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## NATA

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LumCAT: 1406-N	
Luminaire: 92.70.044.00	
Report No: NATA0100	Voltage(V): 37.2000
Test No: GC2019012402	Current(A): 0.1500
LampCAT: NICHIA NTCWT012B-V3	Power (W): 5.5800
Lamp flux(lm): 605.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 39	Width(mm): 39
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 515.62  
Efficiency(%): 85.23%  
Lumens(lm)/Power(W): 93.16  
Central intensity(cd): 786.628  
Maximum intensity(cd): 786.628  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=36.4  
                                  [C90/270]Total=36.4  
Field angle(10%Imax): [C0/180]Total=88.0  
                                  [C90/270]Total=88.0  
Maximum s/h(1/2): C0\_180=0.59 C90\_270=0.59  
Maximum s/h(1/4): C0\_180=0.64 C90\_270=0.64  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 85.92%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 95.268%

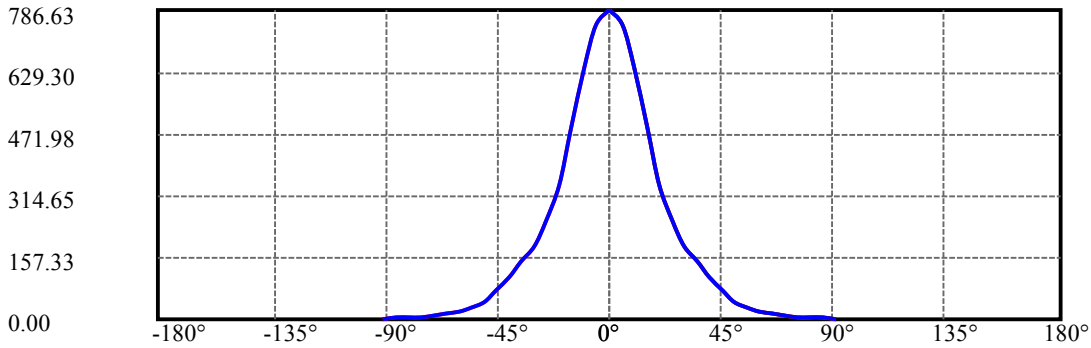
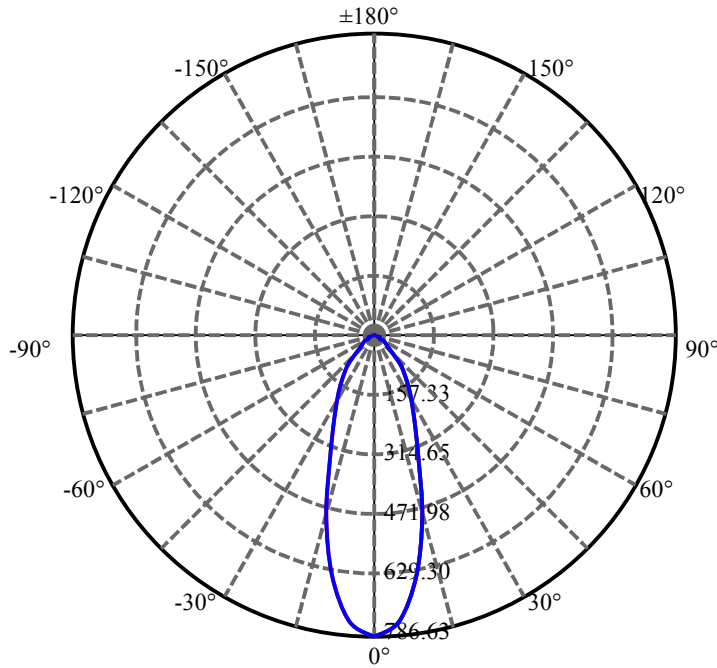
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	786.628	4.704	4.704	.778%	.912%
5.0	749.074	35.786	40.49	5.915%	7.853%
10.0	637.692	60.697	101.187	10.033%	19.625%
15.0	486.049	68.955	170.142	11.398%	32.998%
20.0	341.198	63.966	234.108	10.573%	45.404%
25.0	246.867	57.187	291.296	9.452%	56.495%
30.0	187.741	51.454	342.75	8.505%	66.474%
35.0	146.890	46.182	388.932	7.633%	75.431%
40.0	107.627	37.921	426.853	6.268%	82.785%
45.0	71.592	27.749	454.601	4.587%	88.167%
50.0	44.184	18.553	473.154	3.067%	91.765%
55.0	28.357	12.733	485.887	2.105%	94.234%
60.0	19.688	9.346	495.232	1.545%	96.047%
65.0	14.070	6.989	502.222	1.155%	97.402%
70.0	9.949	5.125	507.347	.847%	98.396%
75.0	6.926	3.667	511.014	.606%	99.107%
80.0	4.521	2.441	513.454	.403%	99.581%
85.0	2.869	1.566	515.021	.259%	99.885%
90.0	2.173	0.595	515.616	.098%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	342.75	56.65%	66.47%
0-40	426.85	70.55%	82.79%
0-60	495.23	81.86%	96.05%
0-90	515.02	85.13%	99.88%
0-120	515.02	85.13%	99.88%
0-180	515.62	85.23%	100.00%
60-90	29.13	4.82%	5.65%
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%
0-38.11	412.49	68.18%	80.00%

ZONAL LUMEN SUMMARY

0-10	101.19
10-20	132.92
20-30	108.64
30-40	84.10
40-50	46.30
50-60	22.08
60-70	12.11
70-80	6.11
80-90	1.57
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: —————

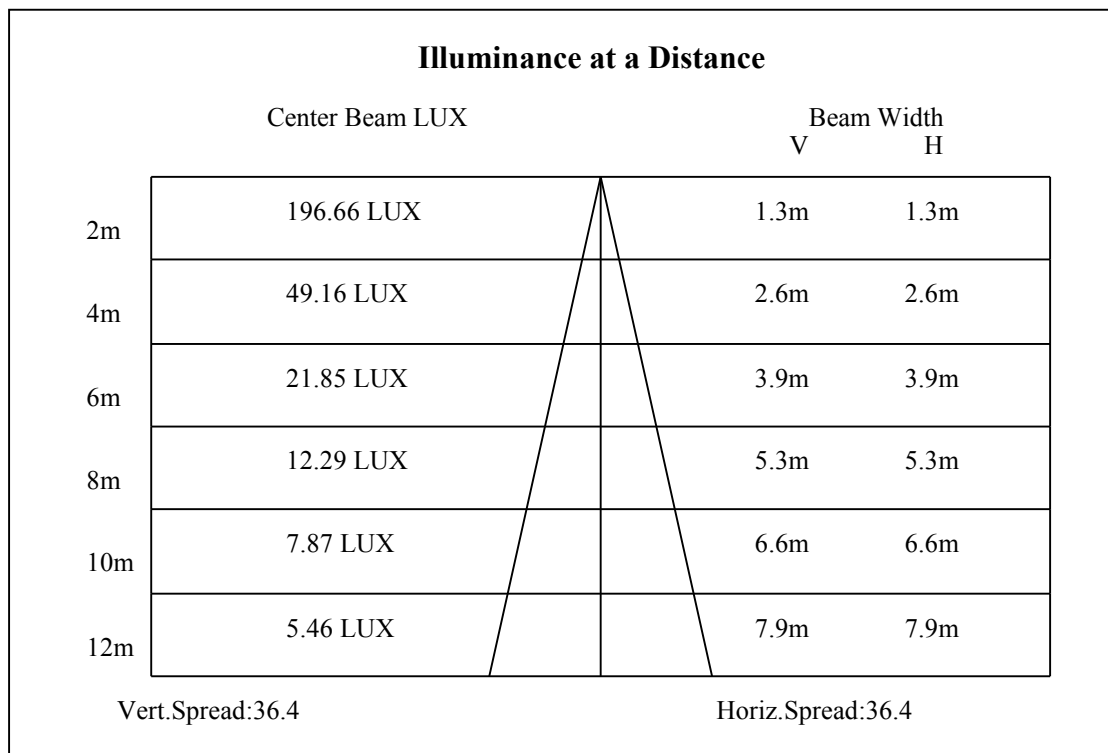
C90/C270: —————

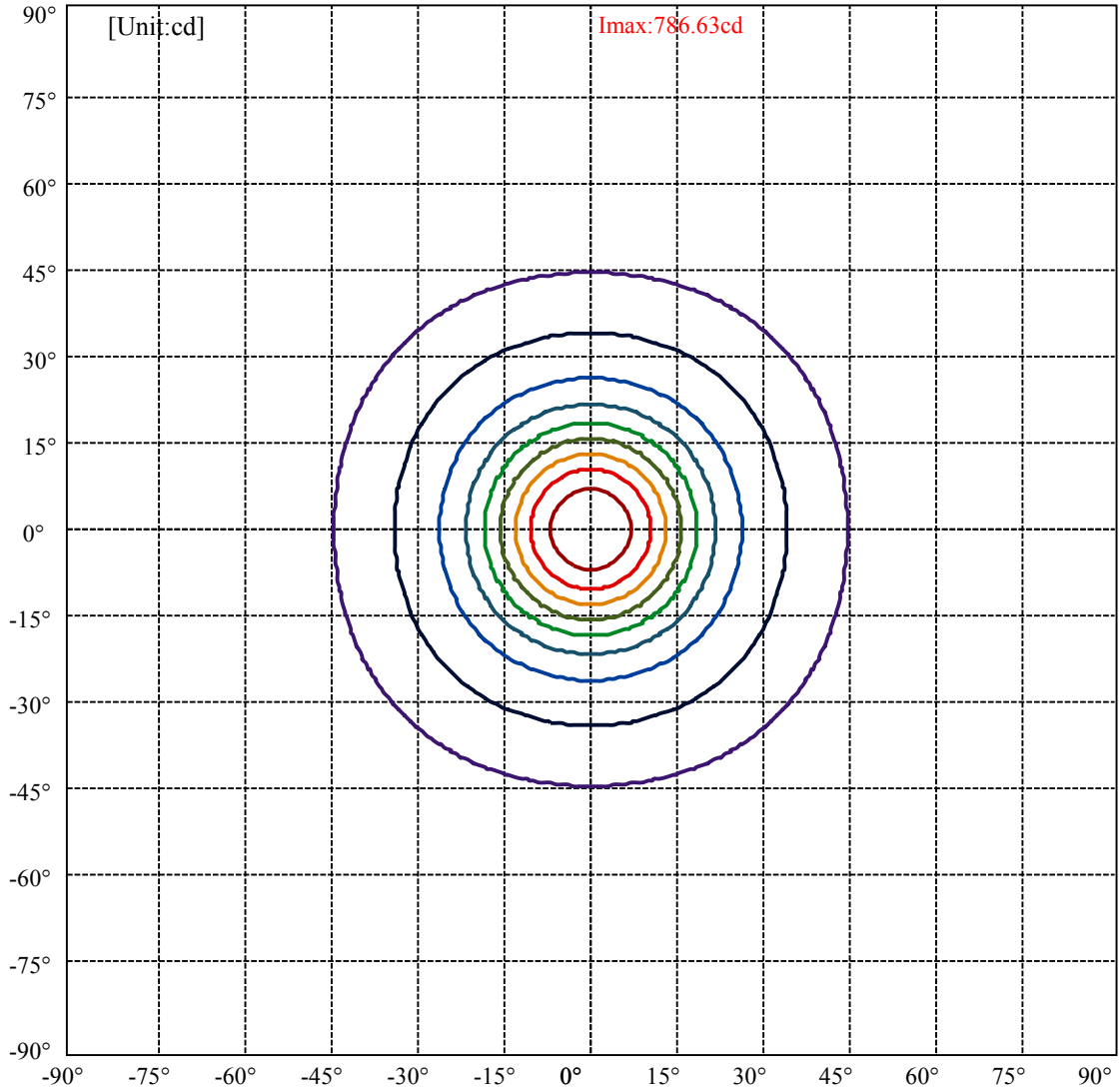
Field angle(10%Imax):C0/180Left:44.0 Right:44.0

:C90/270Left:44.0 Right:44.0

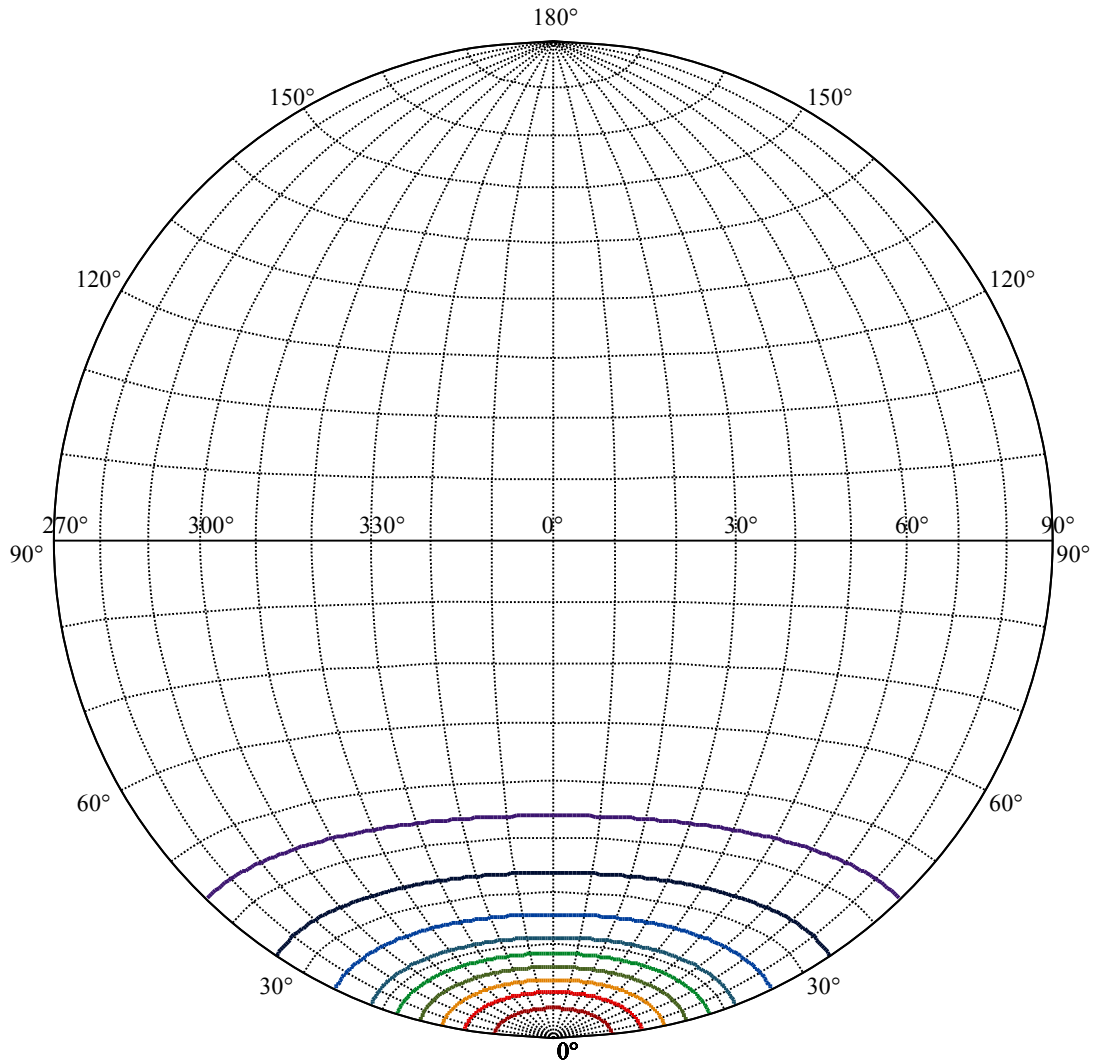
Beam Angle(50%Imax):C0/180Left:18.2 Right:18.2

:C90/270Left:18.2 Right:18.2





(10%Imax) 78.6628	—
(20%Imax) 157.326	—
(30%Imax) 235.988	—
(40%Imax) 314.651	—
(50%Imax) 393.314	—
(60%Imax) 471.977	—
(70%Imax) 550.64	—
(80%Imax) 629.303	—
(90%Imax) 707.965	—

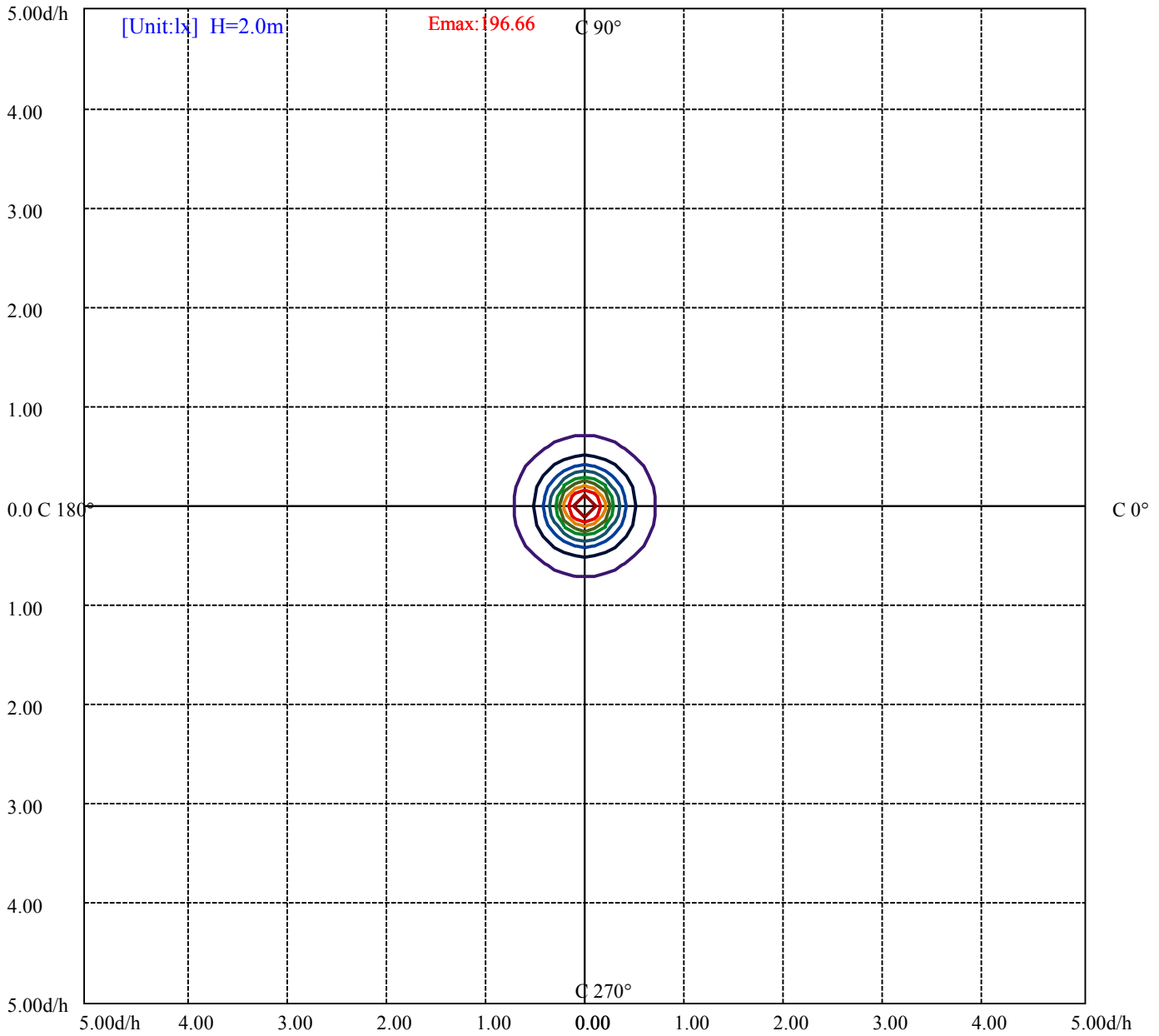


House

[Unit:cd]

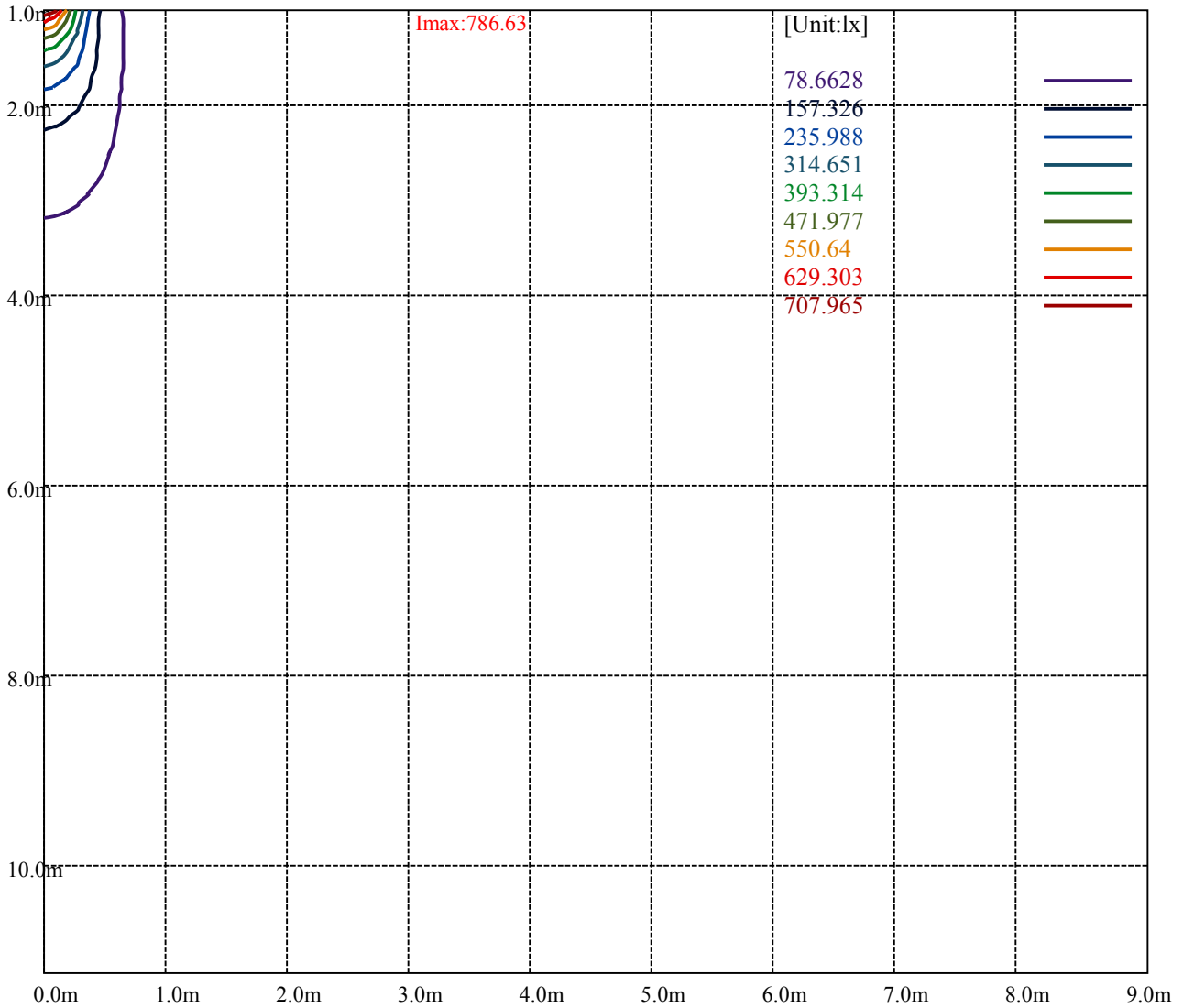
Road

<b>Imax:786.63</b>	
(10%Imax) 78.6628	—
(20%Imax) 157.326	—
(30%Imax) 235.988	—
(40%Imax) 314.651	—
(50%Imax) 393.314	—
(60%Imax) 471.977	—
(70%Imax) 550.64	—
(80%Imax) 629.303	—
(90%Imax) 707.965	—



(10%Emax) 19.66567	—
(20%Emax) 39.33125	—
(30%Emax) 58.997	—
(40%Emax) 78.66275	—
(50%Emax) 98.3285	—
(60%Emax) 117.994	—
(70%Emax) 137.6597	—
(80%Emax) 157.3255	—
(90%Emax) 176.991	—





Luminance Table

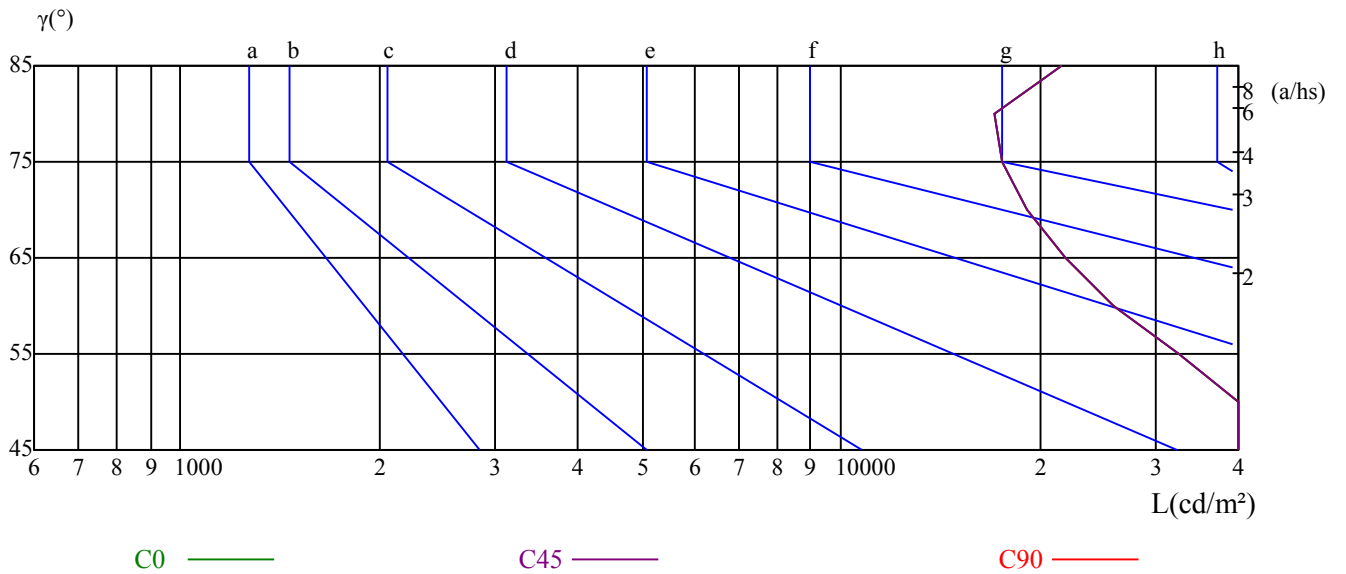
$\gamma$	45	50	55	60	65	70	75	80	85
C0	66566	45193	32504	25888	21888	19125	17593	17118	21641
C45	66566	45193	32504	25888	21888	19125	17593	17118	21641
C90	66566	45193	32504	25888	21888	19125	17593	17118	21641

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
21888	21888	21888	17593	17593	17593	21641	21641	21641

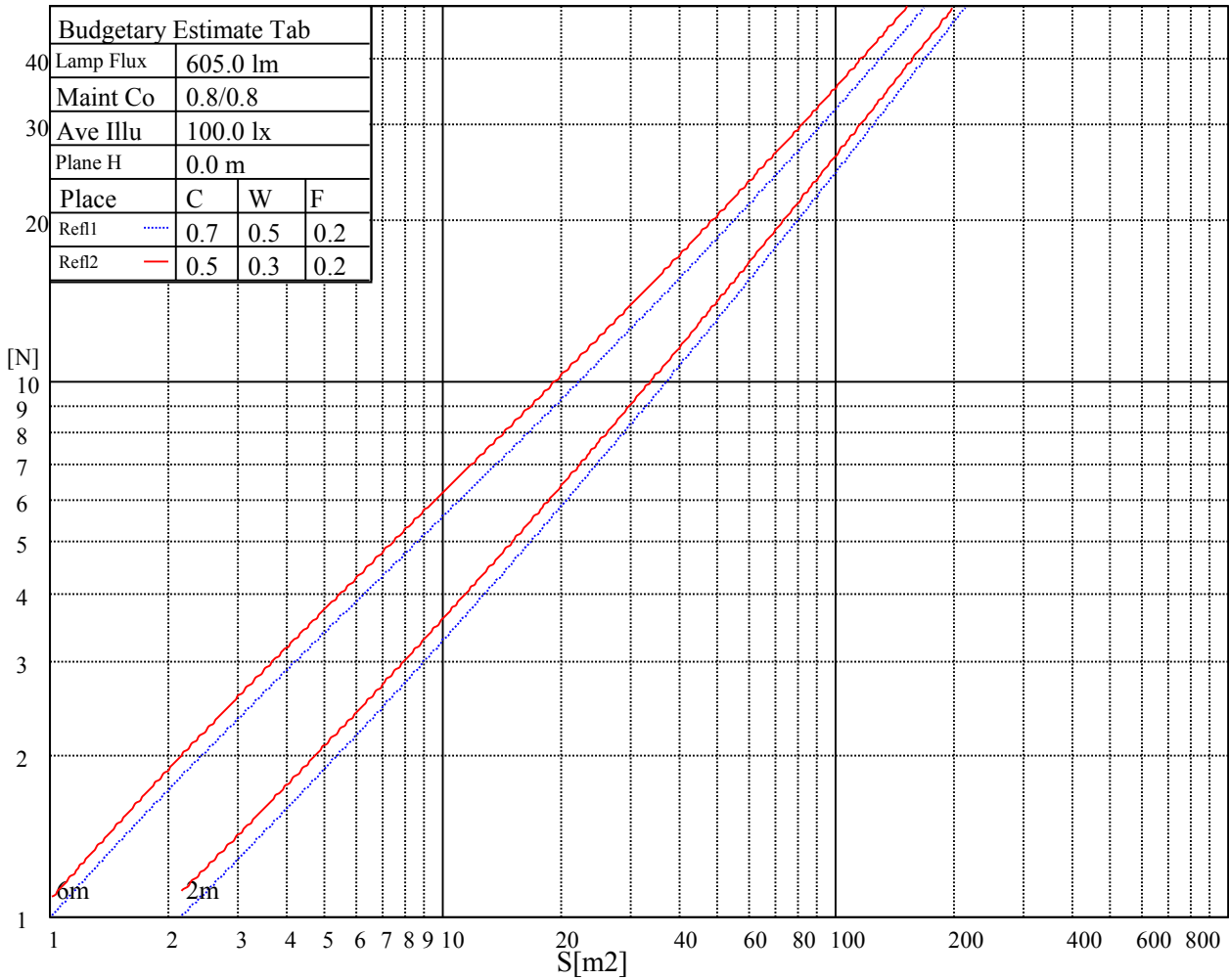
Glare Table

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

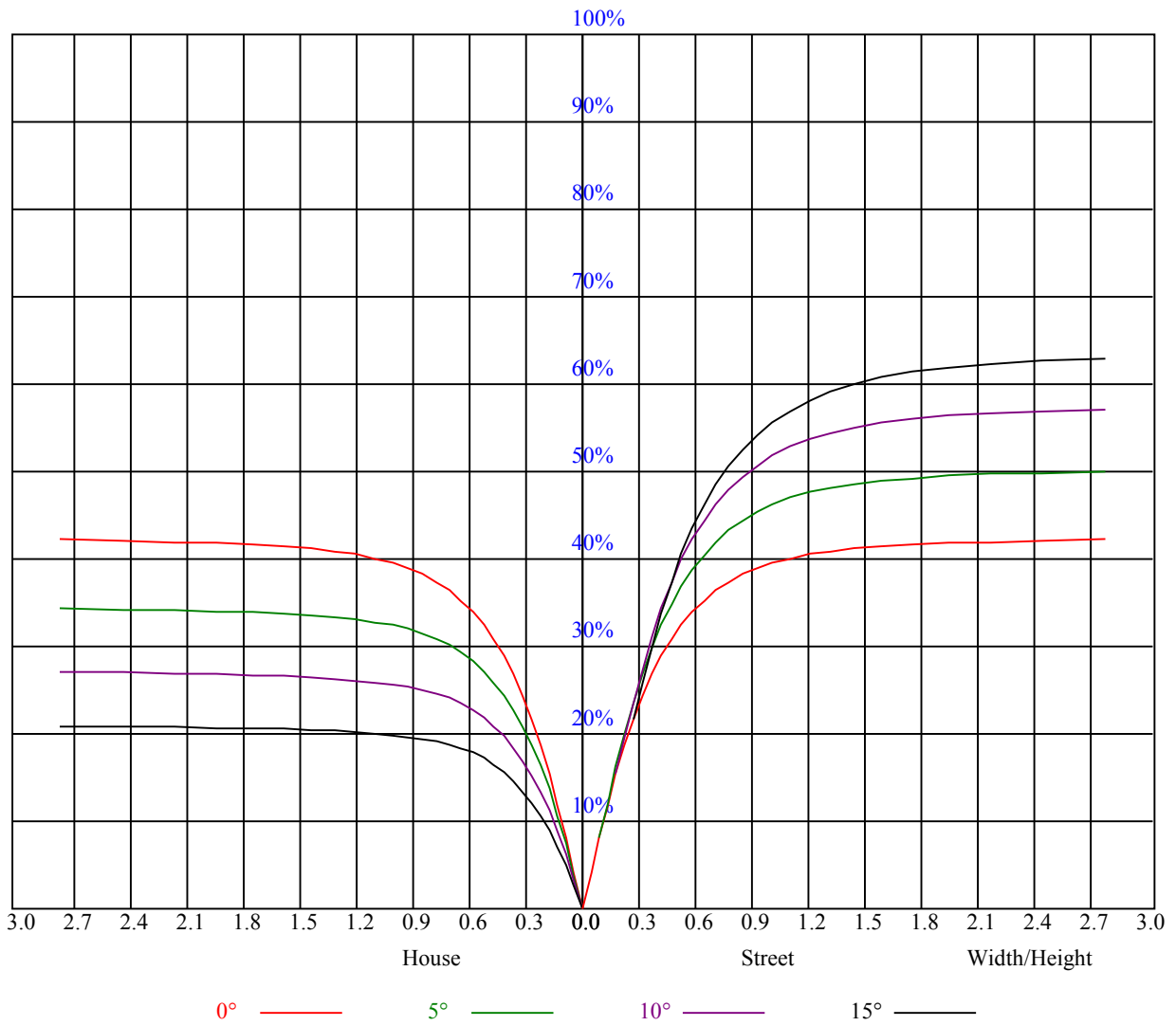
Luminance Limiting Curve



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	22.23	23.40	22.60	23.71	24.03	22.49	23.66	22.85	23.97	24.28
	3H	23.28	24.31	23.66	24.64	25.01	23.55	24.58	23.93	24.91	25.28
	4H	23.68	24.64	24.09	25.00	25.38	23.96	24.93	24.37	25.28	25.66
	6H	24.01	24.89	24.43	25.26	25.66	24.33	25.21	24.74	25.58	25.98
	8H	24.15	24.98	24.58	25.37	25.78	24.49	25.32	24.92	25.71	26.12
	12H	24.40	25.19	24.83	25.57	26.01	24.76	25.56	25.20	25.94	26.37
4H	2H	22.54	23.50	22.94	23.85	24.24	22.75	23.72	23.16	24.07	24.45
	3H	23.80	24.59	24.21	24.99	25.40	24.03	24.81	24.44	25.22	25.62
	4H	24.32	25.02	24.76	25.45	25.89	24.57	25.27	25.00	25.69	26.14
	6H	24.72	25.32	25.18	25.77	26.24	24.99	25.60	25.46	26.05	26.52
	8H	24.92	25.48	25.39	25.93	26.40	25.22	25.79	25.69	26.24	26.71
	12H	25.21	25.70	25.70	26.19	26.67	25.55	26.04	26.03	26.53	27.00
8H	4H	24.49	25.06	24.96	25.50	25.98	24.71	25.28	25.19	25.73	26.20
	6H	25.03	25.48	25.53	25.98	26.47	25.28	25.74	25.79	26.24	26.72
	8H	25.33	25.74	25.86	26.26	26.75	25.61	26.02	26.14	26.54	27.04
	12H	26.14	26.50	26.66	27.00	27.57	26.45	26.81	26.97	27.31	27.88
12H	4H	24.49	24.99	24.98	25.47	25.95	24.71	25.20	25.20	25.69	26.16
	6H	25.53	25.49	25.61	25.96	26.50	25.77	25.73	25.85	26.20	26.75
	8H	25.45	25.81	25.97	26.30	26.88	25.72	26.08	26.24	26.57	27.15
Variation with the observer position at spacings:											
S = 1.0H	1.0/-1.8				1.0/-1.8						
S = 1.5H	2.2/-2.4				2.2/-2.4						
S = 2.0H	4.0/-2.5				4.0/-2.5						
Standard tables:	BK2				BK2						
Uncorrected UGR	6.4				6.4						



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	1.02	1.02	1.02	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.88	0.88	0.88	0.86
1	0.94	0.91	0.89	0.92	0.89	0.87	0.88	0.86	0.85	0.85	0.83	0.82	0.82	0.81	0.80	0.78
2	0.87	0.83	0.79	0.85	0.82	0.79	0.82	0.79	0.77	0.80	0.77	0.75	0.77	0.75	0.74	0.72
3	0.81	0.76	0.72	0.79	0.75	0.72	0.77	0.73	0.70	0.75	0.72	0.69	0.73	0.70	0.68	0.67
4	0.75	0.70	0.66	0.74	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.64	0.69	0.66	0.64	0.62
5	0.70	0.65	0.61	0.70	0.65	0.61	0.68	0.64	0.60	0.67	0.63	0.60	0.65	0.62	0.59	0.58
6	0.66	0.61	0.57	0.66	0.61	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.62	0.58	0.56	0.55
7	0.63	0.57	0.54	0.62	0.57	0.53	0.61	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.51
8	0.59	0.54	0.51	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.50	0.56	0.53	0.50	0.49
9	0.56	0.51	0.48	0.56	0.51	0.48	0.55	0.51	0.48	0.54	0.50	0.47	0.54	0.50	0.47	0.46
10	0.54	0.49	0.45	0.53	0.49	0.45	0.53	0.48	0.45	0.52	0.48	0.45	0.51	0.48	0.45	0.44



NATA 1406-N

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	786.26	760.39	668.76	510.58	363.38	267.13	200.64	156.09	117.23
45.0	785.59	764.83	664.31	505.01	362.03	252.73	191.25	149.57	114.13
90.0	786.32	741.99	618.69	473.29	324.45	233.94	178.71	139.28	99.90
135.0	788.34	749.14	648.96	492.53	350.72	254.53	195.47	152.61	113.12
180.0	786.26	735.53	602.61	470.64	329.34	242.16	184.16	143.72	100.97
225.0	785.59	731.19	612.34	460.01	327.04	236.14	183.43	142.14	102.32
270.0	786.32	760.28	655.26	495.39	341.55	248.40	184.89	144.68	105.08
315.0	788.34	749.25	630.62	480.94	331.09	239.91	183.38	147.04	108.28
360.0	786.26	760.39	668.76	510.58	363.38	267.13	200.64	156.09	117.23
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	80.33	49.05	31.28	21.49	15.36	10.74	7.88	5.29	3.21
45.0	75.71	47.19	29.93	20.59	14.34	10.52	7.26	4.78	3.09
90.0	66.77	40.56	26.10	17.49	12.94	9.11	6.30	4.11	2.64
135.0	72.90	45.51	28.41	20.03	14.06	9.84	7.03	4.50	2.81
180.0	67.28	41.57	27.00	19.01	13.61	9.68	6.53	4.33	2.76
225.0	64.41	41.29	26.78	18.62	13.33	9.39	6.30	3.94	2.64
270.0	71.55	43.48	28.91	20.31	14.57	10.13	7.14	4.50	2.76
315.0	73.80	44.83	28.46	19.97	14.34	10.18	6.98	4.73	3.04
360.0	80.33	49.05	31.28	21.49	15.36	10.74	7.88	5.29	3.21
C/ $\gamma$ (°)	90.0								
0.0	2.31								
45.0	2.31								
90.0	2.08								
135.0	2.08								
180.0	2.08								
225.0	2.08								
270.0	2.14								
315.0	2.31								
360.0	2.31								