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NATA

LumCAT: 1450-E	
Luminaire: 92.70.043.00	
Report No: NATA0100	Voltage(V): 9.5000
Test No: GC2019010207	Current(A): 0.3000
LampCAT: CREE CXA1304	Power (W): 2.8500
Lamp flux(lm): 322.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 44	Width(mm): 44
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 287.62
Efficiency(%): 89.32%
Lumens(lm)/Power(W): 103.14
Central intensity(cd): 1104.370
Maximum intensity(cd): 1104.370
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.8
 [C90/270]Total=19.8
Field angle(10%Imax): [C0/180]Total=57.4
 [C90/270]Total=57.4
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.38 C90_270=0.38
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.29%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.386%

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/2
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

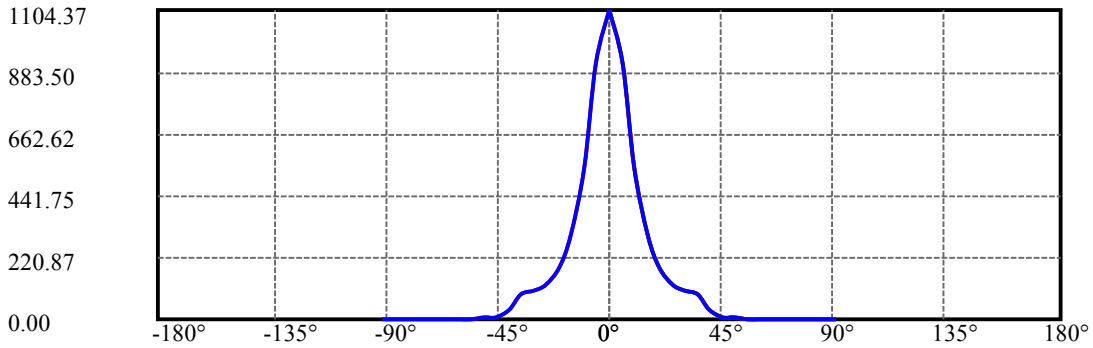
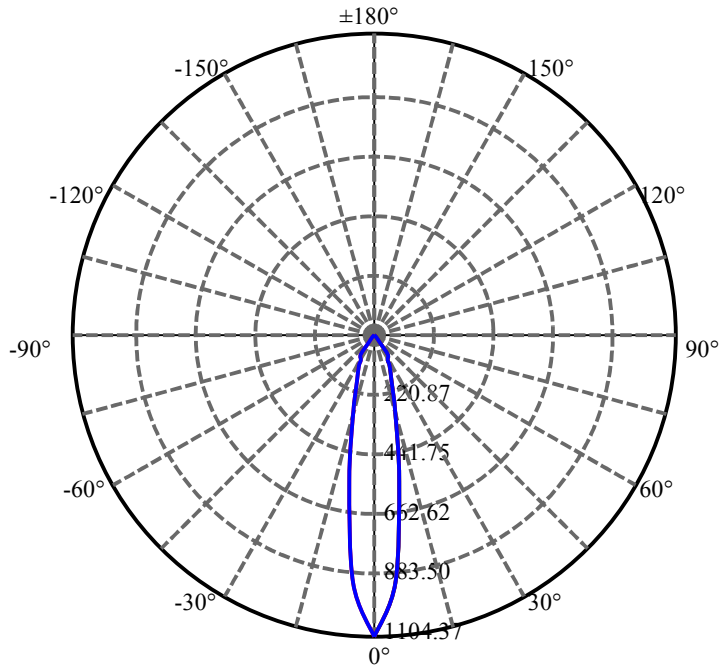
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1104.370	6.604	6.604	2.051%	2.296%
5.0	912.129	43.575	50.18	13.533%	17.447%
10.0	543.663	51.748	101.927	16.071%	35.438%
15.0	298.948	42.411	144.339	13.171%	50.184%
20.0	181.793	34.081	178.42	10.584%	62.034%
25.0	126.380	29.276	207.696	9.092%	72.213%
30.0	104.927	28.757	236.454	8.931%	82.211%
35.0	87.673	27.564	264.018	8.560%	91.795%
40.0	35.930	12.659	276.677	3.931%	96.196%
45.0	7.432	2.881	279.558	.895%	97.198%
50.0	3.635	1.526	281.084	.474%	97.728%
55.0	2.777	1.247	282.331	.387%	98.162%
60.0	2.095	0.995	283.326	.309%	98.508%
65.0	1.744	0.866	284.192	.269%	98.809%
70.0	1.659	0.855	285.047	.265%	99.106%
75.0	1.582	0.838	285.884	.260%	99.397%
80.0	1.413	0.763	286.647	.237%	99.663%
85.0	1.202	0.657	287.304	.204%	99.891%
90.0	1.146	0.314	287.618	.098%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	236.45	73.43%	82.21%
0-40	276.68	85.92%	96.20%
0-60	283.33	87.99%	98.51%
0-90	287.30	89.22%	99.89%
0-120	287.30	89.22%	99.89%
0-180	287.62	89.32%	100.00%
60-90	4.97	1.54%	1.73%
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%
0-28.89	230.09	71.46%	80.00%

ZONAL LUMEN SUMMARY

0-10	101.93
10-20	76.49
20-30	58.03
30-40	40.22
40-50	4.41
50-60	2.24
60-70	1.72
70-80	1.60
80-90	0.66
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: —————

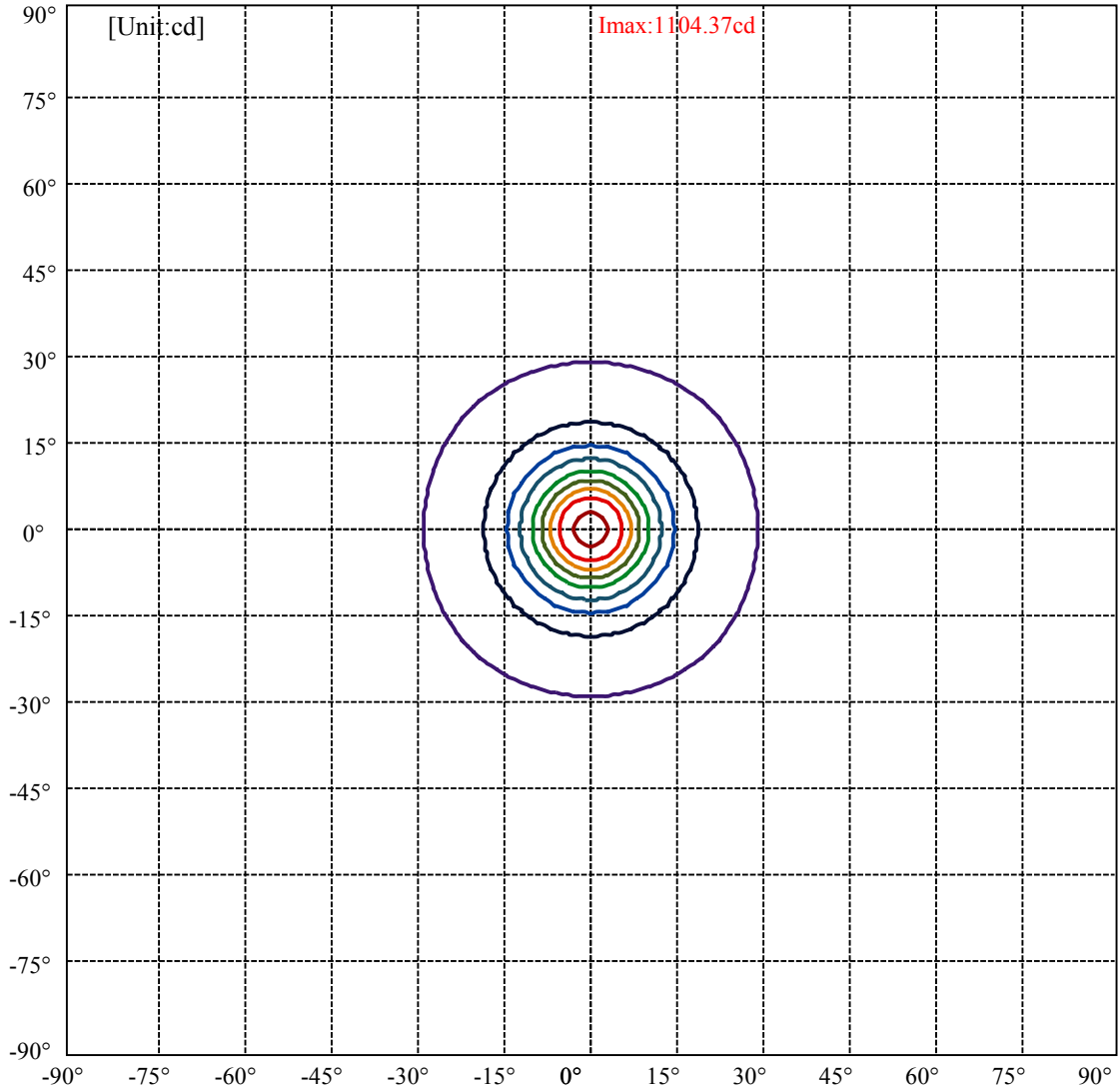
C90/C270: —————

Field angle(10%Imax):C0/180Left:28.7 Right:28.7

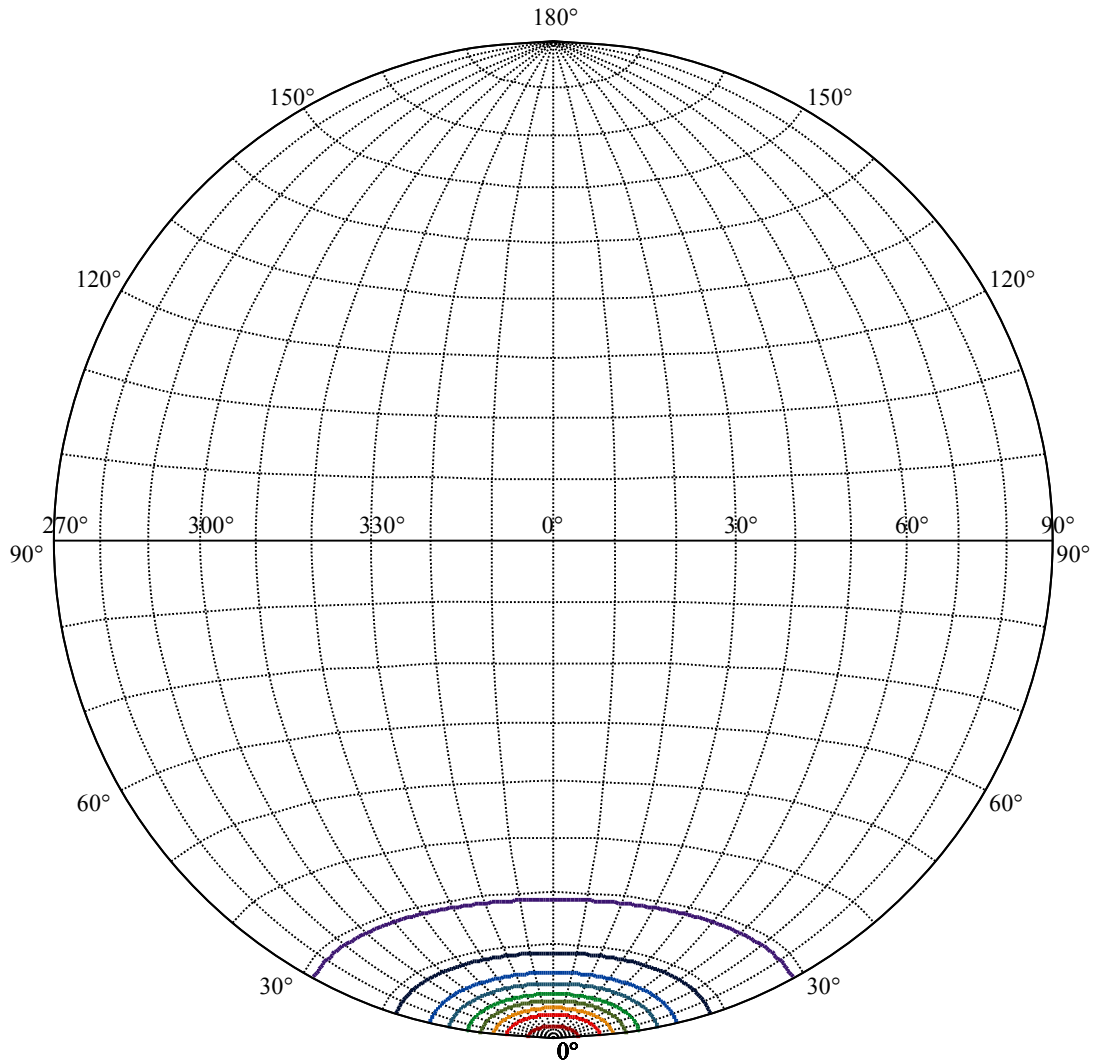
:C90/270Left:28.7 Right:28.7

Beam Angle(50%Imax):C0/180Left:9.9 Right:9.9

:C90/270Left:9.9 Right:9.9



(10%Imax) 110.437	—
(20%Imax) 220.874	—
(30%Imax) 331.311	—
(40%Imax) 441.748	—
(50%Imax) 552.185	—
(60%Imax) 662.622	—
(70%Imax) 773.059	—
(80%Imax) 883.496	—
(90%Imax) 993.933	—



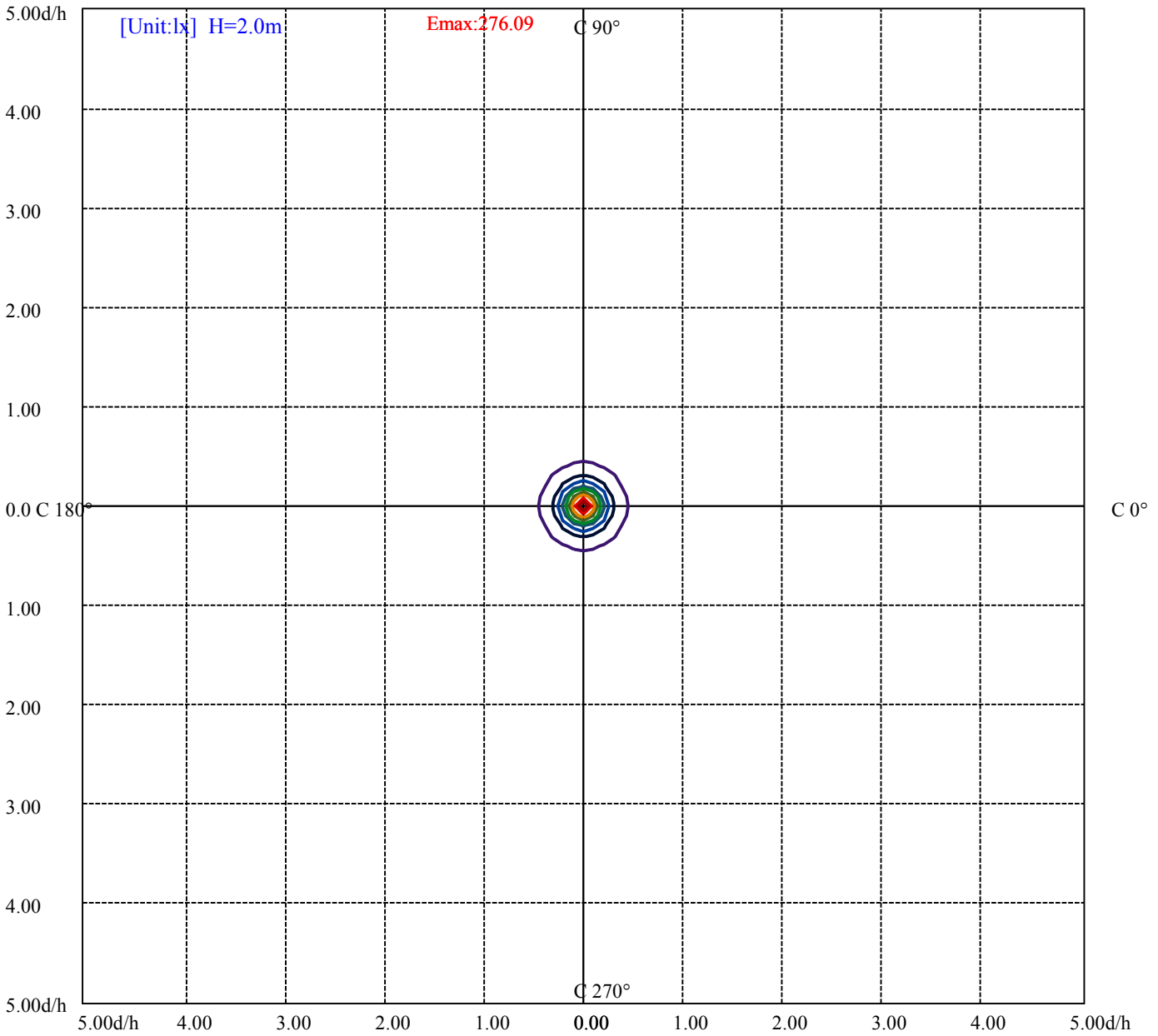
House

[Unit:cd]

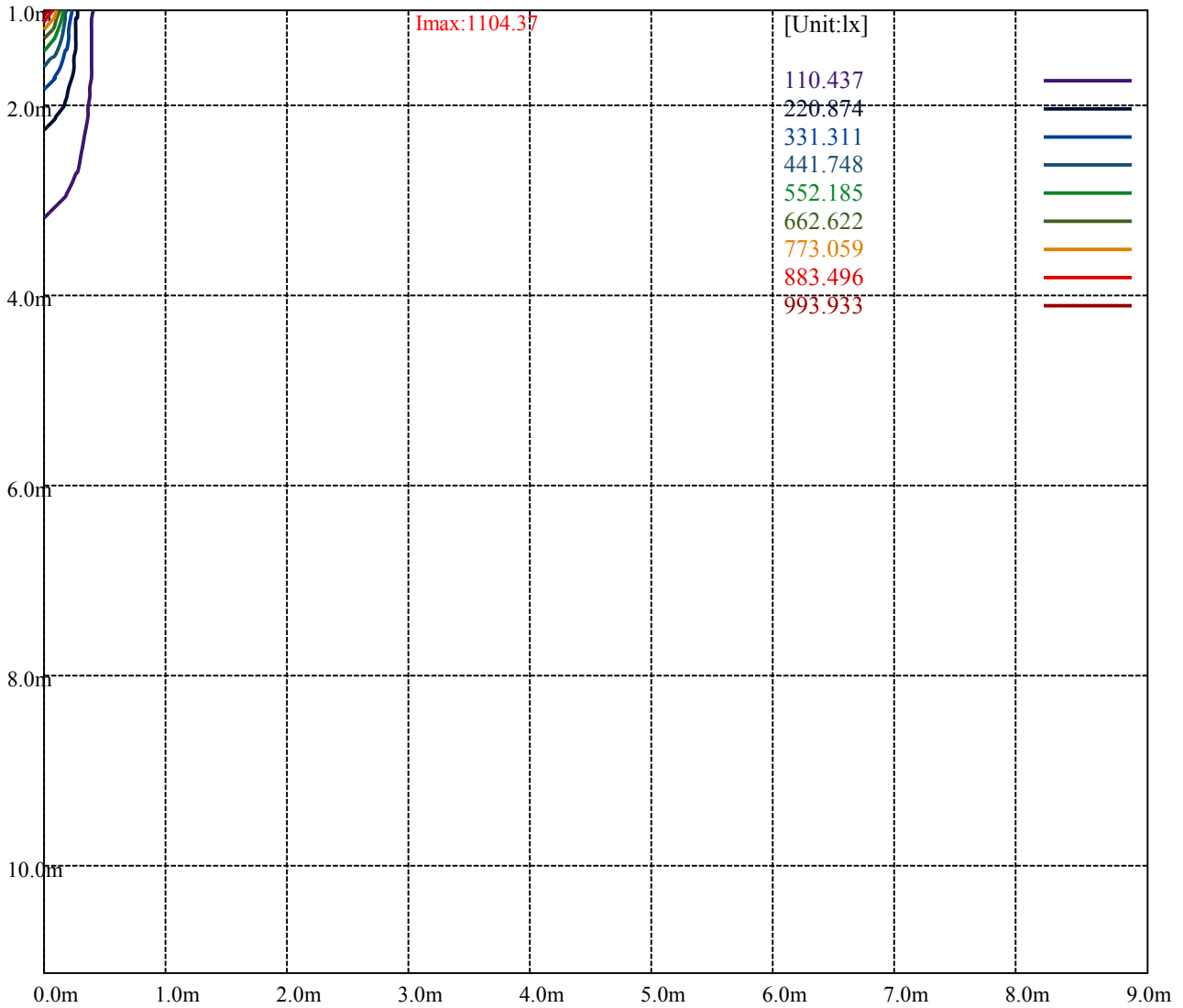
Road

Imax:1104.37

(10%Imax) 110.437	—
(20%Imax) 220.874	—
(30%Imax) 331.311	—
(40%Imax) 441.748	—
(50%Imax) 552.185	—
(60%Imax) 662.622	—
(70%Imax) 773.059	—
(80%Imax) 883.496	—
(90%Imax) 993.933	—



(10%Emax) 27.609	—
(20%Emax) 55.21825	—
(30%Emax) 82.82725	—
(40%Emax) 110.4365	—
(50%Emax) 138.0455	—
(60%Emax) 165.6548	—
(70%Emax) 193.2637	—
(80%Emax) 220.873	—
(90%Emax) 248.482	—



Luminance Table

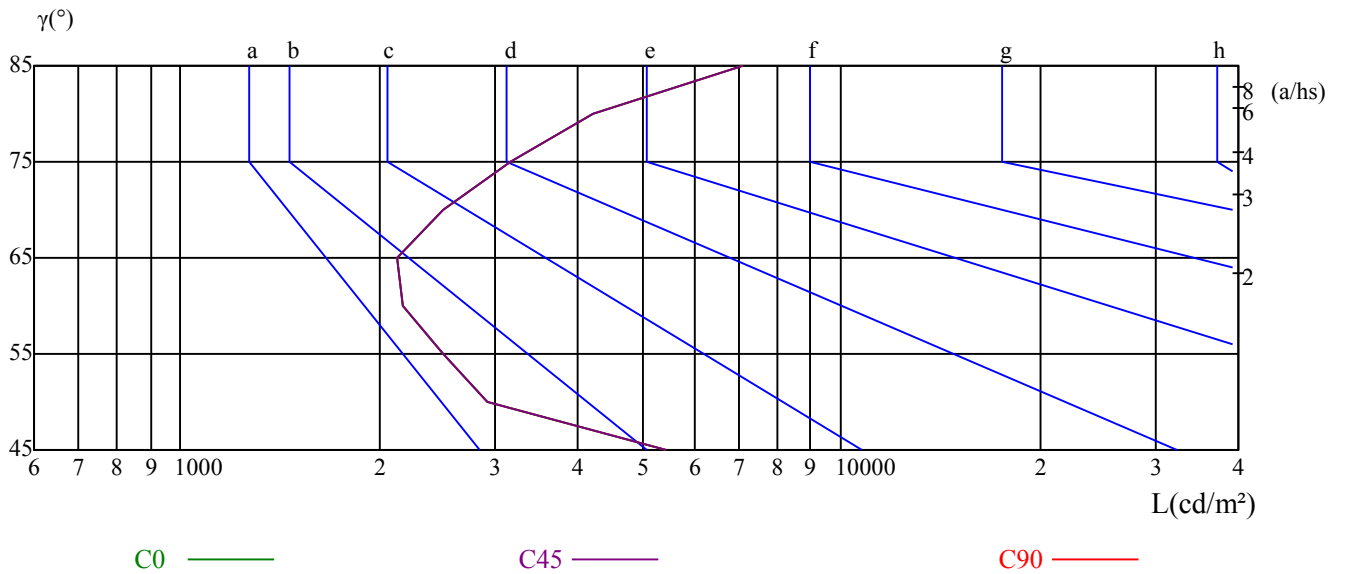
γ	45	50	55	60	65	70	75	80	85
C0	5429	2921	2501	2165	2131	2506	3157	4204	7126
C45	5429	2921	2501	2165	2131	2506	3157	4204	7126
C90	5429	2921	2501	2165	2131	2506	3157	4204	7126

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2131	2131	2131	3157	3157	3157	7126	7126	7126

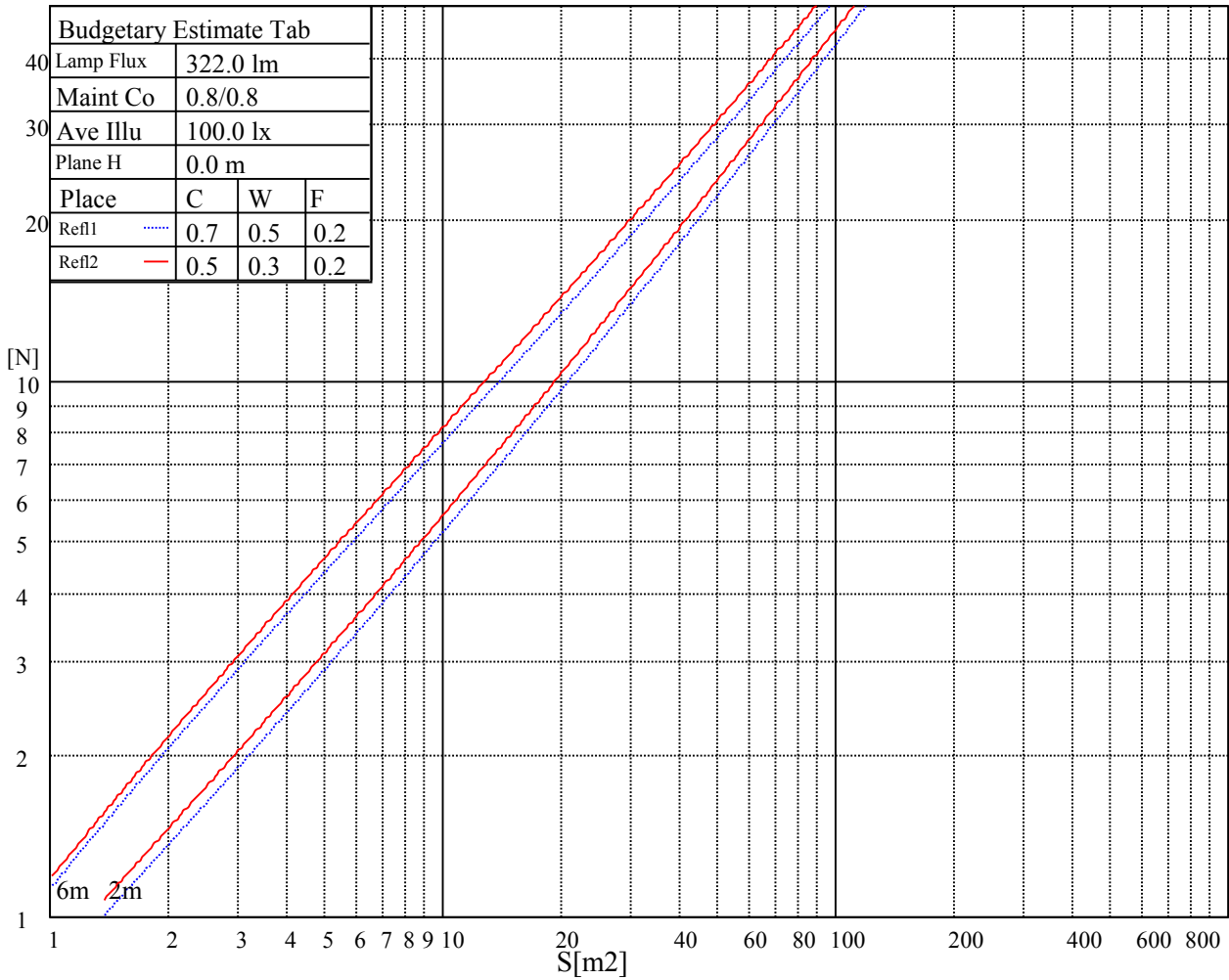
Glare Table

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

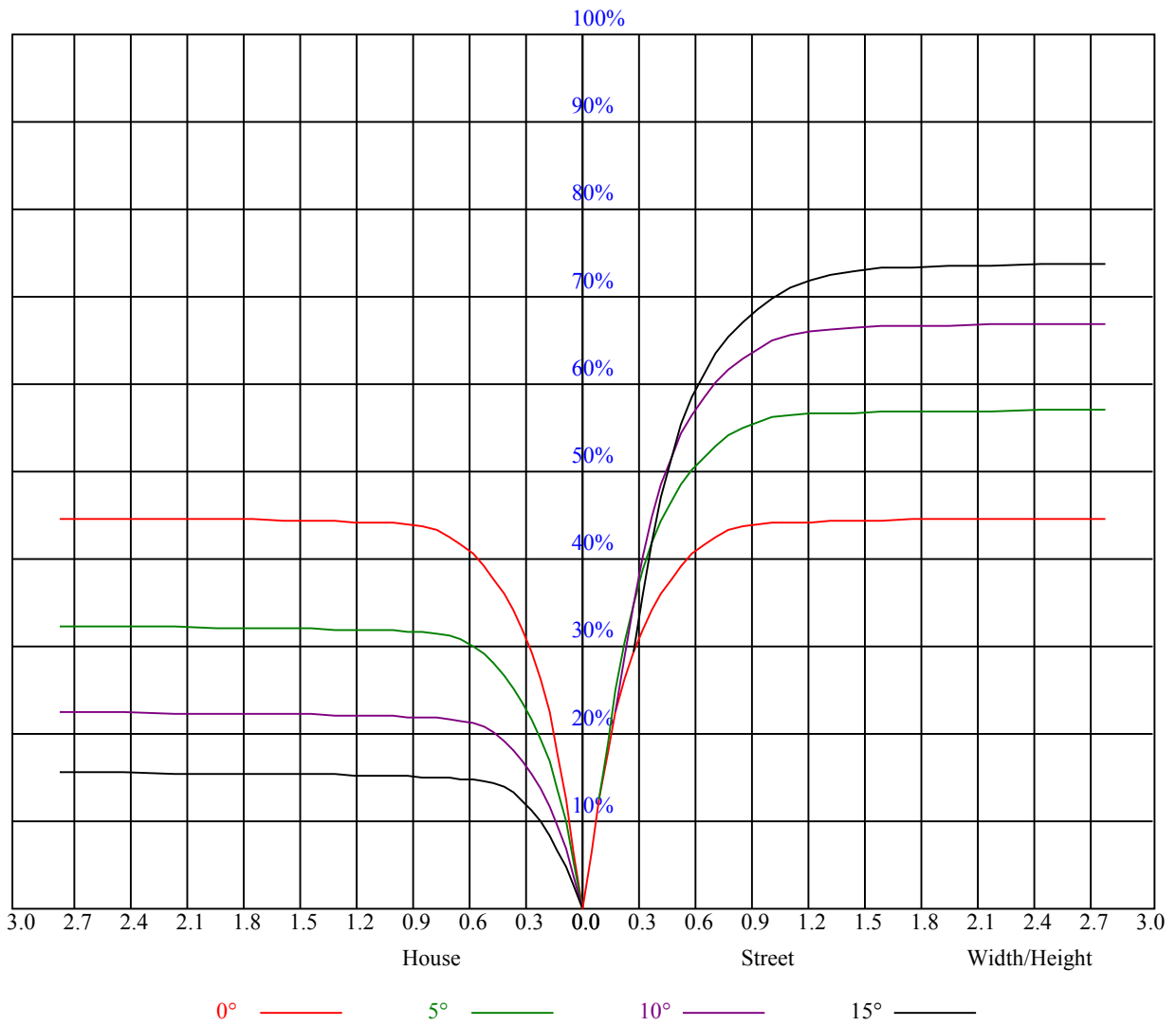
Luminance Limiting Curve



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	12.06	13.00	12.42	13.31	13.63	7.61	8.55	7.98	8.86	9.18
	3H	14.28	15.11	14.66	15.44	15.81	9.99	10.82	10.38	11.16	11.53
	4H	15.63	16.40	16.04	16.75	17.14	11.54	12.31	11.95	12.66	13.05
	6H	17.00	17.70	17.42	18.07	18.47	13.28	13.98	13.70	14.35	14.75
	8H	17.61	18.27	18.04	18.66	19.07	14.25	14.91	14.69	15.30	15.71
	12H	18.47	19.10	18.91	19.48	19.92	15.90	16.53	16.34	16.91	17.34
4H	2H	12.06	12.82	12.47	13.18	13.57	8.32	9.09	8.73	9.44	9.83
	3H	14.63	15.26	15.04	15.67	16.07	11.07	11.70	11.48	12.11	12.51
	4H	16.22	16.79	16.66	17.21	17.66	12.82	13.38	13.26	13.81	14.26
	6H	17.73	18.21	18.21	18.67	19.14	14.70	15.18	15.17	15.63	16.10
	8H	18.51	18.96	18.99	19.41	19.89	15.78	16.23	16.26	16.68	17.16
	12H	19.45	19.83	19.94	20.32	20.80	17.35	17.74	17.84	18.23	18.70
8H	4H	16.43	16.88	16.91	17.33	17.81	13.62	14.07	14.10	14.52	15.00
	6H	18.21	18.57	18.72	19.07	19.56	15.73	16.09	16.24	16.59	17.08
	8H	19.18	19.50	19.72	20.02	20.52	16.99	17.30	17.52	17.83	18.32
	12H	20.39	20.66	20.92	21.16	21.74	18.69	18.96	19.22	19.46	20.04
12H	4H	16.47	16.86	16.97	17.35	17.83	13.88	14.27	14.37	14.76	15.23
	6H	18.55	18.64	18.87	19.12	19.66	16.30	16.39	16.61	16.86	17.41
	8H	19.41	19.68	19.93	20.18	20.76	17.45	17.72	17.97	18.22	18.80
Variation with the observer position at spacings:											
S = 1.0H	4.2/-6.5					4.2/-6.5					
S = 1.5H	6.5/-5.0					6.5/-5.0					
S = 2.0H	7.9/-4.1					7.9/-4.1					
Standard tables:	BK2					BK2					
Uncorrected UGR	-1.1					-1.1					



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	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	0.99	0.97	0.94	0.97	0.95	0.93	0.94	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.83
2	0.94	0.90	0.87	0.92	0.89	0.86	0.89	0.86	0.84	0.87	0.84	0.82	0.84	0.82	0.80	0.79
3	0.89	0.85	0.81	0.88	0.84	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	0.80	0.76	0.83	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.72
5	0.81	0.76	0.72	0.80	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.73	0.70	0.69
6	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.67	0.66
7	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
8	0.71	0.67	0.63	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.61
9	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.59
10	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.59	0.64	0.61	0.58	0.57



NATA 1450-E

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	1104.36	952.54	583.48	307.80	191.36	132.69	109.18	94.61	44.16
45.0	1101.09	949.56	591.53	305.27	175.33	122.12	106.37	92.08	40.89
90.0	1107.96	901.35	510.98	277.99	168.13	114.47	96.13	77.63	29.03
135.0	1104.08	950.18	576.62	320.06	197.10	133.54	106.88	90.06	39.32
180.0	1104.36	884.76	507.49	301.56	183.71	127.46	103.67	82.91	27.34
225.0	1101.09	868.16	513.62	294.64	185.23	130.61	107.83	87.08	32.57
270.0	1107.96	910.86	563.63	304.93	184.89	128.03	102.04	87.92	43.48
315.0	1104.08	879.64	501.98	279.34	168.58	122.12	107.33	89.10	30.66
360.0	1104.36	952.54	583.48	307.80	191.36	132.69	109.18	94.61	44.16
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	5.12	2.70	1.74	1.46	1.35	1.24	1.29	1.18	1.18
45.0	5.79	4.05	2.76	1.91	1.41	1.29	1.24	1.24	1.18
90.0	7.59	6.02	4.95	3.43	2.81	2.70	2.31	1.91	1.18
135.0	4.44	2.70	1.97	1.80	1.52	1.46	1.41	1.35	1.18
180.0	6.47	1.80	1.46	1.35	1.29	1.24	1.29	1.24	1.24
225.0	10.58	2.14	2.03	1.80	1.58	1.46	1.46	1.24	1.24
270.0	12.99	6.24	4.84	3.38	2.70	2.59	2.42	1.91	1.24
315.0	6.47	3.43	2.48	1.63	1.29	1.29	1.24	1.24	1.18
360.0	5.12	2.70	1.74	1.46	1.35	1.24	1.29	1.18	1.18
C/ γ (°)	90.0								
0.0	1.13								
45.0	1.18								
90.0	1.13								
135.0	1.18								
180.0	1.13								
225.0	1.18								
270.0	1.13								
315.0	1.13								
360.0	1.13								