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Nata

LumCAT: LN01D04515DA-N

Luminaire: 97.70.234.00

Report No: 200708-B002

Test No: 200708-C002

LampCAT: LUMILEDS LUXEON 1202S

Lamp flux(lm): 695.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 35.0800

Current(A): 0.1510

Power (W): 5.3000

PF: 0.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 606.14

Efficiency(%): 87.21%

Lumens(lm)/Power(W): 114.37

Central intensity(cd): 5757.609

Maximum intensity(cd): 5757.609

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=29.5

[C90/270]Total=29.5

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(%): 87.21%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.657%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5757.609	0.000	0	.000%	.000%
1.0	5688.633	5.477	5.477	.788%	.904%
2.0	5477.906	16.027	21.504	2.306%	3.548%
3.0	5161.359	25.446	46.95	3.661%	7.746%
4.0	4757.766	33.202	80.152	4.777%	13.223%
5.0	4320.563	39.054	119.207	5.619%	19.666%
6.0	3781.758	42.580	161.787	6.127%	26.691%
7.0	3284.578	43.861	205.647	6.311%	33.927%
8.0	2842.945	43.854	249.501	6.310%	41.162%
9.0	2353.008	42.110	291.611	6.059%	48.109%
10.0	1878.188	38.291	329.902	5.509%	54.427%
11.0	1538.290	34.138	364.039	4.912%	60.058%
12.0	1151.480	29.403	393.442	4.231%	64.909%
13.0	906.848	24.427	417.87	3.515%	68.939%
14.0	699.504	20.561	438.431	2.958%	72.331%
15.0	534.656	16.943	455.374	2.438%	75.127%
16.0	410.625	13.851	469.225	1.993%	77.412%
17.0	321.047	11.394	480.619	1.639%	79.292%
18.0	254.257	9.486	490.105	1.365%	80.856%
19.0	207.745	8.038	498.142	1.157%	82.183%
20.0	169.186	6.899	505.041	.993%	83.321%
21.0	140.998	5.956	510.997	.857%	84.303%
22.0	120.241	5.250	516.247	.755%	85.169%
23.0	104.217	4.710	520.957	.678%	85.946%
24.0	90.436	4.256	525.213	.612%	86.649%
25.0	79.538	3.865	529.078	.556%	87.286%
26.0	71.142	3.557	532.634	.512%	87.873%
27.0	63.773	3.301	535.935	.475%	88.417%
28.0	56.827	3.053	538.988	.439%	88.921%
29.0	51.497	2.834	541.823	.408%	89.389%
30.0	46.800	2.654	544.477	.382%	89.827%
31.0	42.321	2.480	546.957	.357%	90.236%
32.0	38.651	2.320	549.276	.334%	90.618%
33.0	35.578	2.187	551.463	.315%	90.979%
34.0	32.857	2.071	553.534	.298%	91.321%
35.0	30.459	1.966	555.501	.283%	91.645%
36.0	28.484	1.877	557.377	.270%	91.955%
37.0	26.698	1.800	559.177	.259%	92.252%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	25.130	1.730	560.907	.249%	92.537%
39.0	23.597	1.663	562.57	.239%	92.812%
40.0	22.275	1.600	564.17	.230%	93.076%
41.0	21.052	1.543	565.713	.222%	93.330%
42.0	19.870	1.487	567.2	.214%	93.575%
43.0	18.612	1.425	568.625	.205%	93.811%
44.0	17.550	1.365	569.99	.196%	94.036%
45.0	16.523	1.309	571.299	.188%	94.252%
46.0	15.427	1.249	572.549	.180%	94.458%
47.0	14.484	1.190	573.739	.171%	94.654%
48.0	13.648	1.137	574.876	.164%	94.842%
49.0	12.839	1.088	575.964	.157%	95.021%
50.0	12.143	1.042	577.005	.150%	95.193%
51.0	11.616	1.005	578.01	.145%	95.359%
52.0	11.081	0.974	578.984	.140%	95.520%
53.0	10.617	0.944	579.928	.136%	95.675%
54.0	10.202	0.918	580.846	.132%	95.827%
55.0	9.823	0.894	581.74	.129%	95.974%
56.0	9.457	0.871	582.611	.125%	96.118%
57.0	9.098	0.848	583.459	.122%	96.258%
58.0	8.768	0.826	584.285	.119%	96.394%
59.0	8.480	0.806	585.092	.116%	96.527%
60.0	8.184	0.787	585.879	.113%	96.657%
61.0	7.896	0.767	586.646	.110%	96.784%
62.0	7.622	0.748	587.394	.108%	96.907%
63.0	7.383	0.730	588.124	.105%	97.027%
64.0	7.137	0.712	588.836	.103%	97.145%
65.0	6.905	0.695	589.531	.100%	97.260%
66.0	6.694	0.678	590.21	.098%	97.372%
67.0	6.469	0.662	590.872	.095%	97.481%
68.0	6.363	0.650	591.522	.094%	97.588%
69.0	6.476	0.655	592.177	.094%	97.696%
70.0	6.806	0.682	592.859	.098%	97.809%
71.0	7.277	0.728	593.587	.105%	97.929%
72.0	7.748	0.781	594.368	.112%	98.058%
73.0	8.283	0.838	595.206	.121%	98.196%
74.0	8.712	0.893	596.1	.129%	98.343%
75.0	9.049	0.938	597.038	.135%	98.498%

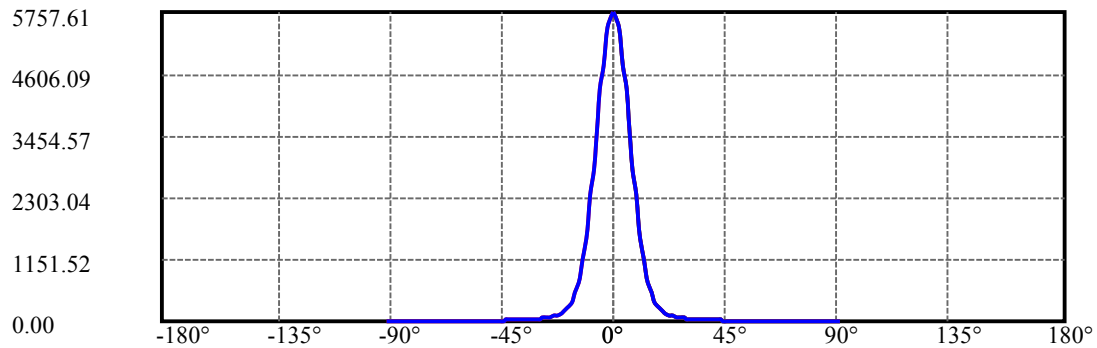
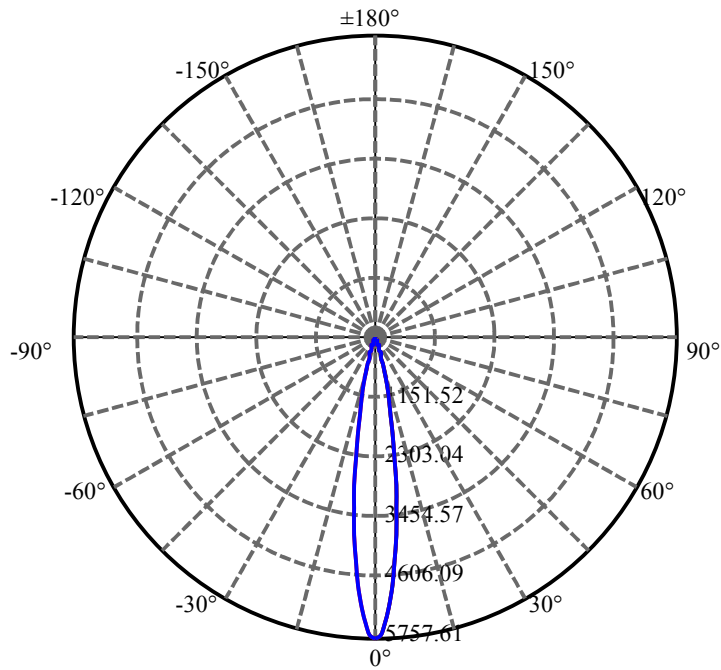
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.190	0.968	598.006	.139%	98.658%
77.0	9.000	0.970	598.976	.140%	98.818%
78.0	8.613	0.943	599.919	.136%	98.973%
79.0	7.980	0.892	600.811	.128%	99.121%
80.0	7.263	0.822	601.632	.118%	99.256%
81.0	6.497	0.744	602.377	.107%	99.379%
82.0	5.604	0.656	603.033	.094%	99.487%
83.0	4.676	0.559	603.592	.080%	99.579%
84.0	3.973	0.471	604.063	.068%	99.657%
85.0	3.572	0.412	604.474	.059%	99.725%
86.0	3.368	0.379	604.854	.055%	99.788%
87.0	3.059	0.352	605.206	.051%	99.846%
88.0	2.876	0.325	605.531	.047%	99.899%
89.0	2.770	0.309	605.84	.045%	99.950%
90.0	2.728	0.301	606.142	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	544.48	78.34%	89.83%
0-40	564.17	81.18%	93.08%
0-60	585.88	84.30%	96.66%
0-90	605.84	87.17%	99.95%
0-120	605.84	87.17%	99.95%
0-180	606.14	87.21%	100.00%
60-90	20.75	2.99%	3.42%
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%
0-17.45	484.91	69.77%	80.00%

ZONAL LUMEN SUMMARY

0-10	329.90
10-20	175.14
20-30	39.44
30-40	19.69
40-50	12.84
50-60	8.87
60-70	6.98
70-80	8.77
80-90	4.21
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:

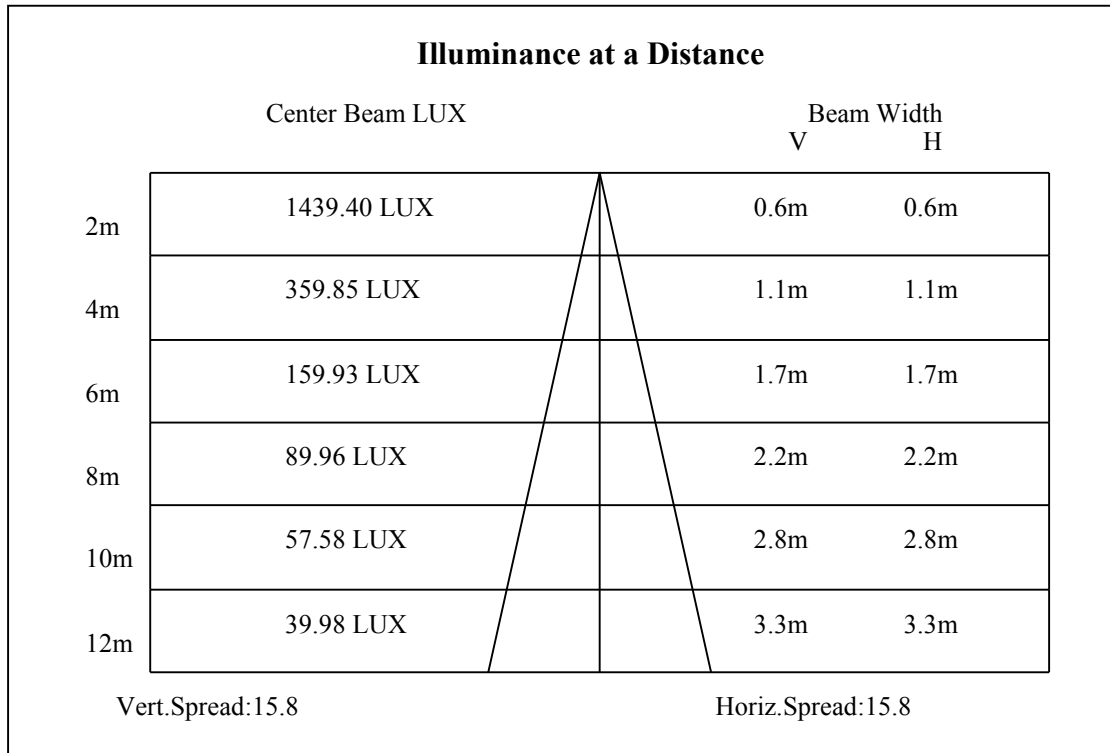
C90/C270:

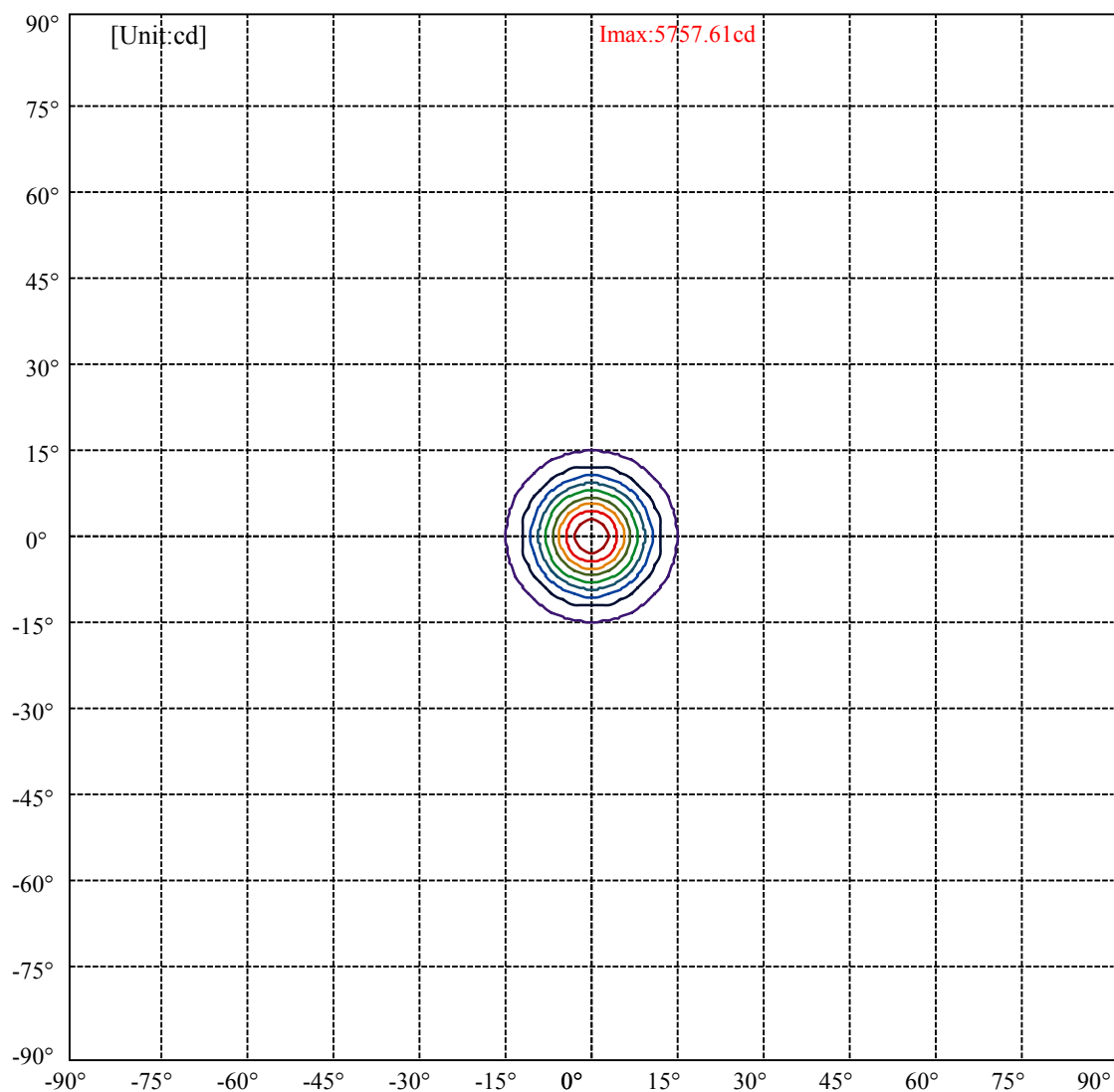
Field angle(10%Imax):C0/180Left:14.8 Right:14.8

:C90/270Left:14.8 Right:14.8

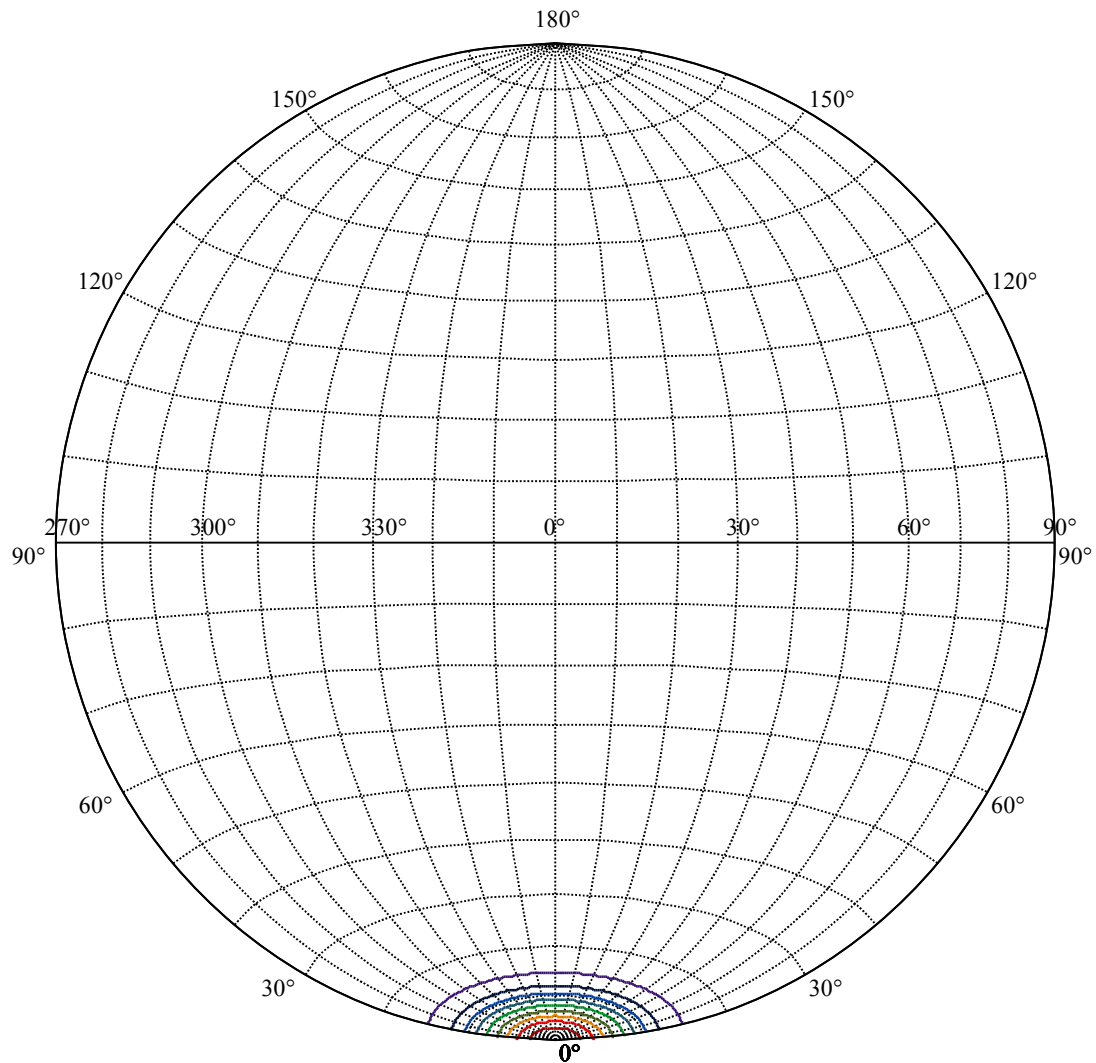
Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9

:C90/270Left:7.9 Right:7.9





(10%Imax) 575.761	—
(20%Imax) 1151.52	—
(30%Imax) 1727.28	—
(40%Imax) 2303.04	—
(50%Imax) 2878.8	—
(60%Imax) 3454.57	—
(70%Imax) 4030.33	—
(80%Imax) 4606.09	—
(90%Imax) 5181.85	—



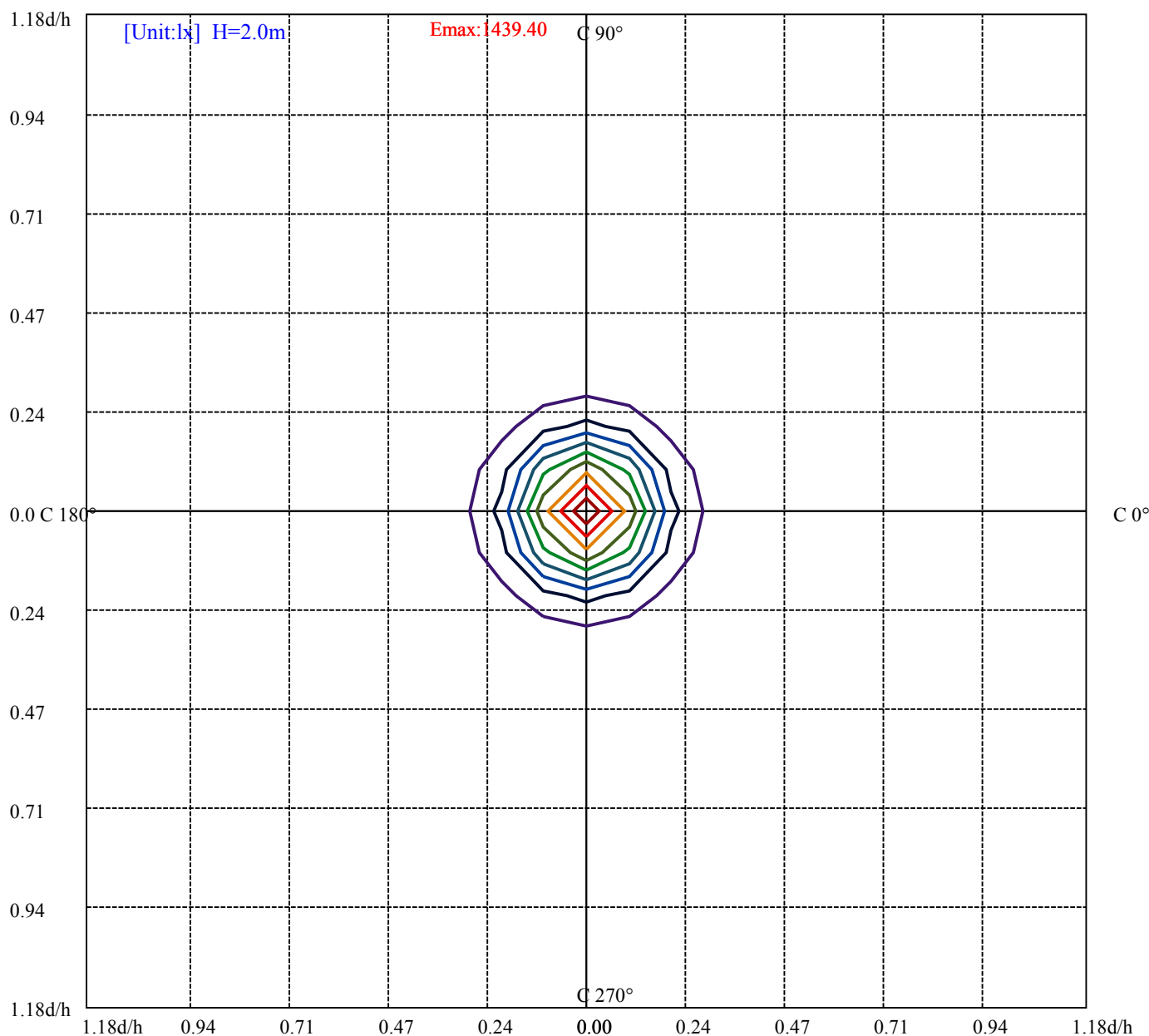
House

[Unit:cd]

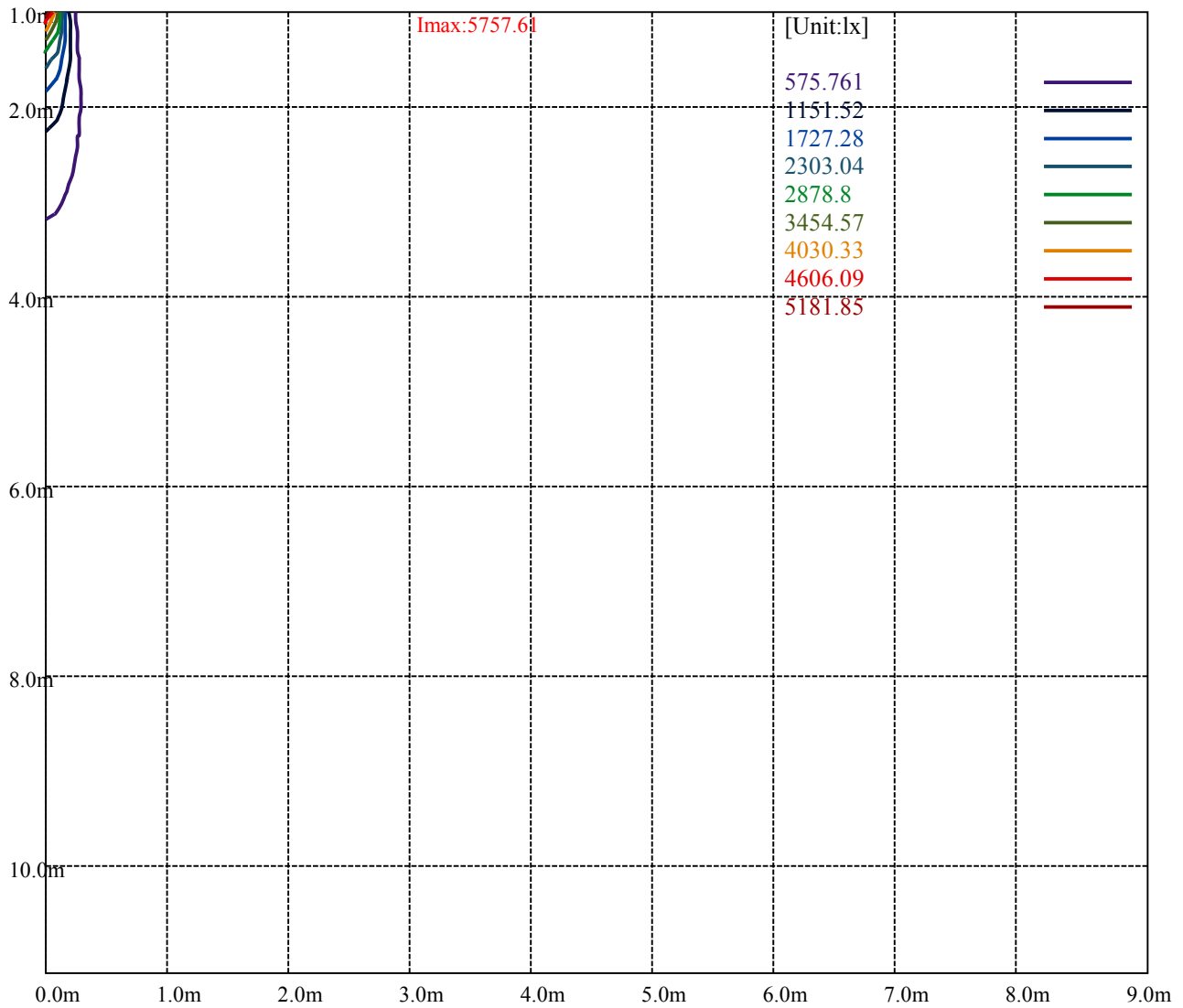
Road

Imax:5757.61

(10%Imax)	575.761	—
(20%Imax)	1151.52	—
(30%Imax)	1727.28	—
(40%Imax)	2303.04	—
(50%Imax)	2878.8	—
(60%Imax)	3454.57	—
(70%Imax)	4030.33	—
(80%Imax)	4606.09	—
(90%Imax)	5181.85	—



(10%Emax) 143.94	—
(20%Emax) 287.88	—
(30%Emax) 431.82	—
(40%Emax) 575.76	—
(50%Emax) 719.7	—
(60%Emax) 863.64	—
(70%Emax) 1007.58	—
(80%Emax) 1151.52	—
(90%Emax) 1295.46	—



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

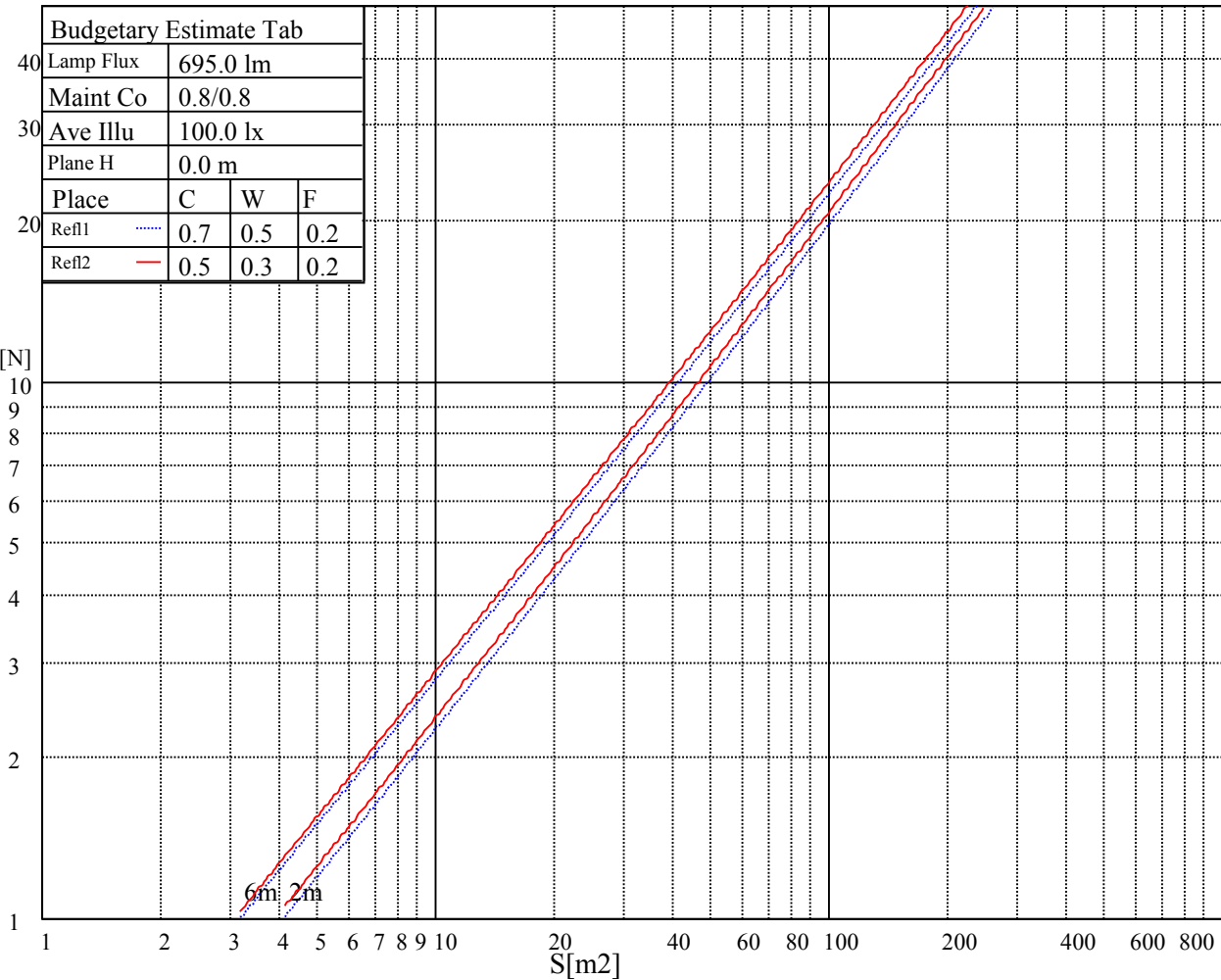
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

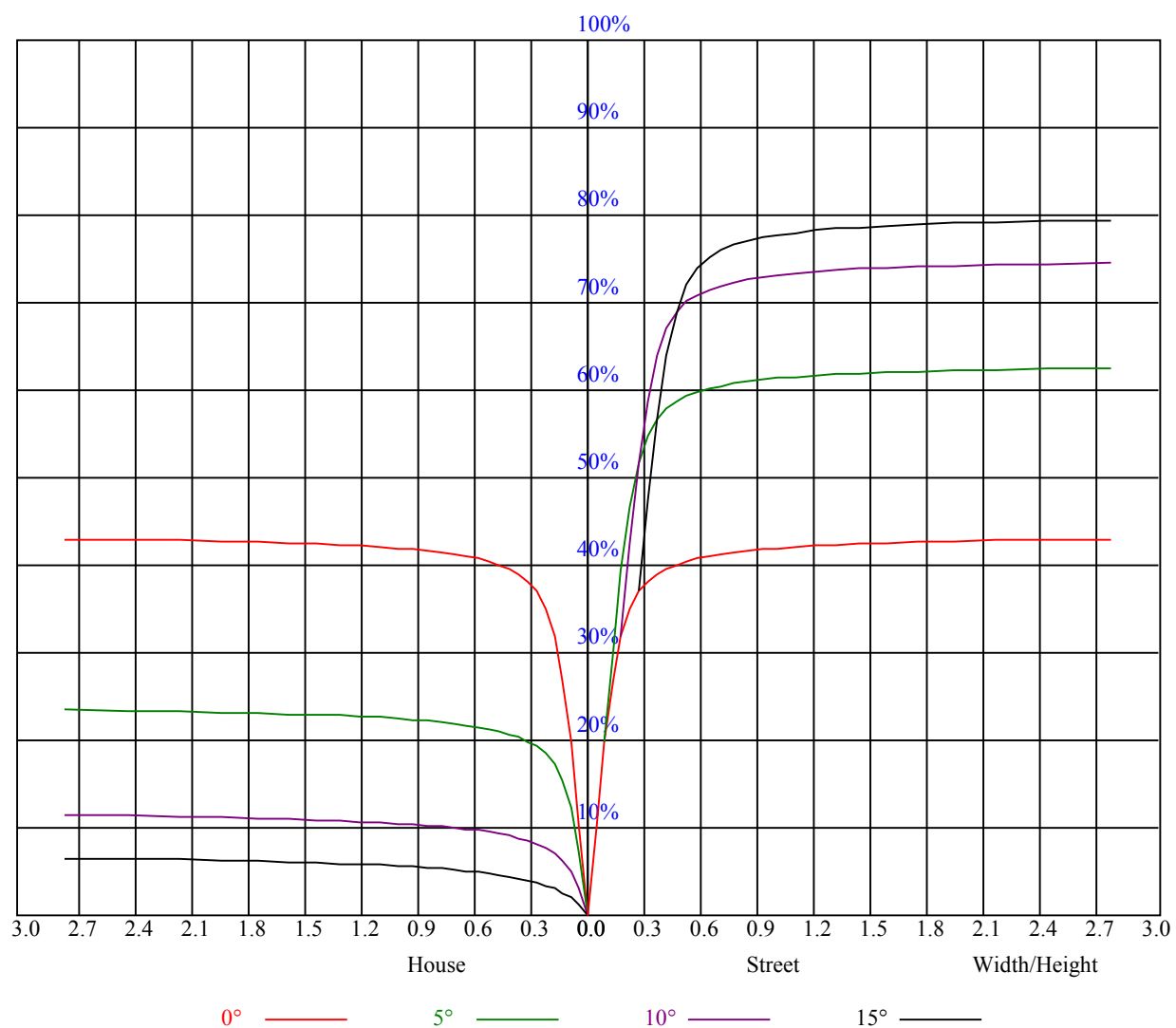
C0 ———

C45 ———

C90 ———



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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.98	0.96	0.95	0.96	0.95	0.93	0.93	0.91	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.84
2	0.93	0.91	0.89	0.92	0.90	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.84	0.83	0.82	0.81
3	0.90	0.87	0.84	0.89	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.83	0.81	0.80	0.79
4	0.87	0.83	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.81	0.79	0.78	0.76
5	0.84	0.80	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.76	0.75
6	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.75	0.78	0.76	0.74	0.73
7	0.80	0.76	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.73	0.76	0.74	0.73	0.72
8	0.78	0.74	0.72	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
9	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69
10	0.75	0.71	0.69	0.74	0.71	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.73	0.70	0.69	0.68



Nata LM01D04515DA

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	5766.19	5646.38	5373.56	4990.50	4569.75	4158.00	3503.25	3049.88	2662.88
45.0	5767.31	5716.13	5519.25	5189.63	4822.88	4334.63	3818.25	3350.81	2904.75
90.0	5774.06	5740.31	5564.25	5302.13	4900.50	4467.94	3959.44	3436.31	2984.63
135.0	5722.88	5810.63	5745.94	5545.13	5263.31	4892.06	4349.81	3881.25	3418.31
180.0	5766.19	5753.81	5582.25	5323.50	4986.00	4509.56	3989.81	3456.56	2991.38
225.0	5767.31	5673.94	5475.94	5142.38	4701.94	4255.88	3792.38	3219.19	2774.25
270.0	5774.06	5672.81	5427.00	5055.19	4640.06	4188.38	3604.50	3152.25	2710.13
315.0	5722.88	5495.06	5135.06	4742.44	4177.69	3758.06	3236.63	2730.38	2297.25
360.0	5766.19	5646.38	5373.56	4990.50	4569.75	4158.00	3503.25	3049.88	2662.88
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2090.25	1707.75	1407.38	1036.69	771.75	609.19	438.19	337.50	290.81
45.0	2372.63	1967.06	1597.50	1279.69	946.13	741.38	583.88	439.88	353.81
90.0	2539.69	2016.56	1647.56	1109.42	982.80	767.64	602.72	463.33	361.41
135.0	2907.56	2412.00	1994.63	1575.00	1212.19	944.44	711.00	555.75	421.31
180.0	2539.69	2006.44	1628.44	1113.81	982.41	732.49	563.46	434.93	316.74
225.0	2346.19	1842.75	1486.69	1108.86	892.18	672.13	523.07	396.17	314.49
270.0	2186.44	1795.50	1450.13	1116.56	842.63	649.13	486.56	378.56	291.94
315.0	1841.63	1277.44	1094.01	871.82	624.71	479.64	368.38	278.89	217.86
360.0	2090.25	1707.75	1407.38	1036.69	771.75	609.19	438.19	337.50	290.81
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	202.67	167.91	138.32	116.10	100.97	88.54	76.39	68.74	62.21
45.0	287.44	230.85	189.39	161.10	135.00	115.88	99.39	87.08	77.06
90.0	293.57	235.63	196.93	163.13	137.03	118.80	104.12	89.38	79.82
135.0	322.88	284.06	216.39	172.74	144.17	122.91	102.77	90.00	79.14
180.0	249.98	201.66	161.89	132.86	113.91	97.54	86.12	75.43	66.88
225.0	248.63	200.64	169.09	142.14	120.99	106.03	93.77	81.62	73.74
270.0	249.02	190.13	157.56	132.58	115.76	102.21	88.71	79.82	72.34
315.0	179.89	151.09	123.92	107.33	94.11	81.84	72.23	64.24	57.94
360.0	202.67	167.91	138.32	116.10	100.97	88.54	76.39	68.74	62.21
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	55.63	50.06	45.73	41.68	38.08	35.33	32.68	30.71	28.74
45.0	67.95	60.30	54.34	49.16	43.48	40.16	36.79	33.58	31.22
90.0	71.89	63.06	57.15	51.98	46.74	42.24	38.70	35.38	32.63
135.0	69.36	61.43	55.13	49.16	44.61	40.33	36.62	33.81	31.33
180.0	60.69	54.68	49.28	44.83	41.12	37.07	34.26	32.06	29.64
225.0	66.43	59.68	53.83	49.11	44.49	40.44	37.29	34.26	31.78
270.0	65.64	58.39	53.49	49.05	44.10	40.56	37.41	34.14	31.50
315.0	52.59	47.03	43.03	39.43	35.94	33.08	30.88	28.91	26.83
360.0	55.63	50.06	45.73	41.68	38.08	35.33	32.68	30.71	28.74
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	26.89	25.59	24.24	22.84	21.71	20.64	19.29	18.28	17.33
45.0	29.25	27.23	25.37	23.96	22.44	21.21	20.08	18.73	17.61
90.0	30.43	28.24	26.55	24.81	23.29	21.94	20.70	19.18	18.00
135.0	29.14	27.51	26.04	24.53	23.34	22.11	21.04	19.74	18.73
180.0	28.07	26.49	25.03	23.74	22.61	21.38	20.31	19.13	18.00
225.0	29.36	27.28	25.59	23.85	22.33	21.09	19.91	18.45	17.44
270.0	29.36	27.17	25.48	23.68	22.11	20.87	19.52	18.23	17.16
315.0	25.37	24.08	22.73	21.38	20.36	19.18	18.11	17.16	16.14
360.0	26.89	25.59	24.24	22.84	21.71	20.64	19.29	18.28	17.33

Nata LM01D04515DA

Intensity data(cd)										Appendix Page: 17 Total:18	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	16.31	15.30	14.46	13.56	12.88	12.21	11.64	11.19	10.69		
45.0	16.43	15.30	14.40	13.56	12.60	12.04	11.53	10.97	10.52		
90.0	16.93	15.69	14.74	13.84	12.99	12.21	11.64	11.14	10.69		
135.0	17.66	16.71	15.75	14.85	13.95	13.16	12.54	11.98	11.48		
180.0	17.04	16.03	15.02	14.18	13.44	12.66	12.09	11.53	11.03		
225.0	16.37	15.24	14.18	13.33	12.49	11.81	11.31	10.74	10.35		
270.0	16.20	14.85	13.89	13.16	12.26	11.53	11.08	10.46	10.07		
315.0	15.24	14.29	13.44	12.71	12.09	11.53	11.08	10.63	10.13		
360.0	16.31	15.30	14.46	13.56	12.88	12.21	11.64	11.19	10.69		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	10.24	9.90	9.51	9.11	8.83	8.55	8.16	7.88	7.65		
45.0	10.13	9.73	9.39	9.11	8.72	8.49	8.16	7.93	7.65		
90.0	10.29	9.96	9.62	9.23	8.94	8.61	8.38	8.10	7.82		
135.0	10.97	10.58	10.18	9.79	9.34	9.06	8.78	8.38	8.10		
180.0	10.58	10.24	9.79	9.39	9.11	8.78	8.49	8.21	7.88		
225.0	9.90	9.51	9.17	8.83	8.49	8.21	7.99	7.65	7.37		
270.0	9.73	9.23	8.94	8.66	8.33	8.04	7.76	7.48	7.26		
315.0	9.79	9.45	9.06	8.66	8.38	8.10	7.76	7.54	7.26		
360.0	10.24	9.90	9.51	9.11	8.83	8.55	8.16	7.88	7.65		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	7.31	7.09	6.86	6.64	6.41	6.19	5.96	5.79	5.57		
45.0	7.43	7.14	6.92	6.69	6.47	6.30	6.19	5.96	5.79		
90.0	7.59	7.37	7.14	6.98	6.75	6.58	6.86	8.21	10.41		
135.0	7.82	7.54	7.31	7.09	6.81	6.53	6.36	6.19	5.96		
180.0	7.65	7.43	7.09	6.86	6.64	6.36	6.19	6.02	5.85		
225.0	7.14	6.92	6.75	6.53	6.30	6.19	5.96	5.79	5.68		
270.0	7.09	6.86	6.64	6.47	6.30	6.92	8.61	10.97	13.61		
315.0	7.03	6.75	6.53	6.30	6.08	5.85	5.68	5.51	5.34		
360.0	7.31	7.09	6.86	6.64	6.41	6.19	5.96	5.79	5.57		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	5.40	5.23	5.06	4.89	4.73	4.56	4.44	4.28	4.16		
45.0	5.63	5.46	5.34	5.23	5.23	5.23	5.23	5.23	5.01		
90.0	12.66	15.36	17.83	19.91	21.15	21.09	19.91	18.11	16.09		
135.0	5.74	5.57	5.40	5.18	4.95	4.78	4.67	4.50	4.33		
180.0	5.68	5.51	5.23	5.12	4.95	4.73	4.61	4.44	4.22		
225.0	5.51	5.40	5.57	5.74	6.02	6.13	6.30	6.13	5.46		
270.0	16.20	18.73	20.48	21.71	21.99	21.15	19.52	17.10	14.96		
315.0	5.18	5.01	4.78	4.61	4.50	4.33	4.22	4.05	3.88		
360.0	5.40	5.23	5.06	4.89	4.73	4.56	4.44	4.28	4.16		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	3.99	3.88	3.71	3.54	3.38	3.21	3.09	2.93	2.81		
45.0	4.61	4.16	3.99	3.88	3.71	3.43	3.09	2.93	2.76		
90.0	14.12	11.87	9.06	5.91	4.05	3.77	3.09	2.87	2.81		
135.0	4.22	4.05	3.88	3.66	3.43	3.26	3.09	2.93	2.81		
180.0	4.11	3.99	3.83	3.66	3.49	3.38	3.21	2.98	2.87		
225.0	4.78	4.11	3.88	3.77	3.54	3.38	3.04	2.87	2.70		
270.0	12.38	9.17	5.68	4.16	3.94	3.66	3.09	2.81	2.76		
315.0	3.77	3.60	3.38	3.21	3.04	2.87	2.76	2.70	2.64		
360.0	3.99	3.88	3.71	3.54	3.38	3.21	3.09	2.93	2.81		

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	2.76
45.0	2.70
90.0	2.76
135.0	2.76
180.0	2.81
225.0	2.70
270.0	2.70
315.0	2.64
360.0	2.76