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NATA

LumCAT: 4-1940-E
Luminaire: 92.76.233.00
Report No: NATA0100
Test No: GC2019022712
LampCAT: LUMENS EDC_57C_30W LES21
Lamp flux(lm): 3192.8
Number of Lamps: 1
Length(mm): 100
Phm Type: C

Voltage(V): 37.1000
Current(A): 0.9990
Power (W): 50.0000
PF: 1.2180
Ballast type: DC
Width(mm): 100
Height(mm): 0

Photometric Results

Lumens(lm): 2838.07
Efficiency(%): 88.89%
Lumens(lm)/Power(W): 57.12
Central intensity(cd): 3436.875
Maximum intensity(cd): 3436.875
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=58.5
 [C90/270]Total=58.5
Field angle(10%Imax): [C0/180]Total=78.4
 [C90/270]Total=78.4
Maximum s/h(1/2): C0_180=0.91 C90_270=0.91
Maximum s/h(1/4): C0_180=0.87 C90_270=0.87
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.45%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.237%

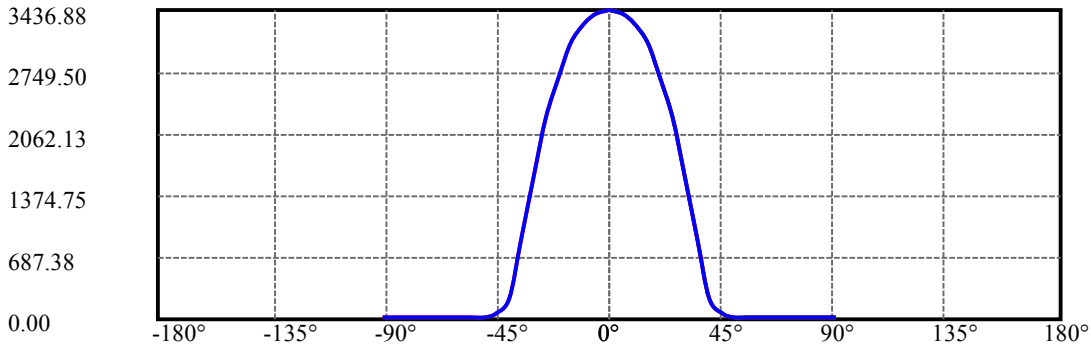
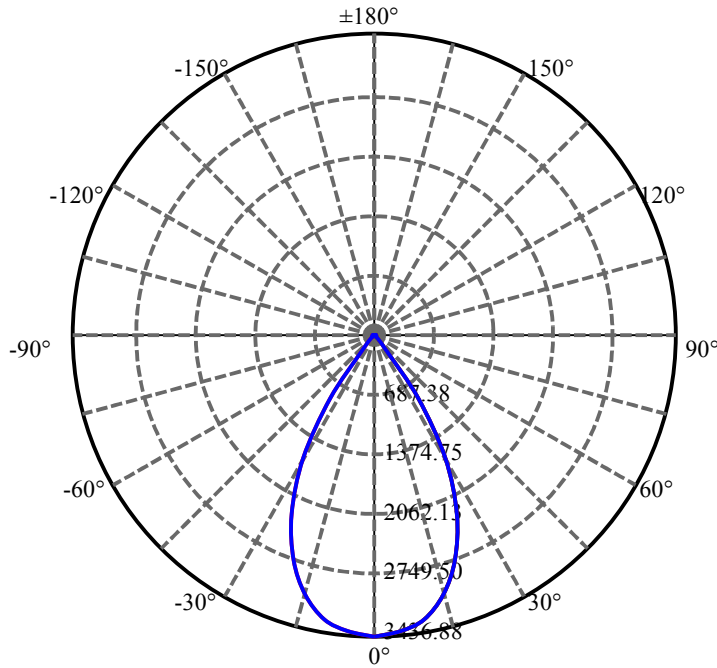
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3436.875	20.553	20.553	.644%	.724%
5.0	3394.898	162.186	182.739	5.080%	6.439%
10.0	3290.203	313.172	495.91	9.809%	17.474%
15.0	3066.680	435.065	930.975	13.627%	32.803%
20.0	2715.609	509.106	1440.082	15.946%	50.742%
25.0	2237.344	518.287	1958.369	16.233%	69.004%
30.0	1624.852	445.321	2403.69	13.948%	84.695%
35.0	869.020	273.219	2676.908	8.557%	94.322%
40.0	245.440	86.477	2763.386	2.709%	97.369%
45.0	53.466	20.723	2784.109	.649%	98.099%
50.0	23.794	9.991	2794.099	.313%	98.451%
55.0	13.395	6.014	2800.114	.188%	98.663%
60.0	11.510	5.464	2805.578	.171%	98.855%
65.0	11.334	5.631	2811.208	.176%	99.054%
70.0	11.299	5.820	2817.028	.182%	99.259%
75.0	11.278	5.971	2823	.187%	99.469%
80.0	11.152	6.020	2829.019	.189%	99.681%
85.0	11.060	6.039	2835.059	.189%	99.894%
90.0	10.976	3.008	2838.067	.094%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2403.69	75.29%	84.69%
0-40	2763.39	86.55%	97.37%
0-60	2805.58	87.87%	98.86%
0-90	2835.06	88.80%	99.89%
0-120	2835.06	88.80%	99.89%
0-180	2838.07	88.89%	100.00%
60-90	34.95	1.09%	1.23%
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%
0-28.50	2270.45	71.11%	80.00%

ZONAL LUMEN SUMMARY

0-10	495.91
10-20	944.17
20-30	963.61
30-40	359.70
40-50	30.71
50-60	11.48
60-70	11.45
70-80	11.99
80-90	6.04
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



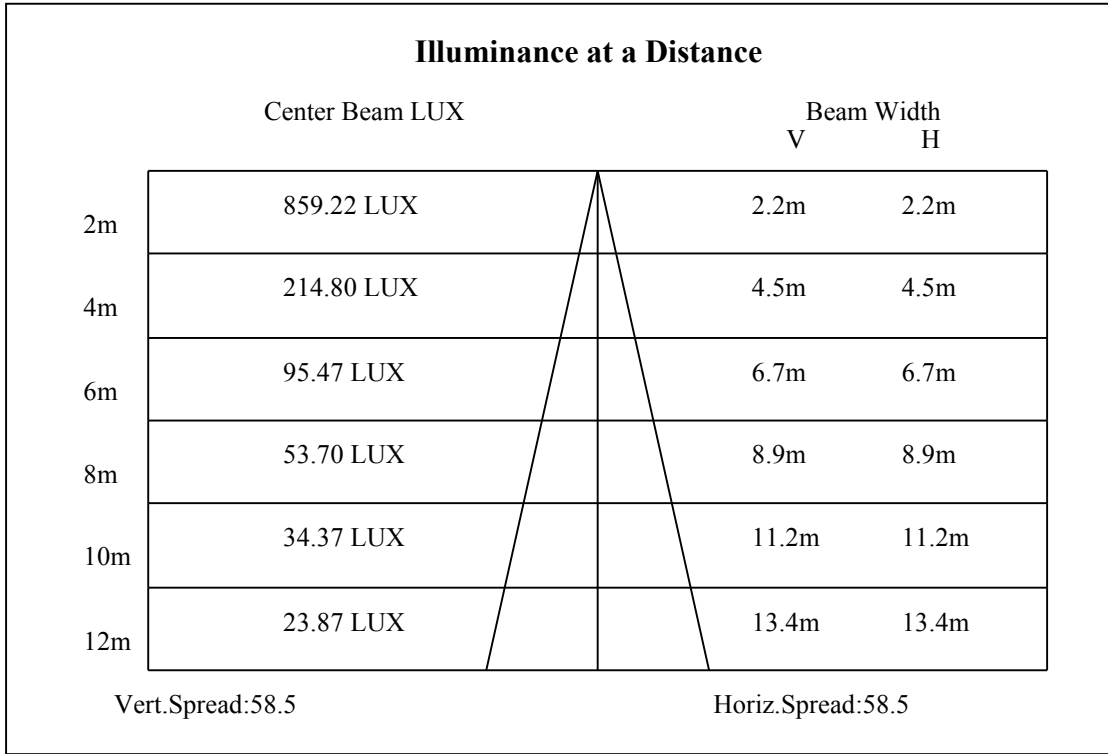
C0(Max): —————

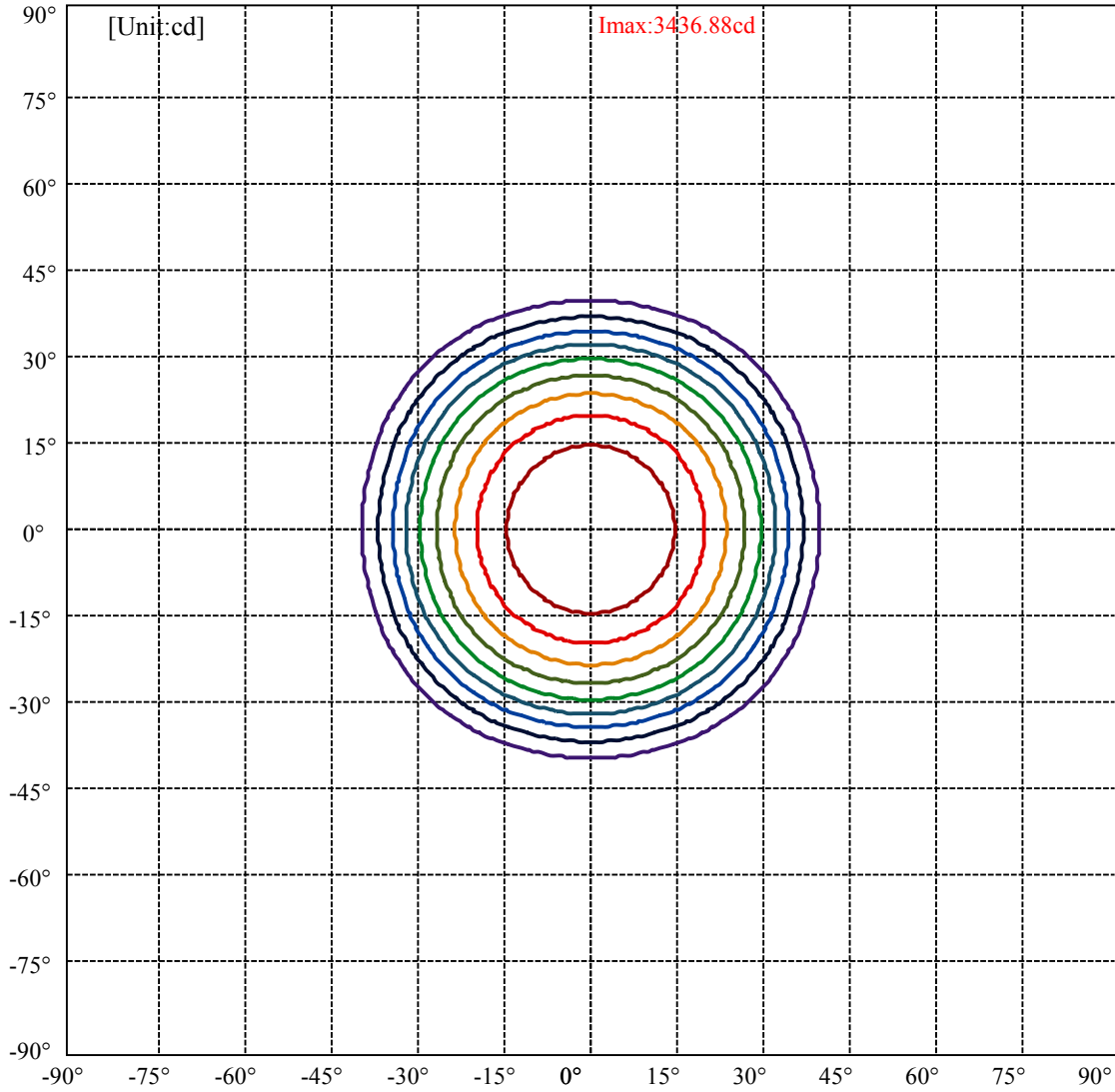
C0/C180: —————

C90/C270: —————

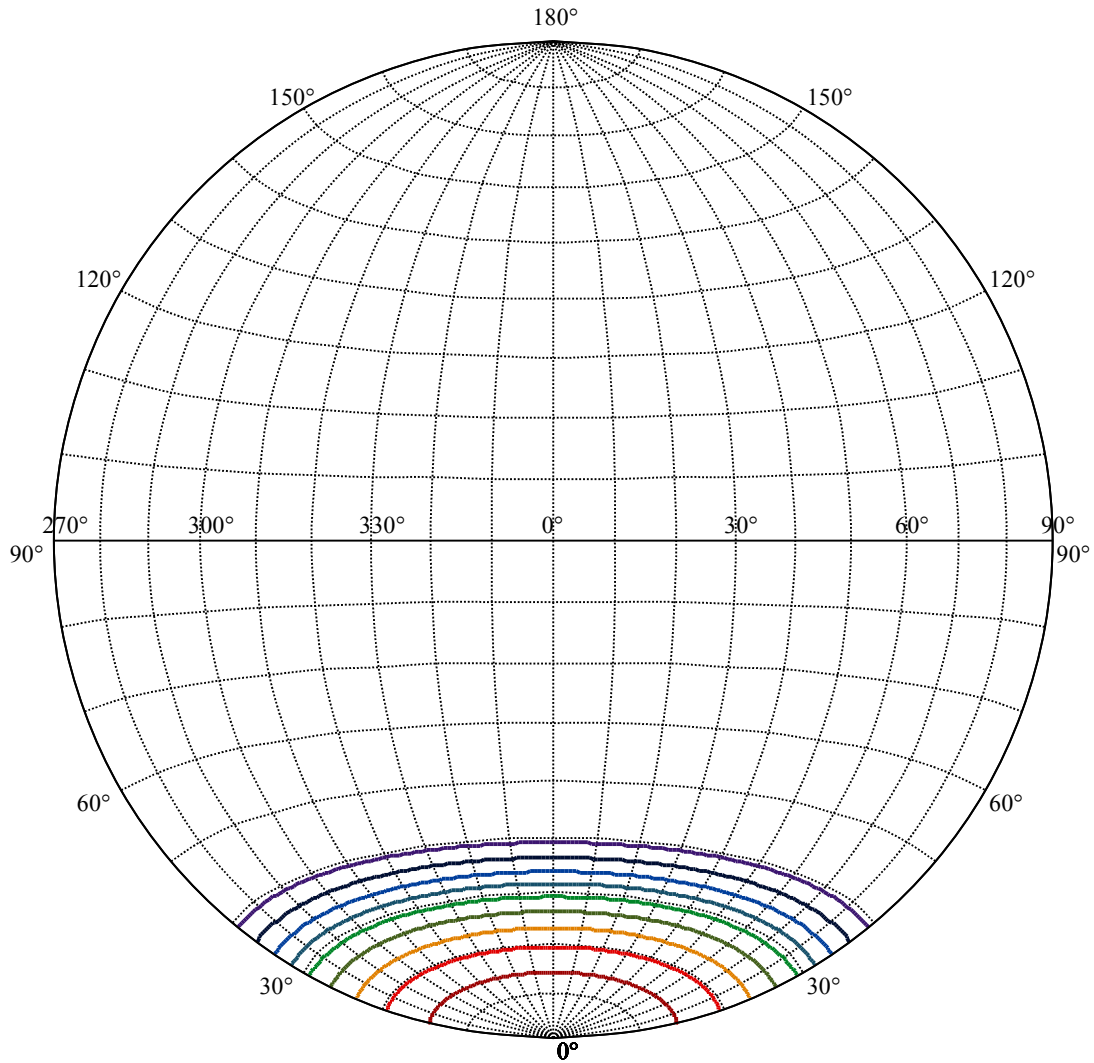
Field angle(10%Imax):C0/180Left:39.2 Right:39.2
:C90/270Left:39.2 Right:39.2

Beam Angle(50%Imax):C0/180Left:29.2 Right:29.2
:C90/270Left:29.2 Right:29.2





(10%Imax) 343.688	—
(20%Imax) 687.375	—
(30%Imax) 1031.06	—
(40%Imax) 1374.75	—
(50%Imax) 1718.44	—
(60%Imax) 2062.13	—
(70%Imax) 2405.81	—
(80%Imax) 2749.5	—
(90%Imax) 3093.19	—



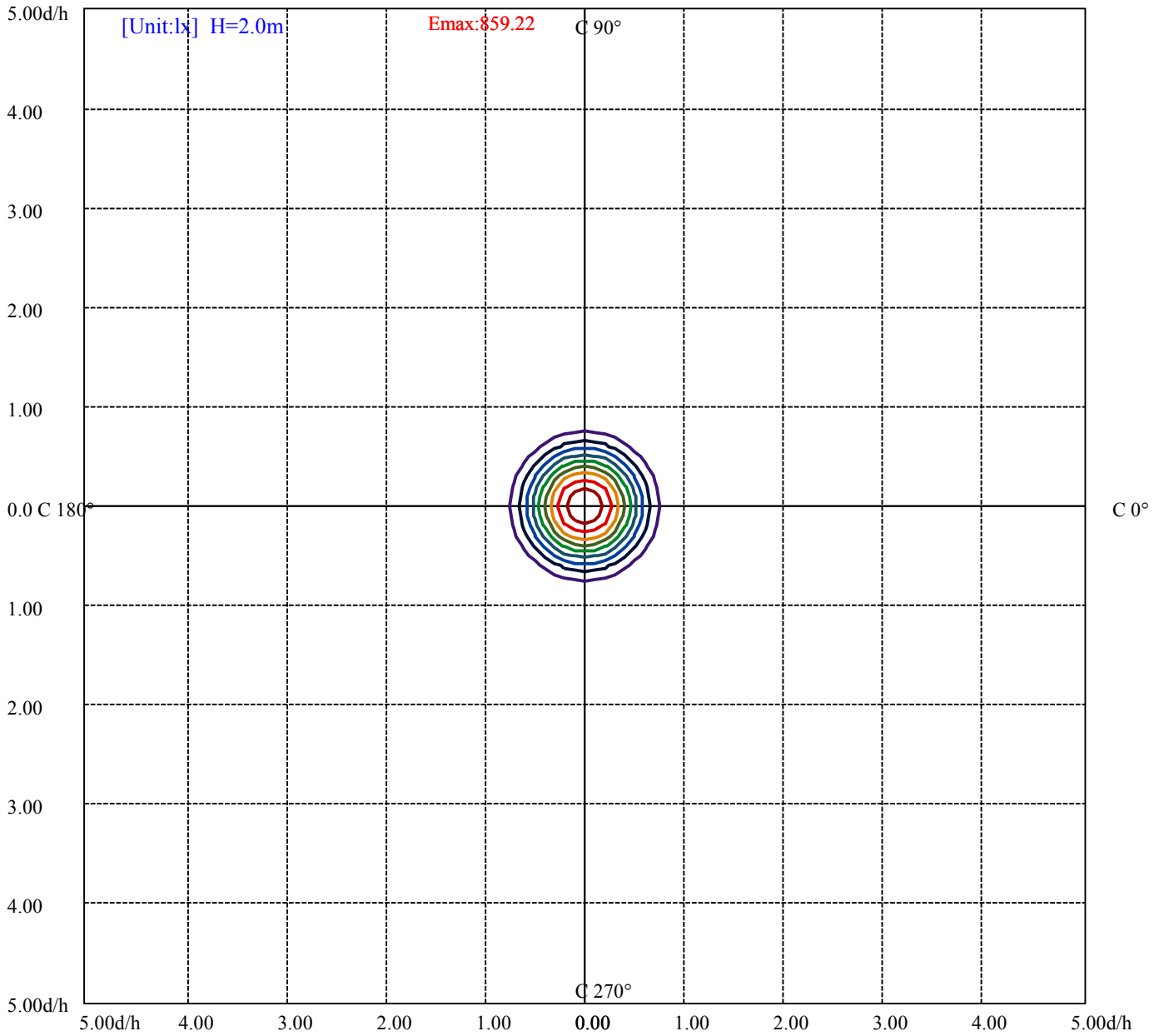
House

[Unit:cd]

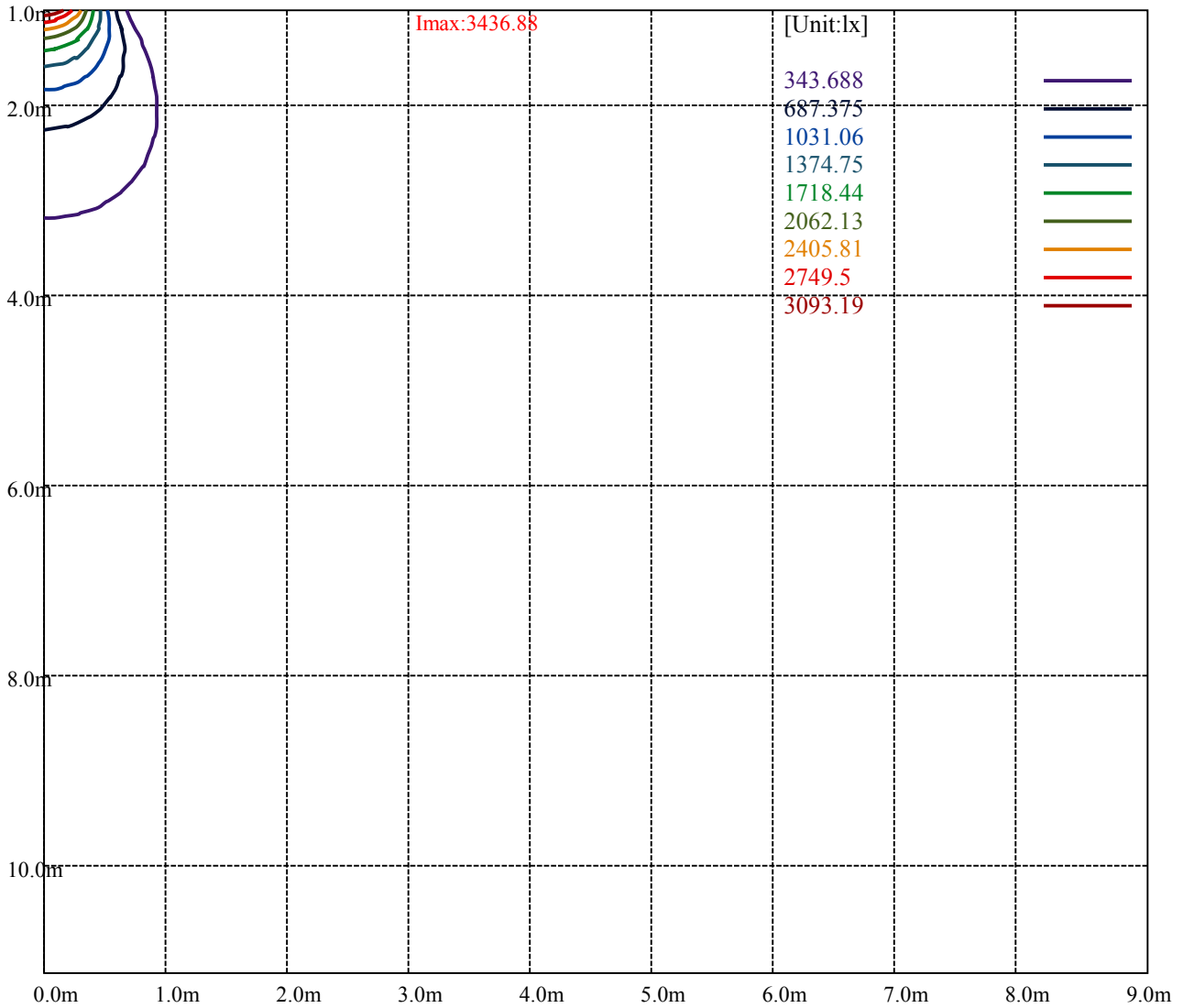
Road

Imax:3436.88

(10%Imax) 343.688	—
(20%Imax) 687.375	—
(30%Imax) 1031.06	—
(40%Imax) 1374.75	—
(50%Imax) 1718.44	—
(60%Imax) 2062.13	—
(70%Imax) 2405.81	—
(80%Imax) 2749.5	—
(90%Imax) 3093.19	—



(10%Emax) 85.92175	—
(20%Emax) 171.8438	—
(30%Emax) 257.765	—
(40%Emax) 343.6875	—
(50%Emax) 429.61	—
(60%Emax) 515.53	—
(70%Emax) 601.4525	—
(80%Emax) 687.375	—
(90%Emax) 773.2975	—



Luminance Table

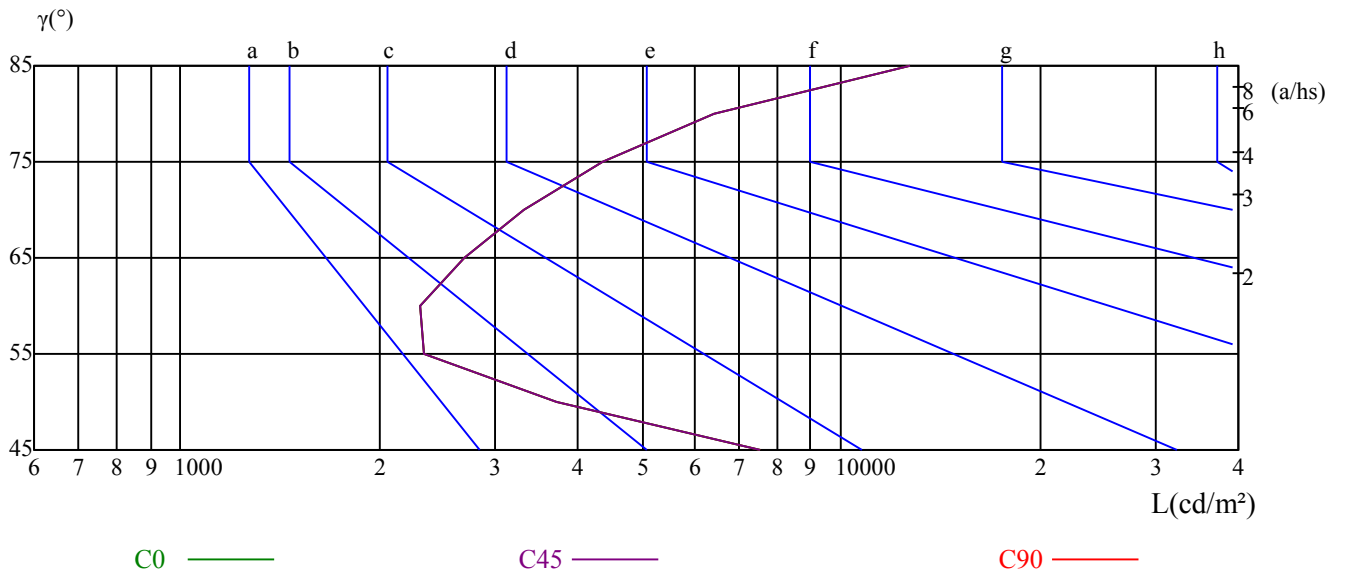
γ	45	50	55	60	65	70	75	80	85
C0	7561	3702	2335	2302	2682	3304	4358	6422	12690
C45	7561	3702	2335	2302	2682	3304	4358	6422	12690
C90	7561	3702	2335	2302	2682	3304	4358	6422	12690

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2682	2682	2682	4358	4358	4358	12690	12690	12690

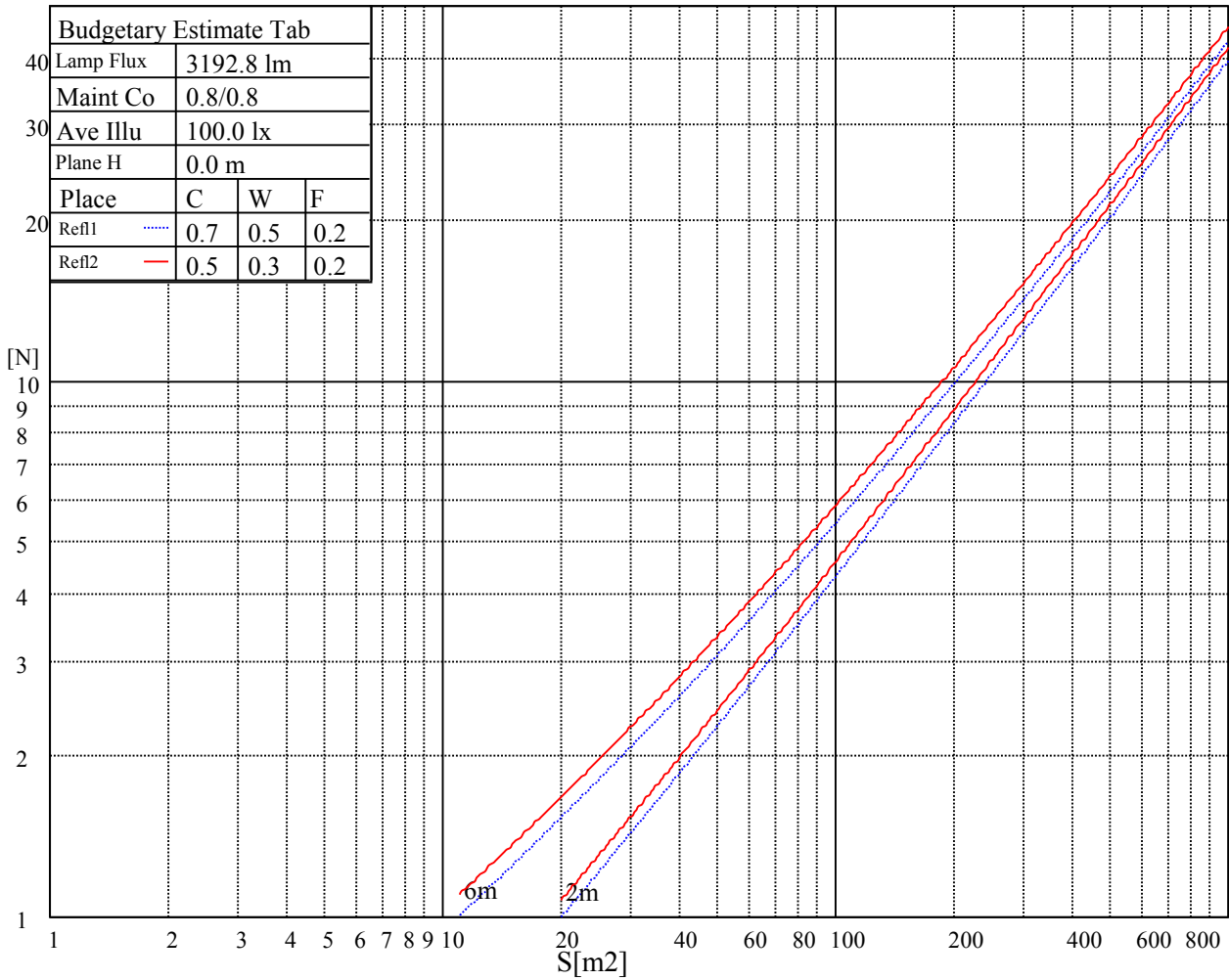
Glare Table

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

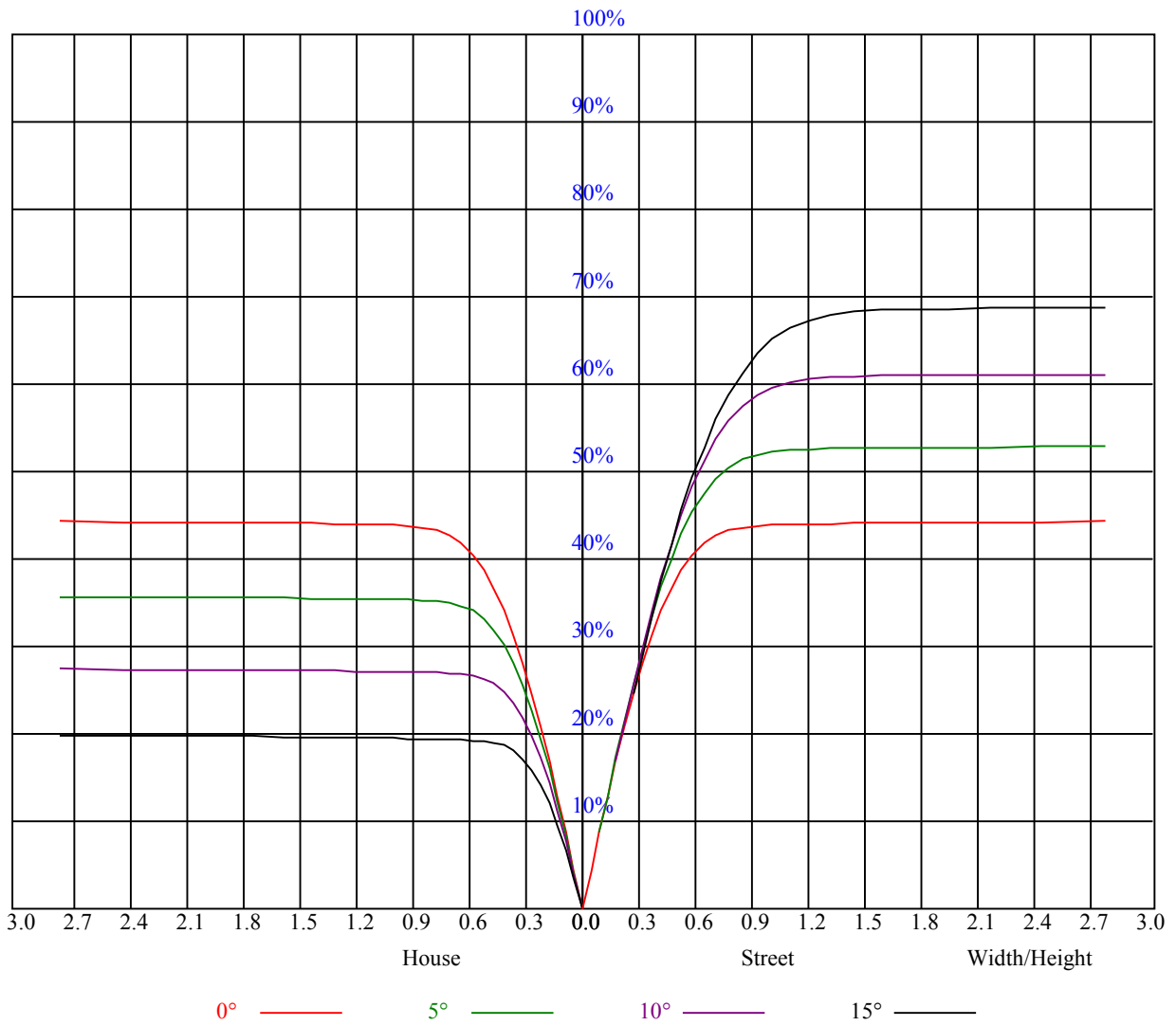
Luminance Limiting Curve



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	-0.22	0.70	0.14	1.01	1.33	-0.22	0.70	0.14	1.01	1.33
	3H	2.88	3.69	3.26	4.03	4.40	2.87	3.69	3.26	4.02	4.39
	4H	4.63	5.39	5.04	5.74	6.13	4.66	5.41	5.07	5.77	6.16
	6H	6.61	7.30	7.03	7.68	8.08	6.67	7.35	7.09	7.73	8.13
	8H	7.72	8.36	8.15	8.75	9.17	7.76	8.41	8.20	8.80	9.21
	12H	9.50	10.12	9.93	10.50	10.93	9.52	10.14	9.96	10.52	10.96
4H	2H	0.61	1.37	1.02	1.72	2.11	0.61	1.37	1.02	1.72	2.11
	3H	4.02	4.64	4.44	5.05	5.46	4.01	4.63	4.43	5.04	5.44
	4H	5.95	6.50	6.39	6.93	7.38	5.98	6.53	6.42	6.95	7.40
	6H	8.10	8.57	8.57	9.02	9.50	8.14	8.61	8.61	9.06	9.54
	8H	9.30	9.74	9.78	10.19	10.66	9.34	9.78	9.81	10.23	10.70
8H	12H	10.98	11.35	11.47	11.84	12.32	11.00	11.37	11.49	11.86	12.34
	4H	6.69	7.13	7.17	7.58	8.06	6.71	7.15	7.19	7.60	8.08
	6H	9.11	9.45	9.62	9.96	10.44	9.15	9.49	9.66	10.00	10.48
	8H	10.49	10.80	11.03	11.32	11.82	10.53	10.84	11.06	11.36	11.86
12H	12H	12.30	12.56	12.82	13.06	13.64	12.32	12.58	12.84	13.08	13.66
	4H	6.91	7.28	7.40	7.77	8.25	6.92	7.30	7.41	7.79	8.27
	6H	9.64	9.74	9.97	10.21	10.76	9.67	9.77	10.00	10.24	10.79
	8H	10.94	11.21	11.47	11.71	12.29	10.98	11.24	11.50	11.74	12.32
Variation with the observer position at spacings:											
S = 1.0H	5.6/-9.7					5.6/-9.7					
S = 1.5H	8.1/-7.6					8.1/-7.6					
S = 2.0H	9.8/-6.2					9.8/-6.2					
Standard tables:	BK1					BK1					
Uncorrected UGR	1.2					1.2					



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	0.99	0.96	0.94	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.83
2	0.93	0.89	0.86	0.91	0.88	0.85	0.88	0.86	0.83	0.86	0.84	0.82	0.83	0.81	0.80	0.79
3	0.87	0.83	0.80	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.77	0.76	0.74
4	0.82	0.78	0.74	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.72	0.76	0.74	0.71	0.70
5	0.78	0.73	0.70	0.77	0.73	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.66
6	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
7	0.70	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.60
8	0.67	0.62	0.59	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
9	0.64	0.59	0.56	0.64	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.54
10	0.61	0.56	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.59	0.55	0.53	0.52



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	3435.19	3388.50	3290.06	3084.75	2793.38	2345.06	1762.31	1046.25	302.63
45.0	3441.38	3387.94	3275.44	3052.13	2694.38	2222.44	1692.56	869.63	295.88
90.0	3435.75	3375.56	3246.19	2981.81	2573.44	2070.56	1292.63	601.37	125.94
135.0	3435.19	3405.94	3292.88	3046.50	2662.31	2181.94	1549.13	762.19	311.63
180.0	3435.19	3393.56	3272.06	3014.44	2632.50	2125.69	1480.50	734.63	154.07
225.0	3441.38	3416.06	3310.31	3078.00	2734.88	2243.81	1632.94	846.90	194.91
270.0	3435.75	3405.94	3340.13	3165.19	2863.69	2421.56	1859.63	1132.31	342.00
315.0	3435.19	3385.69	3294.56	3110.63	2770.31	2287.69	1729.13	958.89	236.48
360.0	3435.19	3388.50	3290.06	3084.75	2793.38	2345.06	1762.31	1046.25	302.63
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	63.45	26.89	14.68	11.70	11.48	11.53	11.70	11.53	11.08
45.0	54.11	24.24	13.28	11.64	11.59	11.64	11.59	11.14	11.08
90.0	39.04	19.80	12.21	11.48	11.31	11.25	11.19	11.14	11.08
135.0	46.69	21.94	12.77	11.42	11.25	11.19	11.14	11.08	11.03
180.0	42.53	21.66	12.54	11.31	11.14	11.08	10.97	10.97	10.97
225.0	51.86	22.67	13.11	11.36	11.25	11.19	11.14	11.08	11.08
270.0	72.79	27.84	14.68	11.64	11.31	11.19	11.14	11.14	11.08
315.0	57.26	25.31	13.89	11.53	11.36	11.31	11.36	11.14	11.08
360.0	63.45	26.89	14.68	11.70	11.48	11.53	11.70	11.53	11.08
C/γ(°)	90.0								
0.0	10.97								
45.0	10.97								
90.0	10.97								
135.0	10.97								
180.0	10.91								
225.0	11.03								
270.0	11.03								
315.0	10.97								
360.0	10.97								