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NATA

LumCAT: 2-1742-M
Luminaire: 92.70.134.00
Report No: NATA0100
Test No: GC2019012202
LampCAT: CREE CXA2520
Lamp flux(lm): 2277.4
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 35.9800
Current(A): 0.7000
Power (W): 25.1860
PF: 0.0000
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 2082.91
Efficiency(%): 91.46%
Lumens(lm)/Power(W): 83.59
Central intensity(cd): 4086.844
Maximum intensity(cd): 4086.844
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=39.1
 [C90/270]Total=39.1
Field angle(10%Imax): [C0/180]Total=72.5
 [C90/270]Total=72.5
Maximum s/h(1/2): C0_180=0.64 C90_270=0.64
Maximum s/h(1/4): C0_180=0.63 C90_270=0.63
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.45%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.685%

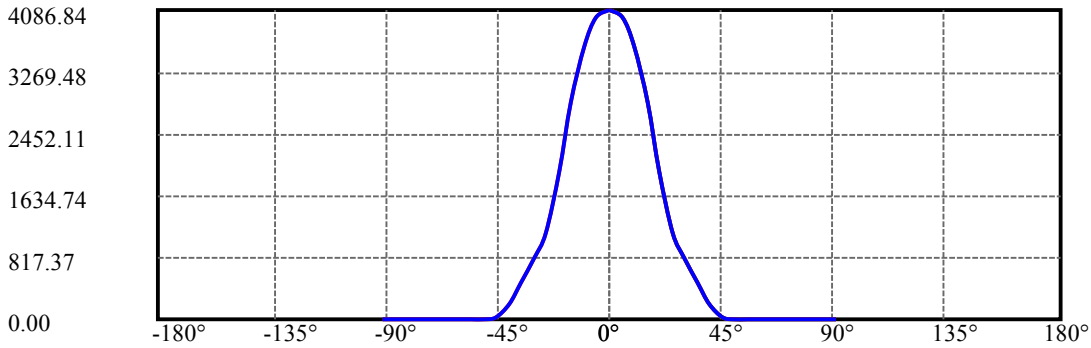
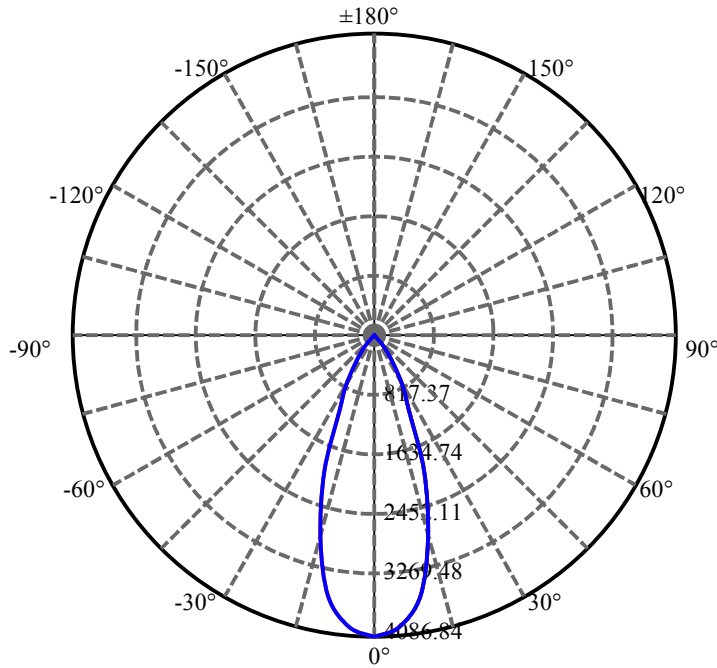
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4086.844	24.440	24.44	1.073%	1.173%
5.0	3984.820	190.368	214.808	8.359%	10.313%
10.0	3593.039	341.996	556.805	15.017%	26.732%
15.0	2859.188	405.628	962.433	17.811%	46.206%
20.0	1961.438	367.719	1330.152	16.146%	63.860%
25.0	1130.674	261.924	1592.076	11.501%	76.435%
30.0	800.958	219.517	1811.593	9.639%	86.974%
35.0	473.576	148.892	1960.485	6.538%	94.123%
40.0	211.634	74.566	2035.051	3.274%	97.703%
45.0	17.873	6.928	2041.978	.304%	98.035%
50.0	11.946	5.016	2046.994	.220%	98.276%
55.0	10.800	4.849	2051.844	.213%	98.509%
60.0	10.083	4.786	2056.63	.210%	98.739%
65.0	9.584	4.761	2061.391	.209%	98.967%
70.0	9.281	4.781	2066.172	.210%	99.197%
75.0	9.021	4.776	2070.948	.210%	99.426%
80.0	8.930	4.820	2075.768	.212%	99.657%
85.0	8.740	4.772	2080.541	.210%	99.886%
90.0	8.627	2.364	2082.905	.104%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1811.59	79.55%	86.97%
0-40	2035.05	89.36%	97.70%
0-60	2056.63	90.31%	98.74%
0-90	2080.54	91.36%	99.89%
0-120	2080.54	91.36%	99.89%
0-180	2082.91	91.46%	100.00%
60-90	28.70	1.26%	1.38%
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%
0-26.69	1666.32	73.17%	80.00%

ZONAL LUMEN SUMMARY

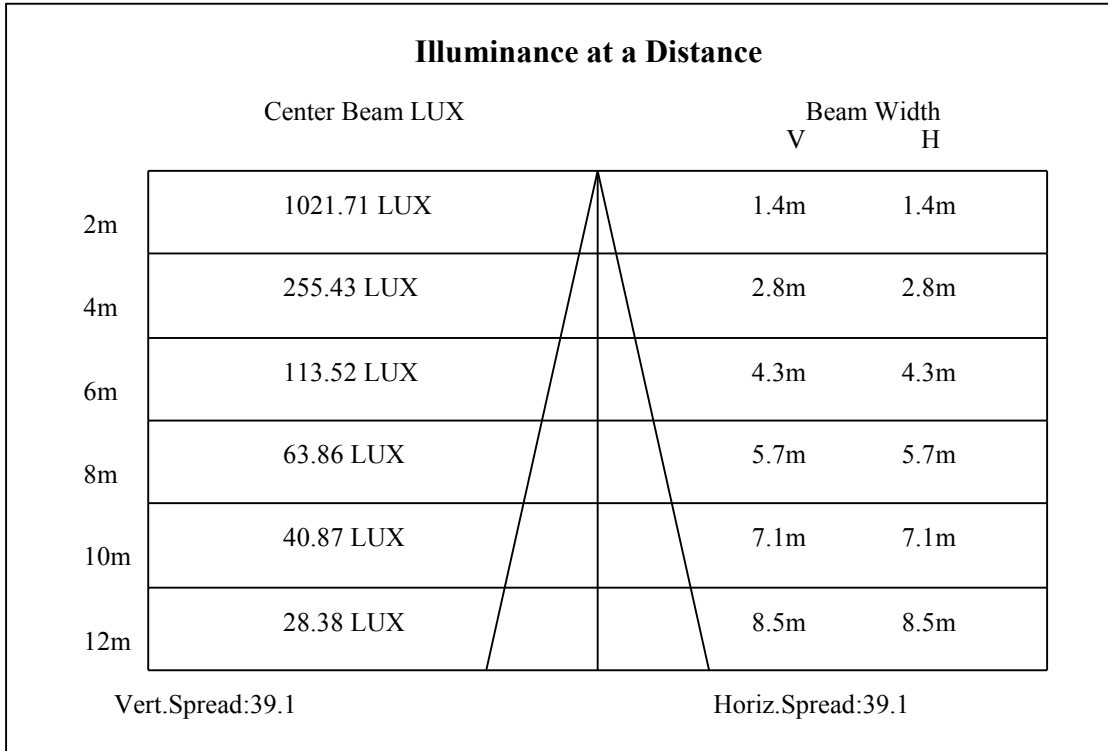
0-10	556.80
10-20	773.35
20-30	481.44
30-40	223.46
40-50	11.94
50-60	9.64
60-70	9.54
70-80	9.60
80-90	4.77
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

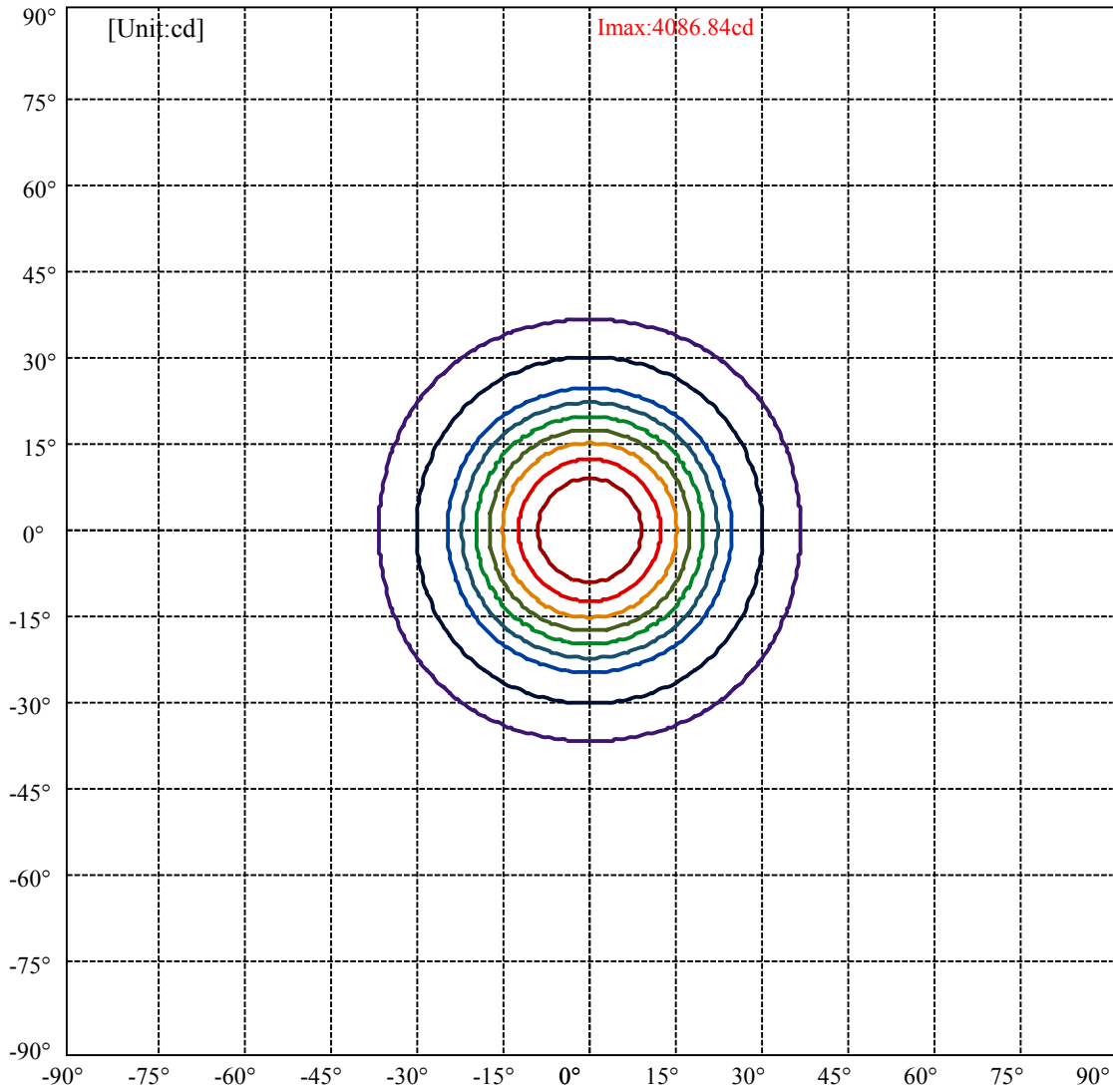


C0(Max): —————
C0/C180: —————
C90/C270: —————

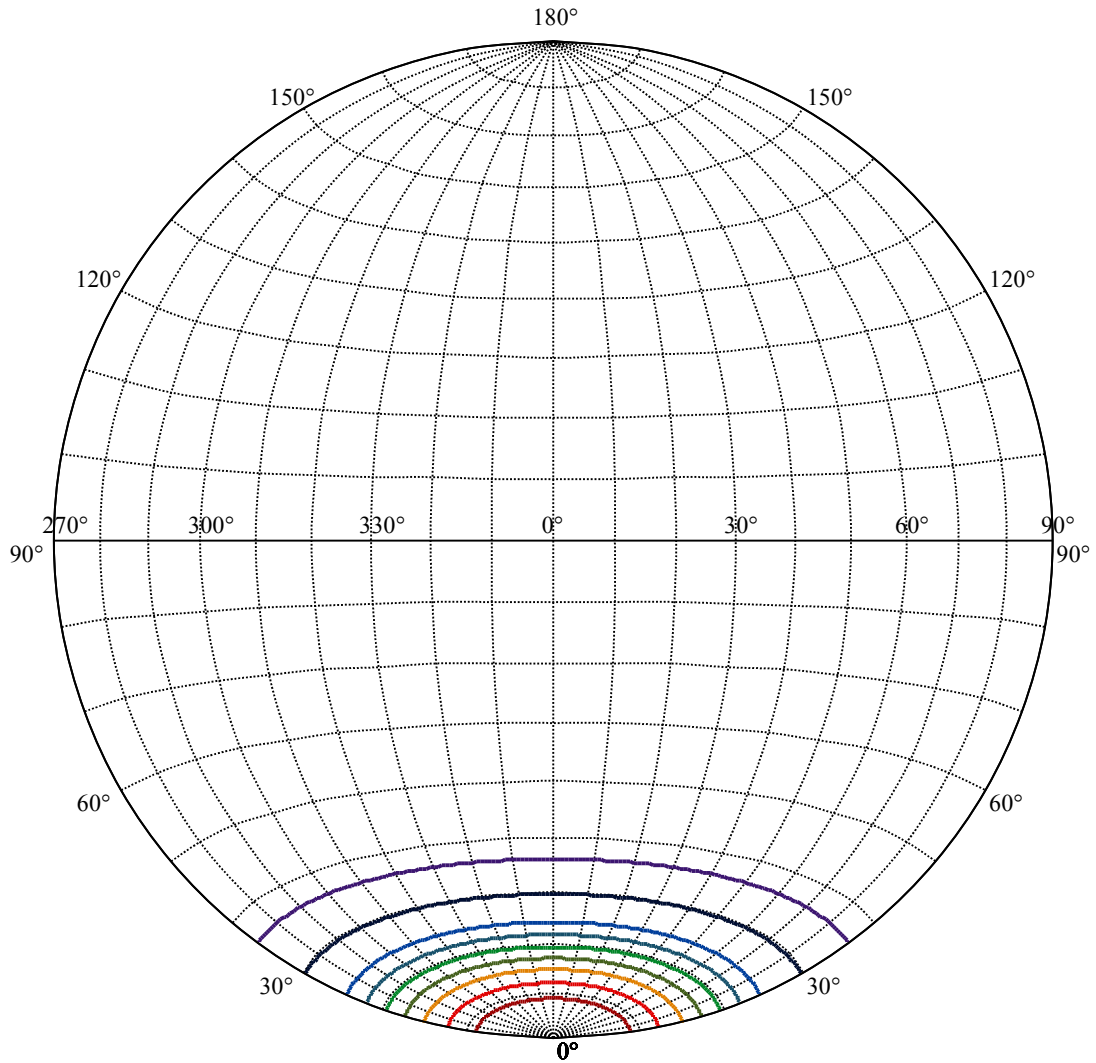
Field angle(10%Imax):C0/180Left:36.2 Right:36.2
:C90/270Left:36.2 Right:36.2

Beam Angle(50%Imax):C0/180Left:19.5 Right:19.5
:C90/270Left:19.5 Right:19.5





(10%Imax) 408.684	—
(20%Imax) 817.369	—
(30%Imax) 1226.05	—
(40%Imax) 1634.74	—
(50%Imax) 2043.42	—
(60%Imax) 2452.11	—
(70%Imax) 2860.79	—
(80%Imax) 3269.48	—
(90%Imax) 3678.16	—



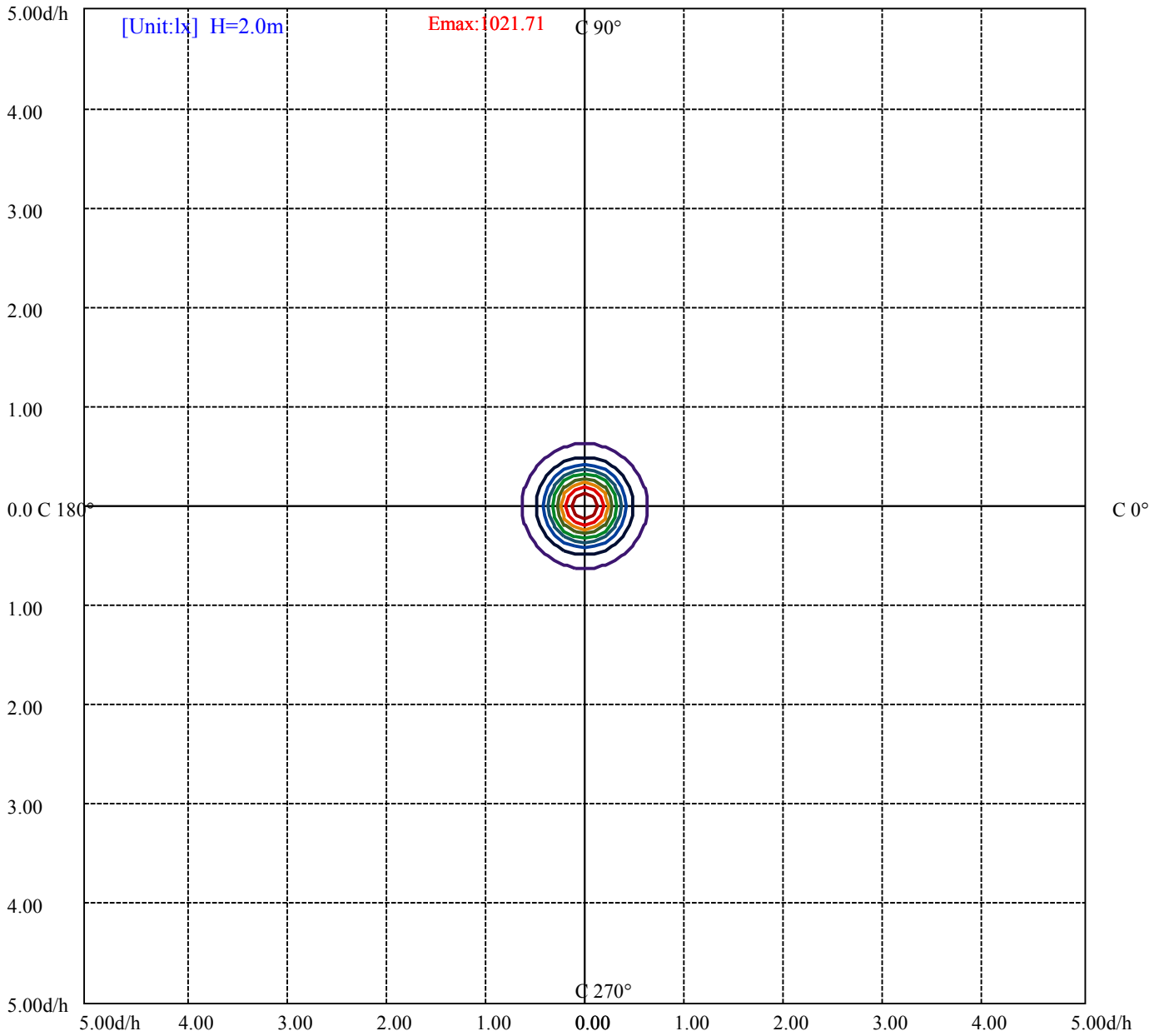
House

[Unit:cd]

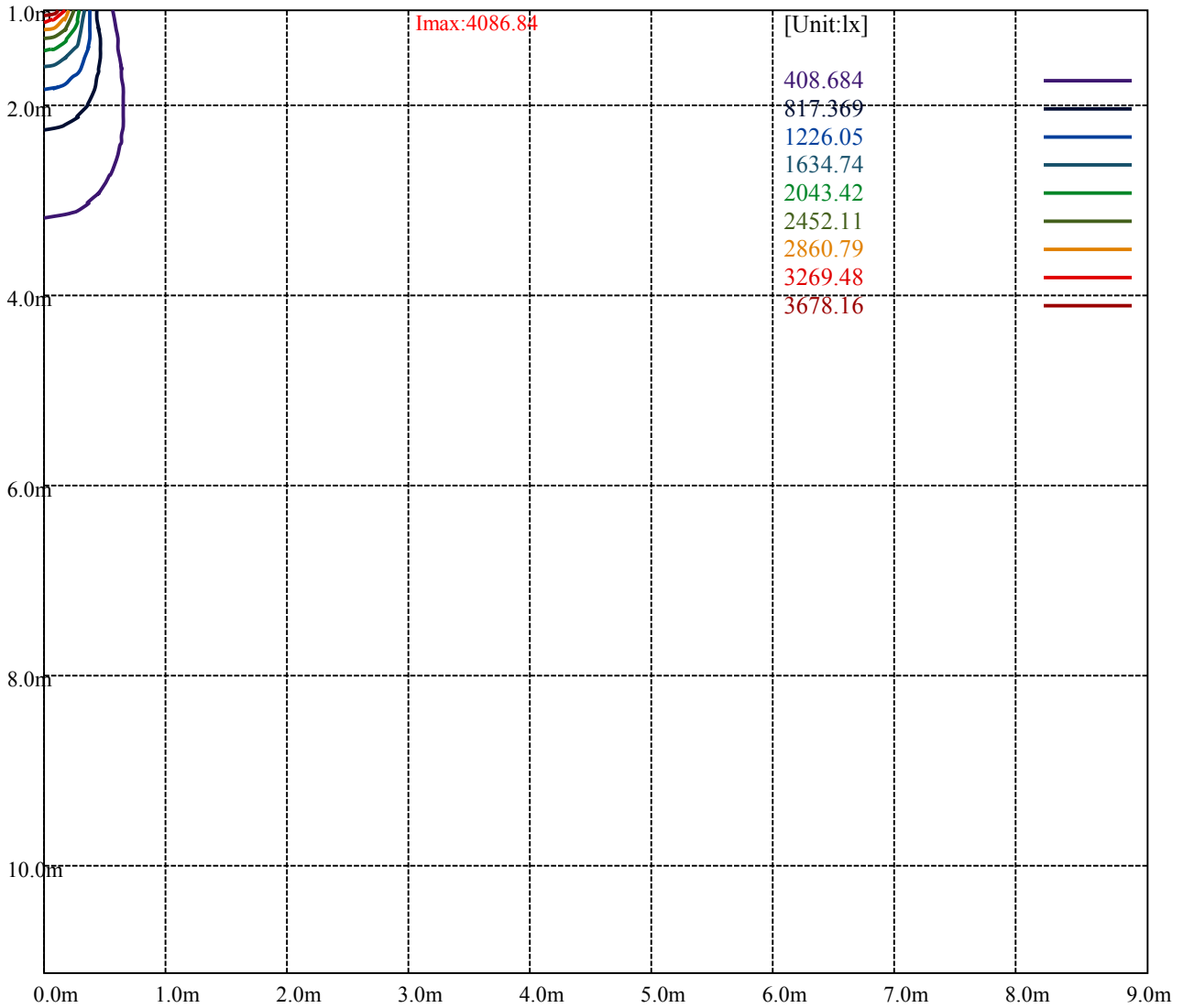
Road

Imax:4086.84

(10%Imax)	408.684	—
(20%Imax)	817.369	—
(30%Imax)	1226.05	—
(40%Imax)	1634.74	—
(50%Imax)	2043.42	—
(60%Imax)	2452.11	—
(70%Imax)	2860.79	—
(80%Imax)	3269.48	—
(90%Imax)	3678.16	—



- (10%Emax) 102.171
- (20%Emax) 204.342
- (30%Emax) 306.5125
- (40%Emax) 408.685
- (50%Emax) 510.855
- (60%Emax) 613.025
- (70%Emax) 715.1975
- (80%Emax) 817.3675
- (90%Emax) 919.54



Luminance Table

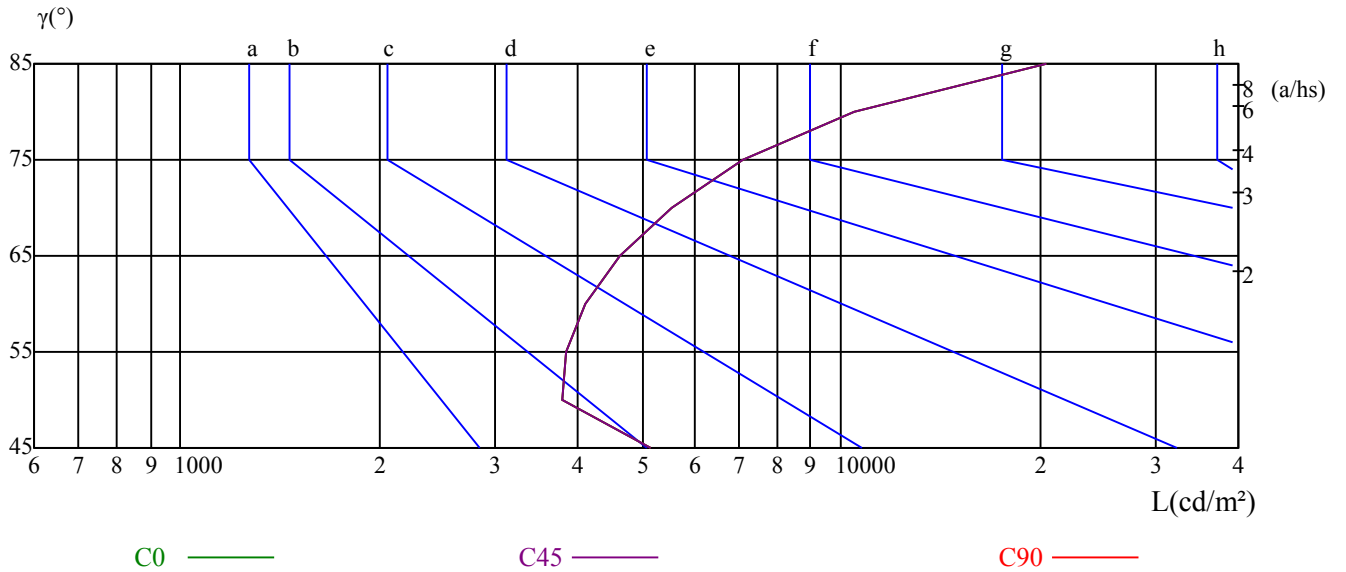
γ	45	50	55	60	65	70	75	80	85
C0	5159	3793	3843	4115	4628	5538	7113	10495	20465
C45	5159	3793	3843	4115	4628	5538	7113	10495	20465
C90	5159	3793	3843	4115	4628	5538	7113	10495	20465

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4628	4628	4628	7113	7113	7113	20465	20465	20465

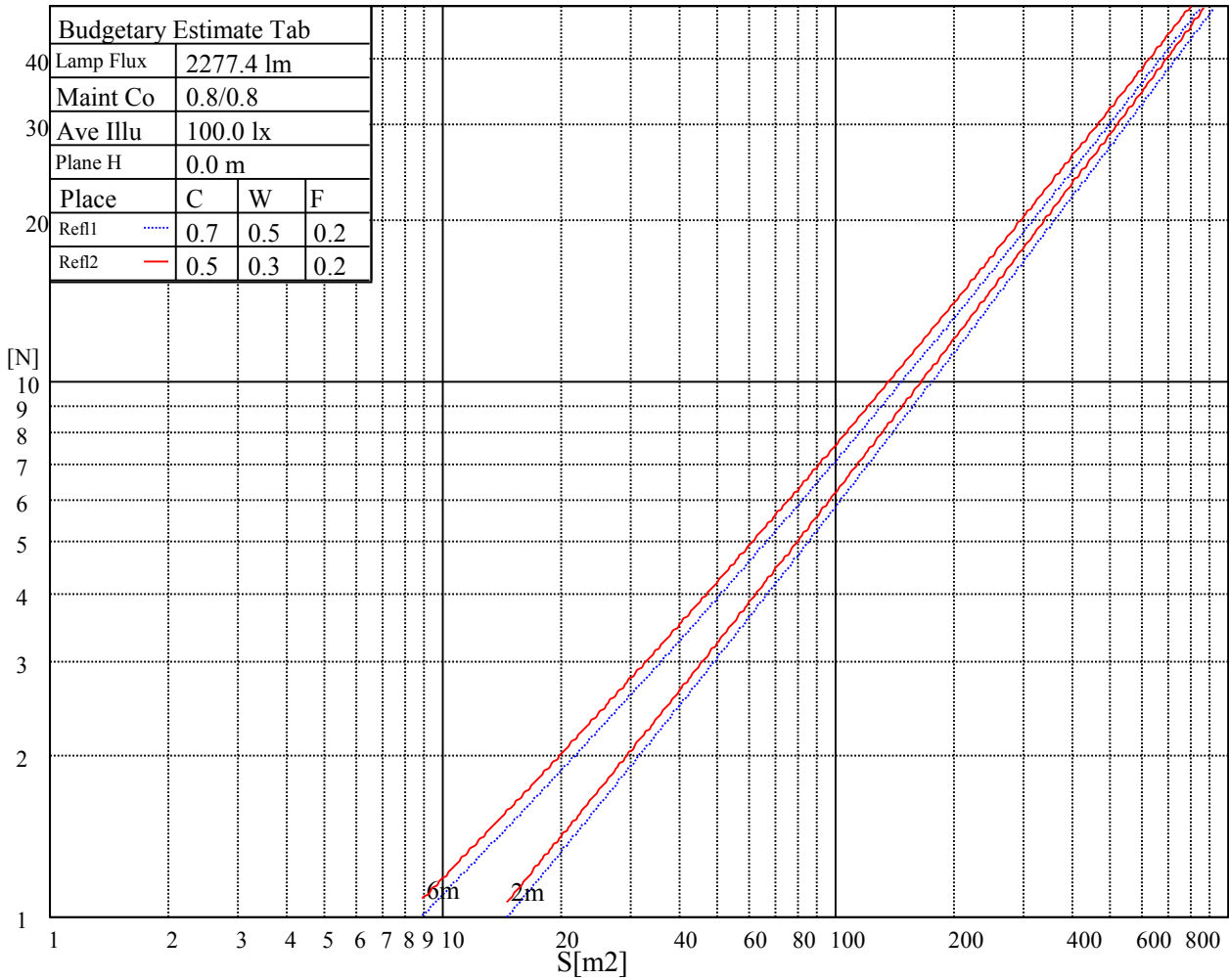
Glare Table

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

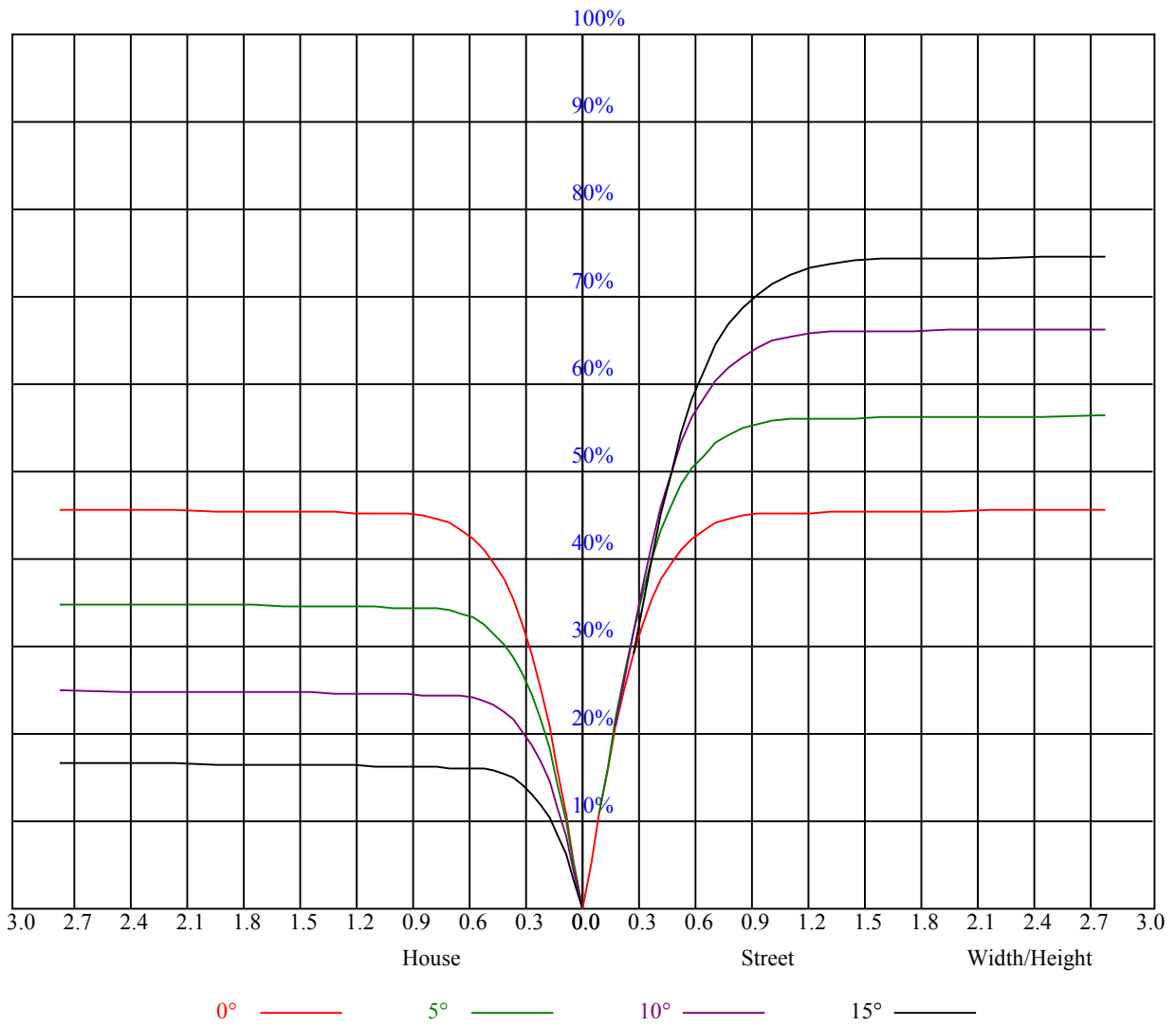
Luminance Limiting Curve



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	3.26	4.17	3.62	4.49	4.80	3.12	4.04	3.49	4.35	4.67
	3H	6.30	7.11	6.68	7.44	7.81	6.18	6.99	6.56	7.32	7.69
	4H	7.97	8.72	8.38	9.07	9.46	7.85	8.60	8.26	8.96	9.35
	6H	9.86	10.54	10.28	10.92	11.32	9.75	10.44	10.17	10.81	11.21
	8H	10.90	11.55	11.34	11.94	12.35	10.81	11.46	11.25	11.85	12.26
	12H	12.61	13.22	13.04	13.61	14.04	12.55	13.17	12.99	13.55	13.98
4H	2H	4.09	4.84	4.50	5.19	5.58	3.99	4.74	4.40	5.10	5.49
	3H	7.40	8.01	7.81	8.42	8.83	7.30	7.92	7.72	8.33	8.74
	4H	9.24	9.79	9.68	10.21	10.66	9.15	9.70	9.59	10.13	10.58
	6H	11.29	11.76	11.76	12.21	12.69	11.21	11.68	11.68	12.13	12.61
	8H	12.45	12.89	12.93	13.34	13.81	12.37	12.81	12.85	13.26	13.74
	12H	14.07	14.44	14.56	14.93	15.41	14.02	14.39	14.51	14.88	15.36
8H	4H	9.94	10.38	10.42	10.83	11.30	9.87	10.31	10.35	10.76	11.24
	6H	12.28	12.62	12.79	13.13	13.61	12.22	12.56	12.73	13.06	13.55
	8H	13.62	13.93	14.16	14.45	14.95	13.57	13.87	14.10	14.40	14.89
	12H	15.39	15.65	15.91	16.15	16.73	15.35	15.61	15.87	16.11	16.69
12H	4H	10.14	10.51	10.63	11.00	11.48	10.08	10.45	10.57	10.94	11.42
	6H	12.79	12.90	13.13	13.37	13.92	12.74	12.84	13.07	13.31	13.86
	8H	14.07	14.33	14.59	14.83	15.41	14.02	14.28	14.54	14.78	15.36
Variation with the observer position at spacings:											
S = 1.0H	5.0/-7.6					5.0/-7.6					
S = 1.5H	7.2/-5.7					7.2/-5.7					
S = 2.0H	8.6/-4.3					8.6/-4.3					
Standard tables:	BK2					BK2					
Uncorrected UGR	1.4					1.4					



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	1.10	1.10	1.10	1.07	1.07	1.07	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	1.00	0.97	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.91	0.90	0.90	0.89	0.88	0.86
2	0.96	0.93	0.90	0.95	0.92	0.89	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.82
3	0.91	0.87	0.84	0.90	0.86	0.83	0.88	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.79	0.78
4	0.87	0.82	0.79	0.86	0.82	0.79	0.84	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.78	0.75	0.82	0.78	0.74	0.80	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.71
6	0.79	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.68
7	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.66
8	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
9	0.70	0.66	0.63	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.61
10	0.68	0.63	0.60	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.59



NATA 2-1742-M

Intensity data(cd)

C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	4078.13	4008.94	3655.13	3021.75	2093.63	1208.25	839.25	556.88	298.69
45.0	4091.06	4034.25	3727.69	3036.38	2140.31	1278.00	852.19	536.06	284.63
90.0	4091.06	3992.63	3590.44	2840.06	1956.94	1099.41	783.90	446.40	141.69
135.0	4087.13	3999.94	3642.19	2980.69	2013.19	1142.44	811.69	499.50	284.63
180.0	4078.13	3935.81	3470.06	2628.56	1751.06	1011.99	743.18	420.08	132.41
225.0	4091.06	3927.38	3452.06	2660.06	1740.94	1000.58	759.09	407.93	107.94
270.0	4091.06	4003.31	3647.25	2922.19	2068.88	1198.13	829.13	476.44	291.38
315.0	4087.13	3976.31	3559.50	2783.81	1926.56	1106.61	789.24	445.33	151.71
360.0	4078.13	4008.94	3655.13	3021.75	2093.63	1208.25	839.25	556.88	298.69
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	20.59	12.32	10.91	10.07	9.56	9.28	9.00	8.83	8.78
45.0	21.04	12.49	11.19	10.41	9.79	9.39	9.11	8.89	8.72
90.0	16.93	12.15	11.03	10.24	9.62	9.34	9.06	8.89	8.72
135.0	17.94	11.76	10.63	9.96	9.51	9.17	9.00	8.83	8.78
180.0	15.47	11.14	10.35	9.79	9.39	9.17	8.89	8.78	8.72
225.0	15.64	11.59	10.58	9.96	9.56	9.28	9.00	9.51	8.78
270.0	18.11	12.32	10.97	10.24	9.73	9.39	9.11	8.89	8.72
315.0	17.27	11.81	10.74	10.01	9.51	9.23	9.00	8.83	8.72
360.0	20.59	12.32	10.91	10.07	9.56	9.28	9.00	8.83	8.78
C/ γ (°)	90.0								
0.0	8.61								
45.0	8.66								
90.0	8.61								
135.0	8.61								
180.0	8.61								
225.0	8.66								
270.0	8.66								
315.0	8.61								
360.0	8.61								