
Nata

Client:

LumCAT: 3-2033-M

Luminaire: 92.70.135.00

Report No: nata-0100

Test No: GC2018053104

LampCAT: NICHIA NFCWD084B-V3

Lamp flux(lm): 2169.0

Number of Lamps: 1

Length(mm): 80

Phm Type: C

Voltage(V): 34.3000

Current(A): 0.5000

Power (W): 17.1500

PF: 0.0000

Ballast type: DC

Width(mm): 80

Height(mm): 0

Photometric Results

Lumens(lm): 1939.79, Efficiency(%): 89.43% , Luminous Efficacy(lm/W): 113.11

Central intensity(cd): 17030.320, Maximum intensity(cd): 17030.320

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=13.8

[C90/270]Total=13.8

Field angle(10%Imax): [C0/180]Total=27.4

[C90/270]Total=27.4

Maximum s/h(1/2): C0_180=0.24 C90_270=0.24

Maximum s/h(1/4): C0_180=0.24 C90_270=0.24

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.17%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.905%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17030.320	16.297	16.297	.751%	.840%
2.0	16020.724	122.621	138.919	5.653%	7.162%
4.0	13488.130	206.349	345.267	9.514%	17.799%
6.0	10062.452	230.677	575.944	10.635%	29.691%
8.0	6780.884	206.970	782.914	9.542%	40.361%
10.0	3970.943	151.227	934.141	6.972%	48.157%
12.0	2408.511	109.823	1043.963	5.063%	53.818%
14.0	1591.199	84.424	1128.387	3.892%	58.171%
16.0	1221.117	73.818	1202.205	3.403%	61.976%
18.0	1011.716	68.566	1270.77	3.161%	65.511%
20.0	888.851	66.672	1337.443	3.074%	68.948%
22.0	808.297	66.407	1403.849	3.062%	72.371%
24.0	753.584	67.222	1471.071	3.099%	75.837%
26.0	718.176	69.046	1540.117	3.183%	79.396%
28.0	687.799	70.817	1610.934	3.265%	83.047%
30.0	664.015	72.814	1683.748	3.357%	86.801%
32.0	630.203	73.241	1756.989	3.377%	90.576%
34.0	519.375	63.695	1820.684	2.937%	93.860%
36.0	347.337	44.775	1865.459	2.064%	96.168%
38.0	183.028	24.713	1890.172	1.139%	97.442%
40.0	50.666	7.142	1897.315	.329%	97.810%
42.0	18.568	2.725	1900.039	.126%	97.951%
44.0	12.807	1.951	1901.991	.090%	98.051%
46.0	10.302	1.625	1903.616	.075%	98.135%
48.0	9.855	1.606	1905.222	.074%	98.218%
50.0	9.483	1.593	1906.815	.073%	98.300%
52.0	9.201	1.590	1908.406	.073%	98.382%
54.0	8.960	1.590	1909.995	.073%	98.464%
56.0	8.775	1.595	1911.591	.074%	98.546%
58.0	8.637	1.606	1913.197	.074%	98.629%
60.0	8.527	1.620	1914.817	.075%	98.713%
62.0	8.444	1.635	1916.452	.075%	98.797%
64.0	8.382	1.652	1918.104	.076%	98.882%
66.0	8.334	1.670	1919.774	.077%	98.968%
68.0	8.279	1.684	1921.457	.078%	99.055%
70.0	8.238	1.698	1923.155	.078%	99.143%
72.0	8.203	1.711	1924.866	.079%	99.231%
74.0	8.176	1.724	1926.59	.079%	99.320%

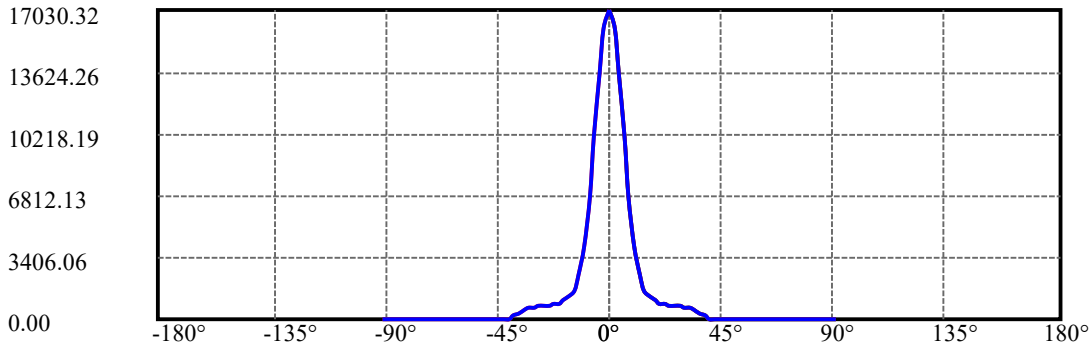
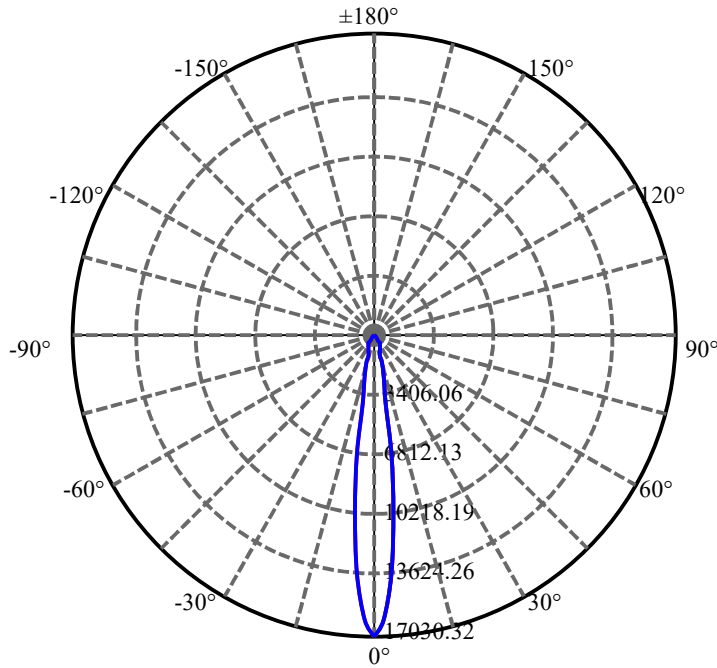
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.148	1.734	1928.324	.080%	99.409%
78.0	8.148	1.748	1930.072	.081%	99.499%
80.0	8.128	1.755	1931.827	.081%	99.590%
82.0	8.121	1.764	1933.591	.081%	99.681%
84.0	8.100	1.767	1935.358	.081%	99.772%
86.0	8.100	1.772	1937.13	.082%	99.863%
88.0	8.086	1.772	1938.902	.082%	99.954%
90.0	8.080	0.886	1939.788	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1683.75	77.63%	86.80%
0-40	1897.31	87.47%	97.81%
0-60	1914.82	88.28%	98.71%
0-90	1938.90	89.39%	99.95%
0-120	1938.90	89.39%	99.95%
0-180	1939.79	89.43%	100.00%
60-90	25.70	1.19%	1.33%
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%
0-26.33	1551.83	71.55%	80.00%

ZONAL LUMEN SUMMARY

0-10	934.14
10-20	403.30
20-30	346.30
30-40	213.57
40-50	9.50
50-60	8.00
60-70	8.34
70-80	8.67
80-90	7.07
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



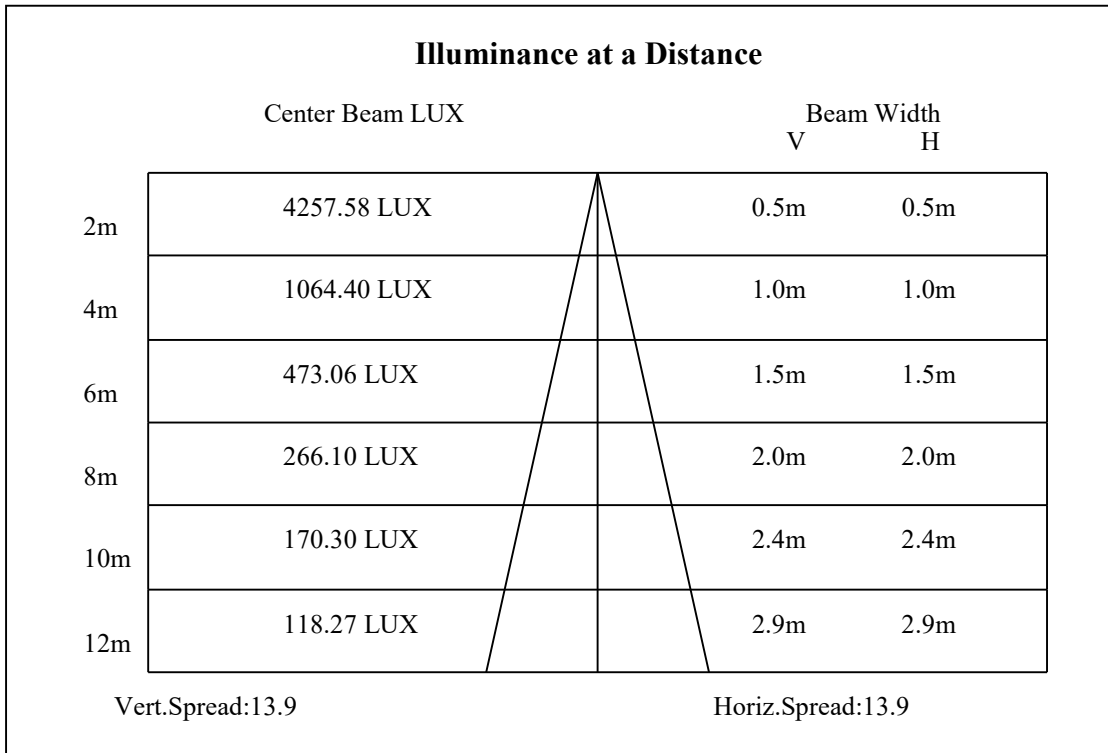
C0(Max): —————

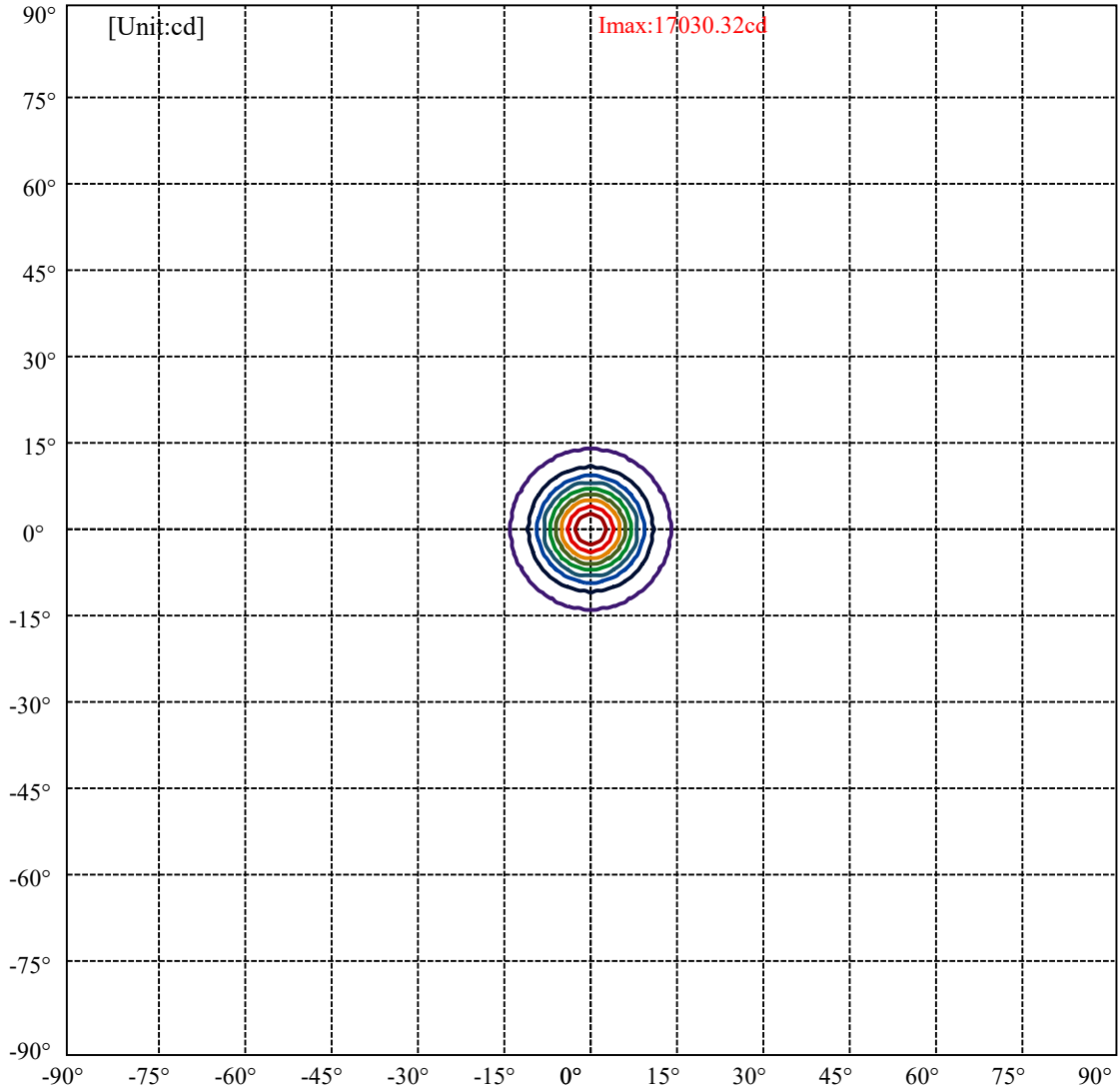
C0/C180: —————

C90/C270: —————

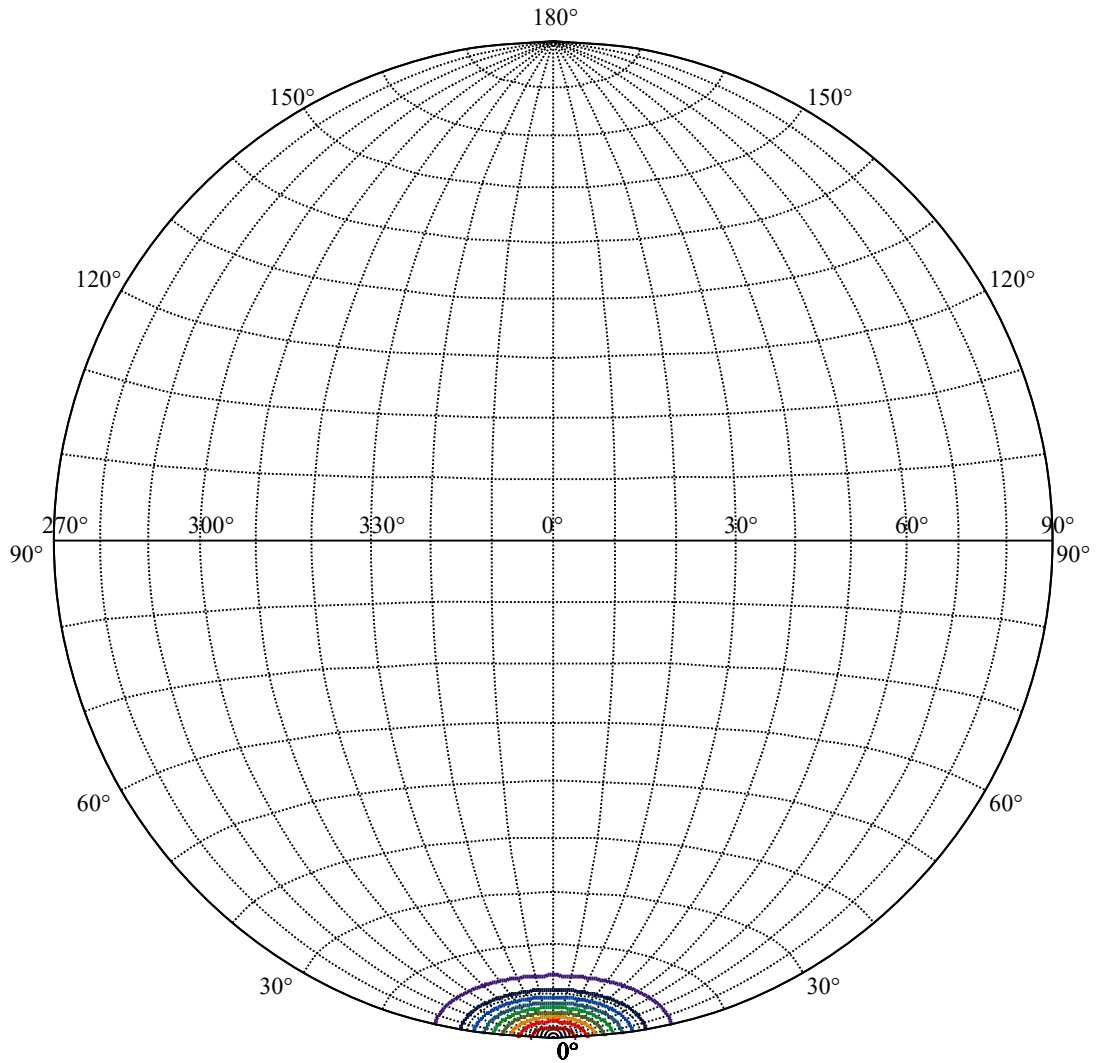
Field angle(10%Imax):C0/180Left:13.7 Right:13.7
:C90/270Left:13.7 Right:13.7

Beam Angle(50%Imax):C0/180Left:6.9 Right:6.9
:C90/270Left:6.9 Right:6.9





(10%I _{max}) 1703.03	—
(20%I _{max}) 3406.06	—
(30%I _{max}) 5109.1	—
(40%I _{max}) 6812.13	—
(50%I _{max}) 8515.16	—
(60%I _{max}) 10218.2	—
(70%I _{max}) 11921.2	—
(80%I _{max}) 13624.3	—
(90%I _{max}) 15327.3	—



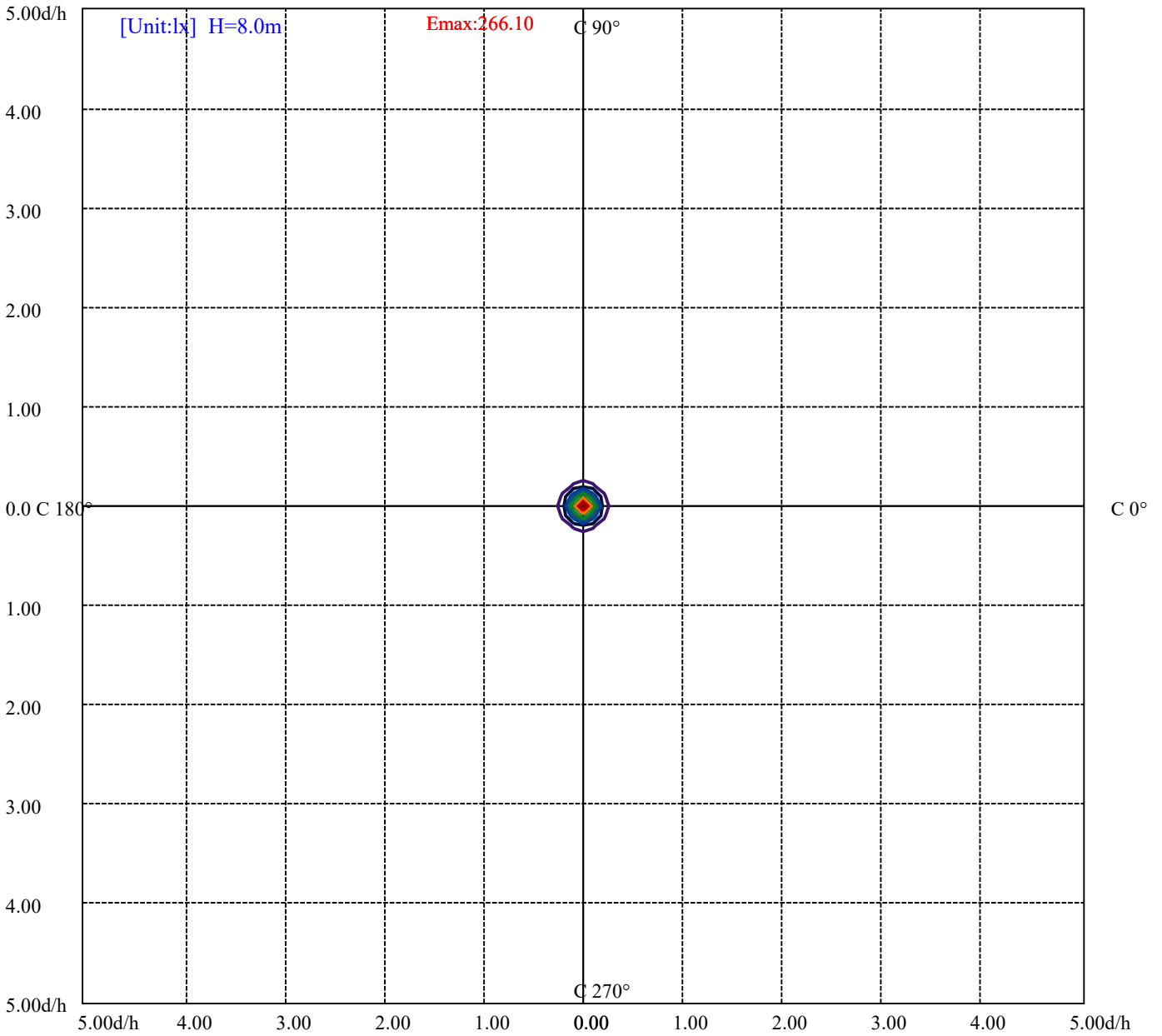
House

[Unit:cd]

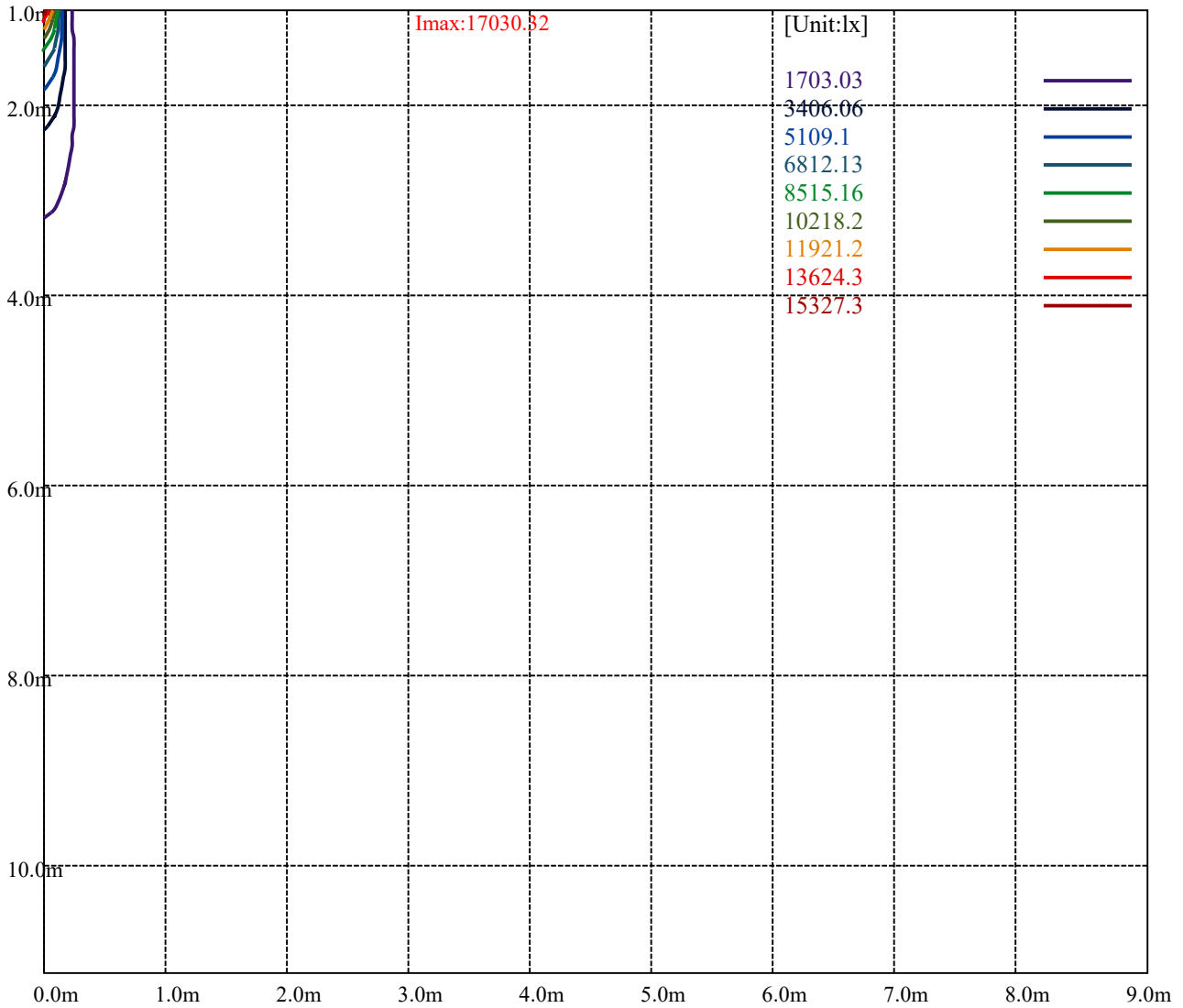
Road

Imax:17030.32

(10%Imax) 1703.03	—
(20%Imax) 3406.06	—
(30%Imax) 5109.1	—
(40%Imax) 6812.13	—
(50%Imax) 8515.16	—
(60%Imax) 10218.2	—
(70%Imax) 11921.2	—
(80%Imax) 13624.3	—
(90%Imax) 15327.3	—



- (10%Emax) 26.60969
- (20%Emax) 53.21953
- (30%Emax) 79.82922
- (40%Emax) 106.4391
- (50%Emax) 133.0488
- (60%Emax) 159.6578
- (70%Emax) 186.2688
- (80%Emax) 212.8781
- (90%Emax) 239.4875



Luminance Table

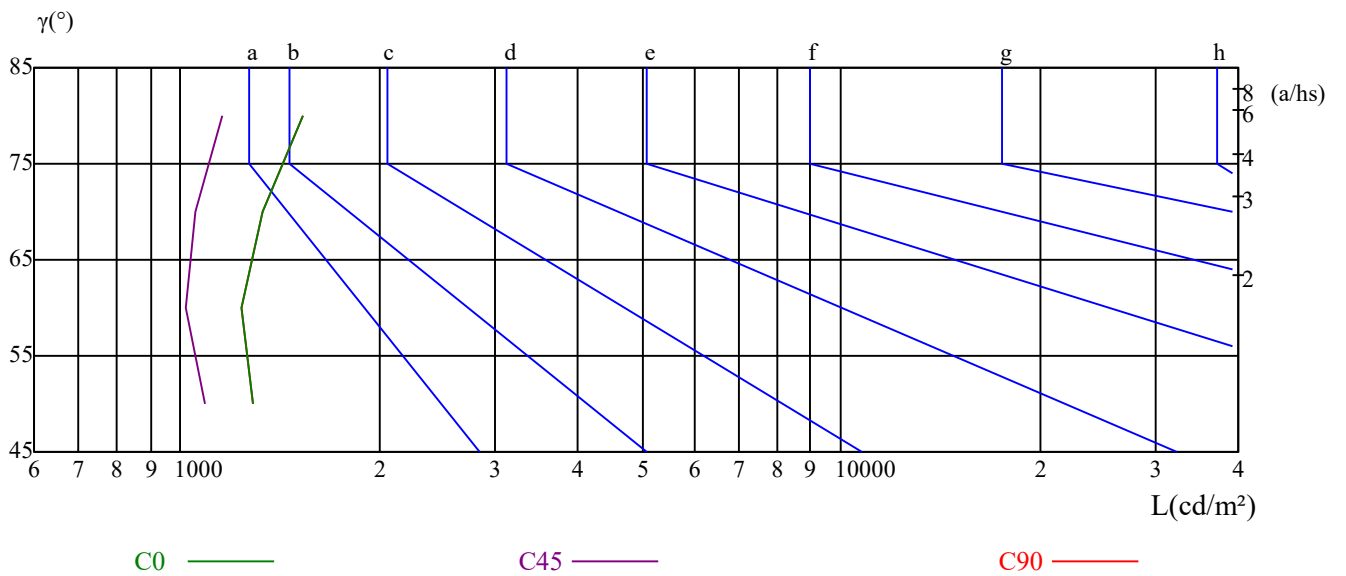
γ	45	50	55	60	65	70	75	80	85
C0	0	1288	0	1241	0	1334	0	1537	0
C45	0	1089	0	1016	0	1053	0	1158	0
C90	0	1288	0	1241	0	1334	0	1537	0

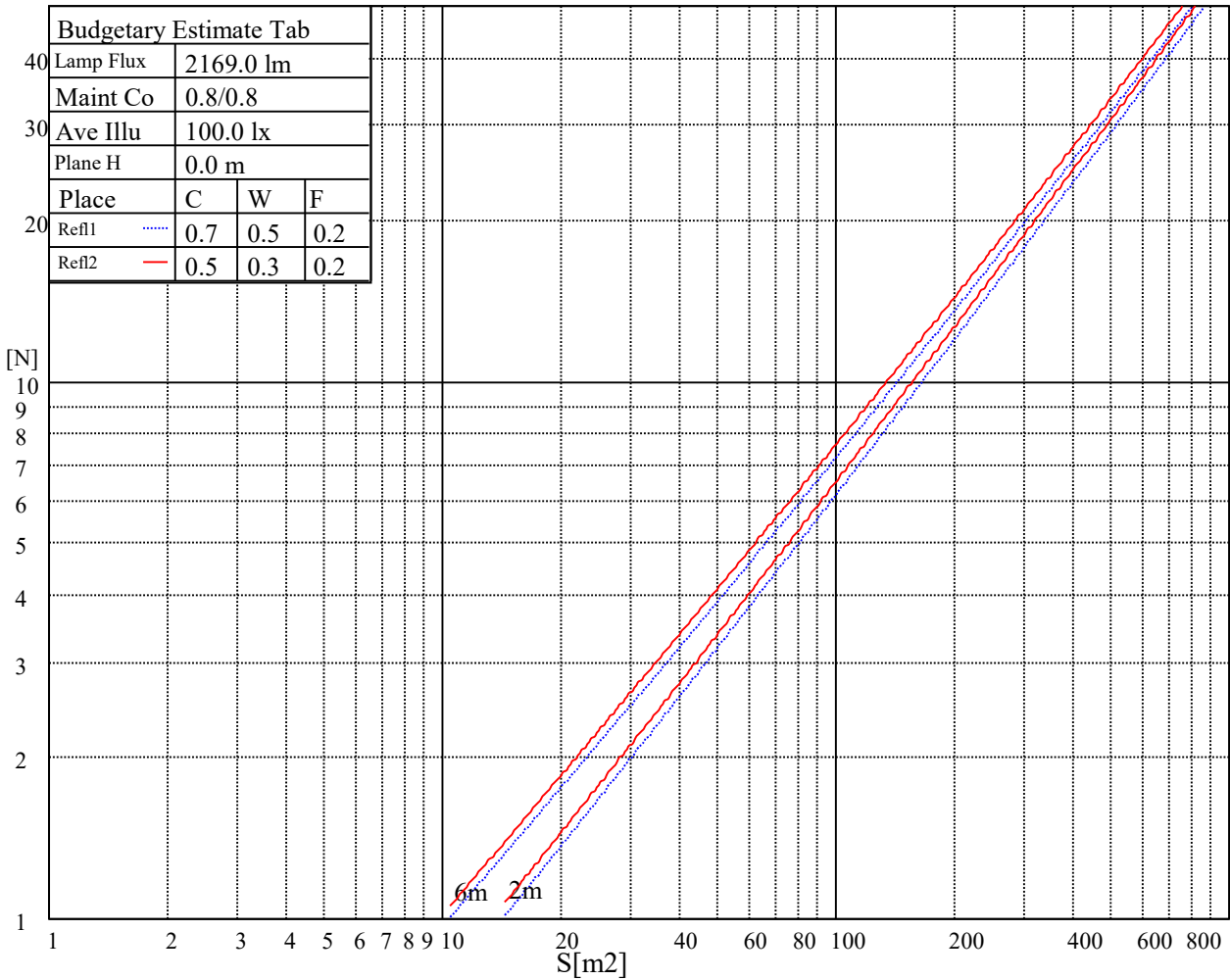
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3168	3168	3168	5048	5048	5048	14855	14855	14855

Glare Table

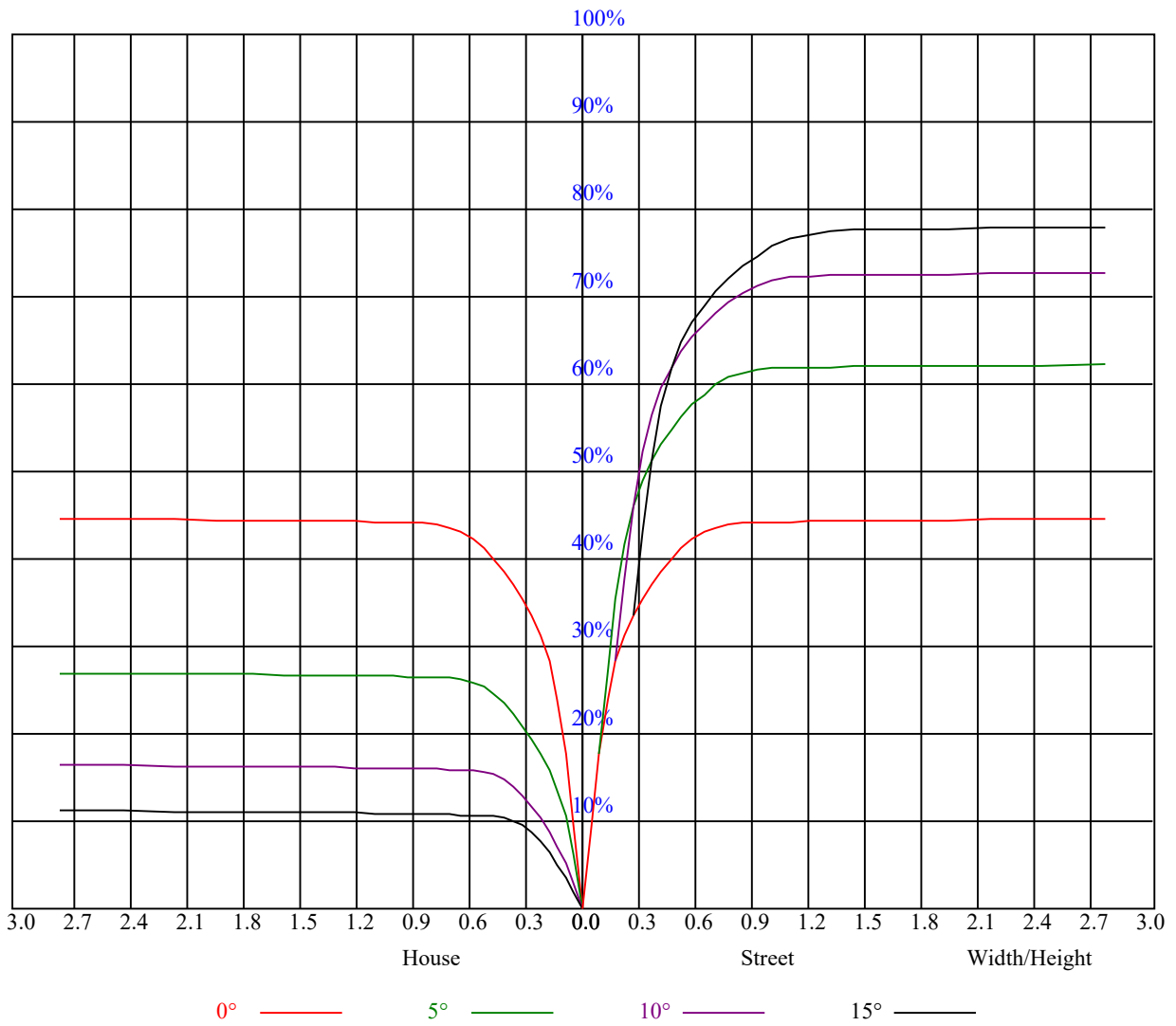
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

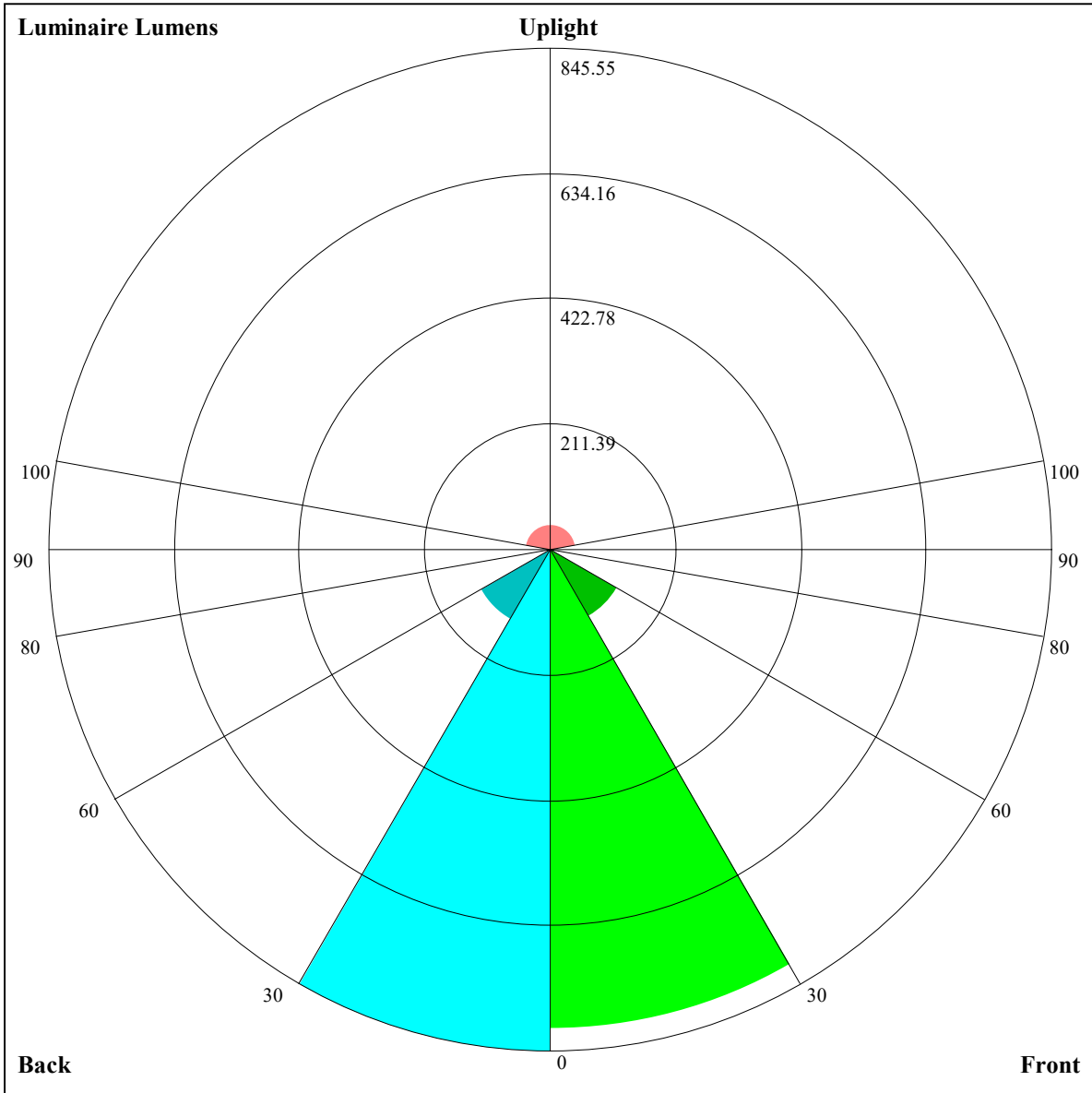
Luminance Limiting Curve





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	1.07	1.07	1.07	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.00	0.98	0.97	0.99	0.97	0.95	0.95	0.93	0.92	0.92	0.90	0.89	0.88	0.88	0.87	0.85
2	0.96	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.81	0.79	0.82	0.79	0.78	0.77
5	0.84	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.74
6	0.81	0.77	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.76	0.73	0.77	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.74	0.71	0.69	0.68
9	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
10	0.72	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65





Luminaire Lumens:

FL=809.32,FM=130.59,FH=8.47,FVH=4.42

BL=845.55,BM=135.91,BH=8.48,BVH=4.42

UL=8.82,UH=41.95

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	17028.94	15757.14	13031.85	9425.66	6562.72	3677.77	2204.46	1521.21	1157.84
45.0	17089.51	15812.20	13329.15	9783.52	6397.55	3743.84	2179.68	1501.94	1171.60
90.0	17006.92	15580.96	12646.46	9182.86	5851.94	3305.04	1978.18	1389.62	1089.84
135.0	16995.91	16291.19	14033.88	10609.37	7322.50	4277.88	2824.39	1618.66	1210.14
180.0	17028.94	16329.73	13890.73	10772.34	7095.12	4261.37	2471.48	1643.43	1284.47
225.0	17089.51	16148.04	13863.20	10282.88	6970.14	4265.22	2539.75	1684.73	1285.02
270.0	17006.92	16522.43	14248.60	10796.56	7818.01	4652.27	2824.39	1829.52	1359.34
315.0	16995.91	15724.11	12861.18	9646.43	6229.08	3584.17	2245.75	1540.48	1210.69
360.0	17028.94	15757.14	13031.85	9425.66	6562.72	3677.77	2204.46	1521.21	1157.84
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	977.80	870.99	802.17	753.17	719.59	689.86	668.38	636.45	500.46
45.0	982.21	872.09	797.22	743.26	713.53	682.15	660.13	625.44	499.91
90.0	939.15	842.42	779.54	733.85	699.93	674.39	651.26	585.75	458.01
135.0	1008.63	885.31	807.68	755.37	721.24	688.21	663.43	633.70	513.13
180.0	1048.11	908.87	813.57	754.77	717.11	690.52	663.65	635.63	535.42
225.0	1043.59	906.06	819.90	760.05	722.34	689.69	666.84	643.33	549.13
270.0	1089.57	938.16	839.06	773.54	735.55	698.67	673.89	652.42	581.95
315.0	1004.67	886.90	807.24	754.66	716.12	688.92	664.53	628.91	516.98
360.0	977.80	870.99	802.17	753.17	719.59	689.86	668.38	636.45	500.46
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	330.34	155.42	34.80	17.18	12.33	10.35	9.91	9.52	9.19
45.0	324.28	149.86	37.27	16.85	11.95	10.08	9.74	9.41	9.14
90.0	282.44	122.34	25.60	16.19	11.62	9.97	9.63	9.30	9.08
135.0	348.51	175.41	51.86	19.43	13.38	10.35	9.97	9.58	9.30
180.0	363.54	200.19	61.28	20.32	13.16	10.41	9.91	9.52	9.30
225.0	377.47	215.49	66.45	20.43	13.65	10.41	9.91	9.52	9.19
270.0	419.53	284.64	85.78	20.26	14.48	10.57	9.97	9.58	9.25
315.0	332.60	160.87	42.28	17.89	11.89	10.30	9.80	9.41	9.14
360.0	330.34	155.42	34.80	17.18	12.33	10.35	9.91	9.52	9.19
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	8.97	8.81	8.64	8.53	8.42	8.37	8.31	8.26	8.26
45.0	8.92	8.75	8.64	8.53	8.48	8.37	8.37	8.31	8.26
90.0	8.86	8.70	8.59	8.48	8.42	8.37	8.31	8.26	8.20
135.0	9.03	8.86	8.70	8.59	8.53	8.42	8.37	8.31	8.26
180.0	9.03	8.81	8.70	8.59	8.48	8.42	8.37	8.31	8.26
225.0	8.97	8.75	8.59	8.48	8.42	8.37	8.31	8.26	8.20
270.0	9.03	8.81	8.64	8.53	8.42	8.37	8.31	8.26	8.26
315.0	8.86	8.70	8.59	8.48	8.37	8.37	8.31	8.26	8.20
360.0	8.97	8.81	8.64	8.53	8.42	8.37	8.31	8.26	8.26
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	8.20	8.15	8.15	8.15	8.15	8.15	8.09	8.09	8.09
45.0	8.20	8.20	8.15	8.15	8.15	8.15	8.09	8.04	8.09
90.0	8.20	8.15	8.15	8.09	8.09	8.09	8.09	8.09	8.09
135.0	8.26	8.20	8.20	8.20	8.15	8.15	8.15	8.15	8.09
180.0	8.20	8.20	8.15	8.15	8.15	8.09	8.09	8.09	8.09
225.0	8.15	8.15	8.09	8.15	8.15	8.15	8.09	8.09	8.04
270.0	8.20	8.20	8.15	8.15	8.09	8.09	8.09	8.09	8.09
315.0	8.20	8.15	8.15	8.15	8.09	8.09	8.09	8.15	8.09
360.0	8.20	8.15	8.15	8.15	8.15	8.15	8.09	8.09	8.09

Intensity data(cd)

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