



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

NATA

LumCAT: 1687-M	
Luminaire: 92.70.124.00	
Report No: NATA0100	Voltage(V): 22.5000
Test No: GC2019022209	Current(A): 0.3000
LampCAT: BMTC MA-1313 LES11	Power (W): 6.7500
Lamp flux(lm): 718.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 46	Width(mm): 46
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 649.27
Efficiency(%): 90.43%
Lumens(lm)/Power(W): 97.72
Central intensity(cd): 1833.750
Maximum intensity(cd): 1833.750
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=24.6
 [C90/270]Total=24.6
Field angle(10%Imax): [C0/180]Total=78.1
 [C90/270]Total=78.1
Maximum s/h(1/2): C0_180=0.42 C90_270=0.42
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.87%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.381%

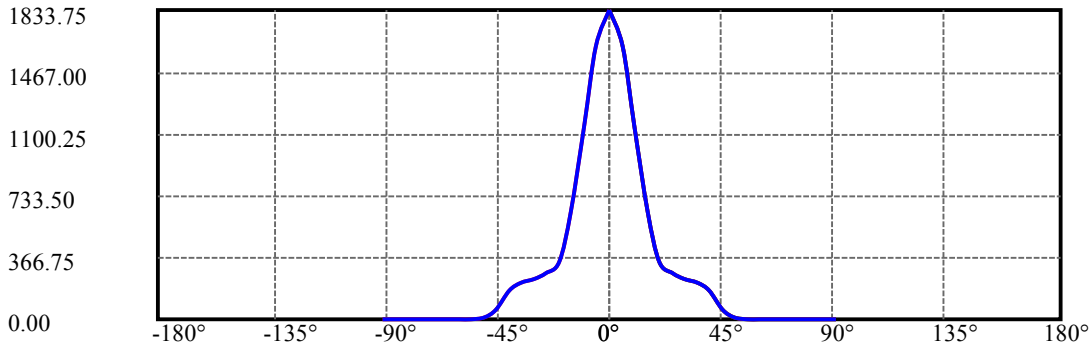
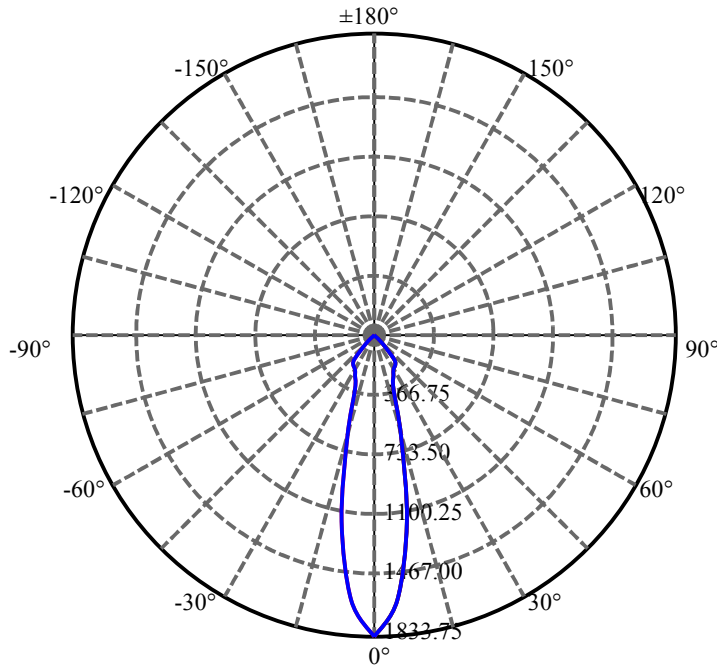
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1833.750	10.966	10.966	1.527%	1.689%
5.0	1619.367	77.363	88.329	10.775%	13.604%
10.0	1150.973	109.553	197.882	15.258%	30.477%
15.0	636.694	90.327	288.209	12.580%	44.389%
20.0	346.936	65.041	353.25	9.059%	54.407%
25.0	271.139	62.810	416.06	8.748%	64.081%
30.0	236.616	64.849	480.909	9.032%	74.069%
35.0	217.877	68.500	549.41	9.540%	84.619%
40.0	175.465	61.823	611.232	8.610%	94.141%
45.0	62.416	24.192	635.424	3.369%	97.867%
50.0	9.148	3.841	639.265	.535%	98.459%
55.0	3.698	1.661	640.926	.231%	98.714%
60.0	2.995	1.422	642.348	.198%	98.933%
65.0	2.693	1.338	643.686	.186%	99.139%
70.0	2.468	1.271	644.957	.177%	99.335%
75.0	2.341	1.240	646.196	.173%	99.526%
80.0	2.299	1.241	647.438	.173%	99.717%
85.0	2.250	1.229	648.666	.171%	99.907%
90.0	2.215	0.607	649.273	.085%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	480.91	66.98%	74.07%
0-40	611.23	85.13%	94.14%
0-60	642.35	89.46%	98.93%
0-90	648.67	90.34%	99.91%
0-120	648.67	90.34%	99.91%
0-180	649.27	90.43%	100.00%
60-90	7.74	1.08%	1.19%
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%
0-32.81	519.42	72.34%	80.00%

ZONAL LUMEN SUMMARY

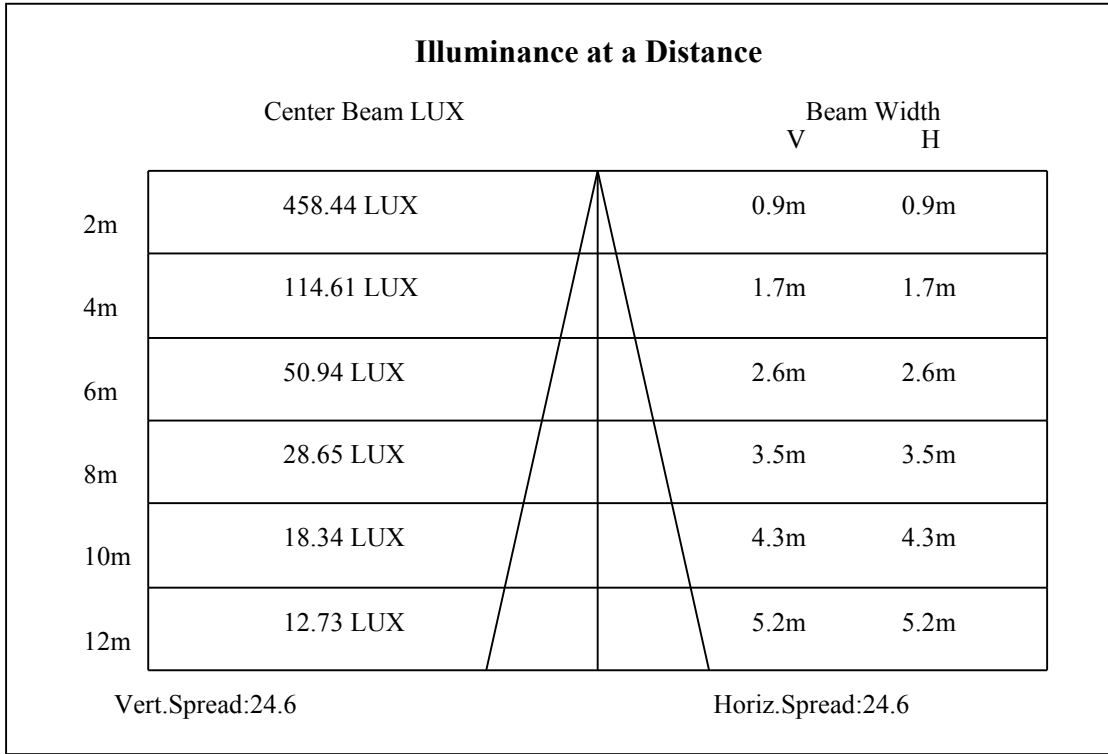
0-10	197.88
10-20	155.37
20-30	127.66
30-40	130.32
40-50	28.03
50-60	3.08
60-70	2.61
70-80	2.48
80-90	1.23
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

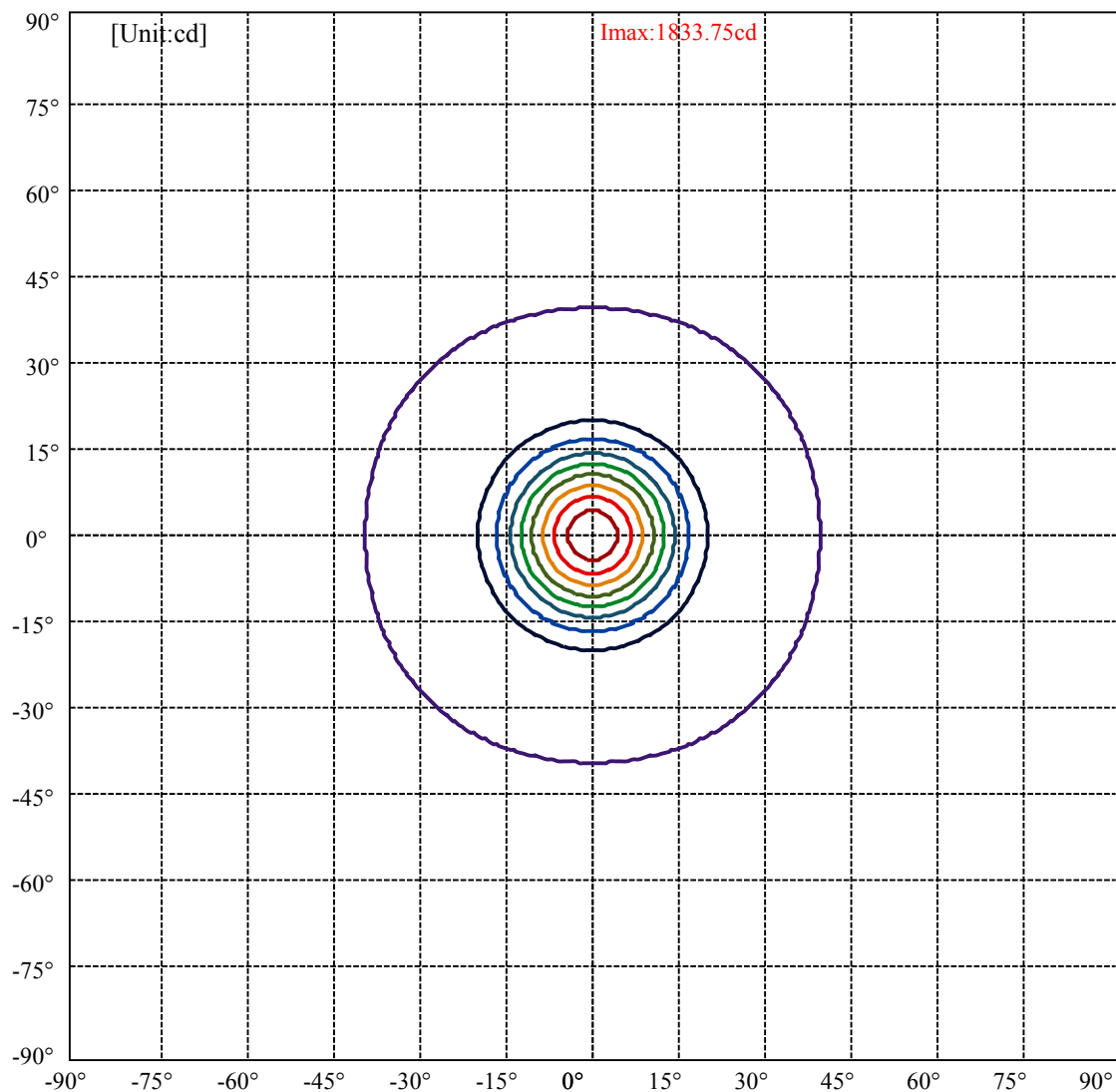


C0(Max): —————
C0/C180: —————
C90/C270: —————

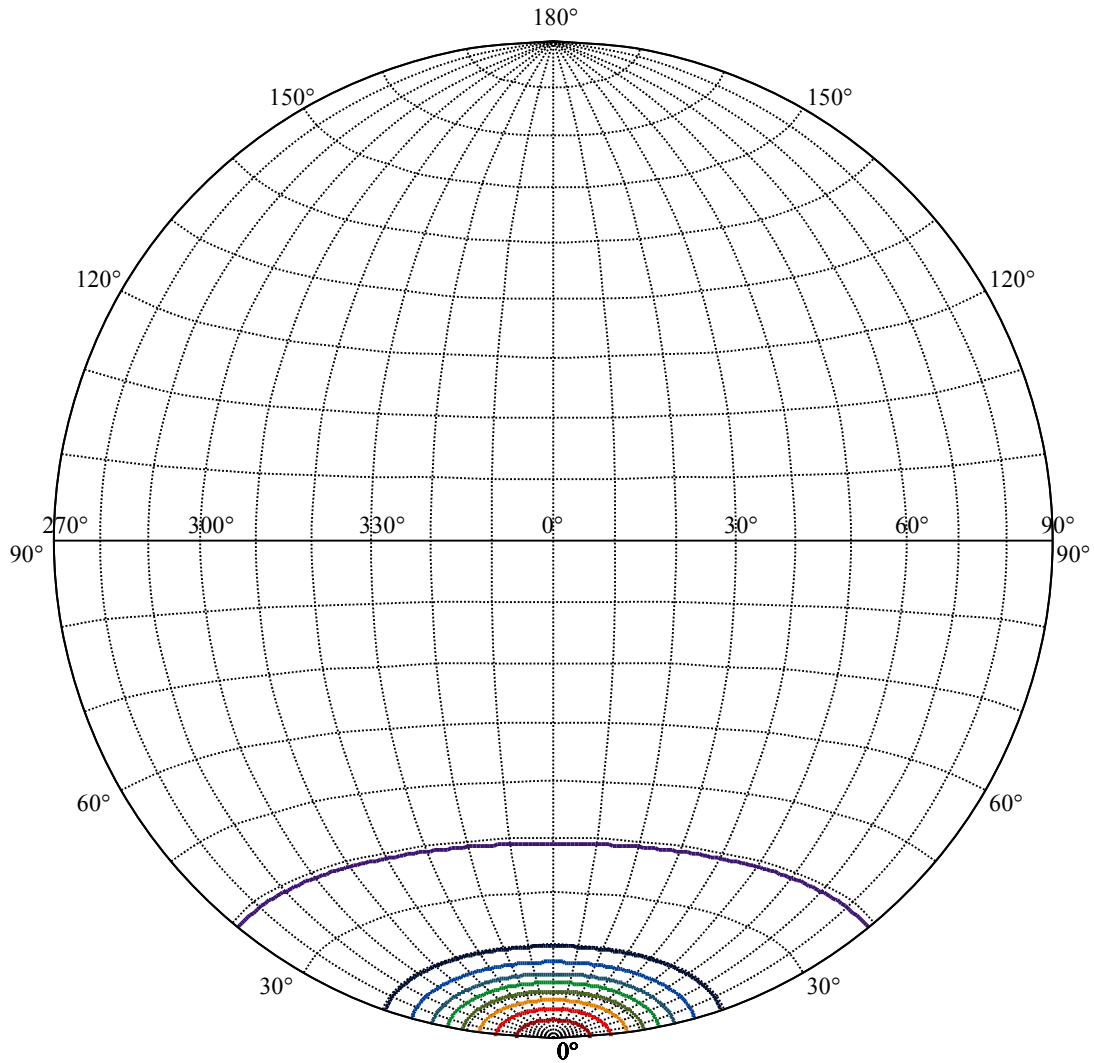
Field angle(10%Imax):C0/180Left:39.1 Right:39.1
:C90/270Left:39.1 Right:39.1

Beam Angle(50%Imax):C0/180Left:12.3 Right:12.3
:C90/270Left:12.3 Right:12.3





(10%Imax) 183.375	—
(20%Imax) 366.75	—
(30%Imax) 550.125	—
(40%Imax) 733.5	—
(50%Imax) 916.875	—
(60%Imax) 1100.25	—
(70%Imax) 1283.62	—
(80%Imax) 1467	—
(90%Imax) 1650.37	—



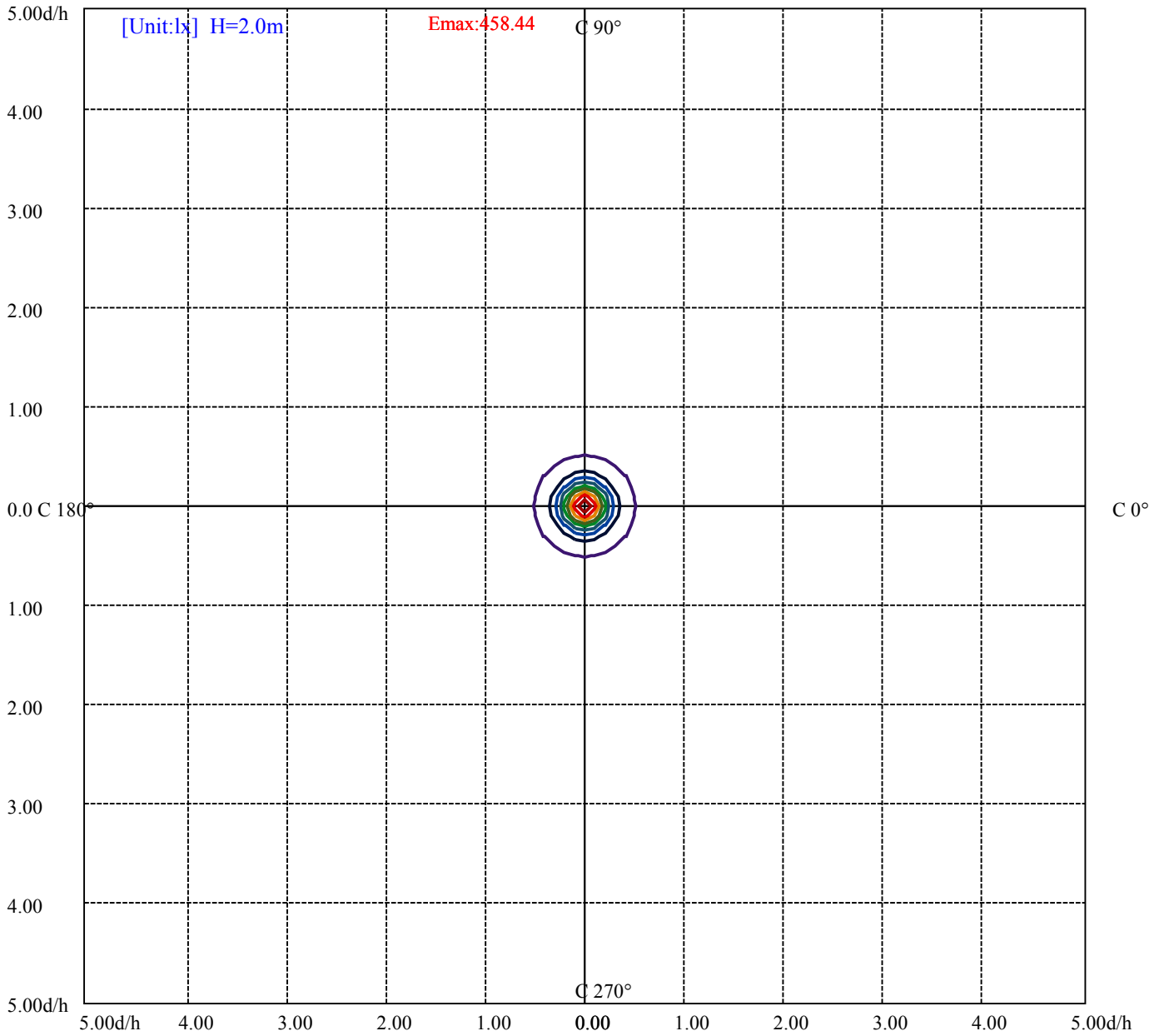
House

[Unit:cd]

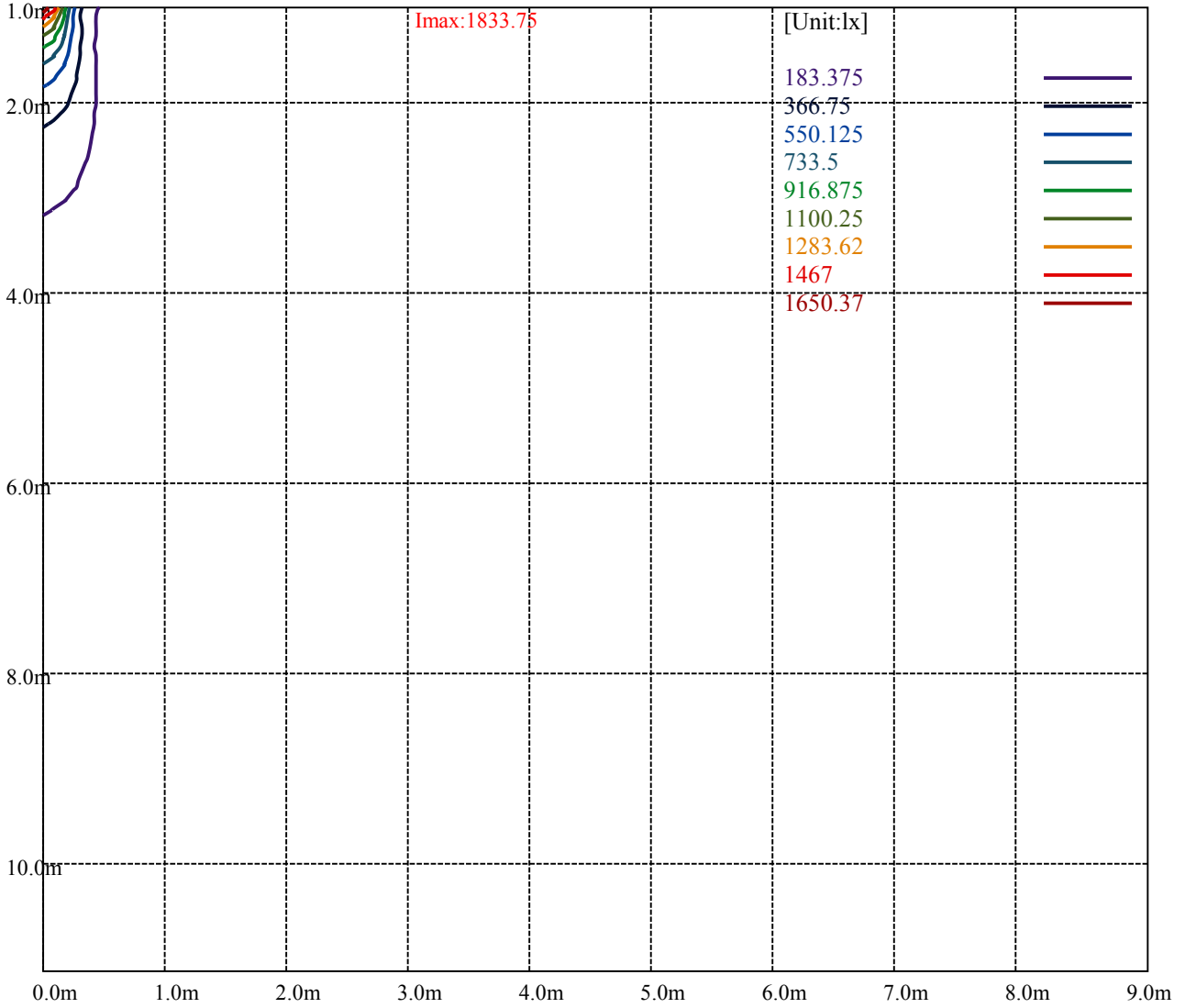
Road

Imax:1833.75

(10%Imax) 183.375	—
(20%Imax) 366.75	—
(30%Imax) 550.125	—
(40%Imax) 733.5	—
(50%Imax) 916.875	—
(60%Imax) 1100.25	—
(70%Imax) 1283.62	—
(80%Imax) 1467	—
(90%Imax) 1650.37	—



- (10%Emax) 45.8435
- (20%Emax) 91.68725
- (30%Emax) 137.5307
- (40%Emax) 183.3743
- (50%Emax) 229.218
- (60%Emax) 275.0625
- (70%Emax) 320.905
- (80%Emax) 366.7475
- (90%Emax) 412.5925



Luminance Table

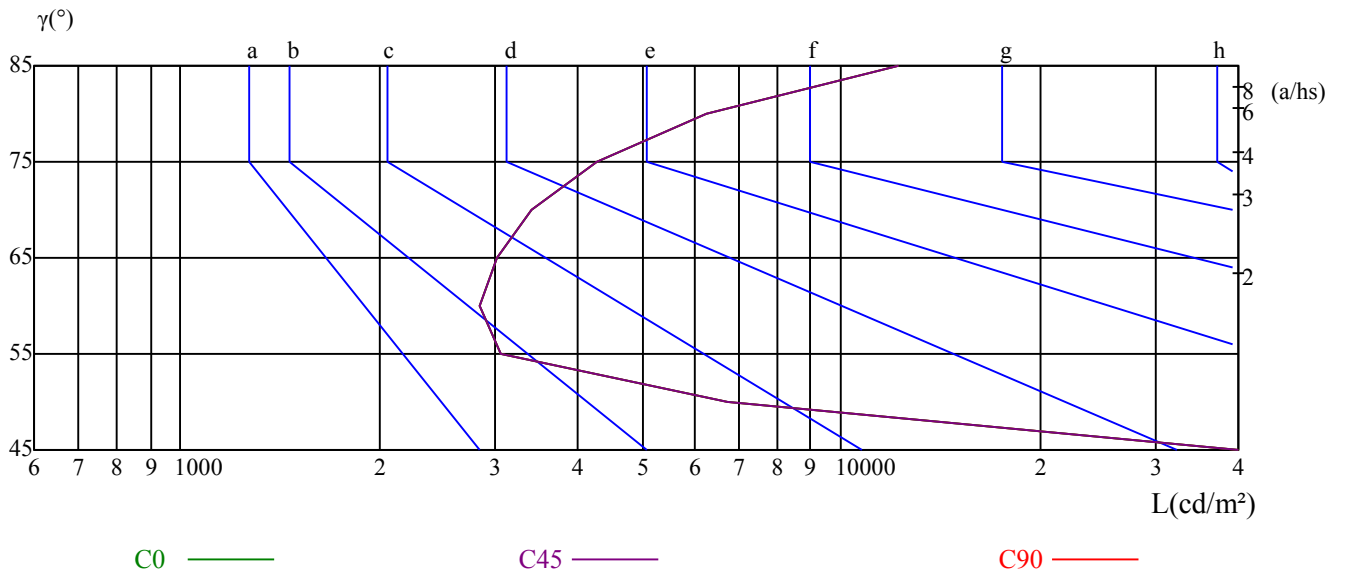
γ	45	50	55	60	65	70	75	80	85
C0	41716	6726	3047	2831	3011	3410	4275	6257	12200
C45	41716	6726	3047	2831	3011	3410	4275	6257	12200
C90	41716	6726	3047	2831	3011	3410	4275	6257	12200

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3011	3011	3011	4275	4275	4275	12200	12200	12200

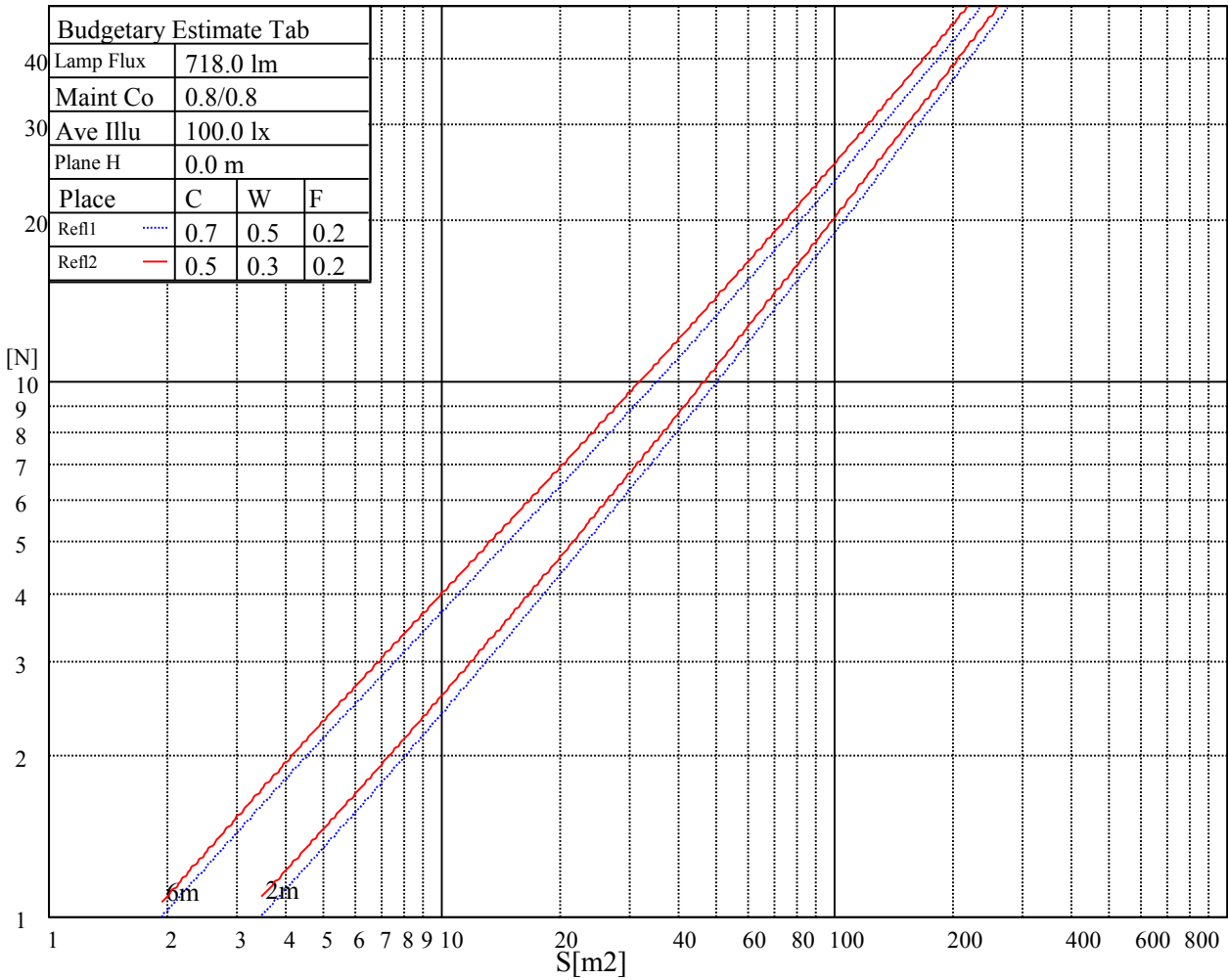
Glare Table

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

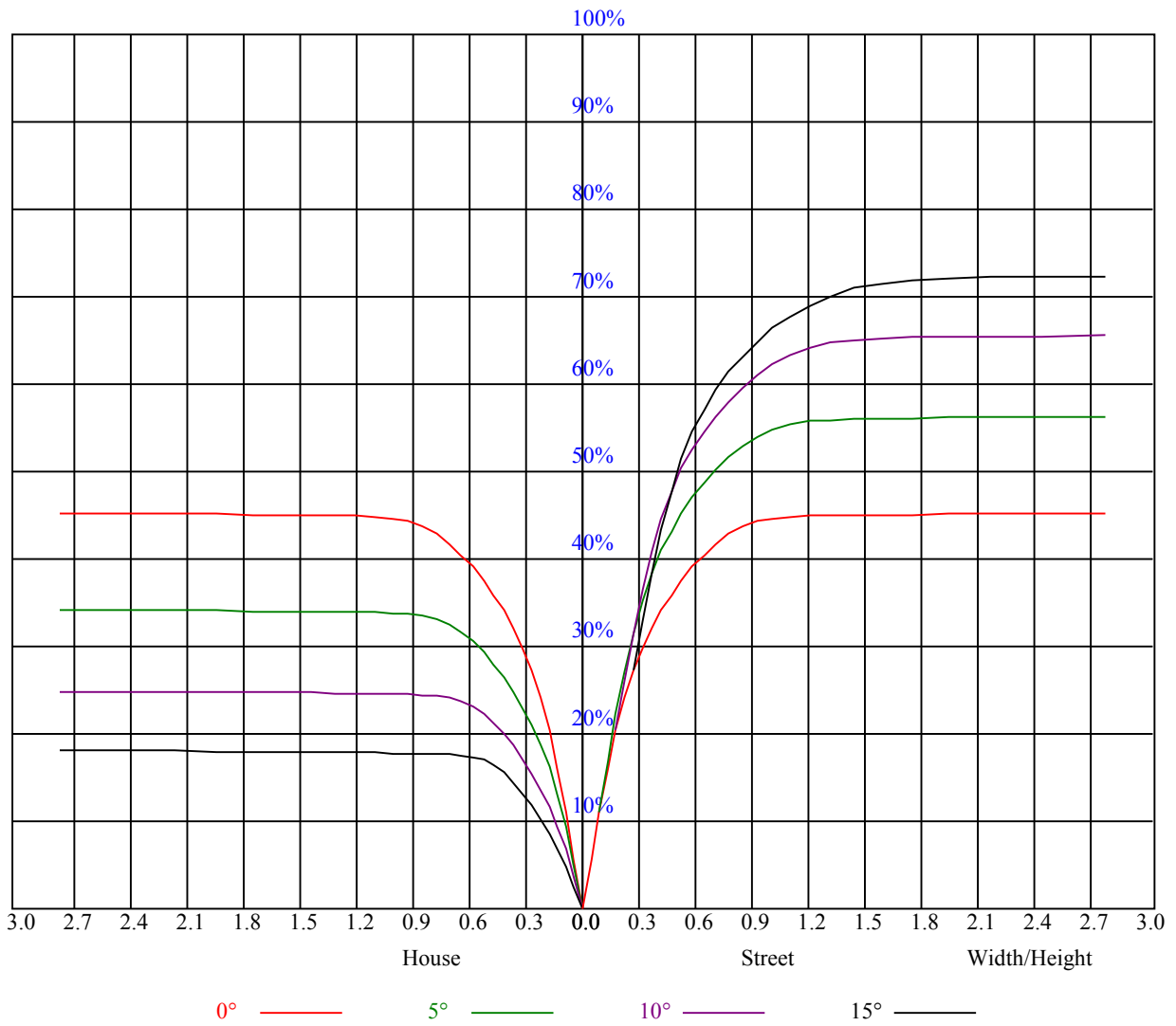
Luminance Limiting Curve



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	6.17	7.17	6.53	7.48	7.80	6.18	7.18	6.55	7.49	7.81
	3H	8.58	9.46	8.96	9.80	10.16	8.61	9.49	8.99	9.82	10.19
	4H	10.01	10.83	10.42	11.18	11.57	9.97	10.79	10.38	11.14	11.53
	6H	11.73	12.47	12.15	12.85	13.24	11.64	12.38	12.06	12.76	13.15
	8H	12.71	13.41	13.15	13.80	14.21	12.61	13.31	13.05	13.70	14.11
	12H	14.34	15.01	14.78	15.40	15.83	14.24	14.91	14.68	15.30	15.73
4H	2H	6.81	7.63	7.22	7.98	8.37	6.82	7.64	7.23	7.99	8.38
	3H	9.56	10.22	9.97	10.63	11.04	9.57	10.23	9.99	10.64	11.05
	4H	11.20	11.79	11.63	12.21	12.66	11.15	11.74	11.58	12.16	12.61
	6H	13.10	13.60	13.57	14.05	14.53	13.02	13.52	13.49	13.97	14.45
	8H	14.20	14.67	14.68	15.13	15.60	14.11	14.58	14.59	15.03	15.51
	12H	15.78	16.18	16.27	16.67	17.15	15.68	16.09	16.17	16.58	17.06
8H	4H	11.82	12.29	12.30	12.74	13.22	11.78	12.25	12.26	12.70	13.18
	6H	14.02	14.39	14.53	14.90	15.38	13.95	14.33	14.46	14.83	15.31
	8H	15.32	15.66	15.85	16.18	16.68	15.24	15.58	15.77	16.10	16.60
	12H	17.06	17.36	17.59	17.85	18.43	16.99	17.28	17.51	17.78	18.36
12H	4H	12.00	12.41	12.49	12.89	13.37	11.96	12.37	12.45	12.86	13.34
	6H	14.58	14.64	14.84	15.12	15.67	14.52	14.58	14.78	15.06	15.60
	8H	15.74	16.03	16.26	16.53	17.11	15.67	15.96	16.19	16.46	17.04
Variation with the observer position at spacings:											
S = 1.0H	3.4/-11.4					3.4/-11.4					
S = 1.5H	5.0/-9.4					5.0/-9.4					
S = 2.0H	6.8/-8.1					6.8/-8.1					
Standard tables:	BK1					BK1					
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	1.09	1.09	1.09	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.00	0.98	0.95	0.98	0.96	0.94	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.86	0.84
2	0.94	0.91	0.87	0.93	0.89	0.86	0.90	0.87	0.84	0.87	0.85	0.83	0.84	0.83	0.81	0.79
3	0.89	0.84	0.81	0.88	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.75
4	0.84	0.79	0.76	0.83	0.79	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.71
5	0.80	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.68
6	0.76	0.71	0.67	0.75	0.70	0.67	0.74	0.70	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.64
7	0.72	0.67	0.64	0.72	0.67	0.64	0.71	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.61
8	0.69	0.64	0.61	0.69	0.64	0.61	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.59
9	0.66	0.61	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.56
10	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.58	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.54



NATA 1687-M

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	1827.00	1701.00	1275.75	735.19	392.63	285.19	241.43	223.88	190.18
45.0	1834.88	1671.75	1195.88	703.13	351.56	270.56	234.73	216.73	178.37
90.0	1832.06	1539.00	1076.01	554.40	313.65	257.34	231.19	212.46	160.14
135.0	1841.06	1645.88	1164.38	631.13	346.50	285.19	236.70	217.41	178.09
180.0	1827.00	1564.31	1053.56	529.93	320.51	257.96	232.71	213.53	154.46
225.0	1834.88	1548.56	1109.81	593.61	338.18	264.04	237.77	217.41	172.80
270.0	1832.06	1674.00	1237.50	700.88	367.31	284.06	240.41	221.74	194.74
315.0	1841.06	1610.44	1094.91	645.30	345.15	264.77	237.99	219.88	174.94
360.0	1827.00	1701.00	1275.75	735.19	392.63	285.19	241.43	223.88	190.18

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	83.36	11.48	4.05	3.09	2.76	2.53	2.31	2.31	2.25
45.0	69.02	9.56	3.71	2.93	2.64	2.42	2.31	2.31	2.25
90.0	46.97	7.71	3.32	2.93	2.64	2.48	2.36	2.31	2.25
135.0	60.47	8.94	3.60	2.98	2.70	2.48	2.36	2.31	2.25
180.0	44.89	7.65	3.38	2.98	2.64	2.48	2.31	2.25	2.25
225.0	53.66	8.72	3.60	3.04	2.70	2.42	2.36	2.25	2.25
270.0	81.62	10.01	4.22	3.04	2.76	2.48	2.42	2.36	2.31
315.0	59.34	9.11	3.71	2.98	2.70	2.48	2.31	2.31	2.19
360.0	83.36	11.48	4.05	3.09	2.76	2.53	2.31	2.31	2.25

C/γ(°)	90.0
0.0	2.19
45.0	2.19
90.0	2.19
135.0	2.25
180.0	2.25
225.0	2.19
270.0	2.25
315.0	2.19
360.0	2.19