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Nata

LumCAT: 3-1550-A3
Luminaire: 99.02.73.172+92.76.365.00
Report No: NATA0100
Test No: GC2018082715
LampCAT: CITIZEN CLU038
Lamp flux(lm): 2534.0
Number of Lamps: 1
Length(mm): 78
Phm Type: C

Voltage(V): 35.4000
Current(A): 0.5000
Power (W): 17.7000
PF: 0.0000
Ballast type: DC
Width(mm): 78
Height(mm): 0

Photometric Results

Lumens(lm): 2319.45
Efficiency(%): 91.53%
Lumens(lm)/Power(W): 131.04
Central intensity(cd): 4028.339
Maximum intensity(cd): 4028.339
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=43.2
 [C90/270]Total=43.2
Field angle(10%Imax): [C0/180]Total=73.7
 [C90/270]Total=73.7
Maximum s/h(1/2): C0_180=0.69 C90_270=0.69
Maximum s/h(1/4): C0_180=0.72 C90_270=0.72
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.40%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.751%

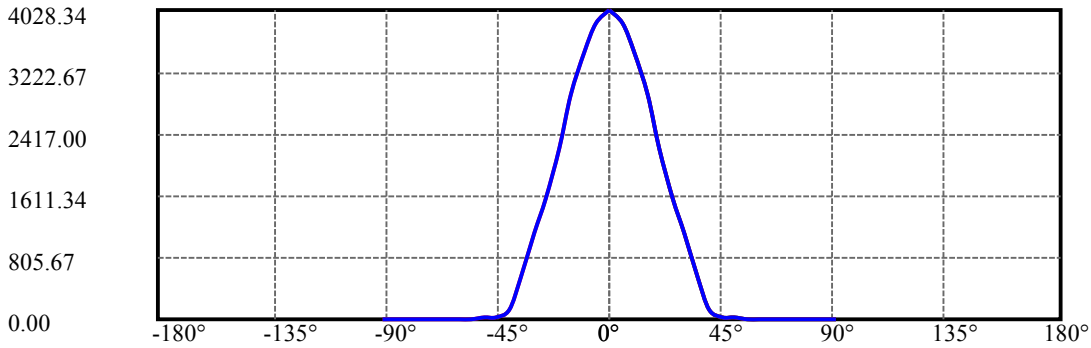
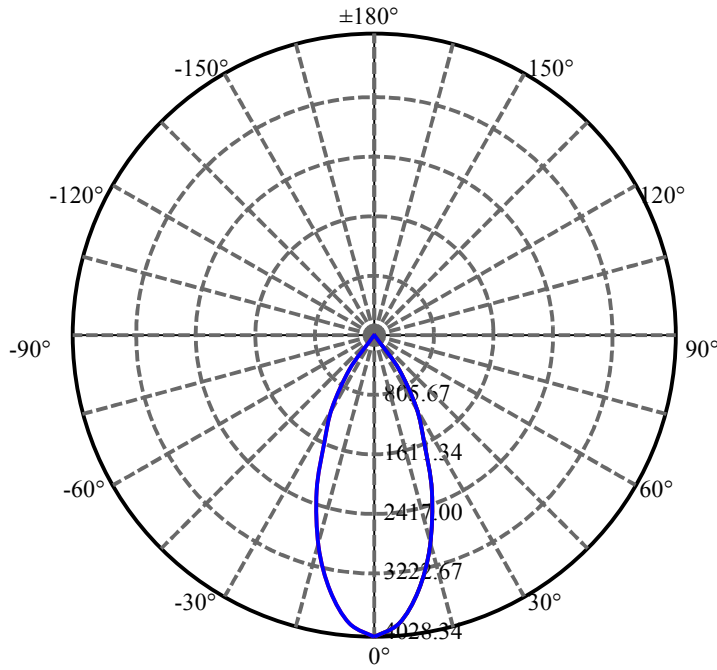
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4028.339	24.090	24.09	.951%	1.039%
5.0	3857.527	184.287	208.377	7.273%	8.984%
10.0	3466.833	329.984	538.361	13.022%	23.211%
15.0	2920.811	414.371	952.732	16.352%	41.076%
20.0	2221.595	416.491	1369.223	16.436%	59.032%
25.0	1582.459	366.581	1735.804	14.466%	74.837%
30.0	1127.583	309.035	2044.839	12.196%	88.161%
35.0	561.479	176.528	2221.367	6.966%	95.771%
40.0	128.034	45.111	2266.478	1.780%	97.716%
45.0	16.262	6.303	2272.781	.249%	97.988%
50.0	12.512	5.254	2278.035	.207%	98.215%
55.0	11.755	5.278	2283.313	.208%	98.442%
60.0	11.293	5.361	2288.674	.212%	98.673%
65.0	10.970	5.450	2294.123	.215%	98.908%
70.0	10.757	5.541	2299.664	.219%	99.147%
75.0	10.591	5.608	2305.272	.221%	99.389%
80.0	10.474	5.654	2310.926	.223%	99.633%
85.0	10.433	5.697	2316.623	.225%	99.878%
90.0	10.309	2.825	2319.448	.112%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2044.84	80.70%	88.16%
0-40	2266.48	89.44%	97.72%
0-60	2288.67	90.32%	98.67%
0-90	2316.62	91.42%	99.88%
0-120	2316.62	91.42%	99.88%
0-180	2319.45	91.53%	100.00%
60-90	33.31	1.31%	1.44%
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%
0-26.94	1855.56	73.23%	80.00%

ZONAL LUMEN SUMMARY

0-10	538.36
10-20	830.86
20-30	675.62
30-40	221.64
40-50	11.56
50-60	10.64
60-70	10.99
70-80	11.26
80-90	5.70
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: ———

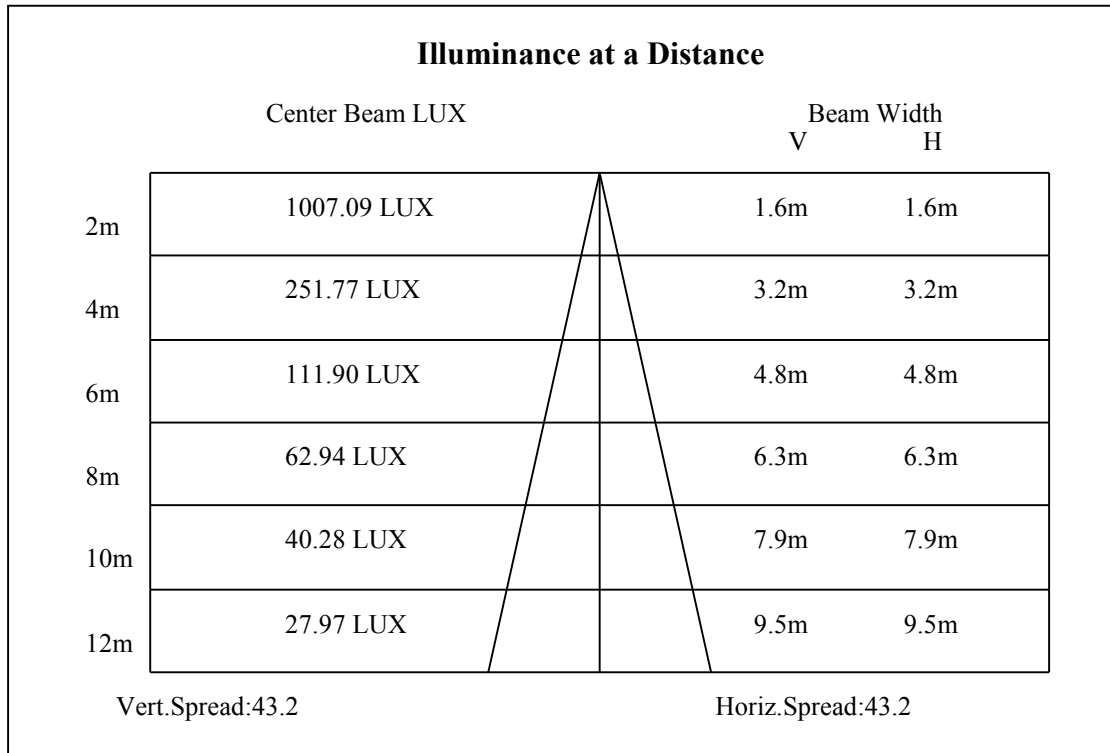
C90/C270: ———

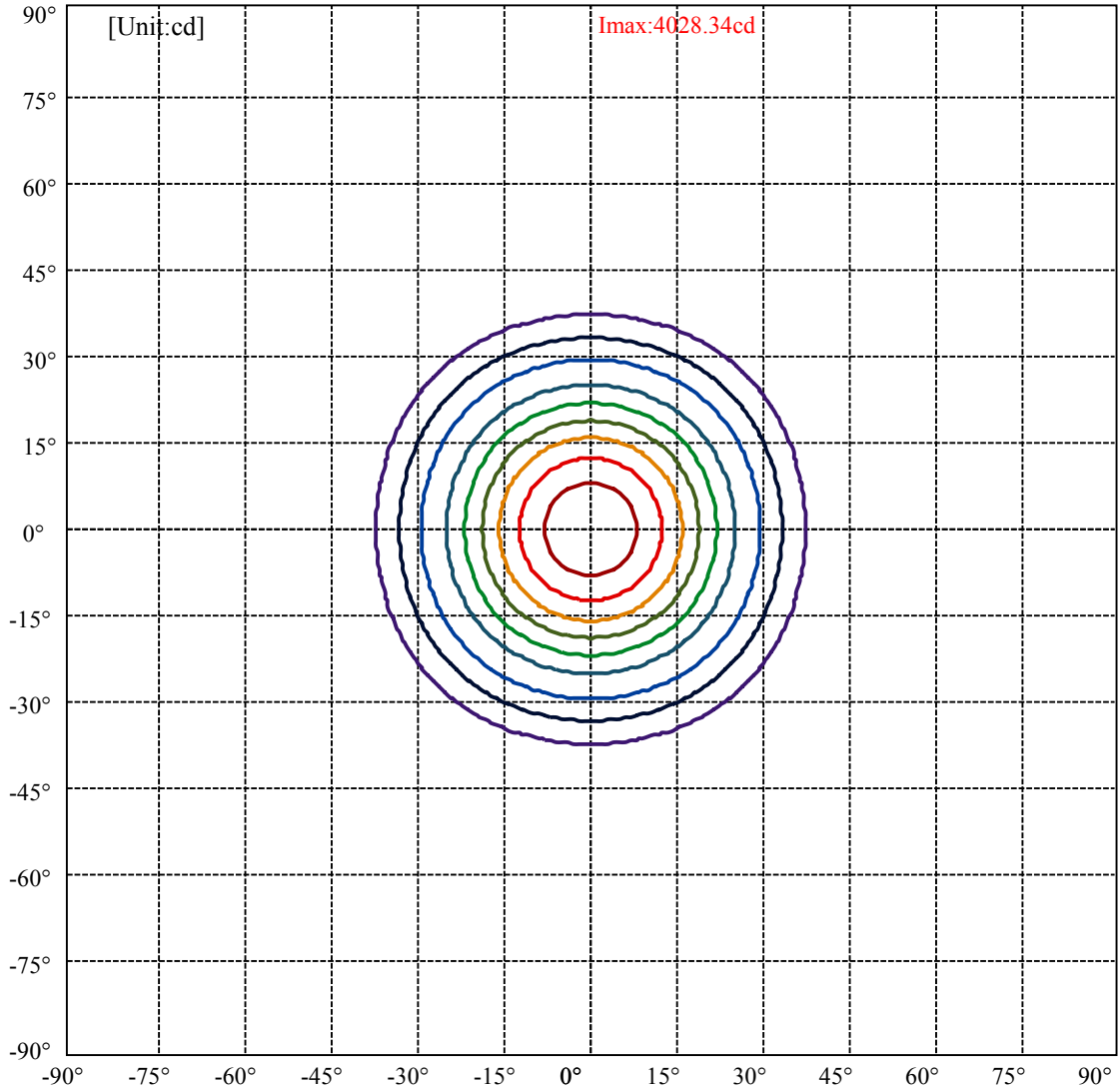
Field angle(10%Imax):C0/180Left:36.8 Right:36.8

:C90/270Left:36.8 Right:36.8

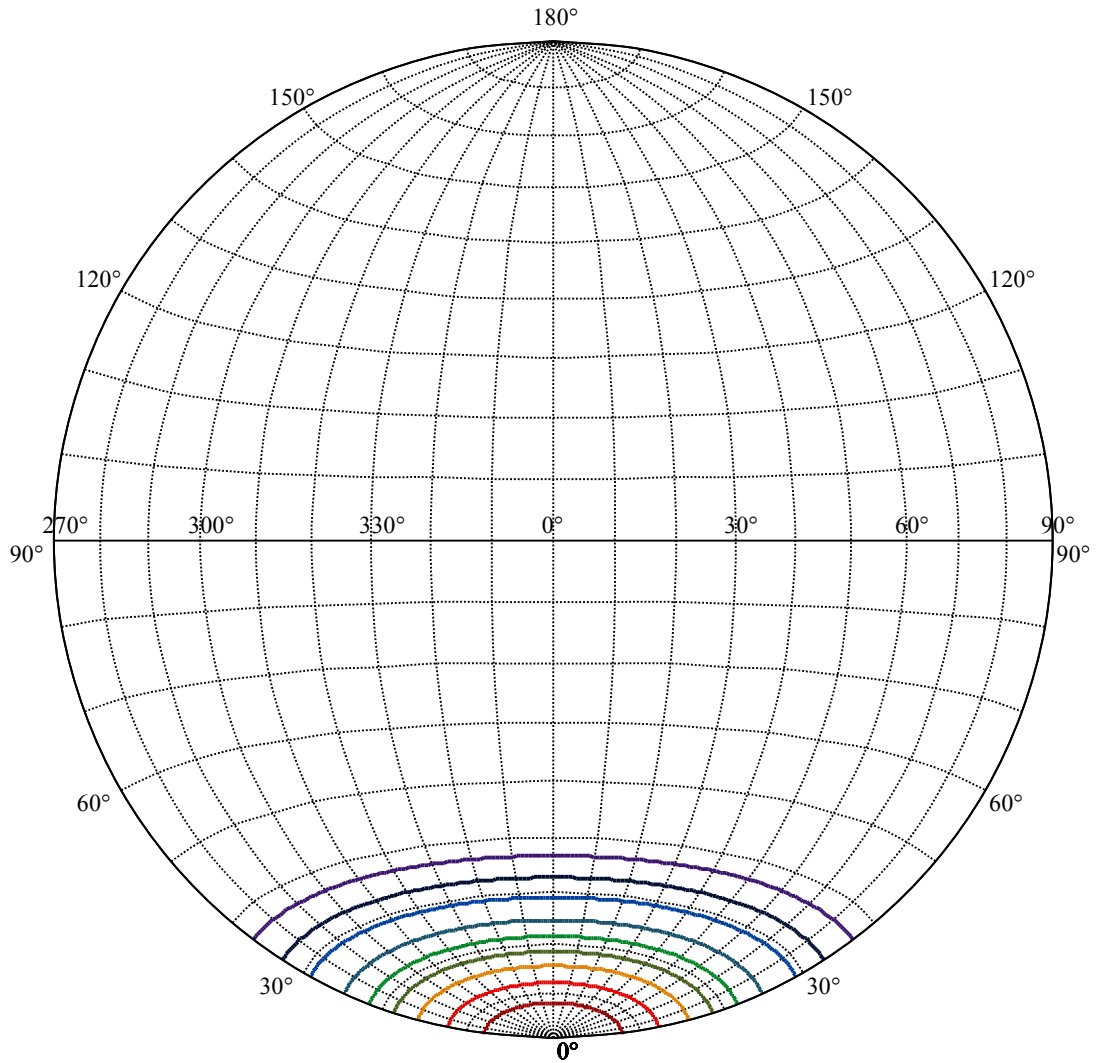
Beam Angle(50%Imax):C0/180Left:21.6 Right:21.6

:C90/270Left:21.6 Right:21.6





(10%I _{max}) 402.834	—
(20%I _{max}) 805.668	—
(30%I _{max}) 1208.5	—
(40%I _{max}) 1611.34	—
(50%I _{max}) 2014.17	—
(60%I _{max}) 2417	—
(70%I _{max}) 2819.84	—
(80%I _{max}) 3222.67	—
(90%I _{max}) 3625.51	—



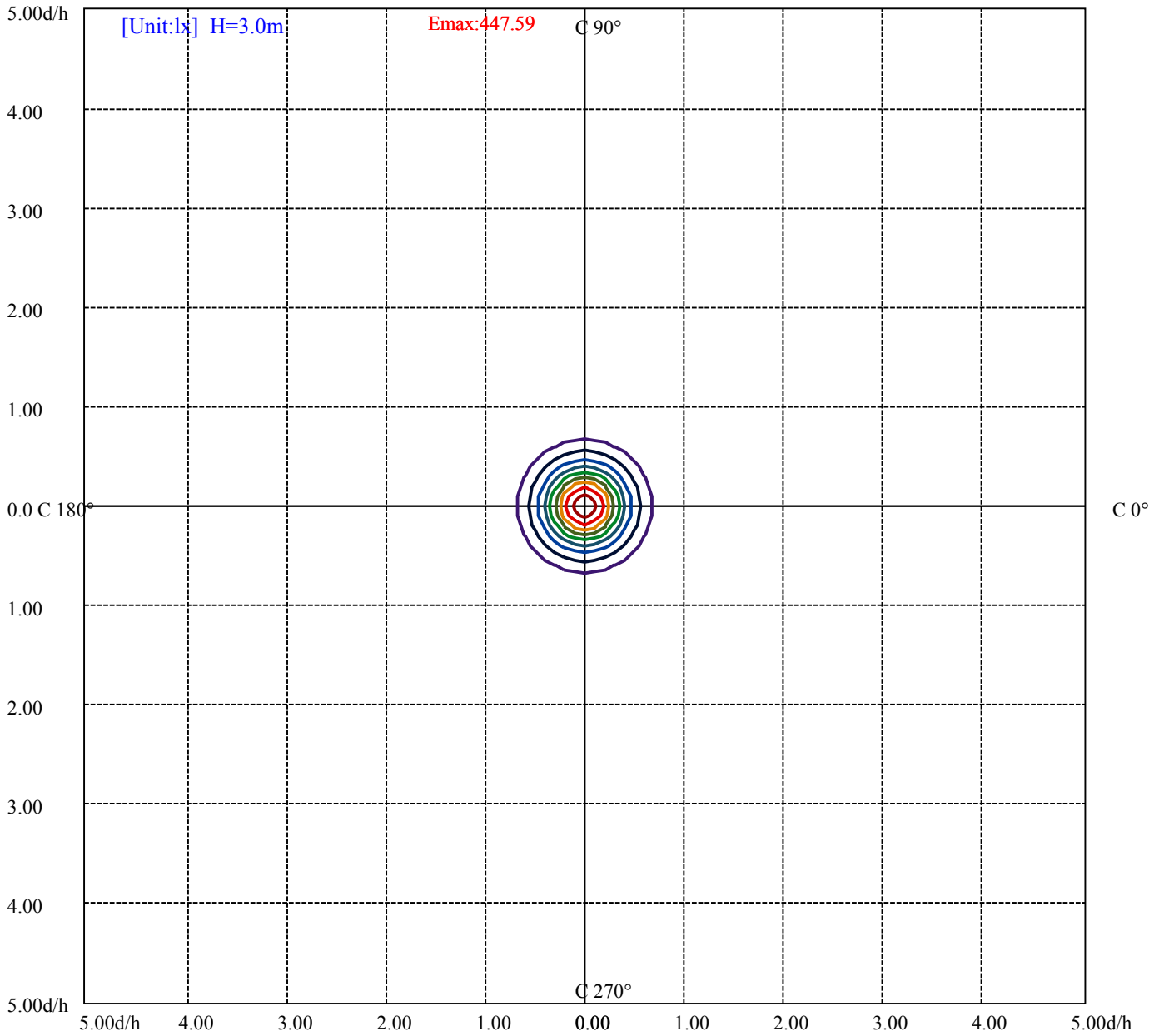
House

[Unit:cd]

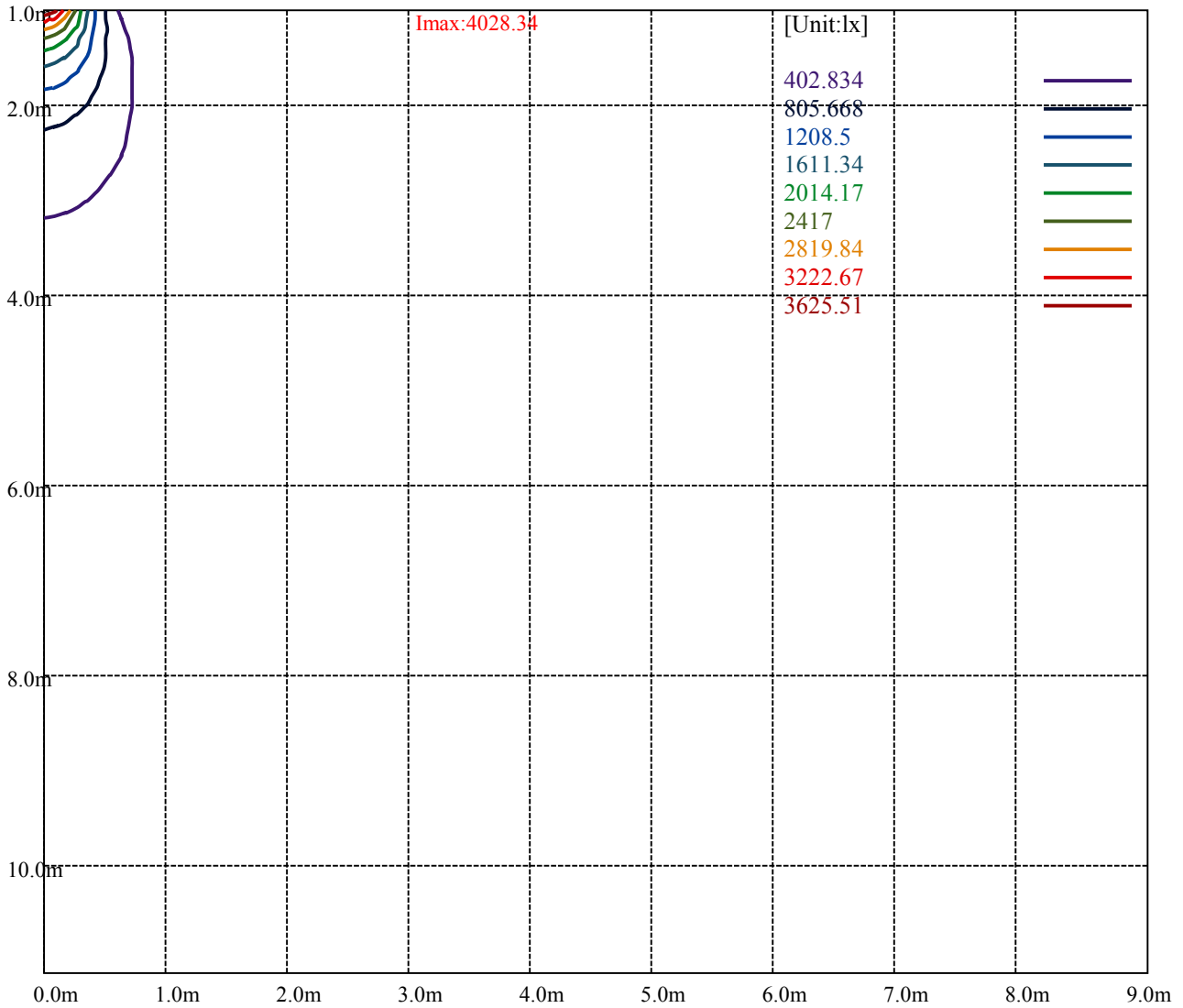
Road

Imax:4028.34

(10%Imax)	402.834	—
(20%Imax)	805.668	—
(30%Imax)	1208.5	—
(40%Imax)	1611.34	—
(50%Imax)	2014.17	—
(60%Imax)	2417	—
(70%Imax)	2819.84	—
(80%Imax)	3222.67	—
(90%Imax)	3625.51	—



(10%Emax) 44.75922	—
(20%Emax) 89.51855	—
(30%Emax) 134.2778	—
(40%Emax) 179.0367	—
(50%Emax) 223.7967	—
(60%Emax) 268.5555	—
(70%Emax) 313.3145	—
(80%Emax) 358.0744	—
(90%Emax) 402.8333	—



Luminance Table

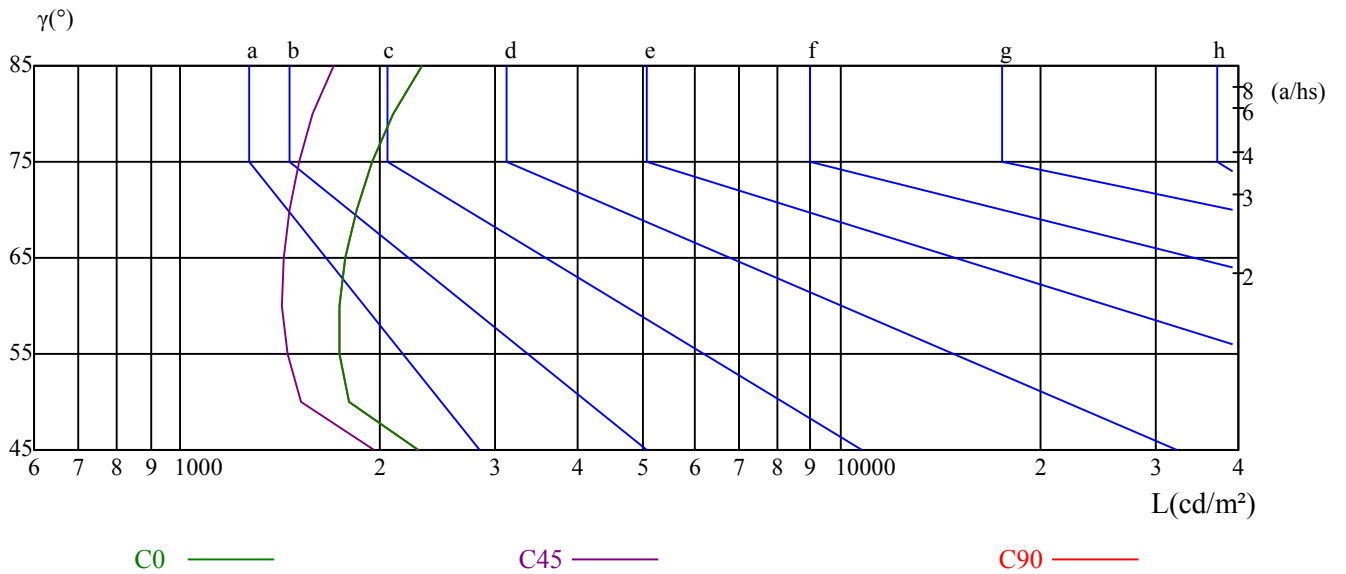
γ	45	50	55	60	65	70	75	80	85
C0	2286	1798	1742	1741	1776	1849	1955	2106	2322
C45	1964	1522	1452	1427	1430	1460	1511	1588	1701
C90	2286	1798	1742	1741	1776	1849	1955	2106	2322

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4266	4266	4266	6726	6726	6726	19676	19676	19676

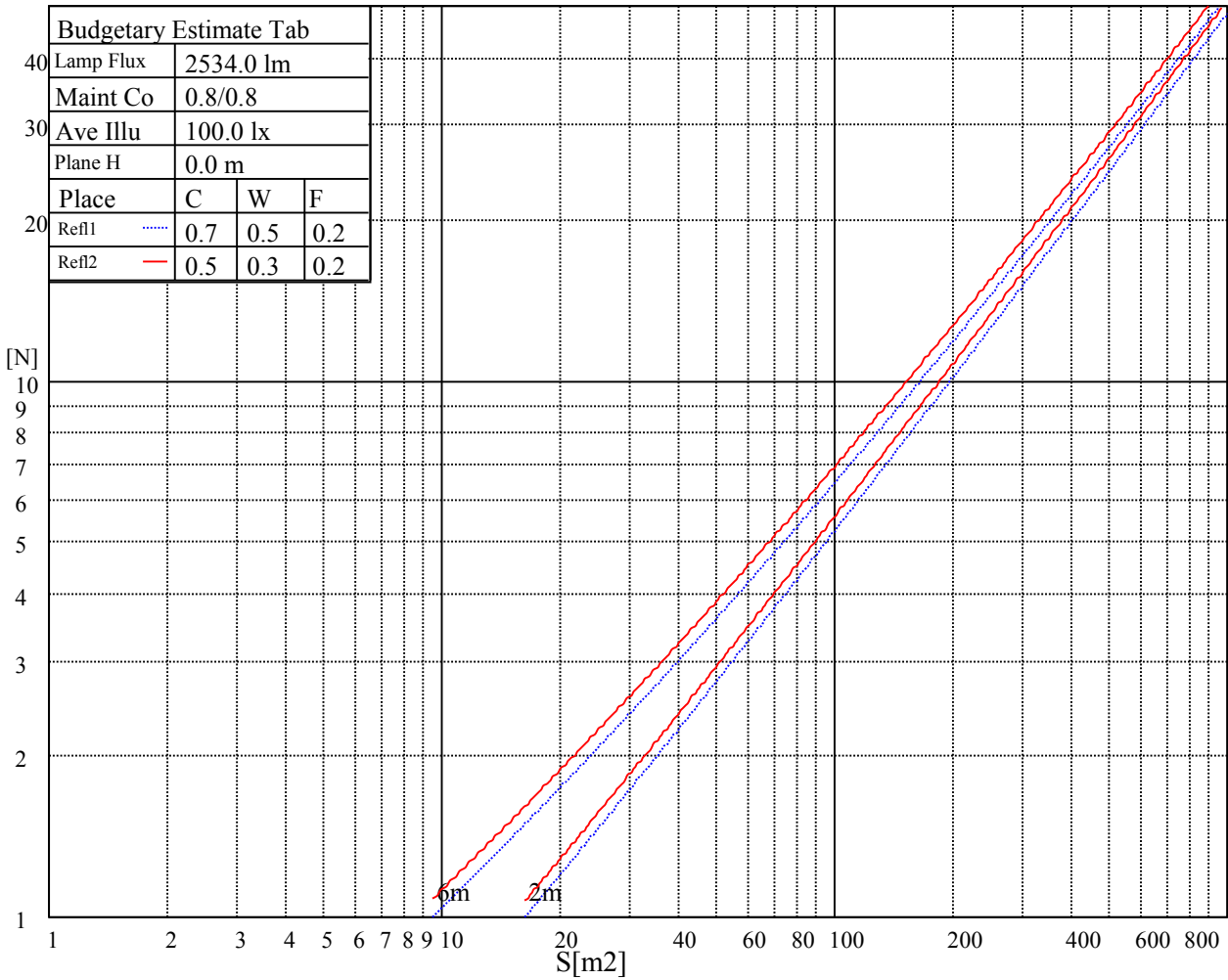
Glare Table

Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
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

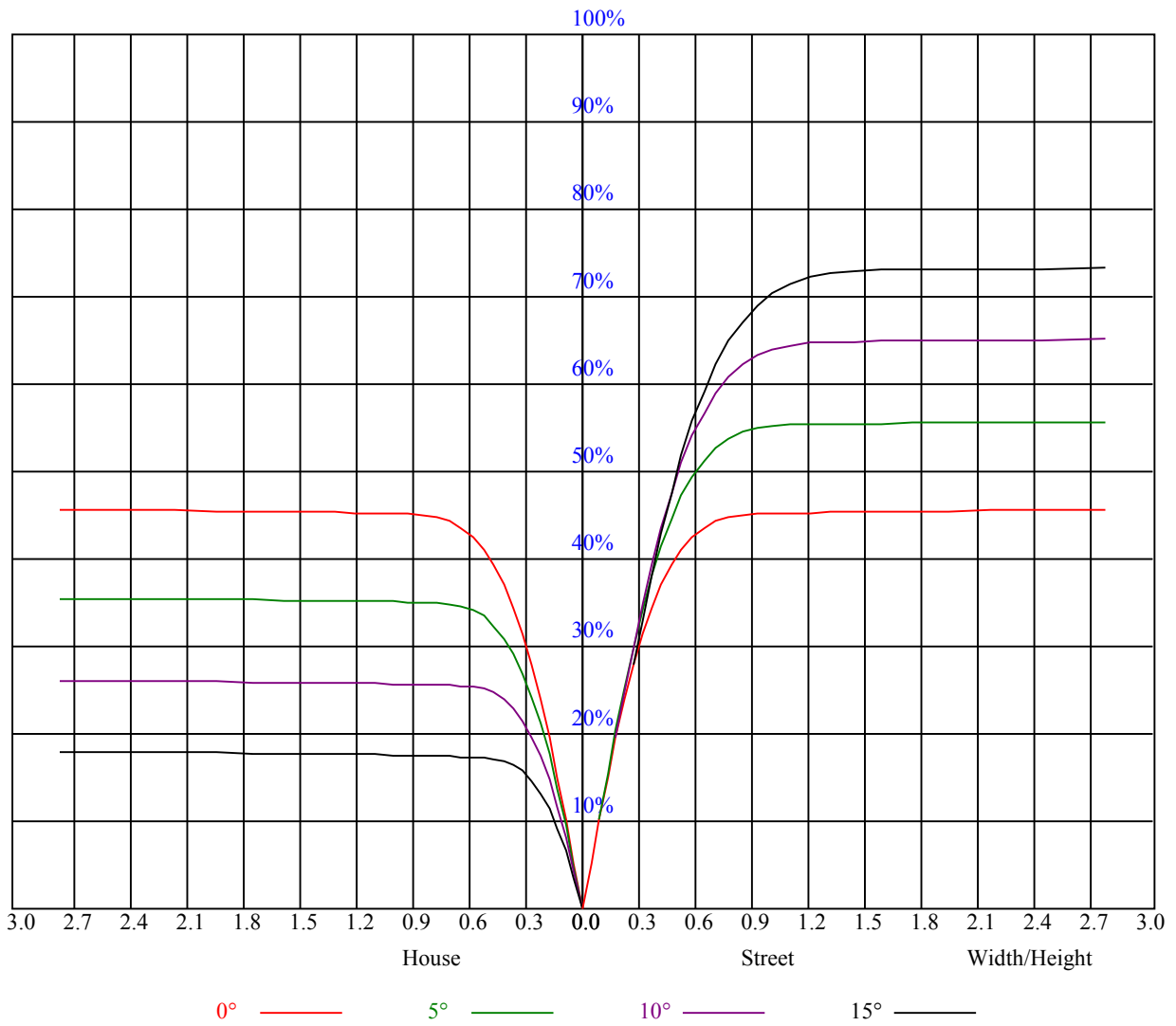
Luminance Limiting Curve



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	0.31	1.23	0.68	1.54	1.86	0.32	1.24	0.69	1.55	1.87
	3H	2.56	3.37	2.95	3.70	4.07	2.58	3.39	2.97	3.72	4.09
	4H	3.80	4.55	4.21	4.90	5.29	3.83	4.57	4.23	4.93	5.32
	6H	5.10	5.79	5.52	6.16	6.56	5.12	5.81	5.54	6.18	6.58
	8H	5.75	6.39	6.19	6.79	7.20	5.77	6.41	6.21	6.80	7.21
	12H	6.76	7.38	7.20	7.76	8.19	6.77	7.39	7.21	7.77	8.20
4H	2H	0.80	1.55	1.21	1.90	2.29	0.81	1.56	1.22	1.91	2.30
	3H	3.35	3.96	3.76	4.37	4.78	3.36	3.98	3.78	4.39	4.79
	4H	4.76	5.31	5.20	5.73	6.18	4.78	5.33	5.22	5.75	6.20
	6H	6.16	6.63	6.63	7.08	7.55	6.18	6.65	6.65	7.10	7.57
	8H	6.92	7.36	7.40	7.81	8.29	6.93	7.37	7.41	7.82	8.30
	12H	7.93	8.30	8.42	8.79	9.27	7.93	8.31	8.43	8.80	9.28
8H	4H	5.19	5.63	5.67	6.08	6.56	5.21	5.65	5.69	6.10	6.57
	6H	6.83	7.17	7.34	7.68	8.17	6.84	7.19	7.36	7.69	8.18
	8H	7.75	8.05	8.28	8.58	9.07	7.76	8.06	8.29	8.59	9.08
	12H	8.89	9.15	9.41	9.65	10.23	8.89	9.15	9.41	9.65	10.23
12H	4H	5.28	5.66	5.77	6.15	6.62	5.30	5.67	5.79	6.16	6.64
	6H	7.20	7.31	7.54	7.78	8.33	7.22	7.32	7.55	7.79	8.34
	8H	8.01	8.28	8.54	8.78	9.36	8.02	8.28	8.55	8.78	9.37
Variation with the observer position at spacings:											
S = 1.0H		5.8/-9.0					5.8/-9.0				
S = 1.5H		8.3/-7.2					8.3/-7.2				
S = 2.0H		10.0/-5.9					10.0/-5.9				
Standard tables:		BK1					BK1				
Uncorrected UGR		-2.0					-2.0				



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	0.94	0.93	0.93	0.91	0.90	0.90	0.89	0.88	0.86
2	0.96	0.93	0.90	0.94	0.91	0.89	0.92	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.87	0.83	0.90	0.86	0.83	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.78
4	0.86	0.82	0.78	0.85	0.81	0.78	0.83	0.80	0.77	0.82	0.79	0.76	0.80	0.77	0.75	0.74
5	0.82	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
6	0.78	0.74	0.70	0.78	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.67
7	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.62
9	0.69	0.64	0.61	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.59
10	0.66	0.62	0.59	0.66	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.57



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	4025.17	3926.07	3584.17	3076.00	2438.45	1737.03	1226.11	735.00	299.51
45.0	4014.16	3965.71	3613.90	3122.25	2442.30	1724.37	1258.04	741.06	303.36
90.0	4042.24	3902.40	3512.05	2960.38	2206.11	1532.22	1087.36	562.29	57.75
135.0	4031.78	3911.21	3539.58	2970.29	2285.39	1620.31	1173.80	590.20	160.43
180.0	4025.17	3788.43	3328.71	2730.25	2040.39	1453.49	1021.96	416.83	41.35
225.0	4014.16	3760.35	3306.14	2706.57	1971.02	1450.74	1022.29	378.79	38.81
270.0	4042.24	3799.99	3447.63	2906.98	2209.96	1598.29	1140.22	552.22	68.60
315.0	4031.78	3806.05	3402.49	2893.76	2179.13	1543.23	1090.89	515.44	54.45
360.0	4025.17	3926.07	3584.17	3076.00	2438.45	1737.03	1226.11	735.00	299.51
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	18.61	12.94	11.95	11.40	11.07	10.79	10.63	10.46	10.41
45.0	21.20	12.94	12.00	11.45	11.07	10.85	10.63	10.52	10.41
90.0	16.24	12.44	11.73	11.29	10.96	10.74	10.57	10.46	10.41
135.0	18.00	12.39	11.78	11.29	11.01	10.79	10.63	10.52	10.46
180.0	13.49	12.33	11.67	11.23	10.90	10.74	10.63	10.46	10.41
225.0	13.54	12.28	11.62	11.23	10.90	10.74	10.57	10.46	10.46
270.0	15.36	12.39	11.67	11.29	10.96	10.74	10.57	10.46	10.46
315.0	13.65	12.39	11.62	11.18	10.90	10.68	10.52	10.46	10.46
360.0	18.61	12.94	11.95	11.40	11.07	10.79	10.63	10.46	10.41
C/γ(°)	90.0								
0.0	10.35								
45.0	10.30								
90.0	10.30								
135.0	10.30								
180.0	10.30								
225.0	10.35								
270.0	10.30								
315.0	10.30								
360.0	10.35								