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NATA

LumCAT: 2-1121-A4
Luminaire: 99.02.73.172+92.76.365.00
Report No: NATA0100
Test No: GC2019011505
LampCAT: LUMINUS CLM-14-AC30
Lamp flux(lm): 3532.9
Number of Lamps: 1
Length(mm): 71
Phm Type: C

Voltage(V): 35.1000
Current(A): 0.7000
Power (W): 24.5700
PF: 0.0000
Ballast type: DC
Width(mm): 71
Height(mm): 0

Photometric Results

Lumens(lm): 3238.53
Efficiency(%): 91.67%
Lumens(lm)/Power(W): 134.17
Central intensity(cd): 10207.690
Maximum intensity(cd): 10207.690
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=27.2
 [C90/270]Total=27.2
Field angle(10%Imax): [C0/180]Total=63.9
 [C90/270]Total=63.9
Maximum s/h(1/2): C0_180=0.46 C90_270=0.46
Maximum s/h(1/4): C0_180=0.45 C90_270=0.45
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.31%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.057%

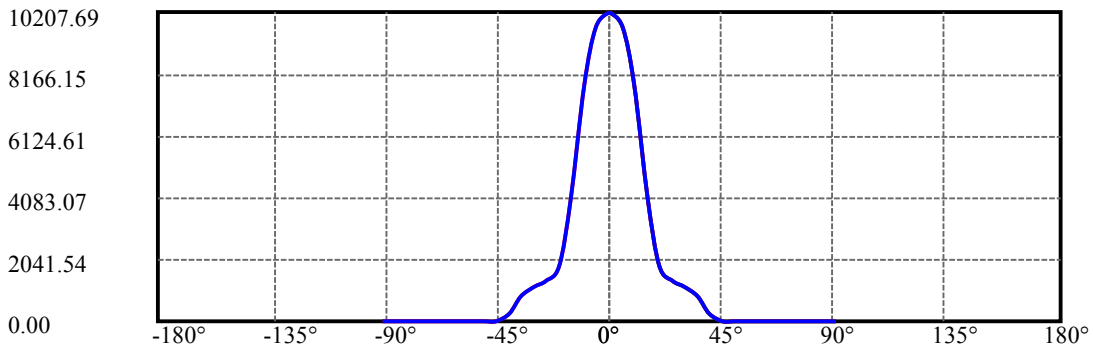
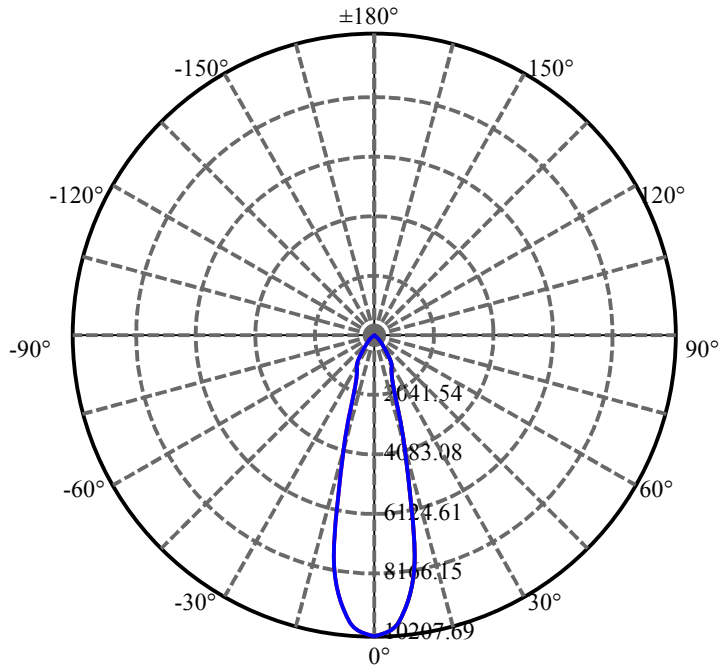
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10207.688	61.044	61.044	1.728%	1.885%
5.0	9729.984	464.834	525.878	13.157%	16.238%
10.0	7775.227	740.070	1265.948	20.948%	39.090%
15.0	4051.688	574.806	1840.754	16.270%	56.839%
20.0	1846.195	346.114	2186.868	9.797%	67.527%
25.0	1332.703	308.725	2495.592	8.738%	77.059%
30.0	1150.966	315.444	2811.036	8.929%	86.800%
35.0	815.309	256.332	3067.368	7.255%	94.715%
40.0	279.443	98.458	3165.826	2.787%	97.755%
45.0	31.184	12.087	3177.912	.342%	98.128%
50.0	17.487	7.343	3185.255	.208%	98.355%
55.0	15.891	7.135	3192.39	.202%	98.575%
60.0	14.927	7.086	3199.476	.201%	98.794%
65.0	14.259	7.084	3206.56	.201%	99.013%
70.0	13.767	7.091	3213.651	.201%	99.232%
75.0	13.402	7.096	3220.746	.201%	99.451%
80.0	13.184	7.117	3227.863	.201%	99.671%
85.0	13.057	7.130	3234.993	.202%	99.891%
90.0	12.902	3.536	3238.529	.100%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2811.04	79.57%	86.80%
0-40	3165.83	89.61%	97.76%
0-60	3199.48	90.56%	98.79%
0-90	3234.99	91.57%	99.89%
0-120	3234.99	91.57%	99.89%
0-180	3238.53	91.67%	100.00%
60-90	42.60	1.21%	1.32%
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%
0-26.51	2590.82	73.33%	80.00%

ZONAL LUMEN SUMMARY

0-10	1265.95
10-20	920.92
20-30	624.17
30-40	354.79
40-50	19.43
50-60	14.22
60-70	14.18
70-80	14.21
80-90	7.13
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: —————

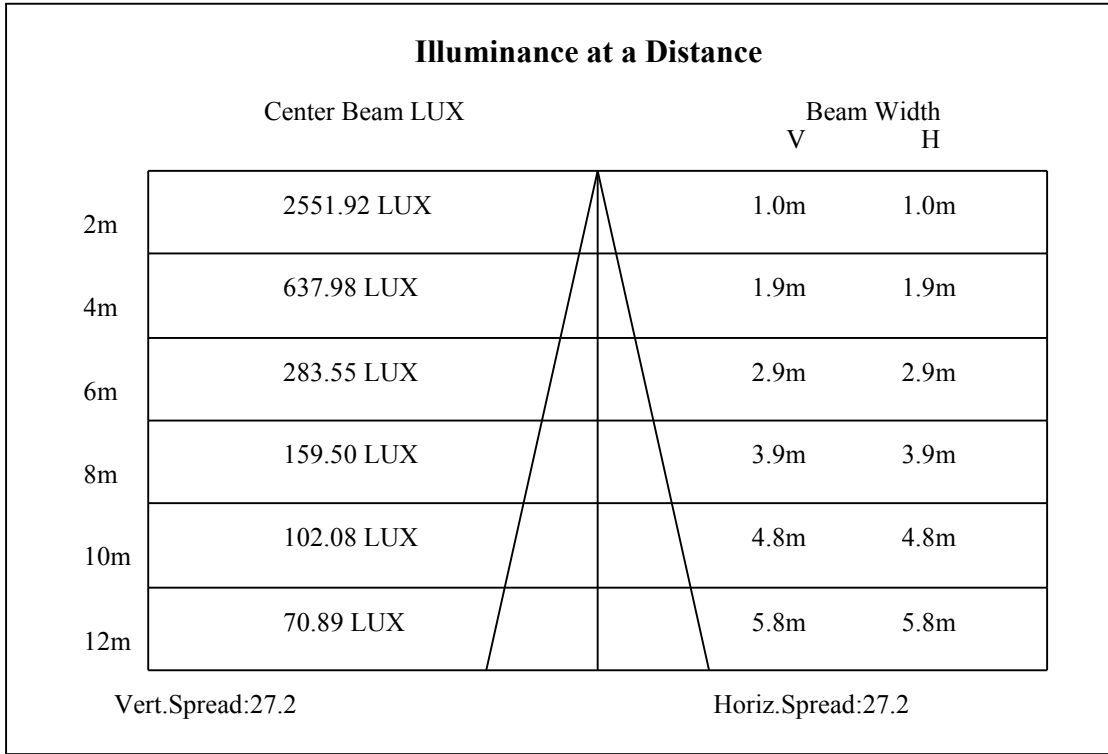
C90/C270: —————

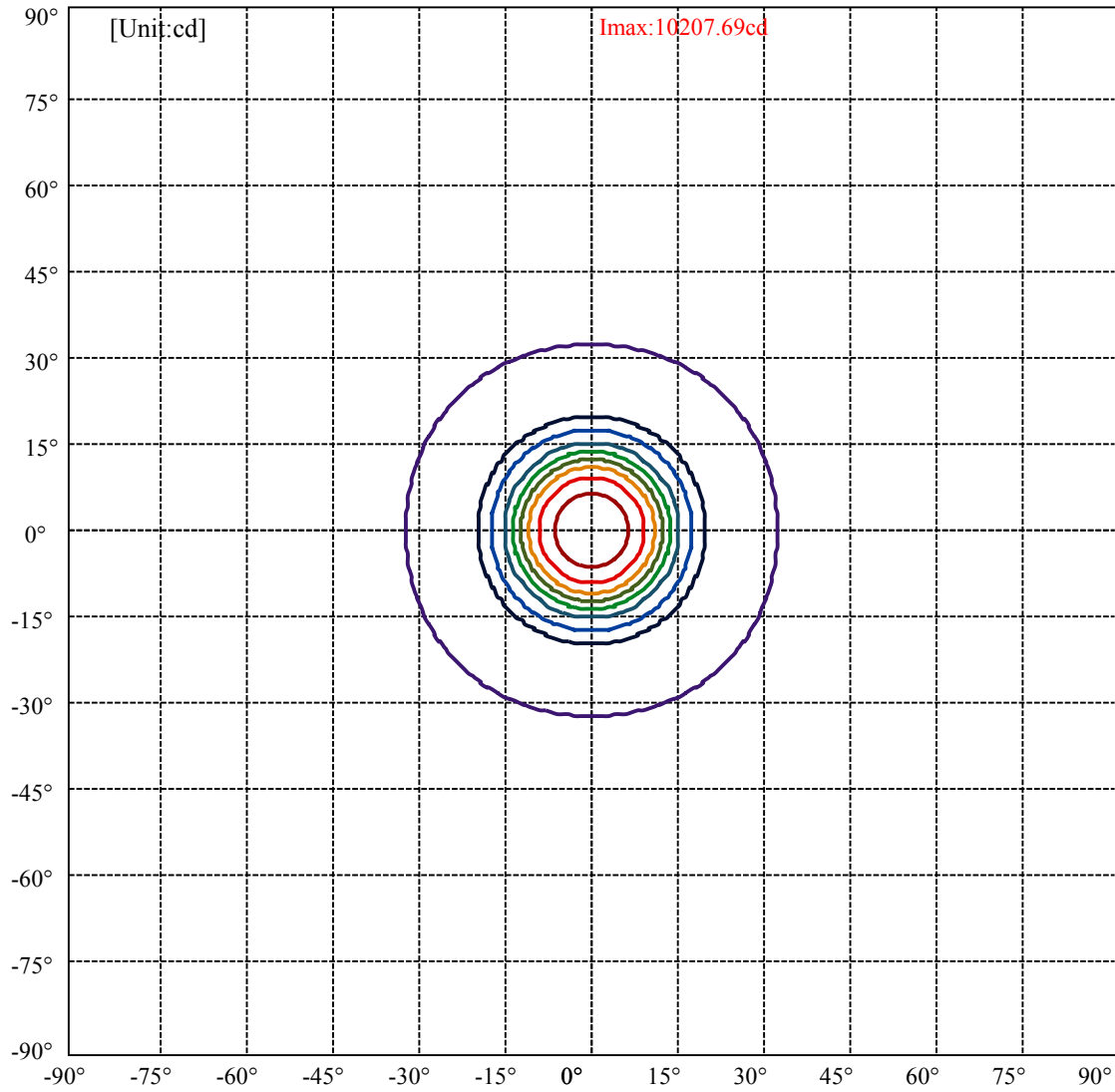
Field angle(10%Imax):C0/180Left:31.9 Right:31.9

:C90/270Left:31.9 Right:31.9

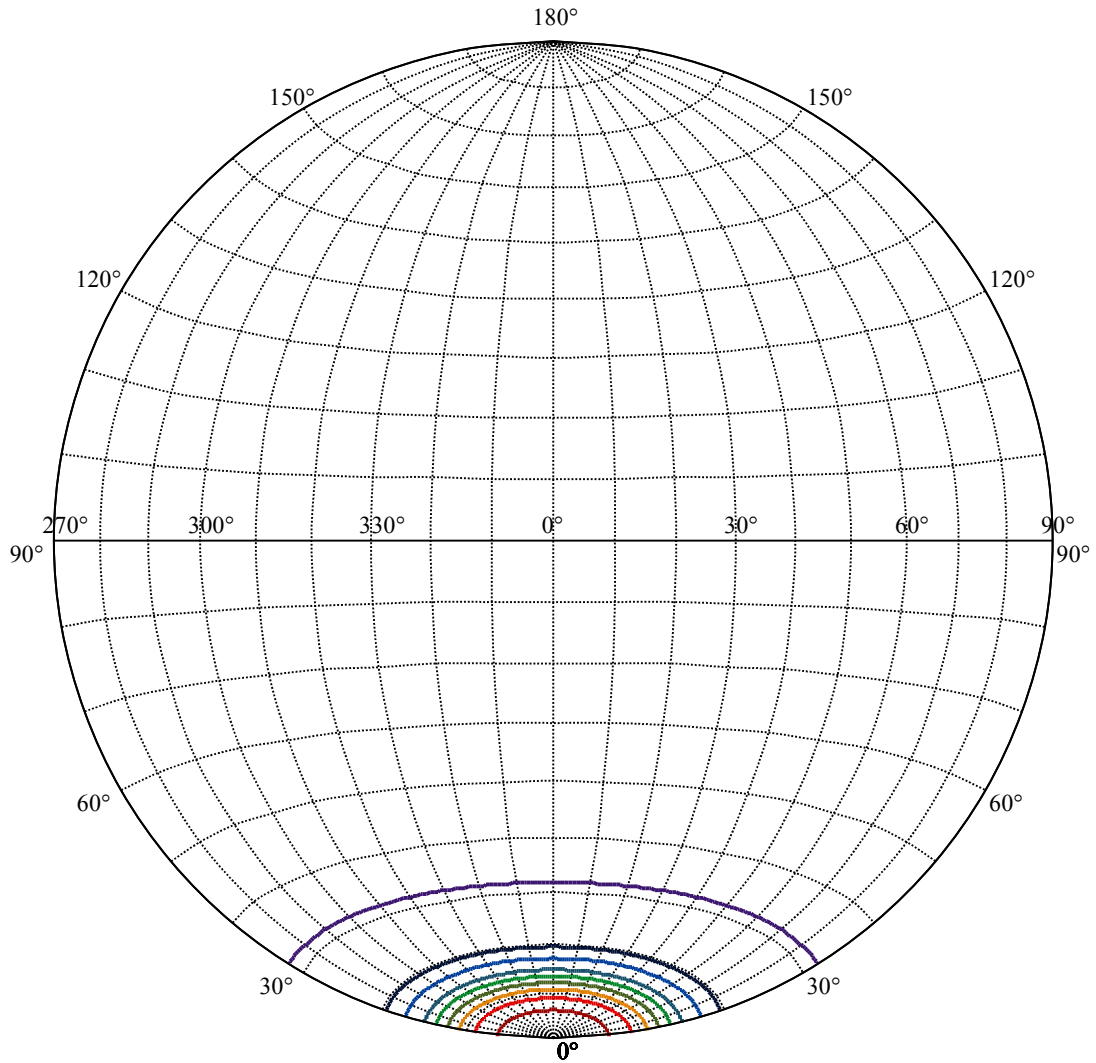
Beam Angle(50%Imax):C0/180Left:13.6 Right:13.6

:C90/270Left:13.6 Right:13.6





(10%Imax) 1020.77	—
(20%Imax) 2041.54	—
(30%Imax) 3062.31	—
(40%Imax) 4083.07	—
(50%Imax) 5103.84	—
(60%Imax) 6124.61	—
(70%Imax) 7145.38	—
(80%Imax) 8166.15	—
(90%Imax) 9186.92	—



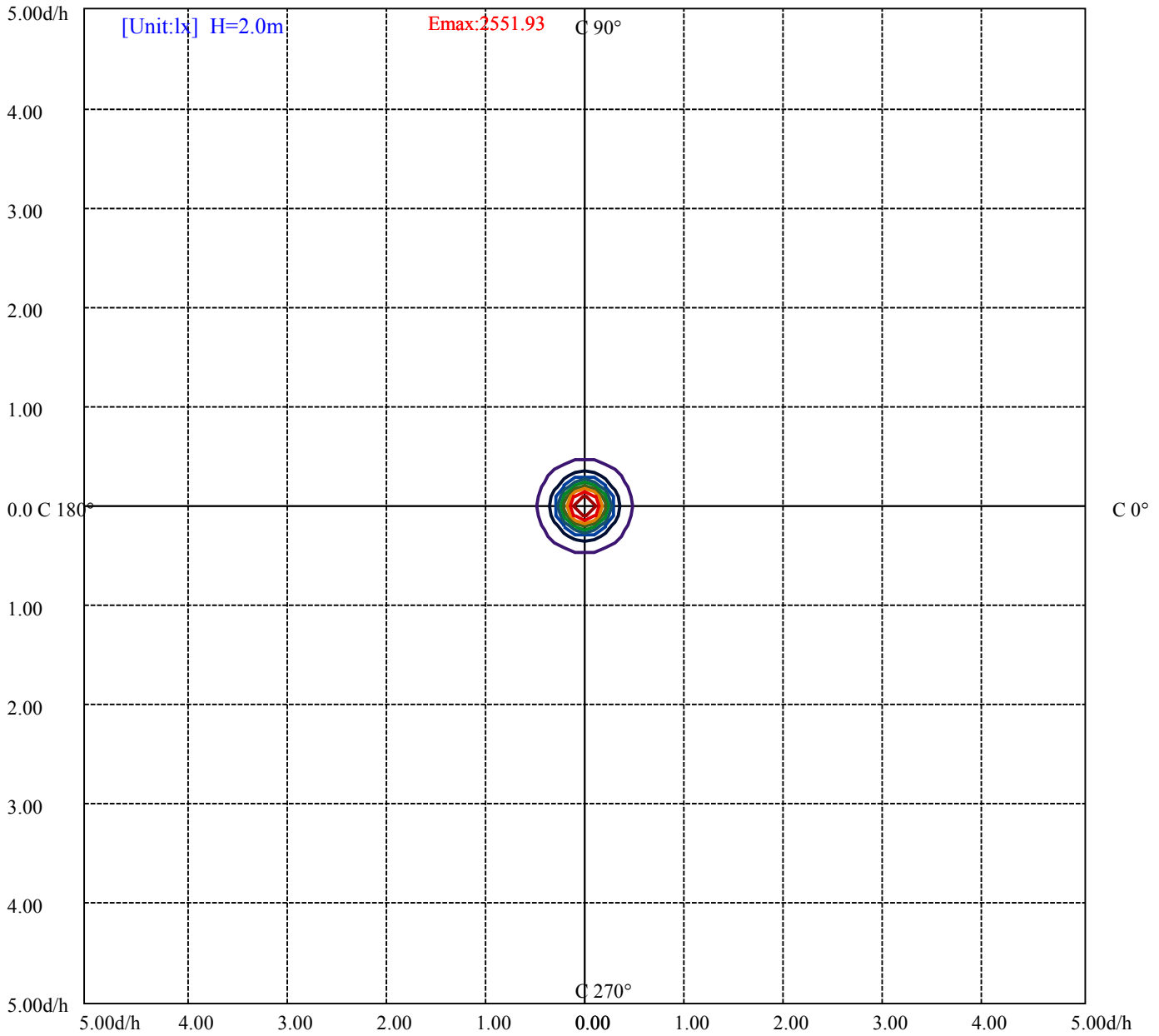
House

[Unit:cd]

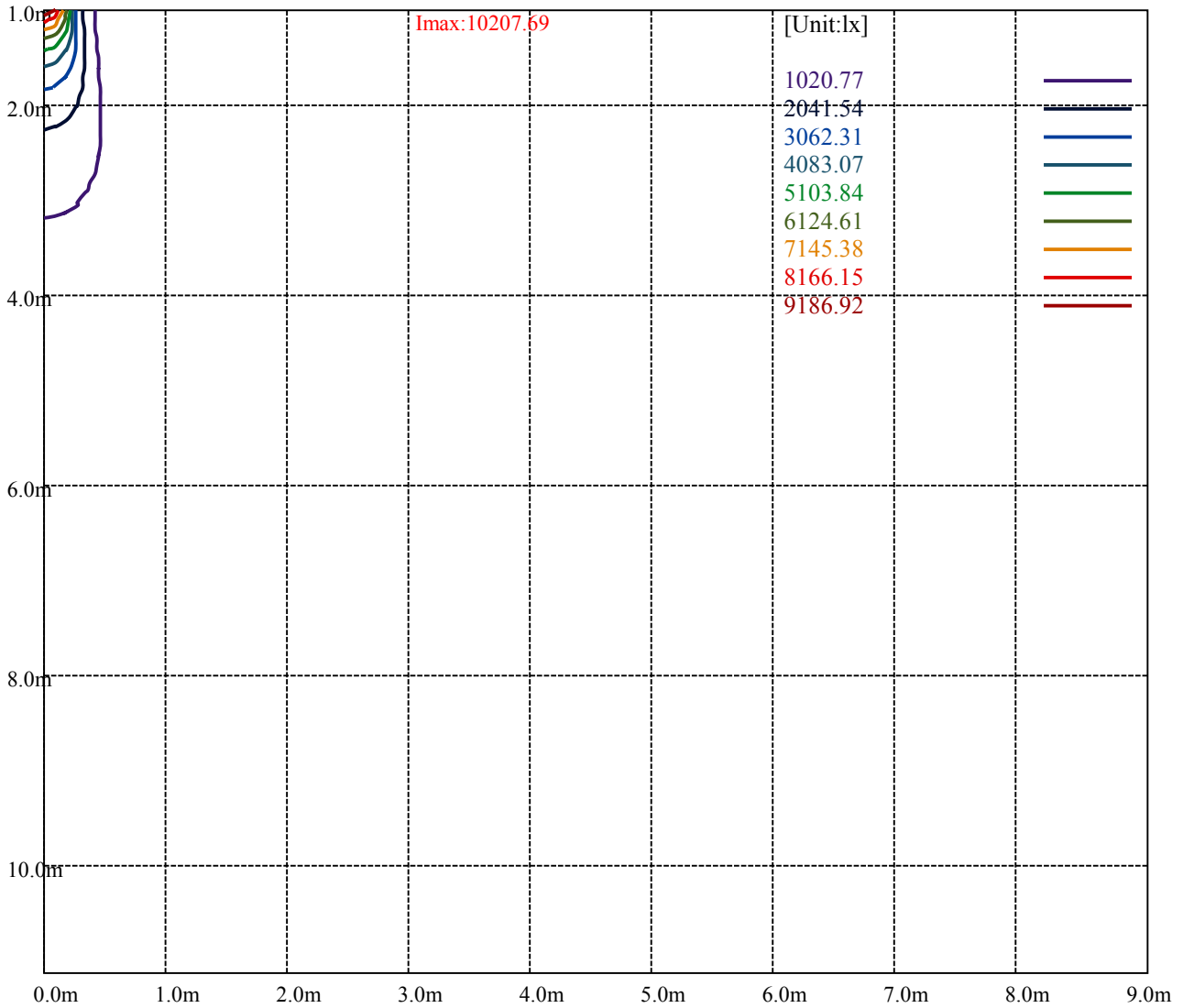
Road

Imax:10207.69

(10%Imax) 1020.77	—
(20%Imax) 2041.54	—
(30%Imax) 3062.31	—
(40%Imax) 4083.07	—
(50%Imax) 5103.84	—
(60%Imax) 6124.61	—
(70%Imax) 7145.38	—
(80%Imax) 8166.15	—
(90%Imax) 9186.92	—



(10%Emax) 255.1925	—
(20%Emax) 510.3825	—
(30%Emax) 765.575	—
(40%Emax) 1020.768	—
(50%Emax) 1275.96	—
(60%Emax) 1531.15	—
(70%Emax) 1786.343	—
(80%Emax) 2041.535	—
(90%Emax) 2296.728	—



Luminance Table

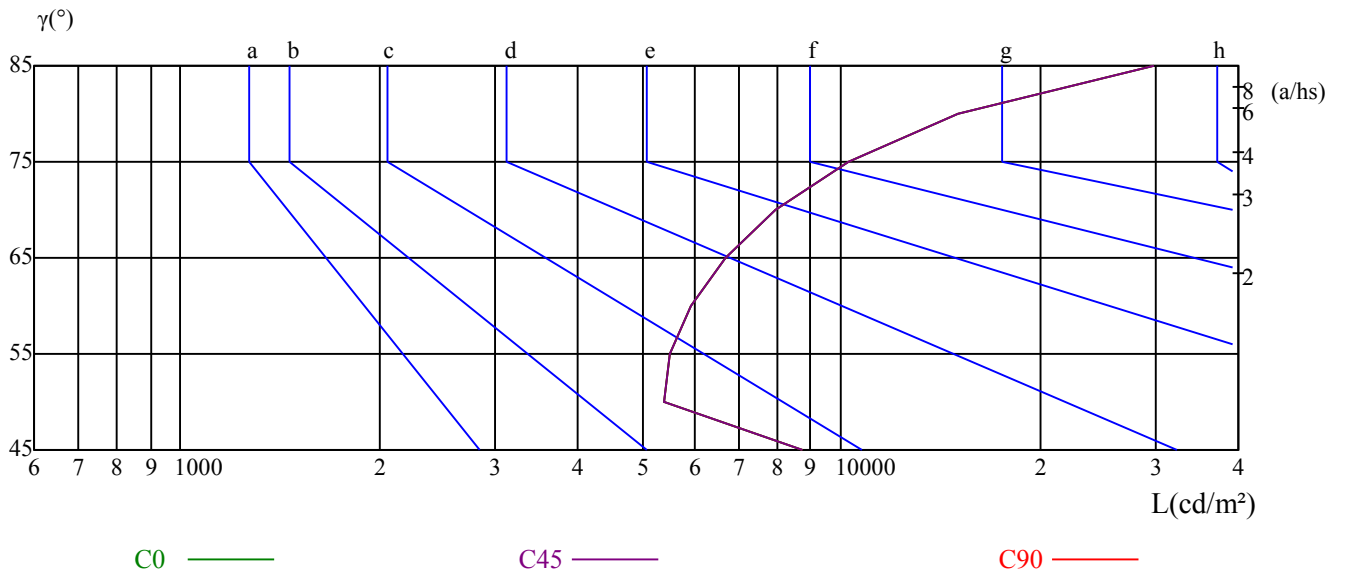
γ	45	50	55	60	65	70	75	80	85
C0	8748	5397	5496	5922	6693	7985	10272	15061	29719
C45	8748	5397	5496	5922	6693	7985	10272	15061	29719
C90	8748	5397	5496	5922	6693	7985	10272	15061	29719

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6693	6693	6693	10272	10272	10272	29719	29719	29719

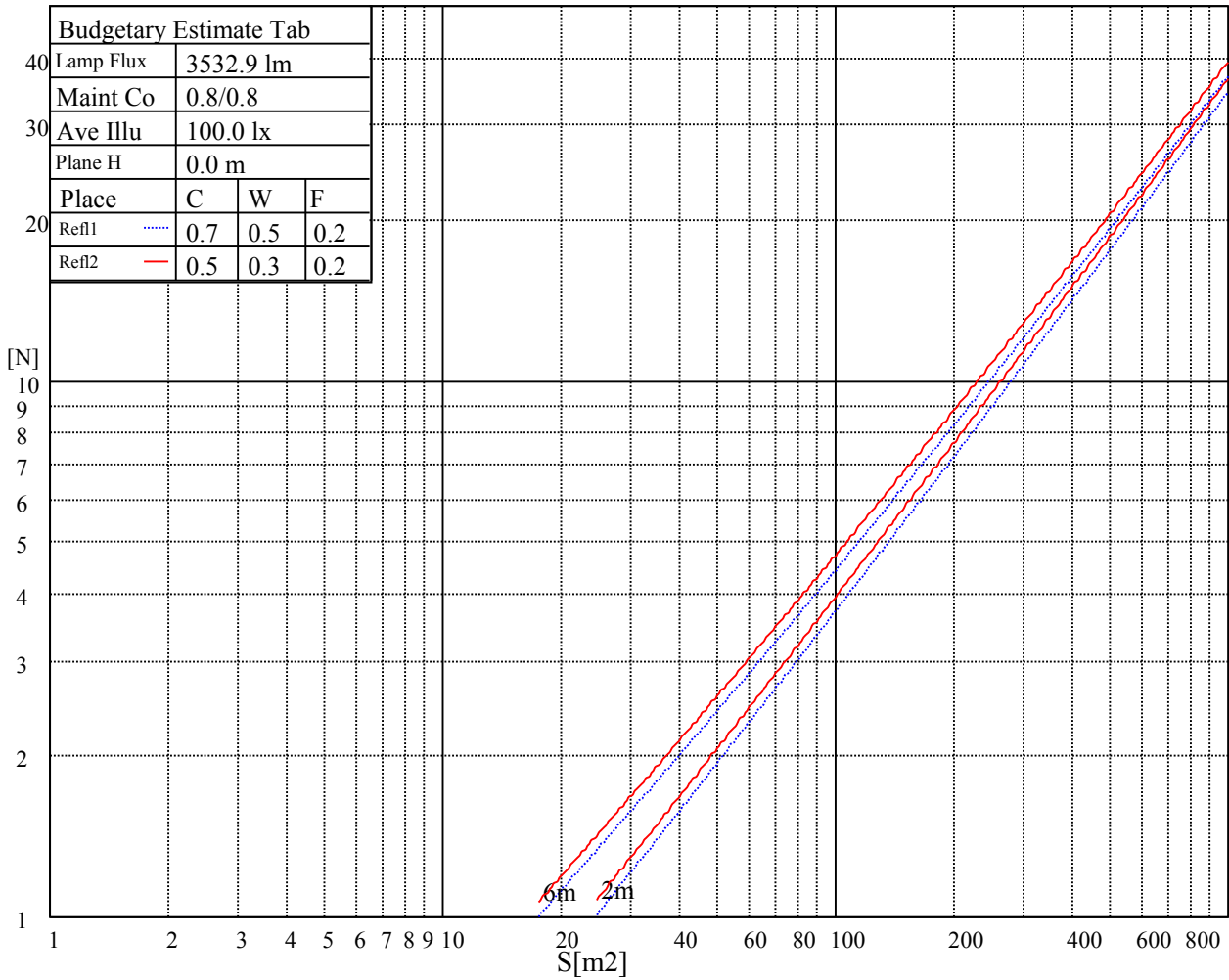
Glare Table

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

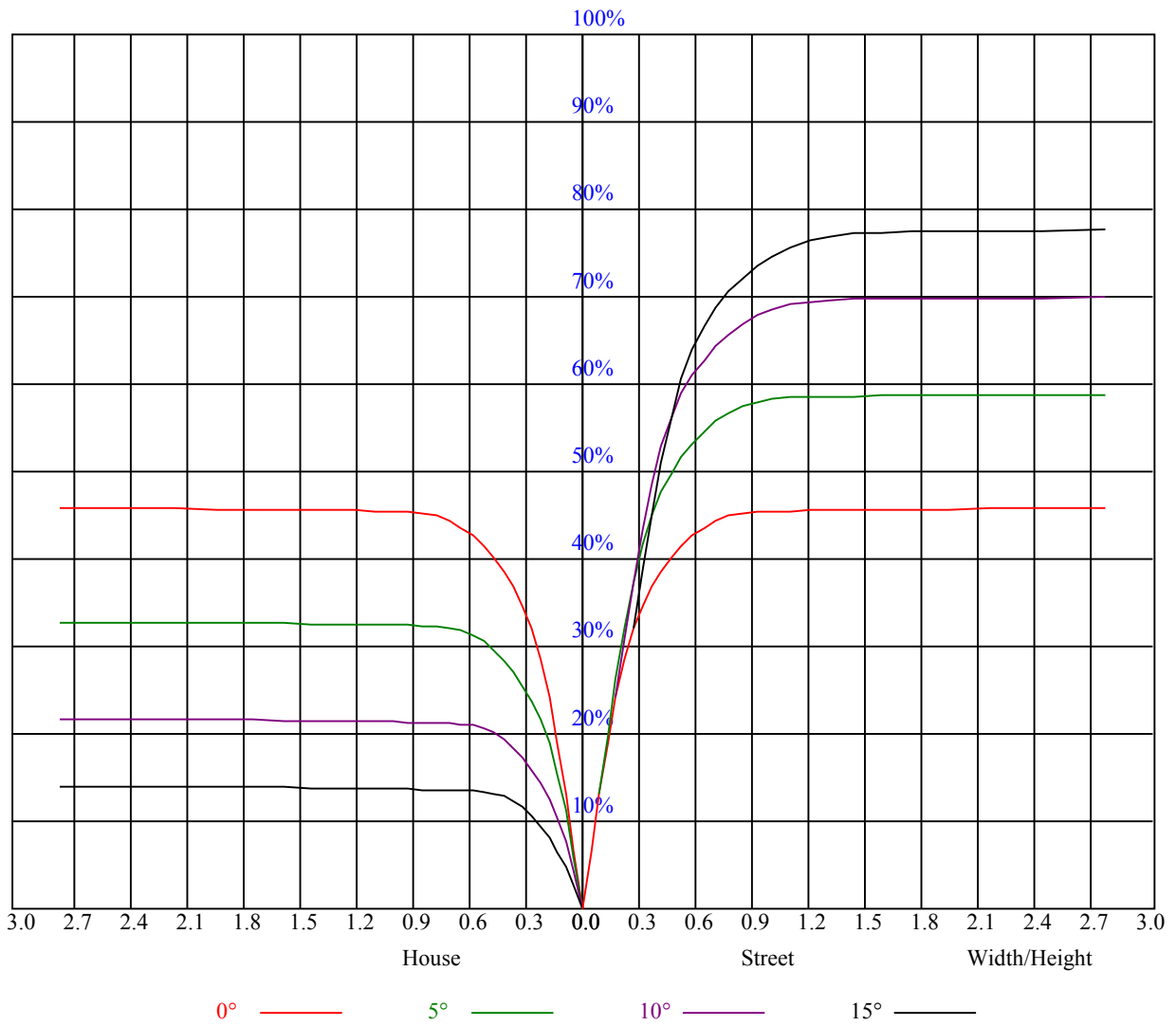
Luminance Limiting Curve



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	2.80	3.71	3.16	4.02	4.34	2.70	3.62	3.07	3.93	4.25
	3H	5.85	6.66	6.23	6.99	7.36	5.76	6.57	6.14	6.90	7.27
	4H	7.52	8.27	7.93	8.62	9.01	7.43	8.18	7.84	8.53	8.92
	6H	9.42	10.10	9.84	10.48	10.88	9.33	10.01	9.75	10.39	10.79
	8H	10.48	11.12	10.92	11.51	11.92	10.40	11.04	10.83	11.43	11.84
	12H	12.21	12.82	12.64	13.20	13.64	12.14	12.75	12.57	13.13	13.56
4H	2H	3.65	4.39	4.06	4.75	5.14	3.58	4.33	3.99	4.68	5.07
	3H	6.96	7.57	7.38	7.98	8.39	6.89	7.51	7.31	7.92	8.32
	4H	8.81	9.36	9.25	9.78	10.23	8.73	9.28	9.17	9.70	10.15
	6H	10.87	11.34	11.34	11.79	12.27	10.80	11.27	11.27	11.72	12.20
	8H	12.03	12.47	12.51	12.92	13.40	11.96	12.40	12.44	12.85	13.33
8H	12H	13.67	14.04	14.16	14.53	15.01	13.60	13.98	14.10	14.47	14.95
	4H	9.51	9.94	9.99	10.40	10.87	9.45	9.88	9.92	10.33	10.81
	6H	11.85	12.20	12.37	12.70	13.19	11.80	12.14	12.31	12.64	13.13
	8H	13.21	13.51	13.74	14.03	14.53	13.15	13.45	13.68	13.97	14.47
12H	12H	14.99	15.25	15.51	15.75	16.33	14.93	15.19	15.45	15.69	16.27
	4H	9.71	10.08	10.20	10.57	11.05	9.65	10.02	10.14	10.51	10.99
	6H	12.36	12.47	12.70	12.94	13.49	12.31	12.42	12.65	12.89	13.44
	8H	13.65	13.91	14.17	14.41	14.99	13.60	13.86	14.12	14.36	14.94
Variation with the observer position at spacings:											
S = 1.0H	4.9/-7.9					4.9/-7.9					
S = 1.5H	7.2/-5.9					7.2/-5.9					
S = 2.0H	8.6/-4.5					8.6/-4.5					
Standard tables:	BK2					BK2					
Uncorrected UGR	2.7					2.7					



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	1.11	1.11	1.11	1.08	1.08	1.08	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	1.00	0.98	1.00	0.98	0.96	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.97	0.94	0.91	0.95	0.92	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.82
3	0.92	0.88	0.85	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.82	0.81	0.79
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.76
5	0.85	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.73
6	0.81	0.77	0.74	0.81	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.69
8	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.67	0.66
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.65	0.64
10	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63



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	10223.44	9637.88	7324.88	3772.69	1680.75	1315.13	1180.13	812.81	306.56
45.0	10219.50	9560.25	7418.25	3479.63	1653.75	1302.19	1146.94	758.25	312.75
90.0	10202.63	9700.31	7330.50	3878.44	1747.69	1296.00	1115.66	731.76	180.73
135.0	10185.19	10008.00	8717.06	5247.00	2370.94	1389.94	1172.25	962.44	362.25
180.0	10223.44	9830.81	8035.88	4246.31	1848.38	1334.81	1121.01	829.07	306.90
225.0	10219.50	9825.19	8112.94	4352.63	1903.50	1355.06	1162.69	887.01	336.32
270.0	10202.63	9815.63	8253.00	4487.06	1935.00	1369.13	1190.25	869.06	310.50
315.0	10185.19	9461.81	7009.31	2949.75	1629.56	1299.38	1118.81	672.08	119.53
360.0	10223.44	9637.88	7324.88	3772.69	1680.75	1315.13	1180.13	812.81	306.56

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	31.05	17.27	15.75	14.85	14.18	13.67	13.28	13.05	13.05
45.0	29.31	17.38	16.03	15.19	14.46	13.89	13.50	13.22	13.11
90.0	29.42	17.55	16.09	15.13	14.40	13.84	13.44	13.22	13.05
135.0	36.17	18.62	16.31	15.13	14.40	13.89	13.50	13.22	13.05
180.0	30.99	17.04	15.69	14.74	14.06	13.61	13.28	13.11	12.94
225.0	34.09	17.27	15.64	14.79	14.23	13.78	13.44	13.28	13.16
270.0	34.26	17.72	16.03	14.91	14.29	13.78	13.44	13.28	13.11
315.0	24.19	17.04	15.58	14.68	14.06	13.67	13.33	13.11	12.99
360.0	31.05	17.27	15.75	14.85	14.18	13.67	13.28	13.05	13.05

C/γ(°)	90.0
0.0	12.77
45.0	12.94
90.0	12.94
135.0	12.88
180.0	12.83
225.0	12.99
270.0	12.94
315.0	12.94
360.0	12.77