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## NATA

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LumCAT: 2978-E	
Luminaire: 92.76.233.00	
Report No: NATA0100	Voltage(V): 218.2000
Test No: GC2019022512	Current(A): 0.0360
LampCAT: PL-CORE-AC-800-G2 LES15	Power (W): 7.9000
Lamp flux(lm): 765.0	PF: 0.9850
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 687.04  
Efficiency(%): 89.81%  
Lumens(lm)/Power(W): 88.27  
Central intensity(cd): 1831.992  
Maximum intensity(cd): 1831.992  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=29.3  
                                  [C90/270]Total=29.3  
Field angle(10%Imax): [C0/180]Total=68.9  
                                  [C90/270]Total=68.9  
Maximum s/h(1/2): C0\_180=0.49 C90\_270=0.49  
Maximum s/h(1/4): C0\_180=0.52 C90\_270=0.52  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 91.16%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.381%

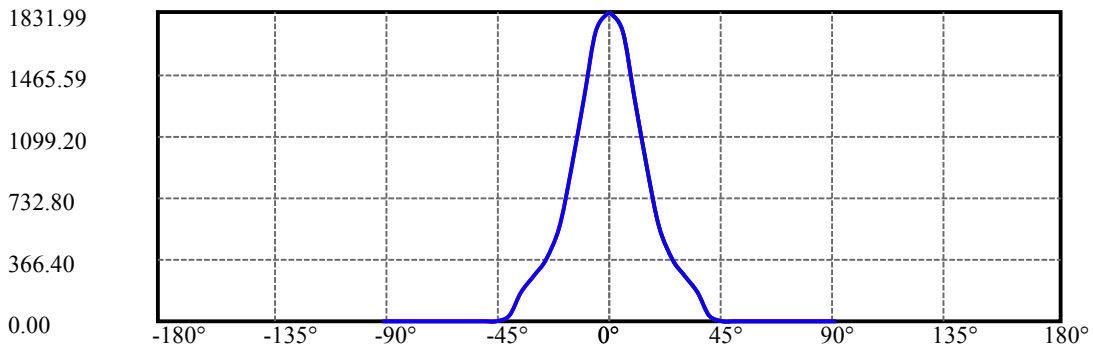
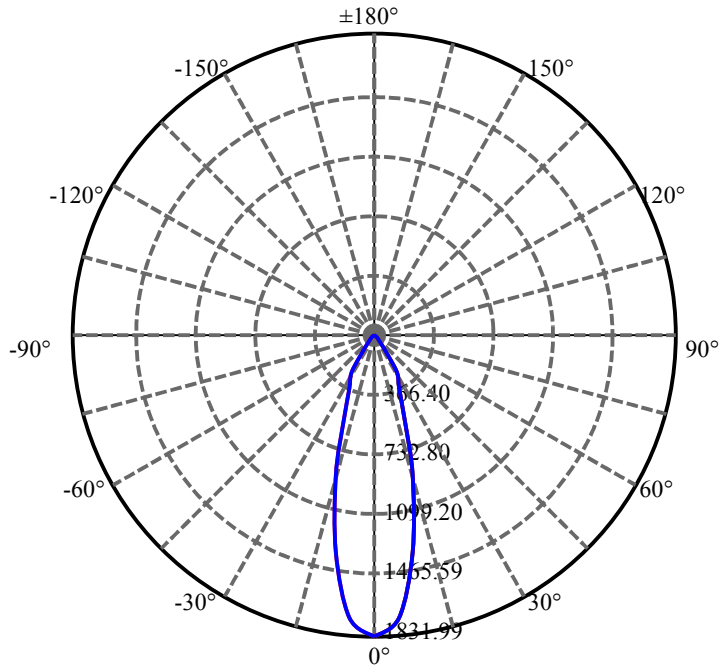
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1831.992	10.956	10.956	1.432%	1.595%
5.0	1717.383	82.045	93.001	10.725%	13.536%
10.0	1336.219	127.185	220.186	16.626%	32.048%
15.0	882.323	125.174	345.36	16.363%	50.268%
20.0	557.311	104.481	449.841	13.658%	65.475%
25.0	359.838	83.358	533.199	10.896%	77.608%
30.0	274.894	75.340	608.539	9.848%	88.574%
35.0	171.682	53.977	662.515	7.056%	96.430%
40.0	29.524	10.402	672.918	1.360%	97.944%
45.0	5.548	2.150	675.068	.281%	98.257%
50.0	3.115	1.308	676.376	.171%	98.448%
55.0	2.967	1.332	677.708	.174%	98.641%
60.0	2.890	1.372	679.08	.179%	98.841%
65.0	2.827	1.404	680.484	.184%	99.046%
70.0	2.784	1.434	681.918	.187%	99.254%
75.0	2.749	1.456	683.374	.190%	99.466%
80.0	2.721	1.469	684.843	.192%	99.680%
85.0	2.700	1.474	686.317	.193%	99.895%
90.0	2.644	0.725	687.042	.095%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	608.54	79.55%	88.57%
0-40	672.92	87.96%	97.94%
0-60	679.08	88.77%	98.84%
0-90	686.32	89.71%	99.89%
0-120	686.32	89.71%	99.89%
0-180	687.04	89.81%	100.00%
60-90	8.61	1.13%	1.25%
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%
0-26.09	549.63	71.85%	80.00%

ZONAL LUMEN SUMMARY

0-10	220.19
10-20	229.66
20-30	158.70
30-40	64.38
40-50	3.46
50-60	2.70
60-70	2.84
70-80	2.92
80-90	1.47
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: —————

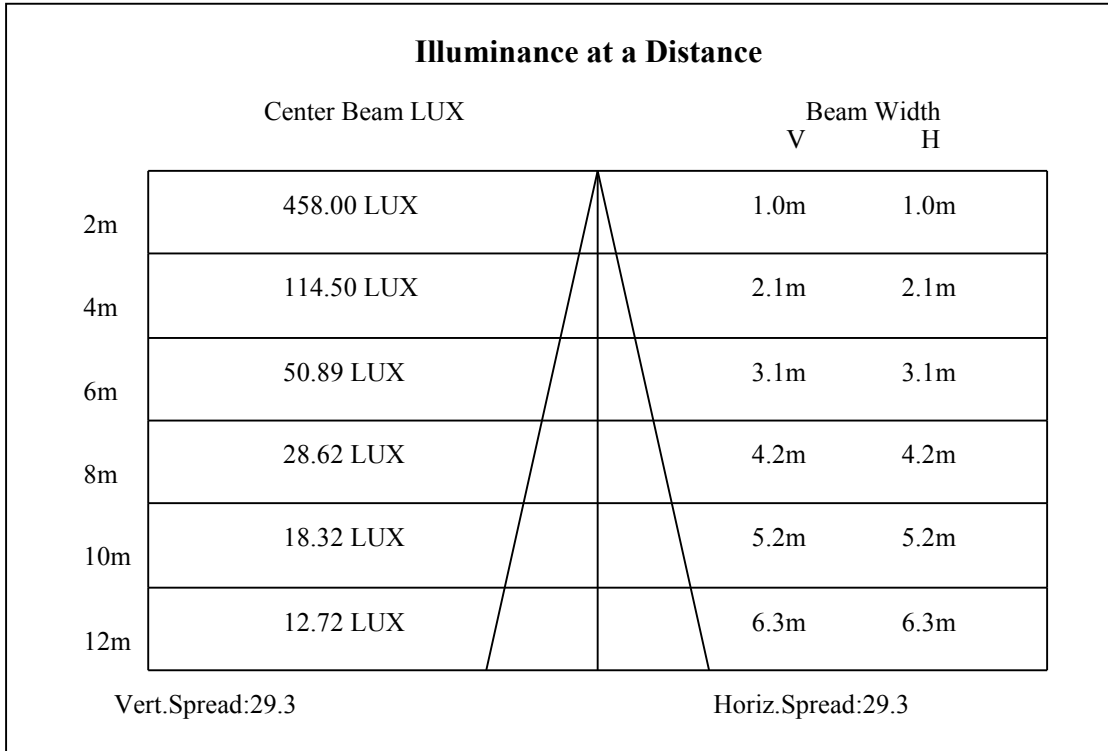
C90/C270: —————

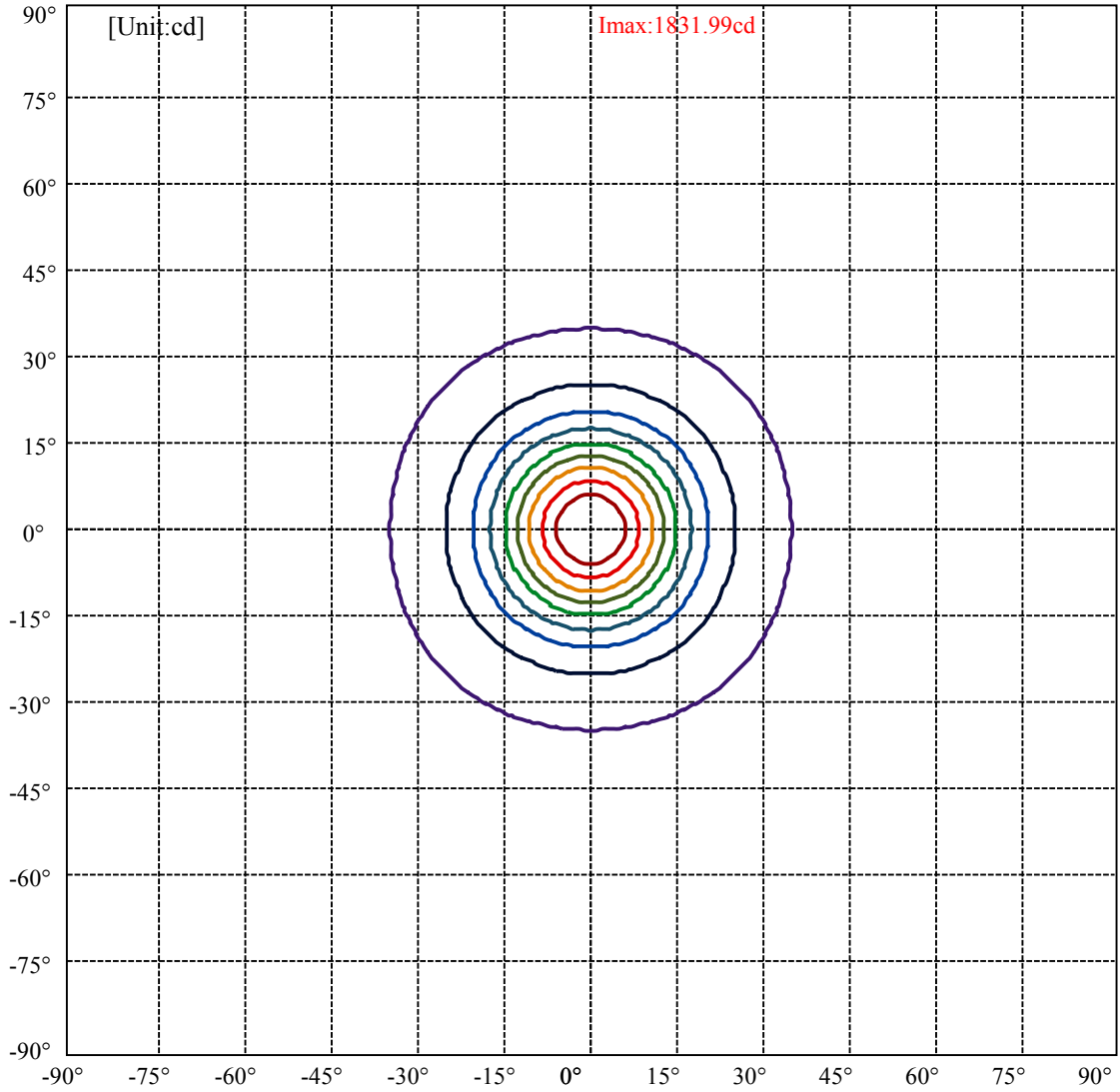
Field angle(10%Imax):C0/180Left:34.4 Right:34.4

:C90/270Left:34.4 Right:34.4

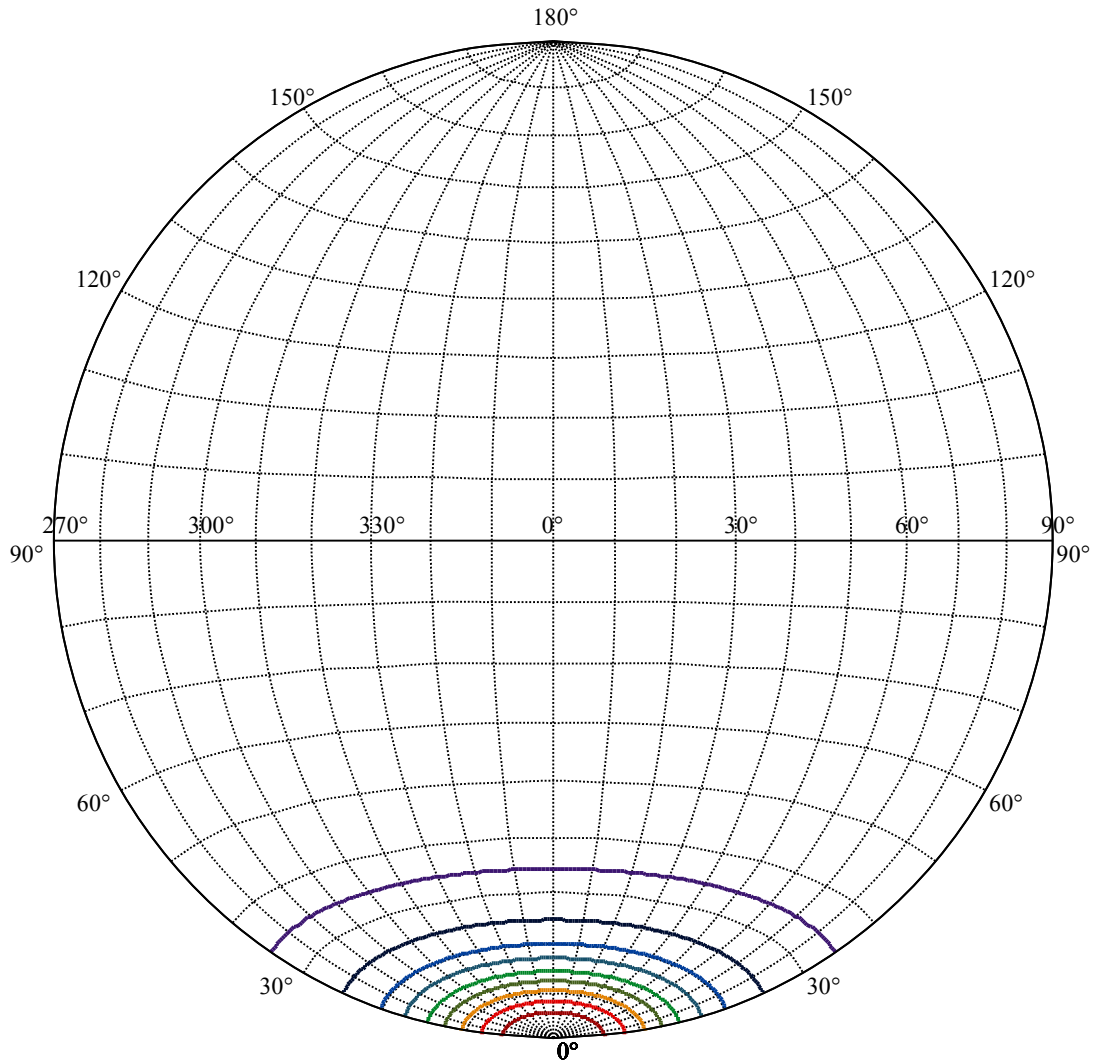
Beam Angle(50%Imax):C0/180Left:14.6 Right:14.6

:C90/270Left:14.6 Right:14.6





(10%Imax) 183.199	—
(20%Imax) 366.398	—
(30%Imax) 549.598	—
(40%Imax) 732.797	—
(50%Imax) 915.996	—
(60%Imax) 1099.2	—
(70%Imax) 1282.39	—
(80%Imax) 1465.59	—
(90%Imax) 1648.79	—



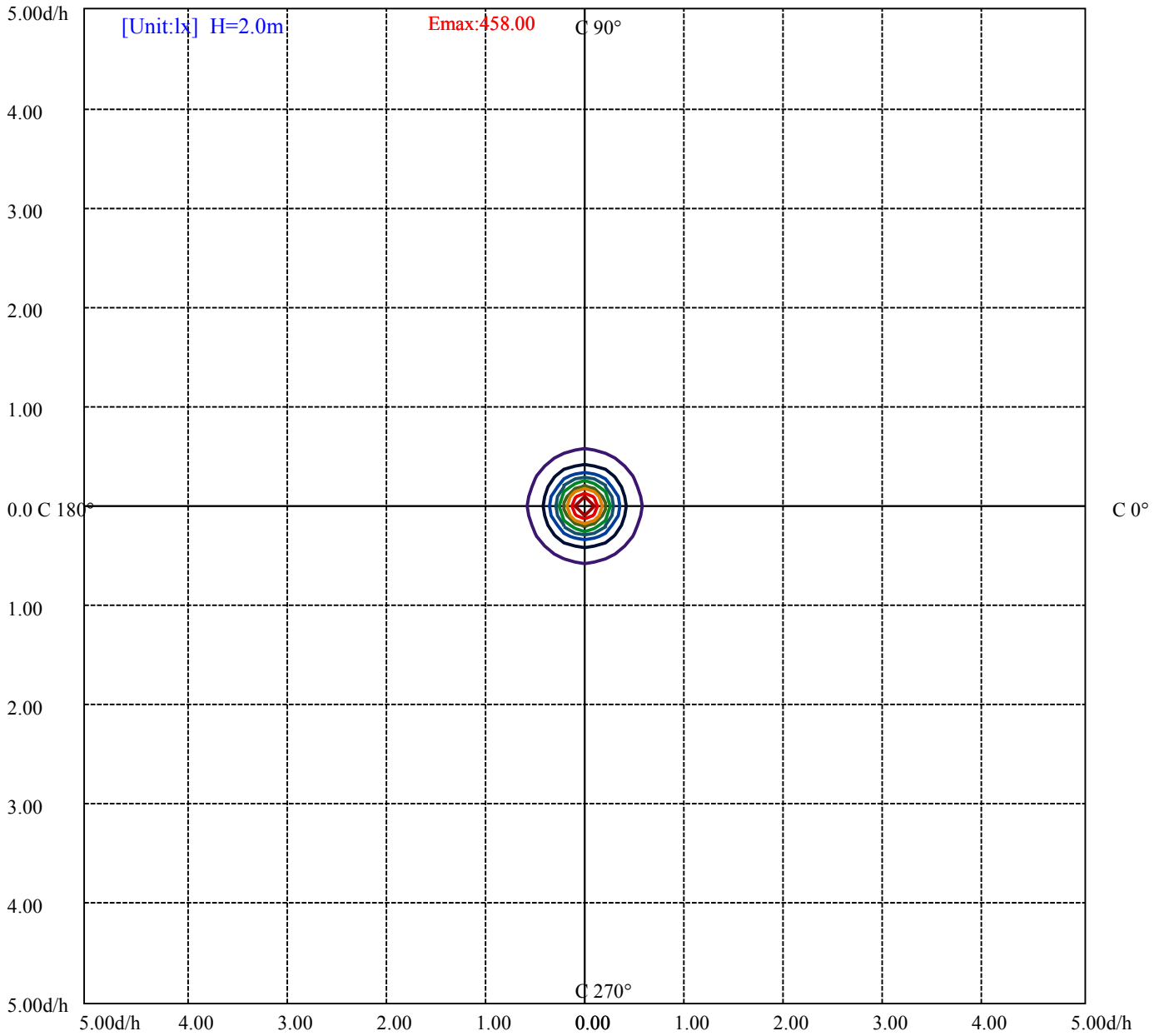
House

[Unit:cd]

Road

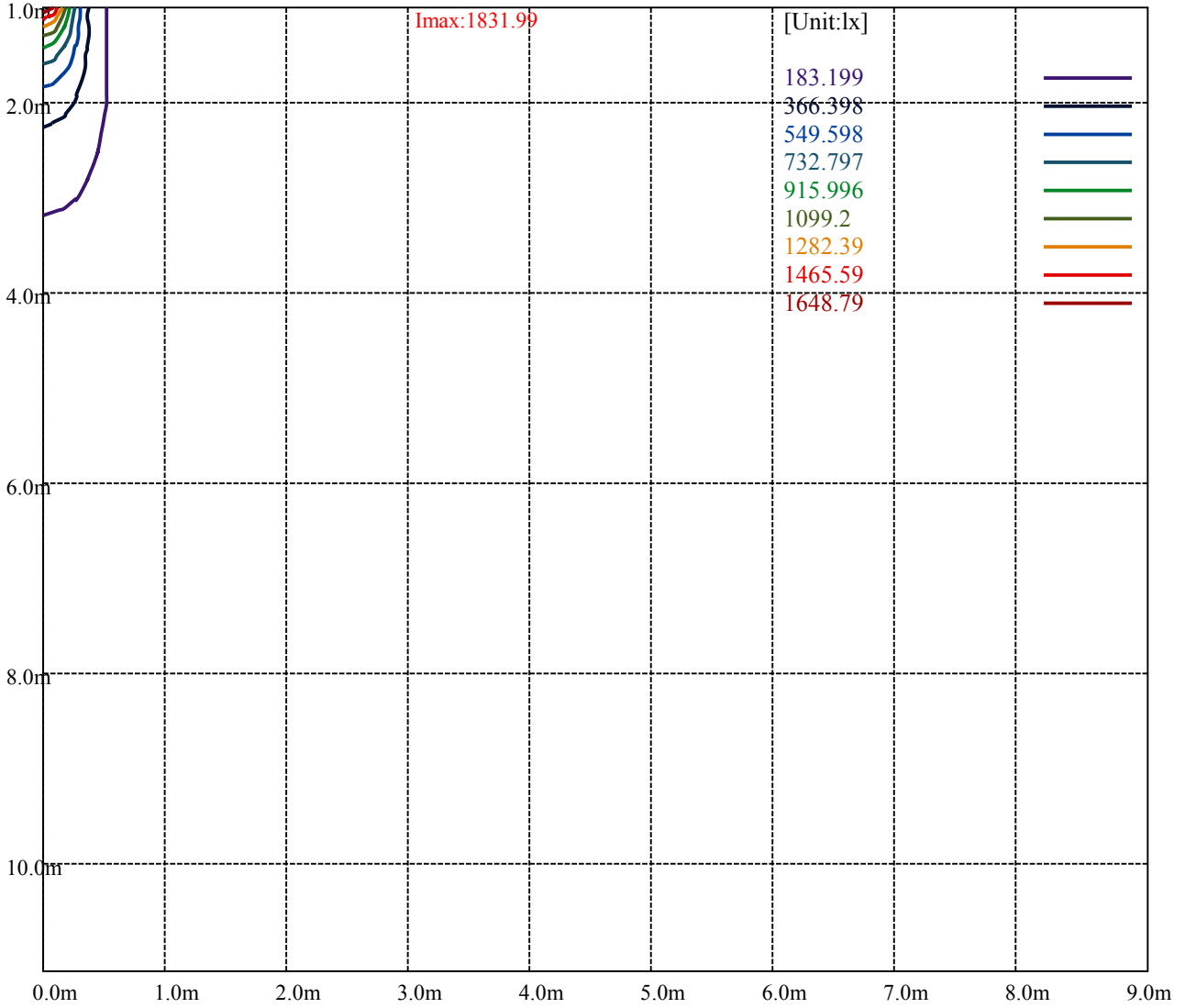
I<sub>max</sub>:1831.99

(10%I <sub>max</sub> ) 183.199	—
(20%I <sub>max</sub> ) 366.398	—
(30%I <sub>max</sub> ) 549.598	—
(40%I <sub>max</sub> ) 732.797	—
(50%I <sub>max</sub> ) 915.996	—
(60%I <sub>max</sub> ) 1099.2	—
(70%I <sub>max</sub> ) 1282.39	—
(80%I <sub>max</sub> ) 1465.59	—
(90%I <sub>max</sub> ) 1648.79	—



- (10%Emax) 45.79975
- (20%Emax) 91.5995
- (30%Emax) 137.3992
- (40%Emax) 183.1987
- (50%Emax) 228.9985
- (60%Emax) 274.7975
- (70%Emax) 320.5975
- (80%Emax) 366.3975
- (90%Emax) 412.1975





Luminance Table

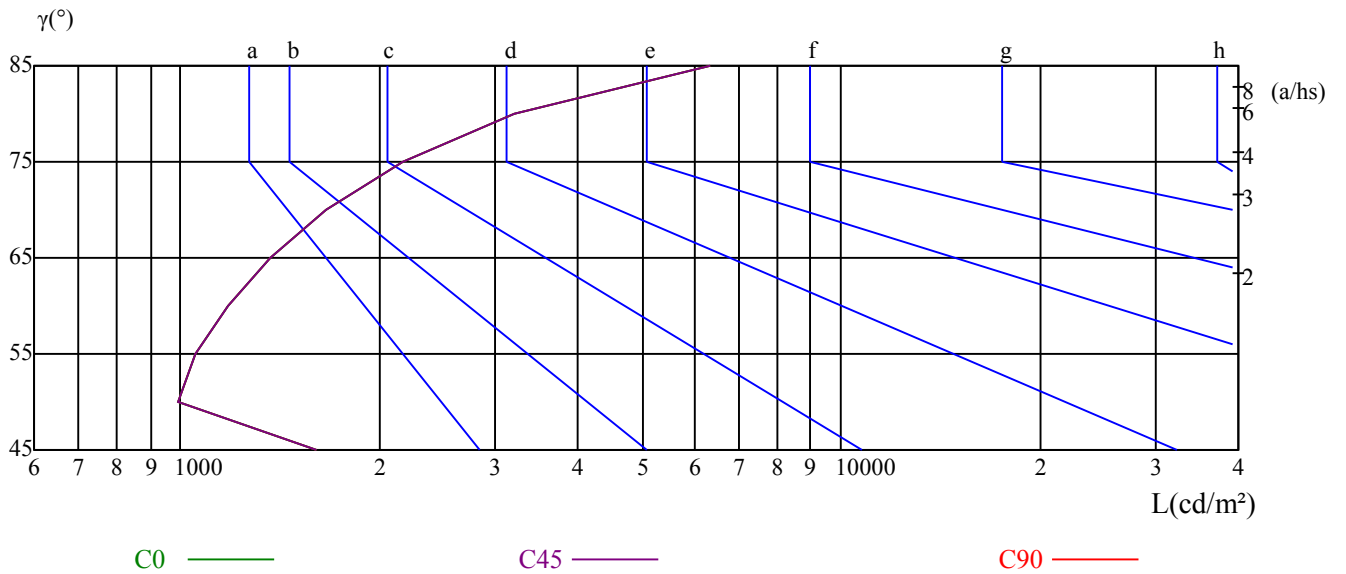
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1601	989	1056	1180	1365	1661	2168	3198	6322
C45	1601	989	1056	1180	1365	1661	2168	3198	6322
C90	1601	989	1056	1180	1365	1661	2168	3198	6322

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1365	1365	1365	2168	2168	2168	6322	6322	6322

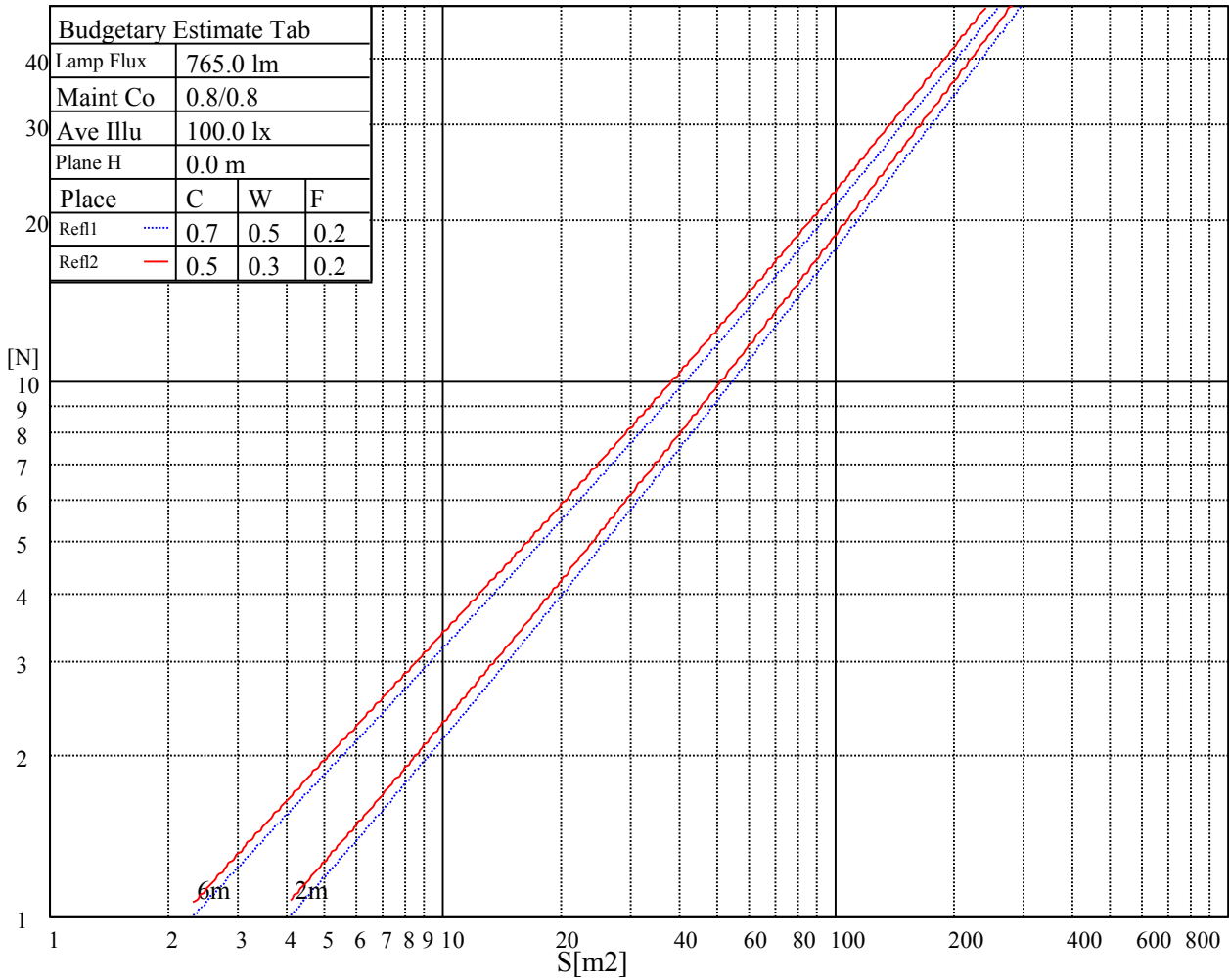
Glare Table

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

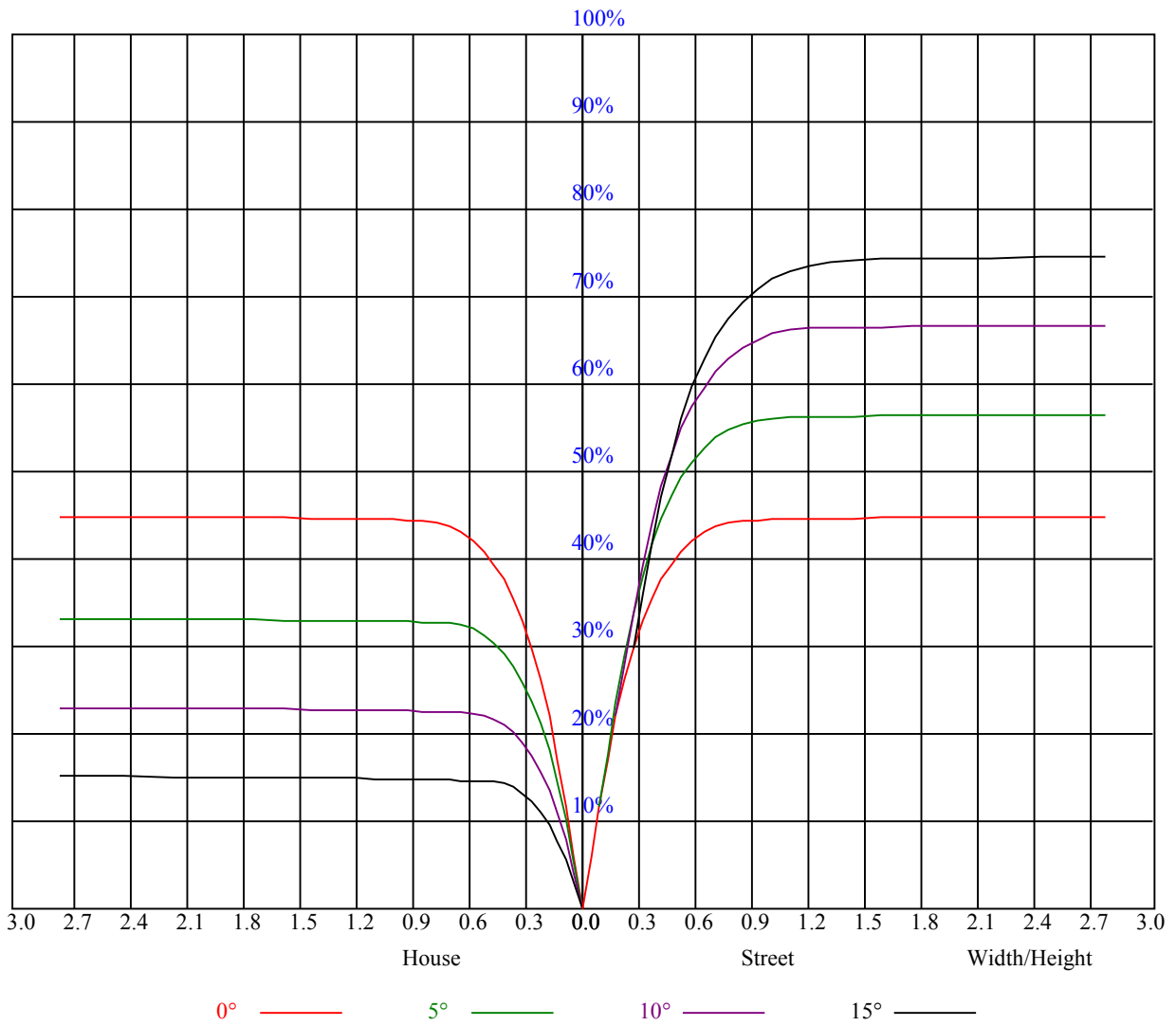
Luminance Limiting Curve



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	2.10	3.01	2.47	3.32	3.64	2.08	2.99	2.44	3.30	3.61
	3H	5.40	6.20	5.78	6.54	6.91	5.42	6.22	5.80	6.56	6.93
	4H	7.17	7.92	7.58	8.27	8.66	7.21	7.95	7.61	8.30	8.70
	6H	9.17	9.85	9.59	10.23	10.63	9.18	9.86	9.60	10.23	10.63
	8H	10.28	10.92	10.72	11.31	11.73	10.27	10.90	10.71	11.30	11.71
	12H	12.08	12.69	12.51	13.07	13.50	12.04	12.65	12.48	13.03	13.46
4H	2H	3.04	3.78	3.45	4.14	4.53	3.02	3.77	3.43	4.12	4.51
	3H	6.56	7.17	6.98	7.58	7.99	6.57	7.18	6.99	7.59	8.00
	4H	8.51	9.05	8.94	9.48	9.93	8.53	9.07	8.96	9.50	9.95
	6H	10.65	11.12	11.13	11.57	12.05	10.65	11.11	11.12	11.56	12.04
	8H	11.86	12.30	12.34	12.75	13.22	11.84	12.27	12.32	12.73	13.20
8H	12H	13.55	13.92	14.04	14.41	14.89	13.51	13.88	14.00	14.37	14.85
	4H	9.25	9.68	9.72	10.13	10.61	9.26	9.69	9.74	10.15	10.62
	6H	11.67	12.01	12.18	12.51	13.00	11.66	12.00	12.17	12.51	12.99
	8H	13.06	13.37	13.60	13.89	14.39	13.04	13.34	13.57	13.87	14.36
12H	12H	14.88	15.14	15.41	15.64	16.22	14.84	15.10	15.36	15.60	16.18
	4H	9.46	9.83	9.95	10.32	10.80	9.47	9.84	9.97	10.33	10.81
	6H	12.19	12.29	12.53	12.76	13.31	12.18	12.28	12.52	12.76	13.31
	8H	13.51	13.77	14.04	14.27	14.85	13.49	13.75	14.02	14.25	14.83
Variation with the observer position at spacings:											
S = 1.0H	5.5/-8.2					5.5/-8.2					
S = 1.5H	7.8/-6.2					7.8/-6.2					
S = 2.0H	9.2/-4.6					9.2/-4.6					
Standard tables:	BK2					BK2					
Uncorrected UGR	-2.7					-2.7					



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	1.00	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.95	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.82	0.87	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.86	0.82	0.78	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.74
5	0.82	0.78	0.74	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.68
7	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
8	0.73	0.68	0.65	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64
9	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.62	0.61
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.60	0.59



NATA 2978-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	1832.63	1729.69	1352.25	869.06	556.31	371.81	285.75	180.34	24.58
45.0	1839.38	1661.06	1248.19	795.94	510.75	333.00	258.13	135.73	12.94
90.0	1819.13	1598.63	1110.94	730.58	462.21	311.06	249.24	101.25	9.23
135.0	1835.44	1693.13	1336.50	857.25	530.44	337.50	286.31	157.84	17.89
180.0	1832.63	1729.13	1248.75	870.58	542.14	341.10	264.43	170.38	16.99
225.0	1842.19	1784.25	1470.38	938.03	621.45	388.46	277.76	208.91	50.01
270.0	1819.13	1810.13	1541.81	1112.06	676.13	420.19	301.50	231.30	77.85
315.0	1835.44	1733.06	1380.94	885.09	559.07	375.58	276.02	187.71	26.72
360.0	1832.63	1729.69	1352.25	869.06	556.31	371.81	285.75	180.34	24.58
C/ $\gamma$ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	5.29	3.09	2.98	2.87	2.81	2.81	2.76	2.70	2.70
45.0	4.78	3.04	2.93	2.87	2.81	2.81	2.76	2.76	2.70
90.0	3.60	3.04	2.93	2.87	2.81	2.76	2.70	2.76	2.76
135.0	4.44	3.09	2.93	2.93	2.87	2.76	2.76	2.70	2.64
180.0	4.44	3.09	2.98	2.87	2.81	2.81	2.76	2.70	2.70
225.0	5.96	3.15	2.98	2.87	2.81	2.76	2.76	2.70	2.70
270.0	9.39	3.26	3.04	2.93	2.87	2.81	2.76	2.70	2.70
315.0	6.47	3.15	2.98	2.93	2.81	2.76	2.76	2.76	2.70
360.0	5.29	3.09	2.98	2.87	2.81	2.81	2.76	2.70	2.70
C/ $\gamma$ (°)	90.0								
0.0	2.59								
45.0	2.70								
90.0	2.64								
135.0	2.64								
180.0	2.64								
225.0	2.64								
270.0	2.64								
315.0	2.64								
360.0	2.59								