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NATA

LumCAT: 1677-A
Luminaire: 92.70.188.00+92.70.147.00
Report No: NATA0100
Test No: GC2019011618
LampCAT: NICHIA NFCWL036B-V3
Lamp flux(lm): 1299.0
Number of Lamps: 1
Length(mm): 46
Phm Type: C

Voltage(V): 34.8400
Current(A): 0.3000
Power (W): 13.9360
PF: 0.0000
Ballast type: DC
Width(mm): 46
Height(mm): 0

Photometric Results

Lumens(lm): 1052.22
Efficiency(%): 81.00%
Lumens(lm)/Power(W): 76.73
Central intensity(cd): 3023.156
Maximum intensity(cd): 3023.156
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=27.9
 [C90/270]Total=27.9
Field angle(10%Imax): [C0/180]Total=58.7
 [C90/270]Total=58.7
Maximum s/h(1/2): C0_180=0.47 C90_270=0.47
Maximum s/h(1/4): C0_180=0.48 C90_270=0.48
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.32%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.822%

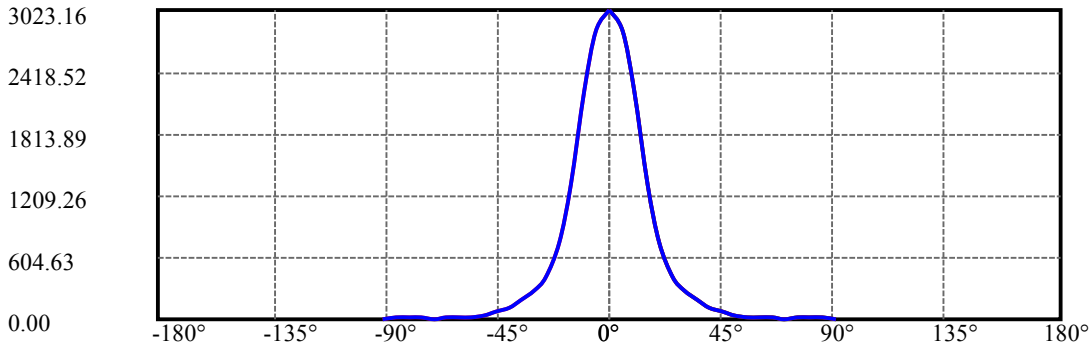
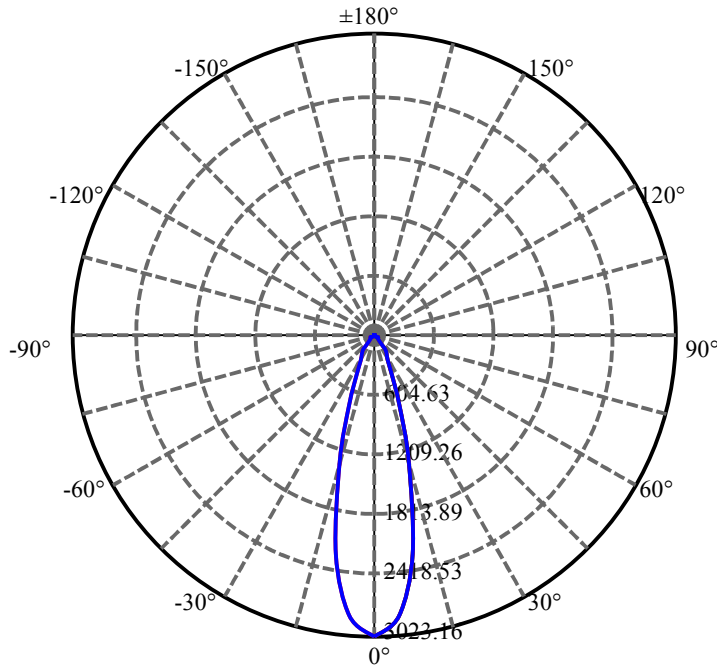
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3023.156	18.079	18.079	1.392%	1.718%
5.0	2814.117	134.440	152.519	10.349%	14.495%
10.0	2231.016	212.355	364.874	16.348%	34.677%
15.0	1322.255	187.586	552.46	14.441%	52.504%
20.0	744.279	139.533	691.993	10.742%	65.765%
25.0	417.959	96.821	788.814	7.454%	74.967%
30.0	284.948	78.095	866.91	6.012%	82.389%
35.0	186.307	58.575	925.484	4.509%	87.956%
40.0	116.191	40.938	966.423	3.152%	91.846%
45.0	66.579	25.805	992.228	1.987%	94.299%
50.0	39.980	16.787	1009.015	1.292%	95.894%
55.0	23.337	10.478	1019.494	.807%	96.890%
60.0	10.800	5.127	1024.621	.395%	97.377%
65.0	9.394	4.667	1029.287	.359%	97.821%
70.0	9.338	4.810	1034.097	.370%	98.278%
75.0	9.731	5.152	1039.249	.397%	98.768%
80.0	11.482	6.198	1045.447	.477%	99.357%
85.0	10.202	5.571	1051.018	.429%	99.886%
90.0	4.373	1.199	1052.217	.092%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	866.91	66.74%	82.39%
0-40	966.42	74.40%	91.85%
0-60	1024.62	78.88%	97.38%
0-90	1051.02	80.91%	99.89%
0-120	1051.02	80.91%	99.89%
0-180	1052.22	81.00%	100.00%
60-90	31.52	2.43%	3.00%
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%
0-28.39	841.77	64.80%	80.00%

ZONAL LUMEN SUMMARY

0-10	364.87
10-20	327.12
20-30	174.92
30-40	99.51
40-50	42.59
50-60	15.61
60-70	9.48
70-80	11.35
80-90	5.57
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: ———

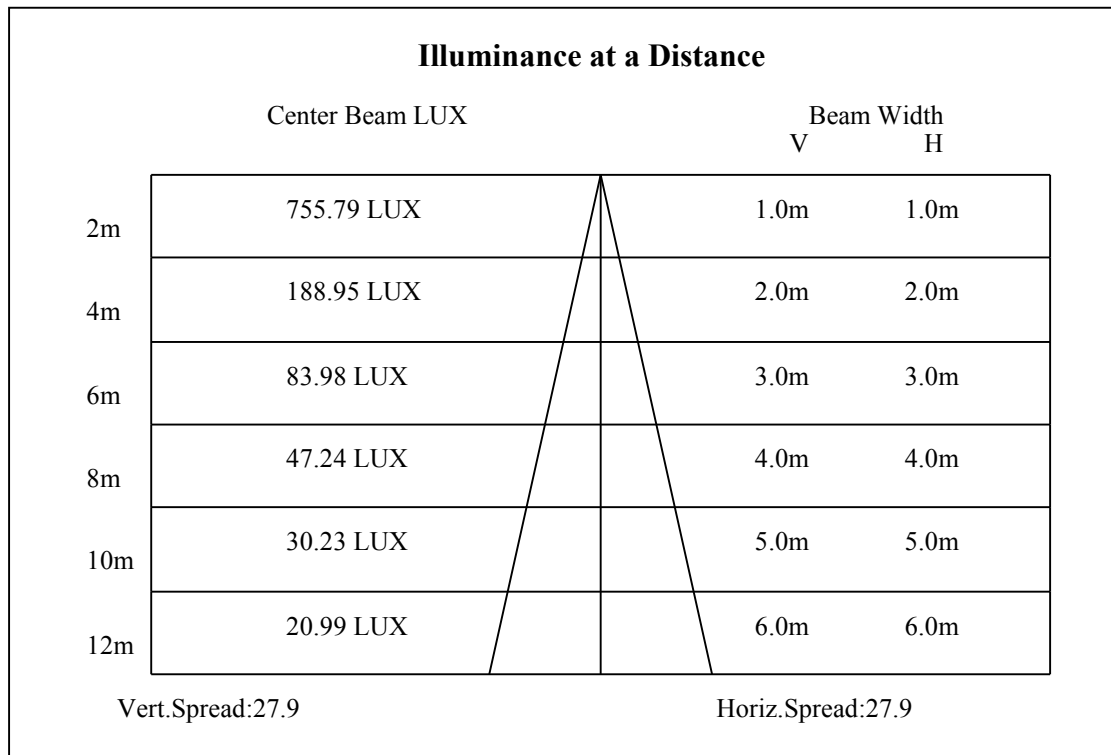
C90/C270: ———

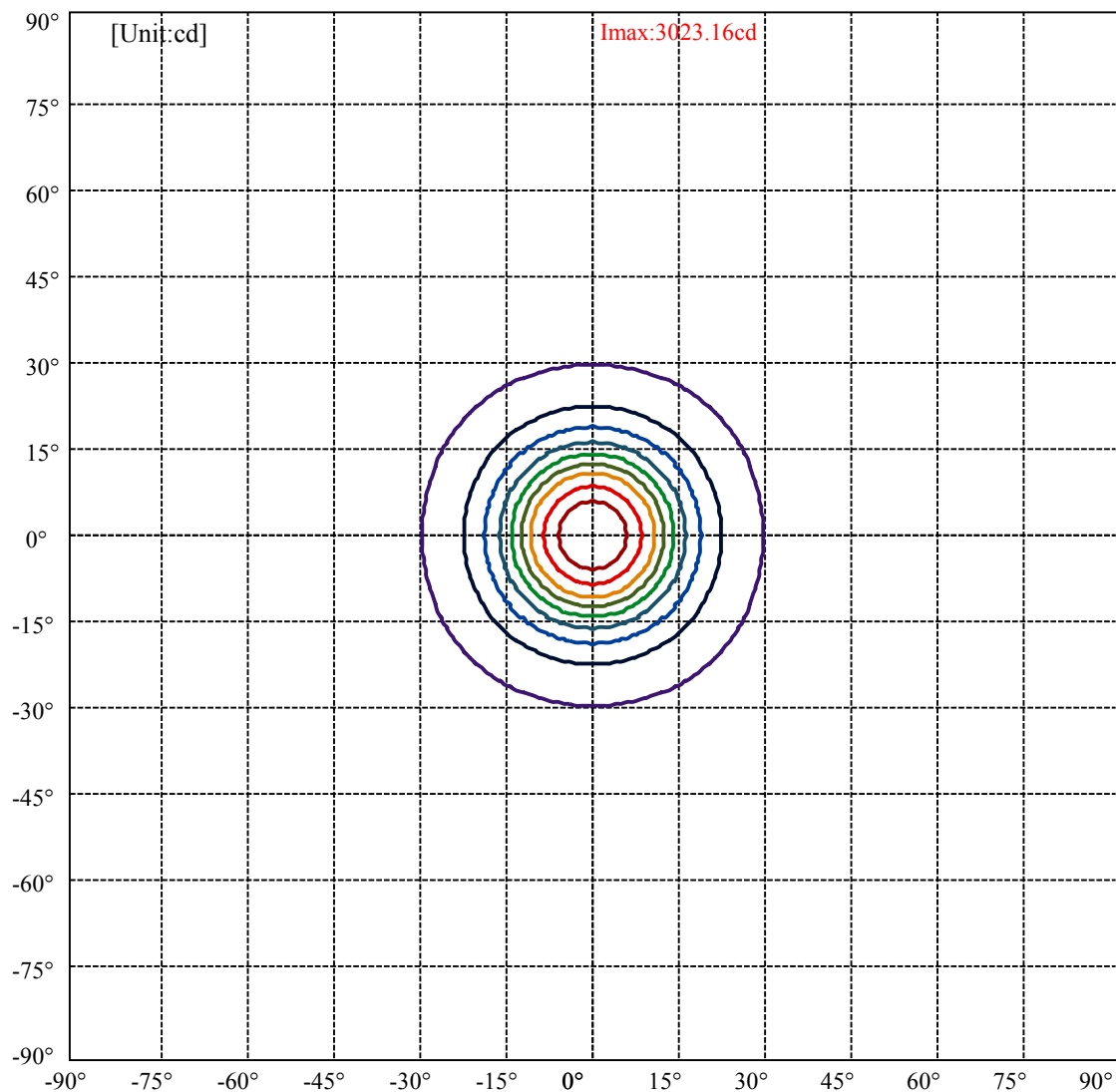
Field angle(10%Imax):C0/180Left:29.3 Right:29.3

:C90/270Left:29.3 Right:29.3

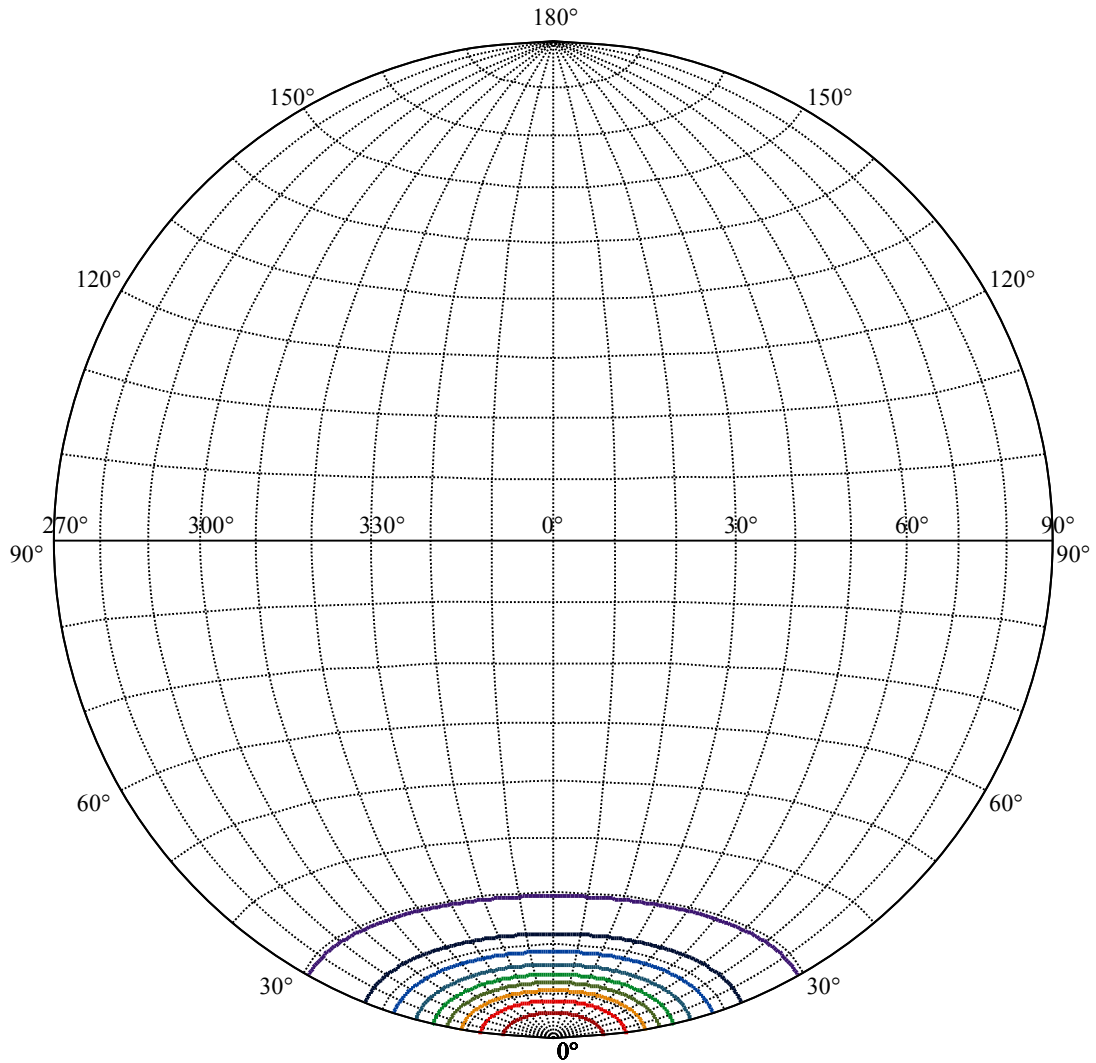
Beam Angle(50%Imax):C0/180Left:14.0 Right:14.0

:C90/270Left:14.0 Right:14.0





(10%Imax) 302.316	—
(20%Imax) 604.631	—
(30%Imax) 906.947	—
(40%Imax) 1209.26	—
(50%Imax) 1511.58	—
(60%Imax) 1813.89	—
(70%Imax) 2116.21	—
(80%Imax) 2418.52	—
(90%Imax) 2720.84	—



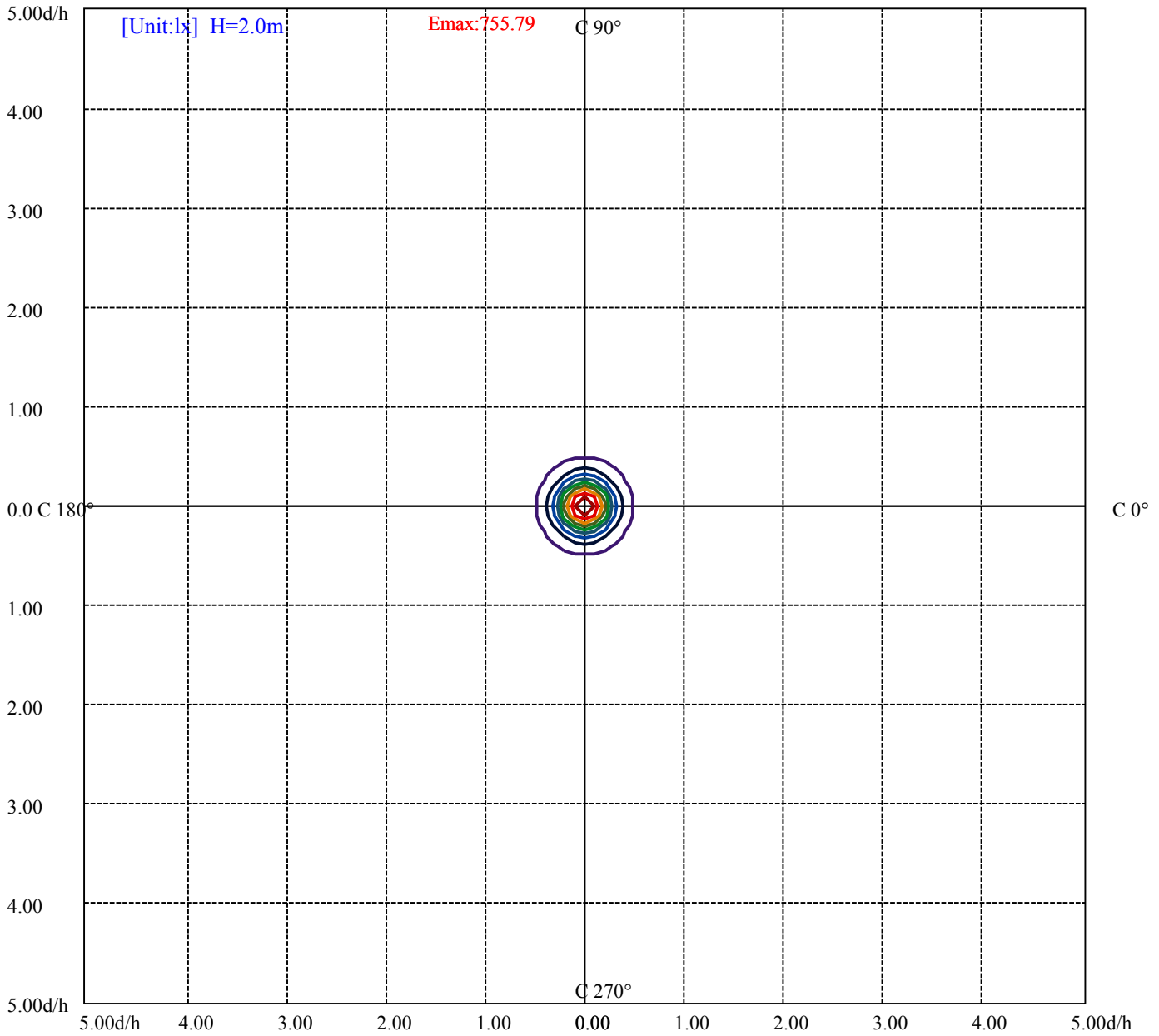
House

[Unit:cd]

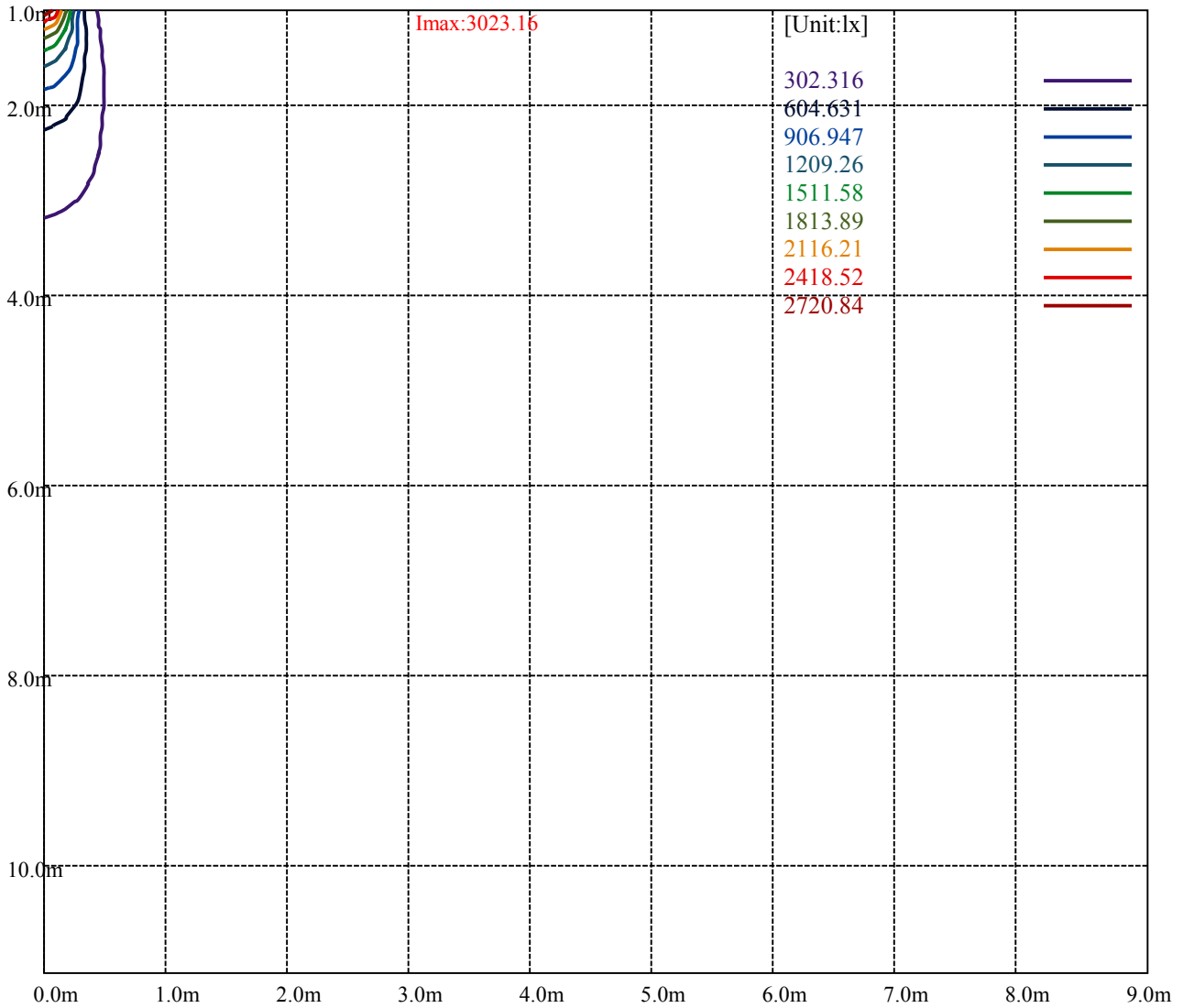
Road

I_{max}:3023.16

(10%I _{max}) 302.316	—
(20%I _{max}) 604.631	—
(30%I _{max}) 906.947	—
(40%I _{max}) 1209.26	—
(50%I _{max}) 1511.58	—
(60%I _{max}) 1813.89	—
(70%I _{max}) 2116.21	—
(80%I _{max}) 2418.52	—
(90%I _{max}) 2720.84	—



(10%Emax) 75.57875	—
(20%Emax) 151.1575	—
(30%Emax) 226.7363	—
(40%Emax) 302.315	—
(50%Emax) 377.8925	—
(60%Emax) 453.4725	—
(70%Emax) 529.05	—
(80%Emax) 604.63	—
(90%Emax) 680.2075	—



Luminance Table

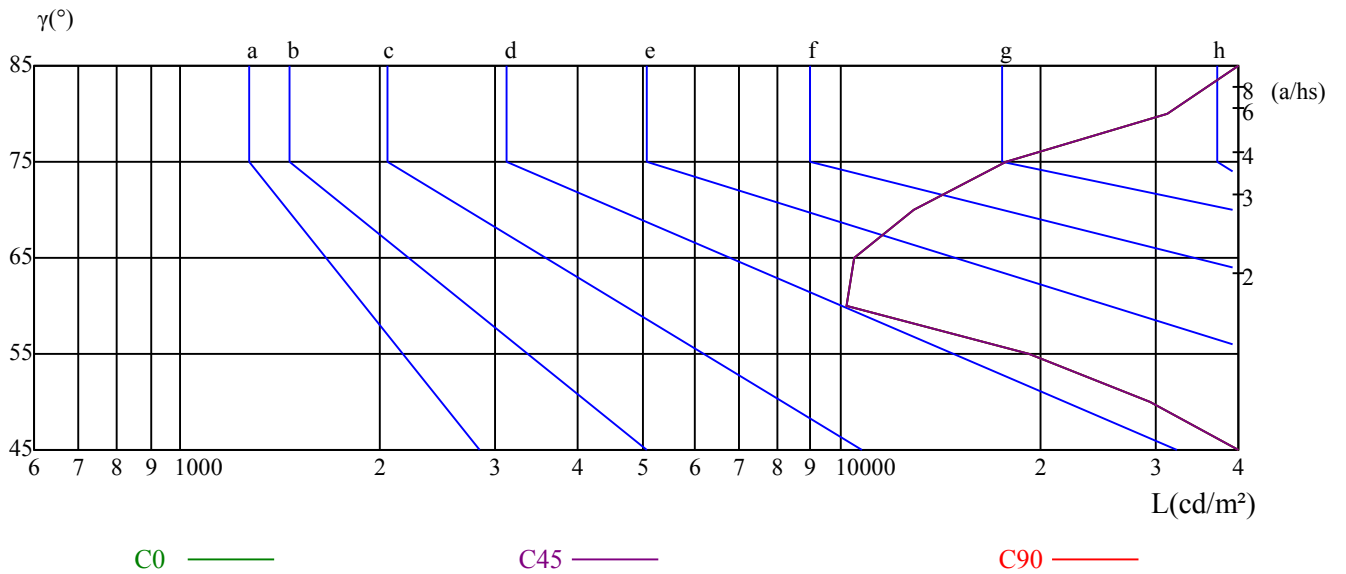
γ	45	50	55	60	65	70	75	80	85
C0	44498	29394	19228	10208	10504	12902	17769	31249	55321
C45	44498	29394	19228	10208	10504	12902	17769	31249	55321
C90	44498	29394	19228	10208	10504	12902	17769	31249	55321

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10504	10504	10504	17769	17769	17769	55321	55321	55321

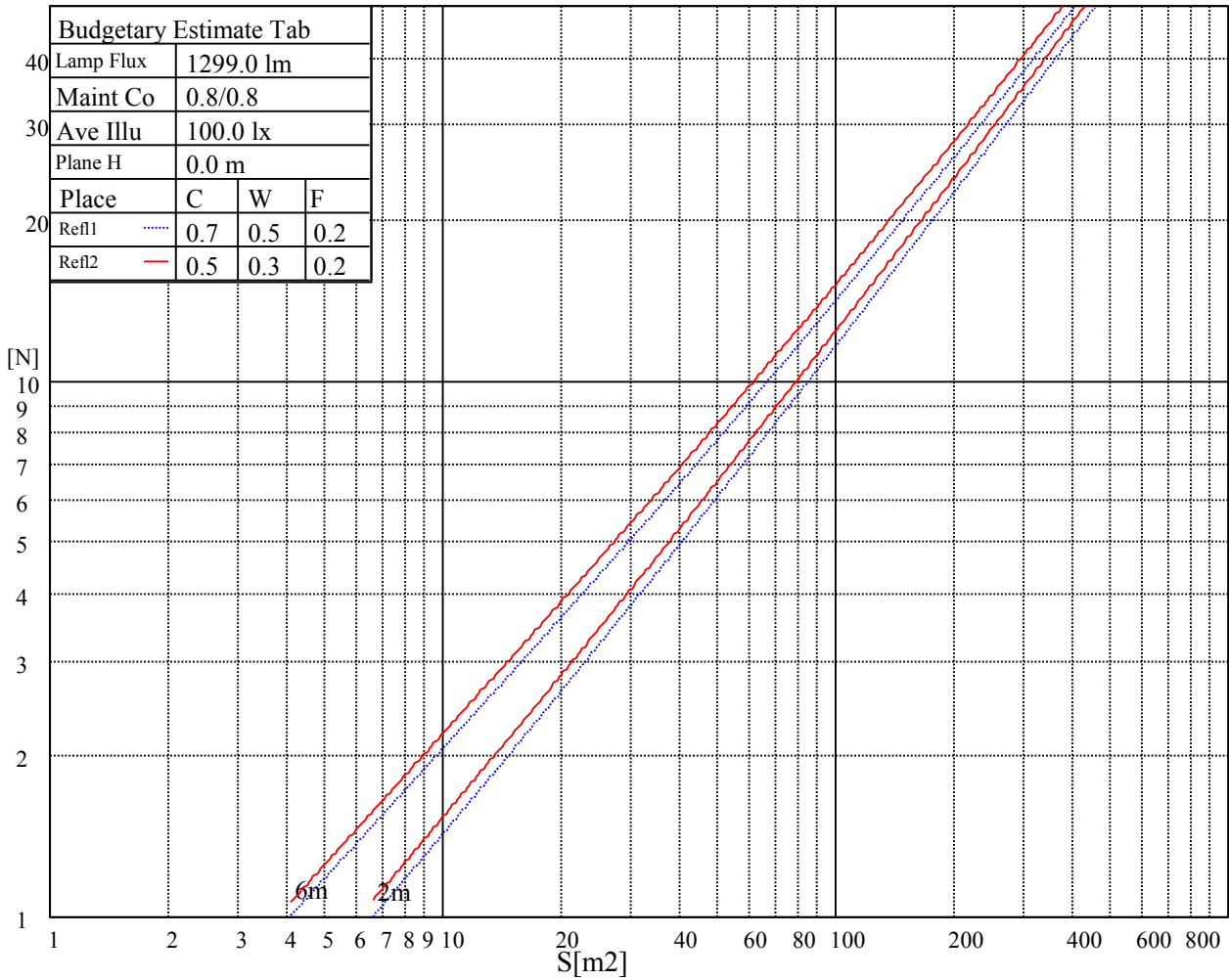
Glare Table

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

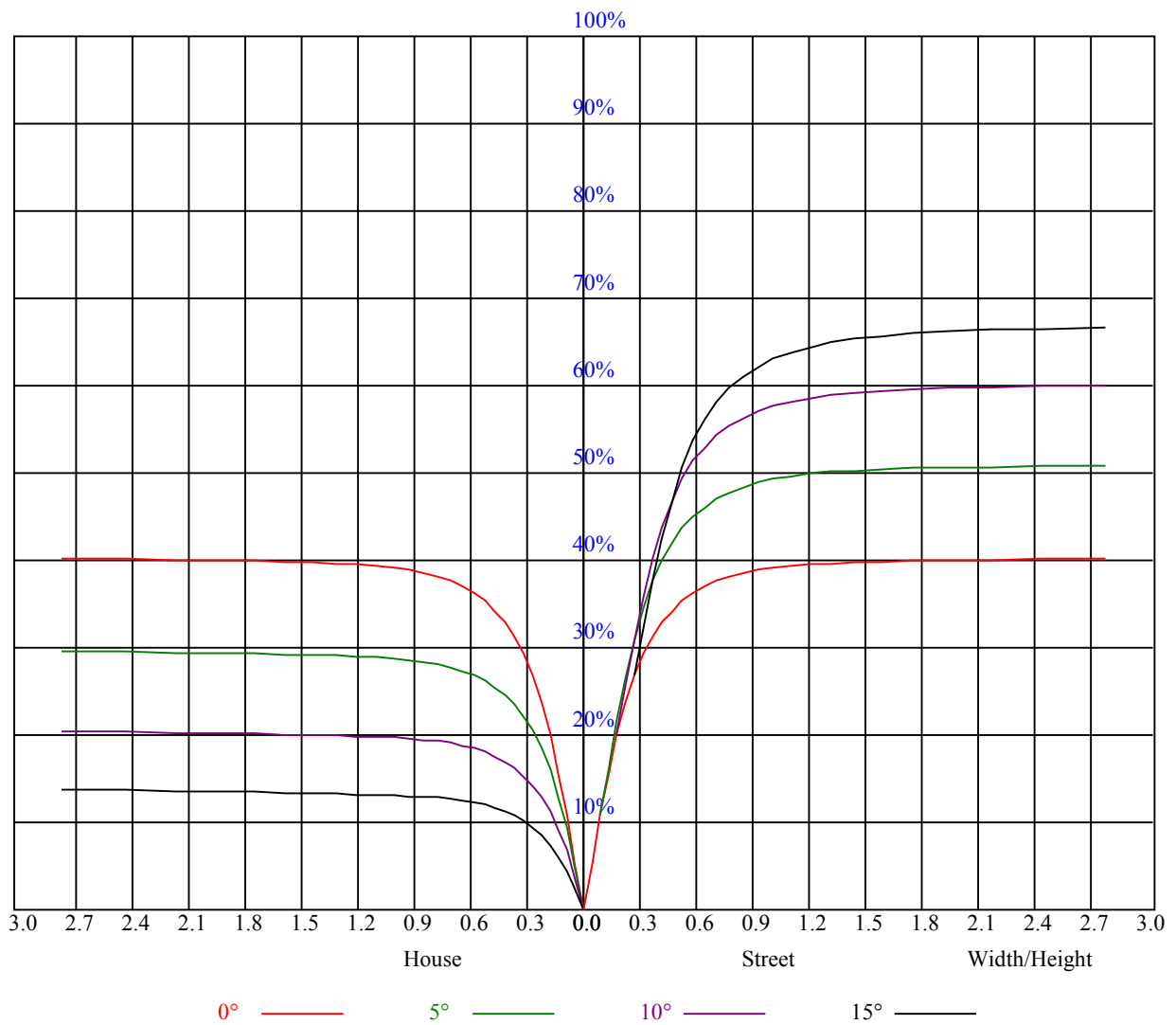
Luminance Limiting Curve



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	13.97	15.00	14.34	15.31	15.62	13.93	14.95	14.29	15.26	15.58
	3H	15.38	16.29	15.77	16.62	16.99	15.43	16.33	15.81	16.67	17.04
	4H	16.59	17.43	16.99	17.78	18.17	16.73	17.57	17.13	17.92	18.31
	6H	18.56	19.33	18.98	19.71	20.10	18.59	19.36	19.00	19.73	20.13
	8H	19.68	20.40	20.11	20.80	21.21	19.63	20.36	20.07	20.75	21.16
	12H	21.37	22.06	21.80	22.45	22.88	21.28	21.97	21.72	22.36	22.79
4H	2H	14.18	15.02	14.58	15.37	15.76	14.14	14.98	14.54	15.33	15.72
	3H	16.07	16.76	16.48	17.17	17.57	16.13	16.82	16.54	17.23	17.63
	4H	17.60	18.22	18.04	18.65	19.09	17.75	18.37	18.19	18.79	19.24
	6H	19.57	20.11	20.04	20.56	21.03	19.62	20.15	20.08	20.60	21.07
	8H	20.96	21.46	21.44	21.91	22.38	20.92	21.42	21.40	21.87	22.34
	12H	22.67	23.11	23.17	23.59	24.07	22.59	23.03	23.09	23.52	23.99
8H	4H	18.37	18.87	18.85	19.32	19.79	18.48	18.98	18.96	19.43	19.90
	6H	20.82	21.22	21.33	21.73	22.21	20.83	21.23	21.34	21.73	22.22
	8H	22.34	22.70	22.87	23.22	23.72	22.29	22.64	22.82	23.17	23.66
	12H	24.09	24.41	24.62	24.90	25.48	24.01	24.33	24.53	24.82	25.40
12H	4H	18.65	19.08	19.14	19.57	20.05	18.75	19.19	19.25	19.68	20.15
	6H	21.56	21.59	21.77	22.06	22.61	21.57	21.60	21.77	22.07	22.62
	8H	22.85	23.17	23.38	23.66	24.24	22.81	23.12	23.33	23.62	24.19
Variation with the observer position at spacings:											
S = 1.0H	2.3/-2.7					2.3/-2.7					
S = 1.5H	3.1/-2.2					3.1/-2.2					
S = 2.0H	3.7/-1.8					3.7/-1.8					
Standard tables:	BKBF					BKBF					
Uncorrected UGR	7.6					7.6					



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	0.98	0.98	0.98	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.84	0.84	0.84	0.82
1	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.83	0.82	0.82	0.80	0.79	0.79	0.78	0.77	0.75
2	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.78	0.76	0.78	0.76	0.74	0.76	0.74	0.73	0.71
3	0.80	0.76	0.73	0.79	0.76	0.73	0.77	0.74	0.72	0.75	0.73	0.70	0.73	0.71	0.69	0.68
4	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.66	0.65
5	0.73	0.69	0.66	0.72	0.68	0.65	0.71	0.67	0.65	0.69	0.66	0.64	0.68	0.66	0.64	0.62
6	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
7	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58
8	0.65	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.56
9	0.62	0.58	0.56	0.62	0.58	0.56	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.54
10	0.60	0.56	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.59	0.56	0.53	0.58	0.55	0.53	0.52



NATA 1677-A

Intensity data(cd)

C/ γ ($^{\circ}$)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	3013.31	2946.94	2377.13	1639.69	826.88	459.00	308.25	200.14	129.71
45.0	3030.19	2885.06	2317.50	1501.88	785.25	432.00	293.06	194.18	120.26
90.0	3024.56	2781.00	2137.50	1105.65	671.29	383.74	262.07	170.89	107.21
135.0	3024.56	2806.31	2247.19	1447.88	744.75	419.63	285.19	186.58	116.38
180.0	3013.31	2667.38	2052.00	1096.59	658.18	388.52	270.56	176.57	107.78
225.0	3030.19	2783.25	2189.81	1096.59	737.38	417.60	282.71	189.96	115.65
270.0	3024.56	2854.69	2308.50	1605.94	834.19	438.75	303.75	193.50	121.16
315.0	3024.56	2788.31	2218.50	1083.83	696.32	404.44	273.99	178.65	111.38
360.0	3013.31	2946.94	2377.13	1639.69	826.88	459.00	308.25	200.14	129.71
C/ γ ($^{\circ}$)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	75.15	43.71	25.88	10.91	8.94	9.28	9.79	10.41	10.24
45.0	66.83	40.89	24.24	10.13	8.55	8.49	8.94	12.77	10.97
90.0	60.13	36.62	21.43	10.58	9.28	9.00	9.68	10.52	9.56
135.0	68.46	41.34	24.69	11.93	10.29	9.90	9.84	10.46	9.45
180.0	60.64	37.07	20.36	9.79	9.45	9.84	10.24	10.69	9.68
225.0	64.18	39.09	22.89	10.35	9.28	9.28	9.90	14.68	10.97
270.0	71.66	41.63	24.13	11.42	9.45	9.06	9.17	11.59	10.69
315.0	65.59	39.49	23.06	11.31	9.90	9.84	10.29	10.74	10.07
360.0	75.15	43.71	25.88	10.91	8.94	9.28	9.79	10.41	10.24
C/ γ ($^{\circ}$)	90.0								
0.0	4.50								
45.0	4.39								
90.0	4.33								
135.0	4.33								
180.0	4.39								
225.0	4.39								
270.0	4.28								
315.0	4.39								
360.0	4.50								