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Nata

LumCAT: 1681-S	
Luminaire: 92.70.126.00	
Report No: NATA0100	Voltage(V): 37.7000
Test No: GC2018081315	Current(A): 0.4000
LampCAT: LUMINUS CXM-9-AA10	Power (W): 15.0800
Lamp flux(lm): 1749.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 47	Width(mm): 47
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1557.37
Efficiency(%): 89.04%
Lumens(lm)/Power(W): 103.99
Central intensity(cd): 2045.896
Maximum intensity(cd): 2045.896
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=55.7
[C90/270]Total=55.7
Field angle(10%Imax): [C0/180]Total=76.9
[C90/270]Total=76.9
Maximum s/h(1/2): C0_180=0.86 C90_270=0.86
Maximum s/h(1/4): C0_180=0.84 C90_270=0.84
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.66%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.990%

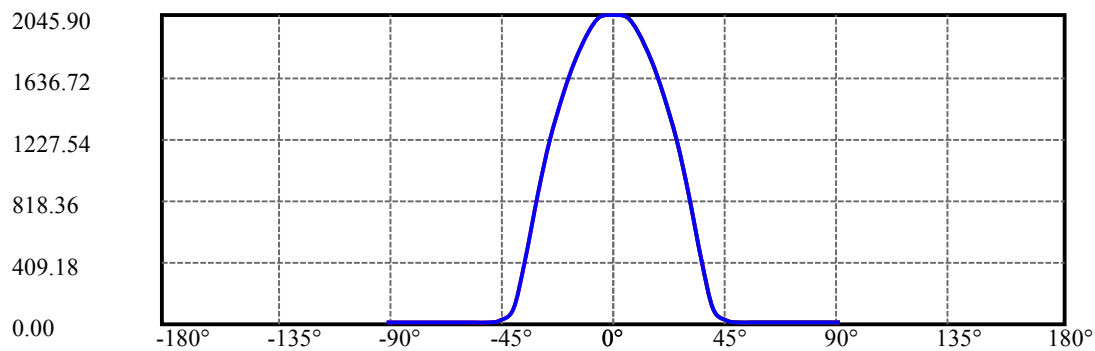
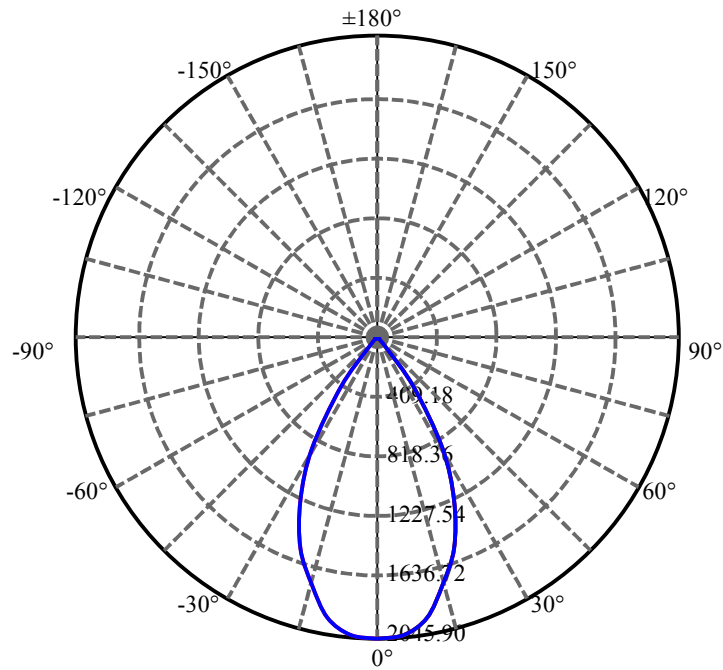
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2045.896	12.235	12.235	.700%	.786%
5.0	2031.306	97.042	109.277	5.548%	7.017%
10.0	1933.168	184.005	293.282	10.521%	18.832%
15.0	1734.827	246.117	539.399	14.072%	34.635%
20.0	1518.800	284.735	824.135	16.280%	52.918%
25.0	1220.752	282.791	1106.925	16.169%	71.076%
30.0	873.208	239.319	1346.244	13.683%	86.443%
35.0	421.237	132.436	1478.68	7.572%	94.947%
40.0	106.596	37.558	1516.238	2.147%	97.359%
45.0	22.208	8.608	1524.846	.492%	97.911%
50.0	10.667	4.479	1529.325	.256%	98.199%
55.0	8.197	3.680	1533.005	.210%	98.435%
60.0	7.598	3.607	1536.612	.206%	98.667%
65.0	7.254	3.603	1540.215	.206%	98.898%
70.0	7.164	3.690	1543.906	.211%	99.135%
75.0	7.137	3.779	1547.684	.216%	99.378%
80.0	7.144	3.856	1551.54	.220%	99.625%
85.0	7.219	3.942	1555.482	.225%	99.879%
90.0	6.903	1.892	1557.374	.108%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1346.24	76.97%	86.44%
0-40	1516.24	86.69%	97.36%
0-60	1536.61	87.86%	98.67%
0-90	1555.48	88.94%	99.88%
0-120	1555.48	88.94%	99.88%
0-180	1557.37	89.04%	100.00%
60-90	22.48	1.29%	1.44%
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%
0-27.90	1245.90	71.23%	80.00%

ZONAL LUMEN SUMMARY

0-10	293.28
10-20	530.85
20-30	522.11
30-40	169.99
40-50	13.09
50-60	7.29
60-70	7.29
70-80	7.63
80-90	3.94
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:

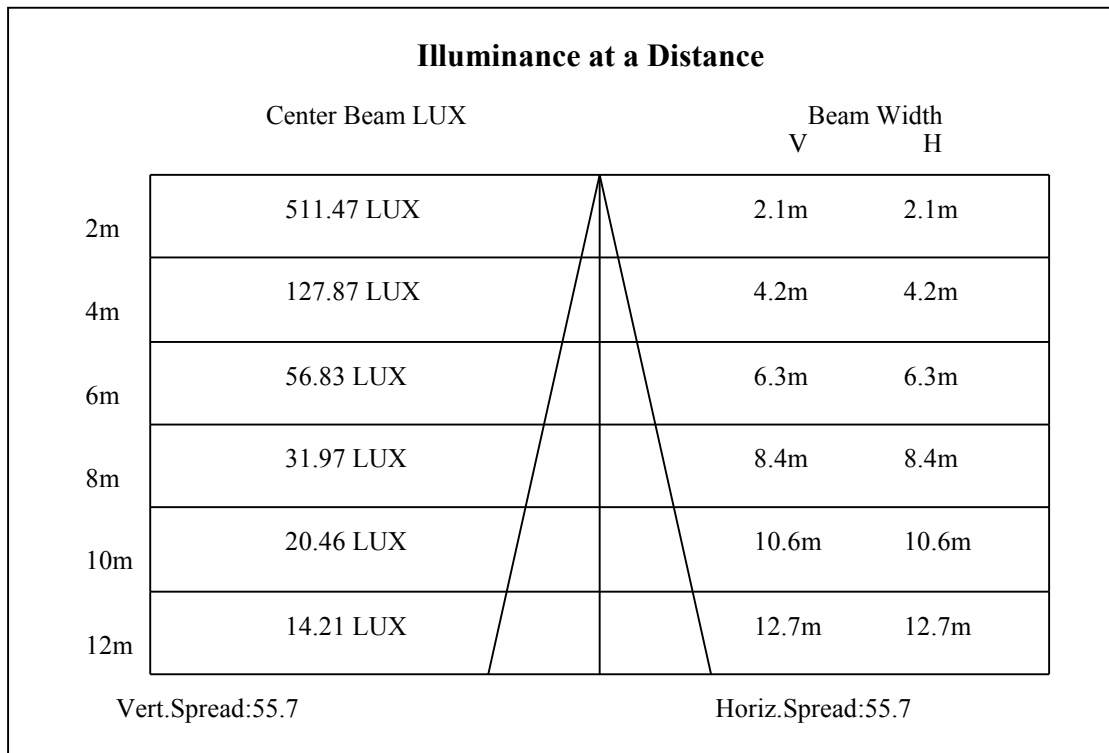
C90/C270:

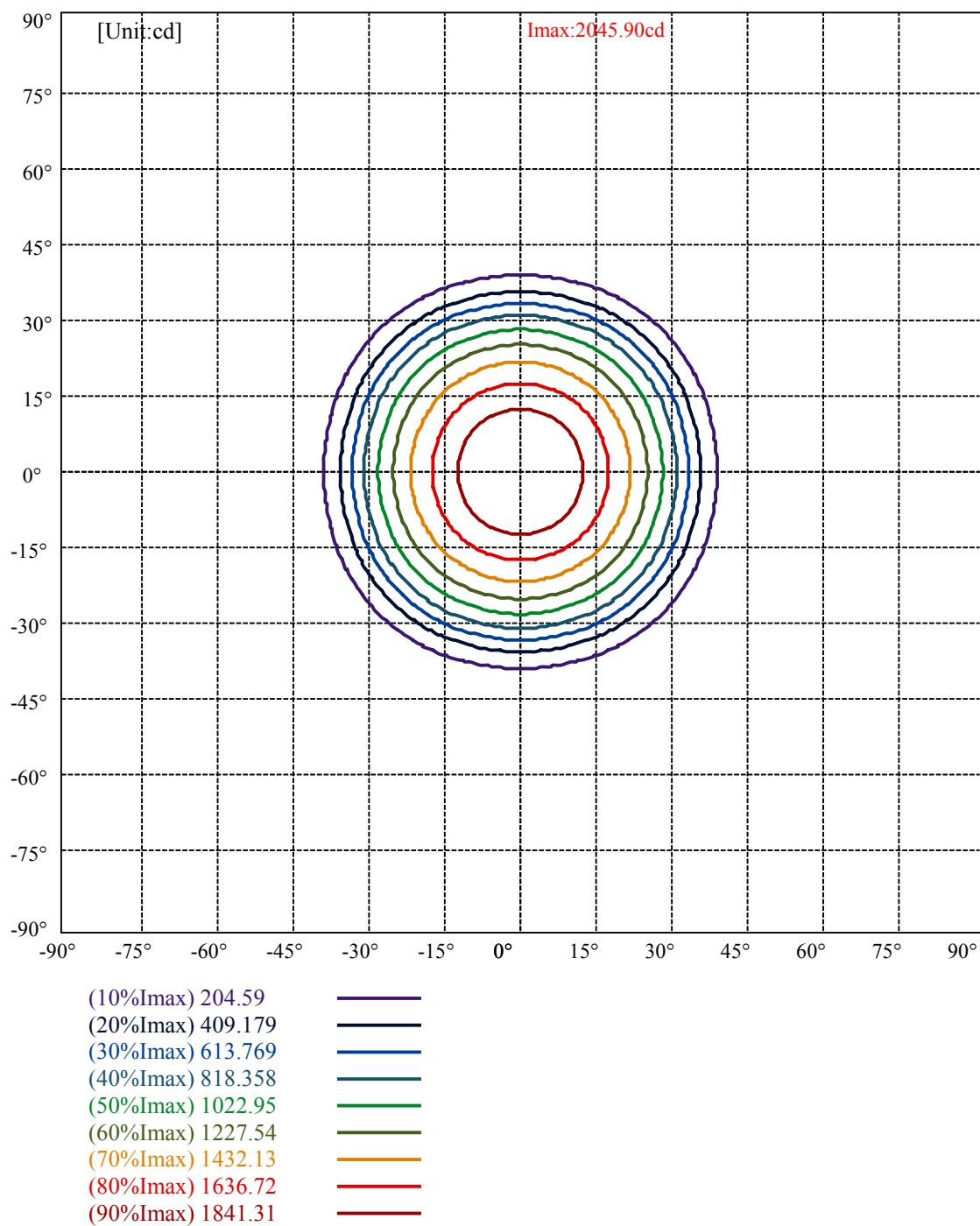
Field angle(10%Imax):C0/180Left:38.4 Right:38.4

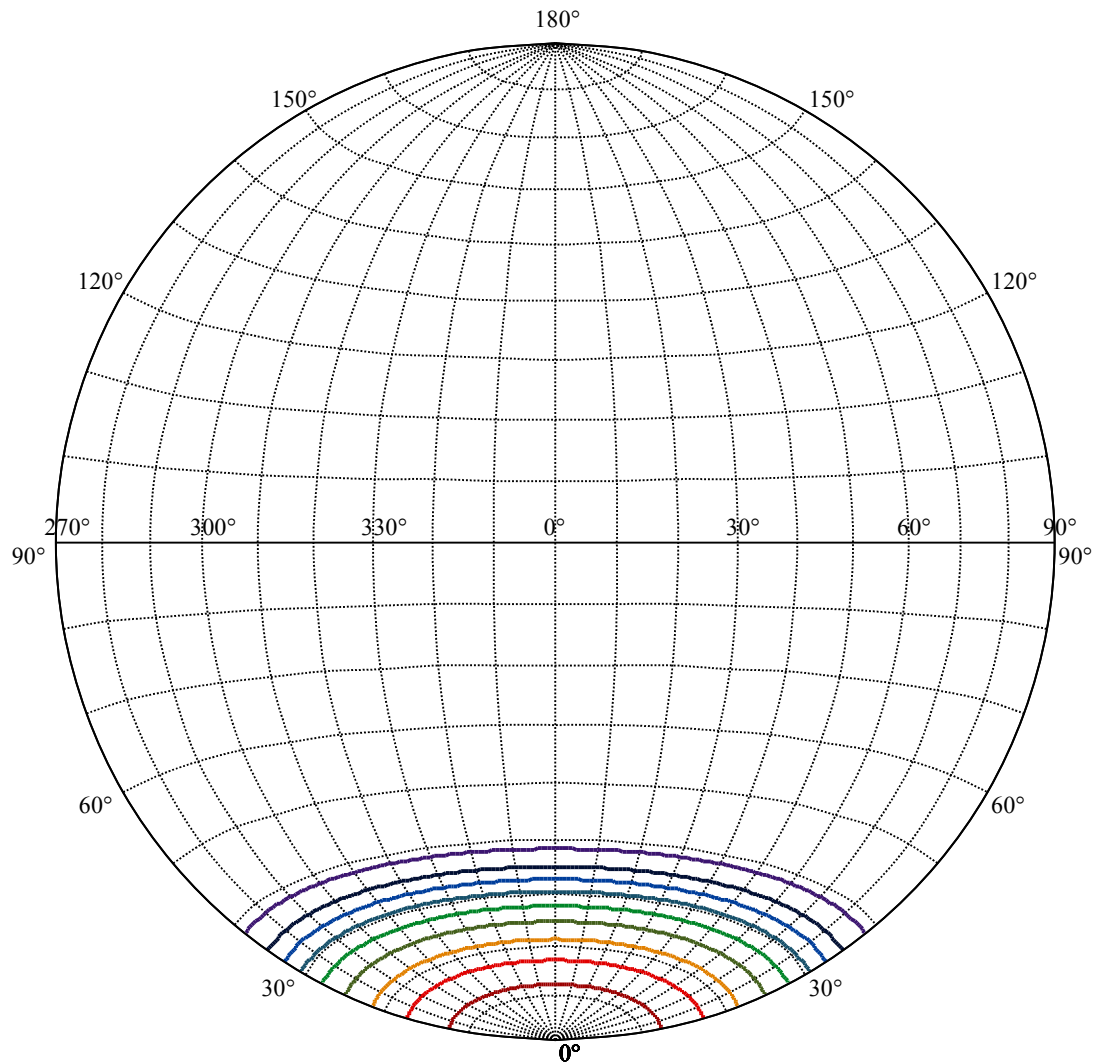
:C90/270Left:38.4 Right:38.4

Beam Angle(50%Imax):C0/180Left:27.8 Right:27.8

:C90/270Left:27.8 Right:27.8







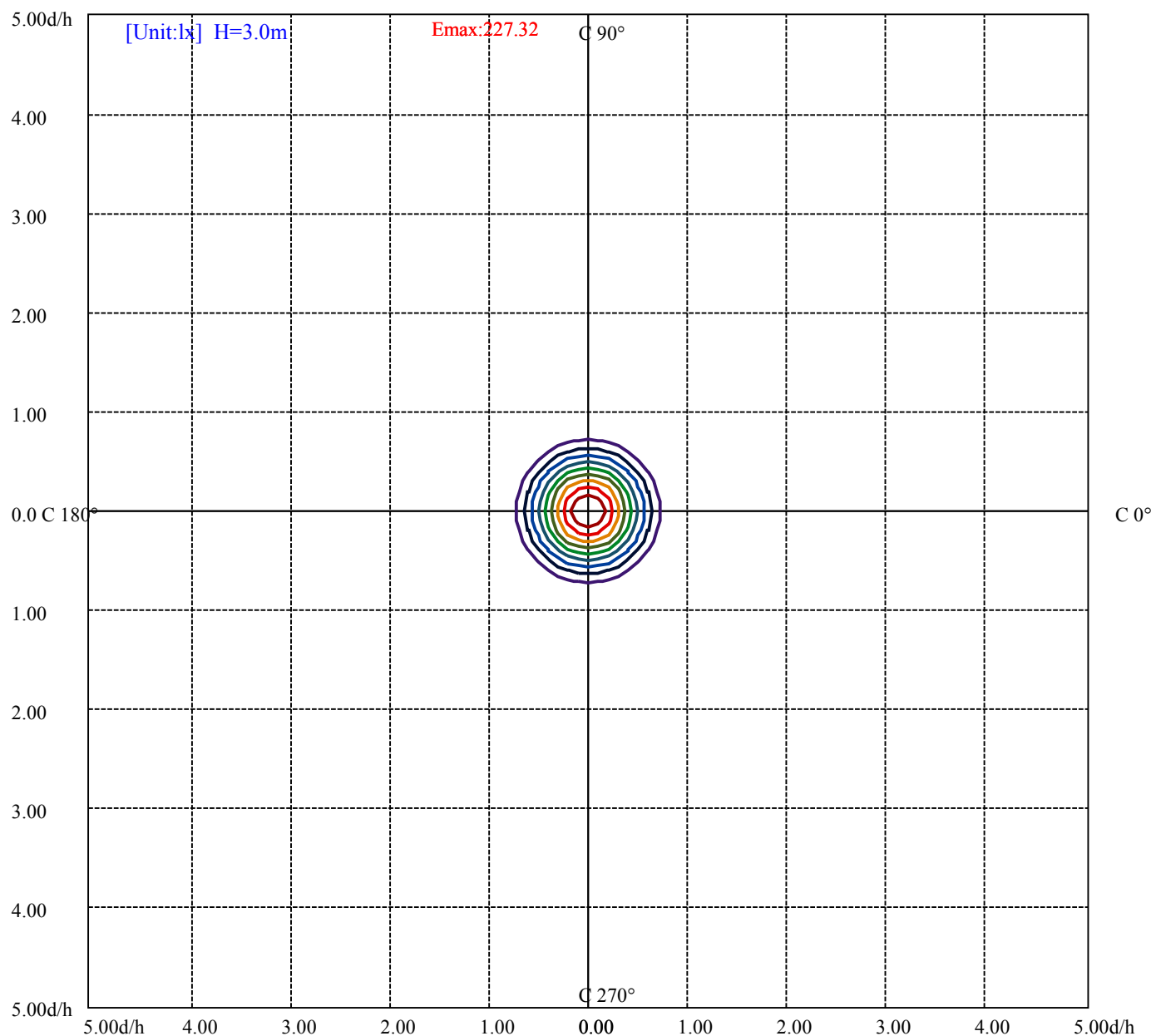
House

[Unit:cd]

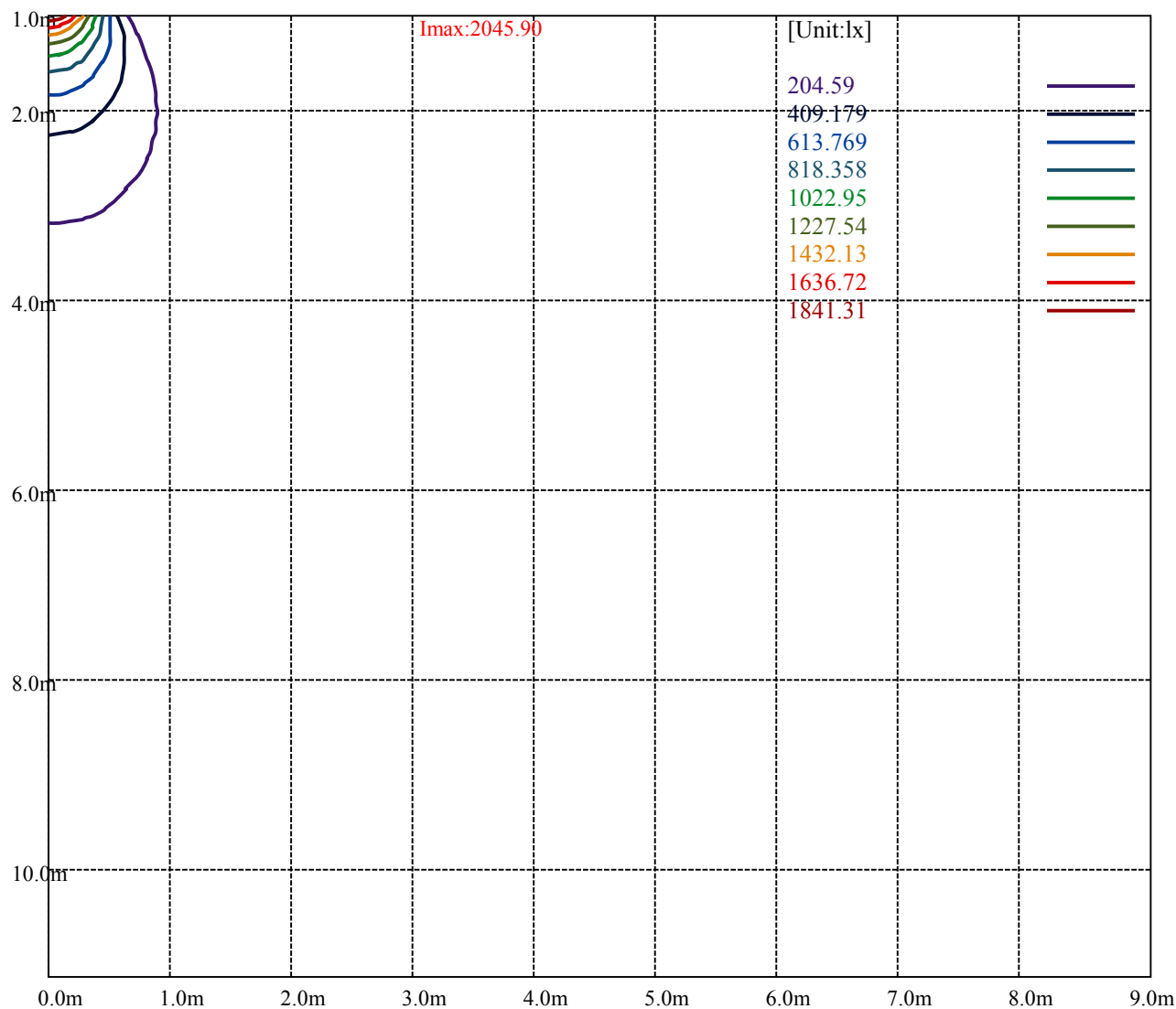
Road

Imax:2045.90

(10%Imax)	204.59	—
(20%Imax)	409.179	—
(30%Imax)	613.769	—
(40%Imax)	818.358	—
(50%Imax)	1022.95	—
(60%Imax)	1227.54	—
(70%Imax)	1432.13	—
(80%Imax)	1636.72	—
(90%Imax)	1841.31	—



(10%Emax) 22.73222	—
(20%Emax) 45.46433	—
(30%Emax) 68.19656	—
(40%Emax) 90.92867	—
(50%Emax) 113.6611	—
(60%Emax) 136.3933	—
(70%Emax) 159.1255	—
(80%Emax) 181.8578	—
(90%Emax) 204.59	—



Luminance Table

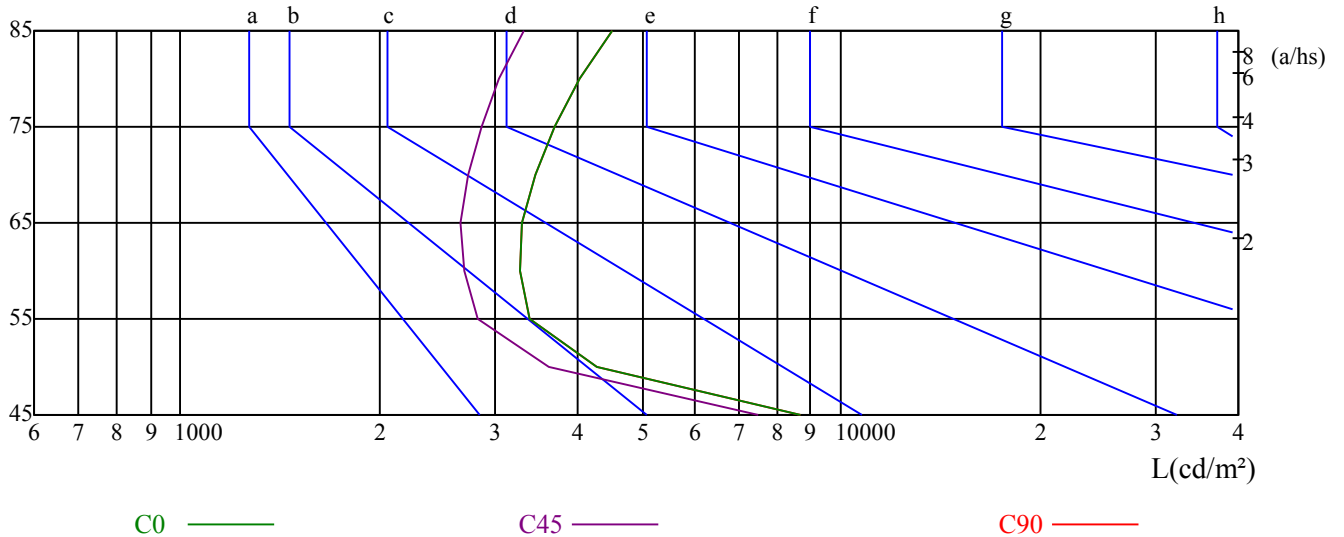
γ	45	50	55	60	65	70	75	80	85
C0	8678	4267	3384	3267	3280	3444	3691	4031	4520
C45	7473	3619	2826	2683	2647	2725	2857	3043	3313
C90	8678	4267	3384	3267	3280	3444	3691	4031	4520

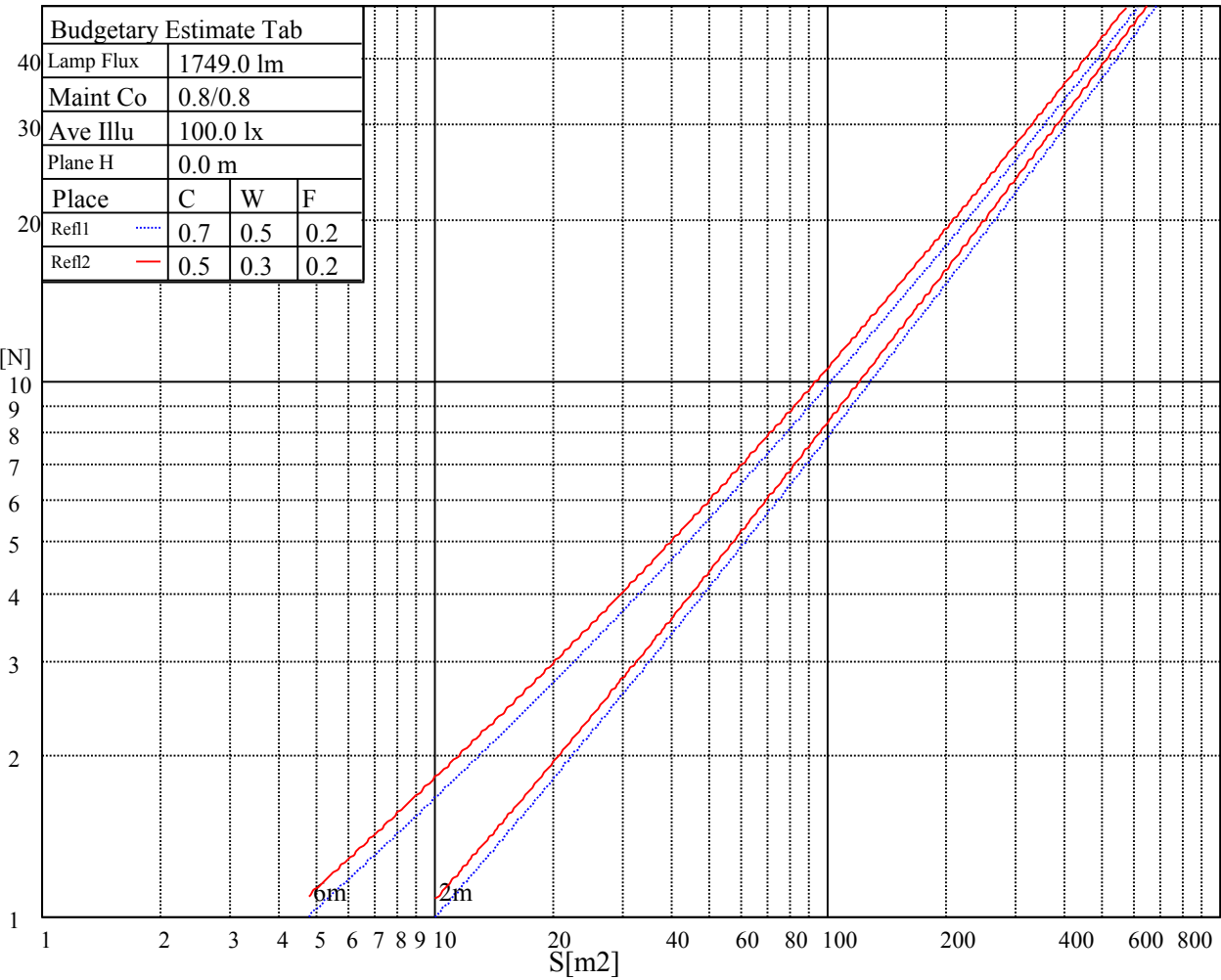
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7770	7770	7770	12483	12483	12483	37497	37497	37497

Glare Table

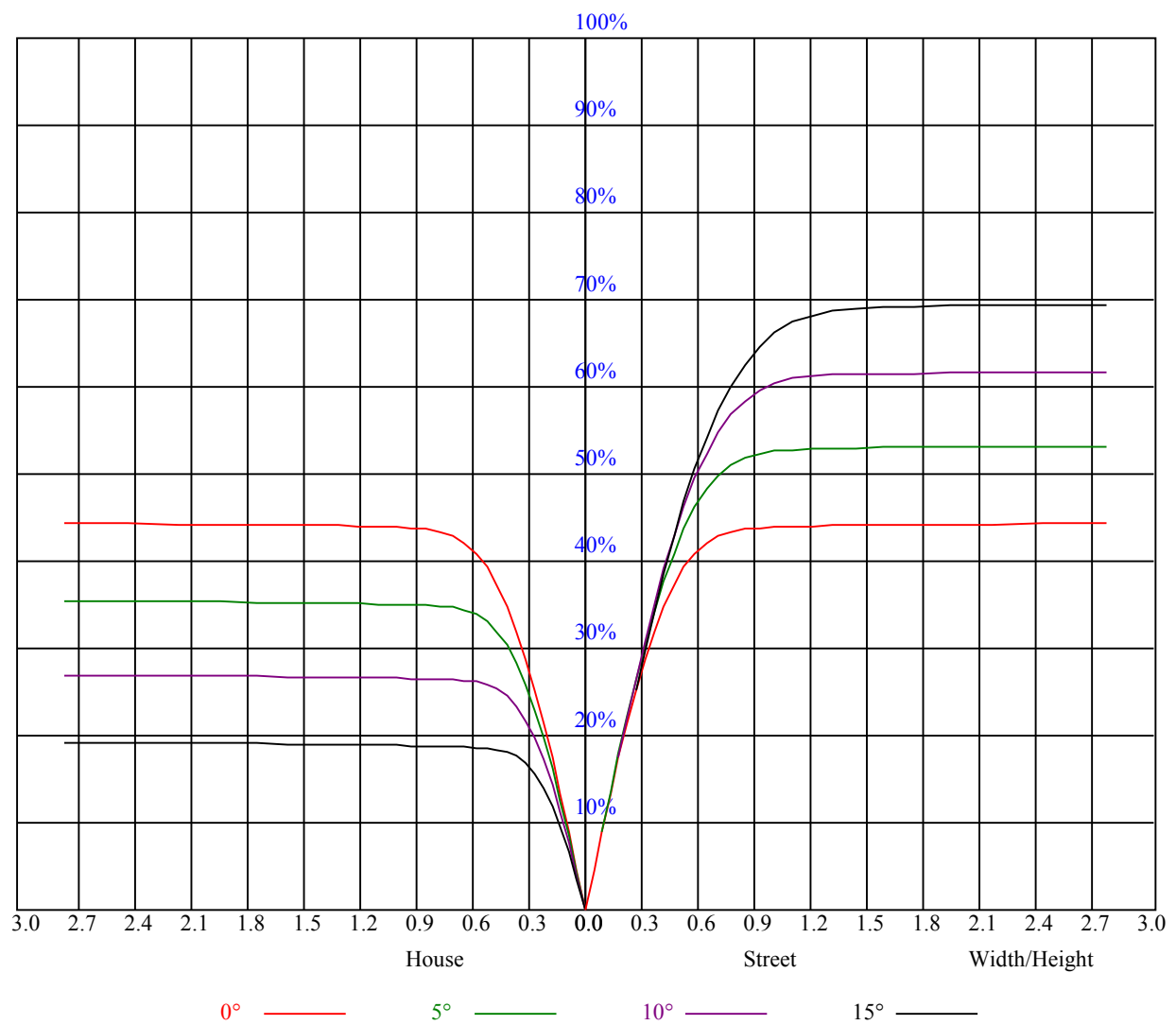
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

 $\gamma(^{\circ})$ 



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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	0.99	0.97	0.95	0.97	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.87	0.86	0.85	0.83
2	0.93	0.90	0.87	0.91	0.88	0.86	0.89	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.80	0.86	0.83	0.80	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
4	0.83	0.78	0.75	0.82	0.78	0.75	0.80	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
5	0.79	0.74	0.70	0.78	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.68	0.67
6	0.75	0.70	0.67	0.74	0.70	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.70	0.67	0.65	0.64
7	0.71	0.66	0.63	0.71	0.66	0.63	0.70	0.65	0.63	0.69	0.65	0.62	0.68	0.64	0.62	0.61
8	0.68	0.63	0.60	0.67	0.63	0.60	0.67	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.58
9	0.65	0.60	0.57	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.55
10	0.62	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.57	0.54	0.60	0.56	0.54	0.53



Nata 1681-S

Intensity data(cd)										Appendix Page: 14 Total:14	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	2044.24	2060.21	2011.76	1850.45	1629.12	1383.02	1015.24	628.74	279.69		
45.0	2040.39	2042.04	1964.41	1809.15	1545.98	1308.14	955.78	524.14	166.88		
90.0	2048.65	2018.92	1892.29	1660.50	1445.78	1084.67	823.48	351.15	65.08		
135.0	2050.30	2010.11	1899.45	1682.52	1473.86	1223.35	842.91	377.14	71.63		
180.0	2044.24	2002.40	1866.96	1632.42	1452.39	1088.47	693.99	261.24	48.95		
225.0	2040.39	2013.96	1894.49	1679.22	1487.07	1086.32	784.50	285.08	55.39		
270.0	2048.65	2047.00	1969.92	1784.93	1561.40	1305.94	949.72	474.04	80.66		
315.0	2050.30	2055.81	1966.06	1779.42	1554.79	1286.12	920.05	468.36	84.51		
360.0	2044.24	2060.21	2011.76	1850.45	1629.12	1383.02	1015.24	628.74	279.69		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	32.10	13.71	8.59	7.87	7.32	7.10	7.05	7.05	7.05		
45.0	25.38	11.51	8.59	7.76	7.32	7.16	7.10	7.10	7.10		
90.0	18.94	9.97	8.20	7.65	7.38	7.38	7.38	7.43	7.65		
135.0	20.32	10.35	8.31	7.65	7.27	7.21	7.10	7.10	7.38		
180.0	16.02	9.30	7.87	7.43	7.21	7.16	7.16	7.16	7.32		
225.0	17.01	9.14	7.76	7.32	7.10	7.05	7.05	7.05	7.10		
270.0	23.51	10.57	8.04	7.54	7.21	7.16	7.16	7.16	7.10		
315.0	24.39	10.79	8.20	7.54	7.21	7.10	7.10	7.10	7.05		
360.0	32.10	13.71	8.59	7.87	7.32	7.10	7.05	7.05	7.05		
C/ γ (°)	90.0										
0.0	6.94										
45.0	6.88										
90.0	6.88										
135.0	6.88										
180.0	6.94										
225.0	6.88										
270.0	6.88										
315.0	6.94										
360.0	6.94										