



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

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## NATA

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LumCAT: 1451-E	
Luminaire: 92.70.044.00	
Report No: NATA0100	Voltage(V): 35.2000
Test No: GC2019011211	Current(A): 0.1500
LampCAT: LUMILEDS LUXEON 1202S	Power (W): 5.2800
Lamp flux(lm): 805.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 44	Width(mm): 44
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 715.89  
Efficiency(%): 88.93%  
Lumens(lm)/Power(W): 137.30  
Central intensity(cd): 1623.938  
Maximum intensity(cd): 1623.938  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=31.5  
                                  [C90/270]Total=31.5  
Field angle(10%Imax): [C0/180]Total=74.2  
                                  [C90/270]Total=74.2  
Maximum s/h(1/2): C0\_180=0.51 C90\_270=0.51  
Maximum s/h(1/4): C0\_180=0.57 C90\_270=0.57  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 90.05%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.910%

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Equipment: GMS1980  
Temperature(°C): 10.0

Date: 2019/1/12  
Humidity(%): 65.0%

Operator: NT07  
Distance(m): 7.50

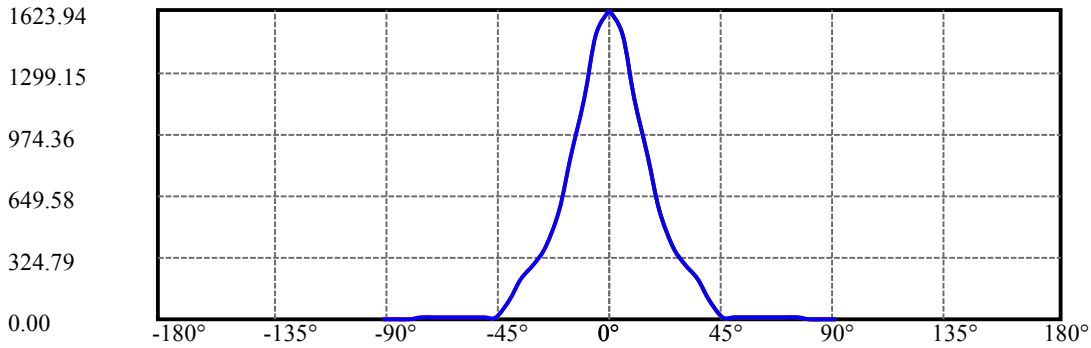
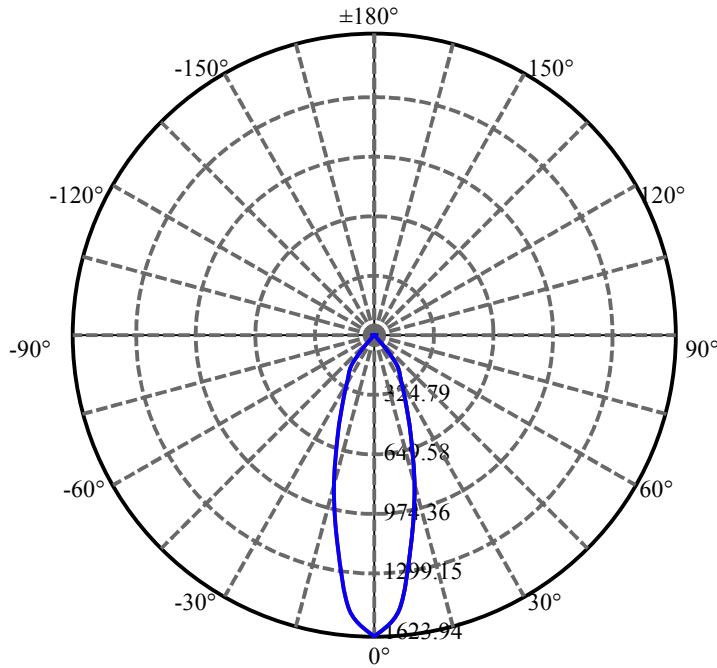
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1623.938	9.711	9.711	1.206%	1.357%
5.0	1488.656	71.118	80.83	8.835%	11.291%
10.0	1159.896	110.402	191.232	13.715%	26.712%
15.0	852.391	120.927	312.159	15.022%	43.604%
20.0	577.118	108.195	420.354	13.440%	58.718%
25.0	379.505	87.913	508.267	10.921%	70.998%
30.0	289.617	79.375	587.642	9.860%	82.086%
35.0	208.118	65.432	653.074	8.128%	91.225%
40.0	99.120	34.923	687.998	4.338%	96.104%
45.0	14.899	5.775	693.773	.717%	96.910%
50.0	7.791	3.271	697.044	.406%	97.367%
55.0	6.117	2.747	699.79	.341%	97.751%
60.0	5.752	2.730	702.521	.339%	98.132%
65.0	5.505	2.735	705.256	.340%	98.514%
70.0	5.372	2.767	708.023	.344%	98.901%
75.0	5.372	2.844	710.867	.353%	99.298%
80.0	4.219	2.277	713.144	.283%	99.616%
85.0	3.565	1.947	715.091	.242%	99.888%
90.0	2.918	0.800	715.891	.099%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	587.64	73.00%	82.09%
0-40	688.00	85.47%	96.10%
0-60	702.52	87.27%	98.13%
0-90	715.09	88.83%	99.89%
0-120	715.09	88.83%	99.89%
0-180	715.89	88.93%	100.00%
60-90	15.30	1.90%	2.14%
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%
0-29.06	572.71	71.14%	80.00%

ZONAL LUMEN SUMMARY

0-10	191.23
10-20	229.12
20-30	167.29
30-40	100.36
40-50	9.05
50-60	5.48
60-70	5.50
70-80	5.12
80-90	1.95
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: —————

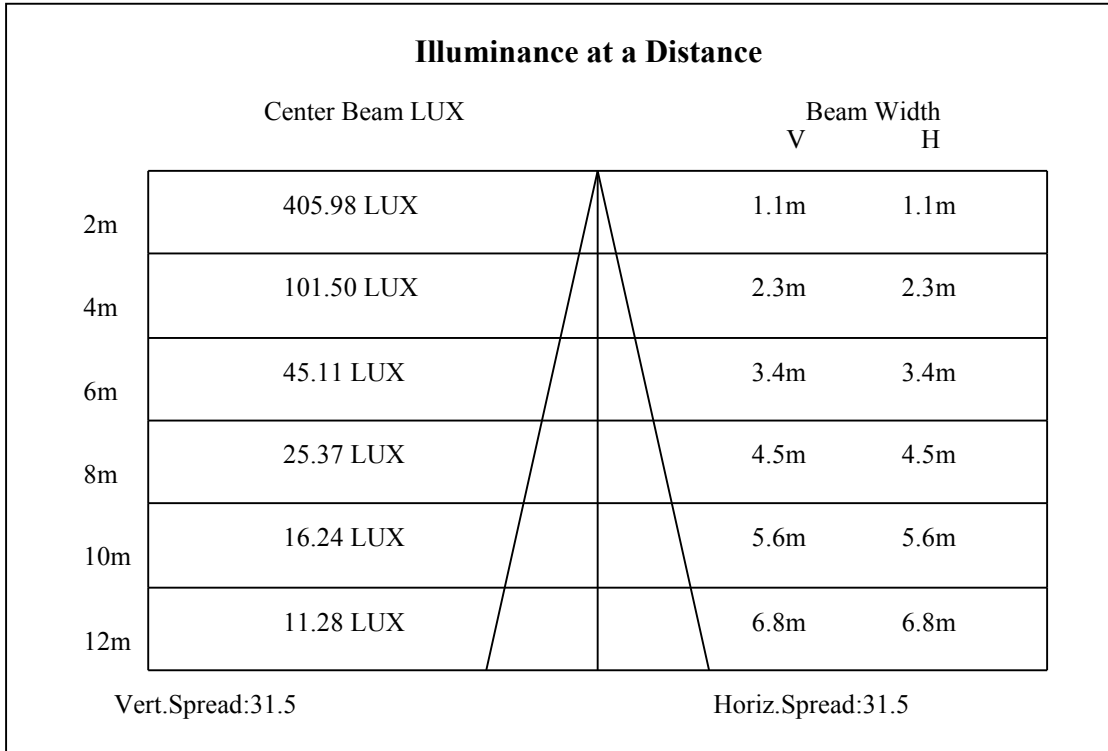
C90/C270: —————

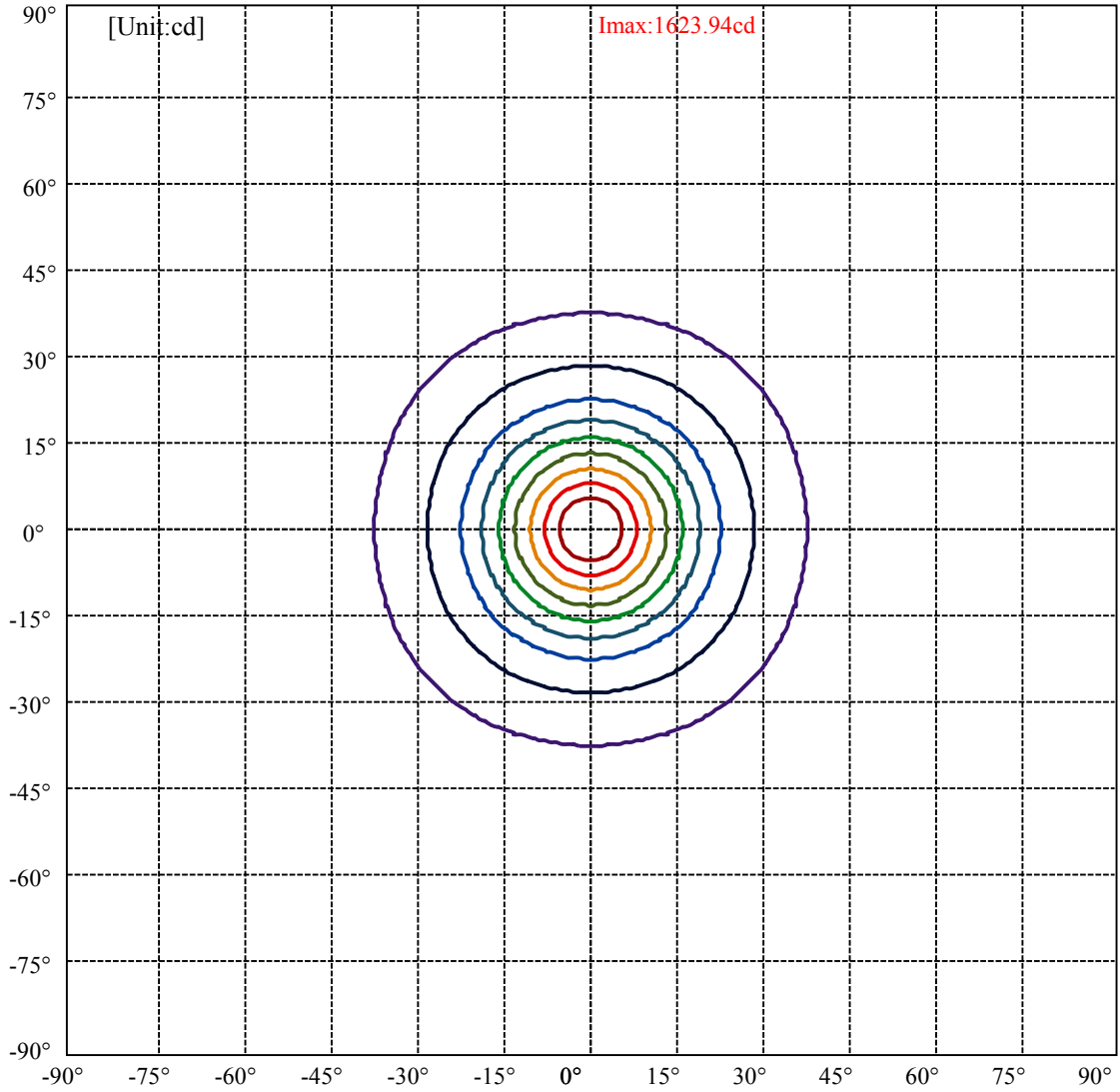
Field angle(10%Imax):C0/180Left:37.1 Right:37.1

:C90/270Left:37.1 Right:37.1

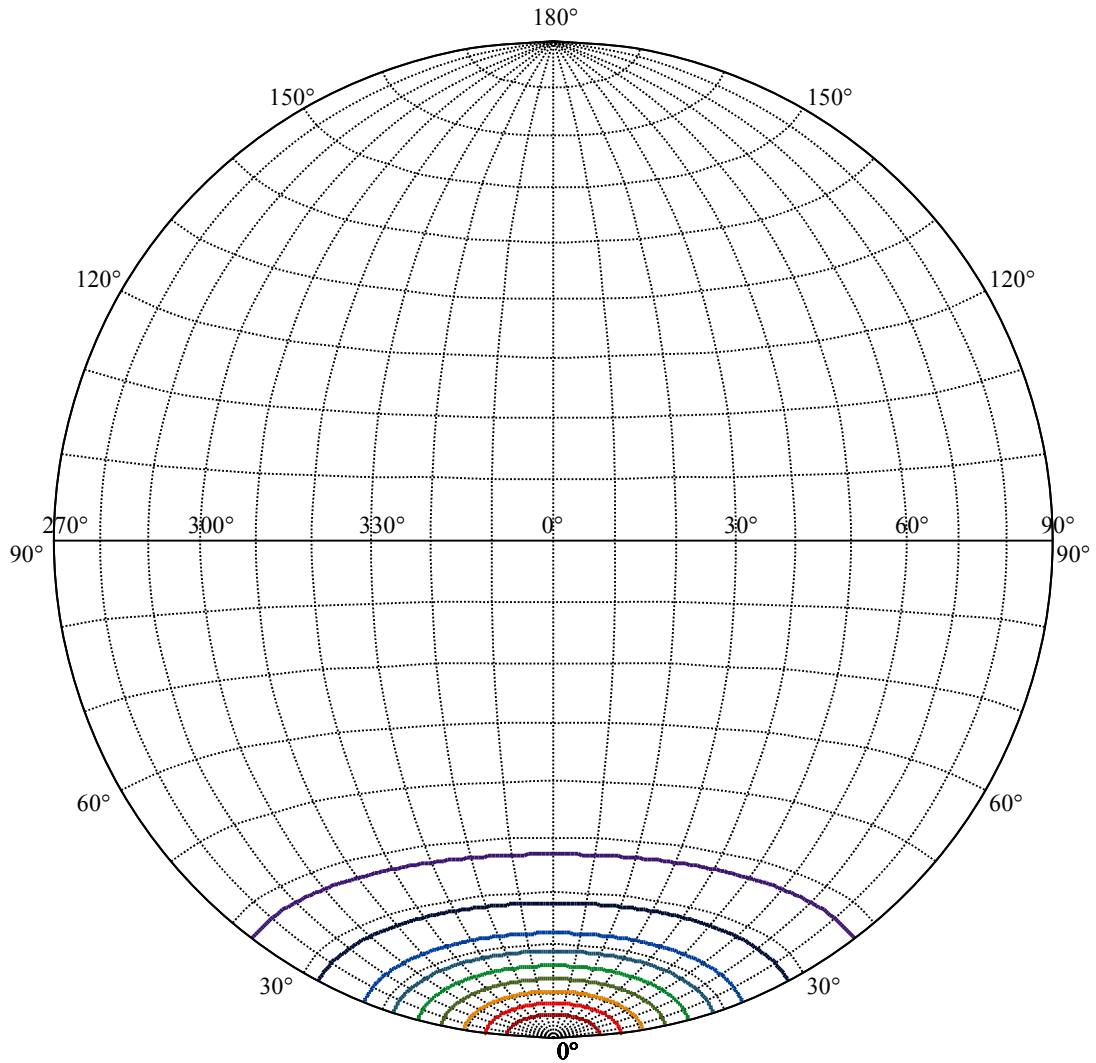
Beam Angle(50%Imax):C0/180Left:15.7 Right:15.7

:C90/270Left:15.7 Right:15.7





(10%Imax) 162.394	—
(20%Imax) 324.788	—
(30%Imax) 487.181	—
(40%Imax) 649.575	—
(50%Imax) 811.969	—
(60%Imax) 974.362	—
(70%Imax) 1136.76	—
(80%Imax) 1299.15	—
(90%Imax) 1461.54	—



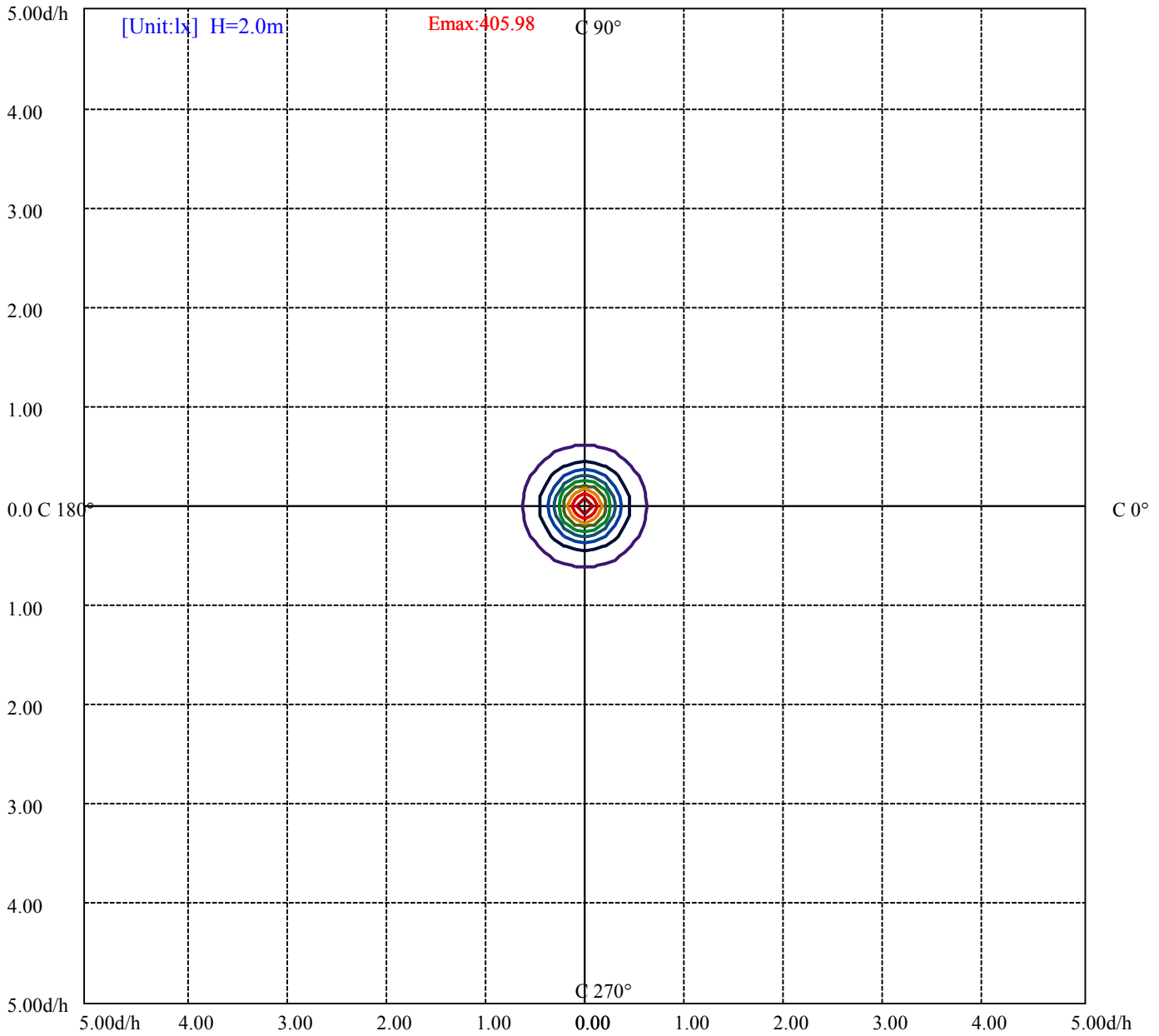
House

[Unit:cd]

Road

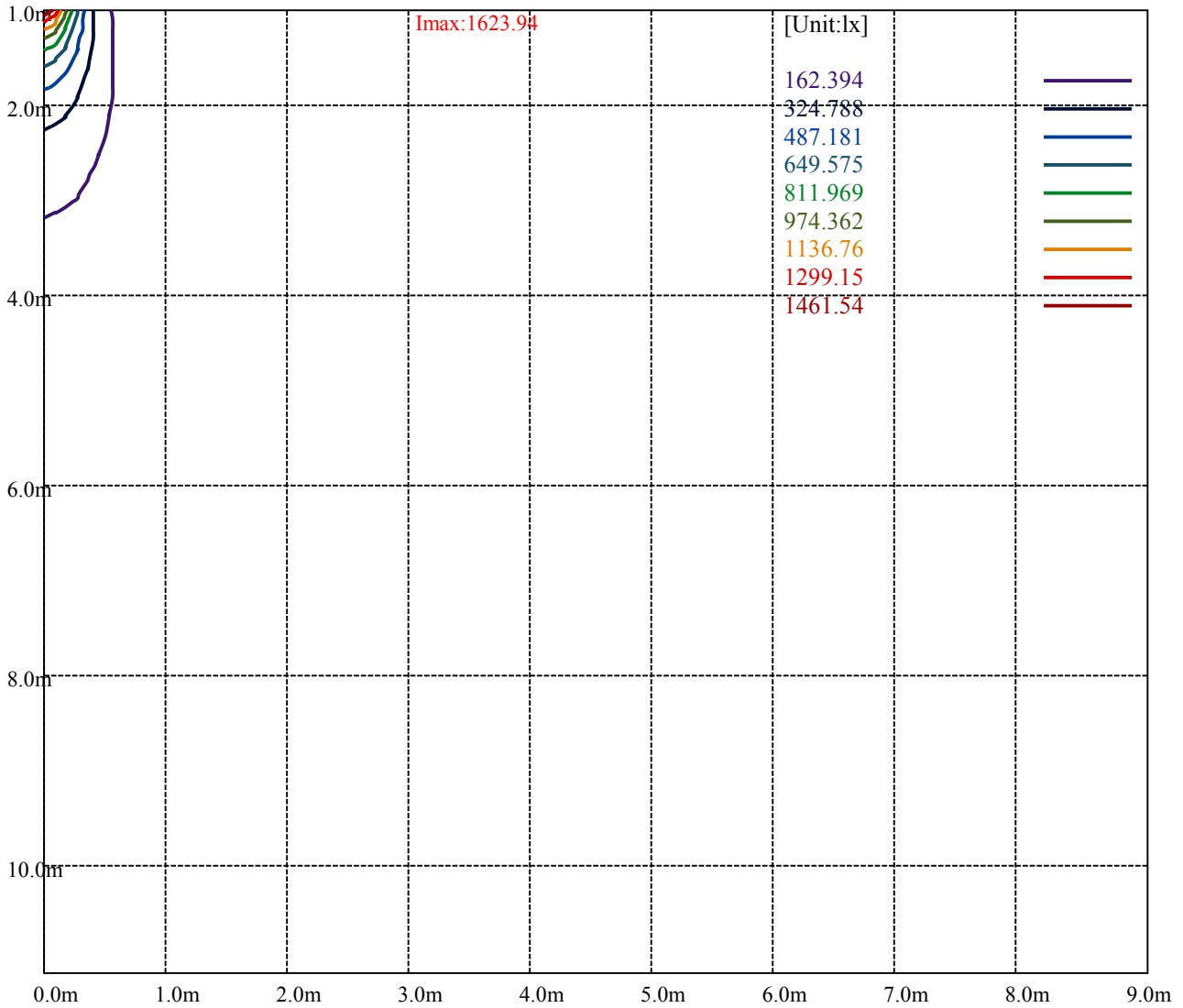
**I<sub>max</sub>:1623.94**

(10%I <sub>max</sub> ) 162.394	—
(20%I <sub>max</sub> ) 324.788	—
(30%I <sub>max</sub> ) 487.181	—
(40%I <sub>max</sub> ) 649.575	—
(50%I <sub>max</sub> ) 811.969	—
(60%I <sub>max</sub> ) 974.362	—
(70%I <sub>max</sub> ) 1136.76	—
(80%I <sub>max</sub> ) 1299.15	—
(90%I <sub>max</sub> ) 1461.54	—



(10%Emax) 40.59825	—
(20%Emax) 81.19675	—
(30%Emax) 121.795	—
(40%Emax) 162.3932	—
(50%Emax) 202.9917	—
(60%Emax) 243.59	—
(70%Emax) 284.1875	—
(80%Emax) 324.7875	—
(90%Emax) 365.385	—





Luminance Table

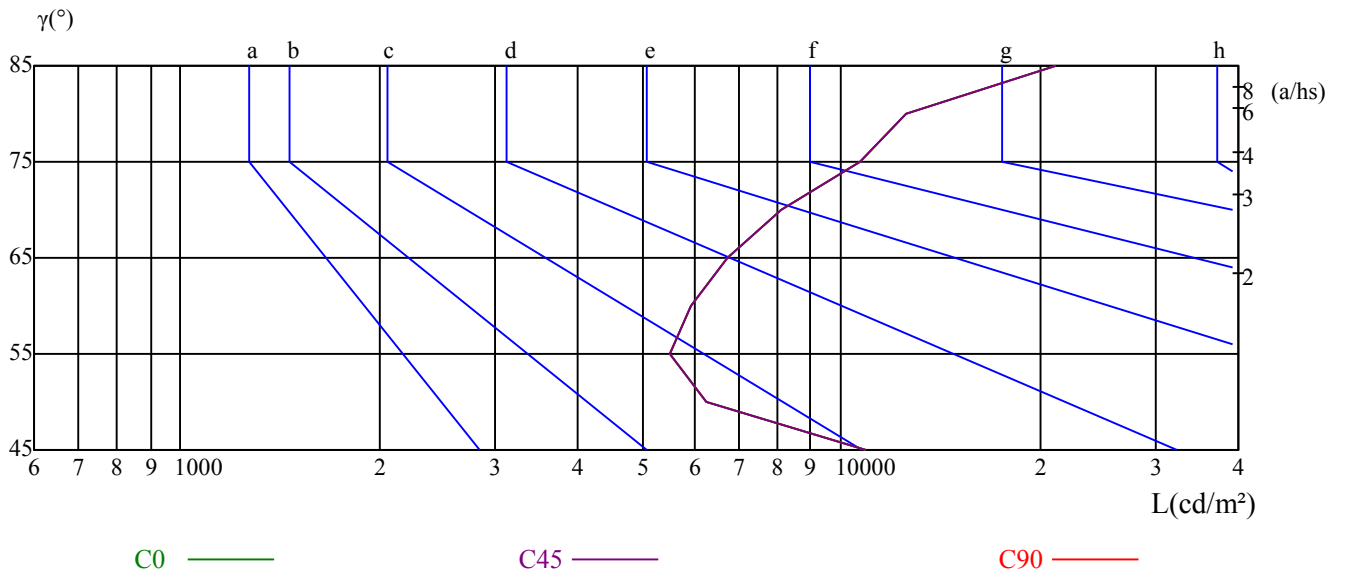
$\gamma$	45	50	55	60	65	70	75	80	85
C0	10884	6260	5509	5942	6729	8113	10721	12549	21127
C45	10884	6260	5509	5942	6729	8113	10721	12549	21127
C90	10884	6260	5509	5942	6729	8113	10721	12549	21127

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6729	6729	6729	10721	10721	10721	21127	21127	21127

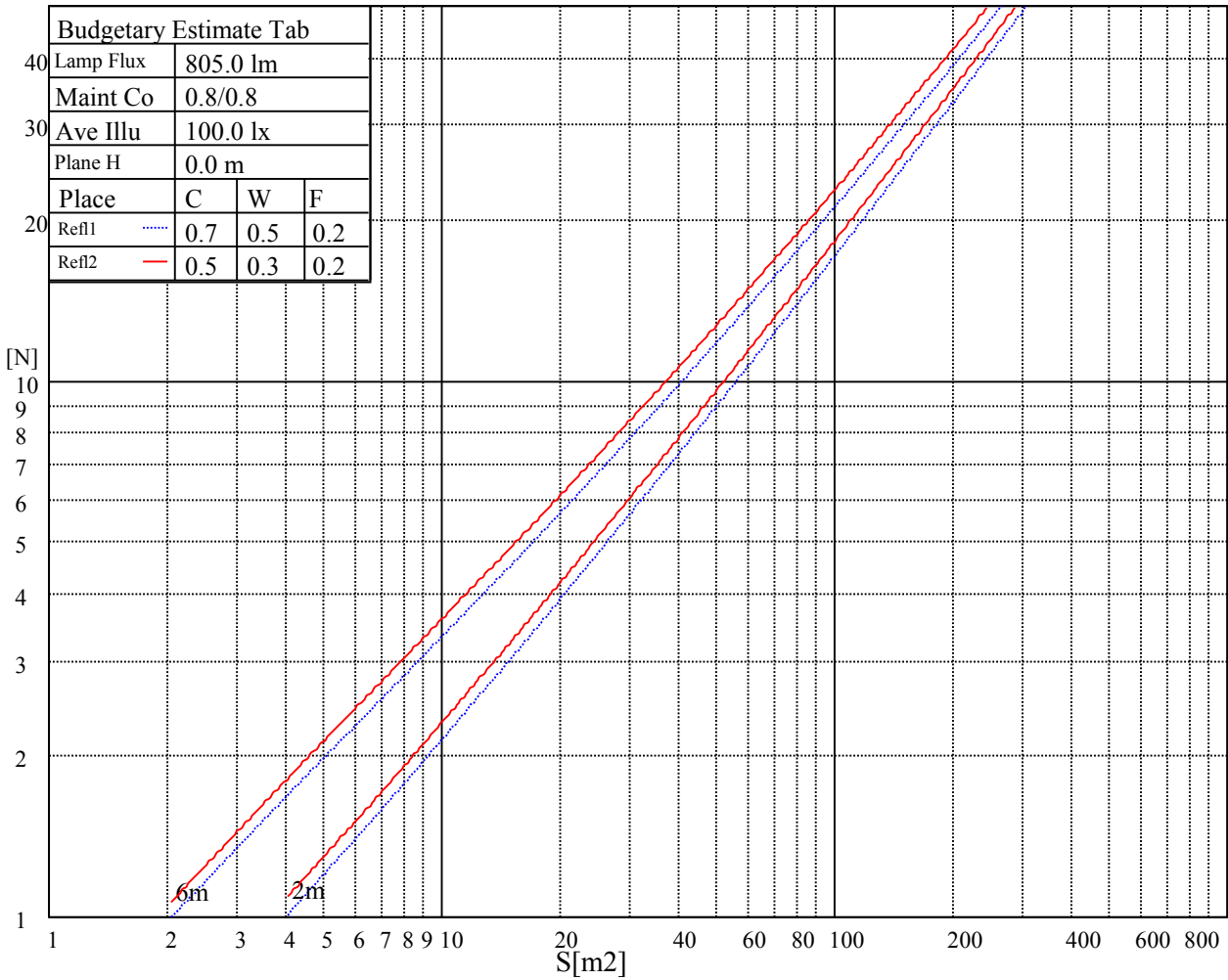
Glare Table

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

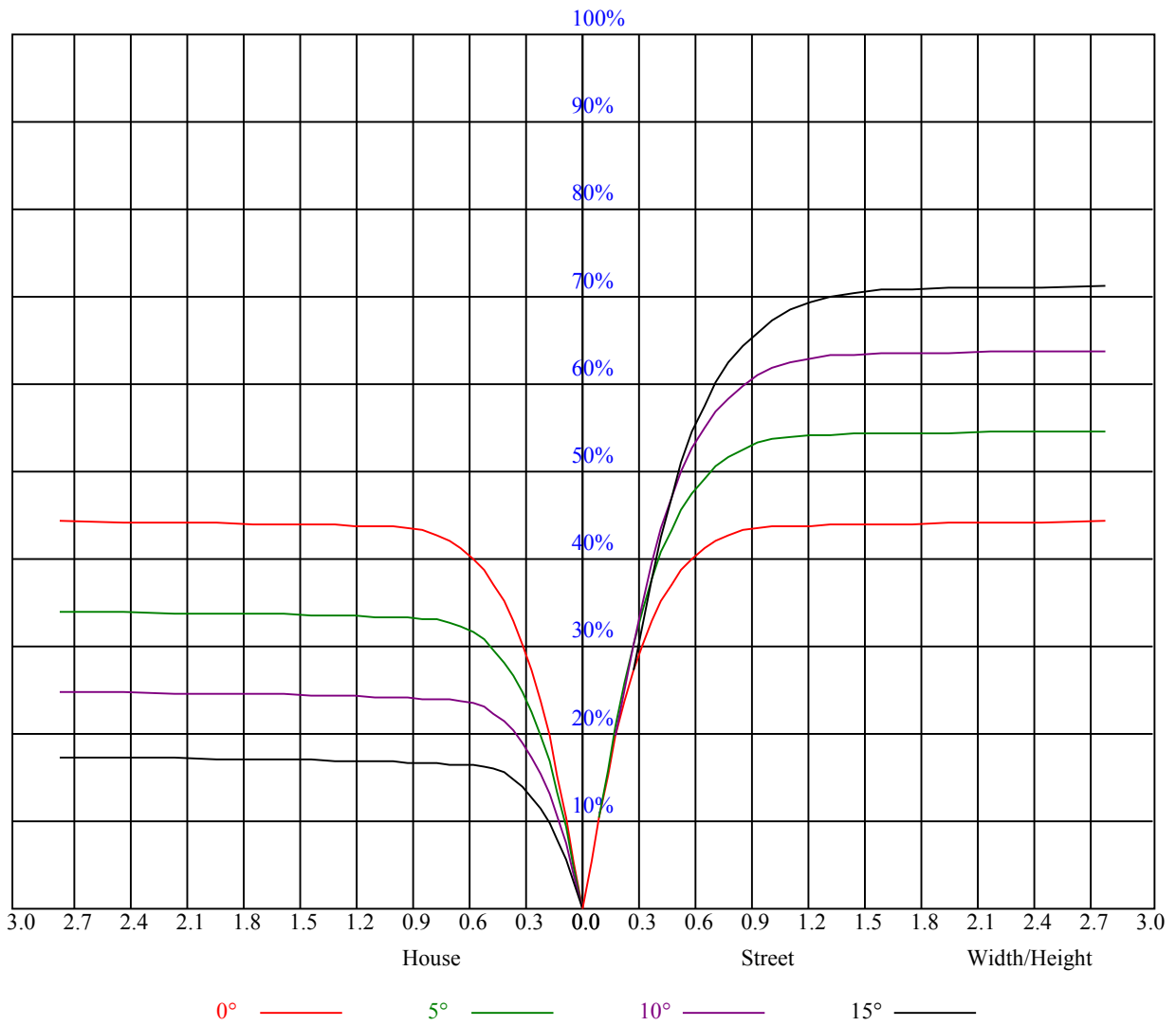
Luminance Limiting Curve



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	10.80	11.75	11.17	12.06	12.38	8.89	9.84	9.26	10.15	10.47
	3H	14.20	15.03	14.58	15.37	15.73	11.67	12.50	12.05	12.84	13.21
	4H	16.04	16.81	16.45	17.17	17.56	13.28	14.06	13.69	14.41	14.80
	6H	17.44	18.14	17.86	18.52	18.92	15.03	15.74	15.45	16.11	16.51
	8H	18.04	18.70	18.47	19.09	19.50	15.96	16.63	16.40	17.02	17.43
	12H	19.01	19.64	19.45	20.03	20.46	17.48	18.11	17.91	18.49	18.93
4H	2H	11.41	12.18	11.81	12.53	12.92	10.05	10.82	10.45	11.17	11.56
	3H	15.07	15.71	15.49	16.12	16.52	13.13	13.76	13.54	14.17	14.58
	4H	17.10	17.67	17.54	18.09	18.54	14.90	15.47	15.34	15.90	16.35
	6H	18.51	18.99	18.98	19.44	19.92	16.57	17.05	17.04	17.51	17.98
	8H	19.23	19.68	19.71	20.13	20.61	17.57	18.03	18.05	18.48	18.95
8H	12H	20.22	20.61	20.71	21.10	21.58	18.98	19.37	19.47	19.86	20.34
	4H	17.53	17.99	18.01	18.44	18.91	15.82	16.27	16.30	16.72	17.20
	6H	19.18	19.53	19.69	20.04	20.52	17.70	18.06	18.21	18.56	19.05
	8H	20.07	20.39	20.60	20.91	21.41	18.83	19.15	19.37	19.67	20.17
12H	12H	21.31	21.59	21.84	22.09	22.67	20.36	20.63	20.88	21.13	21.71
	4H	17.60	17.99	18.09	18.48	18.96	16.01	16.40	16.50	16.89	17.36
	6H	19.57	19.65	19.87	20.13	20.67	18.22	18.31	18.52	18.78	19.33
	8H	20.34	20.62	20.87	21.12	21.70	19.24	19.51	19.76	20.01	20.60
Variation with the observer position at spacings:											
S = 1.0H	4.2/-5.6					4.2/-5.6					
S = 1.5H	6.2/-4.1					6.2/-4.1					
S = 2.0H	7.6/-3.3					7.6/-3.3					
Standard tables:	BK3					BK3					
Uncorrected UGR	3.0					3.0					



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	1.07	1.07	1.07	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	0.99	0.96	0.94	0.97	0.95	0.93	0.93	0.91	0.90	0.90	0.88	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	0.84	0.86	0.84	0.82	0.83	0.82	0.80	0.79
3	0.88	0.84	0.80	0.87	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	0.79	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.73	0.77	0.74	0.72	0.71
5	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
6	0.75	0.71	0.67	0.75	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
7	0.72	0.67	0.64	0.72	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.69	0.65	0.63	0.62
8	0.69	0.64	0.61	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.59
9	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.57
10	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.55



NATA 1451-E

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	1629.56	1490.63	1197.00	895.50	595.13	396.56	305.44	211.95	92.19
45.0	1625.63	1431.00	1152.56	810.00	543.94	371.81	288.00	187.26	78.92
90.0	1614.94	1423.13	1091.14	770.29	501.75	329.79	249.36	158.40	60.30
135.0	1625.63	1504.13	1217.25	868.50	596.81	396.56	294.75	213.64	102.66
180.0	1629.56	1501.31	1116.17	840.99	576.17	383.85	290.25	206.27	104.96
225.0	1625.63	1536.75	1111.16	885.32	586.01	366.19	284.85	224.49	120.32
270.0	1614.94	1551.38	1279.13	919.69	647.44	410.06	308.81	249.53	141.02
315.0	1625.63	1470.94	1114.76	828.84	569.70	381.21	295.48	213.41	92.59
360.0	1629.56	1490.63	1197.00	895.50	595.13	396.56	305.44	211.95	92.19
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	12.43	6.53	4.95	4.61	4.39	4.44	4.56	4.50	3.94
45.0	13.95	8.55	8.16	8.16	8.38	8.89	9.39	6.02	4.22
90.0	13.39	8.27	7.65	7.31	7.26	7.03	6.86	4.78	4.05
135.0	13.16	8.38	5.23	4.61	4.11	3.71	3.60	3.54	3.43
180.0	13.16	5.74	4.78	4.22	3.71	3.43	3.38	3.26	3.26
225.0	18.00	8.49	6.13	5.74	5.18	4.73	4.78	3.71	3.15
270.0	22.73	11.08	7.43	7.14	7.03	6.81	6.75	4.61	3.15
315.0	12.38	5.29	4.61	4.22	3.99	3.94	3.66	3.32	3.32
360.0	12.43	6.53	4.95	4.61	4.39	4.44	4.56	4.50	3.94
C/ $\gamma$ (°)	90.0								
0.0	2.93								
45.0	2.93								
90.0	2.87								
135.0	2.93								
180.0	2.98								
225.0	2.98								
270.0	2.87								
315.0	2.87								
360.0	2.93								