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Nata

LumCAT: LN01D03524DA-N

Luminaire: 97.70.267.00

Report No: 200612-B007

Test No: 200612-C007

LampCAT: LUMINUS CXM-4-AC40

Lamp flux(lm): 606.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 34.6300

Current(A): 0.1500

Power (W): 5.1900

PF: 0.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 521.85

Efficiency(%): 86.11%

Lumens(lm)/Power(W): 100.55

Central intensity(cd): 2250.844

Maximum intensity(cd): 2250.844

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=25.9

[C90/270]Total=25.9

Field angle(10%Imax): [C0/180]Total=42.7

[C90/270]Total=42.7

Maximum s/h(1/2): C0_180=0.44 C90_270=0.44

Maximum s/h(1/4): C0_180=0.42 C90_270=0.42

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.11%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.301%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2250.844	0.000	0	.000%	.000%
1.0	2248.172	2.153	2.153	.355%	.413%
2.0	2230.313	6.428	8.581	1.061%	1.644%
3.0	2200.781	10.598	19.178	1.749%	3.675%
4.0	2154.797	14.580	33.758	2.406%	6.469%
5.0	2102.344	18.314	52.072	3.022%	9.978%
6.0	2024.438	21.687	73.759	3.579%	14.134%
7.0	1938.938	24.601	98.36	4.060%	18.848%
8.0	1841.344	27.055	125.415	4.464%	24.033%
9.0	1713.234	28.808	154.222	4.754%	29.553%
10.0	1575.984	29.766	183.989	4.912%	35.257%
11.0	1440.281	30.139	214.127	4.973%	41.033%
12.0	1266.989	29.594	243.722	4.884%	46.704%
13.0	1114.214	28.259	271.981	4.663%	52.119%
14.0	972.070	26.704	298.685	4.407%	57.236%
15.0	834.427	24.800	323.485	4.092%	61.989%
16.0	695.194	22.413	345.898	3.699%	66.284%
17.0	571.809	19.731	365.629	3.256%	70.065%
18.0	468.998	17.161	382.79	2.832%	73.353%
19.0	374.555	14.676	397.466	2.422%	76.165%
20.0	300.375	12.353	409.819	2.038%	78.533%
21.0	239.231	10.362	420.181	1.710%	80.518%
22.0	196.355	8.753	428.934	1.444%	82.196%
23.0	150.258	7.273	436.207	1.200%	83.589%
24.0	120.403	5.918	442.124	.977%	84.723%
25.0	98.902	4.987	447.111	.823%	85.679%
26.0	85.556	4.354	451.465	.719%	86.513%
27.0	75.248	3.934	455.399	.649%	87.267%
28.0	64.673	3.543	458.942	.585%	87.946%
29.0	58.556	3.224	462.166	.532%	88.564%
30.0	53.339	3.021	465.187	.499%	89.143%
31.0	47.728	2.813	467.999	.464%	89.682%
32.0	43.636	2.617	470.617	.432%	90.183%
33.0	40.388	2.475	473.092	.408%	90.658%
34.0	36.886	2.339	475.431	.386%	91.106%
35.0	33.891	2.198	477.629	.363%	91.527%
36.0	31.584	2.085	479.713	.344%	91.926%
37.0	29.109	1.979	481.693	.327%	92.306%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	27.113	1.877	483.57	.310%	92.665%
39.0	25.144	1.784	485.353	.294%	93.007%
40.0	23.189	1.686	487.039	.278%	93.330%
41.0	21.656	1.597	488.636	.264%	93.636%
42.0	20.138	1.518	490.154	.251%	93.927%
43.0	18.520	1.432	491.586	.236%	94.201%
44.0	17.241	1.350	492.936	.223%	94.460%
45.0	16.088	1.281	494.217	.211%	94.706%
46.0	14.794	1.208	495.425	.199%	94.937%
47.0	13.781	1.137	496.561	.188%	95.155%
48.0	12.923	1.080	497.641	.178%	95.362%
49.0	12.094	1.027	498.668	.170%	95.559%
50.0	11.377	0.979	499.646	.161%	95.746%
51.0	10.842	0.940	500.587	.155%	95.926%
52.0	10.294	0.907	501.493	.150%	96.100%
53.0	9.816	0.875	502.368	.144%	96.268%
54.0	9.366	0.845	503.214	.140%	96.430%
55.0	8.944	0.817	504.031	.135%	96.586%
56.0	8.592	0.792	504.823	.131%	96.738%
57.0	8.213	0.768	505.592	.127%	96.885%
58.0	7.861	0.743	506.335	.123%	97.028%
59.0	7.594	0.723	507.058	.119%	97.166%
60.0	7.298	0.704	507.761	.116%	97.301%
61.0	7.017	0.683	508.444	.113%	97.432%
62.0	6.764	0.664	509.108	.110%	97.559%
63.0	6.539	0.647	509.755	.107%	97.683%
64.0	6.286	0.629	510.385	.104%	97.804%
65.0	6.103	0.613	510.998	.101%	97.921%
66.0	5.906	0.599	511.597	.099%	98.036%
67.0	5.738	0.585	512.182	.097%	98.148%
68.0	5.527	0.571	512.753	.094%	98.258%
69.0	5.400	0.557	513.31	.092%	98.364%
70.0	5.231	0.546	513.856	.090%	98.469%
71.0	5.091	0.533	514.39	.088%	98.571%
72.0	4.950	0.522	514.912	.086%	98.671%
73.0	4.795	0.510	515.422	.084%	98.769%
74.0	4.655	0.497	515.918	.082%	98.864%
75.0	4.514	0.484	516.403	.080%	98.957%

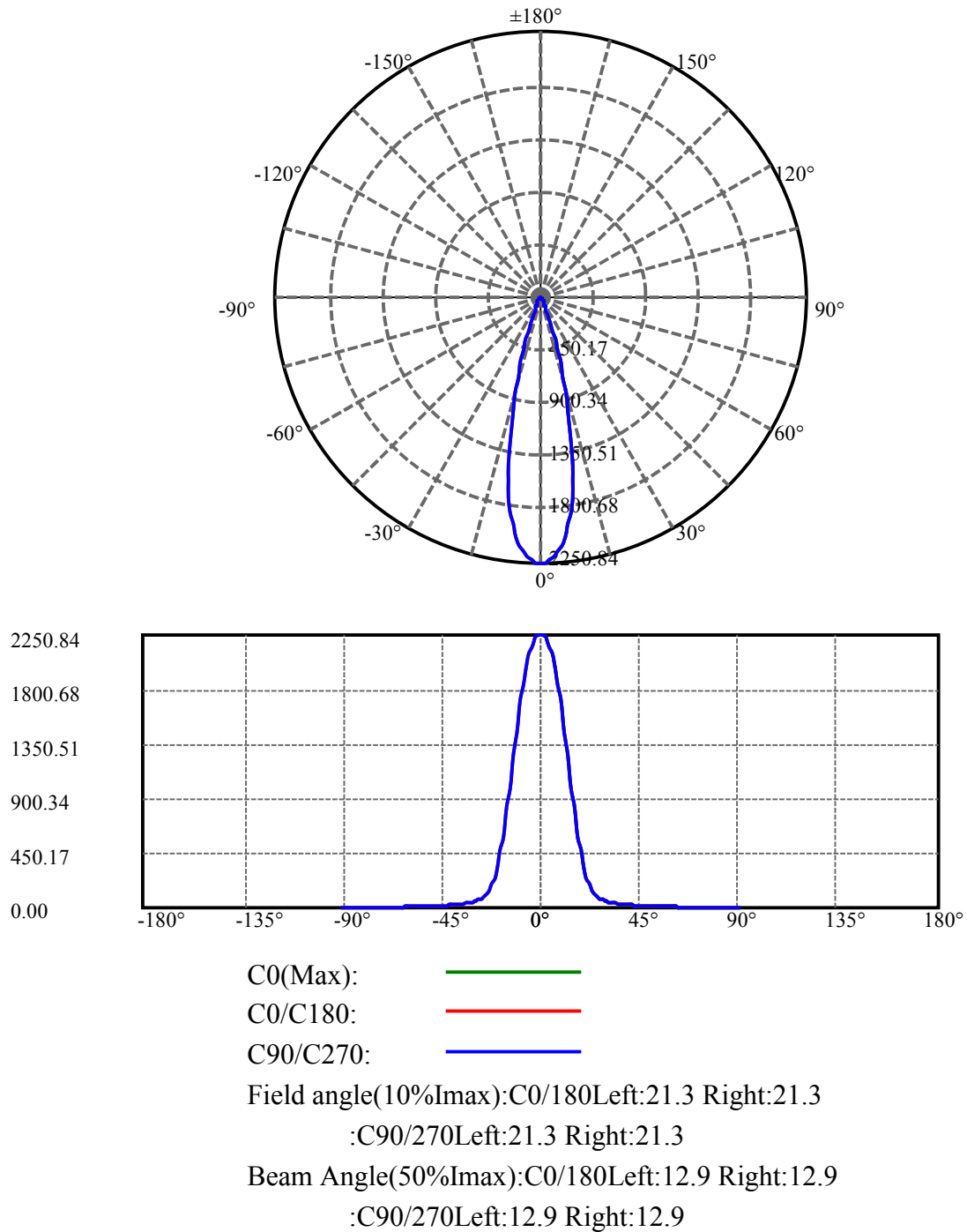
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.373	0.472	516.875	.078%	99.047%
77.0	4.275	0.461	517.336	.076%	99.136%
78.0	4.134	0.450	517.786	.074%	99.222%
79.0	3.952	0.434	518.22	.072%	99.305%
80.0	3.783	0.417	518.637	.069%	99.385%
81.0	3.642	0.402	519.039	.066%	99.462%
82.0	3.473	0.386	519.425	.064%	99.536%
83.0	3.291	0.368	519.792	.061%	99.607%
84.0	3.136	0.350	520.143	.058%	99.674%
85.0	2.953	0.332	520.475	.055%	99.737%
86.0	2.770	0.313	520.788	.052%	99.797%
87.0	2.559	0.292	521.079	.048%	99.853%
88.0	2.363	0.270	521.349	.044%	99.905%
89.0	2.250	0.253	521.602	.042%	99.953%
90.0	2.194	0.244	521.845	.040%	100.000%

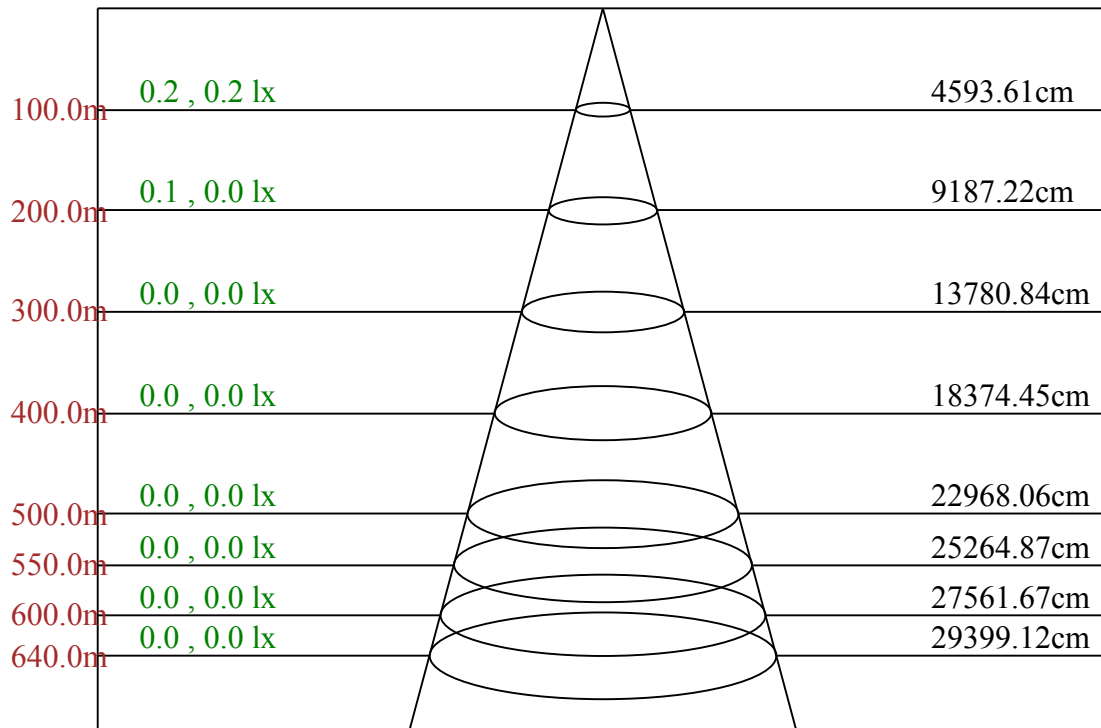
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	465.19	76.76%	89.14%
0-40	487.04	80.37%	93.33%
0-60	507.76	83.79%	97.30%
0-90	521.60	86.07%	99.95%
0-120	521.60	86.07%	99.95%
0-180	521.85	86.11%	100.00%
60-90	14.54	2.40%	2.79%
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%
0-20.74	417.48	68.89%	80.00%

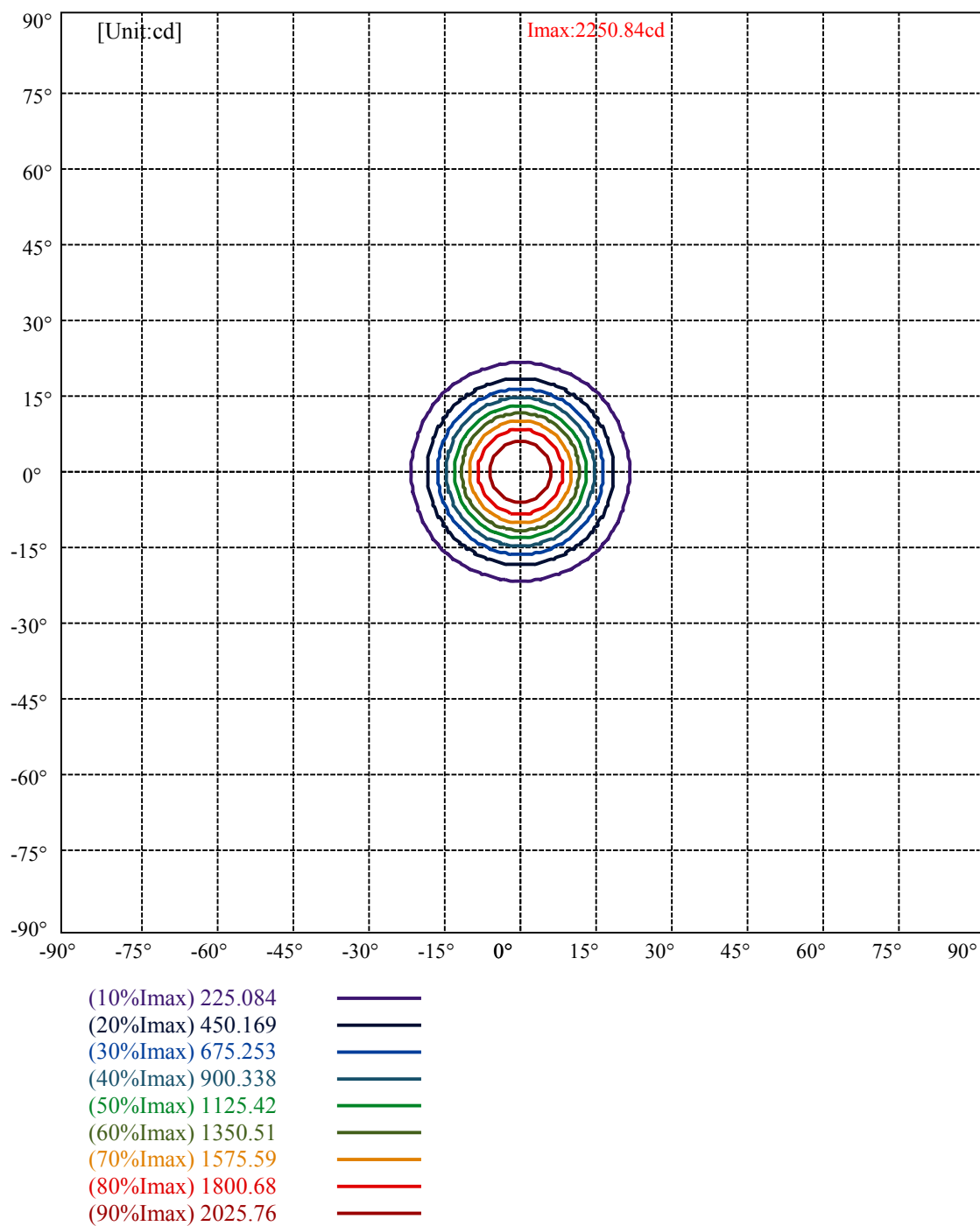
ZONAL LUMEN SUMMARY

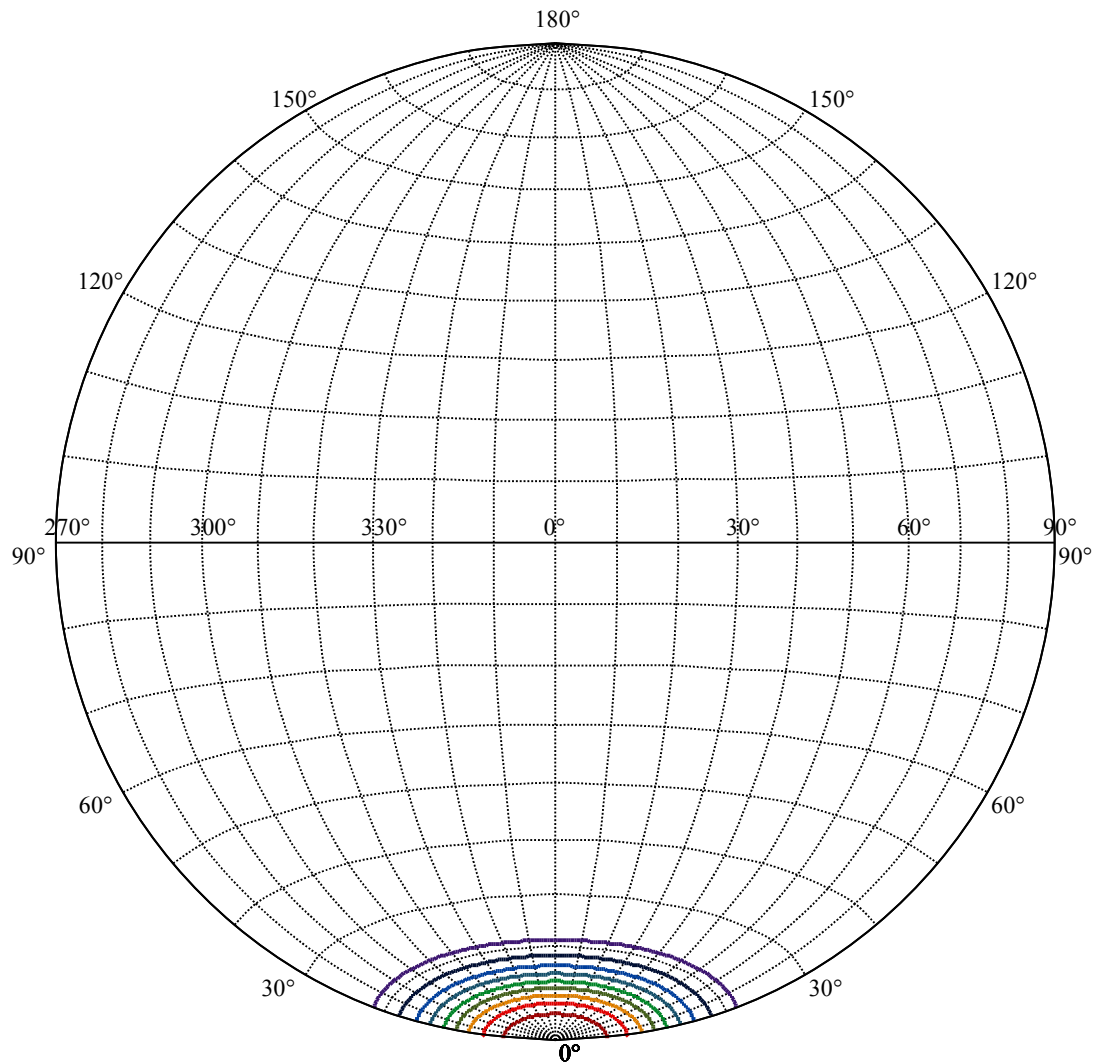
0-10	183.99
10-20	225.83
20-30	55.37
30-40	21.85
40-50	12.61
50-60	8.11
60-70	6.10
70-80	4.78
80-90	2.96
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00





Max , Ave Beam angle of C0 plane 25.87





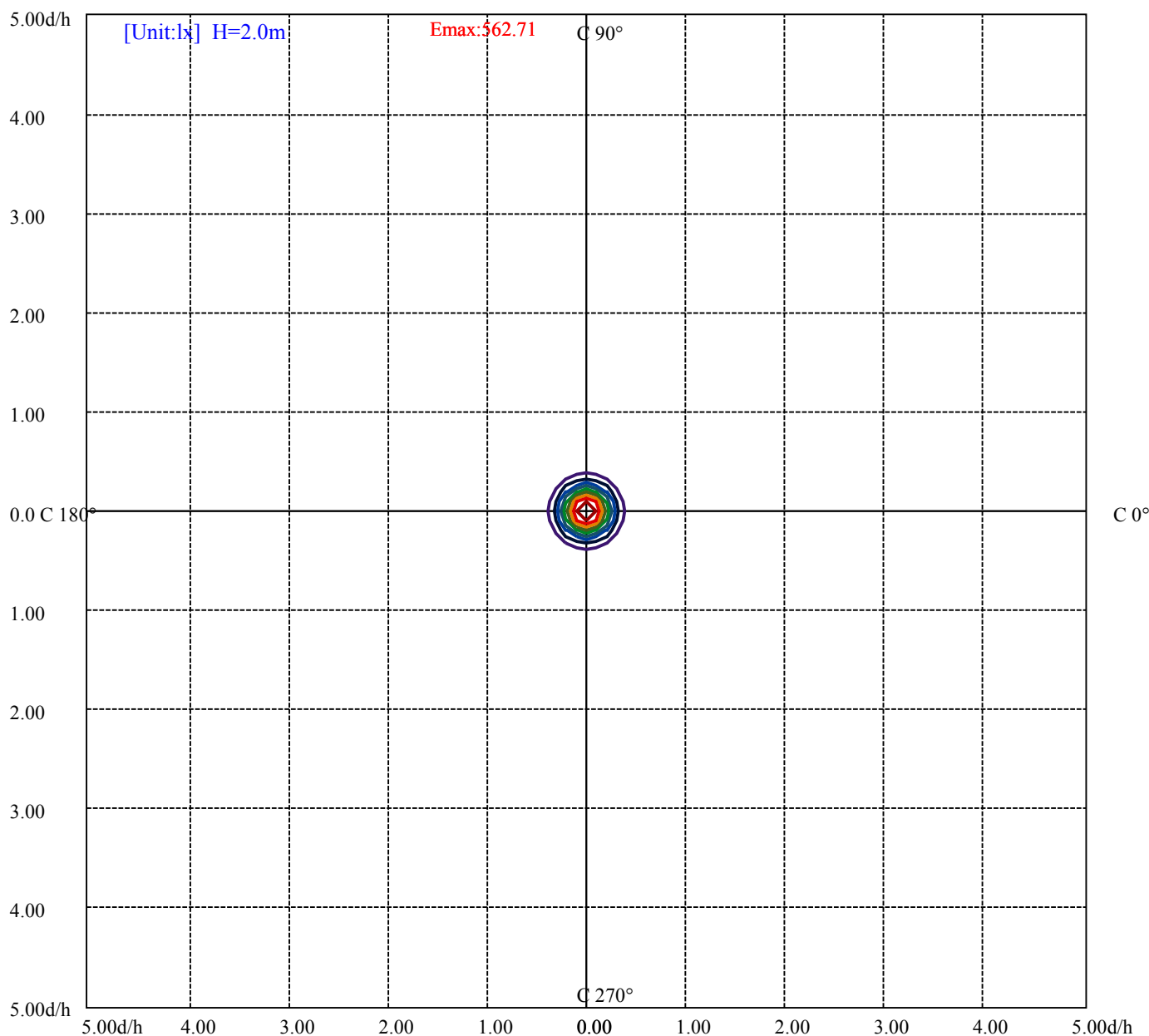
House

[Unit:cd]

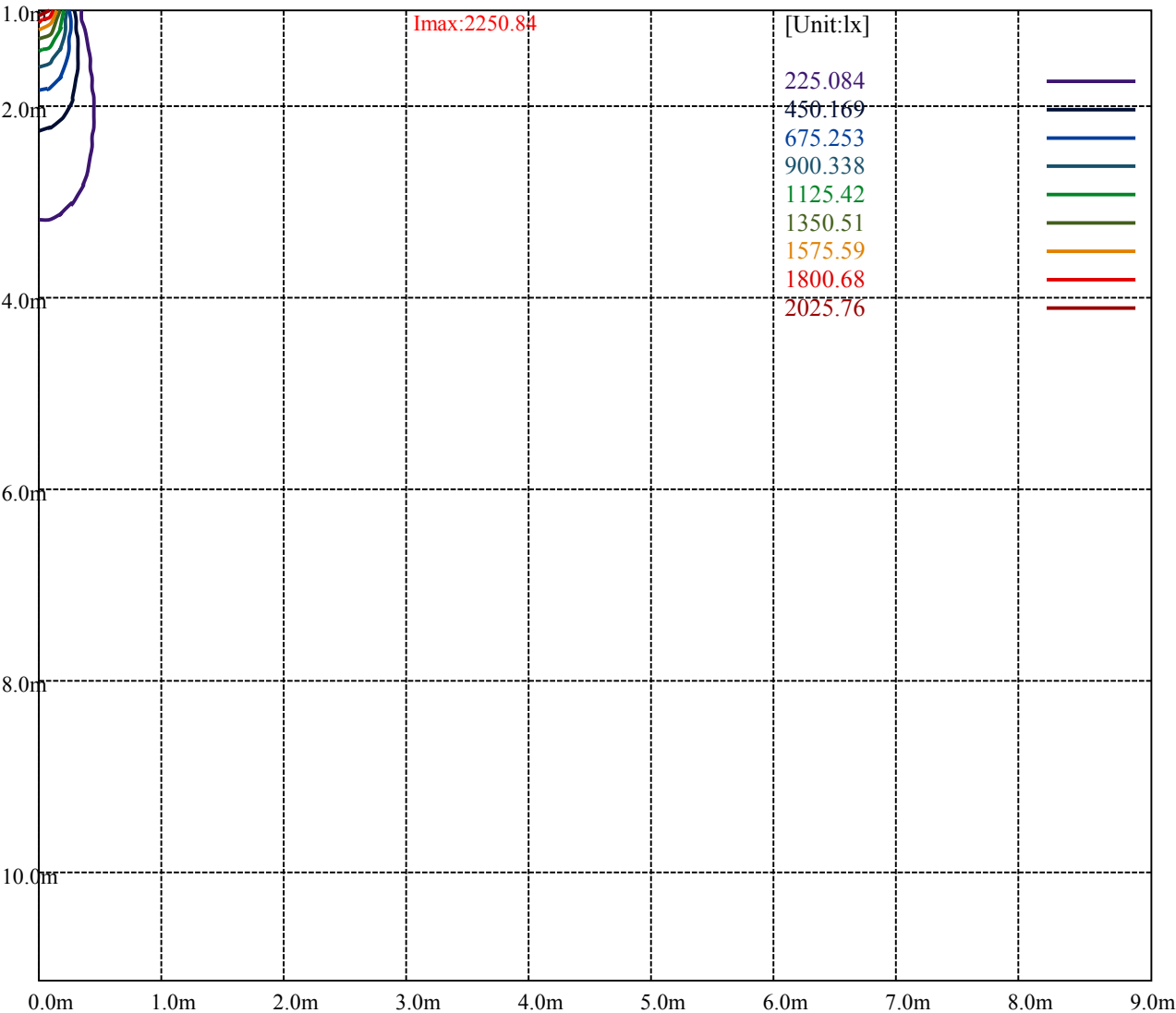
Road

Imax:2250.84

(10%Imax)	225.084	
(20%Imax)	450.169	
(30%Imax)	675.253	
(40%Imax)	900.338	
(50%Imax)	1125.42	
(60%Imax)	1350.51	
(70%Imax)	1575.59	
(80%Imax)	1800.68	
(90%Imax)	2025.76	



(10%Emax) 56.271	—
(20%Emax) 112.5423	—
(30%Emax) 168.8132	—
(40%Emax) 225.0842	—
(50%Emax) 281.355	—
(60%Emax) 337.6275	—
(70%Emax) 393.8975	—
(80%Emax) 450.1675	—
(90%Emax) 506.44	—



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

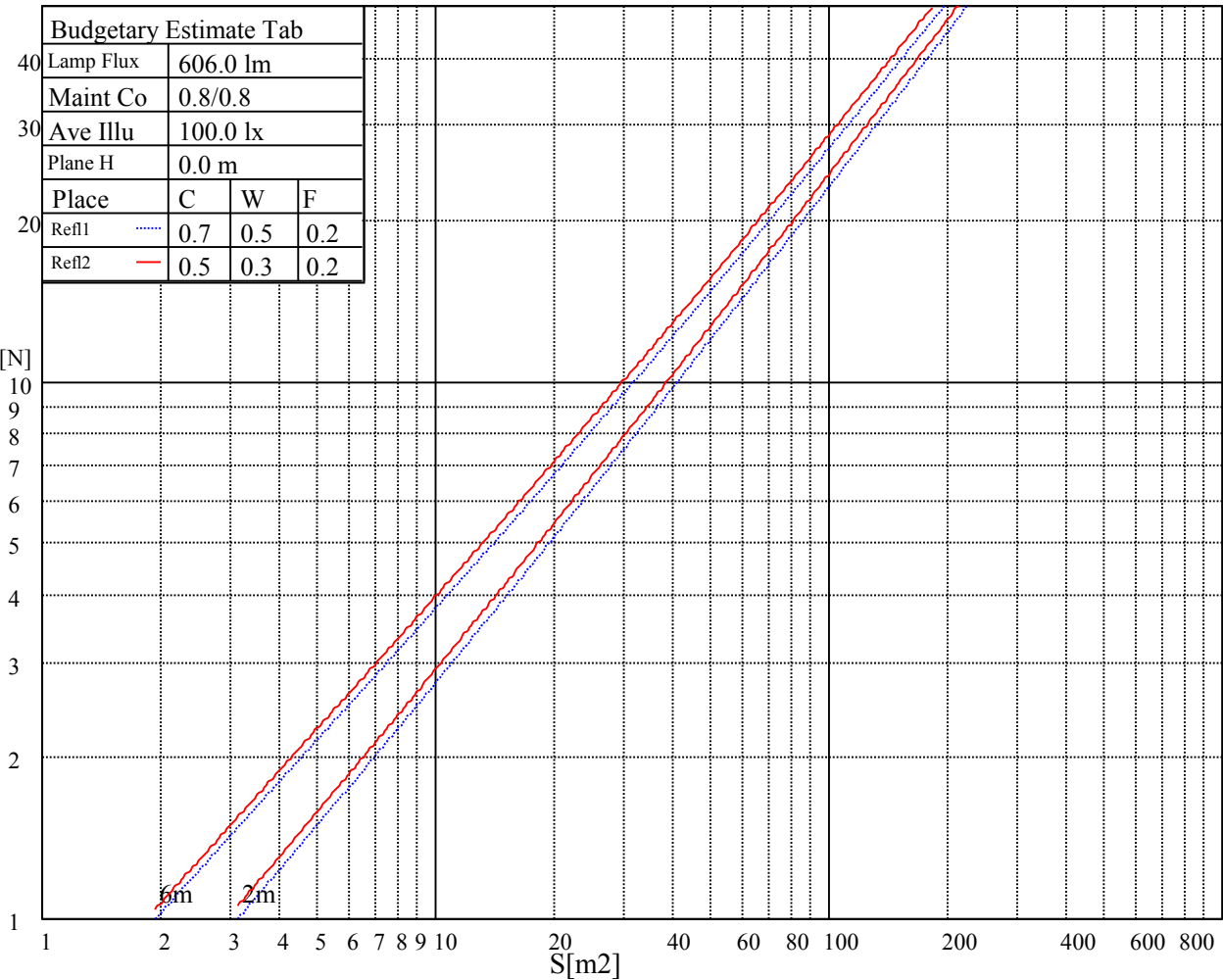
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

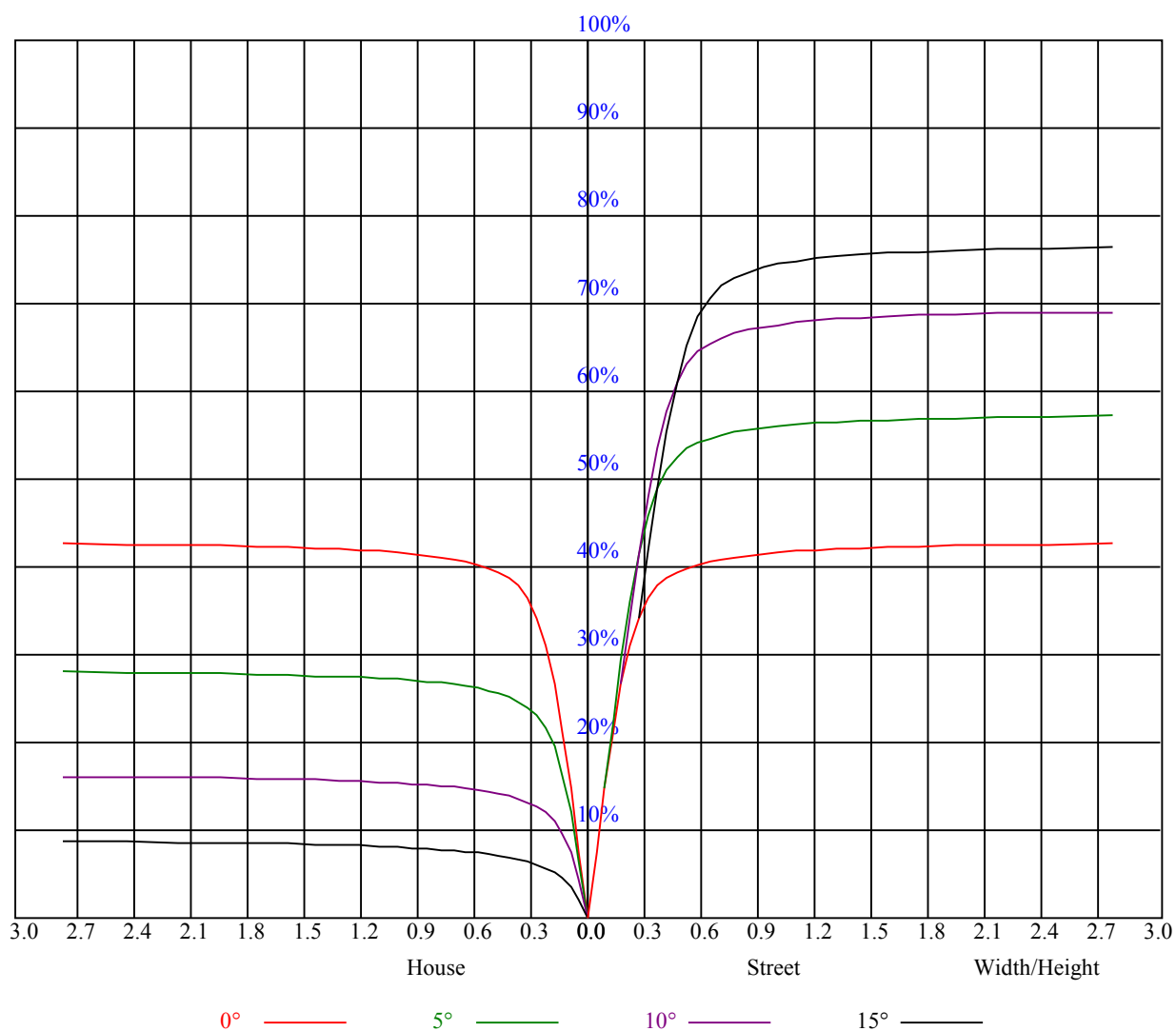
C0 ———

C45 ———

C90 ———



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 RHOFC=20 CU															
0	1.03	1.03	1.03	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.86
1	0.96	0.95	0.93	0.95	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.82
2	0.91	0.89	0.86	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.82	0.81	0.80	0.79
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	0.76
4	0.83	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.77	0.74	0.71	0.77	0.73	0.71	0.76	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.72	0.69	0.67	0.66
8	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.65	0.70	0.67	0.65	0.64
9	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.63
10	0.68	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.61



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	2257.88	2261.25	2245.50	2218.50	2169.00	2121.19	2059.31	1977.75	1891.69
90.0	2243.81	2242.69	2231.44	2214.56	2187.56	2151.56	2090.81	2033.44	1957.50
180.0	2257.88	2251.13	2230.31	2196.56	2153.25	2091.38	1994.63	1896.19	1782.56
270.0	2243.81	2237.63	2214.00	2173.50	2109.38	2045.25	1953.00	1848.38	1733.63
360.0	2257.88	2261.25	2245.50	2218.50	2169.00	2121.19	2059.31	1977.75	1891.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1786.50	1663.88	1540.13	1406.81	1229.63	1082.81	943.88	790.31	653.06
90.0	1846.69	1739.81	1623.94	1465.88	1302.75	1155.38	995.63	861.19	718.88
180.0	1613.25	1469.25	1316.25	1086.19	978.30	839.36	711.51	582.02	466.82
270.0	1606.50	1431.00	1280.81	1109.08	946.18	810.73	686.70	547.26	448.48
360.0	1786.50	1663.88	1540.13	1406.81	1229.63	1082.81	943.88	790.31	653.06
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	545.63	439.88	351.00	290.81	218.93	175.56	138.09	111.32	93.77
90.0	587.25	485.44	386.44	308.81	284.06	188.66	147.15	118.18	100.46
180.0	378.73	295.59	235.74	179.21	145.46	120.77	100.46	85.73	75.94
270.0	364.39	277.31	228.32	178.09	136.97	116.04	95.91	80.38	72.06
360.0	545.63	439.88	351.00	290.81	218.93	175.56	138.09	111.32	93.77
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	80.94	69.53	62.55	56.98	50.91	46.74	43.14	39.49	36.17
90.0	87.81	73.29	65.59	59.23	51.69	47.08	43.54	39.26	36.00
180.0	67.95	59.96	54.56	49.95	45.45	41.46	38.53	35.44	32.74
270.0	64.29	55.91	51.53	47.19	42.86	39.26	36.34	33.36	30.66
360.0	80.94	69.53	62.55	56.98	50.91	46.74	43.14	39.49	36.17
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	33.58	30.99	28.86	26.72	24.69	23.12	21.43	19.91	18.68
90.0	33.69	30.77	28.58	26.61	24.30	22.61	21.04	19.29	17.78
180.0	30.60	28.41	26.55	24.64	22.84	21.32	19.86	18.23	17.04
270.0	28.46	26.27	24.47	22.61	20.93	19.58	18.23	16.65	15.47
360.0	33.58	30.99	28.86	26.72	24.69	23.12	21.43	19.91	18.68
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	17.44	16.20	15.02	14.06	13.16	12.26	11.64	11.08	10.46
90.0	16.59	15.13	14.06	13.05	12.09	11.36	10.74	10.13	9.68
180.0	15.92	14.68	13.78	12.99	12.21	11.59	11.08	10.52	10.07
270.0	14.40	13.16	12.26	11.59	10.91	10.29	9.90	9.45	9.06
360.0	17.44	16.20	15.02	14.06	13.16	12.26	11.64	11.08	10.46
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.01	9.51	9.11	8.72	8.33	7.99	7.65	7.31	7.03
90.0	9.17	8.78	8.44	8.04	7.71	7.48	7.14	6.92	6.69
180.0	9.62	9.17	8.83	8.44	8.04	7.76	7.48	7.20	6.92
270.0	8.66	8.33	7.99	7.65	7.37	7.14	6.92	6.64	6.41
360.0	10.01	9.51	9.11	8.72	8.33	7.99	7.65	7.31	7.03
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.81	6.47	6.30	6.08	5.91	5.63	5.51	5.34	5.18
90.0	6.47	6.19	6.02	5.85	5.74	5.51	5.46	5.23	5.12
180.0	6.64	6.41	6.24	6.02	5.79	5.63	5.46	5.29	5.18
270.0	6.24	6.08	5.85	5.68	5.51	5.34	5.18	5.06	4.89
360.0	6.81	6.47	6.30	6.08	5.91	5.63	5.51	5.34	5.18

Nata LM01D03524DA

Intensity data(cd)										Appendix Page: 17 Total:17	
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	5.01	4.89	4.73	4.56	4.44	4.33	4.16	4.05	3.88		
90.0	5.01	4.84	4.73	4.61	4.44	4.39	4.33	4.05	3.83		
180.0	5.01	4.84	4.73	4.56	4.39	4.28	4.11	3.94	3.77		
270.0	4.78	4.61	4.44	4.33	4.22	4.11	3.94	3.77	3.66		
360.0	5.01	4.89	4.73	4.56	4.44	4.33	4.16	4.05	3.88		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	3.77	3.60	3.43	3.26	3.09	2.93	2.76	2.53	2.42		
90.0	3.71	3.54	3.38	3.21	3.04	2.87	2.64	2.36	2.19		
180.0	3.60	3.43	3.26	3.09	2.87	2.70	2.48	2.31	2.25		
270.0	3.49	3.32	3.09	2.98	2.81	2.59	2.36	2.25	2.14		
360.0	3.77	3.60	3.43	3.26	3.09	2.93	2.76	2.53	2.42		
C/ γ (°)	90.0										
0.0	2.31										
90.0	2.08										
180.0	2.31										
270.0	2.08										
360.0	2.31										