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Nata

LumCAT: 2-1571-A

Luminaire: 92.70.046.00+92.70.147.00

Report No: NT2017092518

Voltage(V): 37.3000

Test No: GC2017092518

Current(A): 0.3000

LampCAT: CREE CXA1512

Power (W): 11.1900

Lamp flux(lm): 1390.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 65

Width(mm): 65

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1167.56

Efficiency(%): 84.00%

Lumens(lm)/Power(W): 104.34

Central intensity(cd): 4079.679

Maximum intensity(cd): 4079.679

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=26.0

[C90/270]Total=26.0

Field angle(10%Imax): [C0/180]Total=51.7

[C90/270]Total=51.7

Beam angle of C0 plane : 25.95

Average BeamAngle(IEC 61341):25.95

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

Maximum s/h(1/4): C0_180=0.45 C90_270=0.45

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 85.67%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 95.782%

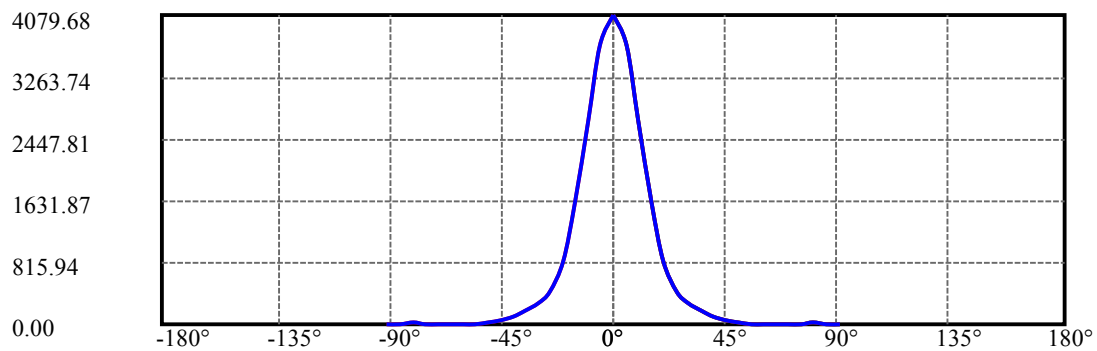
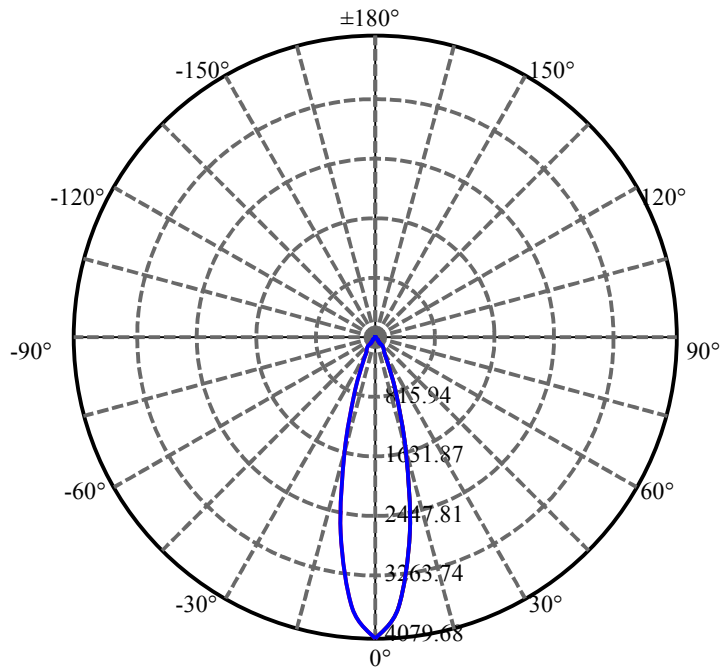
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4079.679	24.397	24.397	1.755%	2.090%
5.0	3669.440	175.301	199.699	12.612%	17.104%
10.0	2680.352	255.124	454.823	18.354%	38.955%
15.0	1604.206	227.586	682.409	16.373%	58.447%
20.0	833.850	156.325	838.734	11.246%	71.836%
25.0	434.829	100.729	939.463	7.247%	80.464%
30.0	274.071	75.114	1014.578	5.404%	86.897%
35.0	164.749	51.797	1066.375	3.726%	91.334%
40.0	97.078	34.204	1100.579	2.461%	94.263%
45.0	50.728	19.662	1120.24	1.415%	95.947%
50.0	26.764	11.238	1131.479	.809%	96.910%
55.0	12.044	5.408	1136.886	.389%	97.373%
60.0	7.846	3.724	1140.61	.268%	97.692%
65.0	7.894	3.921	1144.532	.282%	98.028%
70.0	8.217	4.233	1148.764	.304%	98.390%
75.0	9.270	4.908	1153.673	.353%	98.811%
80.0	13.482	7.278	1160.95	.524%	99.434%
85.0	9.690	5.291	1166.241	.381%	99.887%
90.0	4.811	1.318	1167.56	.095%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1014.58	72.99%	86.90%
0-40	1100.58	79.18%	94.26%
0-60	1140.61	82.06%	97.69%
0-90	1166.24	83.90%	99.89%
0-120	1166.24	83.90%	99.89%
0-180	1167.56	84.00%	100.00%
60-90	29.36	2.11%	2.51%
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%
0-24.73	934.05	67.20%	80.00%

ZONAL LUMEN SUMMARY

0-10	454.82
10-20	383.91
20-30	175.84
30-40	86.00
40-50	30.90
50-60	9.13
60-70	8.15
70-80	12.19
80-90	5.29
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: —————

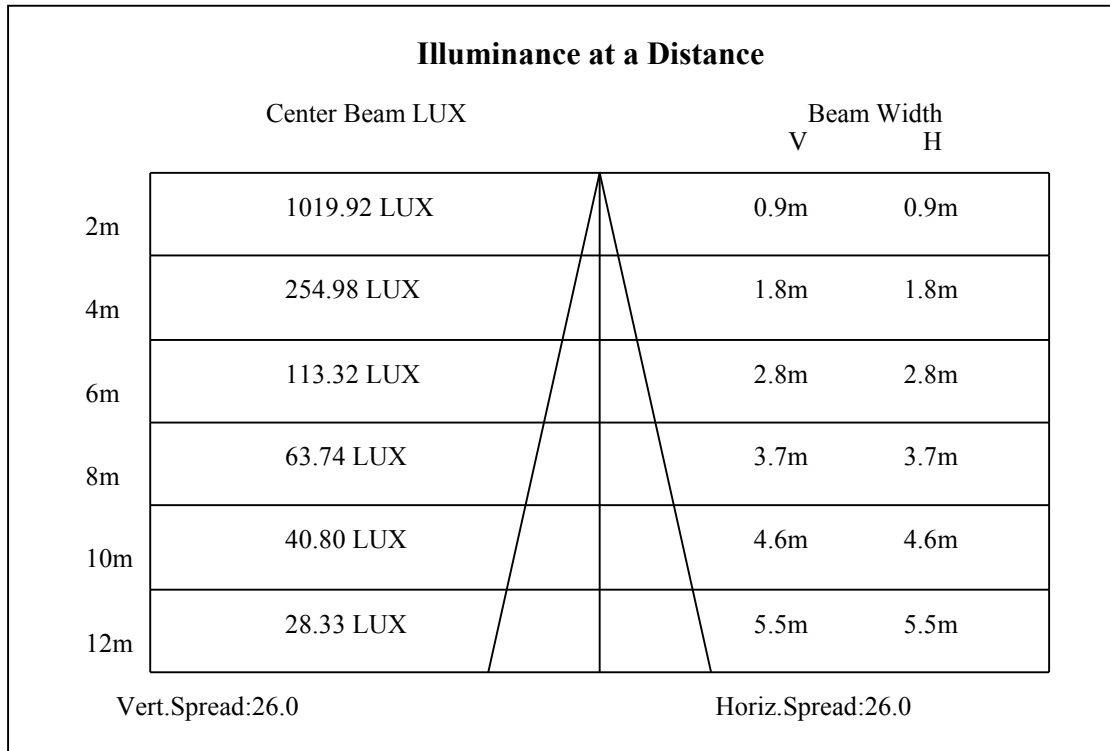
C90/C270: —————

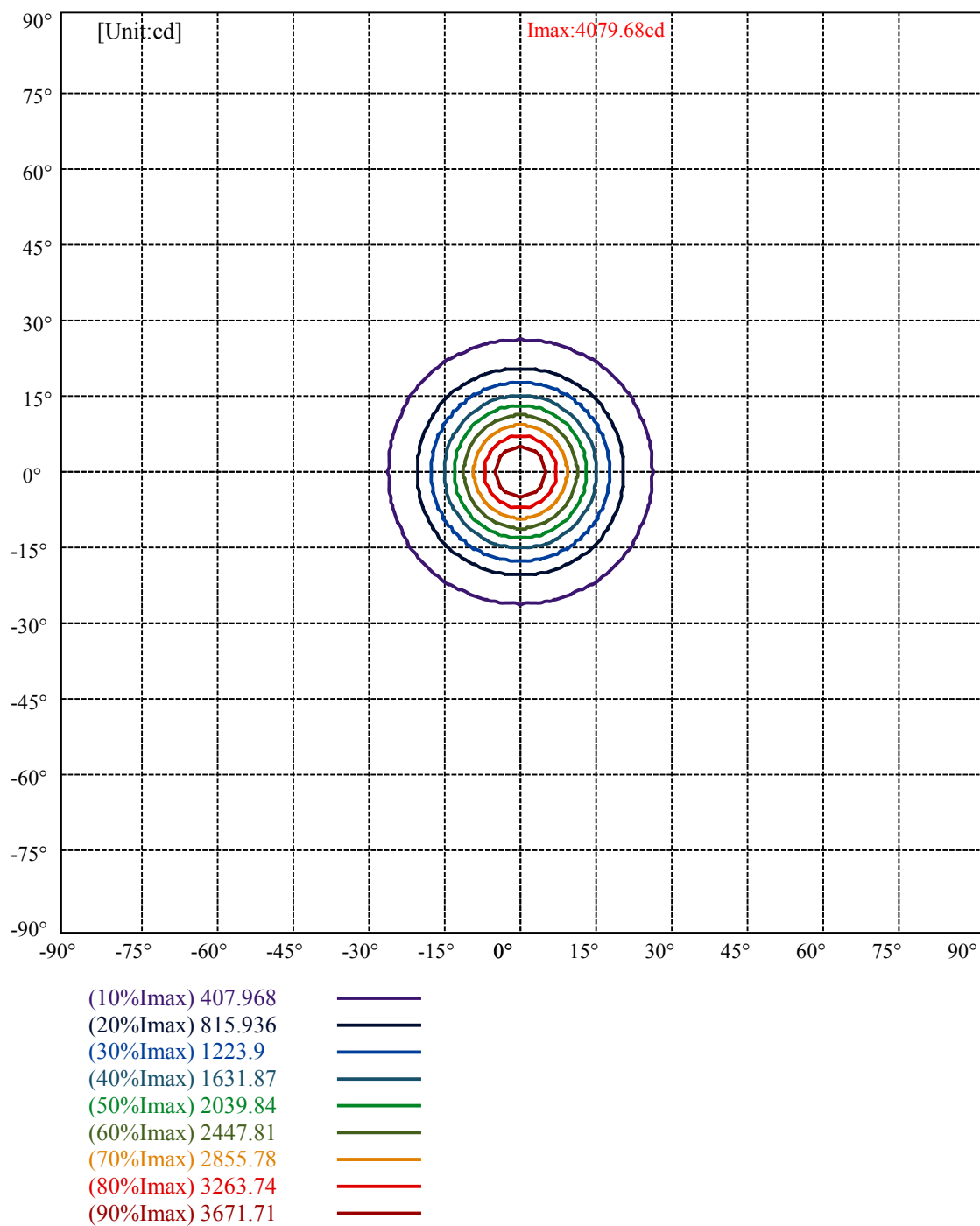
Field angle(10%Imax):C0/180Left:25.8 Right:25.8

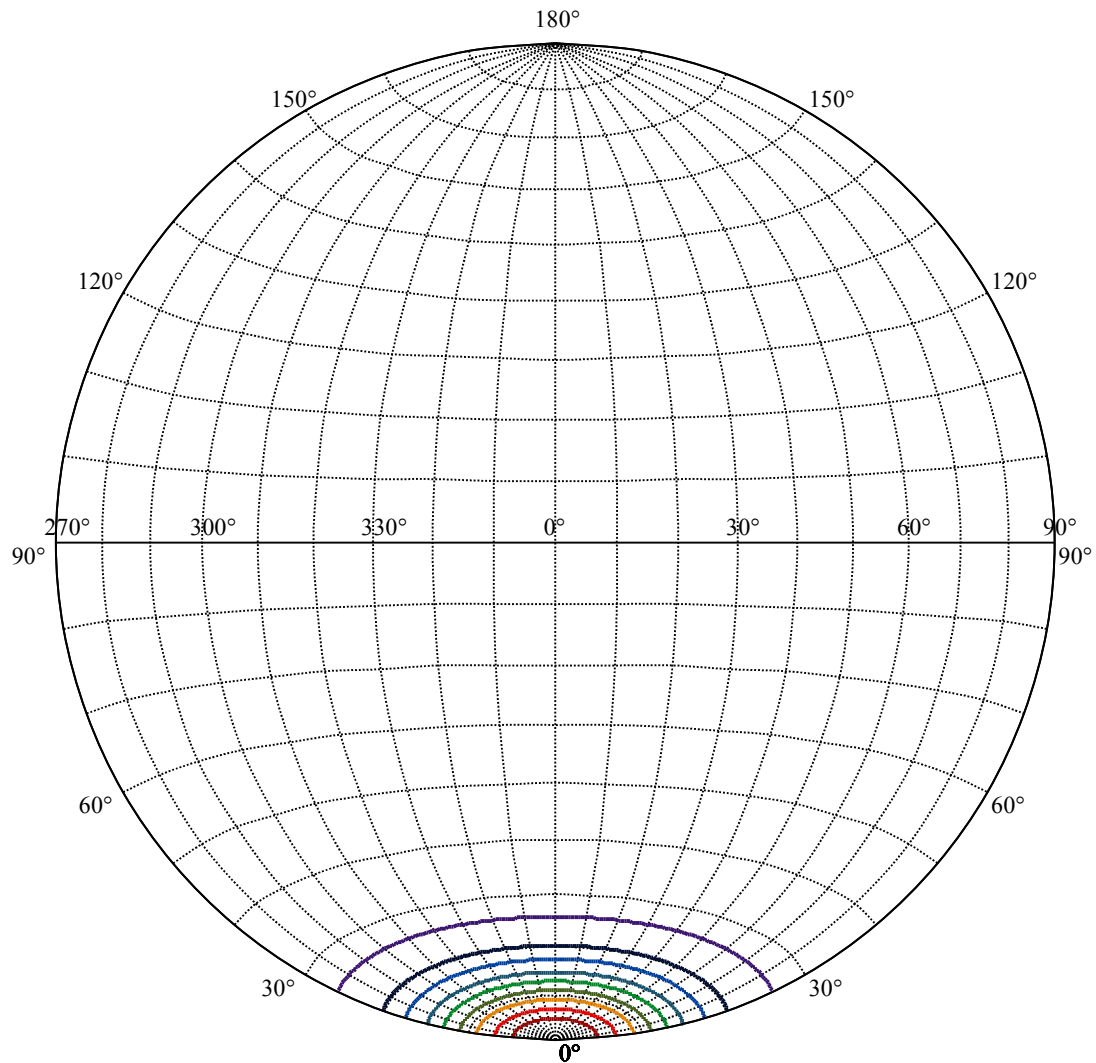
:C90/270Left:25.8 Right:25.8

Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0

:C90/270Left:13.0 Right:13.0







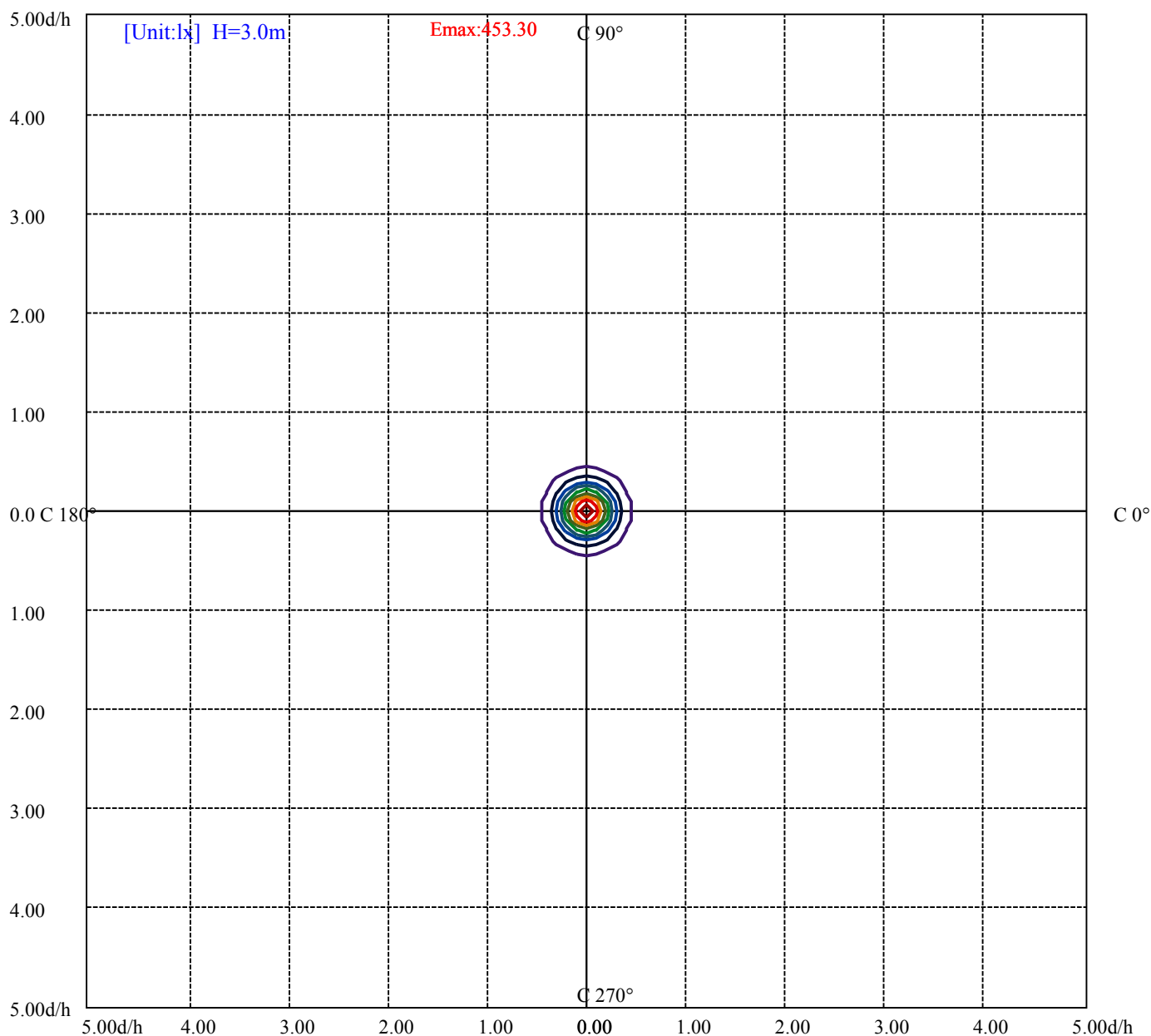
House

[Unit:cd]

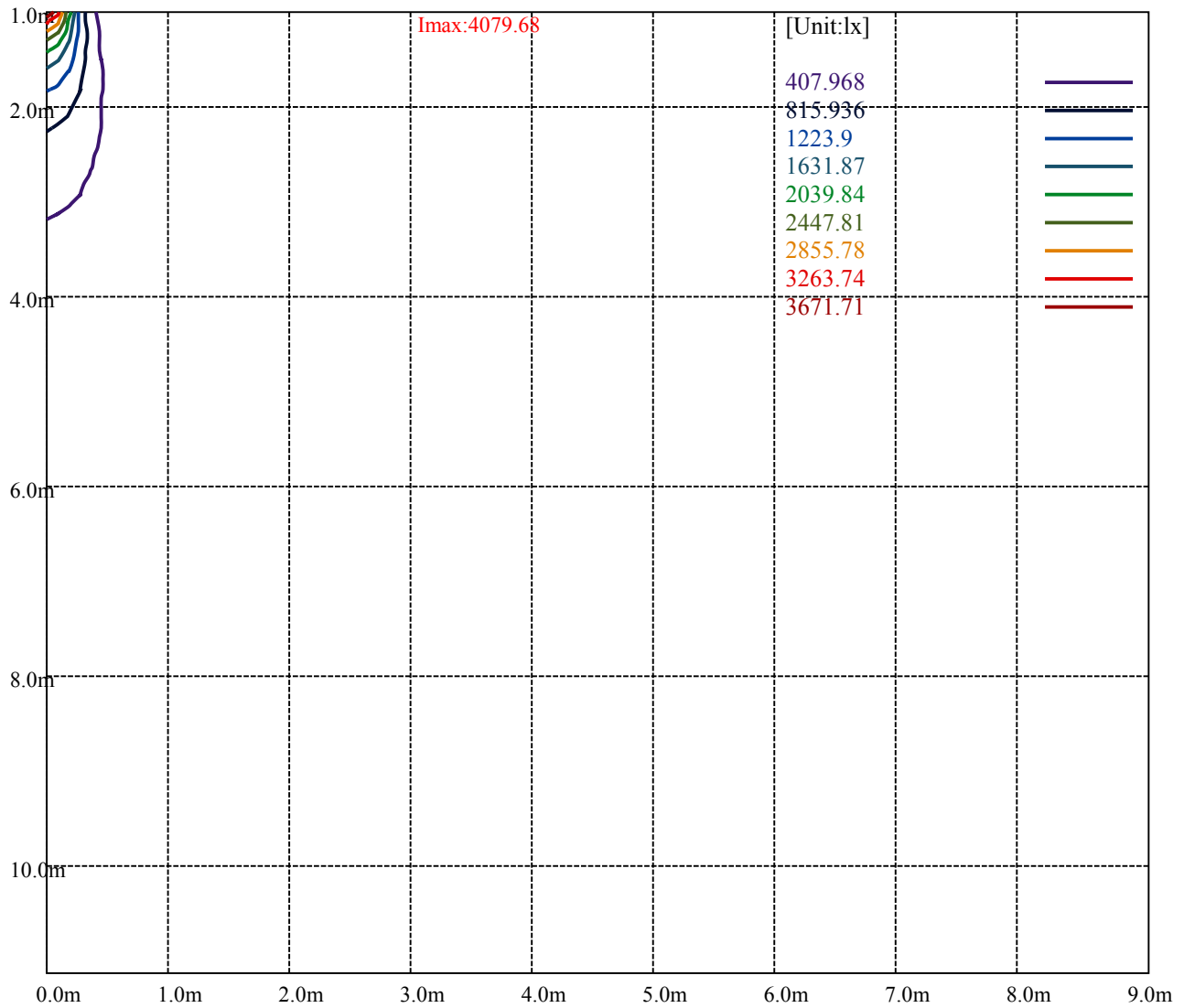
Road

Imax:4079.68

(10%Imax)	407.968	—
(20%Imax)	815.936	—
(30%Imax)	1223.9	—
(40%Imax)	1631.87	—
(50%Imax)	2039.84	—
(60%Imax)	2447.81	—
(70%Imax)	2855.78	—
(80%Imax)	3263.74	—
(90%Imax)	3671.71	—



(10%Emax) 45.32967	—
(20%Emax) 90.65922	—
(30%Emax) 135.9889	—
(40%Emax) 181.3189	—
(50%Emax) 226.6478	—
(60%Emax) 271.9778	—
(70%Emax) 317.3078	—
(80%Emax) 362.6367	—
(90%Emax) 407.9667	—



Luminance Table

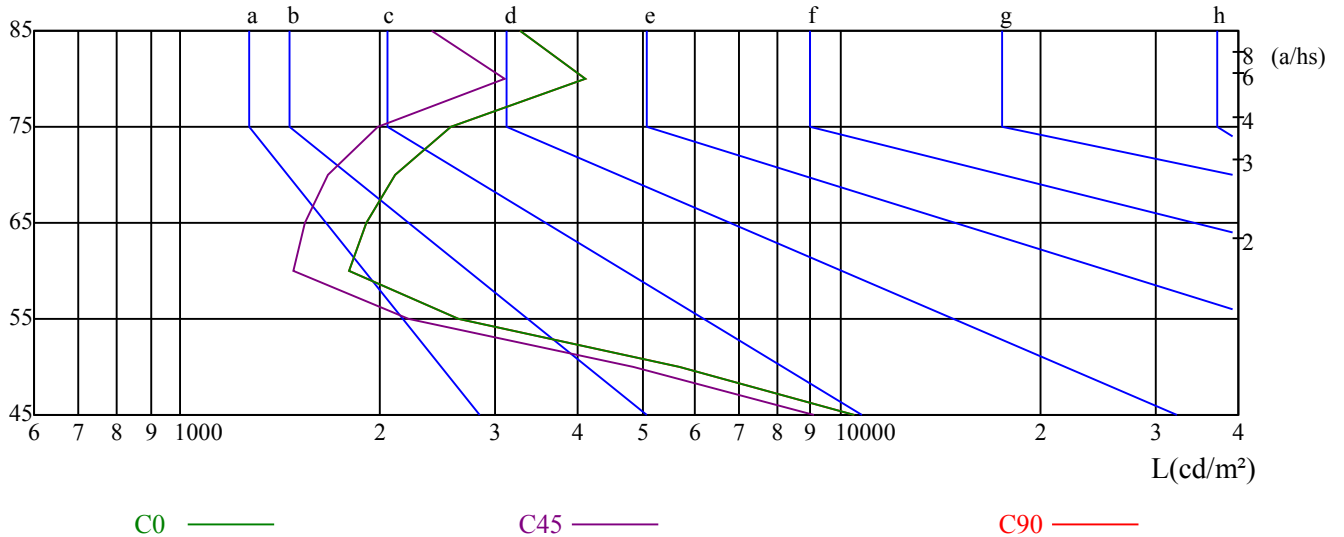
γ	45	50	55	60	65	70	75	80	85
C0	10511	5685	2645	1798	1906	2113	2572	4093	3275
C45	9079	4838	2216	1481	1542	1677	1996	3096	2404
C90	10511	5685	2645	1798	1906	2113	2572	4093	3275

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4421	4421	4421	8477	8477	8477	26315	26315	26315

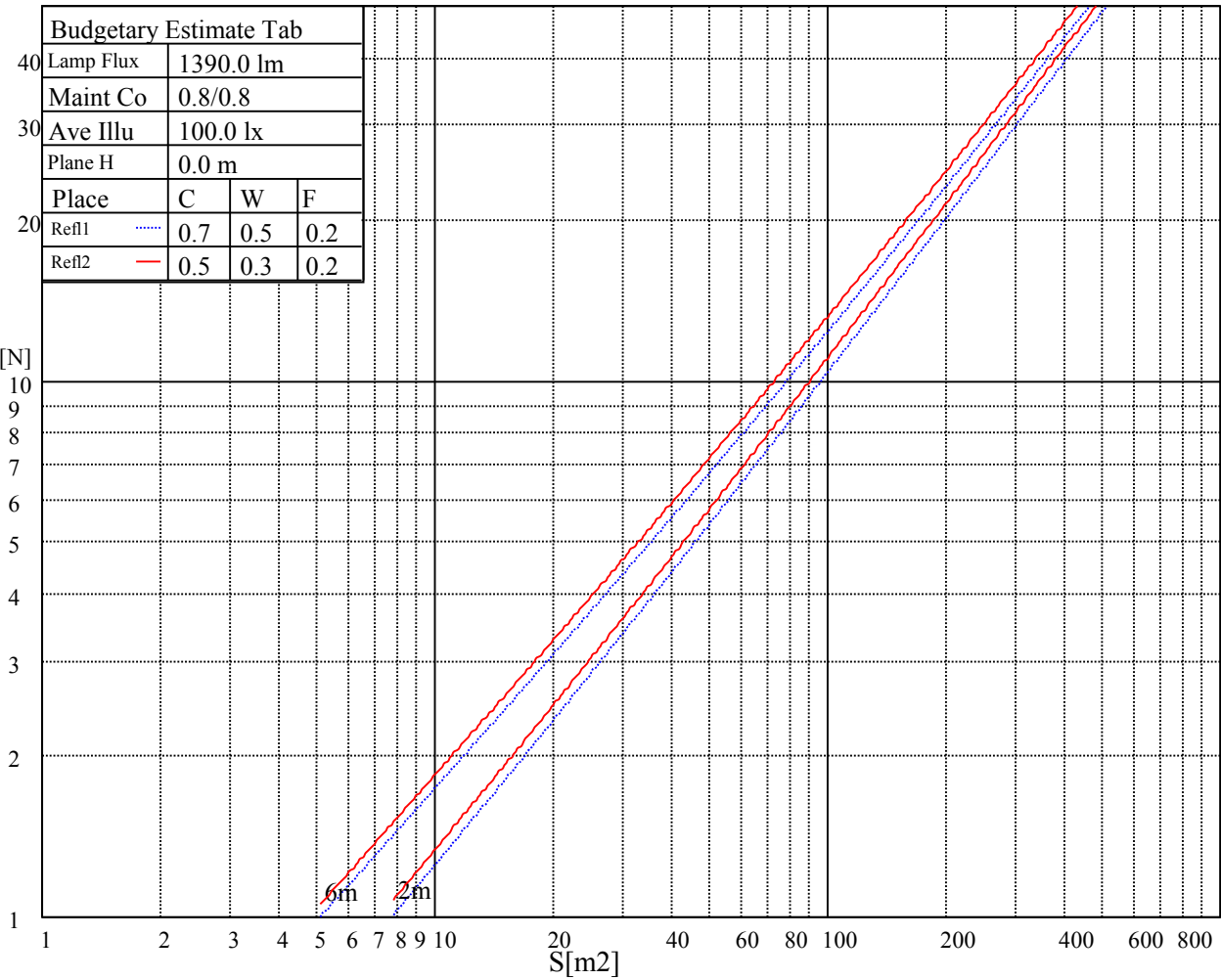
Glare Table

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

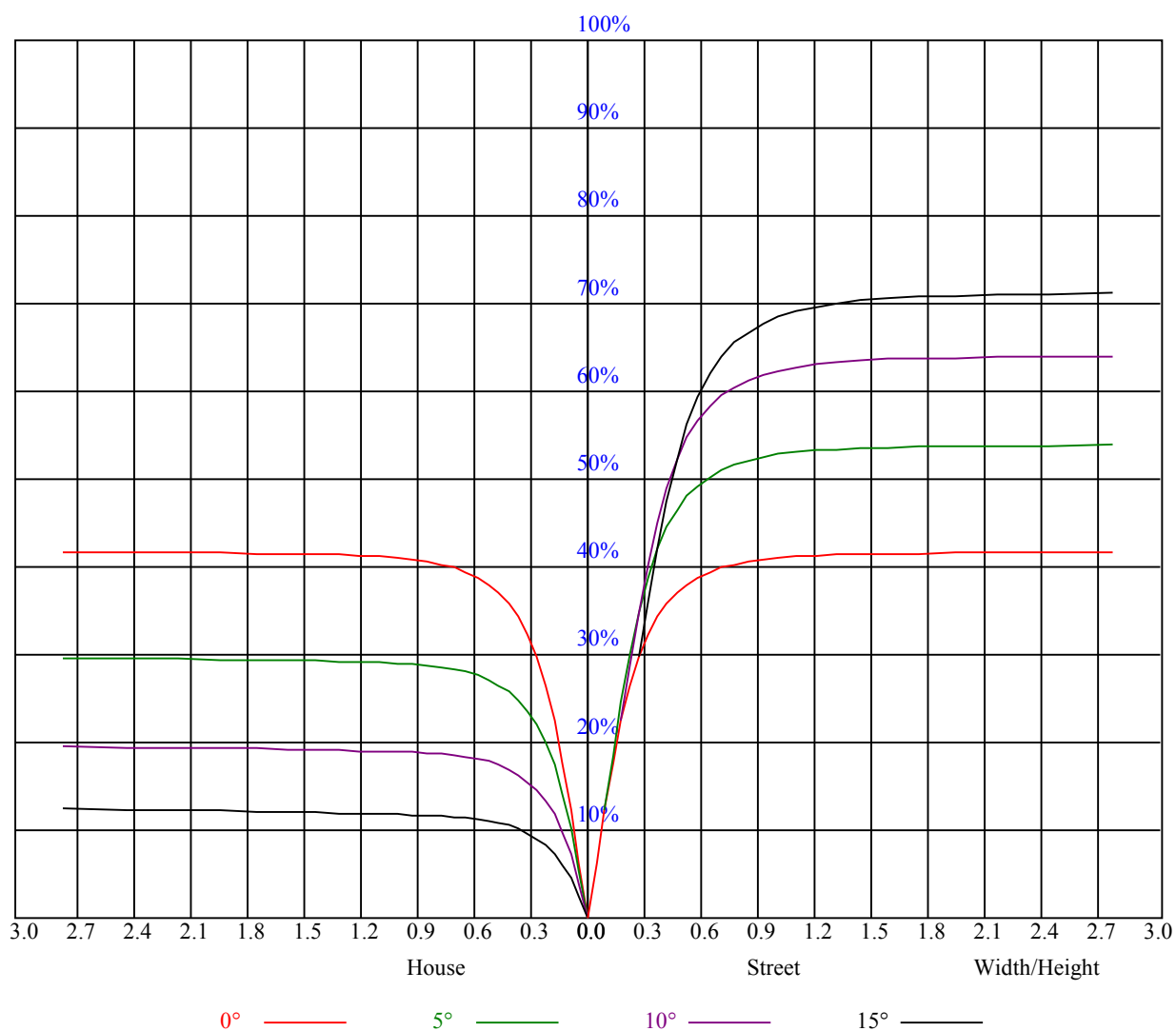
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	5.03	6.01	5.40	6.32	6.64	5.41	6.39	5.78	6.70	7.02
	3H	6.82	7.69	7.21	8.02	8.39	7.29	8.15	7.67	8.48	8.85
	4H	8.11	8.91	8.52	9.26	9.65	8.75	9.55	9.15	9.90	10.29
	6H	10.38	11.12	10.80	11.49	11.89	10.84	11.58	11.26	11.95	12.35
	8H	11.37	12.06	11.81	12.46	12.87	11.70	12.39	12.14	12.78	13.19
	12H	12.54	13.20	12.97	13.58	14.01	12.71	13.37	13.15	13.75	14.19
4H	2H	5.39	6.19	5.80	6.54	6.93	5.70	6.51	6.11	6.86	7.25
	3H	7.63	8.28	8.04	8.69	9.10	8.01	8.67	8.43	9.08	9.49
	4H	9.20	9.79	9.64	10.22	10.66	9.75	10.34	10.19	10.76	11.21
	6H	11.27	11.78	11.75	12.23	12.71	11.68	12.19	12.15	12.64	13.12
	8H	12.50	12.97	12.98	13.42	13.90	12.77	13.24	13.24	13.69	14.17
	12H	13.67	14.08	14.16	14.57	15.05	13.79	14.20	14.29	14.69	15.17
8H	4H	10.05	10.53	10.53	10.98	11.45	10.47	10.94	10.94	11.39	11.87
	6H	12.56	12.93	13.07	13.44	13.92	12.83	13.21	13.34	13.71	14.20
	8H	13.81	14.15	14.34	14.67	15.17	13.98	14.32	14.51	14.84	15.33
	12H	14.94	15.24	15.47	15.73	16.31	15.01	15.30	15.53	15.80	16.38
12H	4H	10.35	10.76	10.84	11.25	11.72	10.72	11.13	11.21	11.62	12.10
	6H	13.18	13.24	13.44	13.71	14.26	13.43	13.49	13.68	13.96	14.51
	8H	14.21	14.50	14.73	15.00	15.58	14.35	14.65	14.88	15.14	15.72
Variation with the observer position at spacings:											
S = 1.0H		3.1/-3.7					3.1/-3.7				
S = 1.5H		4.1/-2.6					4.1/-2.6				
S = 2.0H		4.9/-1.9					4.9/-1.9				
Standard tables:		BK4					BK4				
Uncorrected UGR		-2.4					-2.4				



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	1.02	1.02	1.02	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.86
1	0.94	0.91	0.89	0.92	0.90	0.88	0.88	0.86	0.85	0.85	0.84	0.82	0.82	0.81	0.80	0.78
2	0.89	0.85	0.82	0.87	0.84	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.79	0.78	0.76	0.75
3	0.84	0.80	0.77	0.83	0.80	0.77	0.81	0.78	0.75	0.79	0.76	0.74	0.77	0.75	0.73	0.72
4	0.81	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.76	0.73	0.71	0.75	0.72	0.70	0.69
5	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.68	0.72	0.70	0.68	0.67
6	0.74	0.70	0.67	0.74	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
7	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63
8	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61
9	0.67	0.63	0.61	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59
10	0.65	0.61	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57



Nata 2-1571-A

Intensity data(cd)										Appendix Page: 15 Total:15	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	4071.42	3715.21	2760.53	1666.01	902.37	455.32	281.34	172.82	103.56		
45.0	4093.44	3684.37	2681.80	1621.96	814.28	407.97	283.54	156.53	94.97		
90.0	4079.13	3568.21	2559.02	1495.88	742.11	395.30	245.55	147.83	85.72		
135.0	4074.72	3750.44	2833.75	1746.94	900.72	469.63	289.05	172.55	103.51		
180.0	4071.42	3631.52	2568.38	1507.44	795.12	415.07	258.99	164.62	94.09		
225.0	4093.44	3700.34	2631.70	1533.87	810.10	420.14	260.69	161.54	97.56		
270.0	4079.13	3728.42	2879.45	1733.73	917.24	491.10	301.16	178.99	103.23		
315.0	4074.72	3577.01	2528.19	1527.82	788.85	424.10	272.25	163.13	93.98		
360.0	4071.42	3715.21	2760.53	1666.01	902.37	455.32	281.34	172.82	103.56		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	55.99	30.01	14.31	8.20	8.20	8.53	9.69	12.99	9.19		
45.0	50.43	27.97	13.16	8.53	8.75	9.25	10.46	12.28	9.58		
90.0	45.20	24.50	9.63	7.43	7.43	7.54	8.26	12.44	9.74		
135.0	53.68	27.75	13.32	7.60	7.54	7.82	8.15	17.67	9.41		
180.0	47.24	25.33	10.74	7.93	7.93	8.20	9.80	11.40	9.52		
225.0	49.28	25.82	12.44	8.31	8.48	9.08	11.29	13.49	10.41		
270.0	54.45	27.42	13.10	7.21	7.21	7.43	7.98	11.78	9.97		
315.0	49.55	25.33	9.63	7.54	7.60	7.87	8.53	15.80	9.69		
360.0	55.99	30.01	14.31	8.20	8.20	8.53	9.69	12.99	9.19		
C/γ(°)	90.0										
0.0	4.79										
45.0	4.79										
90.0	4.79										
135.0	4.84										
180.0	4.79										
225.0	4.84										
270.0	4.84										
315.0	4.79										
360.0	4.79										