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Nata

LumCAT: 1658-S
Luminaire: 92.70.126.00
Report No: NATA0100
Test No: GC2018090709
LampCAT: LUMINUS CHM-9-XD20
Lamp flux(lm): 1969.0
Number of Lamps: 1
Length(mm): 47
Phm Type: C

Voltage(V): 35.1000
Current(A): 0.4000
Power (W): 14.0400
PF: 0.0000
Ballast type: DC
Width(mm): 47
Height(mm): 0

Photometric Results

Lumens(lm): 1728.87
Efficiency(%): 87.80%
Lumens(lm)/Power(W): 123.14
Central intensity(cd): 4108.500
Maximum intensity(cd): 4108.500
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=35.0
 [C90/270]Total=35.0
Field angle(10%Imax): [C0/180]Total=65.6
 [C90/270]Total=65.6
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.60 C90_270=0.60
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.97%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.360%

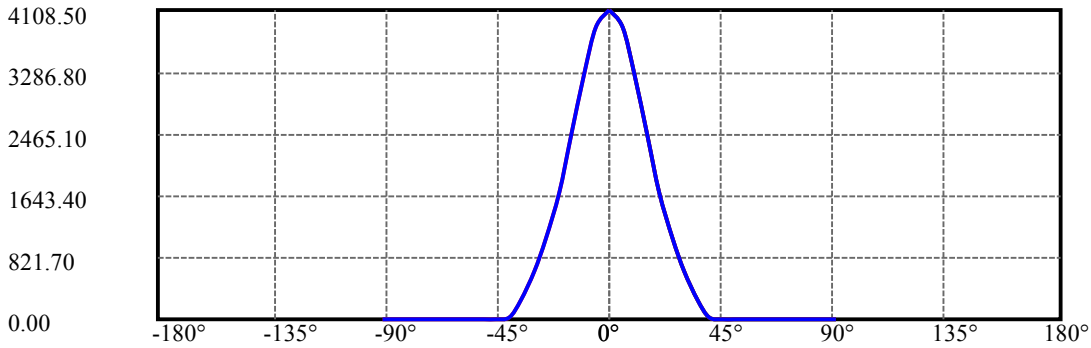
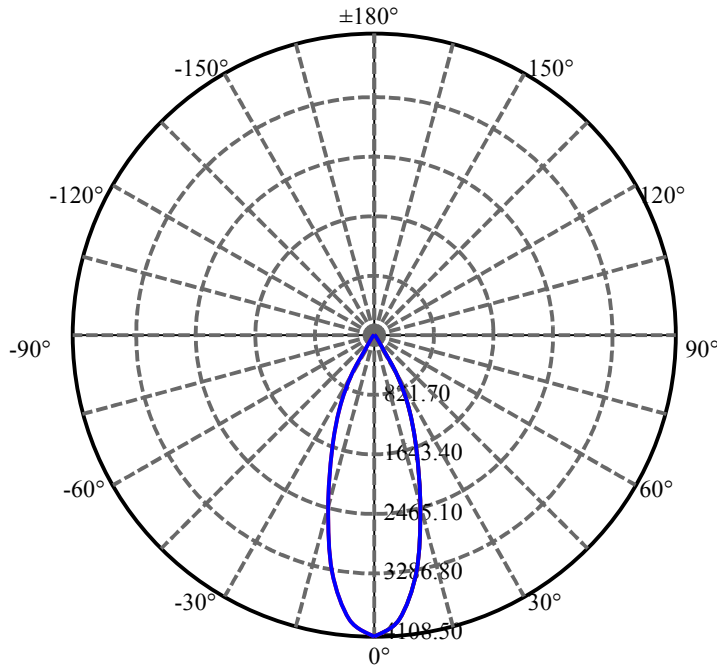
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4108.500	24.570	24.57	1.248%	1.421%
5.0	3876.539	185.195	209.765	9.406%	12.133%
10.0	3264.609	310.736	520.5	15.781%	30.106%
15.0	2426.344	344.221	864.722	17.482%	50.017%
20.0	1679.344	314.833	1179.555	15.990%	68.227%
25.0	1084.071	251.128	1430.683	12.754%	82.753%
30.0	627.476	171.971	1602.655	8.734%	92.700%
35.0	242.880	76.361	1679.016	3.878%	97.117%
40.0	28.357	9.991	1689.007	.507%	97.694%
45.0	10.905	4.227	1693.234	.215%	97.939%
50.0	9.830	4.127	1697.362	.210%	98.178%
55.0	9.105	4.088	1701.45	.208%	98.414%
60.0	8.634	4.099	1705.549	.208%	98.651%
65.0	8.332	4.139	1709.688	.210%	98.891%
70.0	8.121	4.183	1713.871	.212%	99.133%
75.0	7.995	4.233	1718.104	.215%	99.377%
80.0	7.938	4.285	1722.389	.218%	99.625%
85.0	7.938	4.335	1726.724	.220%	99.876%
90.0	7.819	2.143	1728.867	.109%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1602.65	81.39%	92.70%
0-40	1689.01	85.78%	97.69%
0-60	1705.55	86.62%	98.65%
0-90	1726.72	87.70%	99.88%
0-120	1726.72	87.70%	99.88%
0-180	1728.87	87.80%	100.00%
60-90	25.27	1.28%	1.46%
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%
0-24.05	1383.09	70.24%	80.00%

ZONAL LUMEN SUMMARY

0-10	520.50
10-20	659.05
20-30	423.10
30-40	86.35
40-50	8.35
50-60	8.19
60-70	8.32
70-80	8.52
80-90	4.33
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



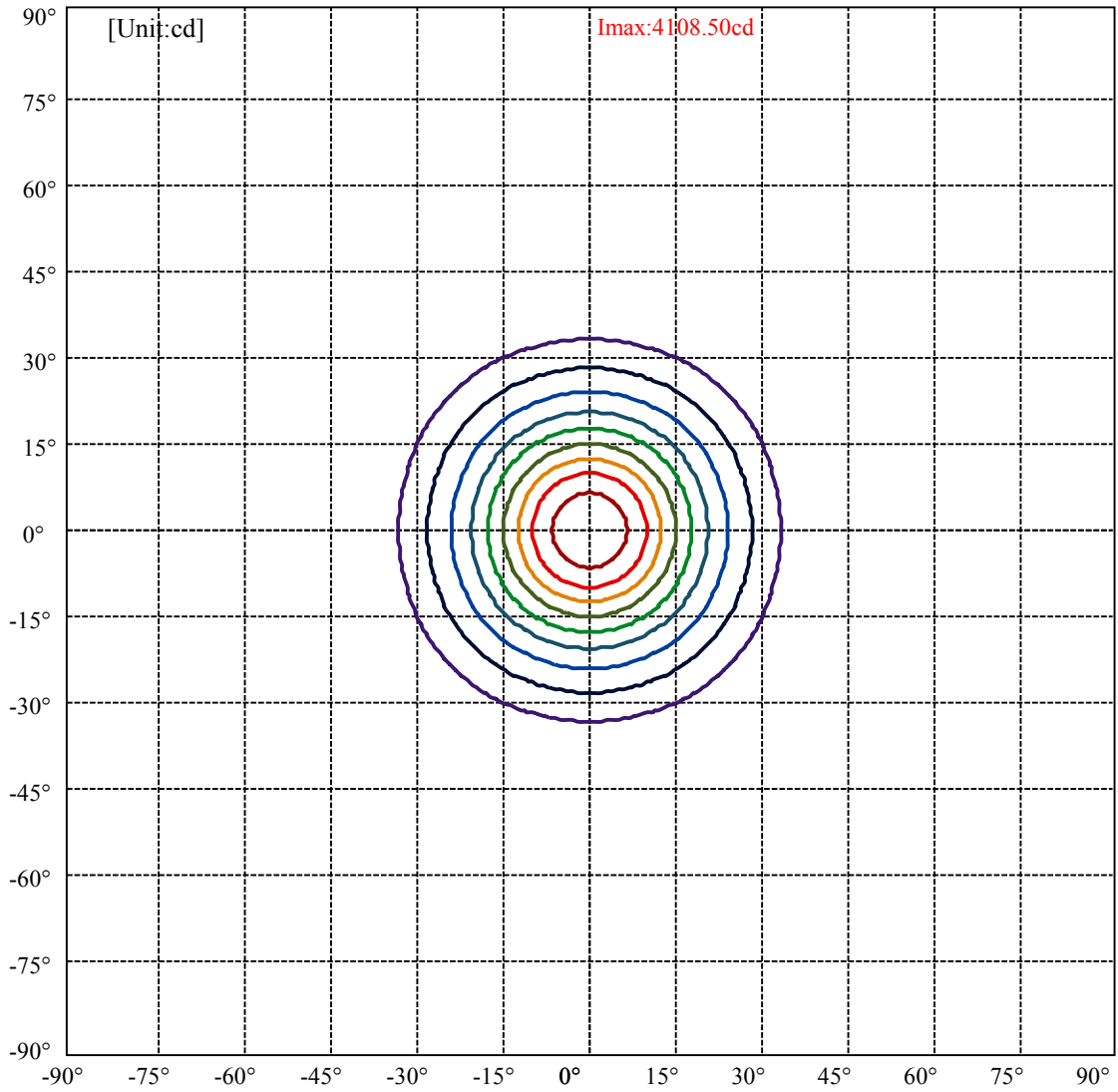
C0(Max): ———

C0/C180: ———

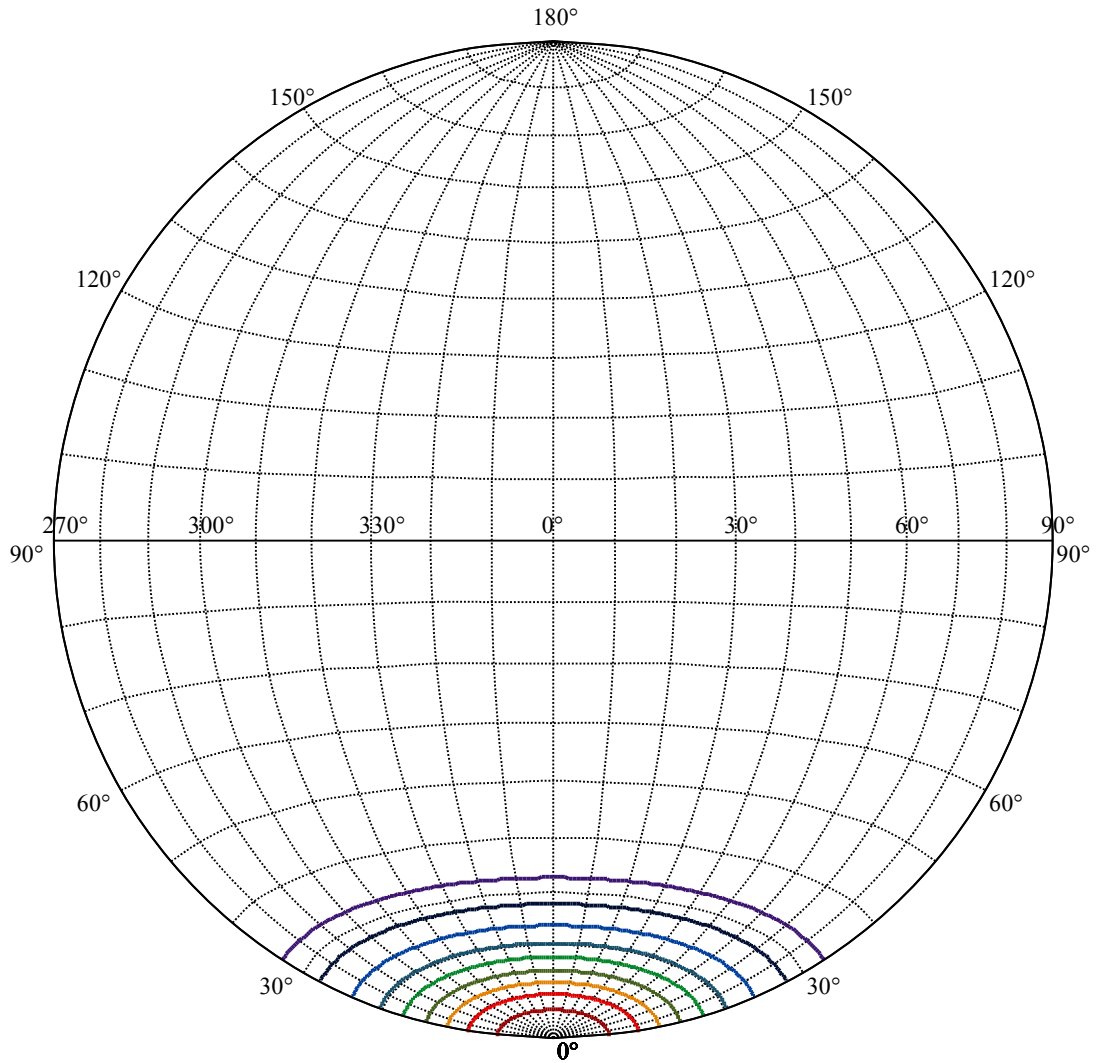
C90/C270: ———

Field angle(10%Imax):C0/180Left:32.8 Right:32.8
:C90/270Left:32.8 Right:32.8

Beam Angle(50%Imax):C0/180Left:17.5 Right:17.5
:C90/270Left:17.5 Right:17.5



(10%Imax) 410.85	—
(20%Imax) 821.7	—
(30%Imax) 1232.55	—
(40%Imax) 1643.4	—
(50%Imax) 2054.25	—
(60%Imax) 2465.1	—
(70%Imax) 2875.95	—
(80%Imax) 3286.8	—
(90%Imax) 3697.65	—



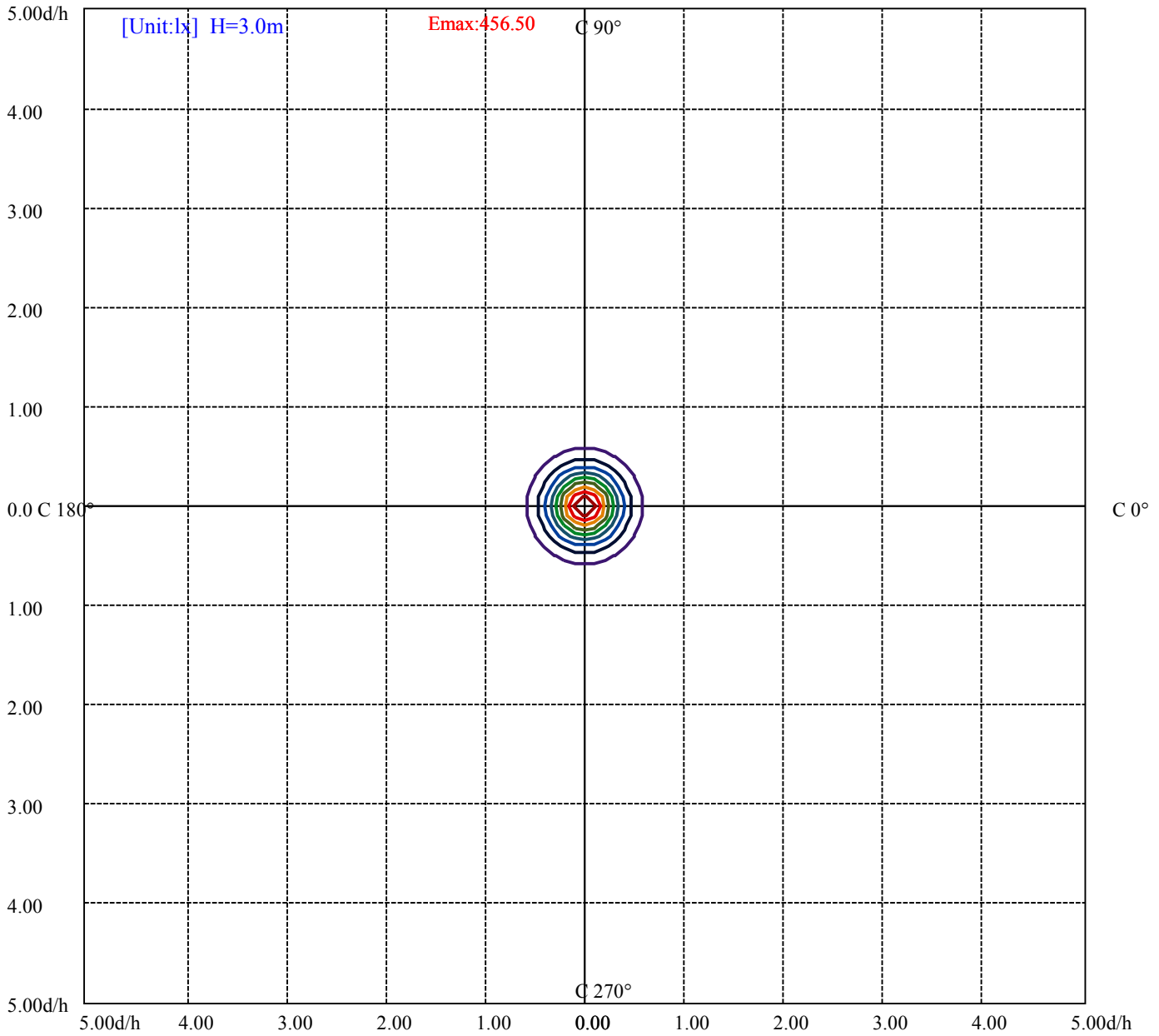
House

[Unit:cd]

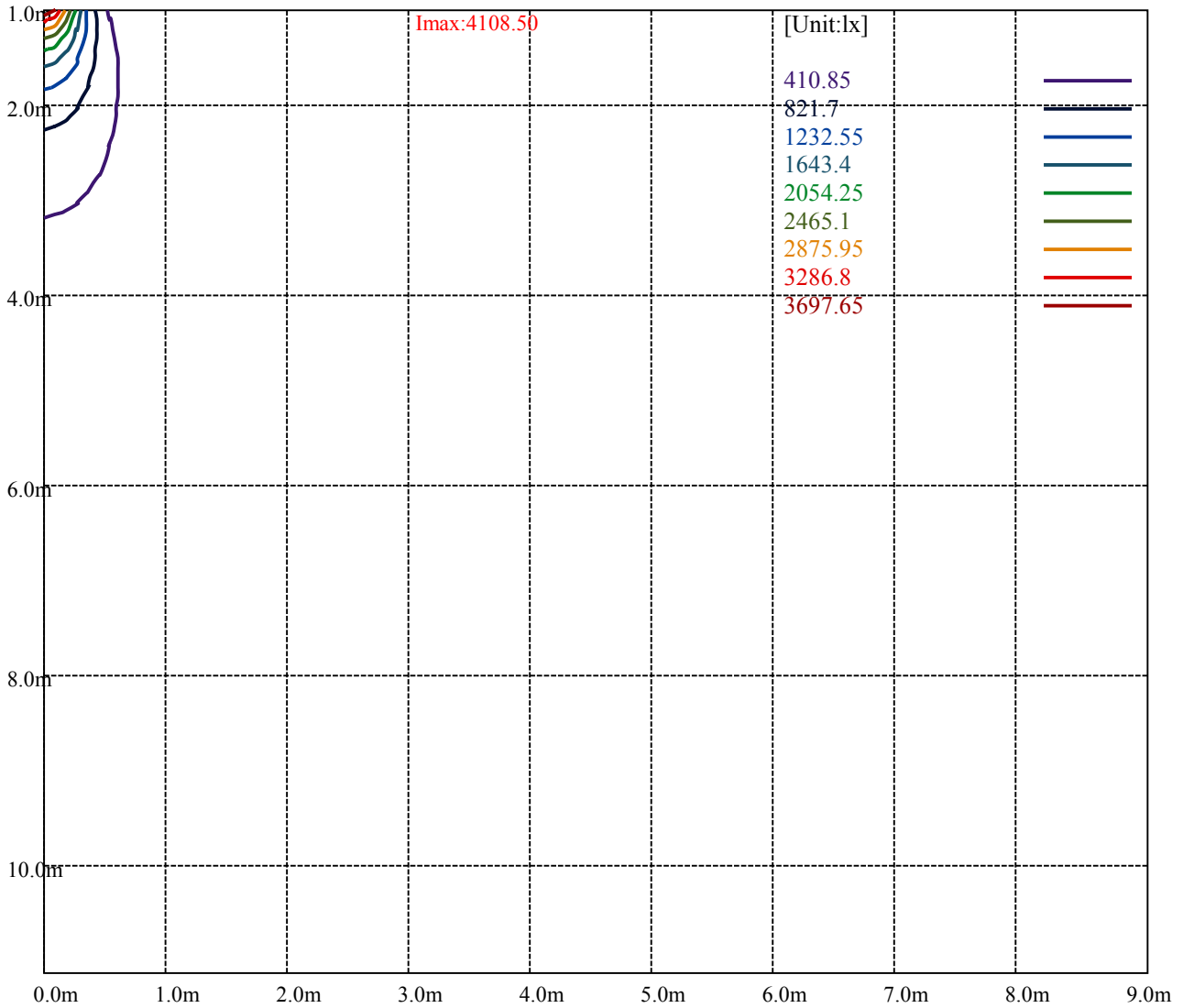
Road

Imax:4108.50

(10%Imax) 410.85	—
(20%Imax) 821.7	—
(30%Imax) 1232.55	—
(40%Imax) 1643.4	—
(50%Imax) 2054.25	—
(60%Imax) 2465.1	—
(70%Imax) 2875.95	—
(80%Imax) 3286.8	—
(90%Imax) 3697.65	—



(10%Emax) 45.64989	—
(20%Emax) 91.29989	—
(30%Emax) 136.95	—
(40%Emax) 182.6	—
(50%Emax) 228.25	—
(60%Emax) 273.9	—
(70%Emax) 319.55	—
(80%Emax) 365.1989	—
(90%Emax) 410.8489	—



Luminance Table

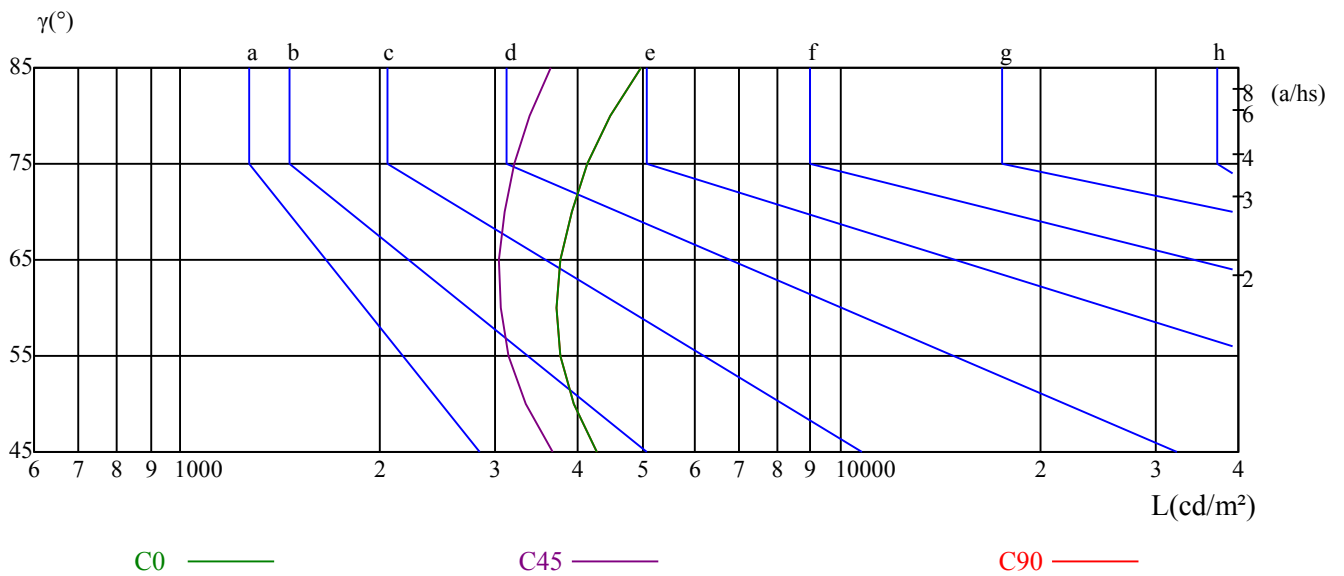
γ	45	50	55	60	65	70	75	80	85
C0	4262	3932	3759	3713	3768	3903	4134	4479	4970
C45	3669	3335	3139	3050	3040	3089	3201	3382	3643
C90	4262	3932	3759	3713	3768	3903	4134	4479	4970

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8925	8925	8925	13983	13983	13983	41232	41232	41232

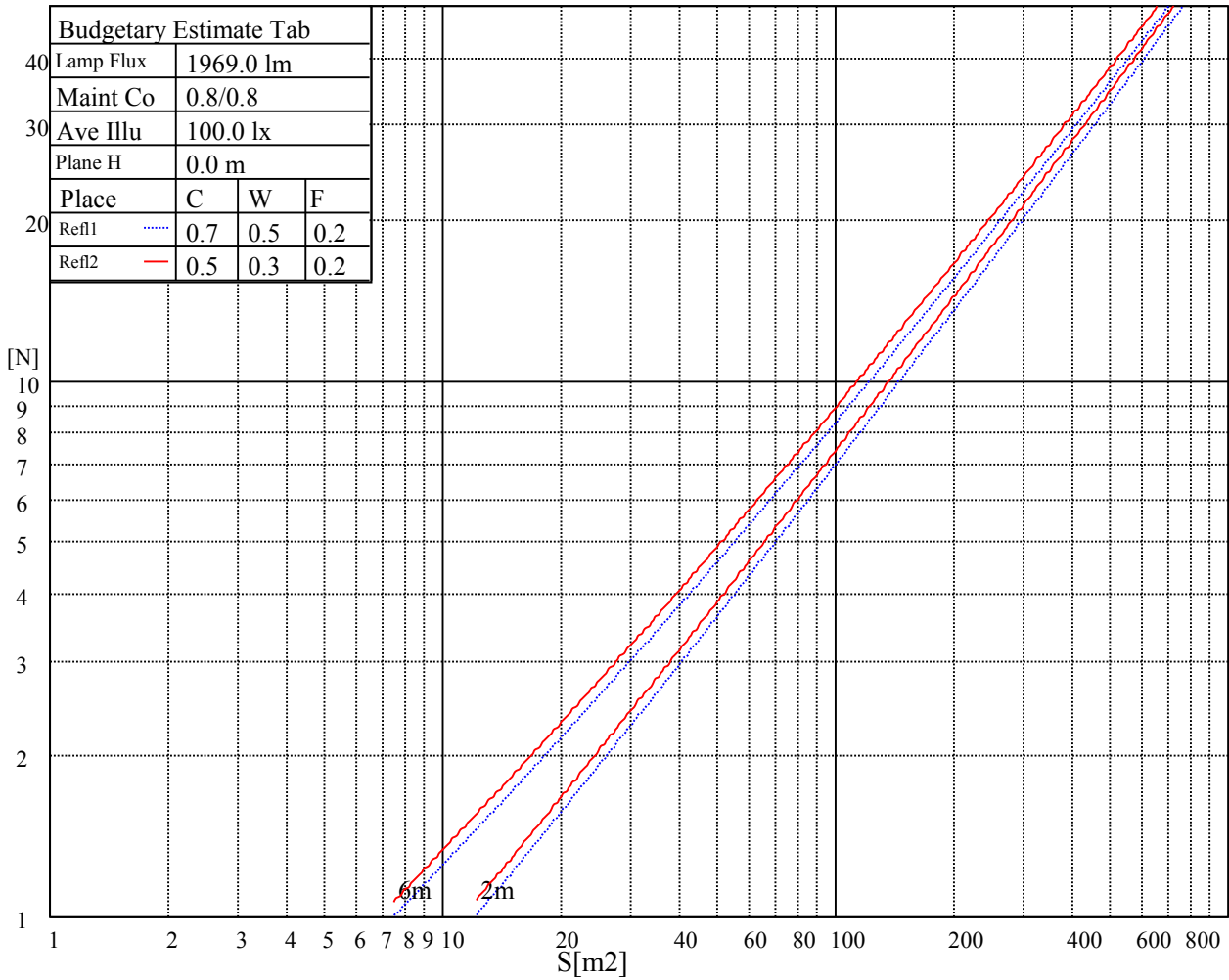
Glare Table

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

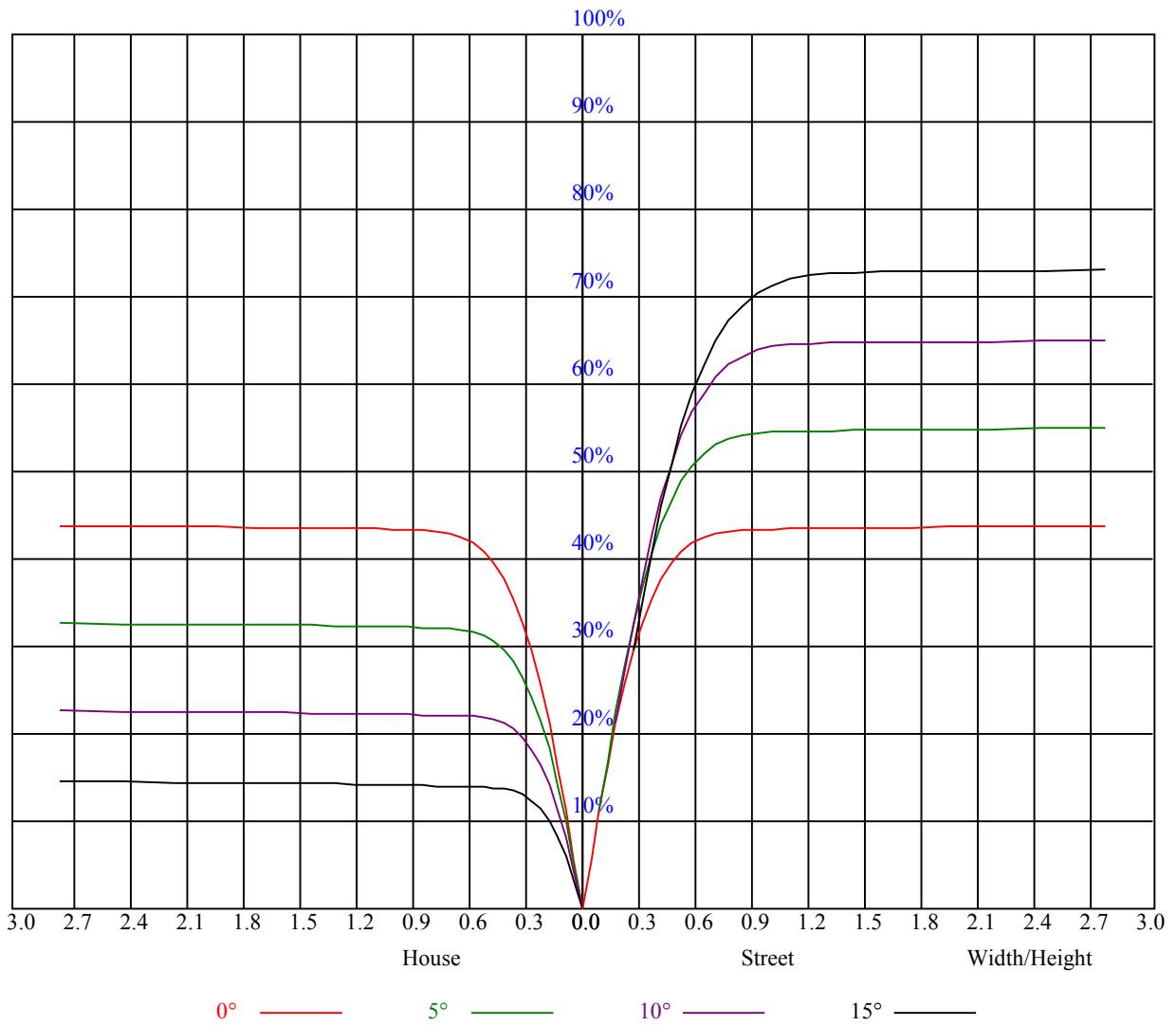
Luminance Limiting Curve



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	4.10	5.01	4.46	5.32	5.64	4.09	5.01	4.46	5.32	5.64
	3H	6.31	7.12	6.70	7.45	7.82	6.30	7.11	6.68	7.44	7.81
	4H	7.54	8.29	7.95	8.64	9.03	7.51	8.26	7.92	8.61	9.00
	6H	8.86	9.54	9.28	9.92	10.31	8.80	9.48	9.22	9.86	10.26
	8H	9.52	10.16	9.96	10.56	10.97	9.45	10.09	9.88	10.48	10.89
	12H	10.55	11.16	10.99	11.55	11.98	10.45	11.06	10.89	11.45	11.88
4H	2H	4.57	5.31	4.98	5.67	6.06	4.57	5.31	4.97	5.67	6.06
	3H	7.08	7.69	7.49	8.10	8.51	7.07	7.68	7.48	8.09	8.50
	4H	8.48	9.03	8.92	9.45	9.90	8.45	9.00	8.89	9.43	9.88
	6H	9.89	10.36	10.37	10.82	11.29	9.85	10.32	10.32	10.77	11.25
	8H	10.68	11.11	11.15	11.56	12.04	10.61	11.05	11.09	11.50	11.98
	12H	11.70	12.08	12.20	12.57	13.05	11.61	11.99	12.10	12.48	12.96
8H	4H	8.90	9.34	9.38	9.79	10.27	8.88	9.32	9.36	9.77	10.25
	6H	10.56	10.90	11.07	11.41	11.90	10.52	10.87	11.03	11.37	11.86
	8H	11.50	11.80	12.03	12.33	12.82	11.44	11.74	11.97	12.27	12.76
	12H	12.66	12.92	13.18	13.42	14.00	12.57	12.83	13.10	13.33	13.92
12H	4H	8.99	9.37	9.49	9.86	10.34	8.97	9.35	9.47	9.84	10.32
	6H	10.93	11.03	11.27	11.51	12.06	10.90	11.00	11.23	11.47	12.02
	8H	11.76	12.02	12.29	12.52	13.10	11.71	11.97	12.23	12.47	13.05
Variation with the observer position at spacings:											
S = 1.0H	5.9/-6.3					5.9/-6.3					
S = 1.5H	8.0/-4.9					8.0/-4.9					
S = 2.0H	9.5/-3.8					9.5/-3.8					
Standard tables:	BK2					BK2					
Uncorrected UGR	-1.5					-1.5					



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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.98	0.96	0.94	0.96	0.94	0.92	0.93	0.91	0.89	0.89	0.88	0.87	0.86	0.85	0.84	0.83
2	0.93	0.90	0.87	0.91	0.88	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.81	0.87	0.84	0.81	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
4	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.81	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.67
7	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.68	0.65	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
9	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.60	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



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	4108.50	3942.56	3426.75	2571.19	1787.63	1179.00	698.63	303.75	35.27
45.0	4109.06	3871.69	3270.38	2405.81	1693.13	1085.63	616.50	291.38	26.49
90.0	4101.75	3771.00	3068.44	2237.06	1553.63	993.66	532.24	165.38	22.56
135.0	4118.63	3855.94	3236.06	2436.19	1690.88	1082.81	673.88	284.63	25.93
180.0	4108.50	3794.63	3126.94	2332.69	1552.50	1010.53	571.67	172.80	23.29
225.0	4109.06	3893.63	3264.19	2412.56	1687.50	1061.55	614.25	235.01	28.29
270.0	4093.88	3969.56	3440.81	2604.94	1855.13	1186.88	705.94	297.00	39.54
315.0	4118.63	3913.31	3283.31	2410.31	1614.38	1072.52	606.71	193.11	25.48
360.0	4108.50	3942.56	3426.75	2571.19	1787.63	1179.00	698.63	303.75	35.27
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	11.08	9.79	9.06	8.66	8.33	8.10	7.99	7.88	7.88
45.0	10.52	9.56	9.00	8.49	8.27	8.10	7.93	7.88	7.88
90.0	10.41	9.56	8.89	8.55	8.27	8.10	8.04	7.99	7.93
135.0	11.14	10.01	9.17	8.66	8.38	8.10	7.99	7.93	7.88
180.0	10.97	9.96	9.17	8.66	8.33	8.10	7.93	7.88	7.82
225.0	11.08	10.01	9.23	8.66	8.38	8.16	7.99	7.93	7.99
270.0	11.31	10.07	9.28	8.78	8.44	8.21	8.10	8.10	8.21
315.0	10.74	9.68	9.06	8.61	8.27	8.10	7.99	7.93	7.93
360.0	11.08	9.79	9.06	8.66	8.33	8.10	7.99	7.88	7.88
C/ γ (°)	90.0								
0.0	7.82								
45.0	7.82								
90.0	7.82								
135.0	7.82								
180.0	7.82								
225.0	7.82								
270.0	7.82								
315.0	7.82								
360.0	7.82								