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Nata

LumCAT: 2-2188-M
Luminaire: 92.70.131.00
Report No: 200406-B024
Test No: 200406-C024
LampCAT: LUMINUS CXM-14-AC40
Lamp flux(lm): 2111.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 220.2000
Current(A): 0.0890
Power (W): 18.8300
PF: 0.9530
Ballast type: AC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1610.40
Efficiency(%): 76.29%
Lumens(lm)/Power(W): 85.52
Central intensity(cd): 4441.542
Maximum intensity(cd): 4441.542
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=37.2
[C90/270]Total=37.2
Field angle(10%Imax): [C0/180]Total=55.2
[C90/270]Total=55.2
Maximum s/h(1/2): C0_180=0.61 C90_270=0.61
Maximum s/h(1/4): C0_180=0.58 C90_270=0.58
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 76.29%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.747%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4441.542	0.000	0	.000%	.000%
1.0	4432.494	4.246	4.246	.201%	.264%
2.0	4406.276	12.686	16.932	.601%	1.051%
3.0	4363.759	20.975	37.907	.994%	2.354%
4.0	4305.349	29.018	66.926	1.375%	4.156%
5.0	4236.672	36.747	103.673	1.741%	6.438%
6.0	4142.995	44.037	147.71	2.086%	9.172%
7.0	4036.963	50.773	198.483	2.405%	12.325%
8.0	3935.340	57.056	255.539	2.703%	15.868%
9.0	3802.336	62.710	318.249	2.971%	19.762%
10.0	3669.797	67.620	385.869	3.203%	23.961%
11.0	3533.255	71.973	457.842	3.409%	28.430%
12.0	3402.224	75.815	533.657	3.591%	33.138%
13.0	3235.984	78.779	612.436	3.732%	38.030%
14.0	3078.792	80.829	693.265	3.829%	43.049%
15.0	2919.455	82.347	775.611	3.901%	48.163%
16.0	2731.115	82.797	858.408	3.922%	53.304%
17.0	2558.147	82.368	940.776	3.902%	58.419%
18.0	2343.531	80.818	1021.594	3.828%	63.437%
19.0	2143.707	78.069	1099.663	3.698%	68.285%
20.0	1931.412	74.586	1174.249	3.533%	72.917%
21.0	1719.348	70.102	1244.351	3.321%	77.270%
22.0	1483.637	64.365	1308.716	3.049%	81.267%
23.0	1263.691	57.646	1366.362	2.731%	84.846%
24.0	1017.005	49.864	1416.226	2.362%	87.943%
25.0	877.220	43.071	1459.297	2.040%	90.617%
26.0	698.336	37.191	1496.488	1.762%	92.927%
27.0	543.714	30.387	1526.875	1.439%	94.814%
28.0	380.223	23.392	1550.267	1.108%	96.266%
29.0	283.646	17.369	1567.636	.823%	97.345%
30.0	205.636	13.211	1580.847	.626%	98.165%
31.0	113.532	8.882	1589.729	.421%	98.717%
32.0	71.948	5.314	1595.042	.252%	99.047%
33.0	33.468	3.106	1598.148	.147%	99.239%
34.0	20.615	1.637	1599.785	.078%	99.341%
35.0	13.057	1.046	1600.83	.050%	99.406%
36.0	8.579	0.689	1601.519	.033%	99.449%
37.0	6.056	0.477	1601.997	.023%	99.478%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	4.664	0.358	1602.354	.017%	99.501%
39.0	3.909	0.293	1602.647	.014%	99.519%
40.0	3.434	0.256	1602.903	.012%	99.535%
41.0	3.150	0.234	1603.138	.011%	99.549%
42.0	2.912	0.220	1603.358	.010%	99.563%
43.0	2.732	0.209	1603.567	.010%	99.576%
44.0	2.575	0.200	1603.767	.009%	99.588%
45.0	2.454	0.193	1603.96	.009%	99.600%
46.0	2.309	0.186	1604.147	.009%	99.612%
47.0	2.198	0.179	1604.326	.008%	99.623%
48.0	2.123	0.175	1604.501	.008%	99.634%
49.0	2.048	0.171	1604.672	.008%	99.645%
50.0	1.966	0.167	1604.839	.008%	99.655%
51.0	1.850	0.161	1605.001	.008%	99.665%
52.0	1.804	0.157	1605.157	.007%	99.675%
53.0	1.752	0.155	1605.312	.007%	99.684%
54.0	1.688	0.152	1605.464	.007%	99.694%
55.0	1.630	0.148	1605.612	.007%	99.703%
56.0	1.566	0.144	1605.756	.007%	99.712%
57.0	1.537	0.142	1605.898	.007%	99.721%
58.0	1.520	0.141	1606.04	.007%	99.729%
59.0	1.456	0.139	1606.179	.007%	99.738%
60.0	1.427	0.136	1606.315	.006%	99.747%
61.0	1.404	0.135	1606.45	.006%	99.755%
62.0	1.380	0.134	1606.584	.006%	99.763%
63.0	1.351	0.133	1606.717	.006%	99.772%
64.0	1.322	0.131	1606.848	.006%	99.780%
65.0	1.340	0.132	1606.98	.006%	99.788%
66.0	1.317	0.133	1607.112	.006%	99.796%
67.0	1.305	0.132	1607.244	.006%	99.804%
68.0	1.299	0.132	1607.376	.006%	99.812%
69.0	1.264	0.131	1607.507	.006%	99.821%
70.0	1.259	0.130	1607.637	.006%	99.829%
71.0	1.276	0.131	1607.768	.006%	99.837%
72.0	1.259	0.132	1607.899	.006%	99.845%
73.0	1.247	0.131	1608.03	.006%	99.853%
74.0	1.241	0.131	1608.161	.006%	99.861%
75.0	1.241	0.131	1608.292	.006%	99.869%

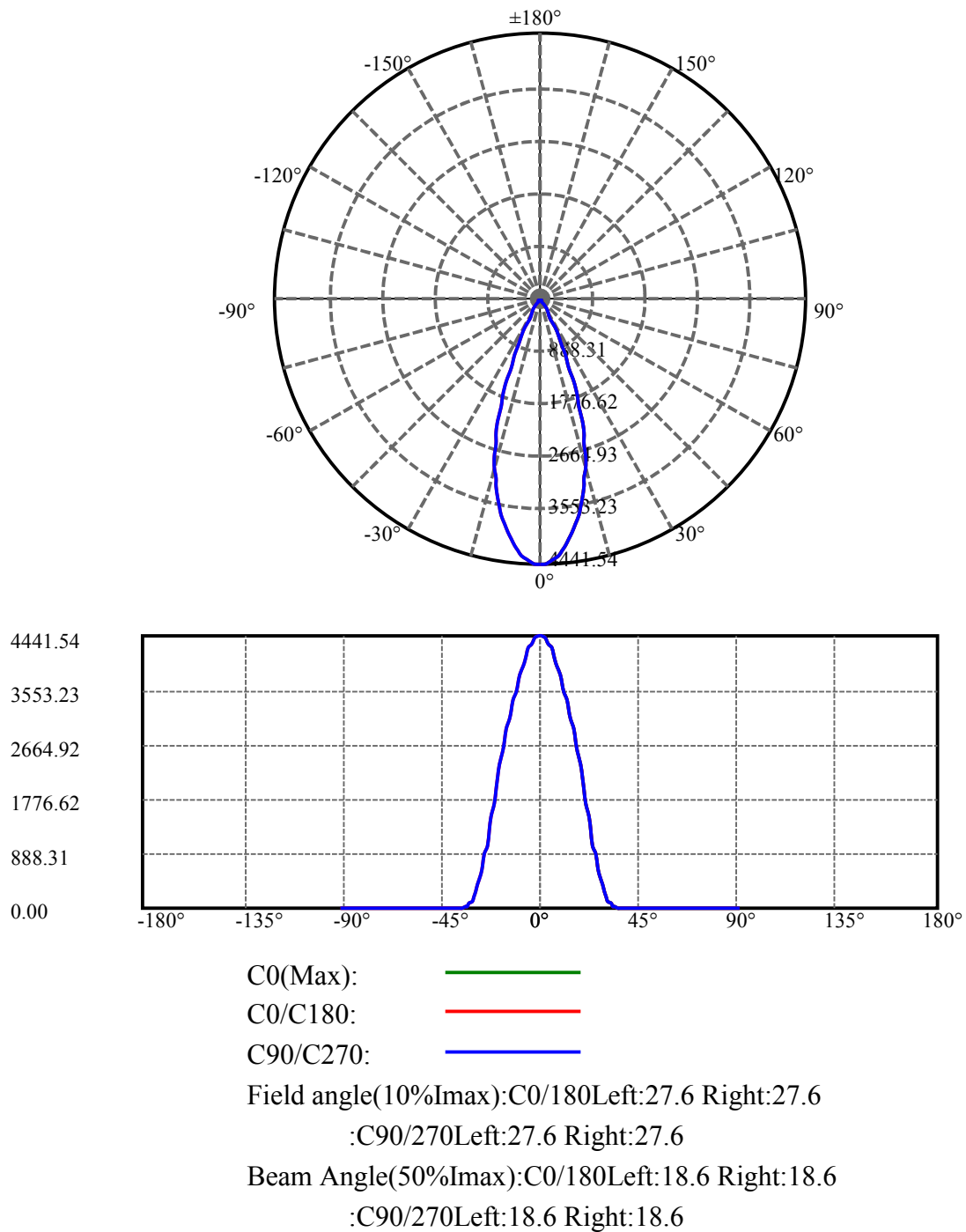
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.241	0.132	1608.424	.006%	99.878%
77.0	1.253	0.133	1608.557	.006%	99.886%
78.0	1.253	0.134	1608.691	.006%	99.894%
79.0	1.253	0.135	1608.826	.006%	99.902%
80.0	1.264	0.136	1608.962	.006%	99.911%
81.0	1.264	0.137	1609.098	.006%	99.919%
82.0	1.270	0.137	1609.236	.007%	99.928%
83.0	1.259	0.137	1609.373	.007%	99.936%
84.0	1.264	0.137	1609.511	.007%	99.945%
85.0	1.299	0.140	1609.651	.007%	99.954%
86.0	1.328	0.144	1609.794	.007%	99.963%
87.0	1.322	0.145	1609.939	.007%	99.972%
88.0	1.334	0.146	1610.085	.007%	99.981%
89.0	1.421	0.151	1610.236	.007%	99.990%
90.0	1.508	0.161	1610.397	.008%	100.000%

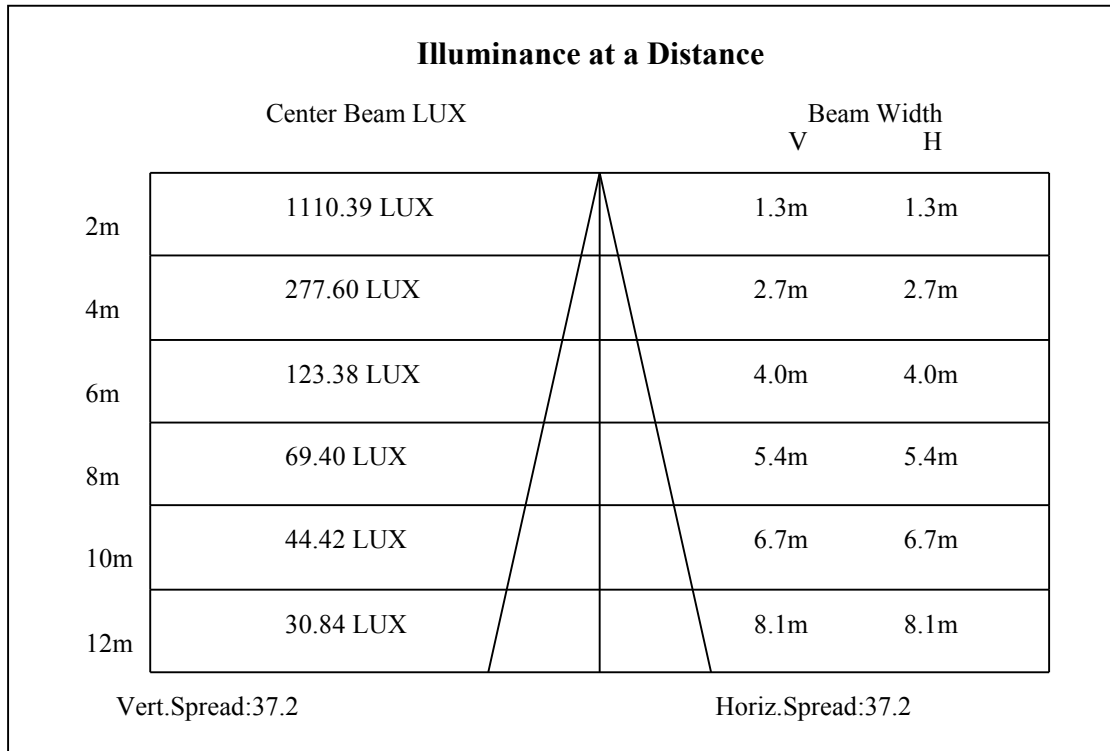
ZONAL LUMEN SUMMARY

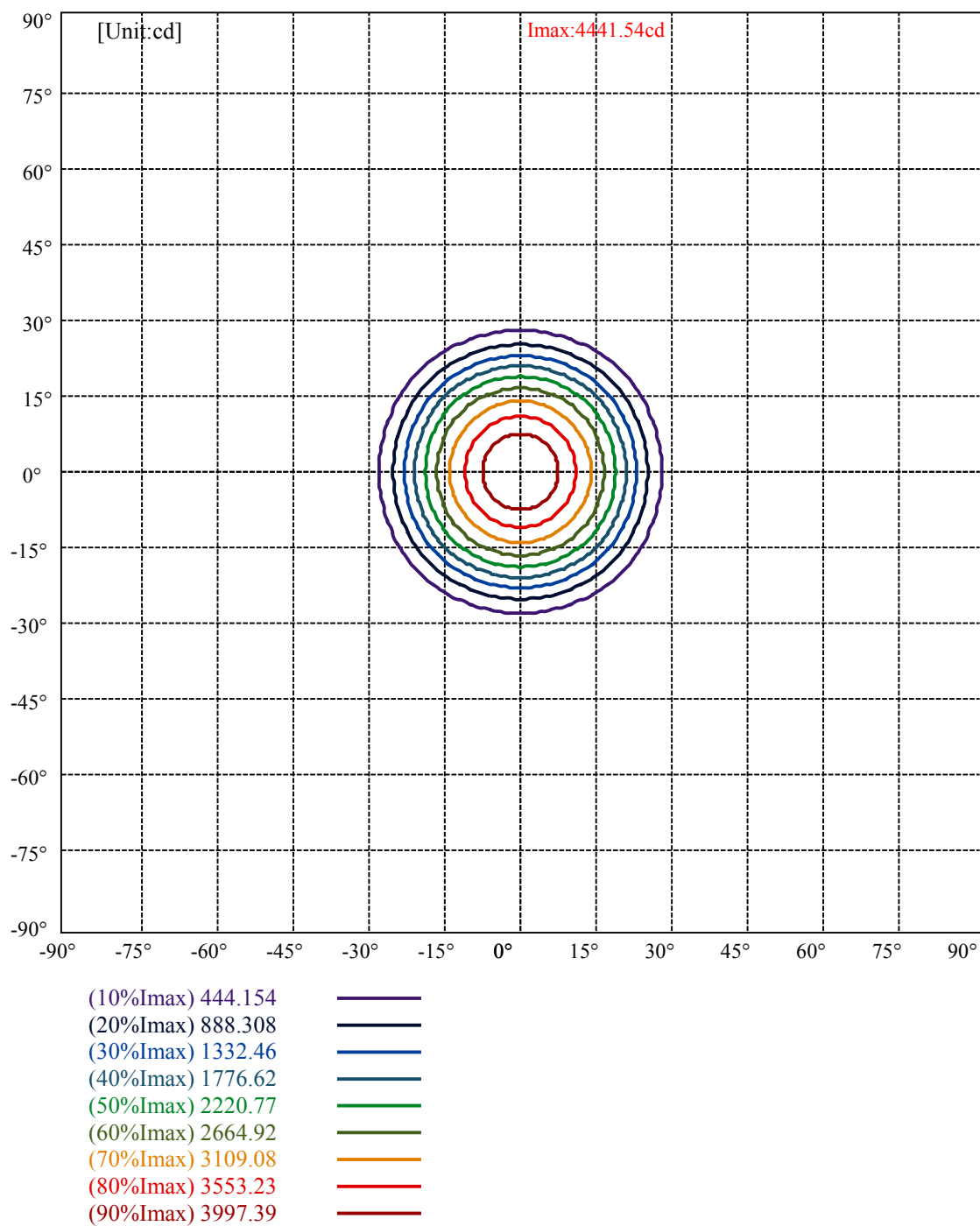
Zone	Lumens	%Lamp	%Fixt
0-30	1580.85	74.89%	98.17%
0-40	1602.90	75.93%	99.53%
0-60	1606.31	76.09%	99.75%
0-90	1610.24	76.28%	99.99%
0-120	1610.24	76.28%	99.99%
0-180	1610.40	76.29%	100.00%
60-90	4.06	0.19%	0.25%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-21.68	1288.32	61.03%	80.00%

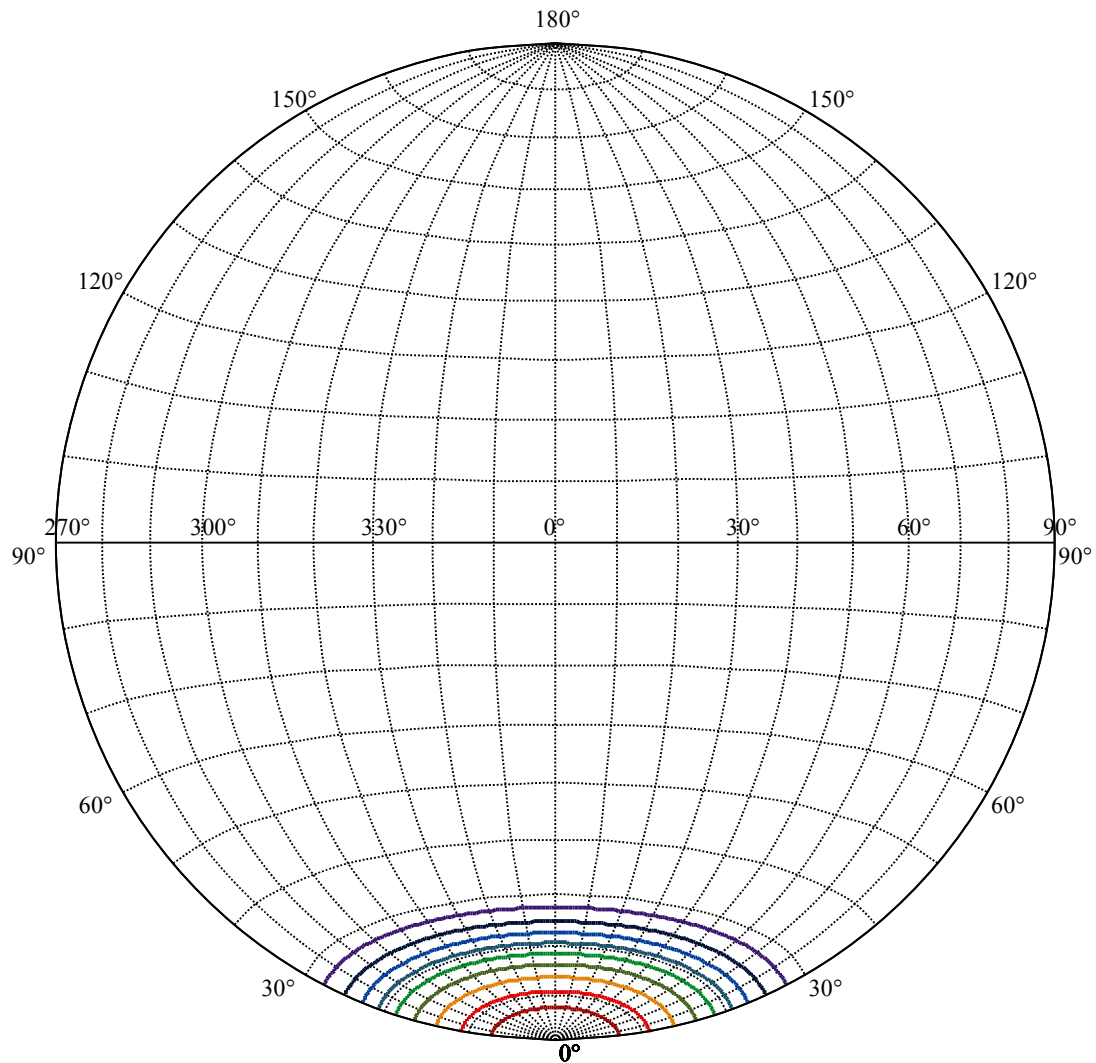
ZONAL LUMEN SUMMARY

0-10	385.87
10-20	788.38
20-30	406.60
30-40	22.06
40-50	1.94
50-60	1.48
60-70	1.32
70-80	1.33
80-90	1.27
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









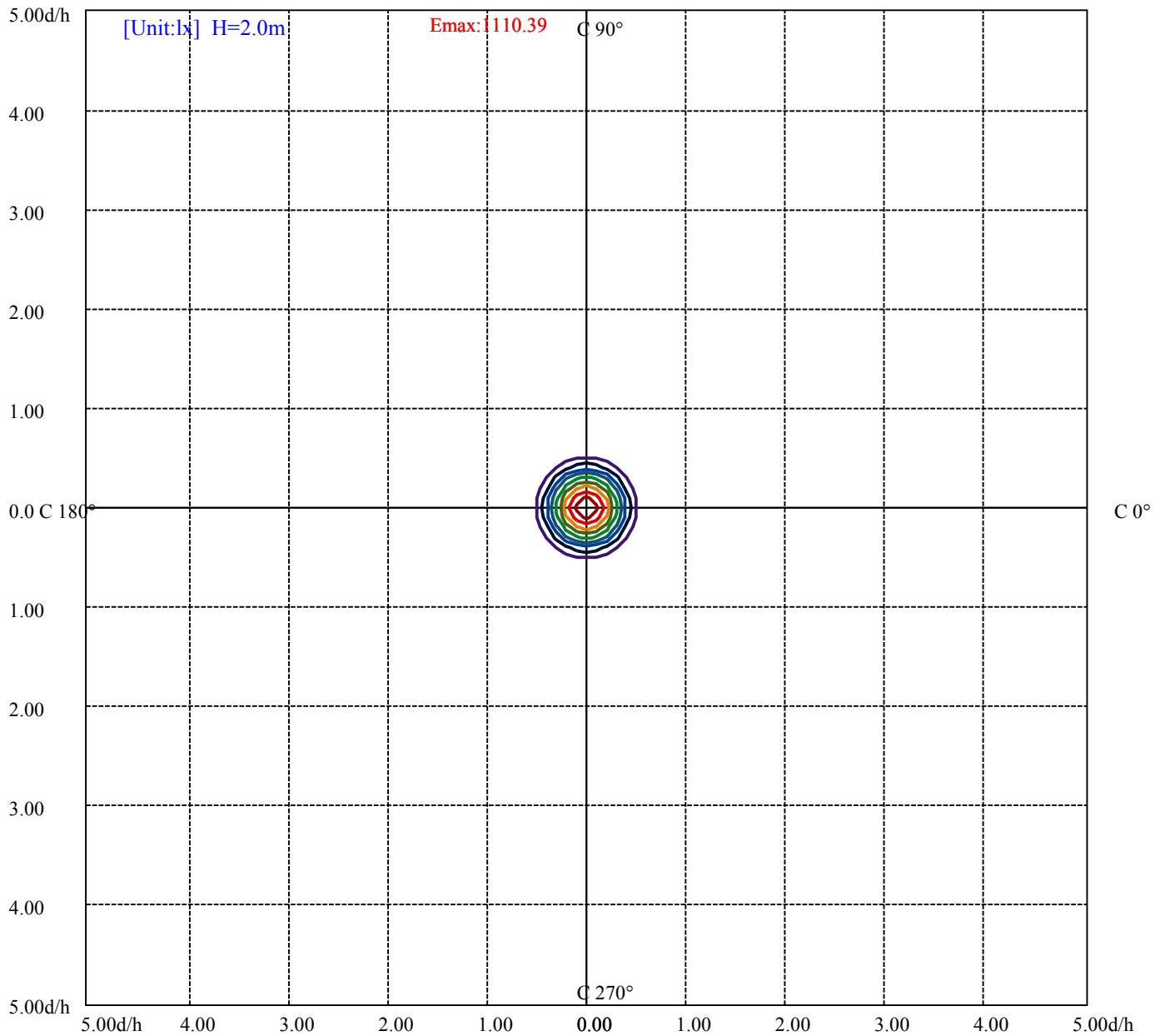
House

[Unit:cd]

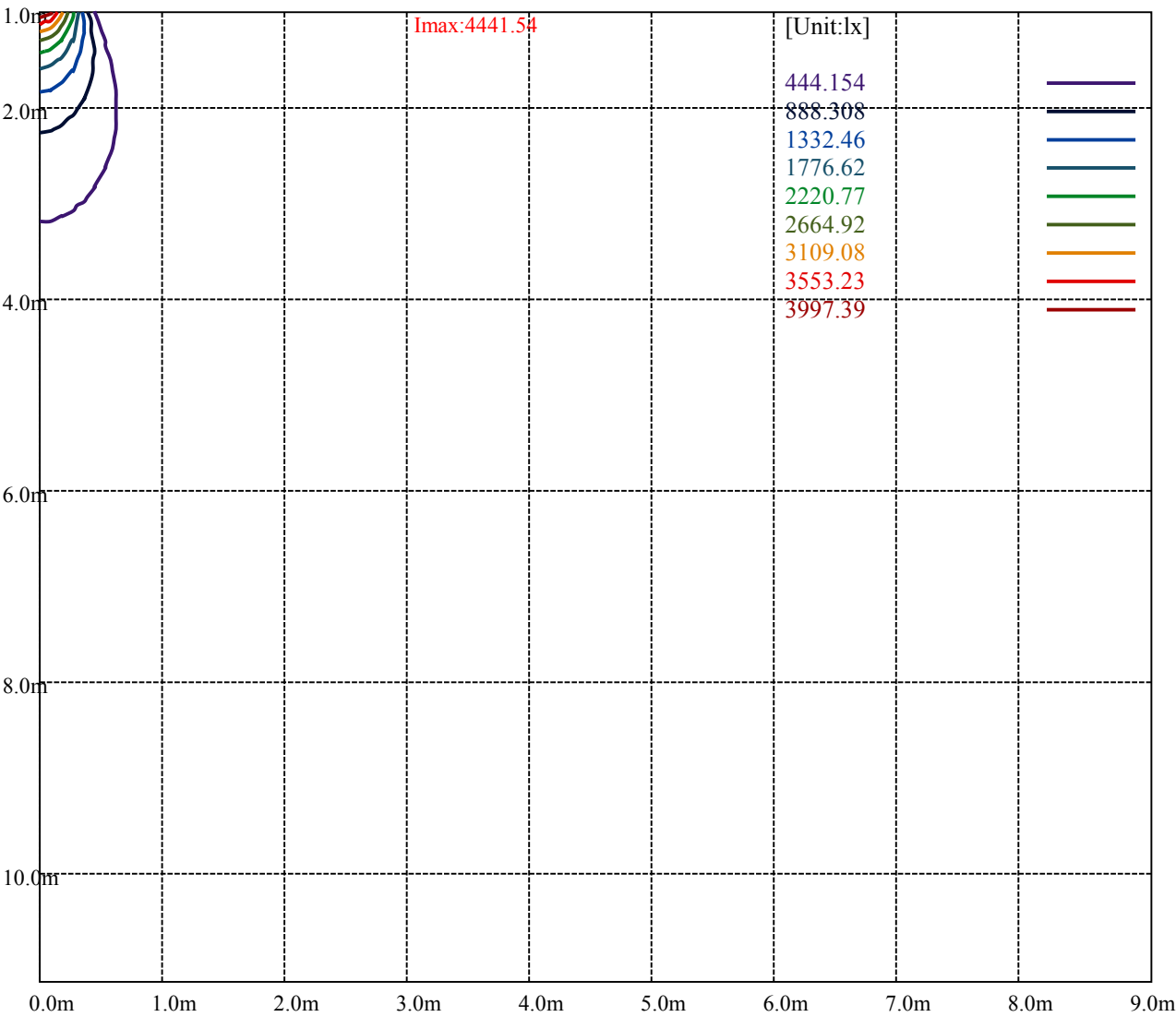
Road

Imax:4441.54

(10%Imax)	444.154	
(20%Imax)	888.308	
(30%Imax)	1332.46	
(40%Imax)	1776.62	
(50%Imax)	2220.77	
(60%Imax)	2664.92	
(70%Imax)	3109.08	
(80%Imax)	3553.23	
(90%Imax)	3997.39	



(10%E _{max}) 111.0385	—
(20%E _{max}) 222.077	—
(30%E _{max}) 333.115	—
(40%E _{max}) 444.155	—
(50%E _{max}) 555.1925	—
(60%E _{max}) 666.23	—
(70%E _{max}) 777.27	—
(80%E _{max}) 888.3075	—
(90%E _{max}) 999.3475	—



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

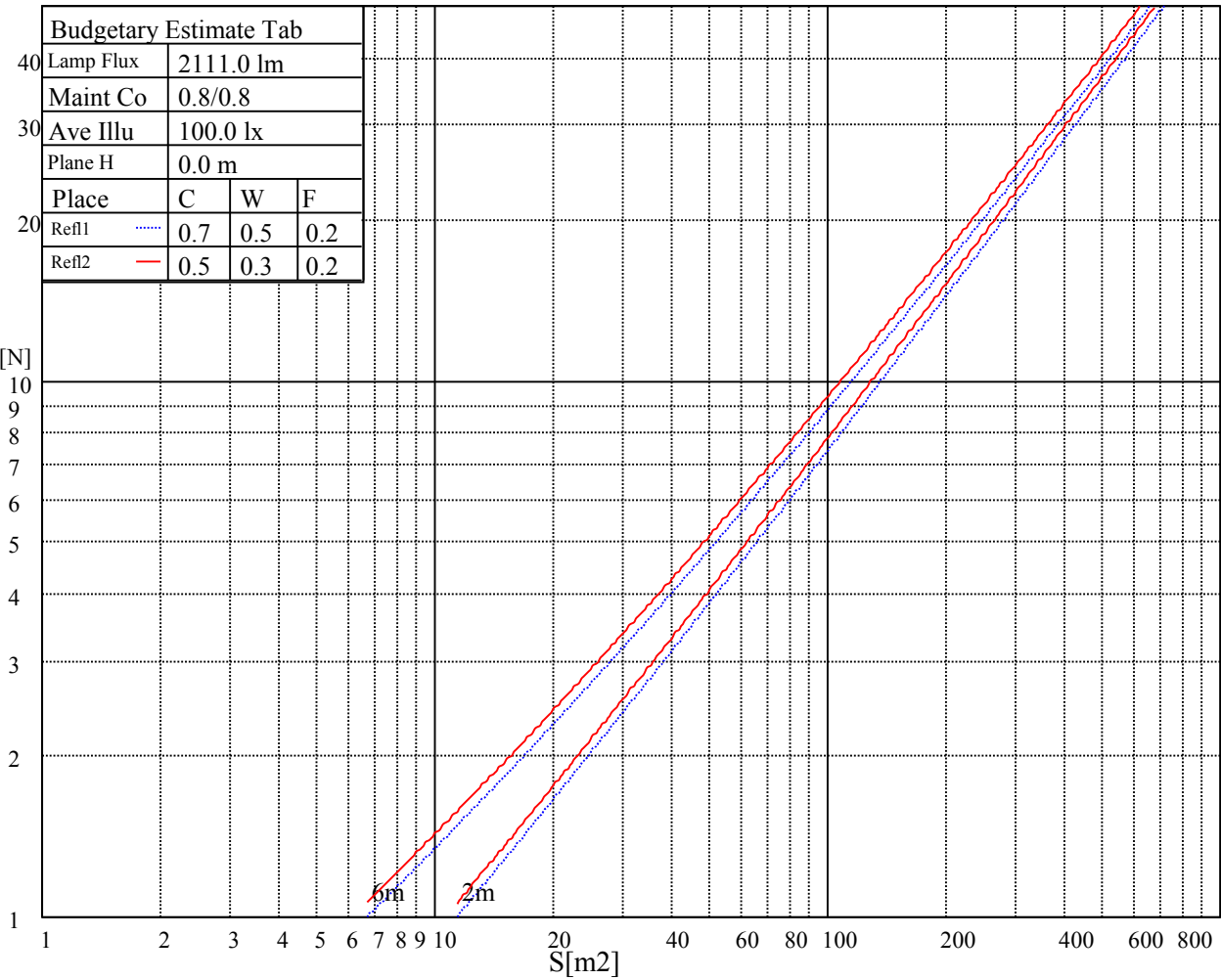
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

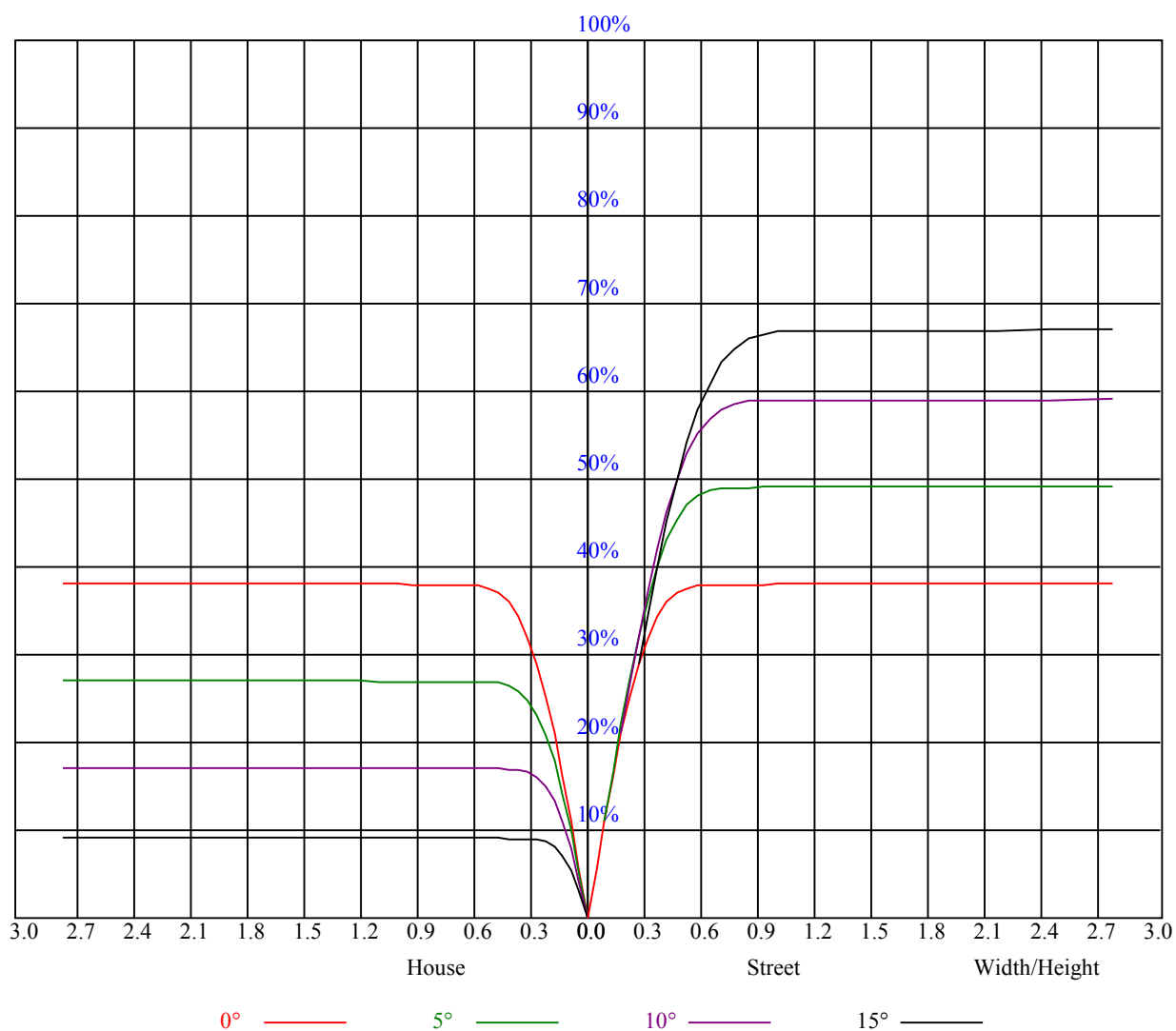
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.81	0.81	0.81	0.78	0.78	0.78	0.76
1	0.86	0.84	0.83	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.76	0.75	0.75	0.73
2	0.82	0.79	0.77	0.80	0.78	0.76	0.78	0.76	0.75	0.76	0.74	0.73	0.74	0.73	0.72	0.70
3	0.78	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.71	0.70	0.69	0.68
4	0.74	0.71	0.69	0.74	0.71	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.69	0.68	0.66	0.65
5	0.71	0.68	0.66	0.71	0.68	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.67	0.65	0.64	0.63
6	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.61	0.60
7	0.66	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.58
8	0.64	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.57	0.61	0.59	0.57	0.56
9	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.54
10	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.58	0.55	0.53	0.58	0.55	0.53	0.53



Nata 2-2188-M

Intensity data(cd)									Appendix Page: 16 Total:18
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	4452.91	4457.55	4443.63	4413.00	4365.21	4302.10	4222.29	4124.84	4013.94
45.0	4424.61	4451.98	4462.19	4455.70	4432.49	4401.40	4348.50	4265.44	4196.76
90.0	4445.95	4439.92	4417.64	4379.59	4326.23	4257.55	4172.64	4070.55	3956.86
135.0	4442.70	4436.67	4413.00	4373.10	4317.41	4247.81	4161.03	4058.95	3945.72
180.0	4452.91	4432.03	4393.05	4336.90	4266.83	4182.38	4081.68	3967.07	3892.82
225.0	4424.61	4379.13	4317.41	4241.31	4149.43	4041.78	3920.66	3791.66	3653.38
270.0	4445.95	4433.89	4404.19	4357.32	4294.68	4249.66	4122.06	4013.01	3940.62
315.0	4442.70	4428.78	4399.08	4353.14	4290.50	4210.69	4115.09	4004.19	3882.61
360.0	4452.91	4457.55	4443.63	4413.00	4365.21	4302.10	4222.29	4124.84	4013.94
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3892.36	3761.97	3621.83	3502.11	3318.35	3192.60	3032.50	2862.67	2671.49
45.0	4097.46	3983.31	3858.48	3724.38	3580.53	3430.65	3275.19	3113.25	2948.05
90.0	3832.50	3699.79	3555.93	3465.91	3249.67	3091.90	2994.92	2750.84	2634.83
135.0	3820.43	3685.86	3541.09	3451.06	3298.86	3142.02	2981.93	2812.09	2625.55
180.0	3761.97	3564.29	3474.73	3323.45	3166.61	3005.13	2838.54	2654.32	2453.86
225.0	3505.36	3351.76	3194.92	3034.36	2869.63	2686.80	2487.27	2278.91	2152.23
270.0	3758.72	3675.19	3530.41	3379.60	3223.69	3062.20	2897.01	2715.57	2518.36
315.0	3749.90	3636.21	3488.65	3336.91	3180.53	3019.05	2848.28	2661.28	2460.82
360.0	3892.36	3761.97	3621.83	3502.11	3318.35	3192.60	3032.50	2862.67	2671.49
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2467.31	2254.78	2039.94	1825.55	1612.10	1402.82	905.28	866.26	787.23
45.0	2767.54	2570.79	2359.66	2143.88	1928.11	1715.11	1589.36	1291.45	1078.00
90.0	2428.80	2218.13	2003.74	1792.61	1581.94	1373.59	886.40	886.40	732.99
135.0	2423.69	2213.95	2000.96	1787.97	1578.22	1373.12	1164.77	958.28	762.92
180.0	2243.18	2030.19	1819.99	1610.24	1403.28	1190.29	981.48	785.66	601.90
225.0	1856.64	1728.57	1517.90	1307.23	899.48	899.48	704.68	526.59	371.23
270.0	2309.54	2097.01	1885.88	1672.89	1464.07	1250.62	1038.55	837.63	649.23
315.0	2251.54	2036.23	1823.23	1614.42	1401.89	904.49	865.52	865.52	603.20
360.0	2467.31	2254.78	2039.94	1825.55	1612.10	1402.82	905.28	866.26	787.23
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	599.72	434.57	345.84	168.54	113.08	56.70	34.25	20.79	12.67
45.0	953.17	682.18	574.52	413.04	271.04	271.04	76.70	44.55	27.89
90.0	556.10	397.31	261.02	152.34	80.32	58.28	38.05	24.36	15.55
135.0	583.80	424.17	283.57	234.85	234.85	60.70	40.23	26.03	16.57
180.0	438.09	292.85	241.34	241.34	57.49	36.15	22.32	13.87	9.05
225.0	237.17	132.20	67.10	40.37	27.29	16.57	9.47	6.87	5.06
270.0	480.32	329.97	276.61	276.61	63.15	38.51	23.62	14.39	8.91
315.0	501.34	348.54	219.16	118.00	61.02	37.63	23.11	14.06	8.77
360.0	599.72	434.57	345.84	168.54	113.08	56.70	34.25	20.79	12.67
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.07	5.71	4.50	3.85	3.43	3.25	3.02	2.83	2.64
45.0	17.35	11.09	7.47	5.52	4.45	3.94	3.48	3.20	3.06
90.0	10.12	6.87	5.10	4.18	3.67	3.29	3.02	2.88	2.69
135.0	10.77	7.33	5.34	4.27	3.67	3.34	3.02	2.78	2.64
180.0	6.36	4.83	3.94	3.53	3.20	2.92	2.74	2.60	2.46
225.0	4.08	3.62	3.34	3.02	2.78	2.69	2.55	2.37	2.23
270.0	5.99	4.55	3.85	3.48	3.16	2.88	2.78	2.64	2.46
315.0	5.89	4.45	3.76	3.43	3.11	2.88	2.69	2.55	2.41
360.0	8.07	5.71	4.50	3.85	3.43	3.25	3.02	2.83	2.64

Intensity data(cd)

C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	2.55	2.41	2.27	2.18	2.13	2.04	1.90	1.86	1.76
45.0	2.88	2.64	2.55	2.41	2.32	2.18	2.09	2.00	1.95
90.0	2.55	2.37	2.27	2.23	2.13	2.00	1.90	1.86	1.81
135.0	2.55	2.37	2.23	2.18	2.04	2.00	1.95	1.90	1.76
180.0	2.32	2.13	2.13	2.04	1.95	1.90	1.76	1.67	1.67
225.0	2.18	2.09	1.95	1.86	1.81	1.81	1.67	1.62	1.62
270.0	2.32	2.27	2.13	2.09	2.04	1.95	1.81	1.81	1.76
315.0	2.27	2.18	2.04	2.00	1.95	1.86	1.72	1.72	1.67
360.0	2.55	2.41	2.27	2.18	2.13	2.04	1.90	1.86	1.76
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	1.67	1.67	1.58	1.58	1.53	1.44	1.44	1.44	1.39
45.0	1.86	1.72	1.67	1.67	1.62	1.53	1.48	1.48	1.44
90.0	1.76	1.72	1.62	1.58	1.58	1.48	1.44	1.39	1.44
135.0	1.67	1.67	1.62	1.53	1.48	1.44	1.48	1.39	1.30
180.0	1.67	1.58	1.48	1.48	1.48	1.44	1.35	1.35	1.35
225.0	1.58	1.58	1.48	1.44	1.44	1.39	1.39	1.35	1.30
270.0	1.67	1.58	1.58	1.58	1.53	1.48	1.48	1.48	1.48
315.0	1.62	1.53	1.48	1.44	1.48	1.44	1.35	1.35	1.35
360.0	1.67	1.67	1.58	1.58	1.53	1.44	1.44	1.44	1.39
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	1.30	1.35	1.35	1.30	1.25	1.30	1.30	1.25	1.30
45.0	1.39	1.35	1.39	1.35	1.35	1.35	1.35	1.25	1.25
90.0	1.44	1.35	1.39	1.35	1.35	1.30	1.30	1.35	1.39
135.0	1.35	1.35	1.30	1.30	1.25	1.30	1.21	1.16	1.21
180.0	1.30	1.25	1.30	1.25	1.30	1.25	1.21	1.21	1.21
225.0	1.35	1.30	1.30	1.30	1.30	1.25	1.21	1.25	1.25
270.0	1.39	1.39	1.44	1.39	1.39	1.39	1.39	1.39	1.39
315.0	1.30	1.25	1.25	1.30	1.25	1.25	1.16	1.21	1.21
360.0	1.30	1.35	1.35	1.30	1.25	1.30	1.30	1.25	1.30
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.25	1.25	1.21	1.21	1.21	1.21	1.21	1.21	1.21
45.0	1.30	1.30	1.25	1.21	1.21	1.25	1.25	1.25	1.21
90.0	1.30	1.30	1.30	1.35	1.35	1.35	1.35	1.39	1.39
135.0	1.21	1.16	1.21	1.25	1.21	1.16	1.16	1.16	1.21
180.0	1.25	1.21	1.16	1.16	1.21	1.21	1.21	1.16	1.16
225.0	1.21	1.21	1.21	1.21	1.16	1.21	1.21	1.16	1.25
270.0	1.35	1.35	1.39	1.39	1.44	1.48	1.48	1.53	1.53
315.0	1.21	1.21	1.21	1.16	1.16	1.16	1.16	1.16	1.16
360.0	1.25	1.25	1.21	1.21	1.21	1.21	1.21	1.21	1.21
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.16	1.16	1.16	1.21	1.21	1.16	1.16	1.16	1.21
45.0	1.25	1.25	1.25	1.21	1.25	1.30	1.30	1.25	1.25
90.0	1.39	1.44	1.44	1.44	1.44	1.53	1.53	1.53	1.62
135.0	1.16	1.16	1.16	1.21	1.16	1.21	1.21	1.16	1.25
180.0	1.21	1.16	1.16	1.11	1.21	1.16	1.16	1.21	1.25
225.0	1.21	1.25	1.21	1.25	1.21	1.25	1.25	1.35	1.48
270.0	1.53	1.58	1.53	1.58	1.76	1.86	1.76	1.81	2.04
315.0	1.21	1.16	1.16	1.11	1.16	1.16	1.21	1.21	1.25
360.0	1.16	1.16	1.16	1.21	1.21	1.16	1.16	1.16	1.21

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	1.21
45.0	1.25
90.0	1.76
135.0	1.30
180.0	1.72
225.0	1.35
270.0	2.18
315.0	1.30
360.0	1.21