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Nata

LumCAT: 3-2035-M
Luminaire: 92.70.129.00
Report No: NT2017051106
Test No: GC2017051106
LampCAT: CREE CXA1820
Lamp flux(lm): 2283.0
Number of Lamps: 1
Length(mm): 78
Phm Type: C

Voltage(V): 36.0000
Current(A): 0.5000
Power (W): 18.0000
PF: 0.0000
Ballast type: DC
Width(mm): 78
Height(mm):0

Photometric Results

Lumens(lm): 2026.59
Efficiency(%): 88.77%
Lumens(lm)/Power(W): 112.59
Central intensity(cd): 3611.975
Maximum intensity(cd): 3611.975
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=42.1
 [C90/270]Total=42.1
Field angle(10%Imax): [C0/180]Total=72.0
 [C90/270]Total=72.0
Maximum s/h(1/2): C0_180=0.68 C90_270=0.68
Maximum s/h(1/4): C0_180=0.70 C90_270=0.70
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.77%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.689%

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/11
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3611.975	0.000	0	.000%	.000%
1.0	3608.396	3.455	3.455	.151%	.170%
2.0	3594.770	10.339	13.793	.453%	.681%
3.0	3568.481	17.132	30.926	.750%	1.526%
4.0	3533.520	23.773	54.698	1.041%	2.699%
5.0	3495.668	30.239	84.937	1.325%	4.191%
6.0	3440.337	36.451	121.388	1.597%	5.990%
7.0	3378.398	42.324	163.712	1.854%	8.078%
8.0	3317.286	47.920	211.632	2.099%	10.443%
9.0	3240.482	53.147	264.779	2.328%	13.065%
10.0	3156.383	57.889	322.668	2.536%	15.922%
11.0	3073.248	62.247	384.915	2.727%	18.993%
12.0	2976.762	66.135	451.05	2.897%	22.257%
13.0	2867.475	69.356	520.406	3.038%	25.679%
14.0	2760.390	72.036	592.443	3.155%	29.233%
15.0	2646.286	74.225	666.668	3.251%	32.896%
16.0	2523.372	75.750	742.418	3.318%	36.634%
17.0	2385.043	76.437	818.855	3.348%	40.406%
18.0	2247.815	76.386	895.241	3.346%	44.175%
19.0	2105.357	75.736	970.977	3.317%	47.912%
20.0	1958.769	74.385	1045.362	3.258%	51.582%
21.0	1814.659	72.457	1117.819	3.174%	55.158%
22.0	1687.203	70.371	1188.191	3.082%	58.630%
23.0	1573.099	68.410	1256.601	2.996%	62.006%
24.0	1467.391	66.476	1323.077	2.912%	65.286%
25.0	1364.573	64.393	1387.469	2.821%	68.463%
26.0	1285.016	62.544	1450.013	2.740%	71.549%
27.0	1208.405	61.002	1511.015	2.672%	74.560%
28.0	1120.425	58.961	1569.976	2.583%	77.469%
29.0	1053.422	56.874	1626.85	2.491%	80.275%
30.0	982.426	54.967	1681.818	2.408%	82.988%
31.0	895.437	52.258	1734.076	2.289%	85.566%
32.0	804.553	48.703	1782.779	2.133%	87.969%
33.0	711.865	44.674	1827.453	1.957%	90.174%
34.0	601.450	39.745	1867.198	1.741%	92.135%
35.0	485.639	33.761	1900.959	1.479%	93.801%
36.0	363.180	27.027	1927.985	1.184%	95.135%
37.0	249.653	19.987	1947.973	.875%	96.121%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	173.235	14.115	1962.088	.618%	96.817%
39.0	109.108	9.637	1971.725	.422%	97.293%
40.0	61.567	5.953	1977.678	.261%	97.587%
41.0	30.474	3.278	1980.955	.144%	97.748%
42.0	20.701	1.859	1982.814	.081%	97.840%
43.0	17.604	1.419	1984.233	.062%	97.910%
44.0	15.141	1.236	1985.469	.054%	97.971%
45.0	13.420	1.098	1986.567	.048%	98.025%
46.0	12.181	1.001	1987.568	.044%	98.075%
47.0	11.507	0.942	1988.51	.041%	98.121%
48.0	11.108	0.914	1989.424	.040%	98.166%
49.0	10.860	0.902	1990.327	.040%	98.211%
50.0	10.626	0.896	1991.222	.039%	98.255%
51.0	10.433	0.891	1992.113	.039%	98.299%
52.0	10.240	0.887	1993	.039%	98.343%
53.0	10.062	0.883	1993.884	.039%	98.386%
54.0	9.869	0.878	1994.762	.038%	98.430%
55.0	9.731	0.875	1995.637	.038%	98.473%
56.0	9.621	0.874	1996.511	.038%	98.516%
57.0	9.525	0.875	1997.387	.038%	98.559%
58.0	9.415	0.876	1998.263	.038%	98.602%
59.0	9.305	0.875	1999.138	.038%	98.645%
60.0	9.194	0.874	2000.012	.038%	98.689%
61.0	9.084	0.872	2000.884	.038%	98.732%
62.0	9.002	0.871	2001.756	.038%	98.775%
63.0	8.919	0.872	2002.627	.038%	98.818%
64.0	8.864	0.873	2003.5	.038%	98.861%
65.0	8.781	0.873	2004.373	.038%	98.904%
66.0	8.713	0.873	2005.246	.038%	98.947%
67.0	8.644	0.873	2006.119	.038%	98.990%
68.0	8.589	0.873	2006.992	.038%	99.033%
69.0	8.520	0.873	2007.864	.038%	99.076%
70.0	8.492	0.874	2008.738	.038%	99.119%
71.0	8.451	0.876	2009.614	.038%	99.162%
72.0	8.410	0.877	2010.491	.038%	99.206%
73.0	8.382	0.878	2011.369	.038%	99.249%
74.0	8.382	0.881	2012.25	.039%	99.292%
75.0	8.589	0.897	2013.147	.039%	99.337%

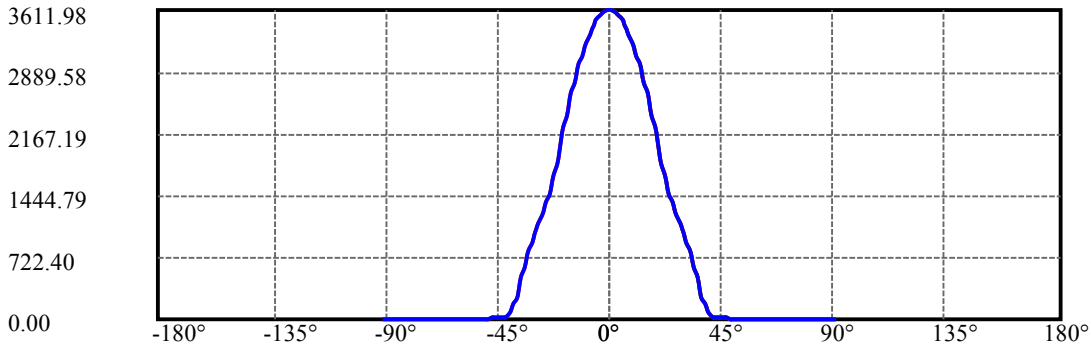
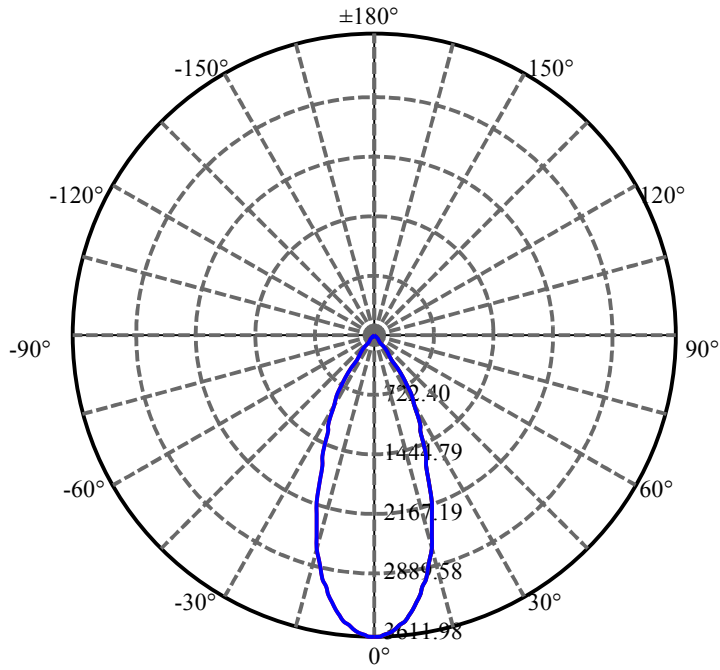
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.754	0.921	2014.067	.040%	99.382%
77.0	8.630	0.927	2014.994	.041%	99.428%
78.0	8.492	0.917	2015.911	.040%	99.473%
79.0	8.369	0.906	2016.817	.040%	99.518%
80.0	8.258	0.896	2017.713	.039%	99.562%
81.0	8.203	0.890	2018.603	.039%	99.606%
82.0	8.203	0.890	2019.493	.039%	99.650%
83.0	8.148	0.889	2020.382	.039%	99.694%
84.0	8.176	0.889	2021.271	.039%	99.738%
85.0	8.135	0.890	2022.161	.039%	99.782%
86.0	8.107	0.888	2023.049	.039%	99.825%
87.0	8.080	0.886	2023.935	.039%	99.869%
88.0	8.066	0.884	2024.82	.039%	99.913%
89.0	8.066	0.884	2025.704	.039%	99.956%
90.0	8.080	0.885	2026.589	.039%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1681.82	73.67%	82.99%
0-40	1977.68	86.63%	97.59%
0-60	2000.01	87.60%	98.69%
0-90	2025.70	88.73%	99.96%
0-120	2025.70	88.73%	99.96%
0-180	2026.59	88.77%	100.00%
60-90	26.57	1.16%	1.31%
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%
0-28.90	1621.27	71.01%	80.00%

ZONAL LUMEN SUMMARY

0-10	322.67
10-20	722.69
20-30	636.46
30-40	295.86
40-50	13.54
50-60	8.79
60-70	8.73
70-80	8.98
80-90	7.99
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: —————

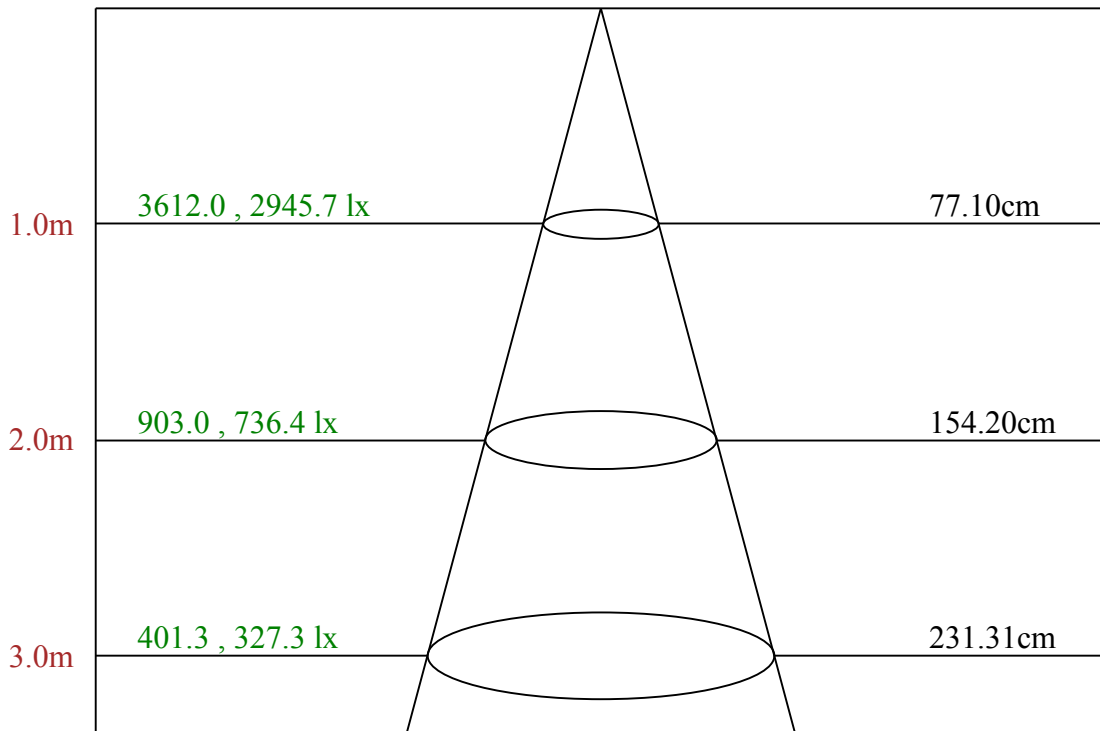
C90/C270: —————

Field angle(10%Imax):C0/180Left:36.0 Right:36.0

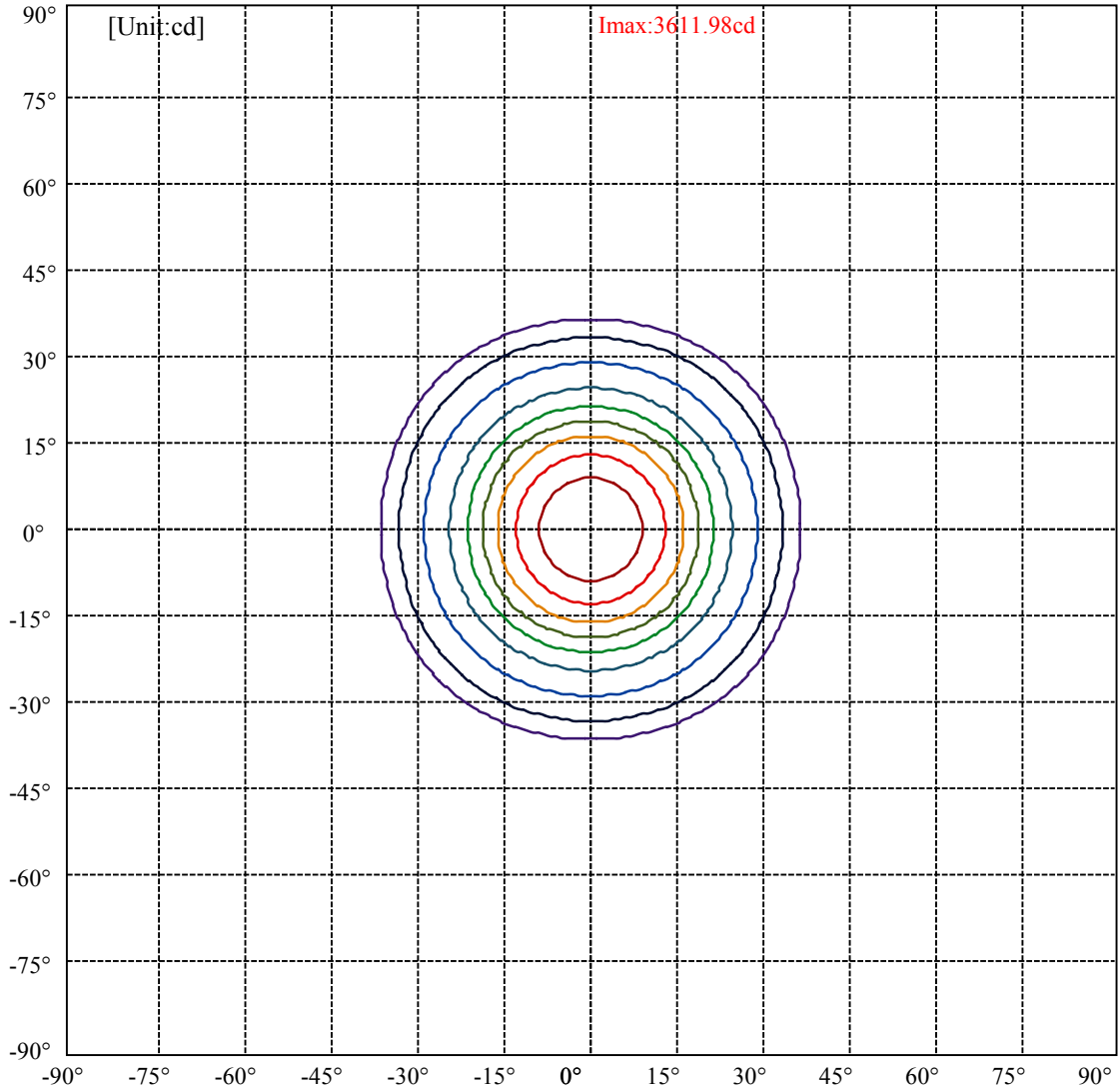
:C90/270Left:36.0 Right:36.0

Beam Angle(50%Imax):C0/180Left:21.1 Right:21.1

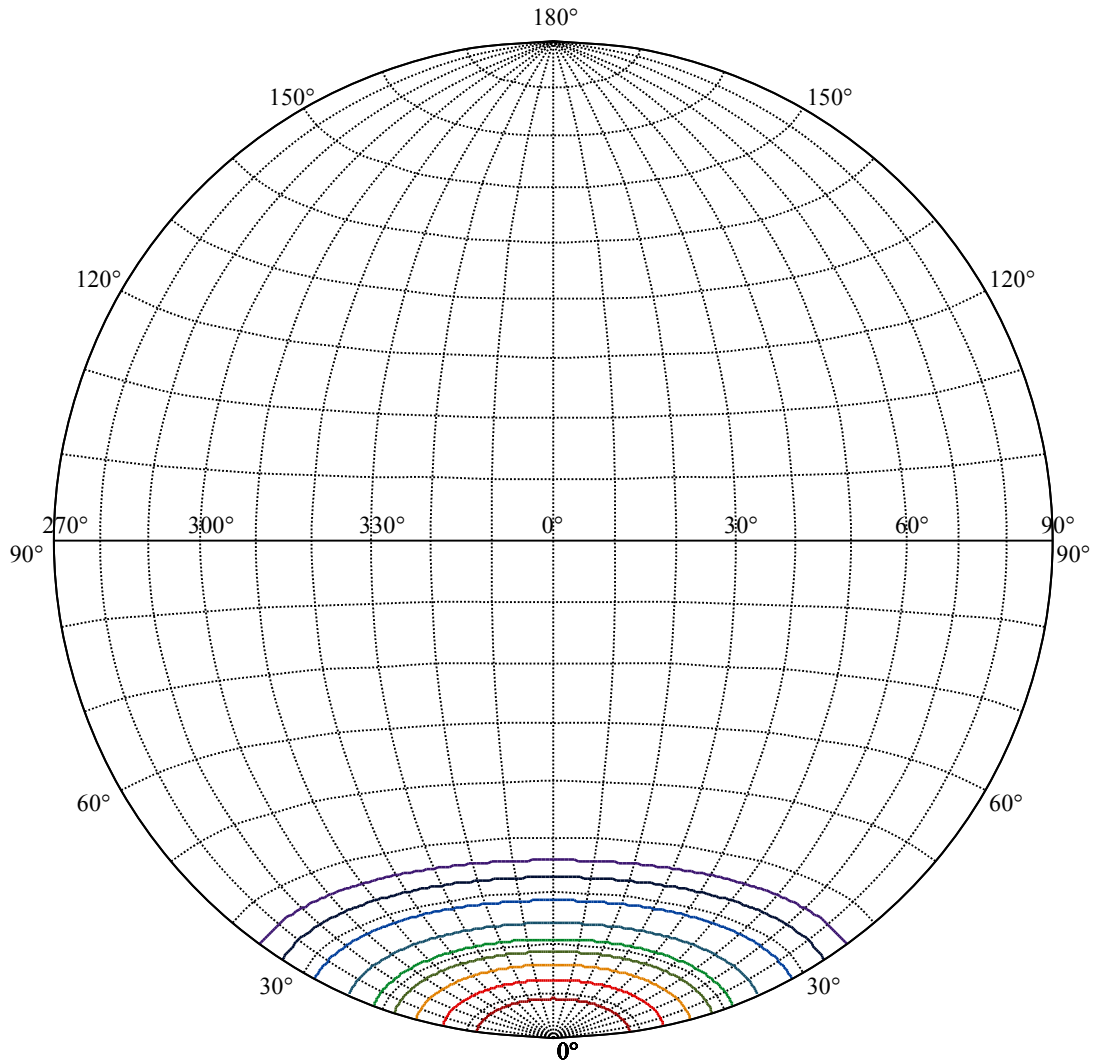
:C90/270Left:21.1 Right:21.1



Max , Ave Beam angle of C0 plane 42.16



(10%Imax) 361.198	—
(20%Imax) 722.395	—
(30%Imax) 1083.59	—
(40%Imax) 1444.79	—
(50%Imax) 1805.99	—
(60%Imax) 2167.19	—
(70%Imax) 2528.38	—
(80%Imax) 2889.58	—
(90%Imax) 3250.78	—



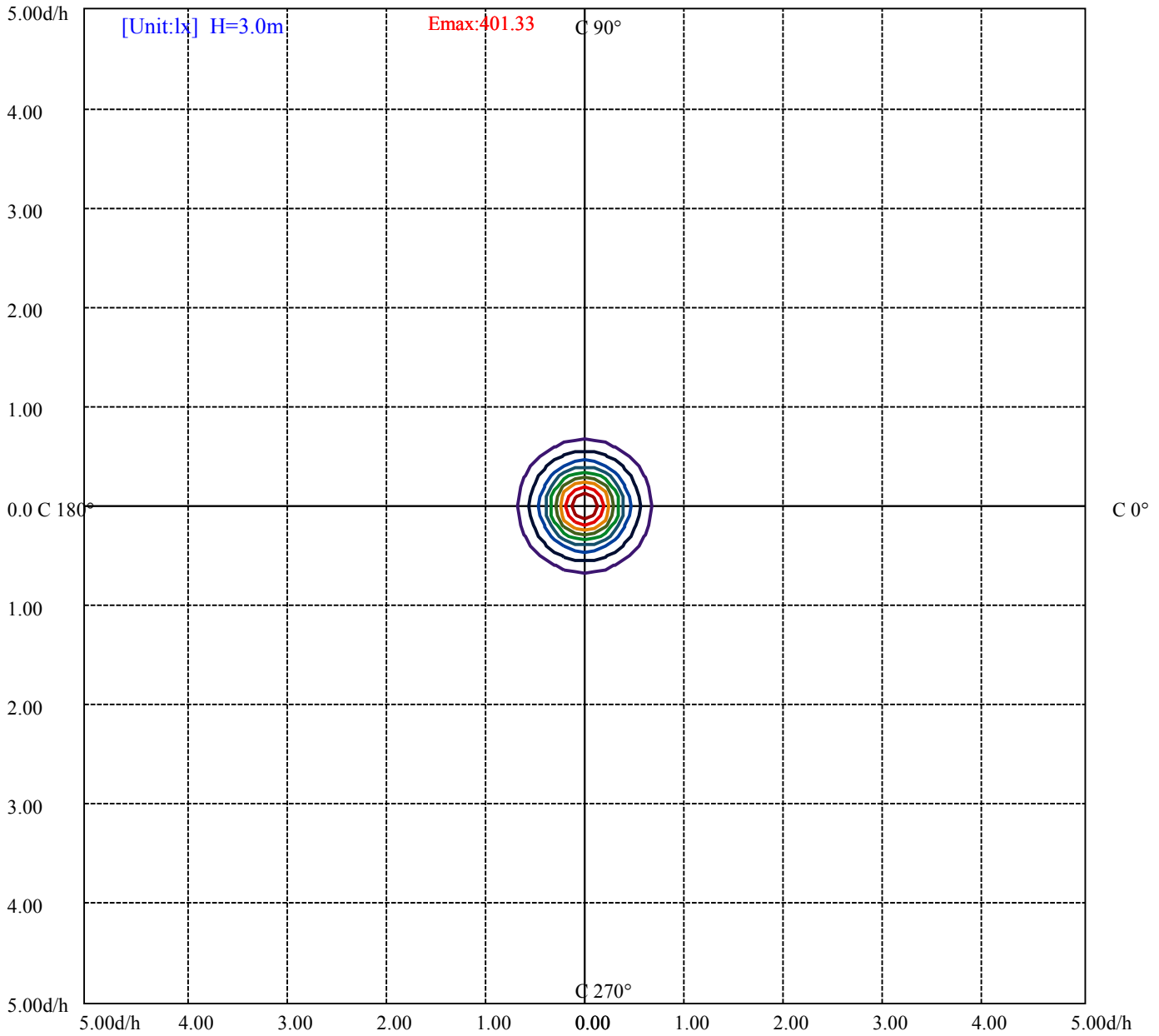
House

[Unit:cd]

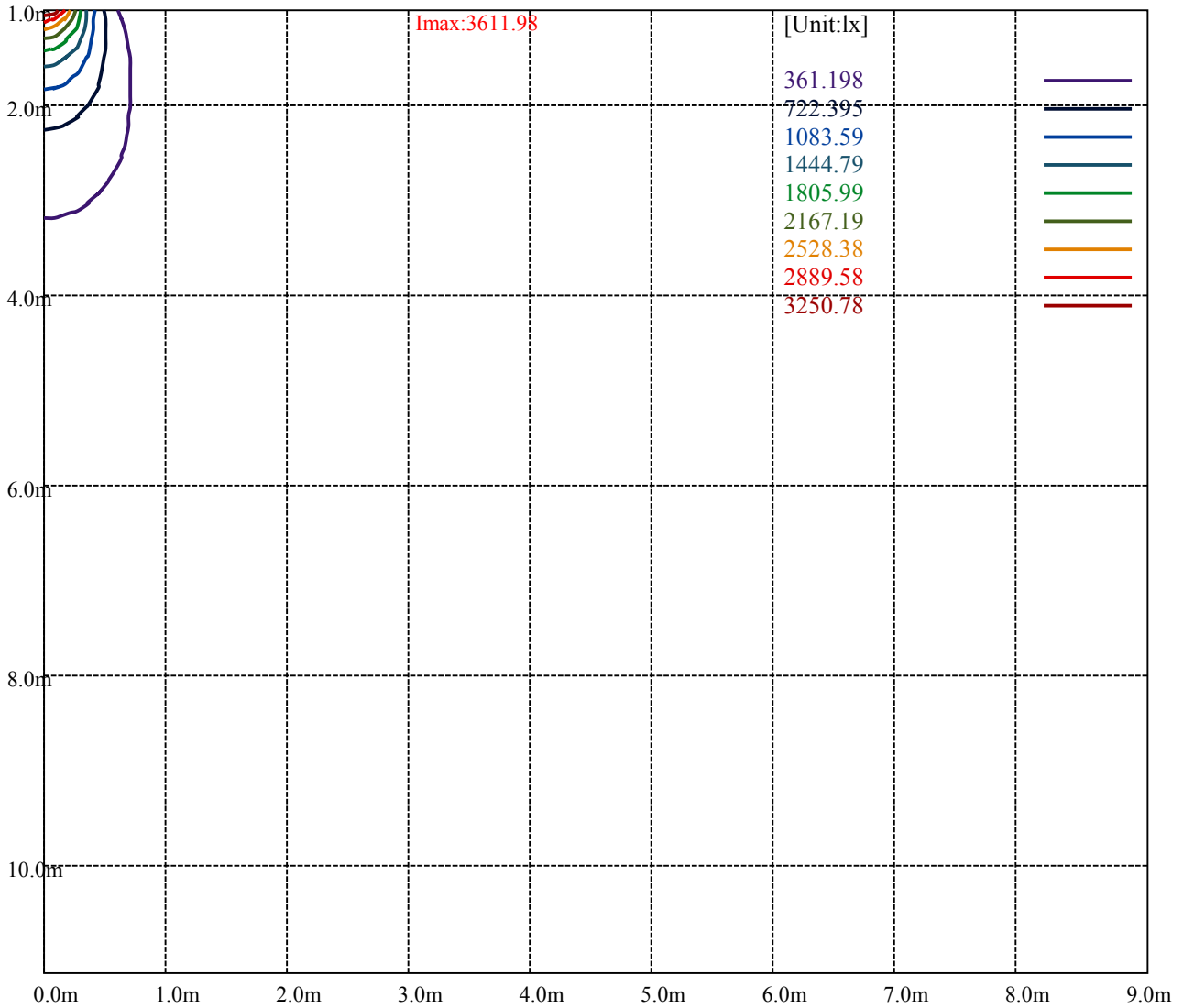
Road

Imax:3611.98

(10%Imax) 361.198	—
(20%Imax) 722.395	—
(30%Imax) 1083.59	—
(40%Imax) 1444.79	—
(50%Imax) 1805.99	—
(60%Imax) 2167.19	—
(70%Imax) 2528.38	—
(80%Imax) 2889.58	—
(90%Imax) 3250.78	—



- (10%Emax) 40.133
- (20%Emax) 80.26611
- (30%Emax) 120.3989
- (40%Emax) 160.5322
- (50%Emax) 200.6656
- (60%Emax) 240.7978
- (70%Emax) 280.9311
- (80%Emax) 321.0645
- (90%Emax) 361.1978



Luminance Table

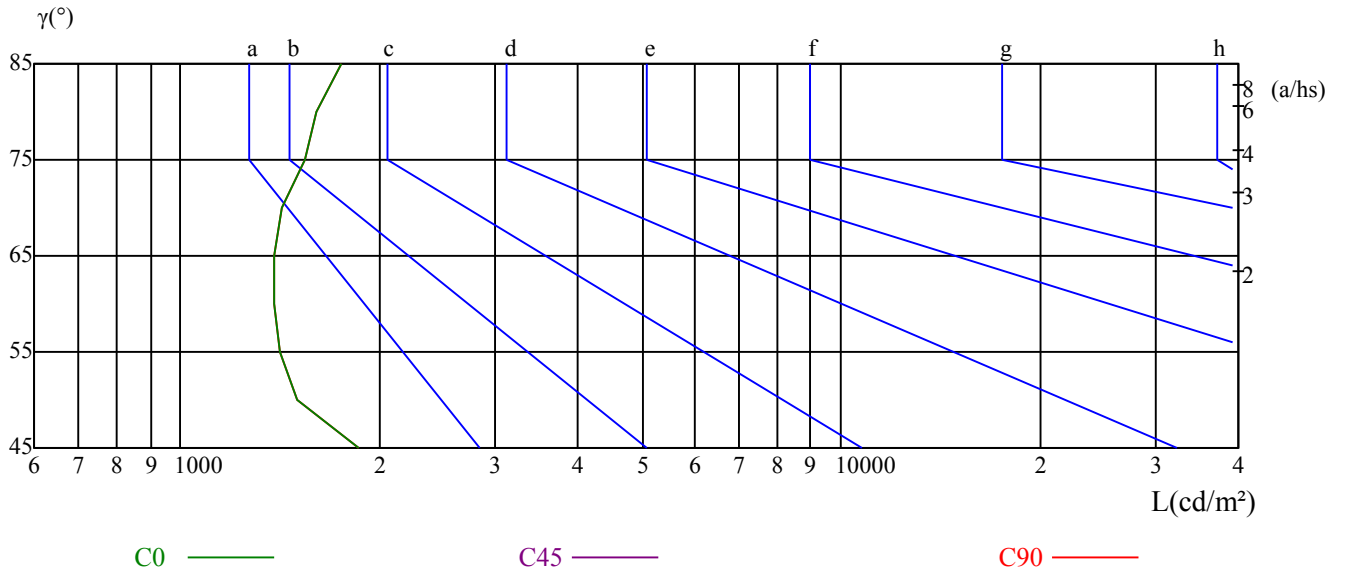
γ	45	50	55	60	65	70	75	80	85
C0	1857	1501	1415	1388	1390	1424	1543	1611	1750
C45	0	0	0	0	0	0	0	0	0
C90	1857	1501	1415	1388	1390	1424	1543	1611	1750

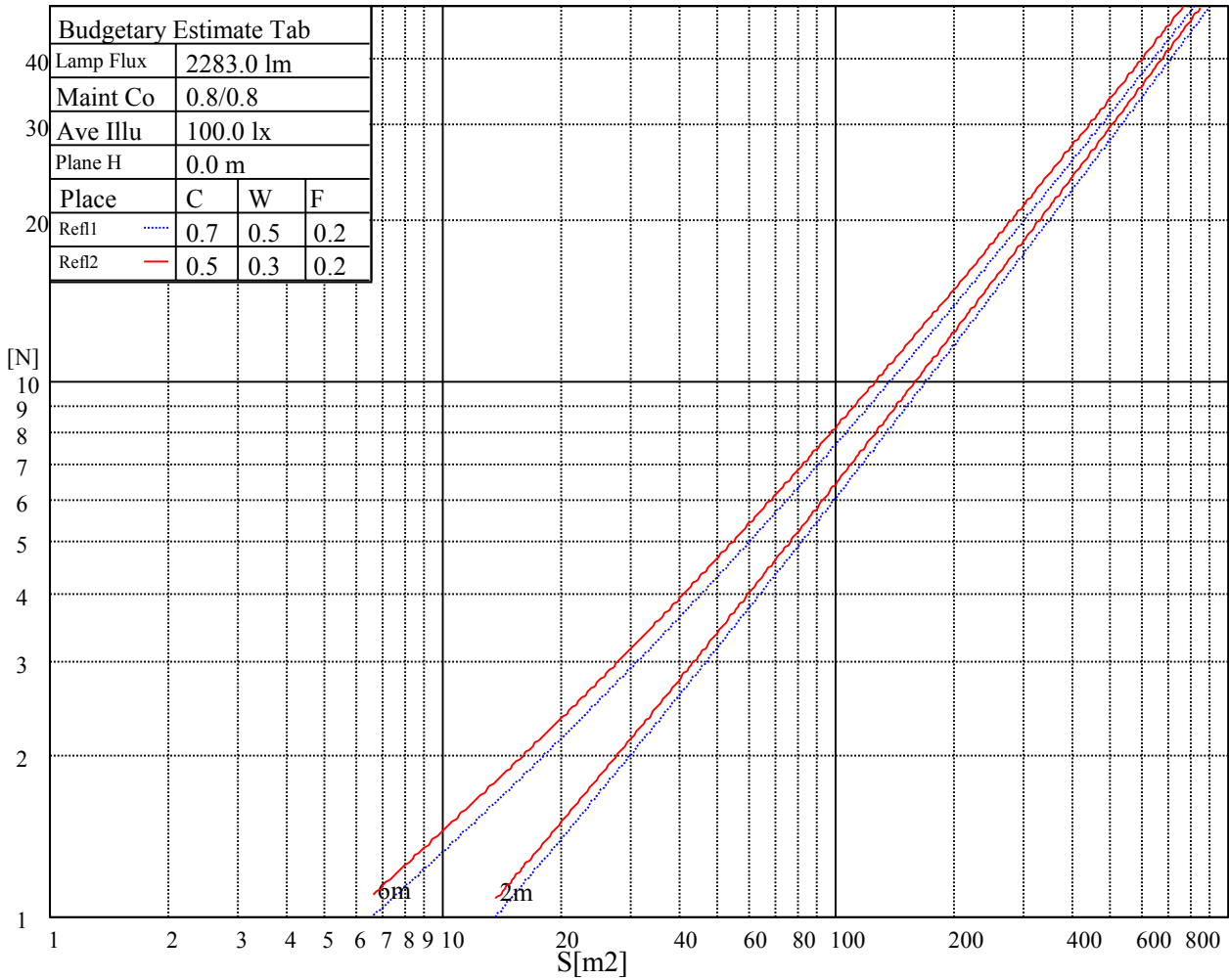
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3415	3415	0	5454	5454	0	15341	15341	0

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	0.99	0.97	0.95	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.89	0.87	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.87	0.83	0.80	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.74
4	0.82	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.72	0.76	0.74	0.72	0.70
5	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
6	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
7	0.70	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.60
8	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
9	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.54
10	0.61	0.56	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.59	0.55	0.53	0.52

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	3608.95	3591.33	3559.40	3517.55	3468.55	3417.90	3350.18	3272.55	3196.02
90.0	3615.00	3623.26	3619.41	3610.05	3582.52	3552.79	3505.44	3456.44	3411.85
180.0	3608.95	3621.61	3627.67	3618.86	3601.79	3579.22	3543.43	3492.78	3444.33
270.0	3615.00	3597.39	3572.61	3527.46	3481.22	3432.77	3362.29	3291.82	3216.95
360.0	3608.95	3591.33	3559.40	3517.55	3468.55	3417.90	3350.18	3272.55	3196.02
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3105.18	3006.08	2913.58	2812.83	2675.19	2563.98	2445.61	2299.16	2145.55
90.0	3350.18	3276.96	3203.18	3121.70	3011.59	2918.54	2818.89	2702.17	2581.04
180.0	3391.47	3313.29	3238.97	3158.59	3063.89	2960.93	2866.79	2750.62	2627.29
270.0	3115.09	3029.20	2937.26	2813.93	2719.24	2598.11	2453.86	2341.55	2186.29
360.0	3105.18	3006.08	2913.58	2812.83	2675.19	2563.98	2445.61	2299.16	2145.55
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2005.15	1843.84	1688.03	1577.92	1468.35	1381.92	1293.27	1203.53	1132.51
90.0	2465.98	2323.38	2167.02	2018.92	1857.60	1722.16	1599.39	1488.17	1401.19
180.0	2511.67	2371.83	2240.80	2083.33	1926.97	1779.97	1653.89	1527.82	1436.42
270.0	2008.46	1882.38	1739.23	1578.47	1495.88	1408.34	1323.01	1238.77	1169.95
360.0	2005.15	1843.84	1688.03	1577.92	1468.35	1381.92	1293.27	1203.53	1132.51
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1064.24	983.31	925.50	866.59	751.52	635.35	503.22	386.50	287.94
90.0	1319.70	1218.95	1144.07	1074.15	990.46	931.55	872.64	775.19	648.01
180.0	1357.14	1259.69	1185.91	1096.45	1029.61	966.07	907.16	814.34	705.44
270.0	1092.54	1019.75	958.20	892.52	810.15	685.23	564.44	429.77	301.16
360.0	1064.24	983.31	925.50	866.59	751.52	635.35	503.22	386.50	287.94
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	157.57	71.24	30.78	24.89	20.59	17.01	14.26	12.66	12.11
90.0	524.14	389.80	279.14	165.94	86.38	33.31	24.50	20.92	16.90
180.0	585.41	435.61	336.28	219.01	116.44	52.30	27.75	22.85	19.16
270.0	185.60	101.96	46.74	26.59	22.85	19.27	16.30	13.98	12.39
360.0	157.57	71.24	30.78	24.89	20.59	17.01	14.26	12.66	12.11
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	11.67	11.23	10.96	10.68	10.52	10.30	10.13	9.97	9.80
90.0	14.15	12.39	11.89	11.51	11.18	10.90	10.68	10.52	10.24
180.0	16.02	13.65	12.11	11.45	11.12	10.85	10.63	10.41	10.24
270.0	11.84	11.45	11.07	10.79	10.63	10.46	10.30	10.08	9.97
360.0	11.67	11.23	10.96	10.68	10.52	10.30	10.13	9.97	9.80
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.63	9.52	9.41	9.36	9.25	9.14	8.97	8.92	8.81
90.0	10.08	9.91	9.86	9.69	9.58	9.47	9.36	9.25	9.19
180.0	9.97	9.86	9.69	9.58	9.47	9.36	9.25	9.14	9.03
270.0	9.80	9.63	9.52	9.47	9.36	9.25	9.19	9.03	8.97
360.0	9.63	9.52	9.41	9.36	9.25	9.14	8.97	8.92	8.81
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.75	8.70	8.64	8.53	8.48	8.48	8.42	8.42	8.31
90.0	9.08	9.03	8.92	8.86	8.81	8.75	8.64	8.59	8.59
180.0	8.92	8.92	8.81	8.75	8.64	8.53	8.48	8.48	8.42
270.0	8.92	8.81	8.75	8.70	8.64	8.59	8.53	8.48	8.48
360.0	8.75	8.70	8.64	8.53	8.48	8.48	8.42	8.42	8.31

Nata 3-2035-M

Intensity data(cd)

C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.31	8.26	8.48	9.41	10.13	9.63	9.25	8.75	8.48
90.0	8.53	8.53	8.42	8.42	8.37	8.37	8.31	8.37	8.26
180.0	8.37	8.31	8.26	8.20	8.20	8.20	8.15	8.09	8.09
270.0	8.42	8.42	8.37	8.31	8.31	8.31	8.26	8.26	8.20
360.0	8.31	8.26	8.48	9.41	10.13	9.63	9.25	8.75	8.48
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.31	8.26	8.20	8.20	8.04	7.98	7.98	7.98	7.98
90.0	8.20	8.20	8.20	8.26	8.26	8.26	8.15	8.15	8.15
180.0	8.09	8.09	8.04	8.04	8.04	8.04	8.04	7.98	7.98
270.0	8.20	8.26	8.15	8.20	8.20	8.15	8.15	8.15	8.15
360.0	8.31	8.26	8.20	8.20	8.04	7.98	7.98	7.98	7.98
C/ γ (°)	90.0								
0.0	7.98								
90.0	8.15								
180.0	7.98								
270.0	8.20								
360.0	7.98								