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Nata

LumCAT: 2-1122-A4

Luminaire: 99.02.73.172+92.76.365.00

Report No: NATA0100

Test No: GC2018082814

LampCAT: SAMSUNG LC026D

Lamp flux(lm): 2486.0

Number of Lamps: 1

Length(mm): 70

Phm Type: C

Voltage(V): 34.5000

Current(A): 0.5000

Power (W): 17.2500

PF: 0.0000

Ballast type: DC

Width(mm): 70

Height(mm): 0

Photometric Results

Lumens(lm): 2296.65

Efficiency(%): 92.38%

Lumens(lm)/Power(W): 133.14

Central intensity(cd): 4834.916

Maximum intensity(cd): 4834.916

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=36.8

[C90/270]Total=36.8

Field angle(10%Imax): [C0/180]Total=71.8

[C90/270]Total=71.8

Maximum s/h(1/2): C0_180=0.60 C90_270=0.60

Maximum s/h(1/4): C0_180=0.61 C90_270=0.61

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 93.46%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.564%

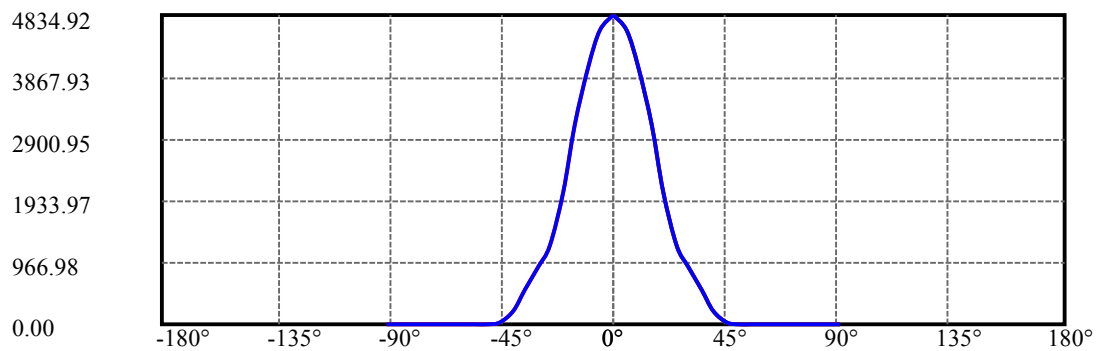
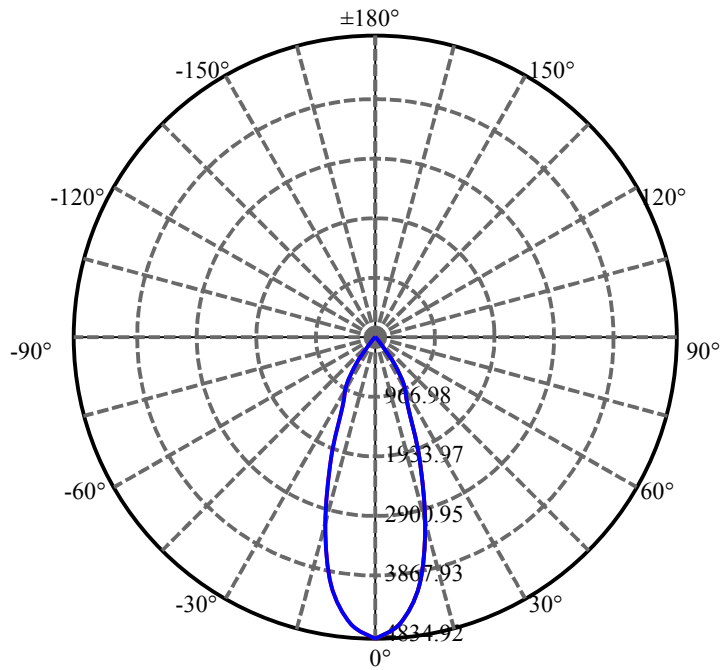
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4834.915	28.914	28.914	1.163%	1.259%
5.0	4592.530	219.400	248.314	8.825%	10.812%
10.0	4022.696	382.892	631.207	15.402%	27.484%
15.0	3123.418	443.114	1074.321	17.824%	46.778%
20.0	2078.586	389.681	1464.002	15.675%	63.745%
25.0	1224.909	283.754	1747.755	11.414%	76.100%
30.0	903.599	247.648	1995.404	9.962%	86.883%
35.0	543.937	171.013	2166.417	6.879%	94.329%
40.0	213.185	75.113	2241.529	3.021%	97.600%
45.0	24.314	9.424	2250.953	.379%	98.010%
50.0	12.649	5.311	2256.265	.214%	98.242%
55.0	11.665	5.238	2261.503	.211%	98.470%
60.0	11.115	5.276	2266.779	.212%	98.699%
65.0	10.729	5.330	2272.109	.214%	98.931%
70.0	10.488	5.402	2277.511	.217%	99.167%
75.0	10.302	5.455	2282.966	.219%	99.404%
80.0	10.151	5.480	2288.445	.220%	99.643%
85.0	10.034	5.479	2293.924	.220%	99.881%
90.0	9.945	2.725	2296.65	.110%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1995.40	80.27%	86.88%
0-40	2241.53	90.17%	97.60%
0-60	2266.78	91.18%	98.70%
0-90	2293.92	92.27%	99.88%
0-120	2293.92	92.27%	99.88%
0-180	2296.65	92.38%	100.00%
60-90	32.42	1.30%	1.41%
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%
0-26.81	1837.32	73.91%	80.00%

ZONAL LUMEN SUMMARY

0-10	631.21
10-20	832.80
20-30	531.40
30-40	246.13
40-50	14.74
50-60	10.51
60-70	10.73
70-80	10.93
80-90	5.48
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: —————

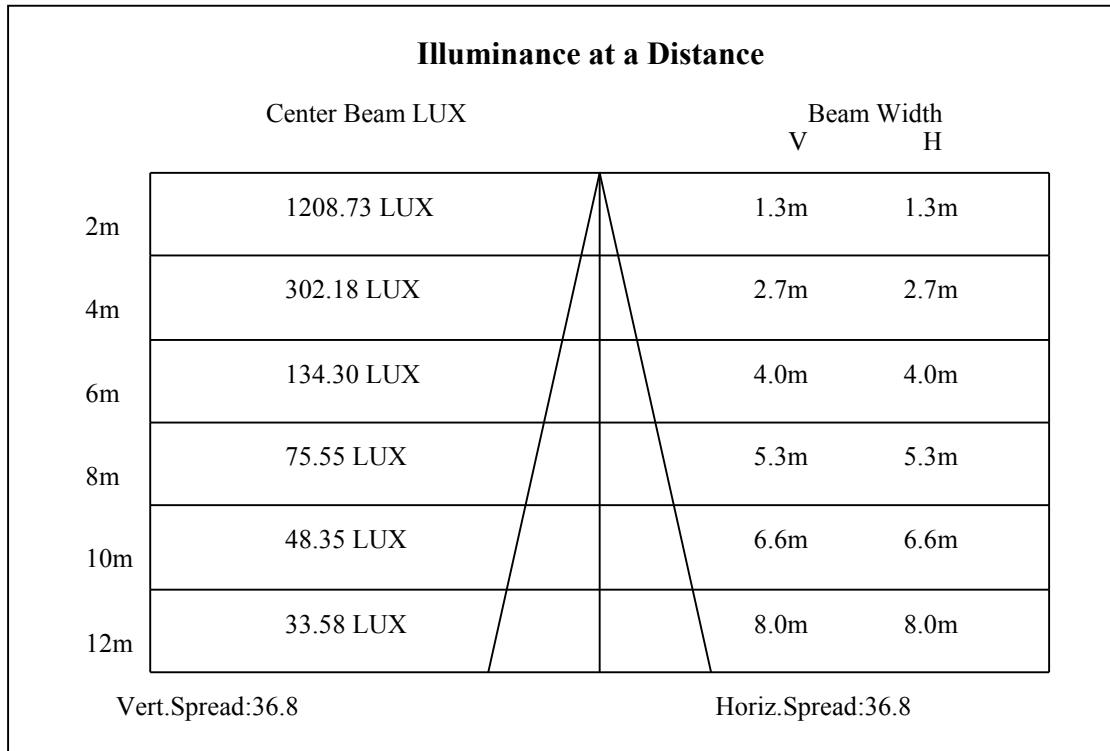
C90/C270: —————

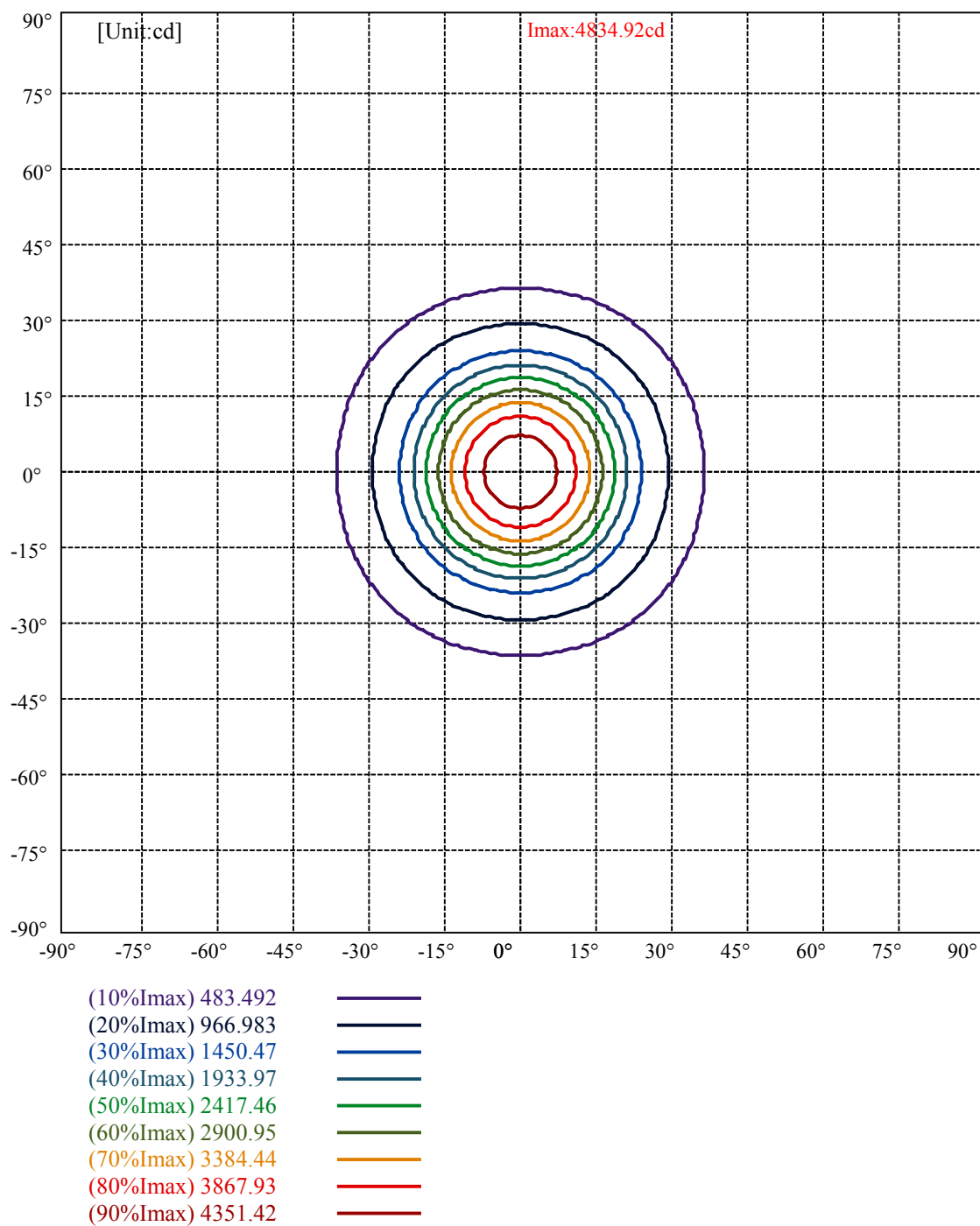
Field angle(10%Imax):C0/180Left:35.9 Right:35.9

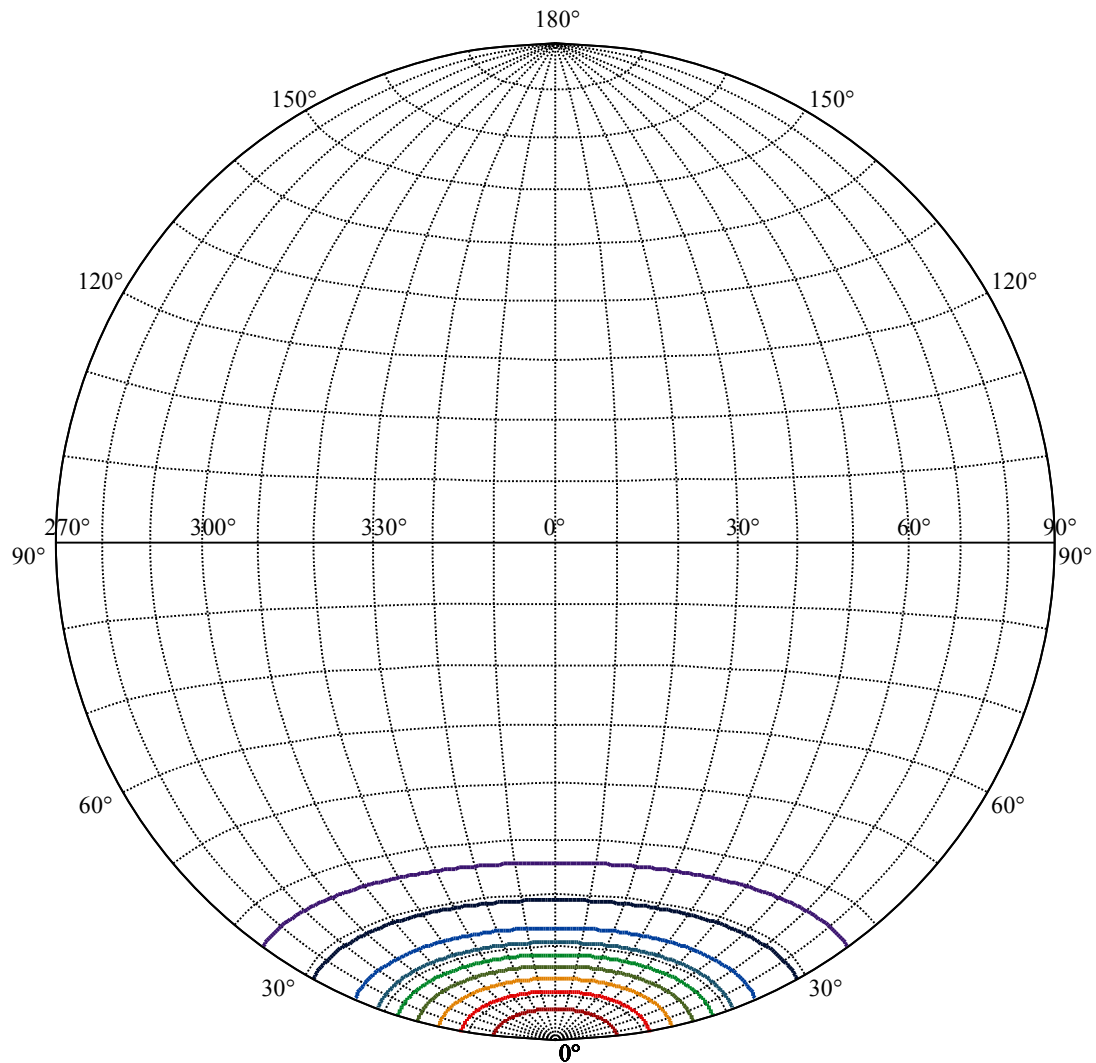
:C90/270Left:35.9 Right:35.9

Beam Angle(50%Imax):C0/180Left:18.4 Right:18.4

:C90/270Left:18.4 Right:18.4







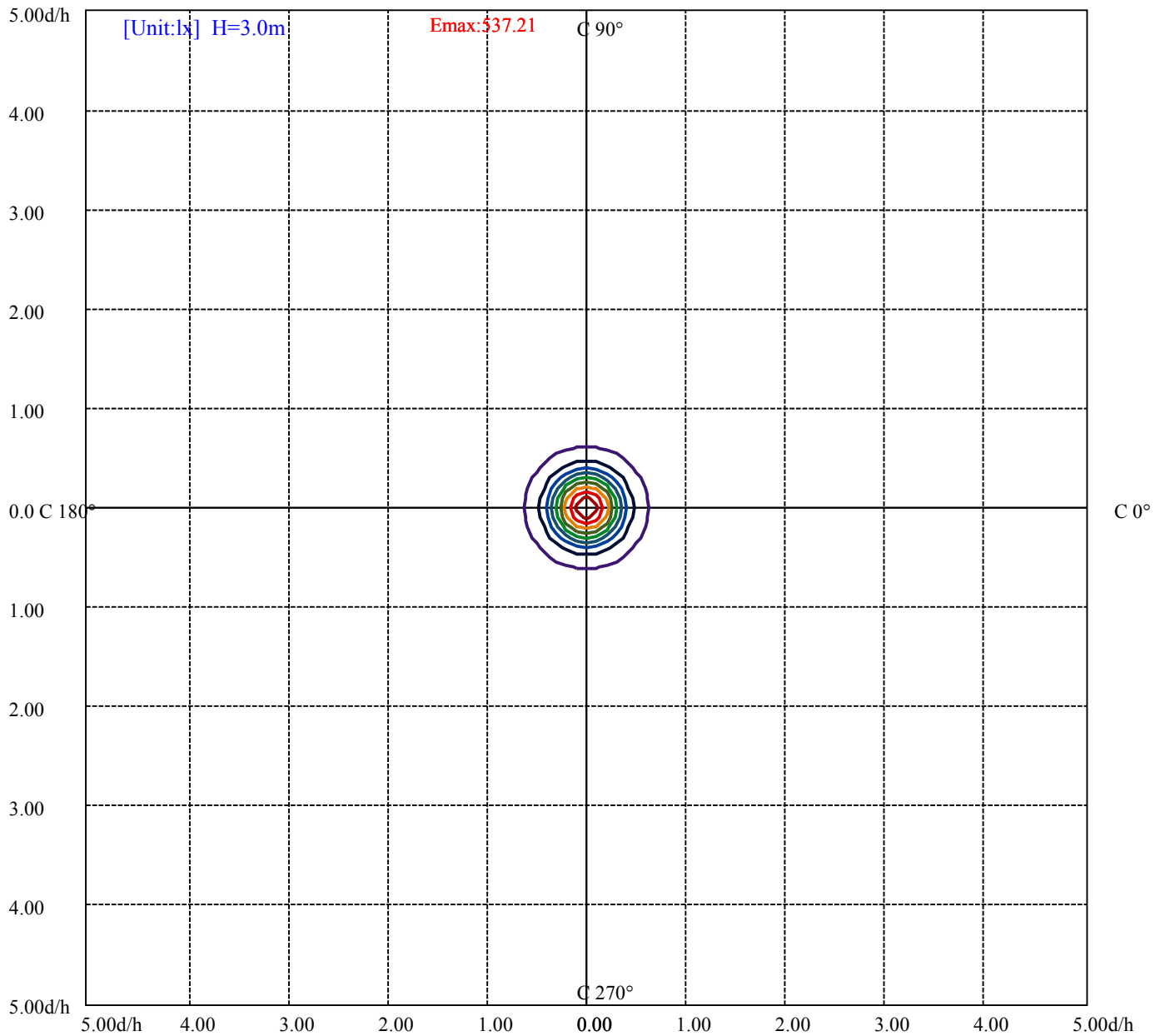
House

[Unit:cd]

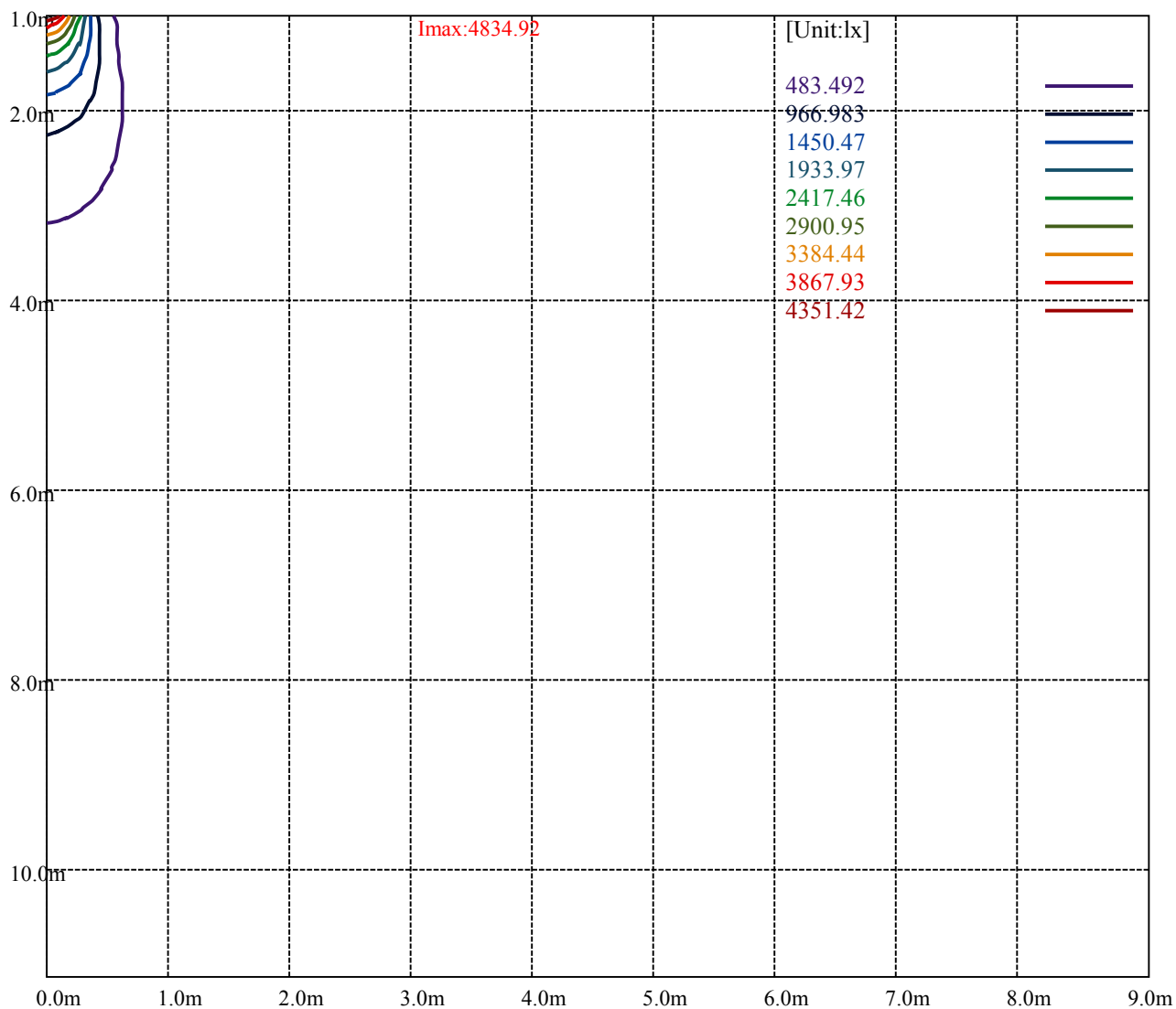
Road

Imax:4834.92

(10%Imax)	483.492	—
(20%Imax)	966.983	—
(30%Imax)	1450.47	—
(40%Imax)	1933.97	—
(50%Imax)	2417.46	—
(60%Imax)	2900.95	—
(70%Imax)	3384.44	—
(80%Imax)	3867.93	—
(90%Imax)	4351.42	—



(10%Emax)	53.72122	—
(20%Emax)	107.4424	—
(30%Emax)	161.1633	—
(40%Emax)	214.8844	—
(50%Emax)	268.6056	—
(60%Emax)	322.3267	—
(70%Emax)	376.0489	—
(80%Emax)	429.77	—
(90%Emax)	483.4911	—



Luminance Table

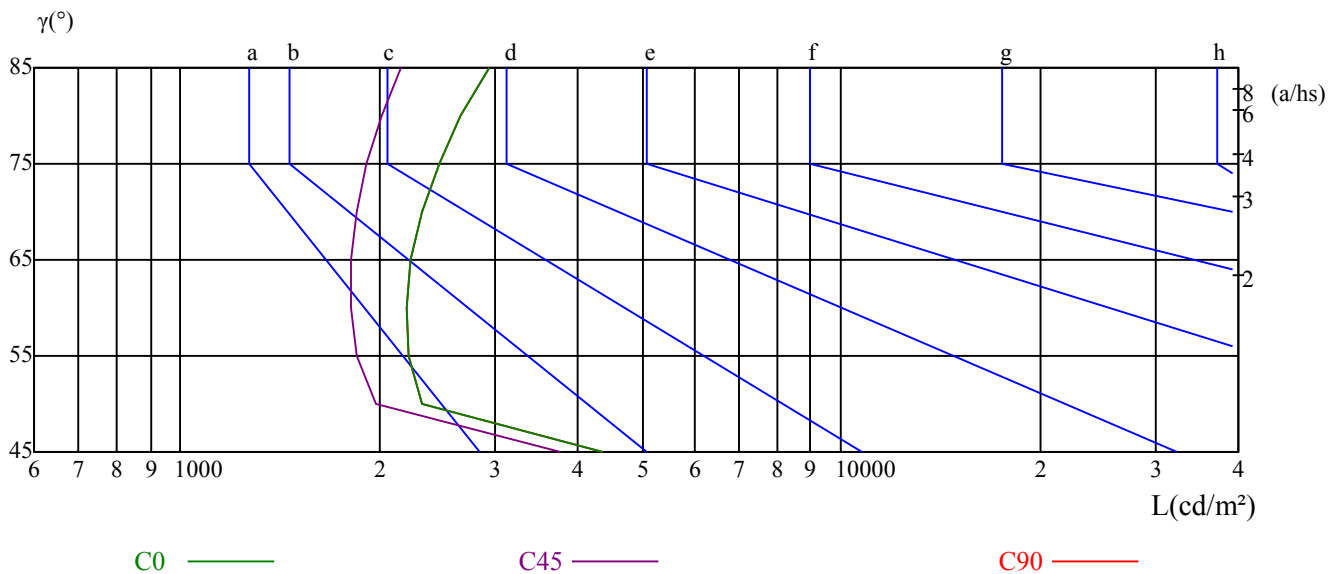
γ	45	50	55	60	65	70	75	80	85
C0	4347	2319	2211	2198	2236	2328	2467	2661	2929
C45	3755	1973	1852	1811	1810	1848	1915	2013	2150
C90	4347	2319	2211	2198	2236	2328	2467	2661	2929

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5181	5181	5181	8124	8124	8124	23495	23495	23495

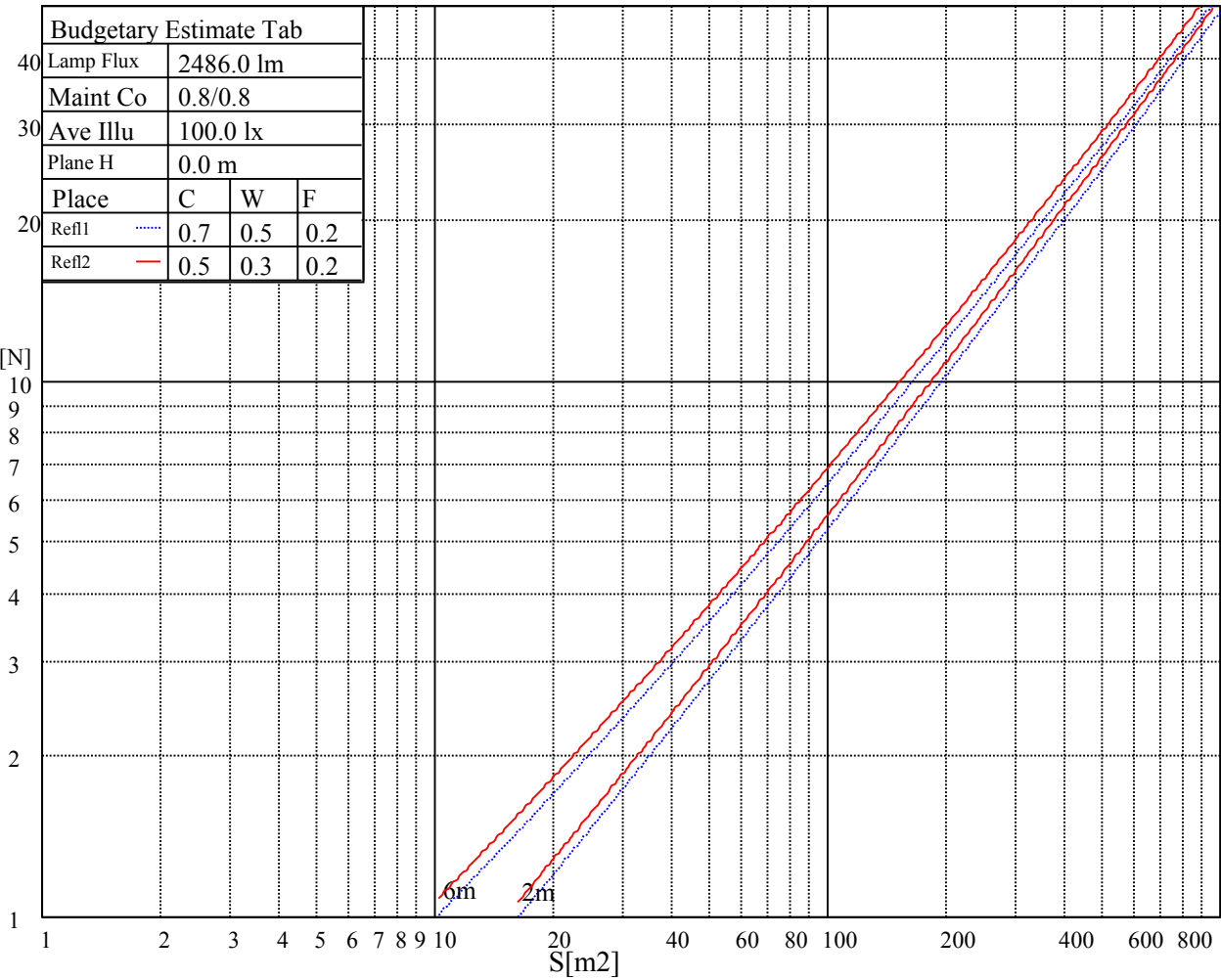
Glare Table

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

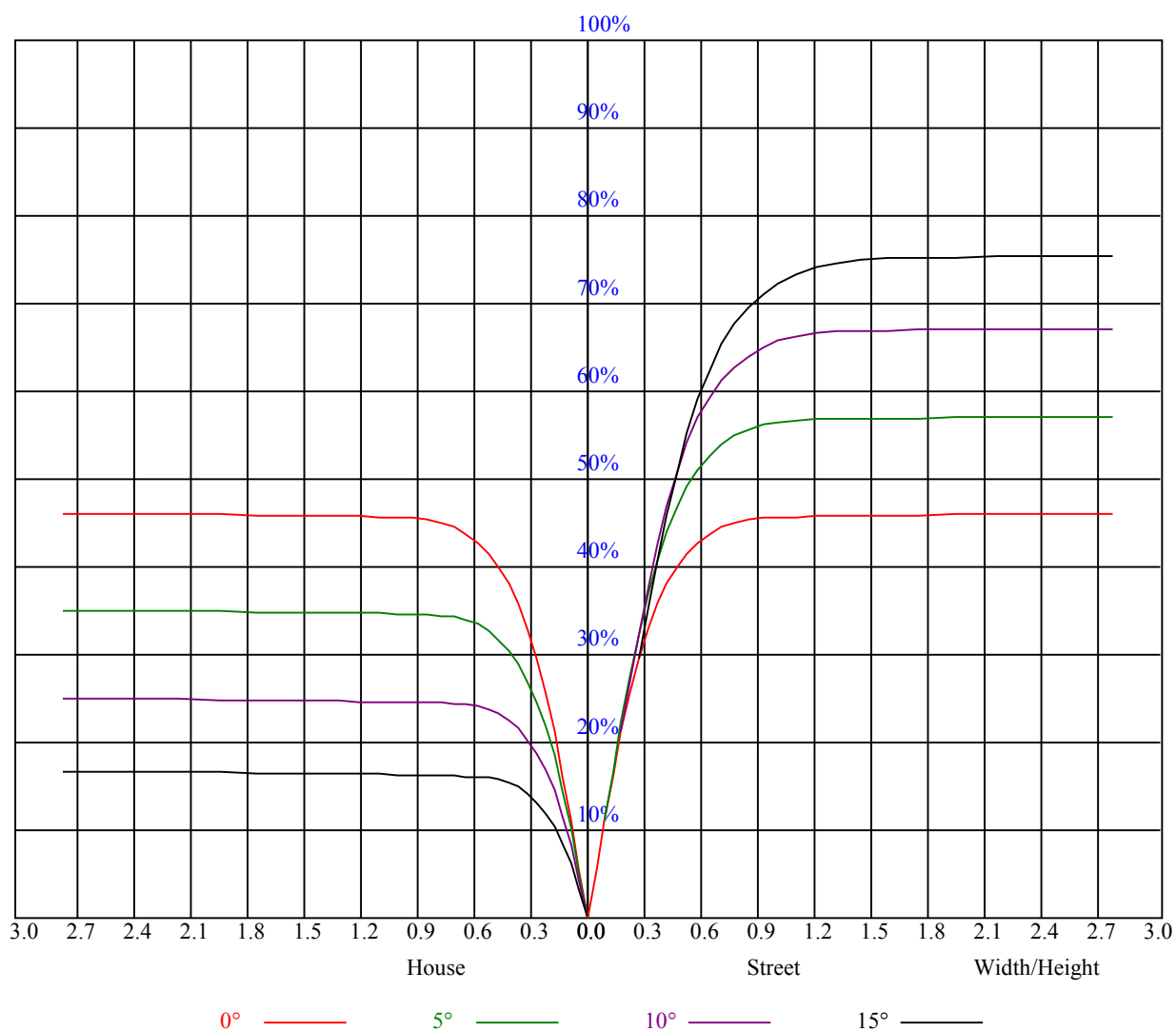
Luminance Limiting Curve



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	1.13	2.05	1.49	2.36	2.67	1.15	2.07	1.52	2.38	2.70
	3H	3.37	4.18	3.75	4.51	4.88	3.40	4.21	3.79	4.55	4.92
	4H	4.60	5.35	5.00	5.70	6.09	4.63	5.39	5.04	5.74	6.13
	6H	5.89	6.58	6.31	6.95	7.35	5.93	6.62	6.35	6.99	7.39
	8H	6.54	7.18	6.97	7.57	7.98	6.57	7.22	7.01	7.61	8.02
	12H	7.53	8.15	7.97	8.53	8.97	7.57	8.18	8.00	8.57	9.00
4H	2H	1.62	2.37	2.02	2.72	3.11	1.64	2.39	2.04	2.74	3.13
	3H	4.15	4.76	4.57	5.17	5.58	4.18	4.80	4.60	5.21	5.61
	4H	5.55	6.10	5.99	6.53	6.98	5.59	6.14	6.03	6.56	7.01
	6H	6.94	7.41	7.41	7.86	8.34	6.98	7.45	7.45	7.90	8.38
	8H	7.70	8.14	8.18	8.59	9.06	7.73	8.17	8.21	8.62	9.10
	12H	8.70	9.07	9.19	9.56	10.04	8.73	9.10	9.22	9.59	10.07
8H	4H	5.98	6.42	6.46	6.88	7.35	6.02	6.45	6.49	6.91	7.38
	6H	7.61	7.96	8.12	8.46	8.95	7.64	7.99	8.15	8.49	8.98
	8H	8.52	8.83	9.06	9.35	9.85	8.55	8.86	9.09	9.38	9.88
	12H	9.65	9.92	10.18	10.42	11.00	9.68	9.94	10.20	10.44	11.02
12H	4H	6.07	6.45	6.57	6.94	7.42	6.10	6.48	6.60	6.97	7.45
	6H	7.99	8.09	8.32	8.56	9.11	8.02	8.12	8.35	8.59	9.14
	8H	8.79	9.05	9.31	9.55	10.13	8.82	9.08	9.34	9.58	10.16
Variation with the observer position at spacings:											
S = 1.0H		5.2/-8.6					5.2/-8.6				
S = 1.5H		7.7/-6.8					7.7/-6.8				
S = 2.0H		9.4/-5.6					9.4/-5.6				
Standard tables:		BK1					BK1				
Uncorrected UGR		-1.5					-1.5				



RHOC	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	1.11	1.11	1.11	1.09	1.09	1.09	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.03	1.01	0.98	1.01	0.99	0.97	0.97	0.95	0.94	0.94	0.92	0.91	0.91	0.89	0.88	0.87
2	0.97	0.94	0.91	0.96	0.92	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.83
3	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.79
4	0.88	0.83	0.80	0.87	0.83	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.79	0.77	0.75
5	0.84	0.79	0.76	0.83	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.78	0.76	0.73	0.72
6	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.66
8	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.64
9	0.71	0.66	0.63	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	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	4820.74	4796.51	4359.92	3595.18	2503.41	1474.96	1000.93	690.41	293.45
45.0	4827.90	4775.04	4358.82	3554.44	2530.39	1536.62	1005.88	687.10	323.18
90.0	4846.06	4610.42	4026.27	3155.83	2163.72	1097.27	910.74	569.17	212.13
135.0	4844.96	4584.55	3996.54	3186.11	2081.68	1251.98	932.66	546.16	279.14
180.0	4820.74	4392.40	3743.28	2716.48	1698.49	1087.20	792.92	396.19	59.19
225.0	4827.90	4416.07	3701.99	2682.90	1683.62	1068.81	800.91	397.62	66.67
270.0	4846.06	4558.67	3965.71	3008.83	2005.70	1199.68	891.91	535.15	287.94
315.0	4844.96	4606.57	4029.03	3087.56	1961.66	1082.74	892.85	529.70	183.78
360.0	4820.74	4796.51	4359.92	3595.18	2503.41	1474.96	1000.93	690.41	293.45
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	34.80	13.21	11.95	11.34	10.85	10.57	10.41	10.24	10.08
45.0	33.97	13.49	12.00	11.34	10.90	10.63	10.41	10.19	10.08
90.0	22.30	12.83	11.84	11.23	10.79	10.52	10.30	10.13	10.02
135.0	24.00	12.72	11.78	11.18	10.85	10.52	10.30	10.13	10.02
180.0	18.50	12.33	11.51	11.07	10.68	10.46	10.30	10.13	10.02
225.0	16.90	12.00	11.29	10.85	10.57	10.35	10.24	10.13	10.02
270.0	21.42	12.28	11.45	10.90	10.57	10.41	10.24	10.13	10.02
315.0	22.63	12.33	11.51	11.01	10.63	10.46	10.24	10.13	10.02
360.0	34.80	13.21	11.95	11.34	10.85	10.57	10.41	10.24	10.08
C/ γ (°)	90.0								
0.0	9.97								
45.0	9.97								
90.0	9.91								
135.0	9.91								
180.0	9.97								
225.0	9.97								
270.0	9.91								
315.0	9.97								
360.0	9.97								