.33	758.35	631.44	459.50	268.73	114.63
360.0	1673.16	1342.83	1130.86	960.18	818.14	698.12	537.35	365.57	229.70
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	76.47	53.96	39.59	30.06	24.89	21.47	19.77	18.66	17.84
45.0	86.71	54.07	41.90	32.98	27.47	23.34	20.37	18.50	17.62
90.0	63.59	46.63	35.73	29.01	24.61	21.86	20.32	19.27	18.39
135.0	58.08	42.94	32.32	25.77	22.30	19.60	18.00	16.85	16.08
180.0	48.56	37.16	28.35	23.34	20.48	18.44	17.12	16.19	15.53
225.0	43.71	34.30	26.98	22.90	19.93	18.00	16.79	16.08	15.80
270.0	52.96	39.70	32.32	27.14	24.22	22.24	20.59	19.16	17.84
315.0	58.36	44.05	34.25	27.86	23.56	20.32	18.50	17.40	16.74
360.0	76.47	53.96	39.59	30.06	24.89	21.47	19.77	18.66	17.84
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	16.96	16.30	15.58	15.03	14.81	14.81	14.37	13.49	12.55
45.0	16.96	16.52	16.08	15.58	15.14	14.98	14.48	13.32	12.44
90.0	17.45	17.18	17.12	16.96	16.63	16.35	14.81	13.49	12.44
135.0	15.64	15.47	15.42	15.53	15.64	16.08	15.20	13.82	12.39
180.0	15.09	14.87	14.76	14.81	14.87	14.70	14.04	13.21	12.28
225.0	16.08	16.24	16.41	16.46	16.24	15.20	13.71	12.33	11.62
270.0	17.12	17.18	17.18	16.74	16.08	15.25	13.98	12.83	12.11
315.0	16.35	16.24	15.91	15.47	14.98	14.92	14.09	12.94	12.06
360.0	16.96	16.30	15.58	15.03	14.81	14.81	14.37	13.49	12.55
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	11.84	11.45	11.07	10.74	10.41	10.02	9.63	9.30	8.97
45.0	11.78	11.34	10.96	10.57	10.24	9.86	9.47	9.08	8.75
90.0	11.78	11.40	10.96	10.57	10.19	9.74	9.30	8.92	8.31
135.0	11.51	11.07	10.68	10.24	9.86	9.52	9.19	8.97	8.37
180.0	11.40	10.85	10.41	10.02	9.63	9.30	9.03	8.70	8.20
225.0	11.18	10.79	10.41	10.02	9.63	9.25	8.92	8.59	8.20
270.0	11.56	11.18	10.79	10.35	9.97	9.47	9.03	8.64	8.20
315.0	11.34	11.01	10.63	10.30	9.91	9.58	9.25	8.92	8.53
360.0	11.84	11.45	11.07	10.74	10.41	10.02	9.63	9.30	8.97

Intensity data(cd)

C/ γ (°)	90.0
0.0	8.53
45.0	8.37
90.0	8.09
135.0	8.09
180.0	8.09
225.0	8.09
270.0	8.04
315.0	8.20
360.0	8.53