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Nata

LumCAT: 1654-S	
Luminaire: 92.70.064.00	
Report No: NATA0100	Voltage(V): 36.3000
Test No: GC2018092703	Current(A): 0.4000
LampCAT: CITIZEN CLU028-1203C4	Power (W): 14.5200
Lamp flux(lm): 1506.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 32	Width(mm): 32
Phm Type: C	Height(mm): 22

Photometric Results

Lumens(lm): 1293.43
Efficiency(%): 85.89%
Lumens(lm)/Power(W): 90.67
Central intensity(cd): 4077.844
Maximum intensity(cd): 4077.844
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=27.0
 [C90/270]Total=27.0
Field angle(10%Imax): [C0/180]Total=60.6
 [C90/270]Total=60.6
Maximum s/h(1/2): C0_180=0.46 C90_270=0.46
Maximum s/h(1/4): C0_180=0.48 C90_270=0.48
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.42%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.620%

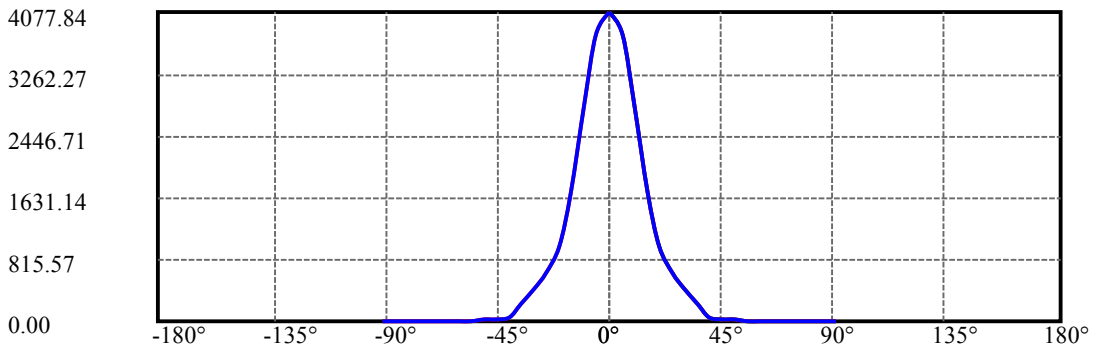
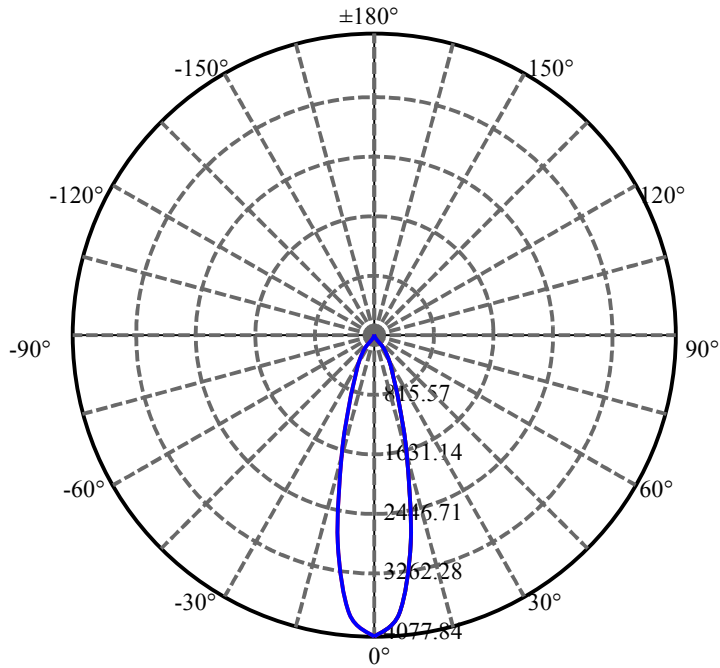
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4077.844	24.386	24.386	1.619%	1.885%
5.0	3780.844	180.623	205.01	11.994%	15.850%
10.0	2852.648	271.524	476.534	18.029%	36.843%
15.0	1695.445	240.530	717.064	15.971%	55.439%
20.0	982.575	184.207	901.271	12.232%	69.681%
25.0	629.283	145.775	1047.046	9.680%	80.951%
30.0	420.420	115.224	1162.27	7.651%	89.859%
35.0	219.284	68.942	1231.212	4.578%	95.189%
40.0	51.954	18.305	1249.518	1.215%	96.605%
45.0	16.664	6.459	1255.977	.429%	97.104%
50.0	13.022	5.468	1261.444	.363%	97.527%
55.0	11.981	5.380	1266.824	.357%	97.943%
60.0	11.095	5.267	1272.091	.350%	98.350%
65.0	9.499	4.719	1276.81	.313%	98.715%
70.0	7.988	4.114	1280.924	.273%	99.033%
75.0	7.073	3.745	1284.669	.249%	99.322%
80.0	6.736	3.636	1288.305	.241%	99.604%
85.0	6.483	3.540	1291.845	.235%	99.877%
90.0	5.794	1.588	1293.433	.105%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1162.27	77.18%	89.86%
0-40	1249.52	82.97%	96.60%
0-60	1272.09	84.47%	98.35%
0-90	1291.85	85.78%	99.88%
0-120	1291.85	85.78%	99.88%
0-180	1293.43	85.89%	100.00%
60-90	25.02	1.66%	1.93%
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%
0-24.58	1034.75	68.71%	80.00%

ZONAL LUMEN SUMMARY

0-10	476.53
10-20	424.74
20-30	261.00
30-40	87.25
40-50	11.93
50-60	10.65
60-70	8.83
70-80	7.38
80-90	3.54
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: —————

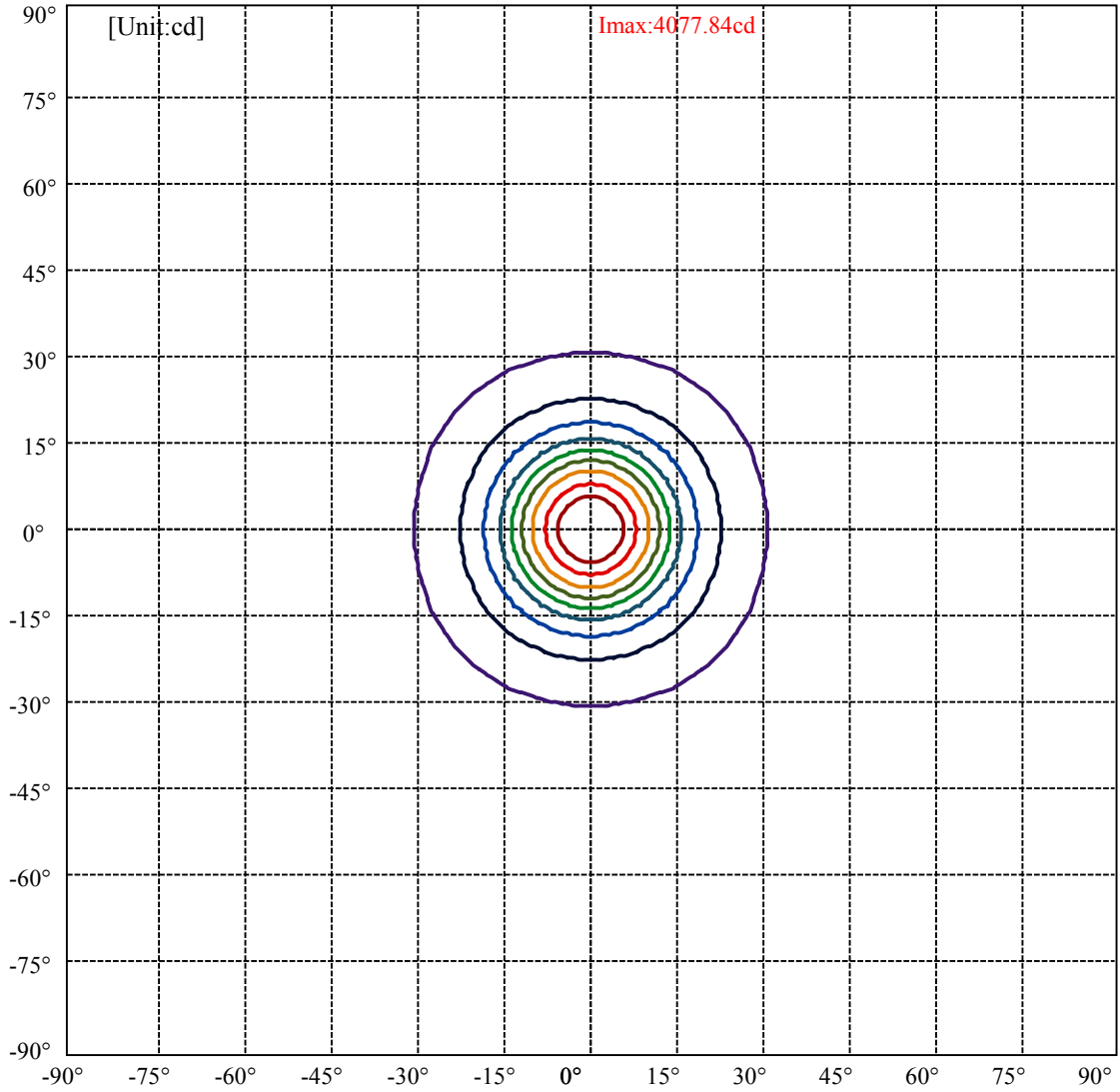
C90/C270: —————

Field angle(10%Imax):C0/180Left:30.3 Right:30.3

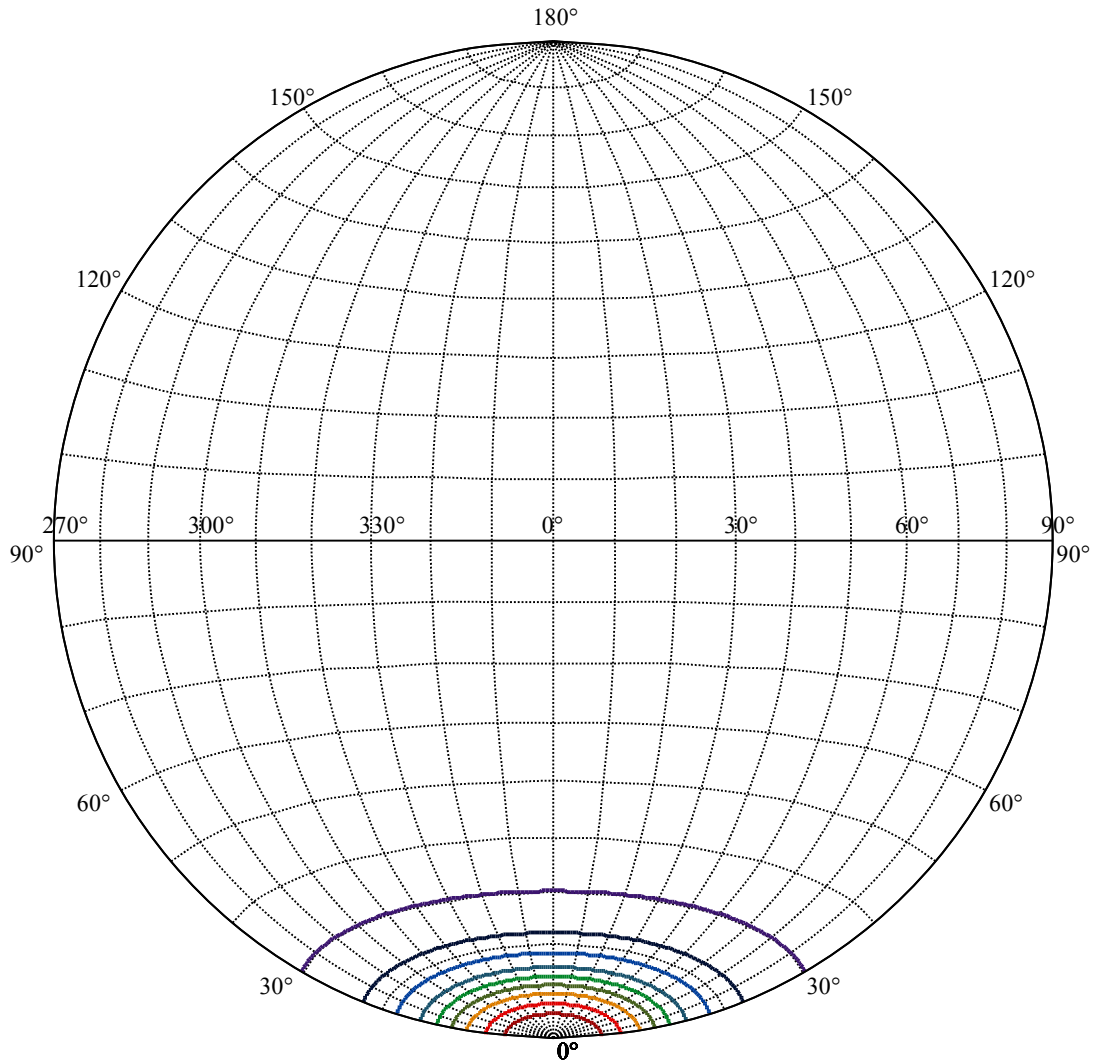
:C90/270Left:30.3 Right:30.3

Beam Angle(50%Imax):C0/180Left:13.5 Right:13.5

:C90/270Left:13.5 Right:13.5



(10%Imax)	407.784	—
(20%Imax)	815.569	—
(30%Imax)	1223.35	—
(40%Imax)	1631.14	—
(50%Imax)	2038.92	—
(60%Imax)	2446.71	—
(70%Imax)	2854.49	—
(80%Imax)	3262.27	—
(90%Imax)	3670.06	—



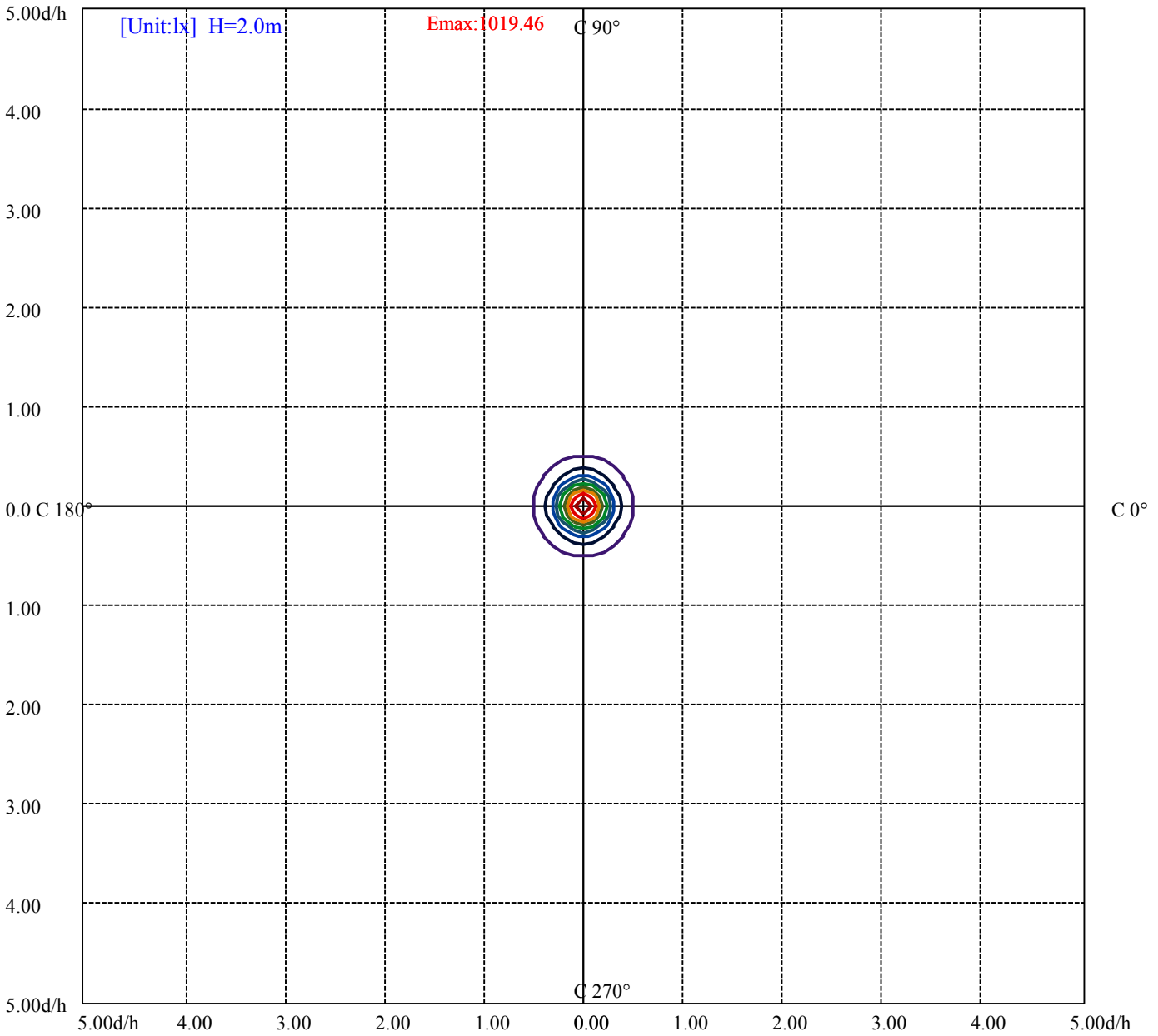
House

[Unit:cd]

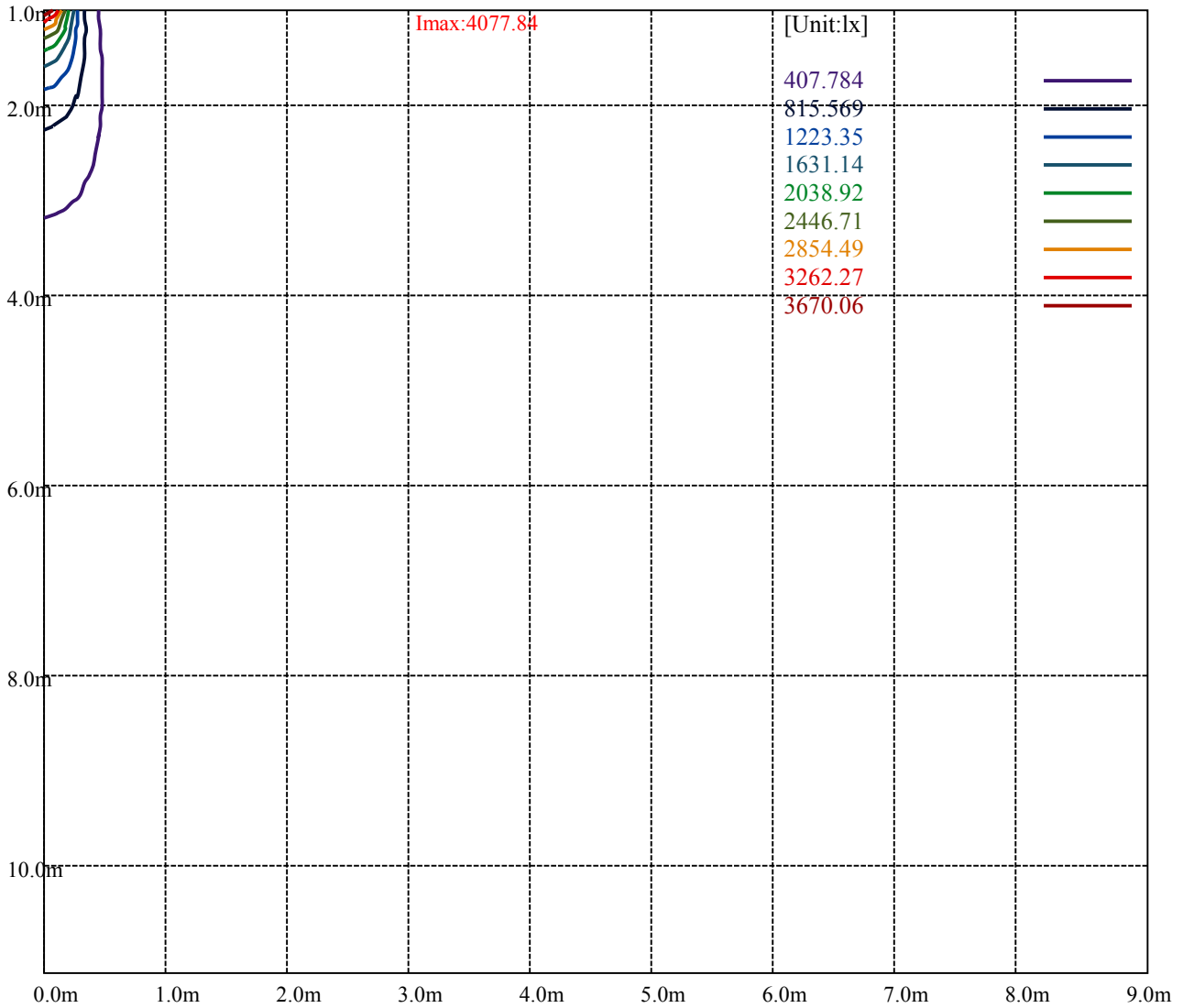
Road

Imax:4077.84

(10%Imax) 407.784	—
(20%Imax) 815.569	—
(30%Imax) 1223.35	—
(40%Imax) 1631.14	—
(50%Imax) 2038.92	—
(60%Imax) 2446.71	—
(70%Imax) 2854.49	—
(80%Imax) 3262.27	—
(90%Imax) 3670.06	—



- (10%Emax) 101.9457
- (20%Emax) 203.8918
- (30%Emax) 305.8375
- (40%Emax) 407.7825
- (50%Emax) 509.73
- (60%Emax) 611.675
- (70%Emax) 713.62
- (80%Emax) 815.5675
- (90%Emax) 917.5125



Luminance Table

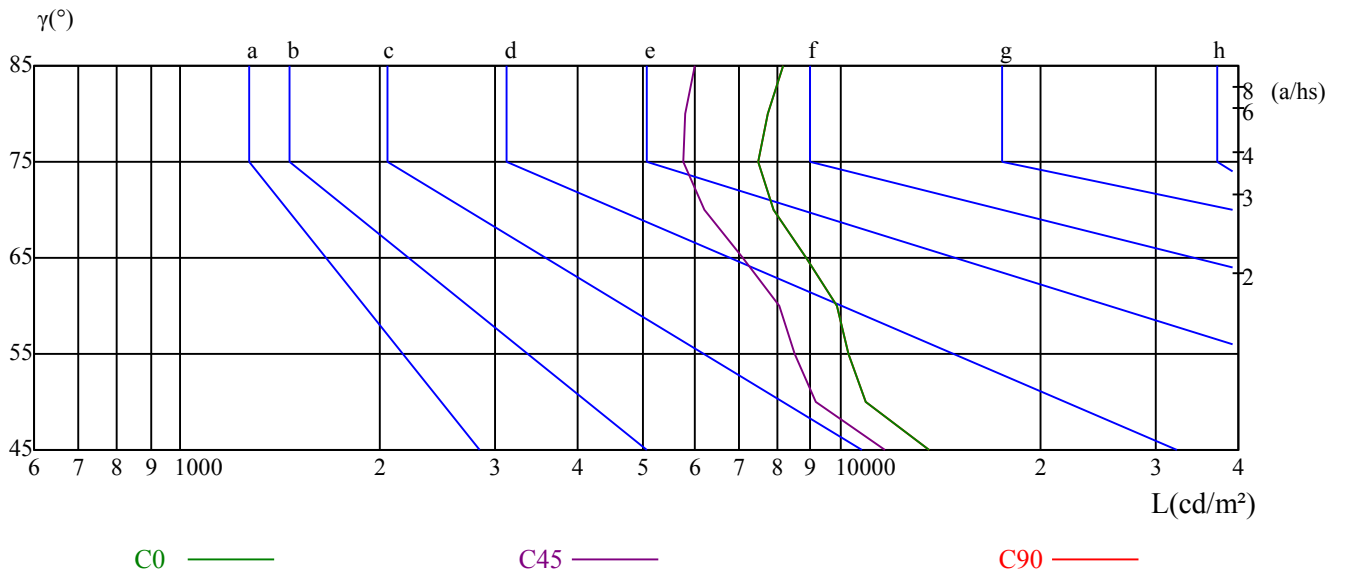
γ	45	50	55	60	65	70	75	80	85
C0	13638	10874	10293	9892	8871	7895	7485	7732	8200
C45	11669	9165	8540	8074	7115	6212	5766	5815	5997
C90	13638	10874	10293	9892	8871	7895	7485	7732	8200

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
21950	21950	21950	26689	26689	26689	72639	72639	72639

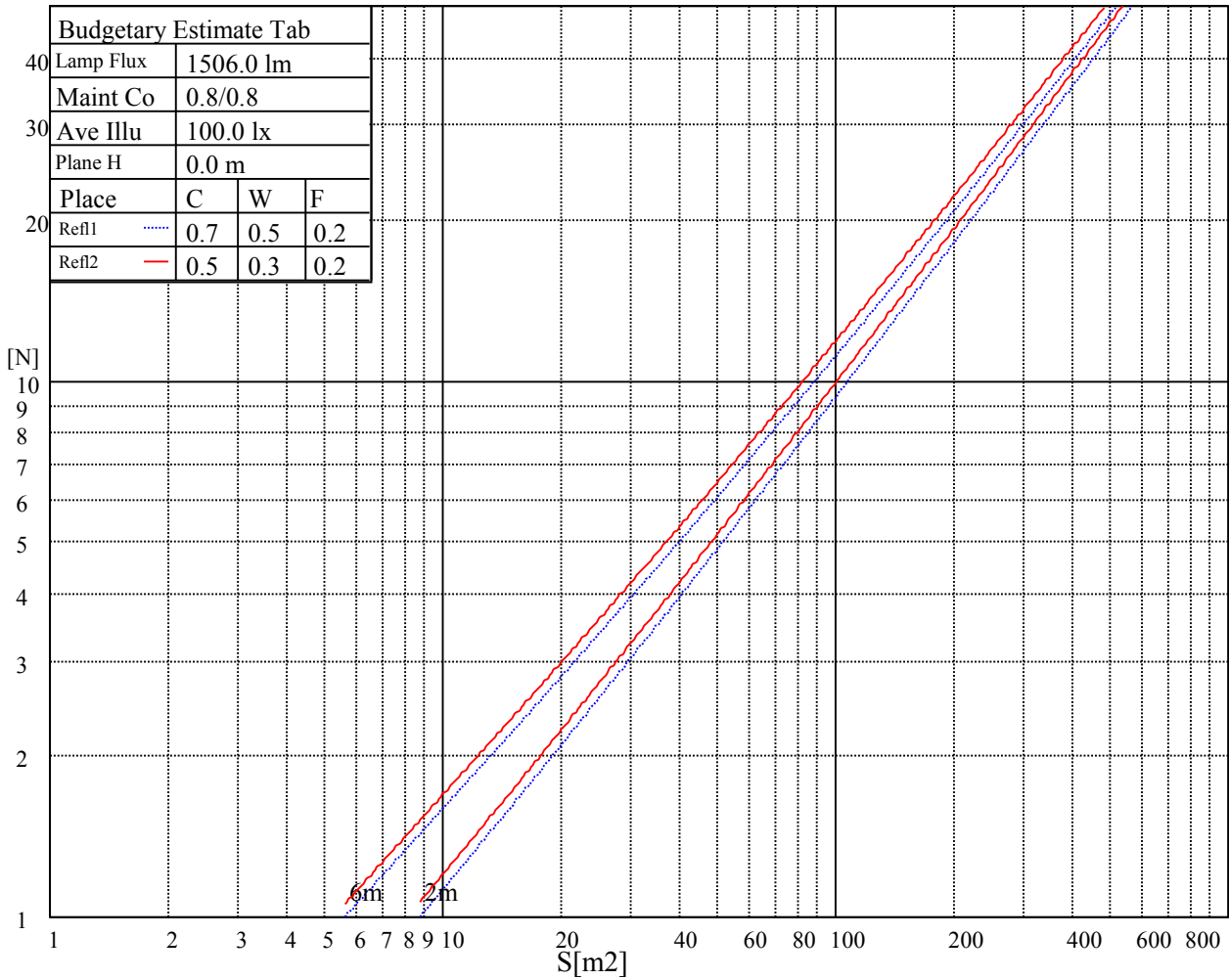
Glare Table

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

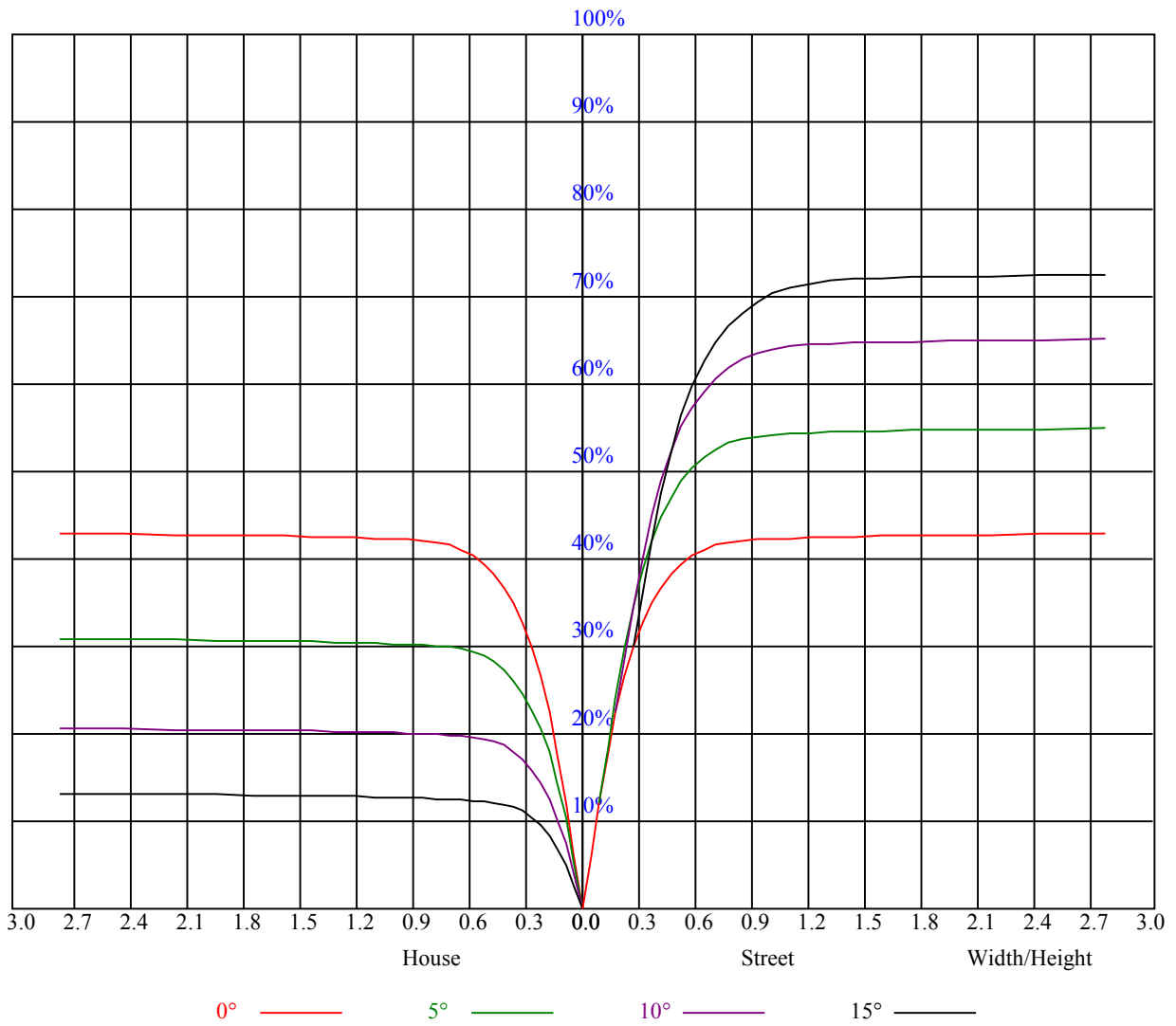
Luminance Limiting Curve



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	10.76	11.69	11.12	12.00	12.32	10.21	11.14	10.57	11.45	11.77
	3H	12.23	13.05	12.61	13.39	13.76	11.68	12.50	12.06	12.84	13.21
	4H	12.90	13.67	13.31	14.02	14.41	12.46	13.22	12.86	13.57	13.96
	6H	13.68	14.38	14.10	14.76	15.15	13.30	13.99	13.72	14.37	14.77
	8H	14.10	14.76	14.54	15.15	15.56	13.73	14.38	14.17	14.78	15.19
	12H	14.80	15.43	15.24	15.81	16.24	14.44	15.06	14.87	15.45	15.88
4H	2H	11.01	11.77	11.42	12.12	12.52	10.55	11.31	10.96	11.67	12.06
	3H	12.71	13.34	13.12	13.75	14.15	12.26	12.89	12.68	13.30	13.70
	4H	13.54	14.10	13.98	14.53	14.98	13.19	13.75	13.63	14.18	14.63
	6H	14.41	14.89	14.88	15.34	15.82	14.12	14.60	14.59	15.05	15.53
	8H	14.96	15.40	15.43	15.85	16.33	14.67	15.12	15.15	15.57	16.04
	12H	15.71	16.09	16.20	16.58	17.06	15.42	15.81	15.92	16.30	16.77
8H	4H	13.77	14.22	14.25	14.67	15.15	13.47	13.92	13.95	14.37	14.84
	6H	14.87	15.23	15.38	15.73	16.22	14.63	14.98	15.14	15.48	15.97
	8H	15.57	15.88	16.10	16.40	16.90	15.33	15.64	15.86	16.16	16.66
	12H	16.52	16.78	17.04	17.28	17.86	16.26	16.53	16.78	17.03	17.61
12H	4H	13.80	14.19	14.30	14.68	15.16	13.51	13.90	14.01	14.39	14.87
	6H	15.20	15.29	15.52	15.77	16.32	14.97	15.06	15.29	15.53	16.08
	8H	15.76	16.03	16.29	16.53	17.11	15.54	15.81	16.06	16.31	16.89
Variation with the observer position at spacings:											
S = 1.0H	5.0/-4.7					5.0/-4.7					
S = 1.5H	7.1/-3.8					7.1/-3.8					
S = 2.0H	8.6/-3.1					8.6/-3.1					
Standard tables:	BK2					BK2					
Uncorrected UGR	0.8					0.8					



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	1.04	1.04	1.04	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.96	0.94	0.91	0.94	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.80
2	0.91	0.88	0.85	0.89	0.86	0.84	0.87	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.79	0.77
3	0.86	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.76	0.79	0.77	0.75	0.74
4	0.83	0.79	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
5	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.70	0.74	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.67	0.66
7	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.64
8	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.62
9	0.69	0.65	0.62	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
10	0.67	0.63	0.60	0.66	0.63	0.60	0.66	0.62	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	4086.56	3777.75	2881.13	1800.56	1038.38	674.44	460.13	288.56	49.56
45.0	4068.00	3882.94	3119.63	1938.94	1103.06	681.19	486.56	285.75	70.14
90.0	4086.56	3845.25	2884.50	1773.56	982.13	614.81	420.64	201.60	51.75
135.0	4070.25	3926.25	3144.94	1928.81	1104.75	657.56	451.69	285.75	72.96
180.0	4086.56	3803.06	2821.50	1677.94	956.53	618.13	411.08	185.63	49.28
225.0	4068.00	3633.19	2617.88	1506.38	863.66	583.54	374.51	161.66	38.93
270.0	4086.56	3737.25	2786.06	1639.69	929.25	612.56	400.50	181.46	47.19
315.0	4070.25	3641.06	2565.56	1297.69	882.84	592.03	358.26	163.86	35.83
360.0	4086.56	3777.75	2881.13	1800.56	1038.38	674.44	460.13	288.56	49.56
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	13.95	10.29	8.83	8.21	7.88	7.48	7.14	6.75	6.41
45.0	16.71	10.80	9.51	8.72	7.93	7.59	7.14	6.81	6.41
90.0	16.99	12.99	11.31	11.03	9.79	8.33	7.03	6.69	6.36
135.0	18.28	12.94	12.60	12.21	10.52	8.49	7.14	6.64	6.24
180.0	17.55	15.41	14.57	12.26	9.68	7.99	7.03	6.47	6.19
225.0	16.20	14.06	13.28	12.49	10.35	8.04	6.81	6.47	6.47
270.0	16.88	13.89	13.84	13.67	10.97	8.33	7.14	7.09	6.92
315.0	16.76	13.78	11.93	10.18	8.89	7.65	7.14	6.98	6.86
360.0	13.95	10.29	8.83	8.21	7.88	7.48	7.14	6.75	6.41
C/ γ (°)	90.0								
0.0	5.79								
45.0	5.79								
90.0	5.74								
135.0	5.74								
180.0	5.91								
225.0	5.85								
270.0	5.68								
315.0	5.85								
360.0	5.79								