
Nata

Client:

LumCAT: 1653-N

Luminaire: 92.70.043.00

Report No: nata0100

Test No: GC2018050201

LampCAT: CREE CXA1310

Lamp flux(lm): 622.9

Number of Lamps: 1

Length(mm): 32

Phm Type: C

Voltage(V): 17.8000

Current(A): 0.3500

Power (W): 6.2300

PF: 1.0000

Ballast type: DC

Width(mm): 32

Height(mm): 0

Photometric Results

Lumens(lm): 544.14, Efficiency(%): 87.35% , Luminous Efficacy(lm/W): 87.34

Central intensity(cd): 3946.030, Maximum intensity(cd): 3946.030

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=15.8

[C90/270]Total=15.8

Field angle(10%Imax): [C0/180]Total=32.4

[C90/270]Total=32.4

Maximum s/h(1/2): C0_180=0.27 C90_270=0.27

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(%): 87.95%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.748%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3946.030	3.776	3.776	.606%	.694%
2.0	3806.324	29.133	32.91	4.677%	6.048%
4.0	3358.785	51.384	84.294	8.249%	15.491%
6.0	2701.686	61.935	146.229	9.943%	26.873%
8.0	1915.474	58.465	204.694	9.386%	37.618%
10.0	1268.912	48.324	253.018	7.758%	46.499%
12.0	831.696	37.924	290.942	6.088%	53.468%
14.0	557.226	29.565	320.506	4.746%	58.901%
16.0	403.501	24.392	344.898	3.916%	63.384%
18.0	320.187	21.700	366.598	3.484%	67.372%
20.0	270.527	20.292	386.89	3.258%	71.101%
22.0	239.509	19.677	406.567	3.159%	74.717%
24.0	220.714	19.688	426.256	3.161%	78.336%
26.0	207.542	19.953	446.209	3.203%	82.003%
28.0	196.648	20.247	466.456	3.250%	85.723%
30.0	179.580	19.692	486.148	3.161%	89.342%
32.0	145.748	16.939	503.087	2.719%	92.455%
34.0	102.536	12.575	515.662	2.019%	94.766%
36.0	59.392	7.656	523.318	1.229%	96.173%
38.0	25.519	3.446	526.763	.553%	96.807%
40.0	10.227	1.442	528.205	.231%	97.071%
42.0	7.164	1.051	529.256	.169%	97.265%
44.0	5.602	0.853	530.11	.137%	97.422%
46.0	4.728	0.746	530.856	.120%	97.559%
48.0	4.322	0.704	531.56	.113%	97.688%
50.0	3.943	0.663	532.223	.106%	97.810%
52.0	3.689	0.637	532.86	.102%	97.927%
54.0	3.592	0.637	533.498	.102%	98.044%
56.0	3.544	0.644	534.142	.103%	98.163%
58.0	3.586	0.667	534.809	.107%	98.285%
60.0	3.620	0.688	535.496	.110%	98.411%
62.0	3.599	0.697	536.193	.112%	98.540%
64.0	3.455	0.681	536.874	.109%	98.665%
66.0	3.276	0.656	537.531	.105%	98.785%
68.0	3.090	0.628	538.159	.101%	98.901%
70.0	2.939	0.606	538.765	.097%	99.012%
72.0	2.835	0.591	539.356	.095%	99.121%
74.0	2.773	0.585	539.941	.094%	99.228%

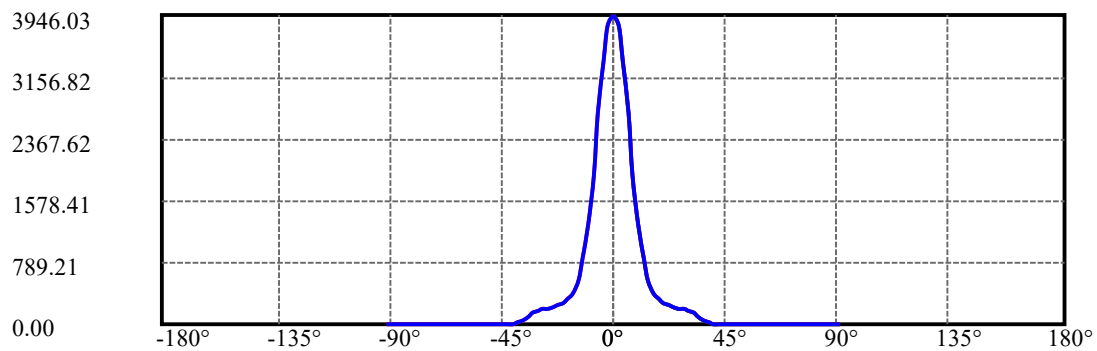
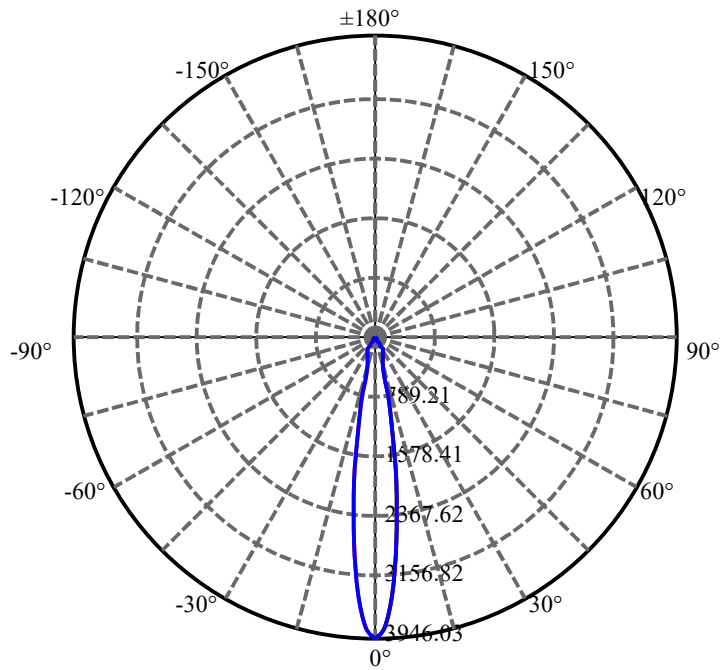
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.746	0.584	540.525	.094%	99.336%
78.0	2.663	0.571	541.096	.092%	99.441%
80.0	2.767	0.598	541.694	.096%	99.550%
82.0	2.815	0.611	542.305	.098%	99.663%
84.0	2.505	0.546	542.852	.088%	99.763%
86.0	2.546	0.557	543.409	.089%	99.866%
88.0	2.250	0.493	543.902	.079%	99.956%
90.0	2.175	0.238	544.14	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	486.15	78.04%	89.34%
0-40	528.21	84.80%	97.07%
0-60	535.50	85.97%	98.41%
0-90	543.90	87.31%	99.96%
0-120	543.90	87.31%	99.96%
0-180	544.14	87.35%	100.00%
60-90	9.09	1.46%	1.67%
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%
0-24.91	435.31	69.88%	80.00%

ZONAL LUMEN SUMMARY

0-10	253.02
10-20	133.87
20-30	99.26
30-40	42.06
40-50	4.02
50-60	3.27
60-70	3.27
70-80	2.93
80-90	2.21
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:

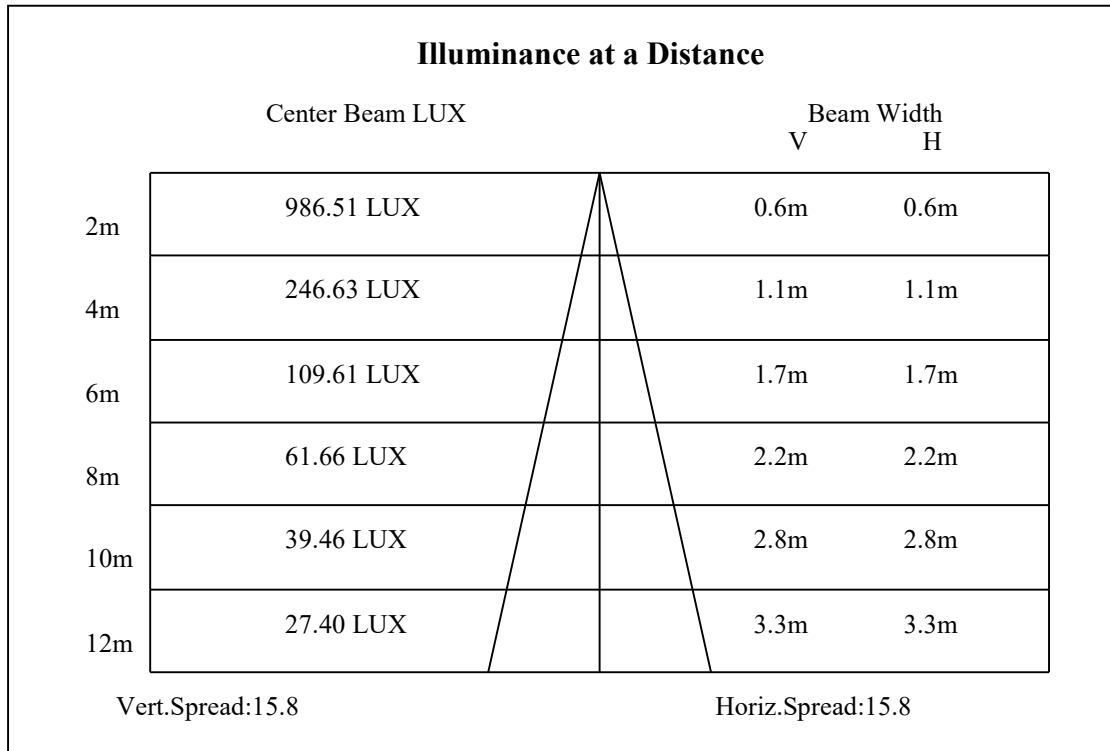
C90/C270:

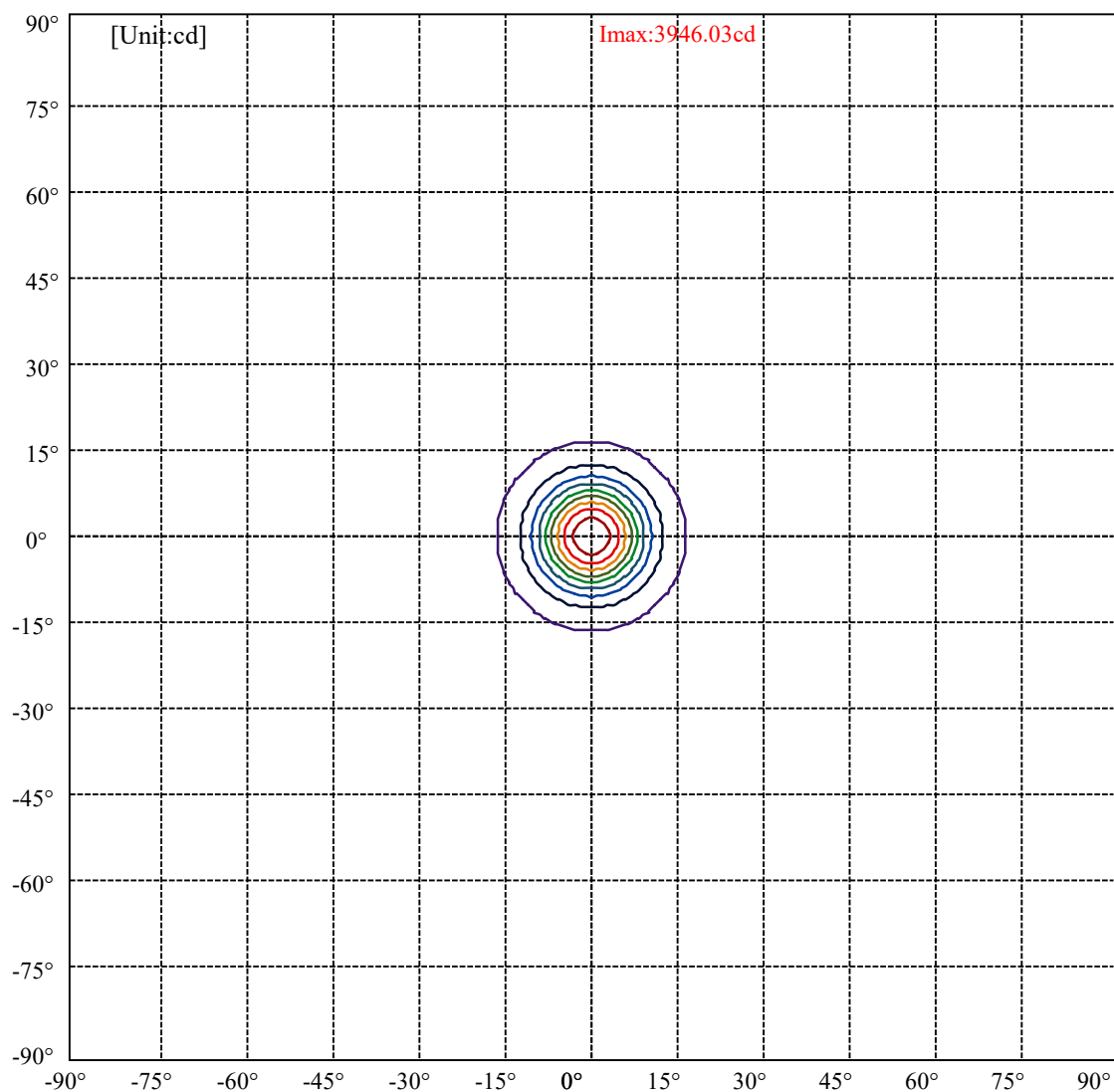
Field angle(10%Imax):C0/180Left:16.2 Right:16.2

:C90/270Left:16.2 Right:16.2

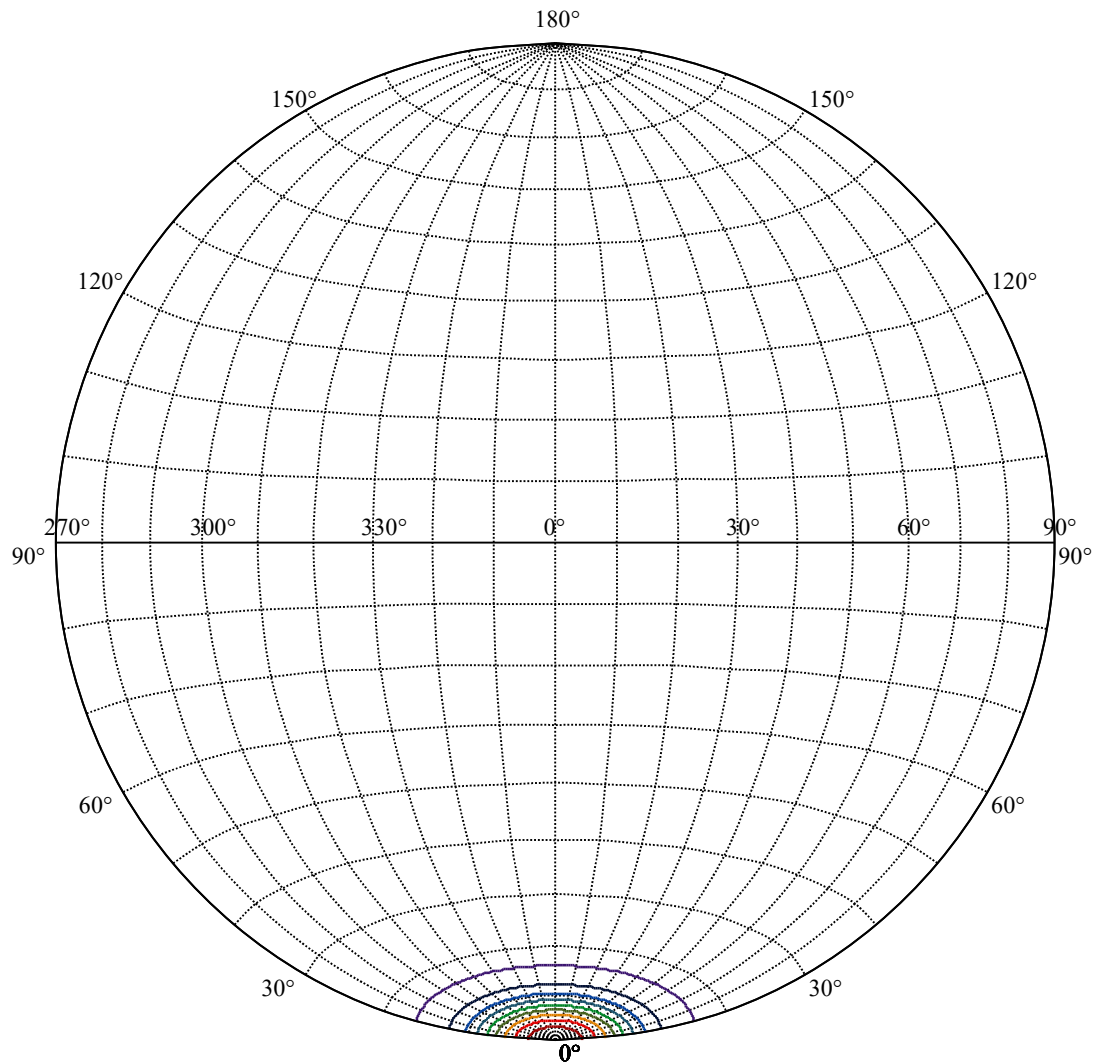
Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9

:C90/270Left:7.9 Right:7.9





(10%Imax) 394.603	—
(20%Imax) 789.206	—
(30%Imax) 1183.81	—
(40%Imax) 1578.41	—
(50%Imax) 1973.01	—
(60%Imax) 2367.62	—
(70%Imax) 2762.22	—
(80%Imax) 3156.82	—
(90%Imax) 3551.43	—



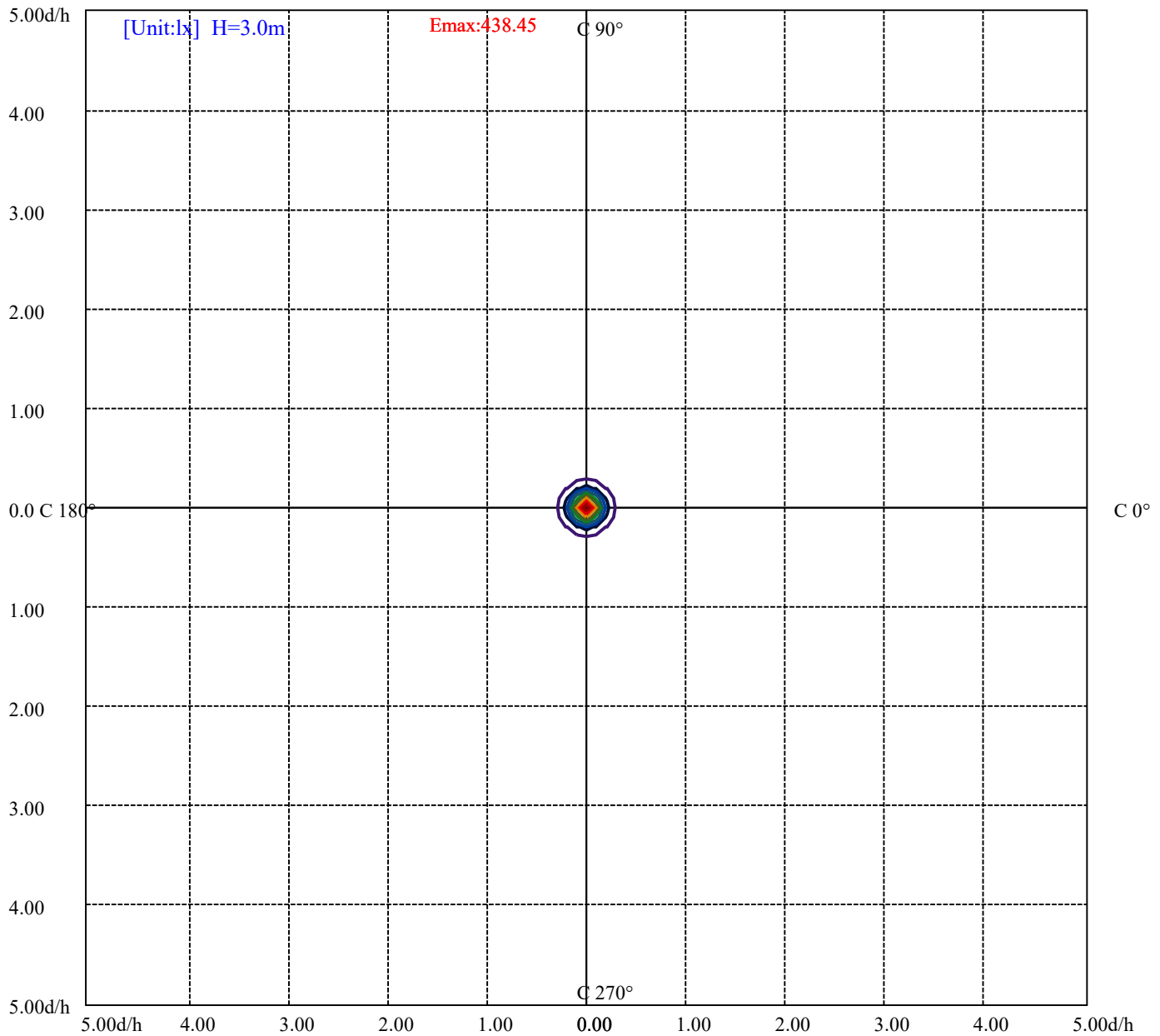
House

[Unit:cd]

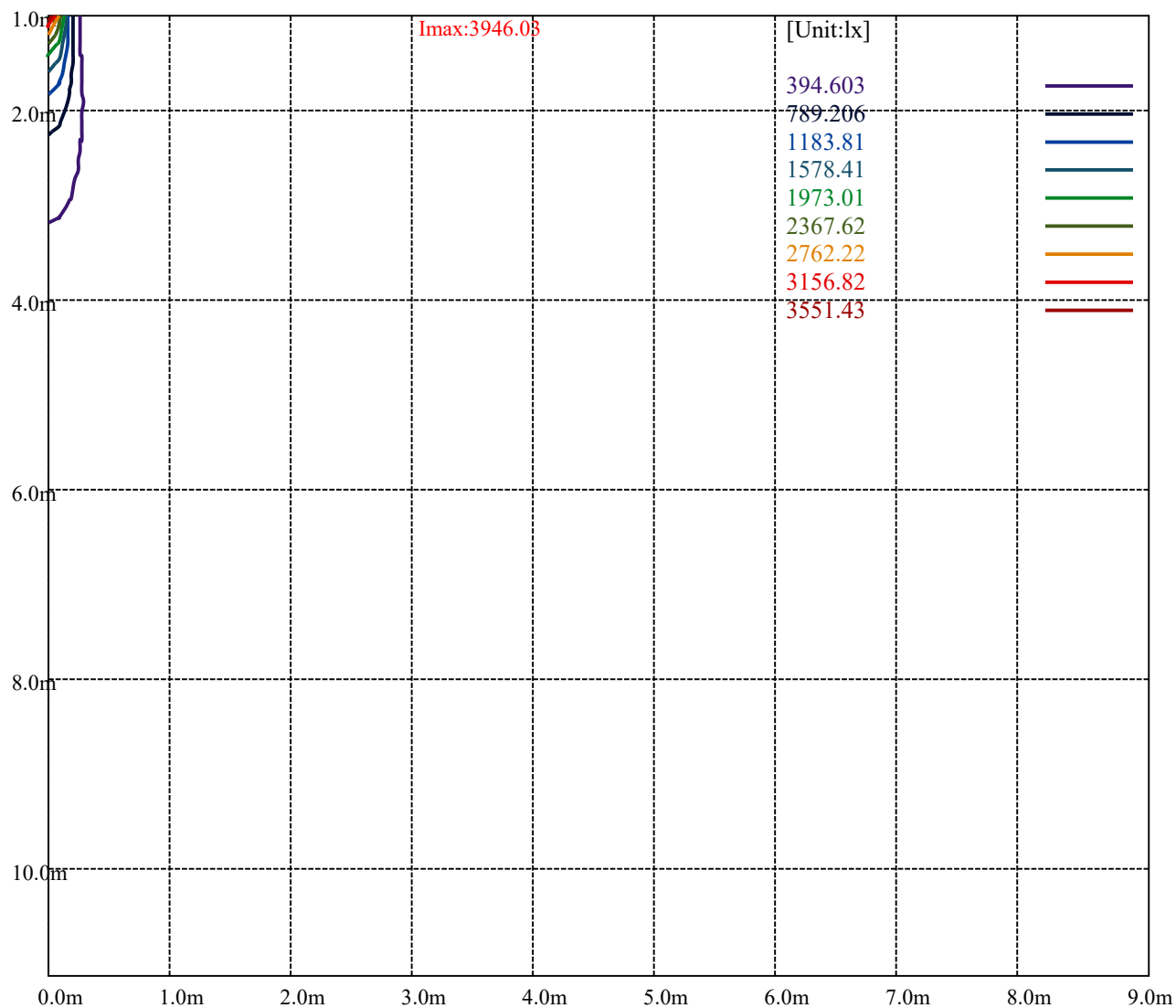
Road

Imax:3946.03

(10%Imax)	394.603	—
(20%Imax)	789.206	—
(30%Imax)	1183.81	—
(40%Imax)	1578.41	—
(50%Imax)	1973.01	—
(60%Imax)	2367.62	—
(70%Imax)	2762.22	—
(80%Imax)	3156.82	—
(90%Imax)	3551.43	—



(10%Emax)	43.84467	—
(20%Emax)	87.68933	—
(30%Emax)	131.5345	—
(40%Emax)	175.3789	—
(50%Emax)	219.2233	—
(60%Emax)	263.0678	—
(70%Emax)	306.9122	—
(80%Emax)	350.7578	—
(90%Emax)	394.6022	—



Luminance Table

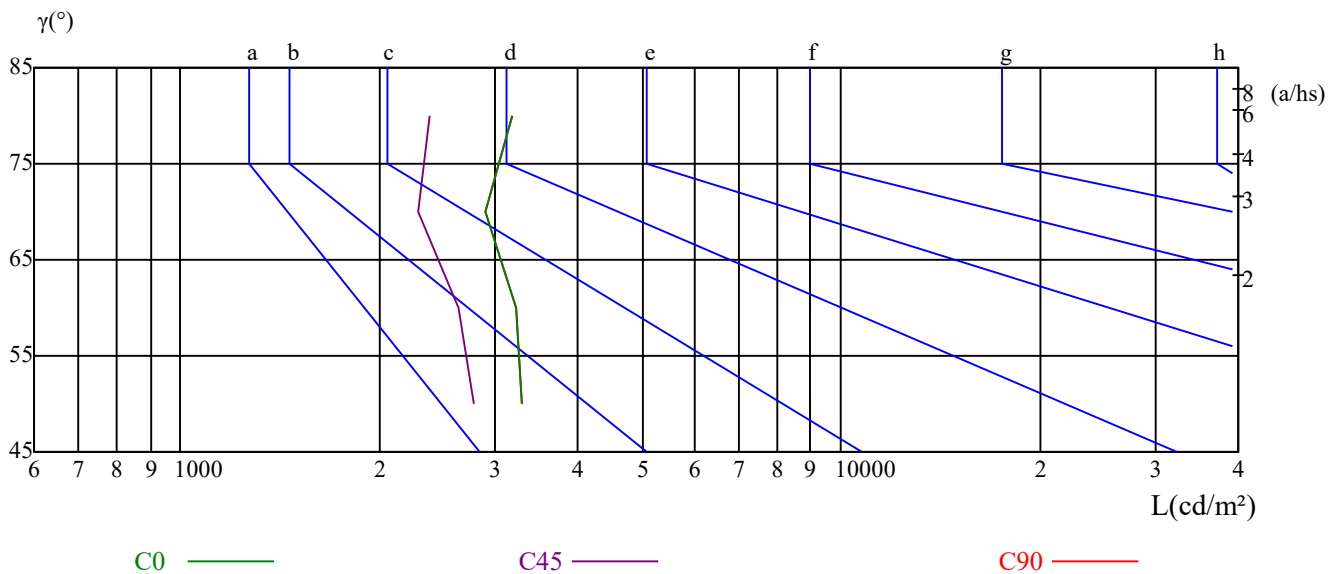
γ	45	50	55	60	65	70	75	80	85
C0	0	3293	0	3227	0	2904	0	3176	0
C45	0	2775	0	2634	0	2285	0	2388	0
C90	0	3293	0	3227	0	2904	0	3176	0

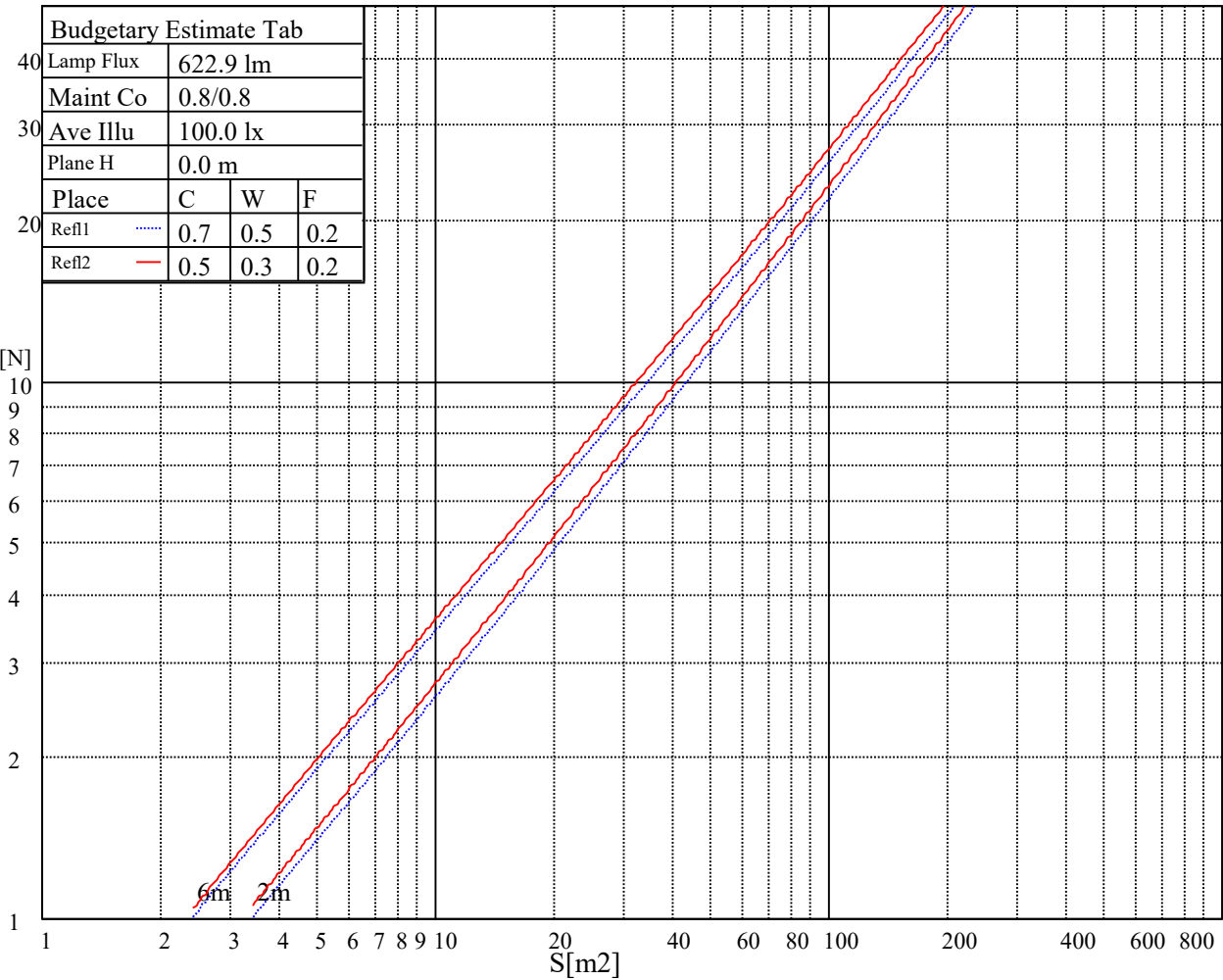
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

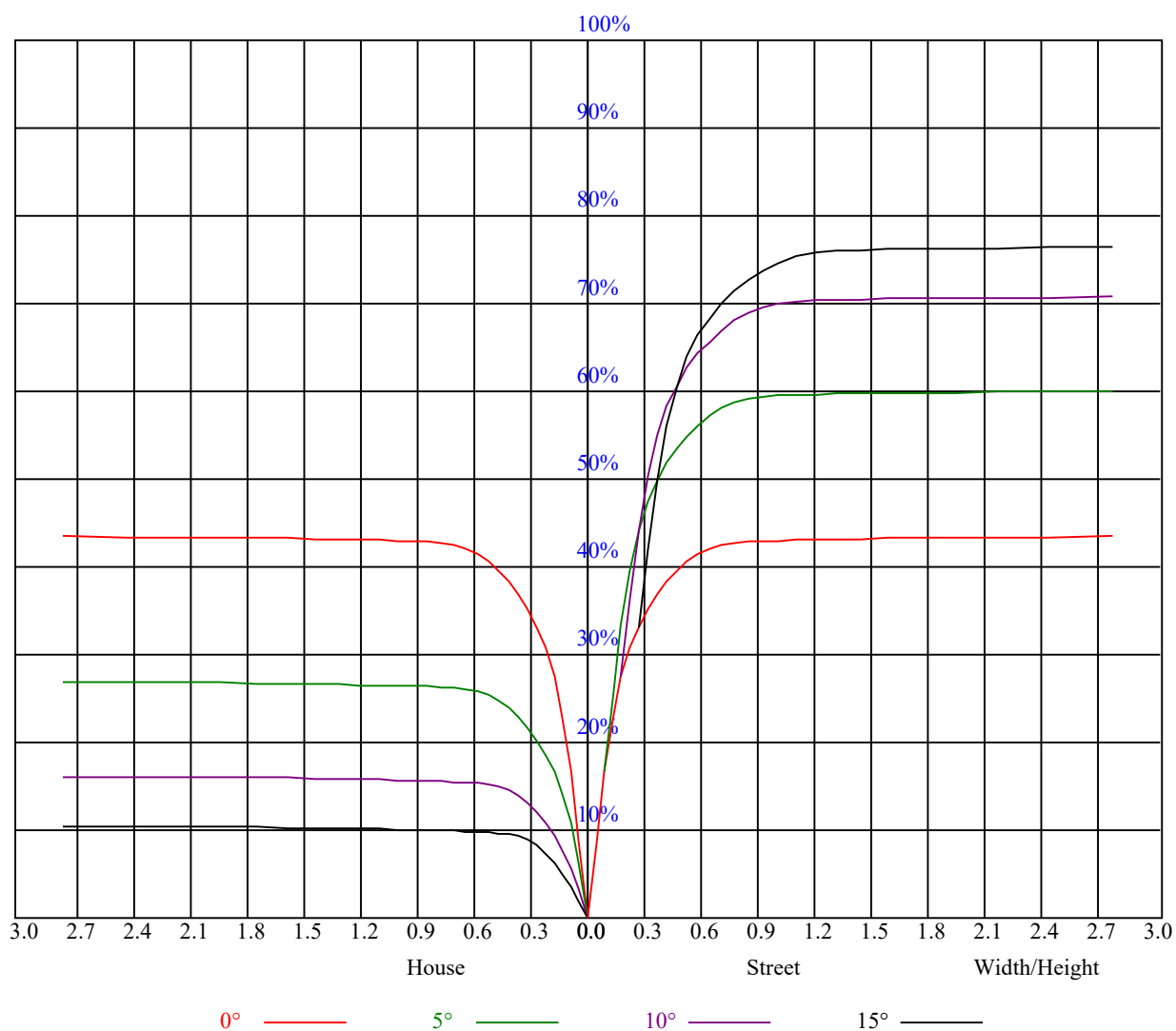
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

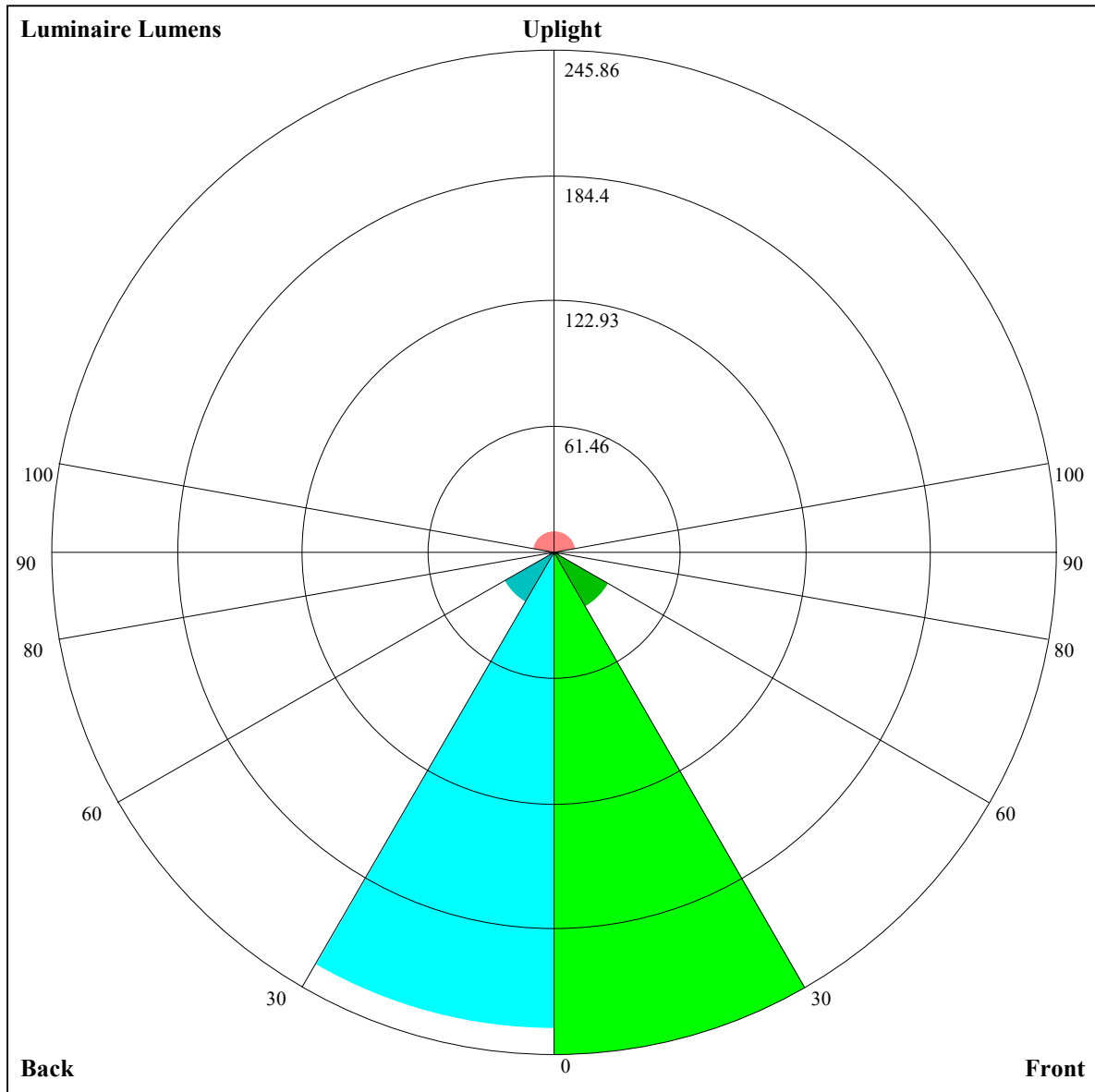
Luminance Limiting Curve





RHOC	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 RHOF=20 CU															
0	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.98	0.96	0.94	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.86	0.85	0.83
2	0.93	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.82	0.80
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.77
4	0.86	0.82	0.79	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.75	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.71
7	0.77	0.73	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
8	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	0.70	0.68	0.67
9	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.65	0.64





Luminaire Lumens:

FL=245.86,FM=30.89,FH=3.18,FVH=1.42

BL=233.52,BM=28.42,BH=3.12,BVH=1.3

UL=2.37,UH=11.29

BUG Rating:B1-U2-G0

Nata 1653-N

Intensity data(cd)									
Appendix Page: 16 Total:17									
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	3950.30	3889.18	3522.51	2839.26	2129.58	1379.16	877.05	605.62	432.74
45.0	3978.93	3697.59	3144.82	2393.85	1629.67	1022.95	683.25	469.08	358.97
90.0	3887.53	3511.50	2790.26	2042.59	1071.34	809.27	561.52	400.65	316.13
135.0	3967.36	3660.15	3071.60	2300.26	1528.37	946.97	624.34	440.45	338.60
180.0	3950.30	3718.51	3172.35	2474.79	1639.03	1035.67	677.19	461.92	359.24
225.0	3978.93	3951.40	3623.81	2982.96	2257.86	1478.26	948.13	622.74	434.28
270.0	3887.53	4042.24	3883.68	3458.09	2726.94	1898.90	1267.40	795.01	519.73
315.0	3967.36	3980.03	3661.25	3121.70	2341.00	1580.12	1014.69	662.33	468.31
360.0	3950.30	3889.18	3522.51	2839.26	2129.58	1379.16	877.05	605.62	432.74
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	347.96	296.20	259.54	236.63	221.93	210.37	198.81	169.90	122.34
45.0	292.90	249.74	225.73	211.64	200.74	193.85	173.59	132.63	86.82
90.0	265.87	235.09	215.05	202.88	191.71	176.46	142.65	98.66	56.87
135.0	286.29	248.97	228.65	217.91	211.53	202.83	177.39	127.95	78.13
180.0	290.48	254.03	232.23	220.17	210.87	202.99	180.70	138.36	90.35
225.0	330.83	275.34	238.50	213.89	196.77	182.68	174.80	150.19	112.20
270.0	383.19	300.06	253.04	225.79	206.30	194.84	187.80	172.71	140.23
315.0	363.98	304.79	263.33	236.80	220.50	209.16	200.90	175.57	133.35
360.0	347.96	296.20	259.54	236.63	221.93	210.37	198.81	169.90	122.34
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	74.82	30.61	9.19	6.66	4.84	4.02	3.74	3.52	3.36
45.0	44.65	14.76	7.60	6.11	4.84	4.57	4.07	3.74	3.58
90.0	24.22	9.97	7.27	5.56	4.90	4.57	4.07	3.74	3.58
135.0	38.70	10.13	6.99	5.78	4.96	4.68	4.35	3.85	3.69
180.0	42.23	13.87	7.27	6.17	5.12	4.68	4.57	4.35	3.96
225.0	69.43	32.04	11.78	8.97	6.61	5.51	4.96	4.35	4.02
270.0	96.95	52.63	20.15	10.35	8.20	5.78	5.07	4.46	3.96
315.0	84.13	40.14	11.56	7.71	5.34	4.02	3.74	3.52	3.36
360.0	74.82	30.61	9.19	6.66	4.84	4.02	3.74	3.52	3.36
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	3.25	3.14	3.14	3.08	3.08	3.08	3.08	3.03	2.97
45.0	3.52	3.41	3.58	3.74	3.96	3.69	3.41	3.19	3.03
90.0	3.52	3.52	3.58	3.69	3.63	3.36	3.08	2.92	2.86
135.0	3.58	3.41	3.30	3.19	3.08	3.08	2.97	2.86	2.75
180.0	3.96	4.02	3.69	3.52	3.25	3.08	2.97	2.86	2.75
225.0	3.96	4.13	4.68	4.84	4.62	3.96	3.41	3.03	2.92
270.0	3.69	3.52	3.58	3.74	4.02	4.24	4.13	3.74	3.25
315.0	3.25	3.19	3.14	3.14	3.14	3.14	3.14	3.08	2.97
360.0	3.25	3.14	3.14	3.08	3.08	3.08	3.08	3.03	2.97
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	2.92	2.81	2.81	2.75	3.08	3.96	2.64	2.86	2.31
45.0	3.03	2.97	2.92	2.81	3.74	3.58	2.70	2.75	2.20
90.0	2.81	2.81	2.75	2.64	2.53	2.48	2.48	2.64	2.15
135.0	2.70	2.64	2.64	2.53	2.48	2.42	2.42	2.53	2.20
180.0	2.70	2.64	2.59	2.53	2.48	2.42	2.37	2.31	2.26
225.0	2.81	2.75	2.75	2.64	2.53	2.48	2.42	2.31	2.26
270.0	2.86	2.81	2.75	2.70	2.64	2.59	2.48	2.37	2.31
315.0	2.86	2.75	2.75	2.70	2.64	2.59	2.53	2.59	2.31
360.0	2.92	2.81	2.81	2.75	3.08	3.96	2.64	2.86	2.31

Intensity data(cd)

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C/ $\gamma(^{\circ})$	90.0
0.0	2.15
45.0	2.15
90.0	2.15
135.0	2.15
180.0	2.20
225.0	2.20
270.0	2.20
315.0	2.20
360.0	2.15