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NATA

LumCAT: 3-1700-N
Luminaire: 92.70.045.00+92.70.089.00
Report No: NATA0100
Test No: GC2019010917
LampCAT: OSRAM SOLERIQ S19
Lamp flux(lm): 3440.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 35.0000
Current(A): 0.7000
Power (W): 24.5000
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 2606.82
Efficiency(%): 75.78%
Lumens(lm)/Power(W): 107.52
Central intensity(cd): 4999.922
Maximum intensity(cd): 4999.922
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=38.3
 [C90/270]Total=38.3
Field angle(10%Imax): [C0/180]Total=71.0
 [C90/270]Total=71.0
Maximum s/h(1/2): C0_180=0.62 C90_270=0.62
Maximum s/h(1/4): C0_180=0.62 C90_270=0.62
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 76.58%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.800%

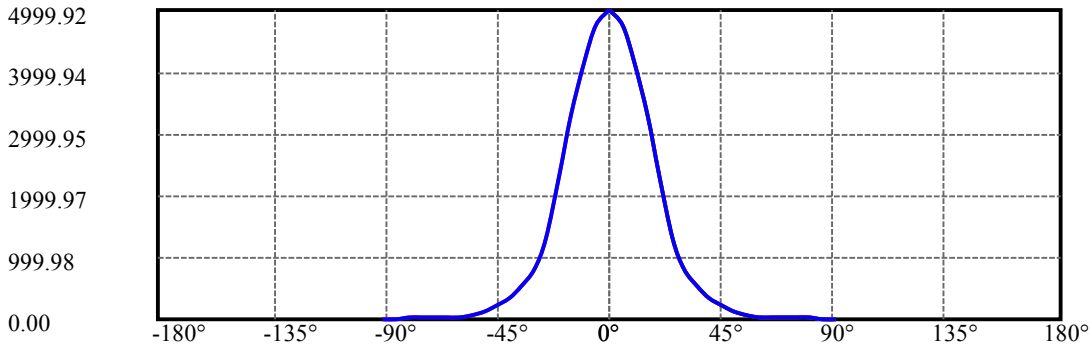
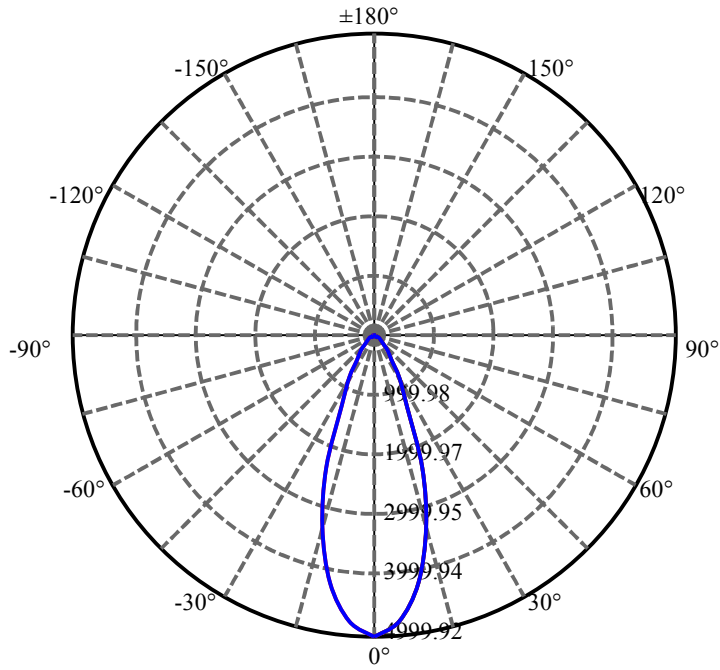
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4999.922	29.901	29.901	.869%	1.147%
5.0	4763.461	227.566	257.467	6.615%	9.877%
10.0	4169.742	396.889	654.356	11.537%	25.102%
15.0	3305.180	468.901	1123.256	13.631%	43.089%
20.0	2337.398	438.201	1561.458	12.738%	59.899%
25.0	1296.520	300.343	1861.8	8.731%	71.420%
30.0	814.880	223.333	2085.133	6.492%	79.988%
35.0	518.414	162.989	2248.122	4.738%	86.240%
40.0	336.509	118.564	2366.686	3.447%	90.788%
45.0	208.540	80.828	2447.514	2.350%	93.889%
50.0	123.061	51.673	2499.187	1.502%	95.871%
55.0	69.722	31.306	2530.493	.910%	97.072%
60.0	40.964	19.446	2549.939	.565%	97.818%
65.0	29.848	14.828	2564.767	.431%	98.387%
70.0	24.441	12.589	2577.355	.366%	98.870%
75.0	19.990	10.584	2587.939	.308%	99.276%
80.0	16.411	8.859	2596.798	.258%	99.615%
85.0	12.973	7.084	2603.882	.206%	99.887%
90.0	10.730	2.941	2606.822	.085%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2085.13	60.61%	79.99%
0-40	2366.69	68.80%	90.79%
0-60	2549.94	74.13%	97.82%
0-90	2603.88	75.69%	99.89%
0-120	2603.88	75.69%	99.89%
0-180	2606.82	75.78%	100.00%
60-90	73.39	2.13%	2.82%
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%
0-30.01	2085.46	60.62%	80.00%

ZONAL LUMEN SUMMARY

0-10	654.36
10-20	907.10
20-30	523.68
30-40	281.55
40-50	132.50
50-60	50.75
60-70	27.42
70-80	19.44
80-90	7.08
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



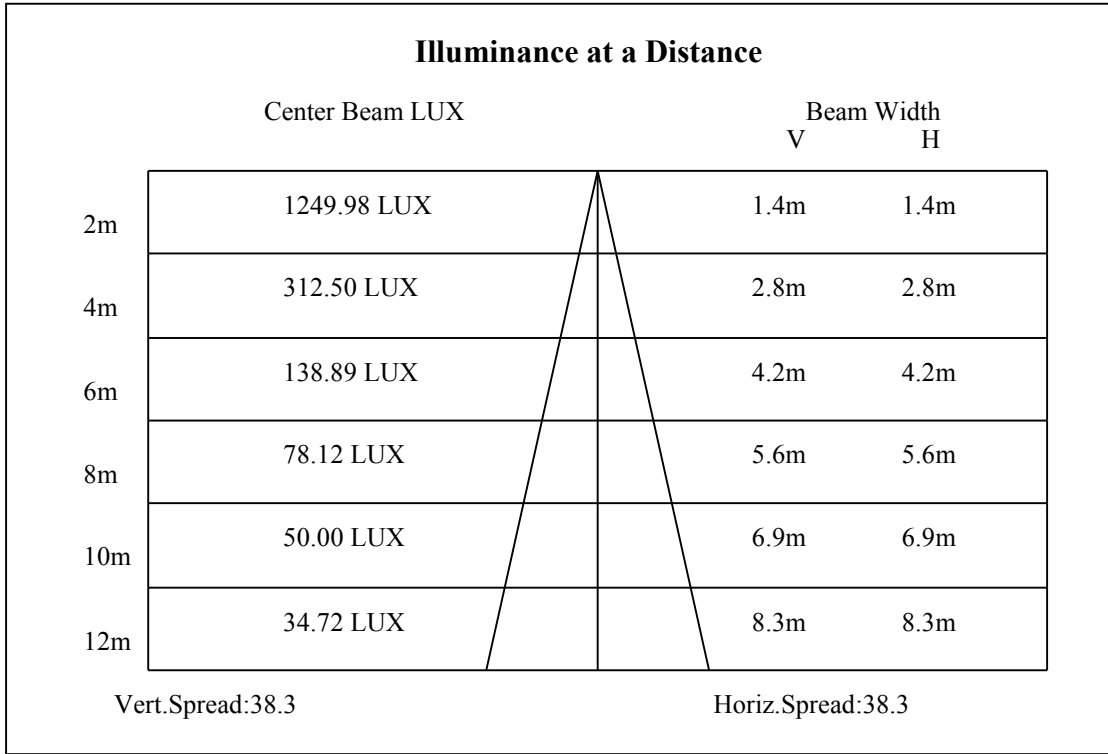
C0(Max): —————

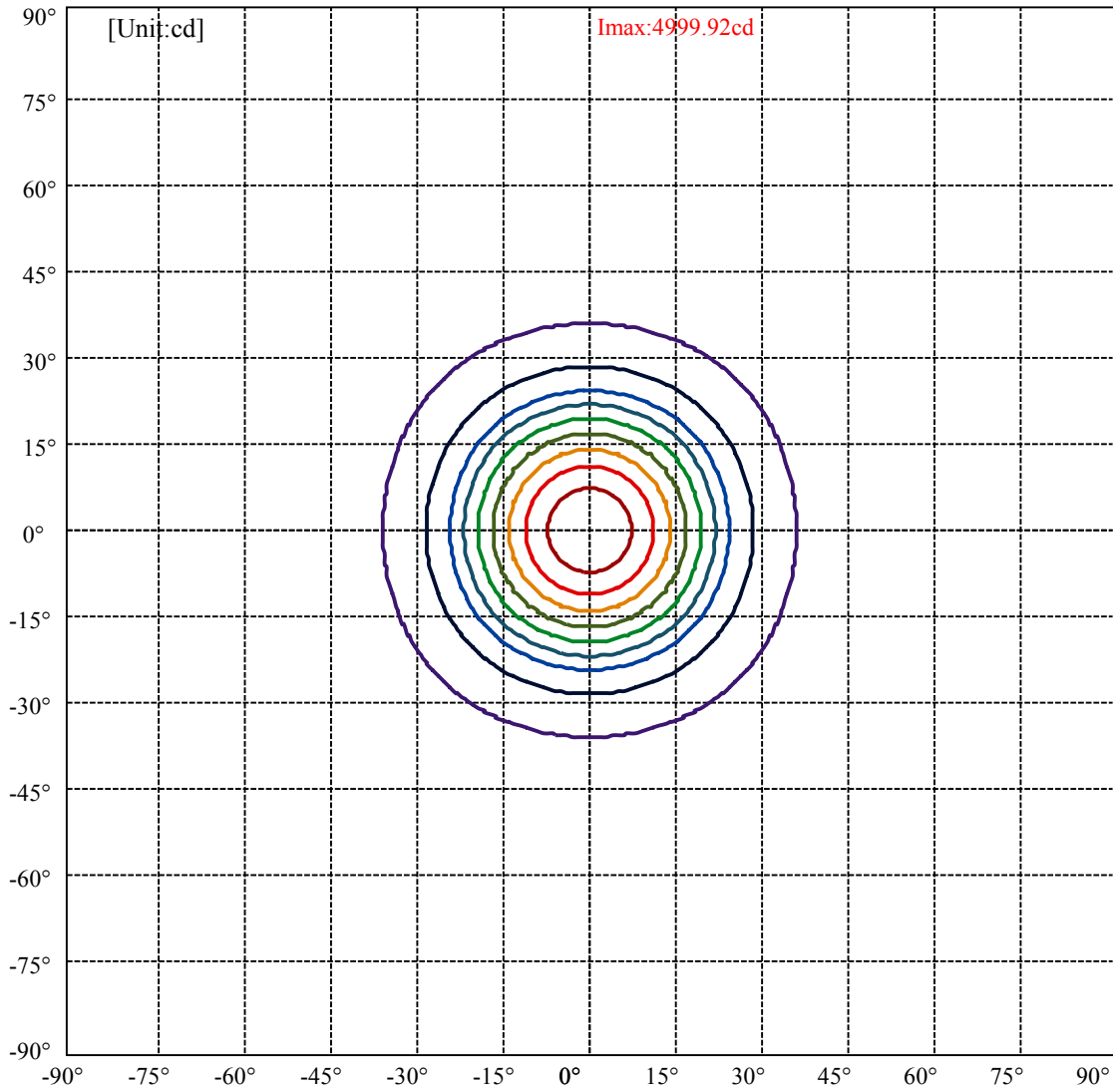
C0/C180: —————

C90/C270: —————

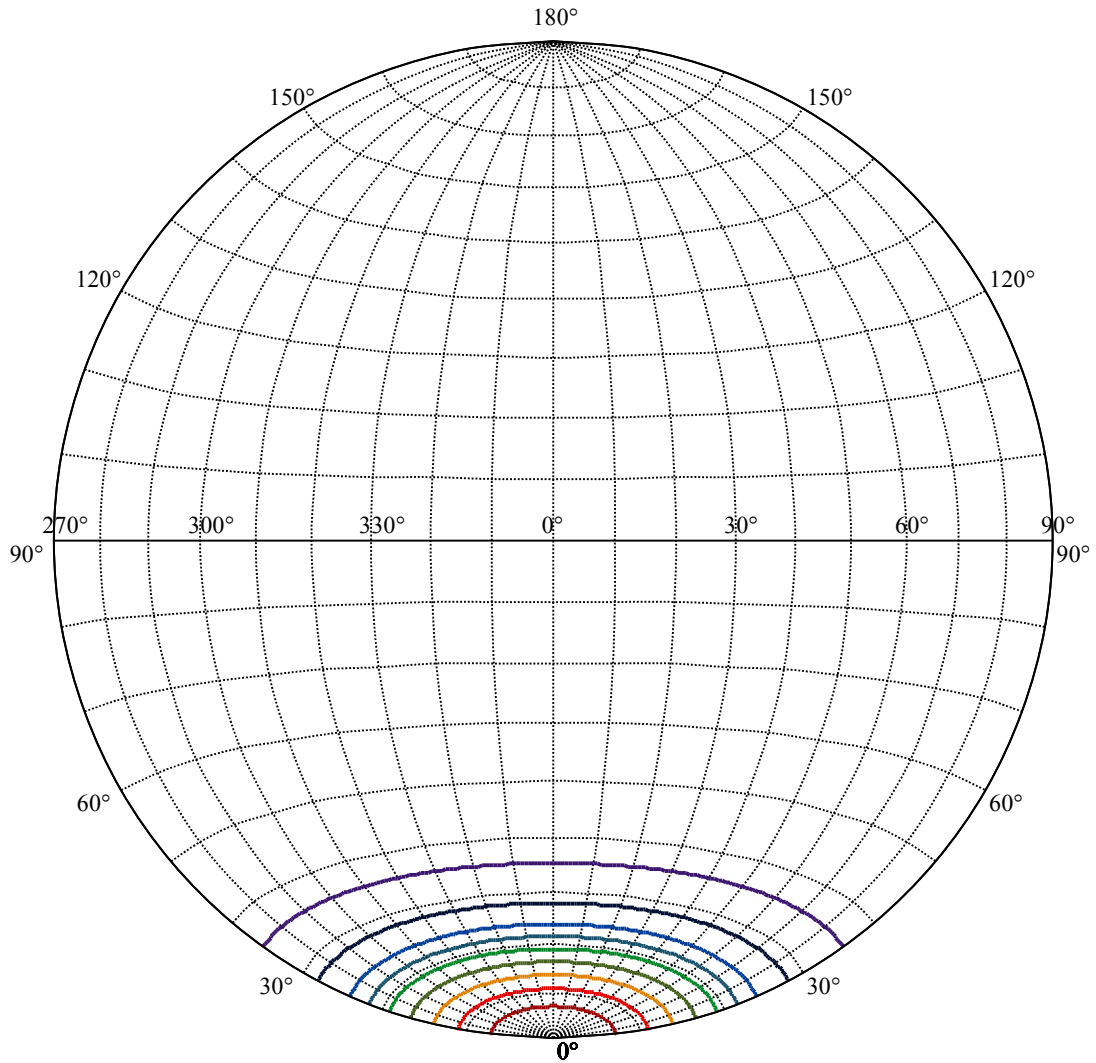
Field angle(10%Imax):C0/180Left:35.5 Right:35.5
:C90/270Left:35.5 Right:35.5

Beam Angle(50%Imax):C0/180Left:19.2 Right:19.2
:C90/270Left:19.2 Right:19.2





(10%Imax) 499.992	—
(20%Imax) 999.984	—
(30%Imax) 1499.98	—
(40%Imax) 1999.97	—
(50%Imax) 2499.96	—
(60%Imax) 2999.95	—
(70%Imax) 3499.95	—
(80%Imax) 3999.94	—
(90%Imax) 4499.93	—



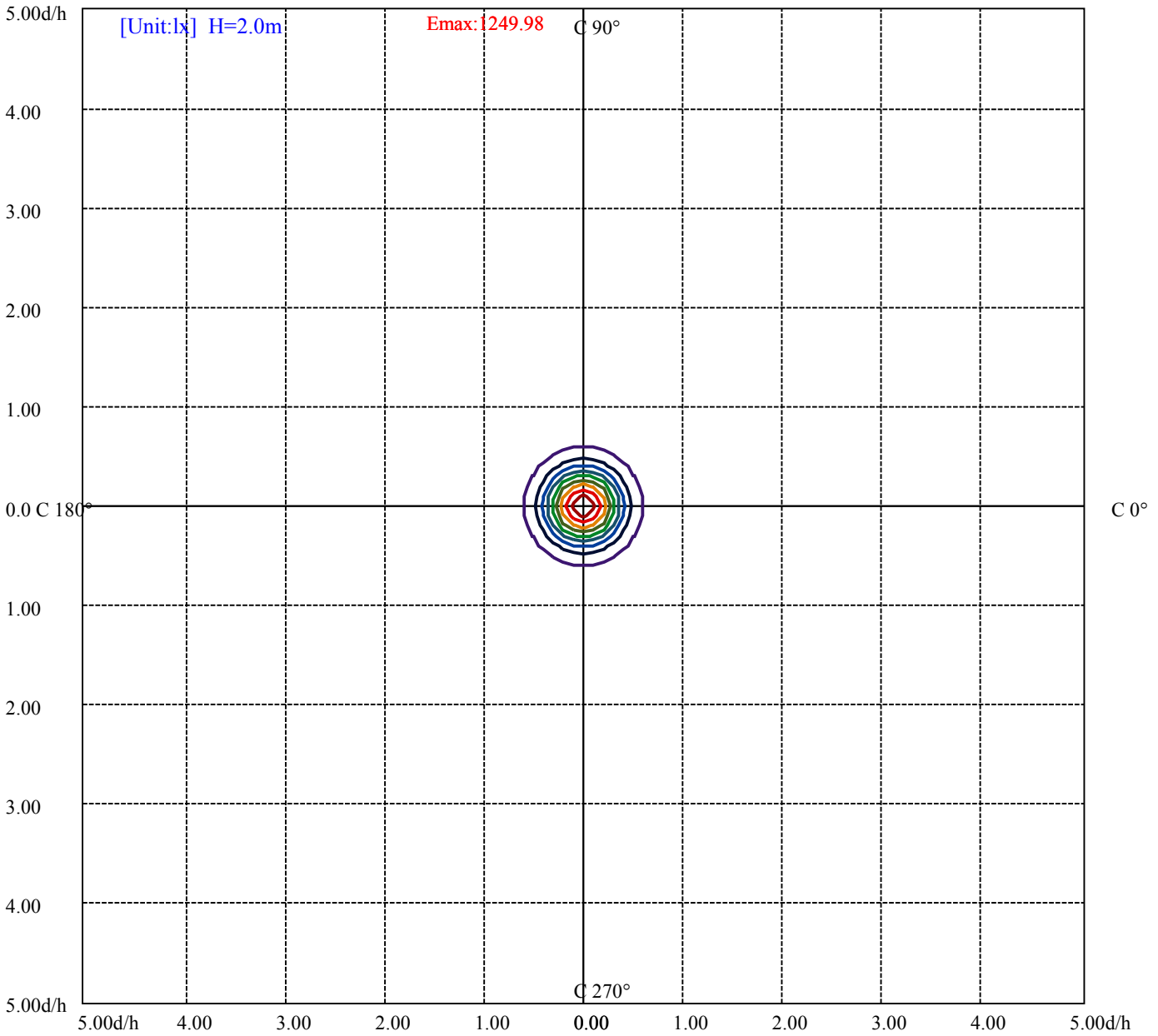
House

[Unit:cd]

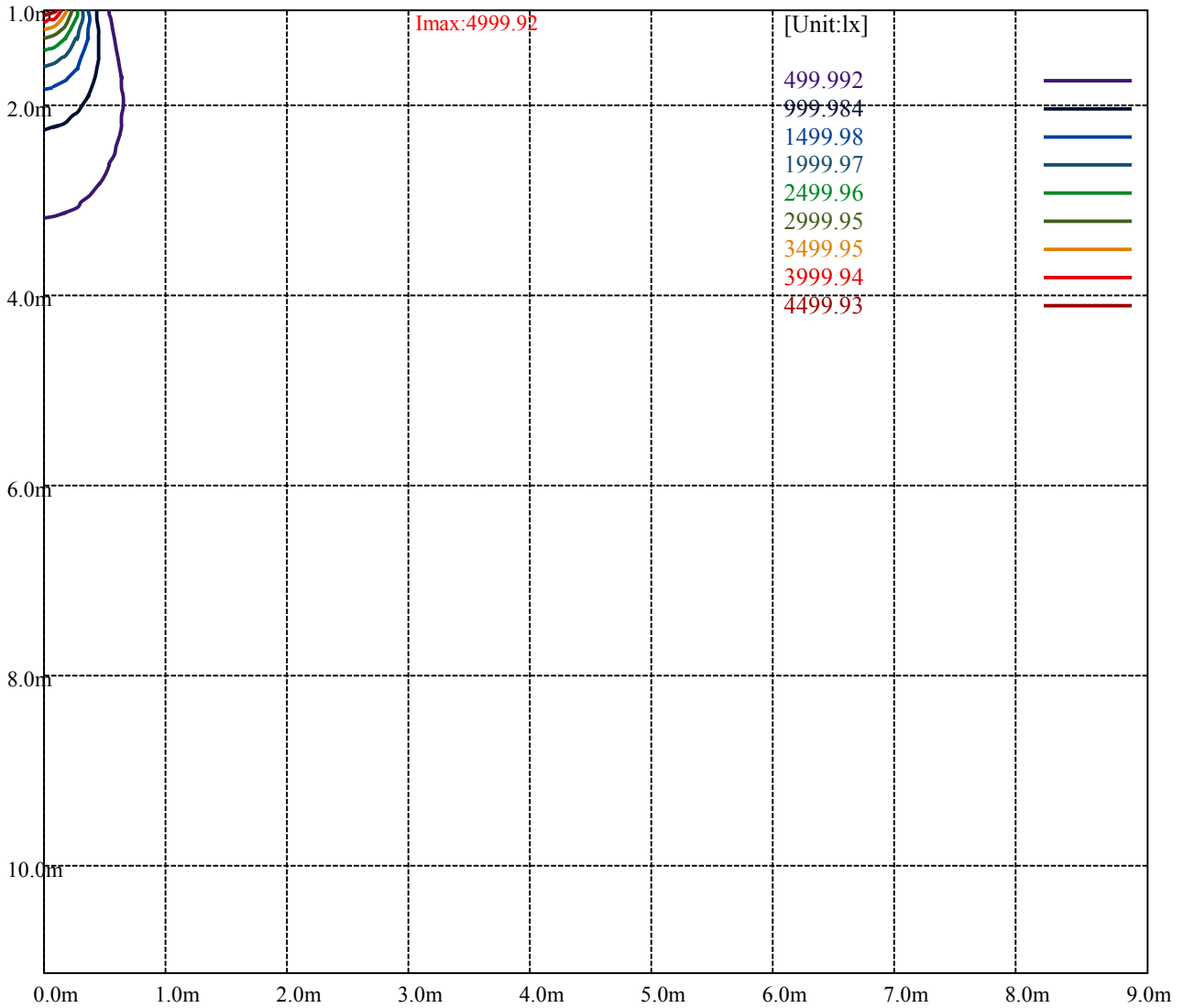
Road

Imax:4999.92

(10%Imax) 499.992	—
(20%Imax) 999.984	—
(30%Imax) 1499.98	—
(40%Imax) 1999.97	—
(50%Imax) 2499.96	—
(60%Imax) 2999.95	—
(70%Imax) 3499.95	—
(80%Imax) 3999.94	—
(90%Imax) 4499.93	—



- (10%Emax) 124.9977
- (20%Emax) 249.9957
- (30%Emax) 374.9925
- (40%Emax) 499.9925
- (50%Emax) 624.99
- (60%Emax) 749.9875
- (70%Emax) 874.985
- (80%Emax) 999.9825
- (90%Emax) 1124.98



Luminance Table

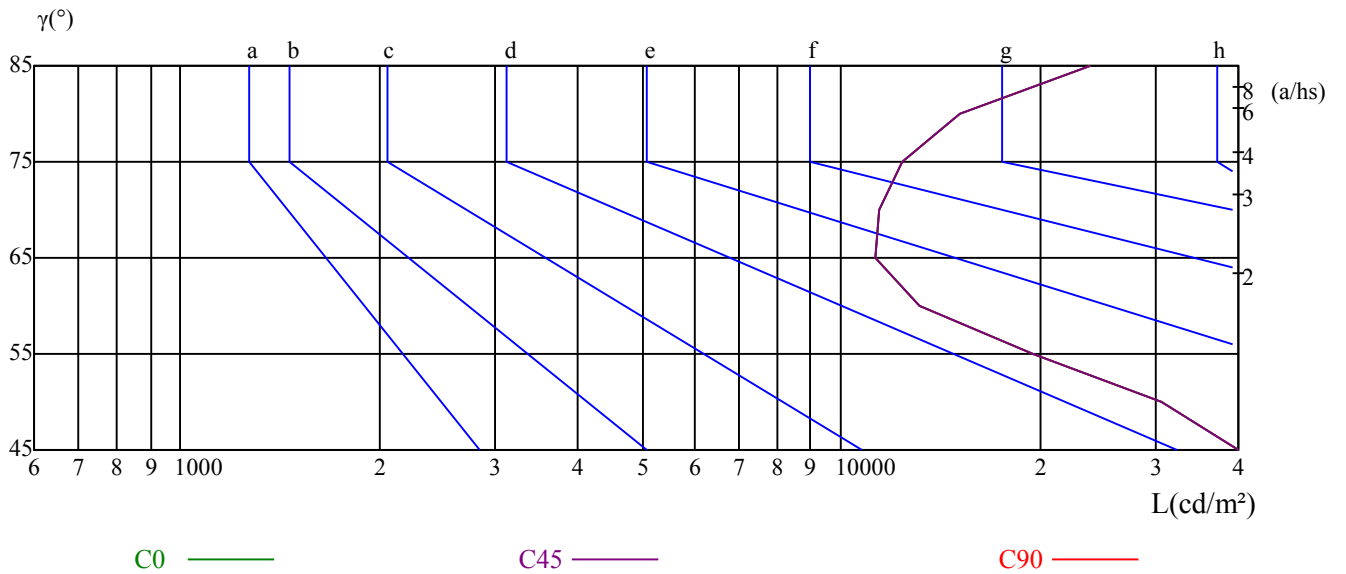
γ	45	50	55	60	65	70	75	80	85
C0	47255	30676	19477	13127	11316	11450	12375	15143	23849
C45	47255	30676	19477	13127	11316	11450	12375	15143	23849
C90	47255	30676	19477	13127	11316	11450	12375	15143	23849

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11316	11316	11316	12375	12375	12375	23849	23849	23849

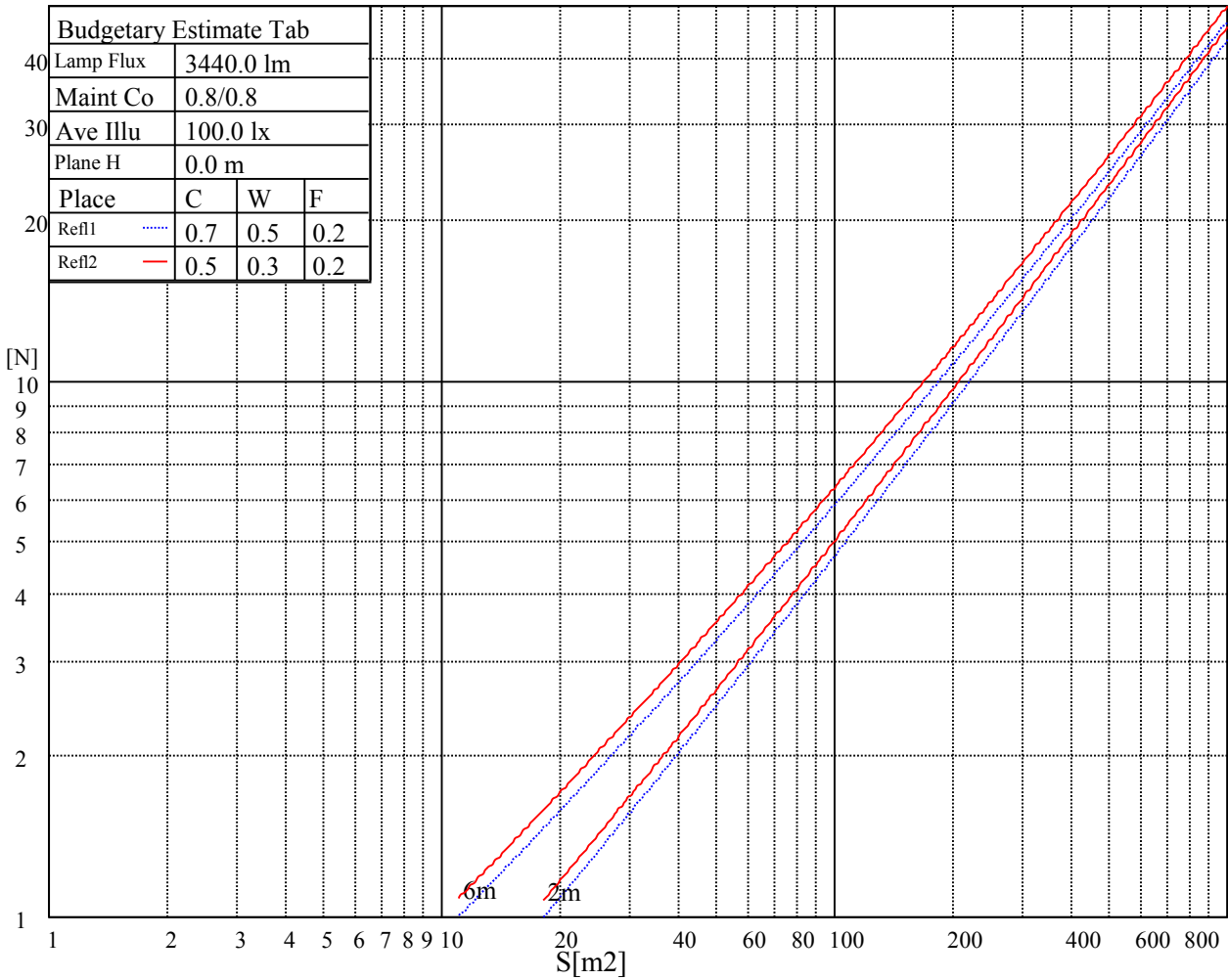
Glare Table

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

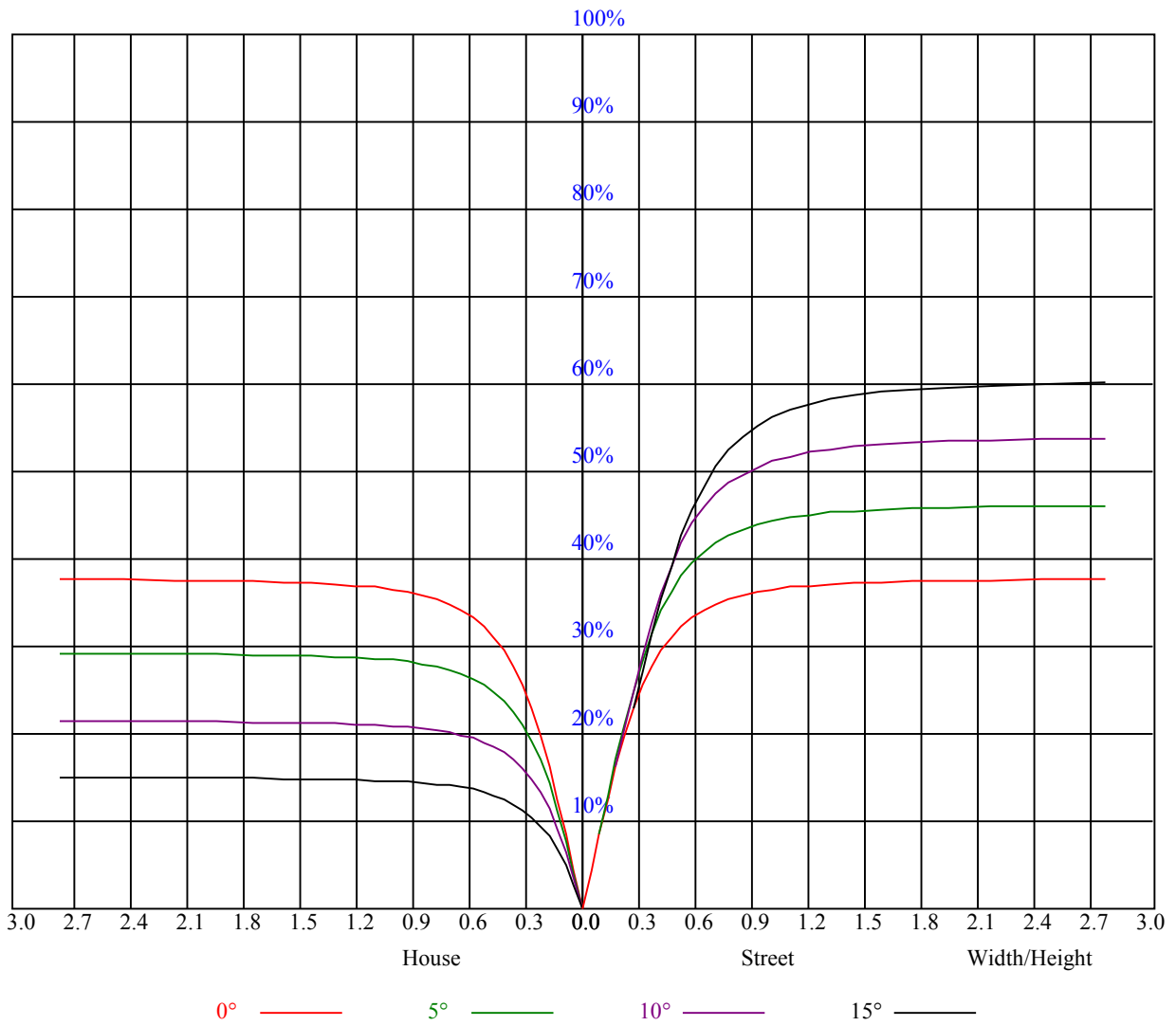
Luminance Limiting Curve



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	12.09	13.13	12.45	13.44	13.76	12.14	13.18	12.50	13.49	13.81
	3H	13.17	14.08	13.55	14.42	14.79	13.22	14.14	13.60	14.47	14.84
	4H	13.78	14.63	14.19	14.98	15.37	13.83	14.68	14.24	15.03	15.42
	6H	14.50	15.28	14.92	15.65	16.05	14.54	15.32	14.96	15.69	16.09
	8H	14.91	15.64	15.34	16.03	16.44	14.93	15.66	15.37	16.06	16.47
	12H	15.65	16.35	16.09	16.74	17.17	15.64	16.34	16.07	16.72	17.15
4H	2H	12.27	13.13	12.68	13.48	13.87	12.32	13.17	12.73	13.52	13.91
	3H	13.66	14.35	14.07	14.76	15.16	13.70	14.39	14.11	14.80	15.21
	4H	14.46	15.08	14.90	15.51	15.96	14.50	15.12	14.94	15.55	15.99
	6H	15.31	15.84	15.78	16.29	16.76	15.34	15.87	15.81	16.32	16.79
	8H	15.85	16.35	16.33	16.80	17.28	15.87	16.36	16.34	16.81	17.29
	12H	16.67	17.10	17.16	17.59	18.07	16.65	17.08	17.14	17.57	18.05
8H	4H	14.76	15.26	15.24	15.71	16.18	14.79	15.29	15.27	15.74	16.21
	6H	15.86	16.26	16.37	16.76	17.25	15.88	16.28	16.39	16.78	17.27
	8H	16.58	16.94	17.11	17.46	17.95	16.59	16.94	17.12	17.46	17.96
	12H	17.74	18.05	18.26	18.54	19.12	17.72	18.02	18.24	18.52	19.10
12H	4H	14.81	15.24	15.30	15.73	16.21	14.84	15.27	15.33	15.76	16.24
	6H	16.33	16.36	16.54	16.83	17.38	16.35	16.38	16.56	16.85	17.40
	8H	16.83	17.14	17.35	17.64	18.22	16.83	17.14	17.36	17.64	18.22
Variation with the observer position at spacings:											
S = 1.0H	2.2/-2.8					2.2/-2.8					
S = 1.5H	3.9/-3.1					3.9/-3.1					
S = 2.0H	5.4/-2.8					5.4/-2.8					
Standard tables:	BK3					BK3					
Uncorrected UGR	3.9					3.9					



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	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.81	0.81	0.81	0.78	0.78	0.78	0.77
1	0.84	0.82	0.80	0.82	0.81	0.79	0.79	0.78	0.76	0.76	0.75	0.74	0.74	0.73	0.72	0.71
2	0.79	0.76	0.73	0.78	0.75	0.72	0.75	0.73	0.71	0.73	0.71	0.69	0.71	0.69	0.68	0.67
3	0.74	0.71	0.68	0.73	0.70	0.67	0.71	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.64	0.63
4	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.62	0.66	0.64	0.61	0.65	0.63	0.61	0.60
5	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.61	0.59	0.63	0.61	0.58	0.62	0.60	0.58	0.57
6	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.60	0.57	0.55	0.54
7	0.61	0.56	0.54	0.60	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.52
8	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.51	0.56	0.53	0.51	0.55	0.53	0.50	0.49
9	0.56	0.52	0.49	0.55	0.51	0.49	0.55	0.51	0.49	0.54	0.51	0.49	0.53	0.51	0.48	0.48
10	0.53	0.50	0.47	0.53	0.49	0.47	0.53	0.49	0.47	0.52	0.49	0.47	0.52	0.49	0.47	0.46



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	4990.50	4857.19	4326.75	3559.50	2610.56	1603.13	951.75	591.75	381.94
45.0	4998.38	4817.25	4289.06	3452.06	2496.38	1494.00	882.56	556.88	363.38
90.0	5003.44	4721.06	4062.94	3223.69	2249.44	1107.73	778.39	494.38	317.93
135.0	5006.81	4784.63	4172.63	3290.63	2372.06	1371.38	790.31	513.00	333.00
180.0	4990.50	4672.69	3993.19	3066.75	2009.25	1097.21	725.29	463.28	297.39
225.0	4998.38	4688.44	4067.44	3143.81	2150.44	1091.76	726.92	470.53	308.87
270.0	5003.44	4815.00	4272.75	3414.38	2450.81	1508.06	866.25	538.88	354.94
315.0	5007.94	4751.44	4173.19	3290.63	2360.25	1098.90	797.57	518.63	334.63
360.0	4990.50	4857.19	4326.75	3559.50	2610.56	1603.13	951.75	591.75	381.94
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	284.06	141.08	79.93	46.01	32.06	25.76	20.93	17.27	13.33
45.0	221.79	135.79	77.12	45.51	30.99	24.98	20.70	16.76	13.11
90.0	191.19	114.30	63.84	37.80	28.80	23.57	19.24	15.98	12.99
135.0	194.18	120.77	68.29	39.32	29.08	24.02	19.63	16.09	12.54
180.0	175.67	104.40	59.85	36.73	28.24	23.51	19.07	15.58	12.38
225.0	186.30	112.73	61.88	38.48	29.14	23.91	19.74	16.20	12.94
270.0	212.23	128.87	74.87	42.92	30.66	25.26	20.59	17.04	13.56
315.0	202.89	126.56	72.00	40.95	29.81	24.53	20.03	16.37	12.94
360.0	284.06	141.08	79.93	46.01	32.06	25.76	20.93	17.27	13.33
C/ γ (°)	90.0								
0.0	10.80								
45.0	10.74								
90.0	10.69								
135.0	10.69								
180.0	10.80								
225.0	10.69								
270.0	10.74								
315.0	10.69								
360.0	10.80								