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Nata

LumCAT: 1437-N	
Luminaire: 92.70.043.00+92.70.147.00	
Report No: NATA0100	Voltage(V): 37.4000
Test No: GC2018092606	Current(A): 0.2100
LampCAT: CITIZEN CLU7A2-1201C9	Power (W): 7.8540
Lamp flux(lm): 762.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 613.56
Efficiency(%): 80.52%
Lumens(lm)/Power(W): 79.08
Central intensity(cd): 1359.000
Maximum intensity(cd): 1359.000
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=36.0
 [C90/270]Total=36.0
Field angle(10%Imax): [C0/180]Total=59.8
 [C90/270]Total=59.8
Maximum s/h(1/2): C0_180=0.61 C90_270=0.61
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 81.51%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.372%

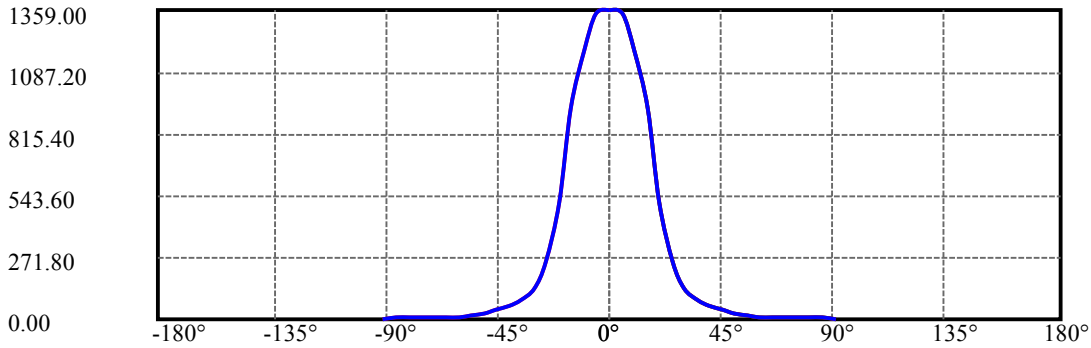
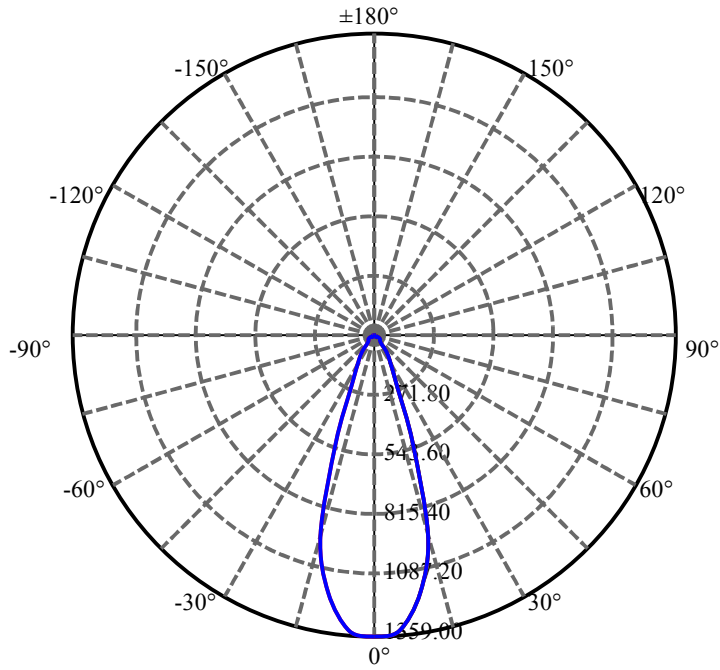
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1359.000	8.127	8.127	1.067%	1.325%
5.0	1340.297	64.030	72.158	8.403%	11.760%
10.0	1181.848	112.492	184.649	14.763%	30.095%
15.0	932.435	132.283	316.932	17.360%	51.654%
20.0	513.724	96.310	413.242	12.639%	67.351%
25.0	254.566	58.971	472.213	7.739%	76.963%
30.0	134.044	36.737	508.951	4.821%	82.950%
35.0	86.702	27.259	536.21	3.577%	87.393%
40.0	60.124	21.184	557.394	2.780%	90.845%
45.0	40.774	15.804	573.197	2.074%	93.421%
50.0	28.568	11.996	585.193	1.574%	95.376%
55.0	18.197	8.171	593.364	1.072%	96.708%
60.0	10.976	5.210	598.574	.684%	97.557%
65.0	6.743	3.350	601.924	.440%	98.103%
70.0	5.541	2.854	604.777	.375%	98.568%
75.0	4.999	2.647	607.424	.347%	99.000%
80.0	4.922	2.657	610.081	.349%	99.433%
85.0	5.084	2.776	612.857	.364%	99.885%
90.0	2.573	0.705	613.562	.093%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	508.95	66.79%	82.95%
0-40	557.39	73.15%	90.85%
0-60	598.57	78.55%	97.56%
0-90	612.86	80.43%	99.89%
0-120	612.86	80.43%	99.89%
0-180	613.56	80.52%	100.00%
60-90	19.49	2.56%	3.18%
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%
0-27.54	490.85	64.42%	80.00%

ZONAL LUMEN SUMMARY

0-10	184.65
10-20	228.59
20-30	95.71
30-40	48.44
40-50	27.80
50-60	13.38
60-70	6.20
70-80	5.30
80-90	2.78
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



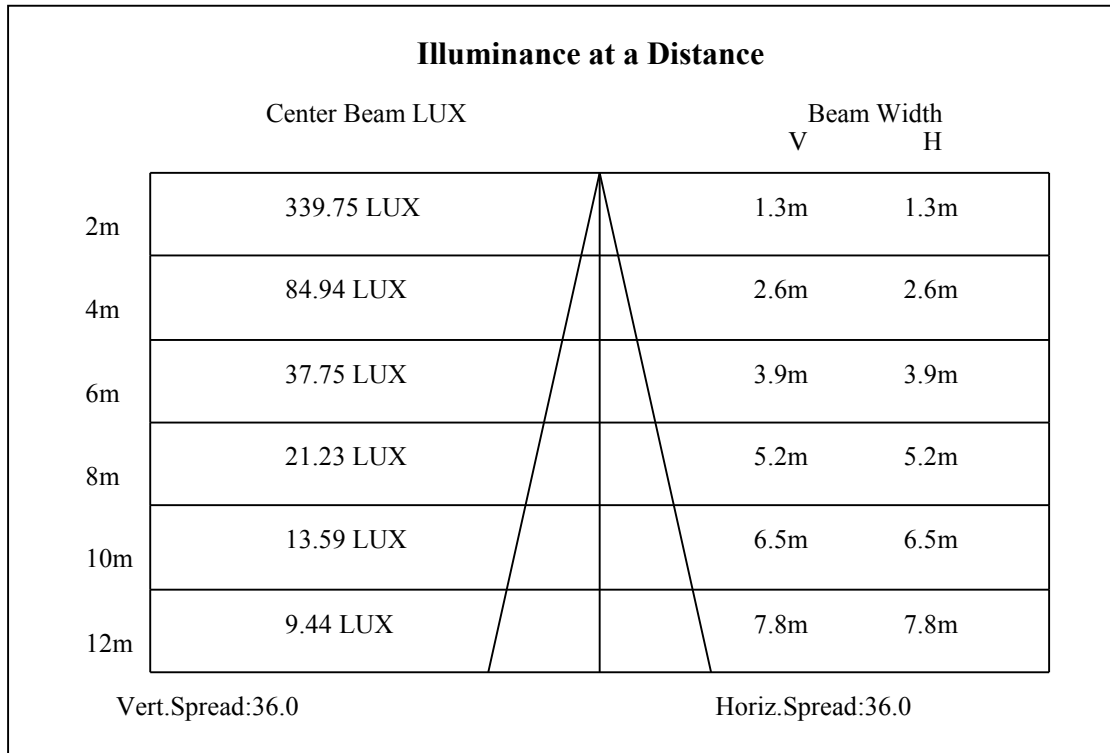
C0(Max): —————

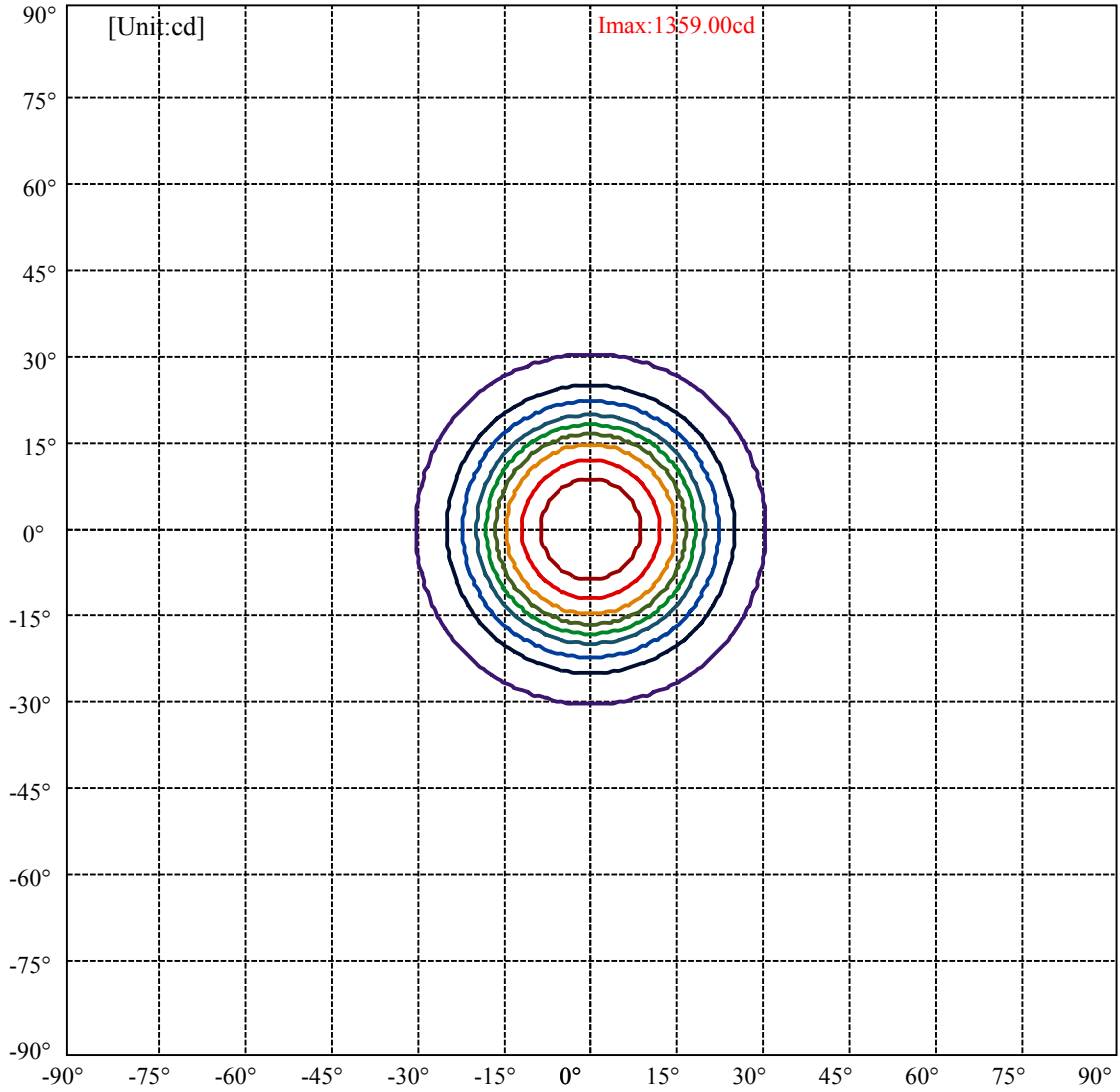
C0/C180: —————

C90/C270: —————

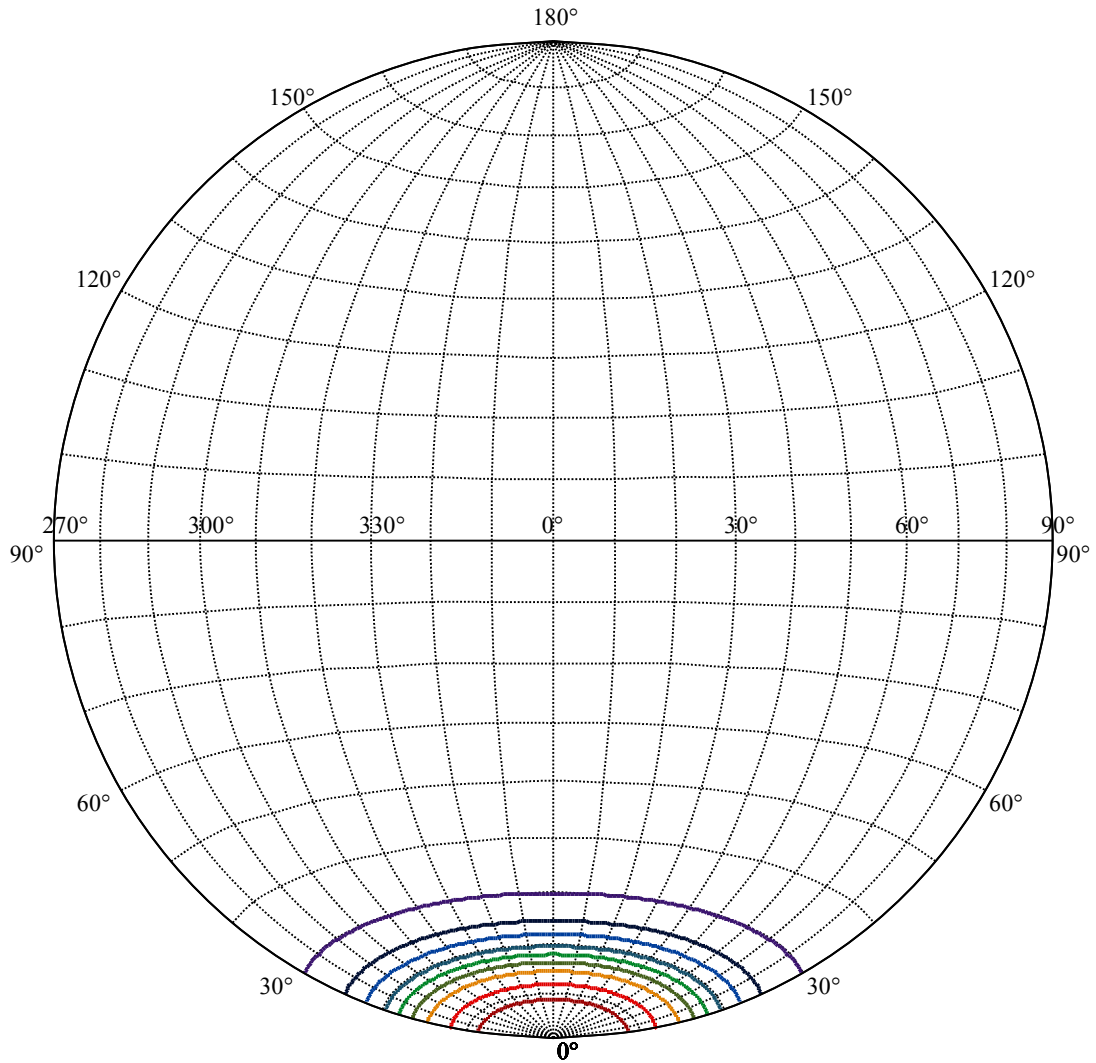
Field angle(10%Imax):C0/180Left:29.9 Right:29.9
:C90/270Left:29.9 Right:29.9

Beam Angle(50%Imax):C0/180Left:18.0 Right:18.0
:C90/270Left:18.0 Right:18.0





(10%Imax) 135.9	—
(20%Imax) 271.8	—
(30%Imax) 407.7	—
(40%Imax) 543.6	—
(50%Imax) 679.5	—
(60%Imax) 815.4	—
(70%Imax) 951.3	—
(80%Imax) 1087.2	—
(90%Imax) 1223.1	—



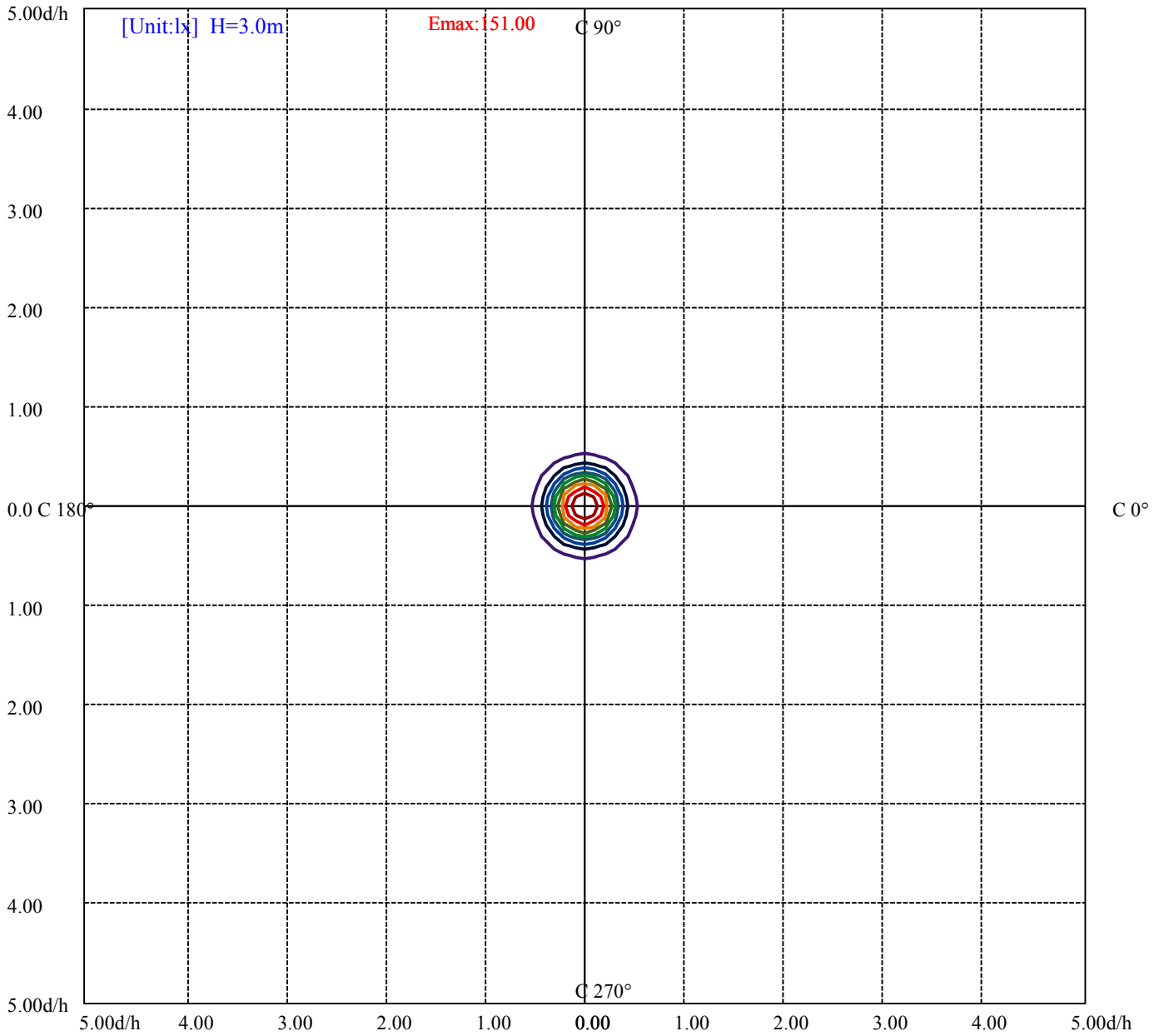
House

[Unit:cd]

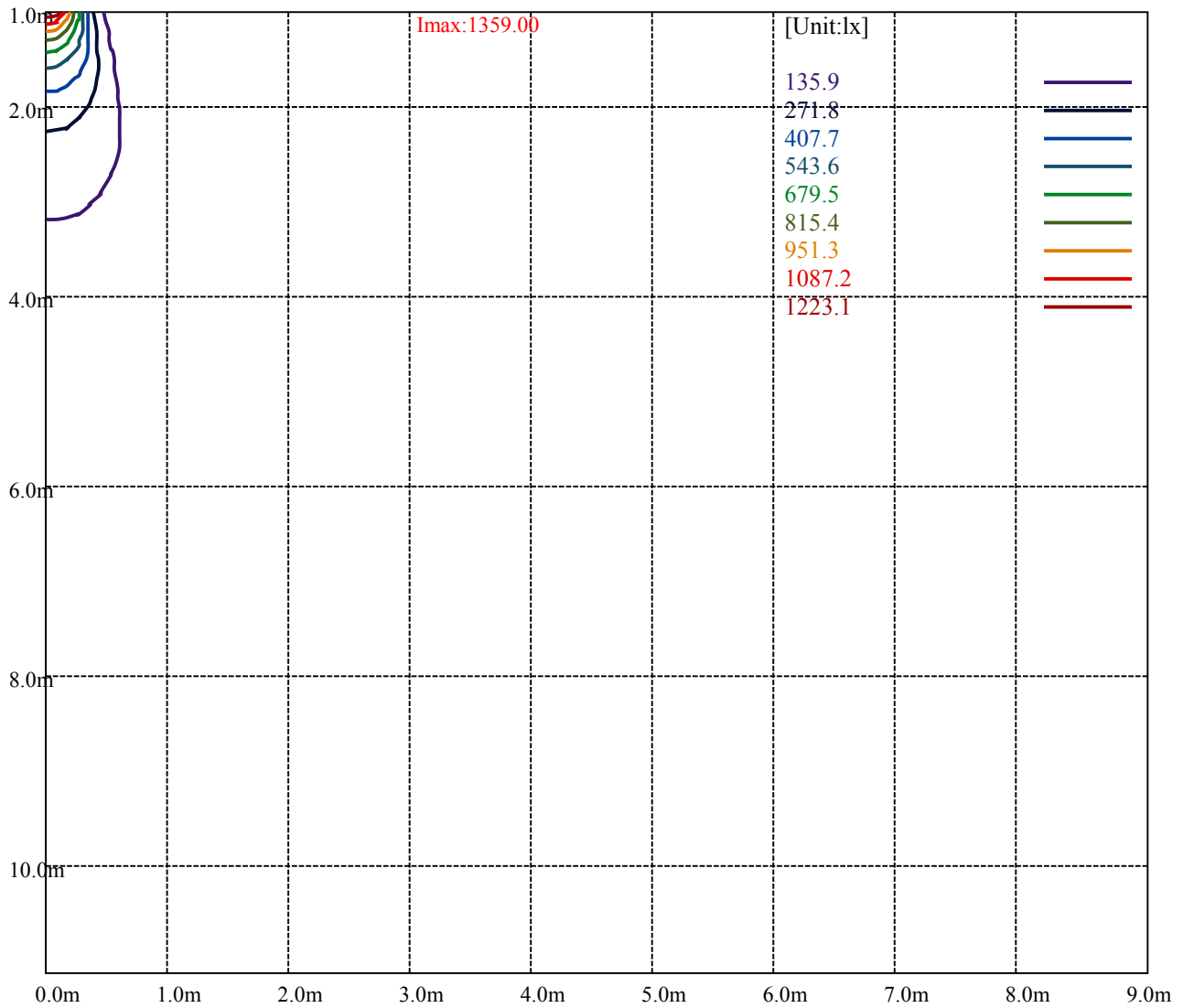
Road

I_{max}:1359.00

(10%I _{max}) 135.9	—
(20%I _{max}) 271.8	—
(30%I _{max}) 407.7	—
(40%I _{max}) 543.6	—
(50%I _{max}) 679.5	—
(60%I _{max}) 815.4	—
(70%I _{max}) 951.3	—
(80%I _{max}) 1087.2	—
(90%I _{max}) 1223.1	—



- (10%Emax) 15.1
- (20%Emax) 30.2
- (30%Emax) 45.3
- (40%Emax) 60.4
- (50%Emax) 75.5
- (60%Emax) 90.60001
- (70%Emax) 105.7
- (80%Emax) 120.8
- (90%Emax) 135.9



Luminance Table

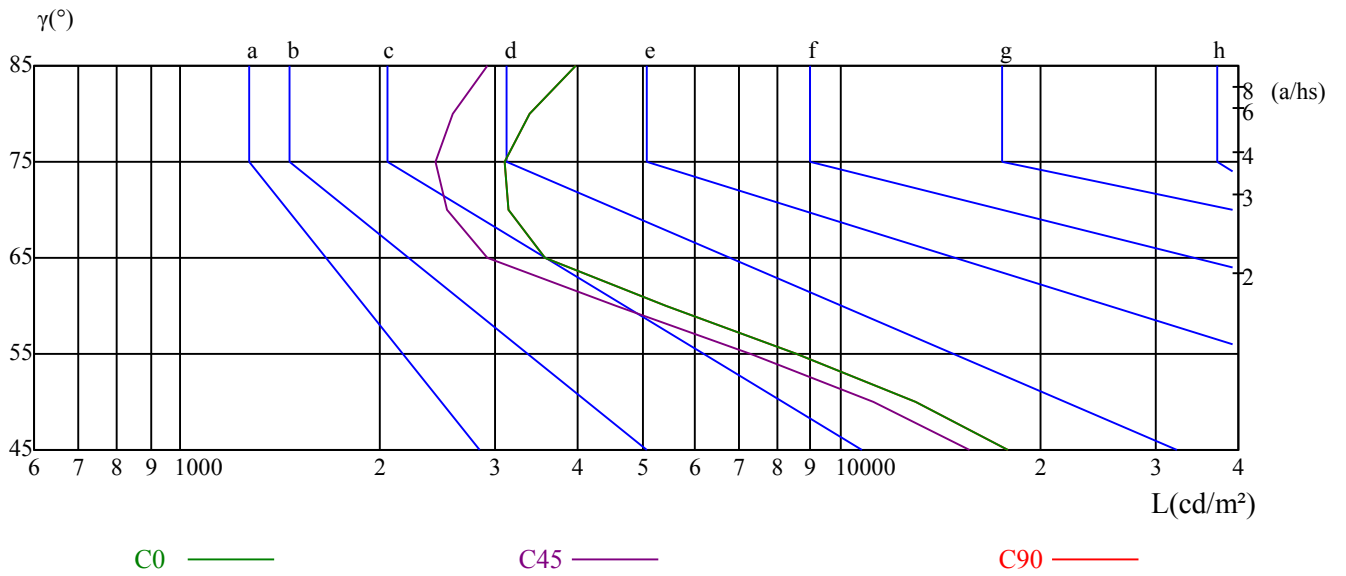
γ	45	50	55	60	65	70	75	80	85
C0	17908	12951	8591	5449	3559	3146	3097	3384	3959
C45	15681	11176	7300	4554	2920	2529	2432	2584	2922
C90	17908	12951	8591	5449	3559	3146	3097	3384	3959

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7540	7540	7540	9128	9128	9128	27565	27565	27565

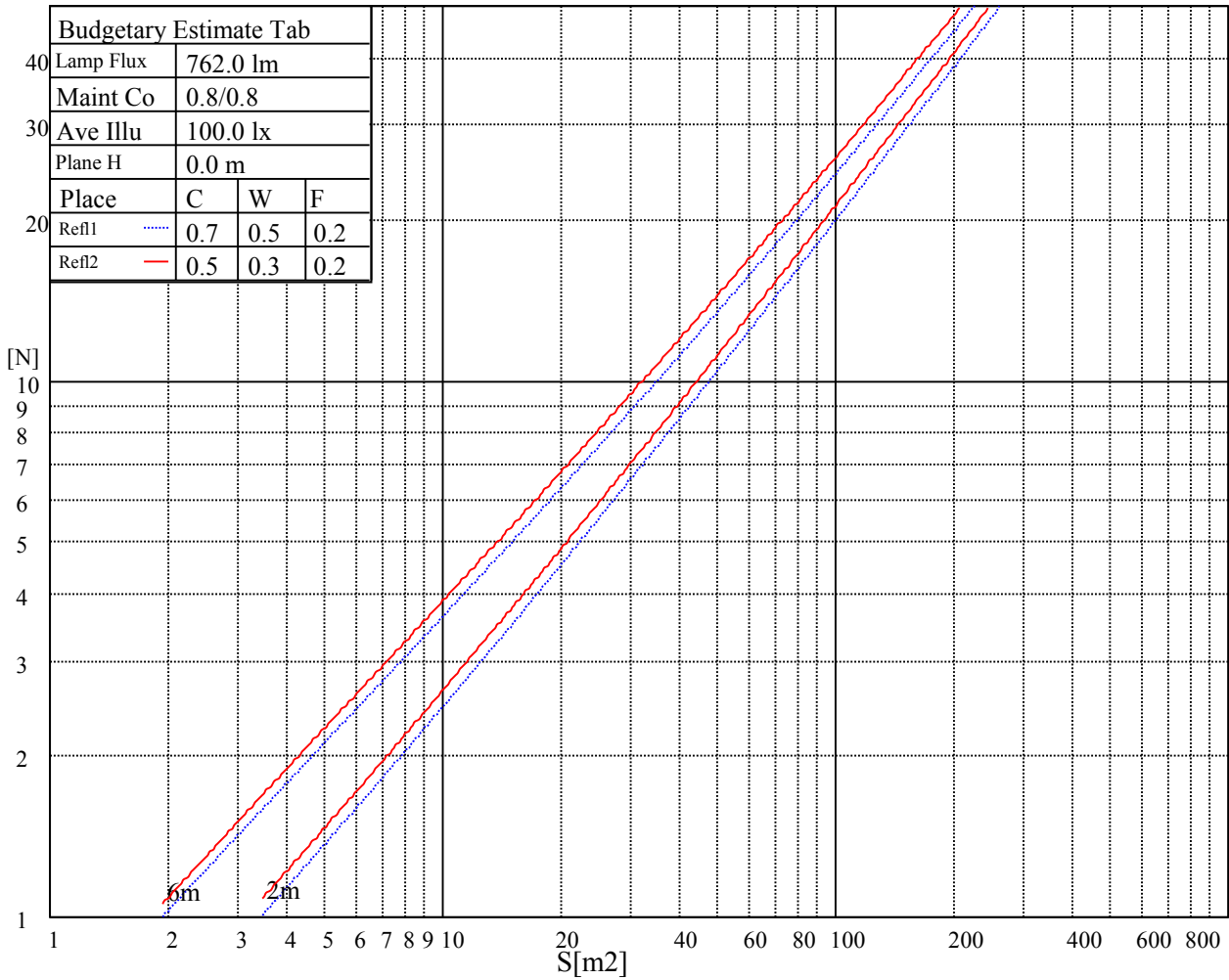
Glare Table

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

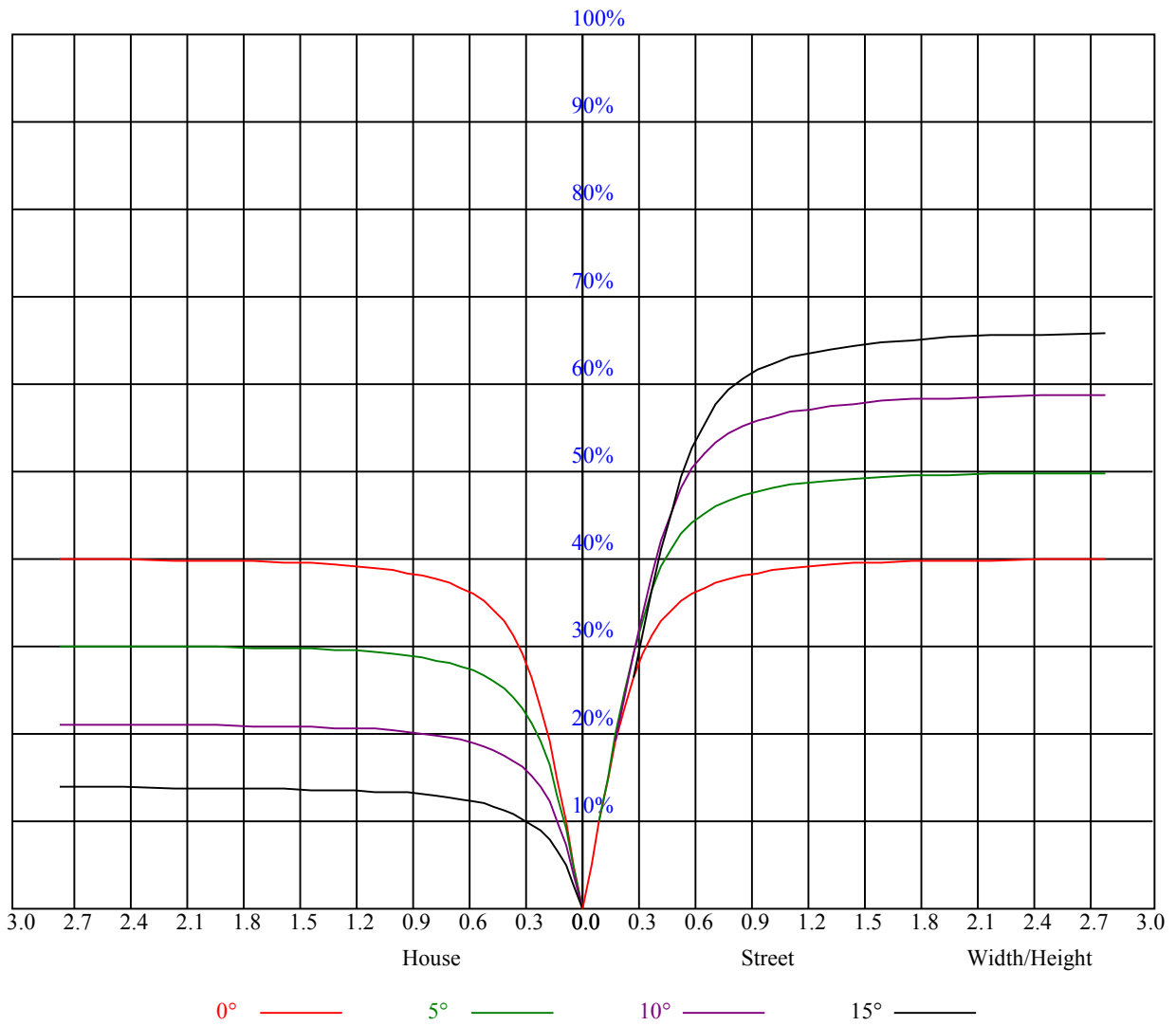
Luminance Limiting Curve



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	14.92	15.95	15.28	16.26	16.58	14.96	16.00	15.33	16.31	16.62
	3H	15.40	16.31	15.78	16.64	17.01	15.41	16.32	15.80	16.66	17.03
	4H	15.73	16.57	16.13	16.93	17.31	15.70	16.55	16.11	16.90	17.29
	6H	16.21	16.98	16.62	17.36	17.75	16.09	16.87	16.51	17.24	17.64
	8H	16.51	17.24	16.95	17.63	18.04	16.35	17.08	16.78	17.47	17.88
	12H	17.08	17.78	17.51	18.16	18.59	16.87	17.56	17.30	17.95	18.38
4H	2H	14.86	15.70	15.26	16.06	16.45	14.90	15.75	15.31	16.10	16.49
	3H	15.53	16.22	15.94	16.63	17.03	15.53	16.23	15.95	16.64	17.04
	4H	16.00	16.62	16.44	17.04	17.49	15.96	16.58	16.40	17.00	17.45
	6H	16.55	17.09	17.02	17.54	18.01	16.43	16.96	16.90	17.41	17.88
	8H	17.00	17.50	17.48	17.95	18.43	16.82	17.32	17.30	17.77	18.24
	12H	17.69	18.13	18.19	18.61	19.09	17.46	17.90	17.95	18.38	18.86
8H	4H	16.11	16.60	16.58	17.05	17.53	16.07	16.57	16.54	17.02	17.49
	6H	16.88	17.28	17.38	17.78	18.26	16.75	17.15	17.26	17.65	18.14
	8H	17.48	17.84	18.01	18.36	18.86	17.30	17.66	17.83	18.18	18.67
	12H	18.37	18.69	18.90	19.18	19.76	18.15	18.46	18.67	18.96	19.54
12H	4H	16.12	16.55	16.61	17.04	17.51	16.08	16.52	16.57	17.00	17.48
	6H	17.28	17.32	17.49	17.79	18.33	17.17	17.20	17.38	17.67	18.22
	8H	17.65	17.96	18.17	18.46	19.04	17.48	17.79	18.00	18.29	18.87
Variation with the observer position at spacings:											
S = 1.0H	1.6/-2.0					1.6/-2.0					
S = 1.5H	2.9/-2.8					2.9/-2.8					
S = 2.0H	4.6/-2.6					4.6/-2.6					
Standard tables:	BK3					BK3					
Uncorrected UGR	-0.9					-0.9					



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	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.82
1	0.89	0.87	0.85	0.88	0.86	0.84	0.84	0.83	0.81	0.81	0.80	0.79	0.79	0.78	0.77	0.75
2	0.84	0.81	0.78	0.83	0.80	0.77	0.80	0.78	0.76	0.78	0.76	0.74	0.76	0.74	0.73	0.71
3	0.80	0.76	0.73	0.79	0.75	0.72	0.76	0.73	0.71	0.74	0.72	0.70	0.73	0.71	0.69	0.68
4	0.76	0.72	0.68	0.75	0.71	0.68	0.73	0.70	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
5	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.63	0.67	0.65	0.63	0.62
6	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.62	0.60	0.59
7	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.57
8	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.55
9	0.61	0.57	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.60	0.57	0.54	0.59	0.56	0.54	0.53
10	0.59	0.55	0.53	0.59	0.55	0.53	0.58	0.55	0.53	0.58	0.55	0.52	0.57	0.54	0.52	0.51



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	1361.25	1359.00	1243.69	988.31	506.25	290.25	135.51	87.92	61.31
45.0	1360.69	1339.31	1185.19	902.25	505.69	290.81	126.39	84.94	60.75
90.0	1356.19	1301.06	1117.52	825.24	436.16	196.20	115.88	76.11	55.01
135.0	1357.88	1330.88	1209.38	928.69	536.63	294.19	133.88	84.60	58.05
180.0	1361.25	1333.13	1118.03	919.74	513.45	226.52	135.62	87.08	59.96
225.0	1360.69	1346.63	1117.24	915.41	525.66	230.12	133.03	90.73	63.39
270.0	1356.19	1356.19	1244.81	1040.06	609.19	284.06	157.33	96.98	66.04
315.0	1357.88	1356.19	1218.94	939.77	476.78	224.38	134.72	85.28	56.48
360.0	1361.25	1359.00	1243.69	988.31	506.25	290.25	135.51	87.92	61.31
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	41.57	28.52	18.84	11.08	6.75	5.51	4.89	4.73	5.46
45.0	41.91	30.49	19.07	11.31	6.98	5.85	5.34	5.51	5.23
90.0	37.86	26.66	17.10	10.13	6.53	5.51	5.06	5.06	5.06
135.0	39.15	27.11	17.66	11.31	6.75	5.34	4.67	4.33	4.50
180.0	40.95	28.63	18.28	10.97	6.69	5.40	4.73	4.39	4.44
225.0	42.86	30.49	19.07	11.14	6.64	5.68	5.29	5.34	5.29
270.0	44.44	31.39	19.58	11.81	7.20	5.74	5.23	5.23	5.46
315.0	37.46	25.26	15.98	10.07	6.41	5.29	4.78	4.78	5.23
360.0	41.57	28.52	18.84	11.08	6.75	5.51	4.89	4.73	5.46
C/ γ (°)	90.0								
0.0	2.59								
45.0	2.53								
90.0	2.53								
135.0	2.59								
180.0	2.59								
225.0	2.59								
270.0	2.59								
315.0	2.59								
360.0	2.59								