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## NATA

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LumCAT: 4-2275-M	
Luminaire: 92.70.134.00	
Report No: NATA0100	Voltage(V): 34.9000
Test No: GC2019010914	Current(A): 0.7000
LampCAT: OSRAM SOLERIQ S19	Power (W): 24.4300
Lamp flux(lm): 3440.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 100	Width(mm): 100
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 2996.13  
Efficiency(%): 87.10%  
Lumens(lm)/Power(W): 125.63  
Central intensity(cd): 12697.030  
Maximum intensity(cd): 12697.030  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=22.5  
                                  [C90/270]Total=22.5  
Field angle(10%Imax): [C0/180]Total=47.6  
                                  [C90/270]Total=47.6  
Maximum s/h(1/2): C0\_180=0.38 C90\_270=0.38  
Maximum s/h(1/4): C0\_180=0.37 C90\_270=0.37  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 89.22%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.446%

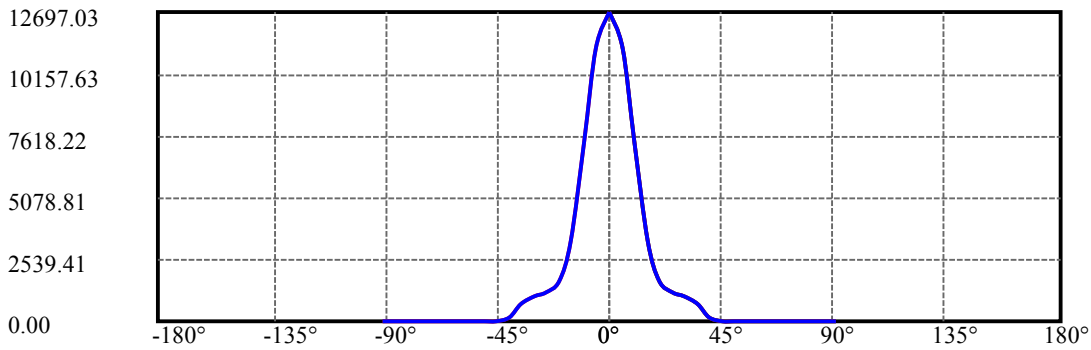
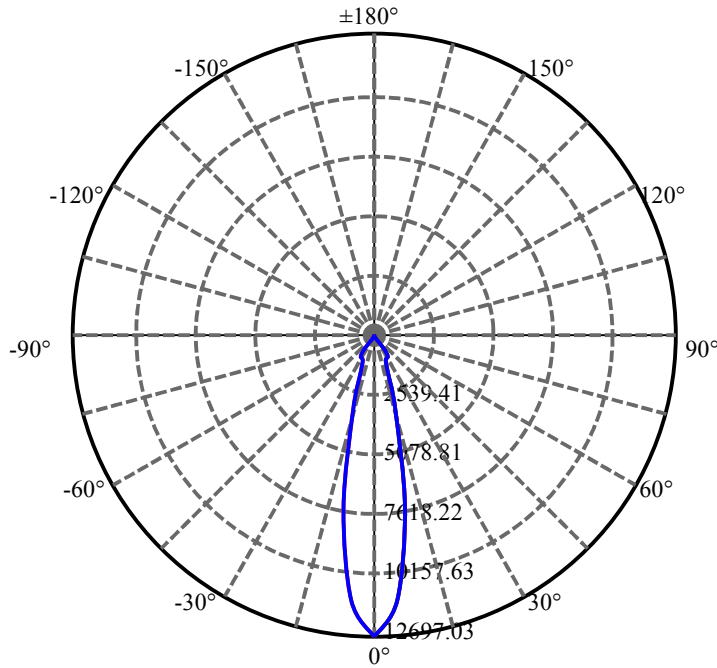
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12697.031	75.931	75.931	2.207%	2.534%
5.0	11206.969	535.394	611.325	15.564%	20.404%
10.0	7387.313	703.147	1314.472	20.440%	43.872%
15.0	3296.953	467.733	1782.205	13.597%	59.484%
20.0	1626.469	304.921	2087.126	8.864%	69.661%
25.0	1154.440	267.429	2354.555	7.774%	78.587%
30.0	1060.973	290.780	2645.335	8.453%	88.292%
35.0	712.104	223.885	2869.219	6.508%	95.764%
40.0	187.102	65.923	2935.142	1.916%	97.964%
45.0	16.369	6.344	2941.486	.184%	98.176%
50.0	14.702	6.173	2947.66	.179%	98.382%
55.0	13.767	6.182	2953.841	.180%	98.589%
60.0	13.212	6.272	2960.113	.182%	98.798%
65.0	12.818	6.368	2966.481	.185%	99.010%
70.0	12.572	6.476	2972.956	.188%	99.227%
75.0	12.389	6.560	2979.516	.191%	99.446%
80.0	12.270	6.623	2986.139	.193%	99.667%
85.0	12.192	6.658	2992.797	.194%	99.889%
90.0	12.157	3.332	2996.129	.097%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2645.33	76.90%	88.29%
0-40	2935.14	85.32%	97.96%
0-60	2960.11	86.05%	98.80%
0-90	2992.80	87.00%	99.89%
0-120	2992.80	87.00%	99.89%
0-180	2996.13	87.10%	100.00%
60-90	38.96	1.13%	1.30%
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%
0-25.73	2396.90	69.68%	80.00%

ZONAL LUMEN SUMMARY

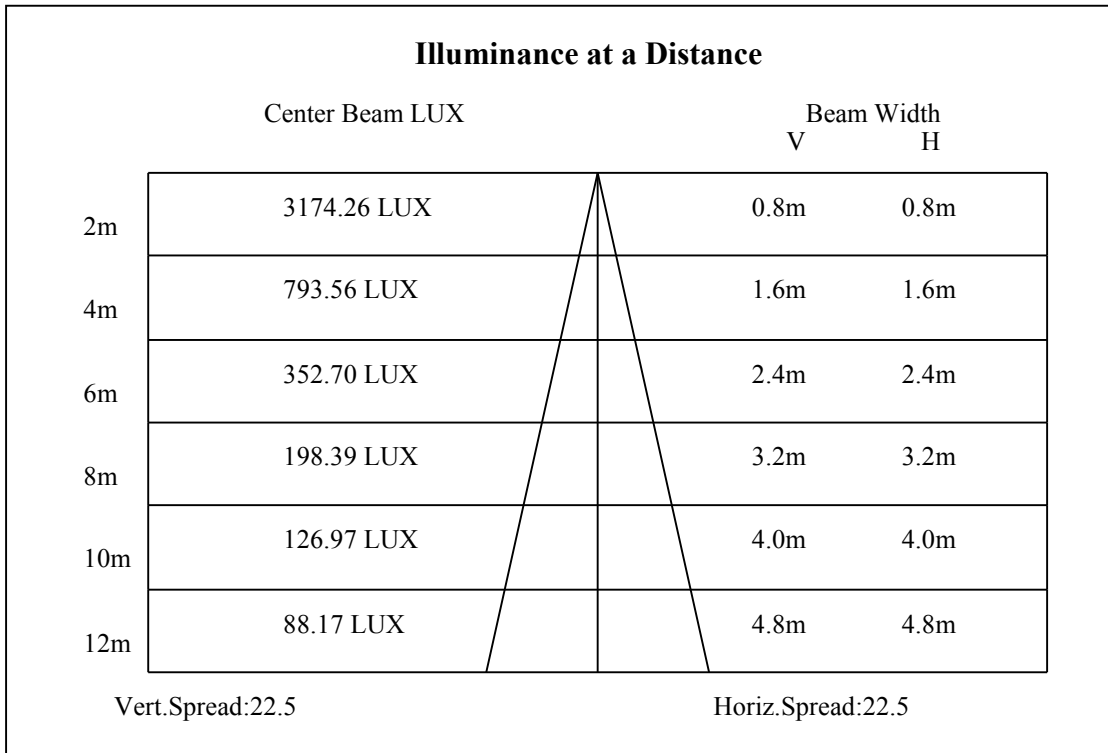
0-10	1314.47
10-20	772.65
20-30	558.21
30-40	289.81
40-50	12.52
50-60	12.45
60-70	12.84
70-80	13.18
80-90	6.66
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

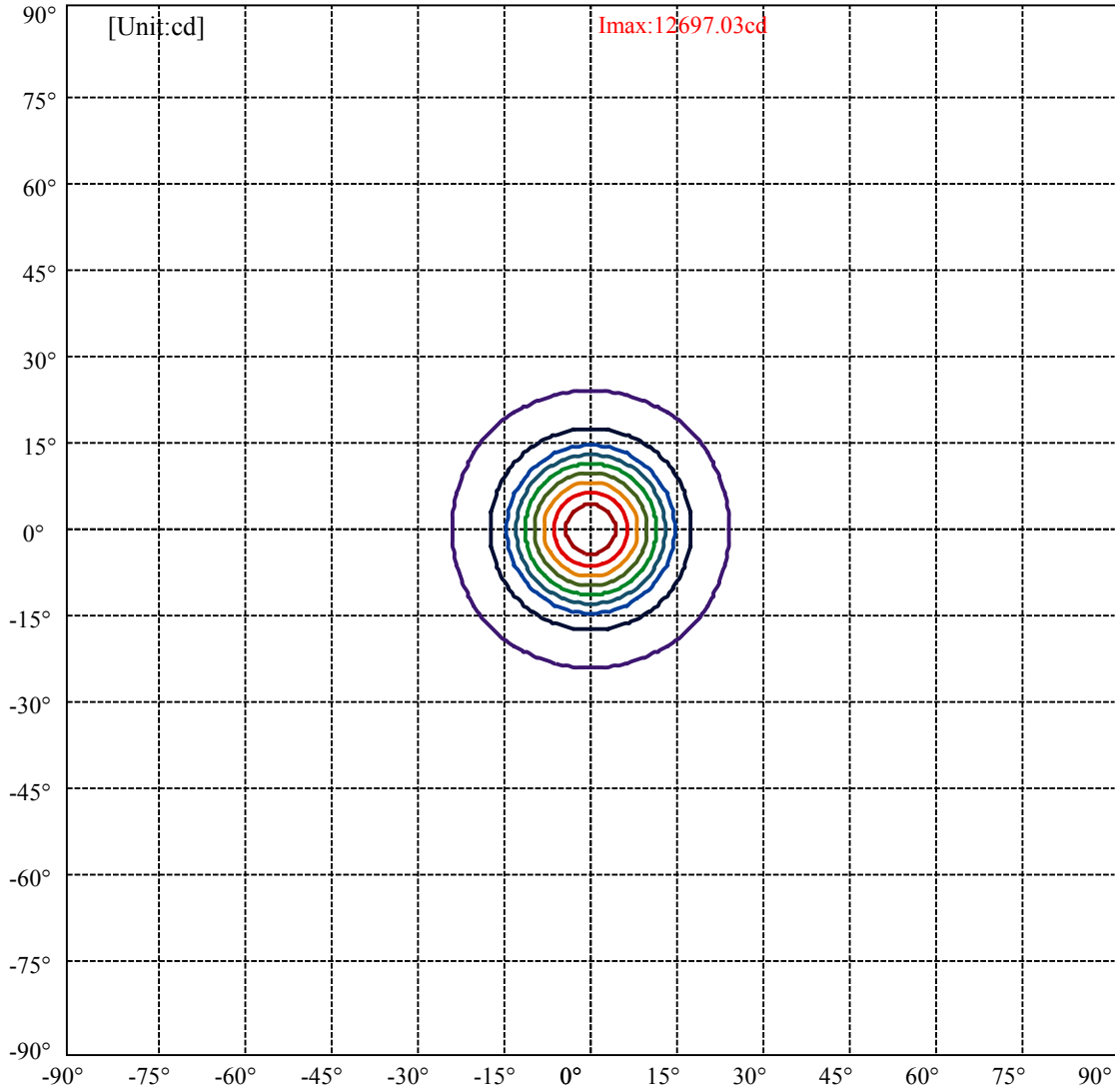


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

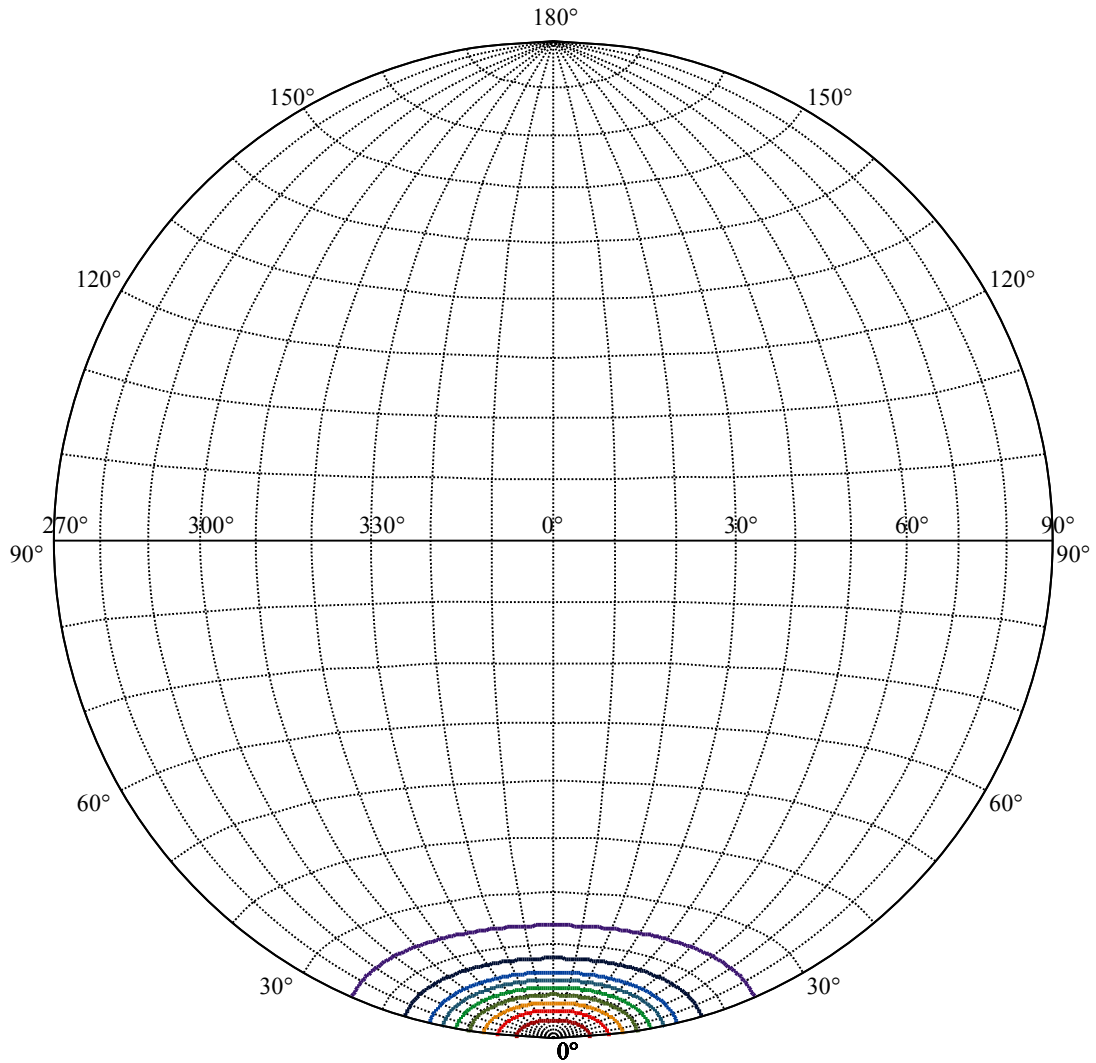
Field angle(10%Imax):C0/180Left:23.8 Right:23.8  
:C90/270Left:23.8 Right:23.8

Beam Angle(50%Imax):C0/180Left:11.3 Right:11.3  
:C90/270Left:11.3 Right:11.3





(10%Imax) 1269.7	—
(20%Imax) 2539.41	—
(30%Imax) 3809.11	—
(40%Imax) 5078.81	—
(50%Imax) 6348.52	—
(60%Imax) 7618.22	—
(70%Imax) 8887.92	—
(80%Imax) 10157.6	—
(90%Imax) 11427.3	—



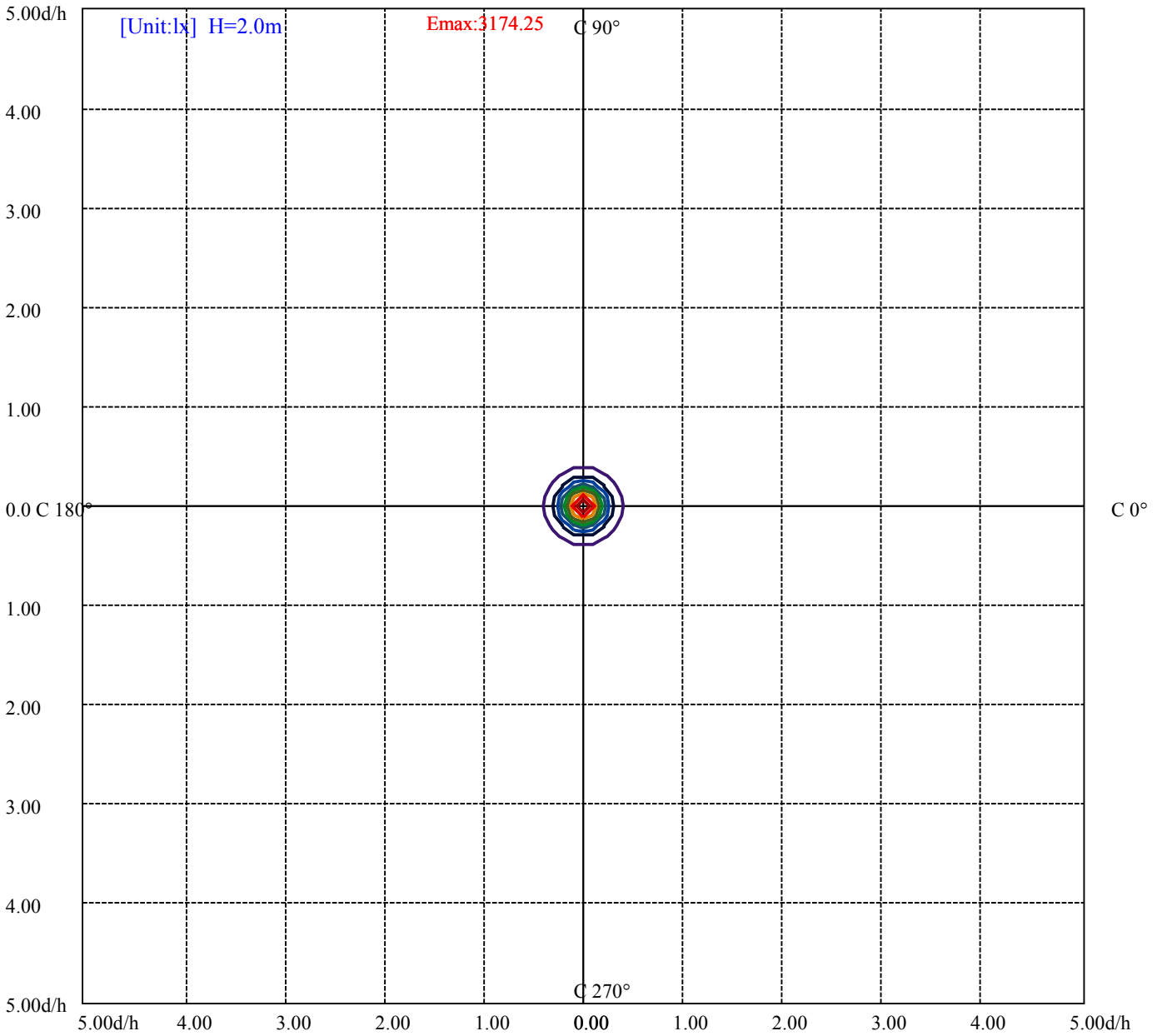
House

[Unit:cd]

Road

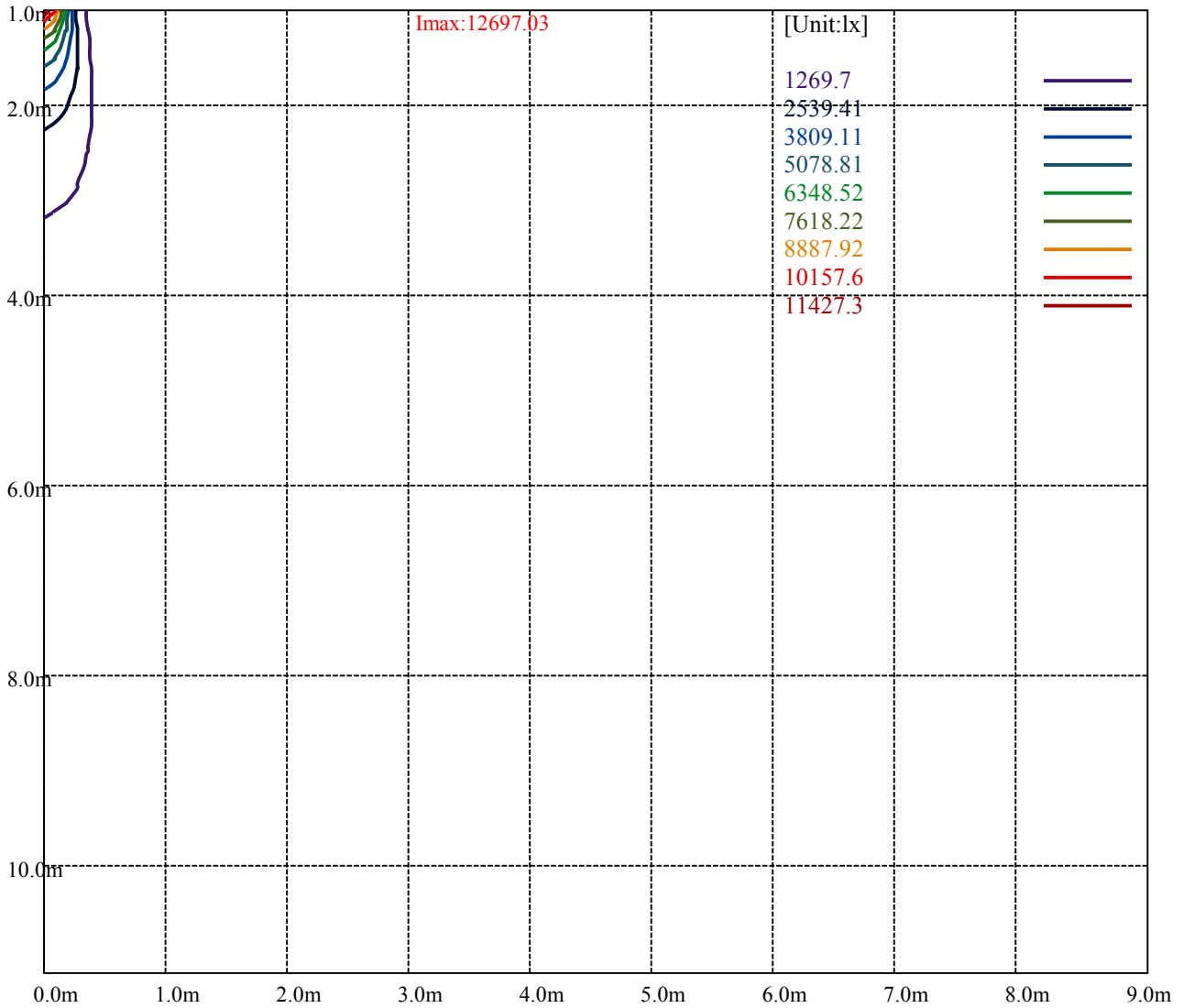
**Imax:12697.03**

(10%Imax) 1269.7	—
(20%Imax) 2539.41	—
(30%Imax) 3809.11	—
(40%Imax) 5078.81	—
(50%Imax) 6348.52	—
(60%Imax) 7618.22	—
(70%Imax) 8887.92	—
(80%Imax) 10157.6	—
(90%Imax) 11427.3	—



(10%Emax) 317.425	—
(20%Emax) 634.85	—
(30%Emax) 952.275	—
(40%Emax) 1269.698	—
(50%Emax) 1587.123	—
(60%Emax) 1904.547	—
(70%Emax) 2221.972	—
(80%Emax) 2539.4	—
(90%Emax) 2856.825	—





Luminance Table

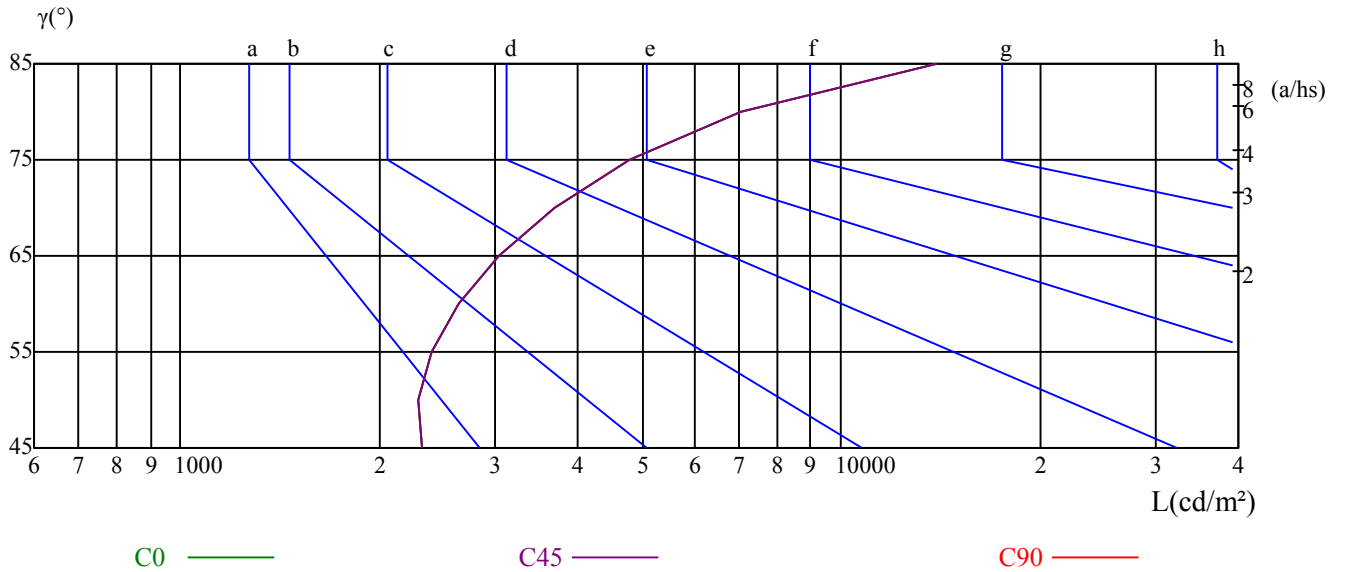
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2315	2287	2400	2642	3033	3676	4787	7066	13989
C45	2315	2287	2400	2642	3033	3676	4787	7066	13989
C90	2315	2287	2400	2642	3033	3676	4787	7066	13989

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3033	3033	3033	4787	4787	4787	13989	13989	13989

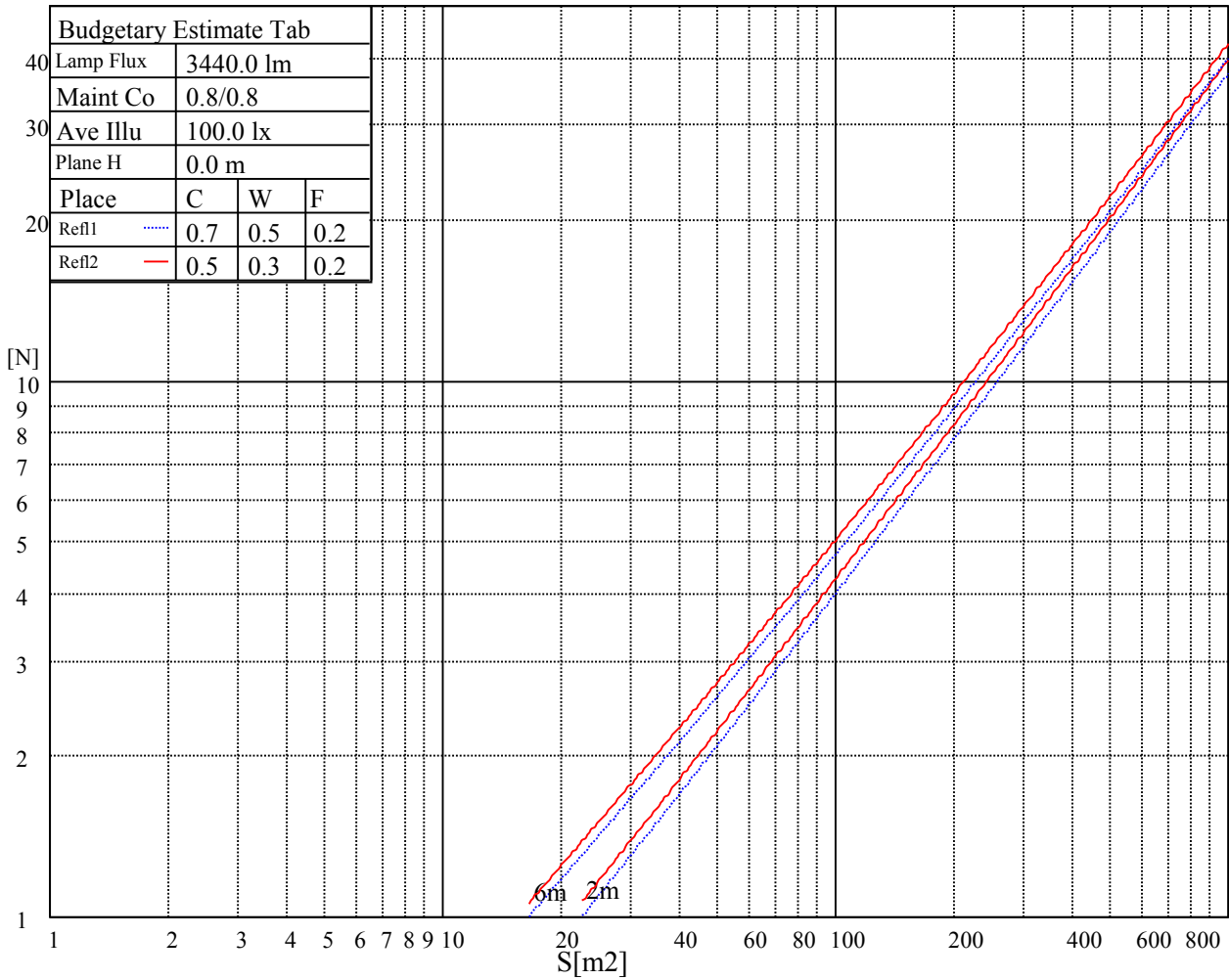
Glare Table

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

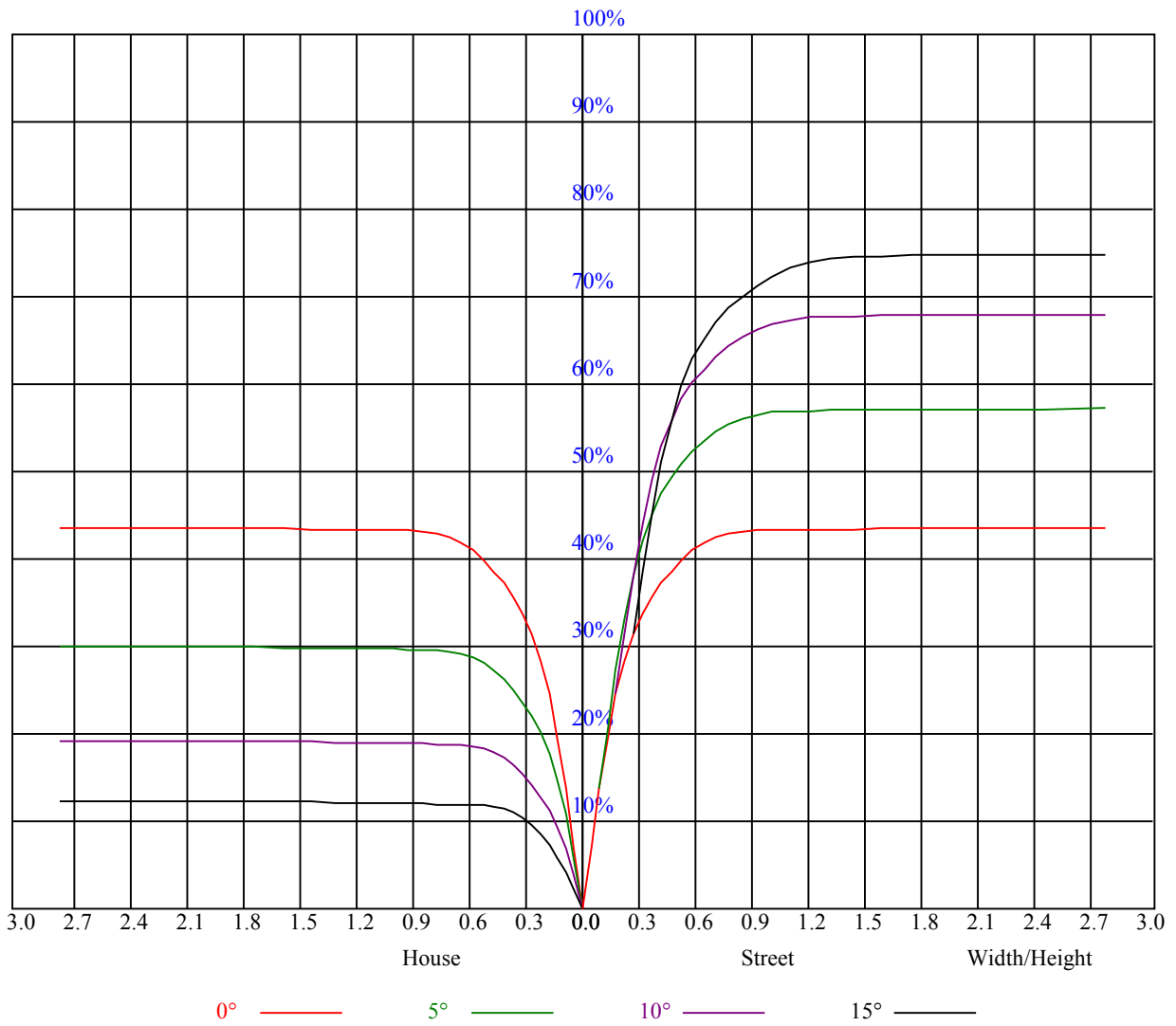
Luminance Limiting Curve



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	-0.01	0.90	0.35	1.21	1.53	0.01	0.92	0.38	1.23	1.55
	3H	3.21	4.01	3.60	4.35	4.72	3.23	4.04	3.62	4.37	4.74
	4H	4.96	5.71	5.37	6.06	6.45	4.98	5.72	5.39	6.08	6.47
	6H	6.94	7.62	7.36	8.00	8.40	6.95	7.63	7.37	8.00	8.40
	8H	8.04	8.68	8.48	9.07	9.48	8.04	8.68	8.48	9.07	9.48
	12H	9.82	10.43	10.25	10.81	11.24	9.82	10.43	10.25	10.81	11.24
4H	2H	0.90	1.64	1.31	2.00	2.39	0.92	1.66	1.32	2.01	2.40
	3H	4.36	4.97	4.78	5.38	5.79	4.38	4.99	4.80	5.40	5.81
	4H	6.28	6.82	6.72	7.25	7.70	6.29	6.83	6.73	7.26	7.71
	6H	8.42	8.88	8.89	9.33	9.81	8.43	8.89	8.90	9.34	9.82
	8H	9.61	10.05	10.09	10.50	10.98	9.62	10.05	10.10	10.50	10.98
8H	12H	11.29	11.66	11.78	12.15	12.63	11.29	11.66	11.78	12.15	12.63
	4H	7.01	7.44	7.49	7.89	8.37	7.01	7.45	7.49	7.90	8.38
	6H	9.42	9.76	9.93	10.27	10.75	9.43	9.77	9.94	10.27	10.76
	8H	10.81	11.11	11.34	11.63	12.13	10.81	11.11	11.34	11.63	12.13
12H	12H	12.62	12.88	13.14	13.38	13.96	12.62	12.88	13.14	13.38	13.96
	4H	7.22	7.59	7.71	8.08	8.56	7.22	7.60	7.72	8.09	8.56
	6H	9.94	10.04	10.28	10.52	11.07	9.94	10.05	10.28	10.52	11.07
	8H	11.26	11.52	11.78	12.02	12.60	11.26	11.52	11.78	12.02	12.60
Variation with the observer position at spacings:											
S = 1.0H	5.2/-7.7					5.2/-7.7					
S = 1.5H	7.4/-5.8					7.4/-5.8					
S = 2.0H	8.7/-4.3					8.7/-4.3					
Standard tables:	BK3					BK3					
Uncorrected UGR	0.0					0.0					



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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.97	0.95	0.93	0.95	0.93	0.91	0.92	0.90	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.81
2	0.92	0.89	0.86	0.91	0.88	0.85	0.88	0.85	0.83	0.85	0.83	0.81	0.83	0.81	0.80	0.78
3	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.75
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	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.70
6	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
7	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
9	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.63	0.63
10	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61



Intensity data(cd)

C/ $\gamma$ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	12718.13	11548.13	8493.75	3948.75	1856.81	1226.25	1099.69	840.94	300.94
45.0	12706.88	11373.75	7886.25	3588.75	1681.88	1183.50	1077.75	758.81	304.88
90.0	12690.00	10837.13	6658.88	2735.44	1467.00	1118.14	1041.24	625.67	63.73
135.0	12673.13	11475.00	7340.63	3521.25	1597.50	1151.44	1054.13	723.94	289.69
180.0	12718.13	10599.19	6478.31	2765.25	1411.88	1119.71	1033.76	577.41	51.30
225.0	12706.88	10982.25	6939.56	3013.88	1514.81	1119.77	1045.41	635.57	64.80
270.0	12690.00	11705.63	7976.25	3661.88	1804.50	1194.75	1074.94	817.31	309.94
315.0	12673.13	11134.69	7324.88	3140.44	1677.38	1121.96	1060.88	717.19	111.54
360.0	12718.13	11548.13	8493.75	3948.75	1856.81	1226.25	1099.69	840.94	300.94
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	18.11	15.24	14.12	13.39	12.88	12.60	12.43	12.26	12.21
45.0	16.31	14.63	13.73	13.22	12.77	12.54	12.38	12.26	12.21
90.0	15.58	14.34	13.61	13.05	12.71	12.54	12.38	12.26	12.15
135.0	15.92	14.63	13.73	13.16	12.83	12.54	12.38	12.26	12.15
180.0	15.81	14.57	13.67	13.22	12.88	12.60	12.38	12.26	12.21
225.0	16.03	14.57	13.61	13.22	12.83	12.54	12.38	12.26	12.15
270.0	16.71	14.85	13.84	13.28	12.83	12.66	12.43	12.32	12.26
315.0	16.48	14.79	13.84	13.16	12.83	12.54	12.38	12.26	12.21
360.0	18.11	15.24	14.12	13.39	12.88	12.60	12.43	12.26	12.21
C/ $\gamma$ (°)	90.0								
0.0	12.26								
45.0	12.15								
90.0	12.09								
135.0	12.09								
180.0	12.09								
225.0	12.09								
270.0	12.15								
315.0	12.32								
360.0	12.26								