
NATA

LumCAT: 2-1431-A	
Luminaire:H48185AC	
Report No: NT2016042704	Voltage(V): 219.9000
Test No: GC2016042704	Current(A): 0.0950
LampCAT: CBAC-88-36185-240V-30	Power (W): 18.0000
Lamp flux(lm): 1472.0	PF: 0.8560
Number of Lamps: 1	Ballast type: DC
Length(mm): 68	Width(mm): 68
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1340.77
Efficiency(%): 91.08%
Lumens(lm)/Power(W): 74.49
Central intensity(cd): 1829.799
Maximum intensity(cd): 1829.799
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=49.3
 [C90/270]Total=49.3
Field angle(10%Imax): [C0/180]Total=79.4
 [C90/270]Total=79.4
Maximum s/h(1/2): C0_180=0.76 C90_270=0.76
Maximum s/h(1/4): C0_180=0.83 C90_270=0.83
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.25%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.645%

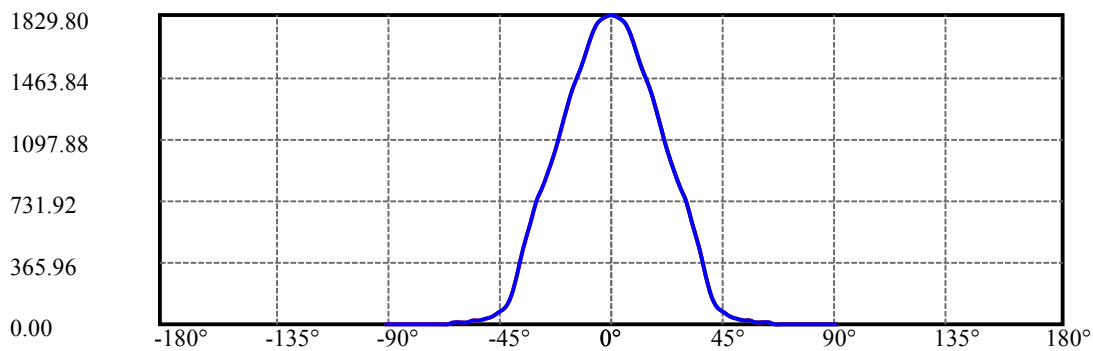
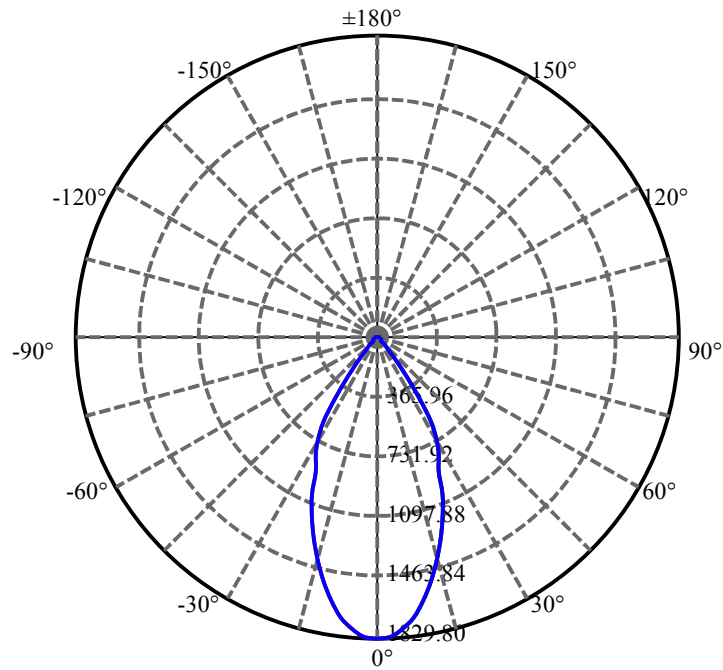
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1829.799	2.736	2.736	.186%	.204%
2.5	1818.651	21.747	24.483	1.477%	1.826%
5.0	1779.973	42.528	67.01	2.889%	4.998%
7.5	1711.442	61.238	128.249	4.160%	9.565%
10.0	1617.488	76.997	205.246	5.231%	15.308%
12.5	1512.537	89.744	294.99	6.097%	22.002%
15.0	1399.809	99.318	394.308	6.747%	29.409%
17.5	1283.103	105.771	500.078	7.186%	37.298%
20.0	1160.259	108.785	608.864	7.390%	45.411%
22.5	1030.436	108.099	716.963	7.344%	53.474%
25.0	896.222	103.831	820.794	7.054%	61.218%
27.5	803.135	101.662	922.455	6.906%	68.800%
30.0	726.180	99.535	1021.991	6.762%	76.224%
32.5	603.969	88.960	1110.951	6.043%	82.859%
35.0	448.476	70.517	1181.467	4.791%	88.119%
37.5	294.001	49.064	1230.531	3.333%	91.778%
40.0	167.275	29.476	1260.007	2.002%	93.976%
42.5	105.116	19.468	1279.474	1.323%	95.428%
45.0	64.925	12.585	1292.06	.855%	96.367%
47.5	49.840	10.073	1302.133	.684%	97.118%
50.0	37.287	7.830	1309.963	.532%	97.702%
52.5	26.620	5.789	1315.752	.393%	98.134%
55.0	18.306	4.111	1319.863	.279%	98.441%
57.5	12.924	2.988	1322.851	.203%	98.664%
60.0	8.988	2.134	1324.985	.145%	98.823%
62.5	6.318	1.536	1326.521	.104%	98.937%
65.0	5.561	1.382	1327.903	.094%	99.040%
67.5	5.313	1.346	1329.249	.091%	99.141%
70.0	5.244	1.351	1330.599	.092%	99.241%
72.5	5.203	1.360	1331.96	.092%	99.343%
75.0	5.148	1.363	1333.323	.093%	99.445%
77.5	5.106	1.367	1334.689	.093%	99.546%
80.0	5.106	1.379	1336.068	.094%	99.649%
82.5	5.038	1.369	1337.437	.093%	99.751%
85.0	5.010	1.368	1338.805	.093%	99.853%
87.5	4.804	1.316	1340.121	.089%	99.952%
90.0	4.735	0.649	1340.77	.044%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1021.99	69.43%	76.22%
0-40	1260.01	85.60%	93.98%
0-60	1324.99	90.01%	98.82%
0-90	1340.12	91.04%	99.95%
0-120	1340.12	91.04%	99.95%
0-180	1340.77	91.08%	100.00%
60-90	17.27	1.17%	1.29%
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%
0-31.42	1072.62	72.87%	80.00%

ZONAL LUMEN SUMMARY

0-10	205.25
10-20	403.62
20-30	413.13
30-40	238.02
40-50	49.96
50-60	15.02
60-70	5.61
70-80	5.47
80-90	4.05
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:

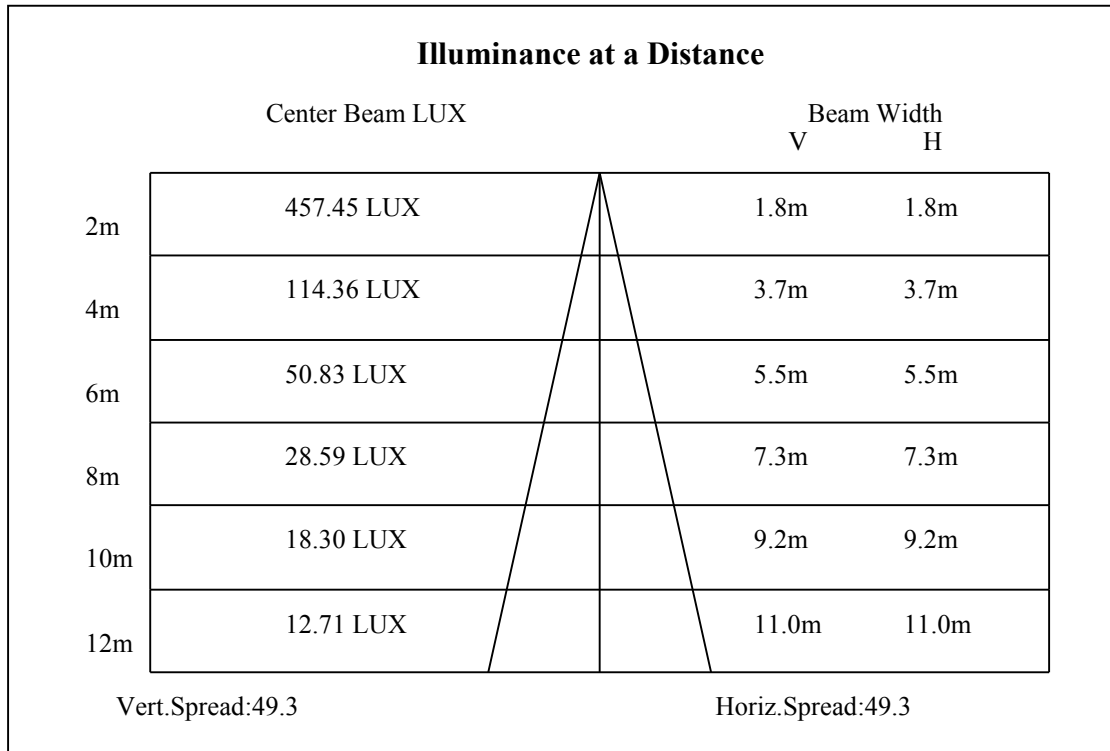
C90/C270:

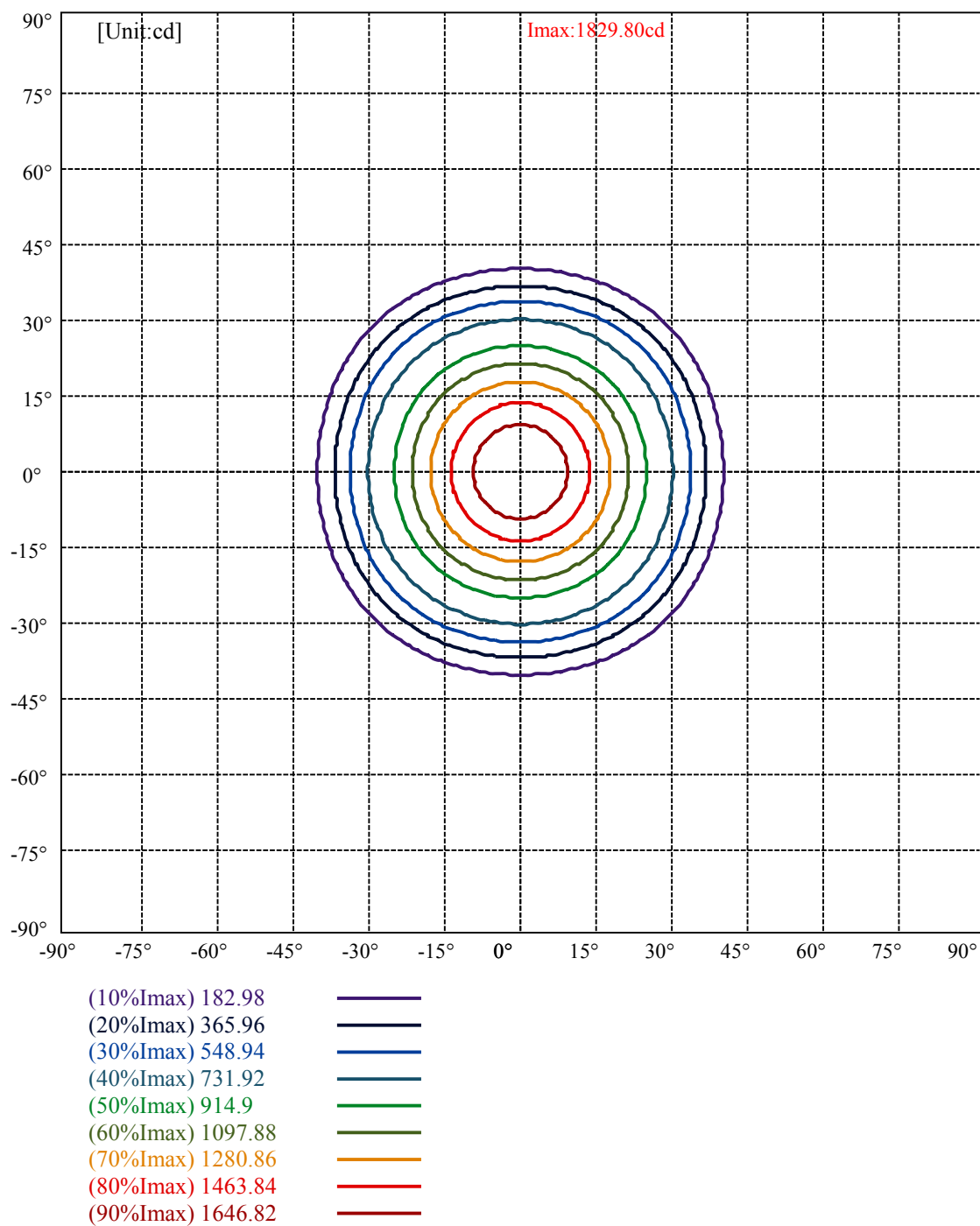
Field angle(10%Imax):C0/180Left:39.7 Right:39.7

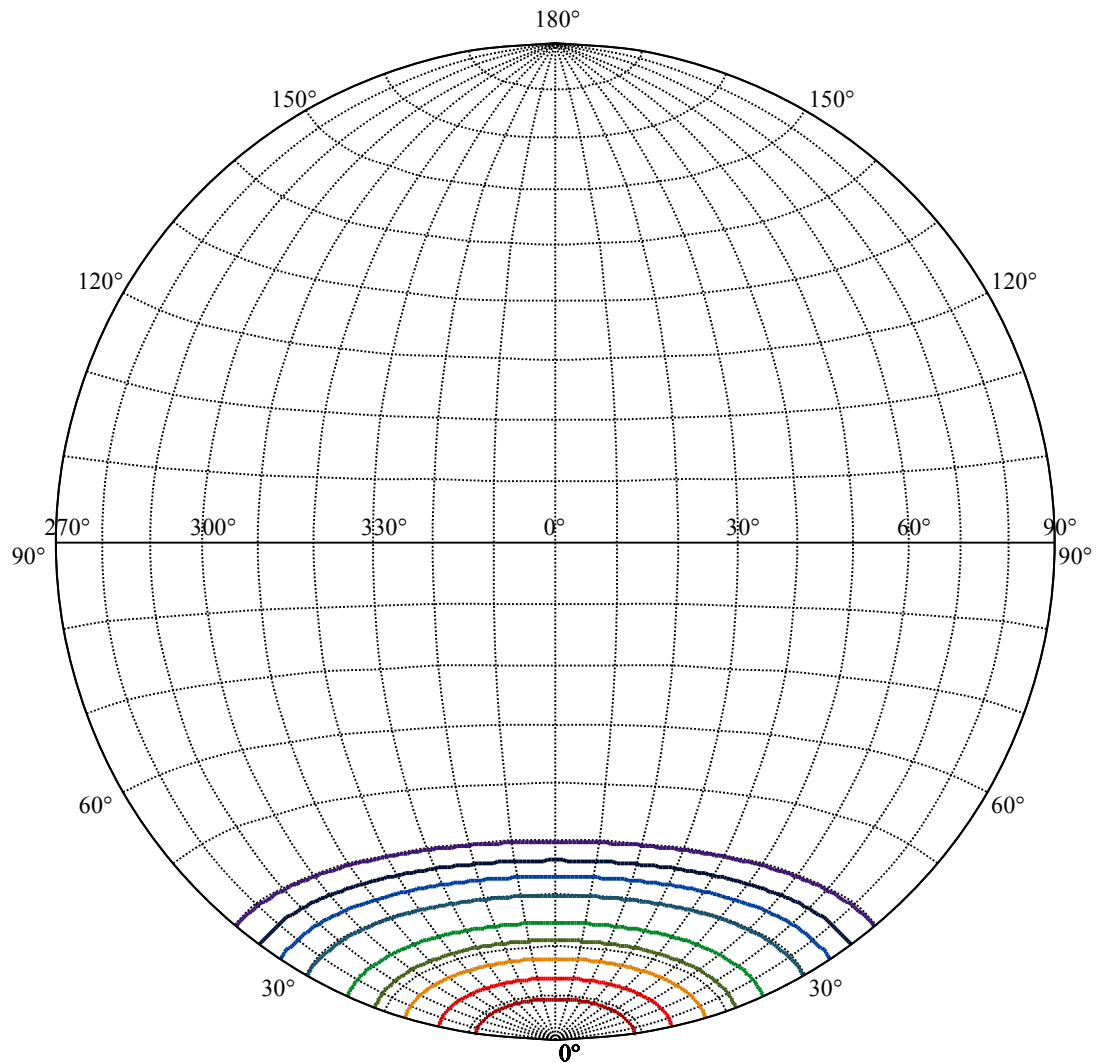
:C90/270Left:39.7 Right:39.7

Beam Angle(50%Imax):C0/180Left:24.7 Right:24.7

:C90/270Left:24.7 Right:24.7







House

[Unit:cd]

Road

Imax:1829.80

(10%Imax) 182.98

(20%Imax) 365.96

(30%Imax) 548.94

(40%Imax) 731.92

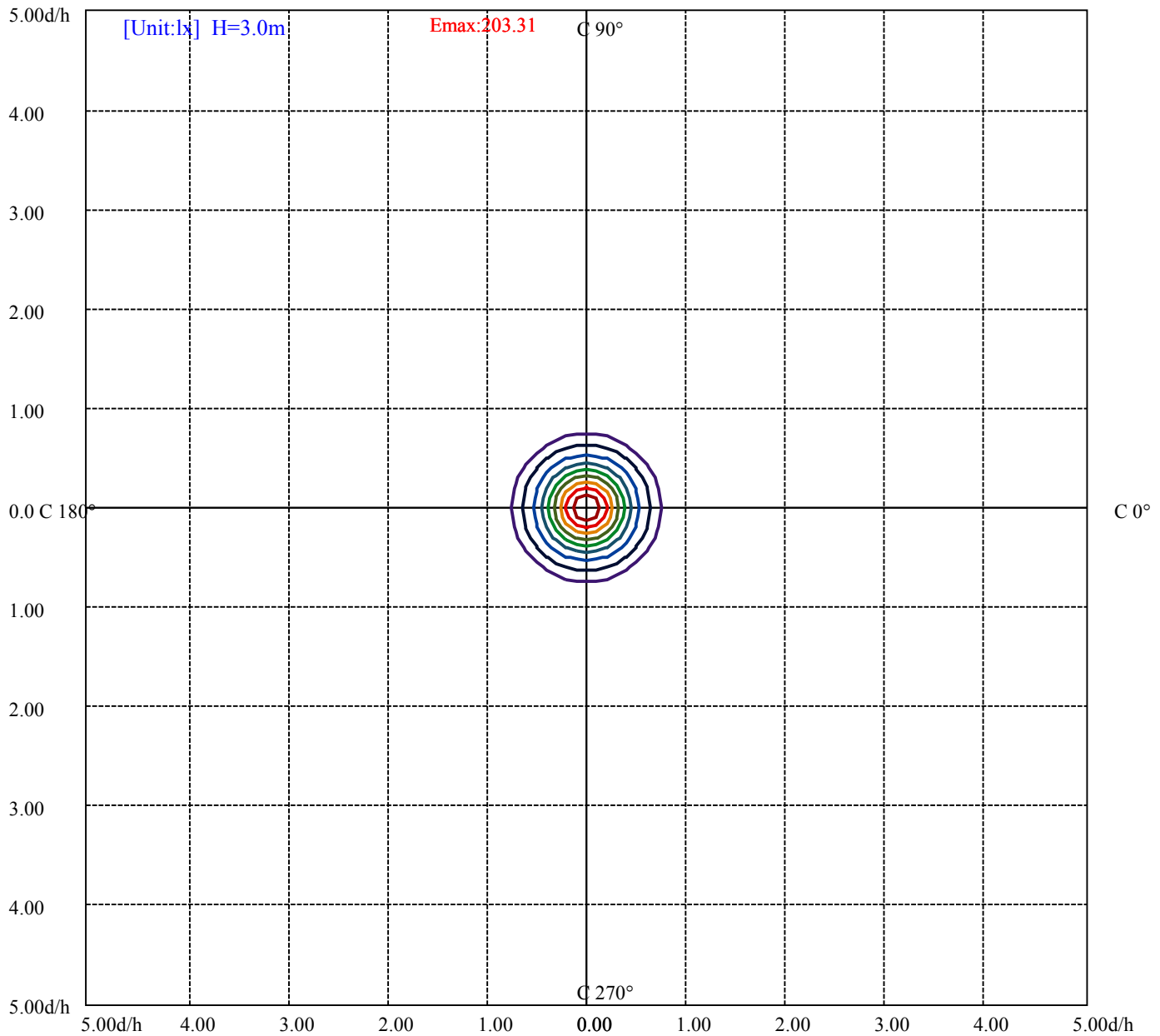
(50%Imax) 914.9

(60%Imax) 1097.88

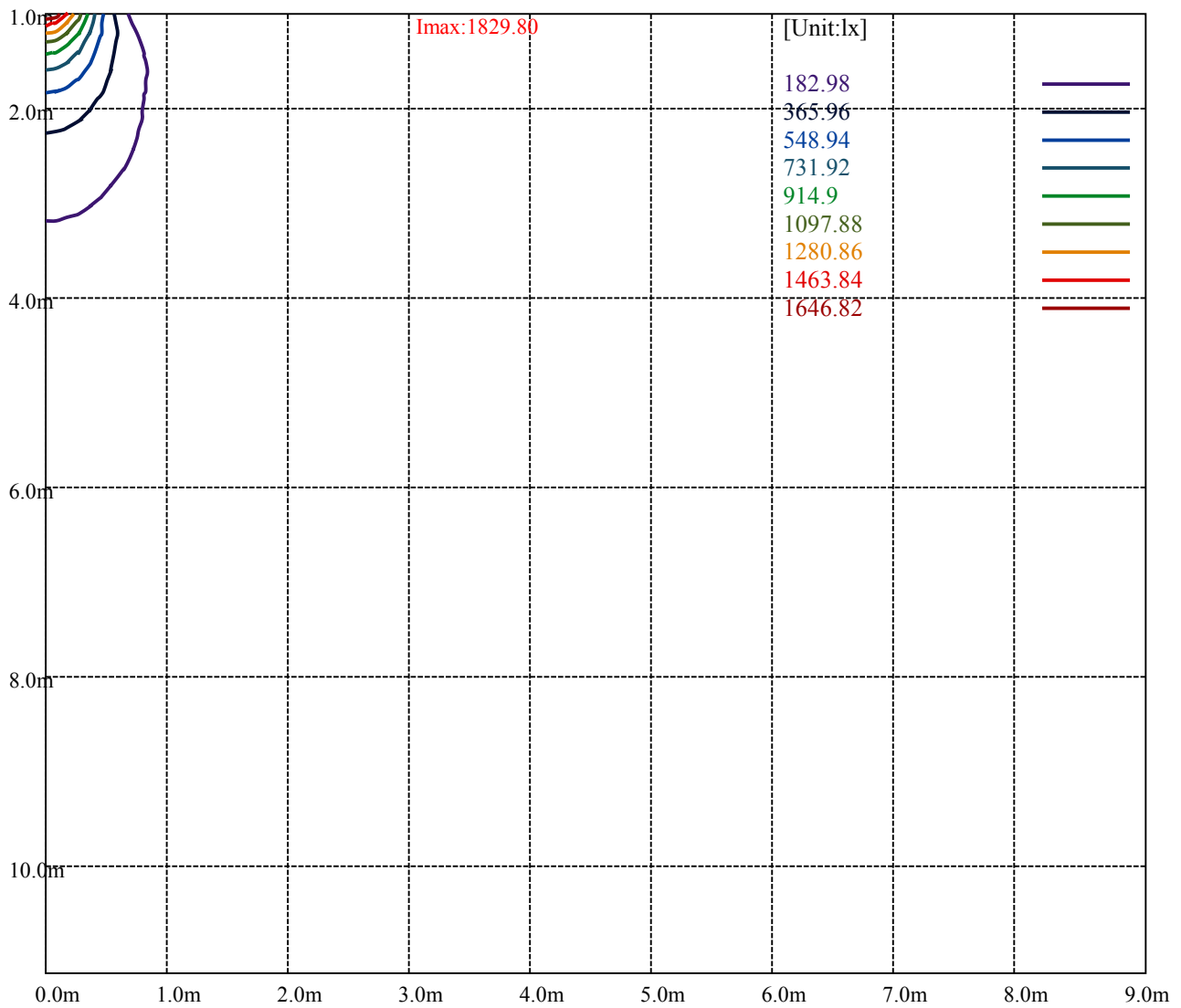
(70%Imax) 1280.86

(80%Imax) 1463.84

(90%Imax) 1646.82



(10%E _{max}) 20.33111	—
(20%E _{max}) 40.66222	—
(30%E _{max}) 60.99333	—
(40%E _{max}) 81.32433	—
(50%E _{max}) 101.6554	—
(60%E _{max}) 121.9867	—
(70%E _{max}) 142.3178	—
(80%E _{max}) 162.6489	—
(90%E _{max}) 182.98	—



Luminance Table

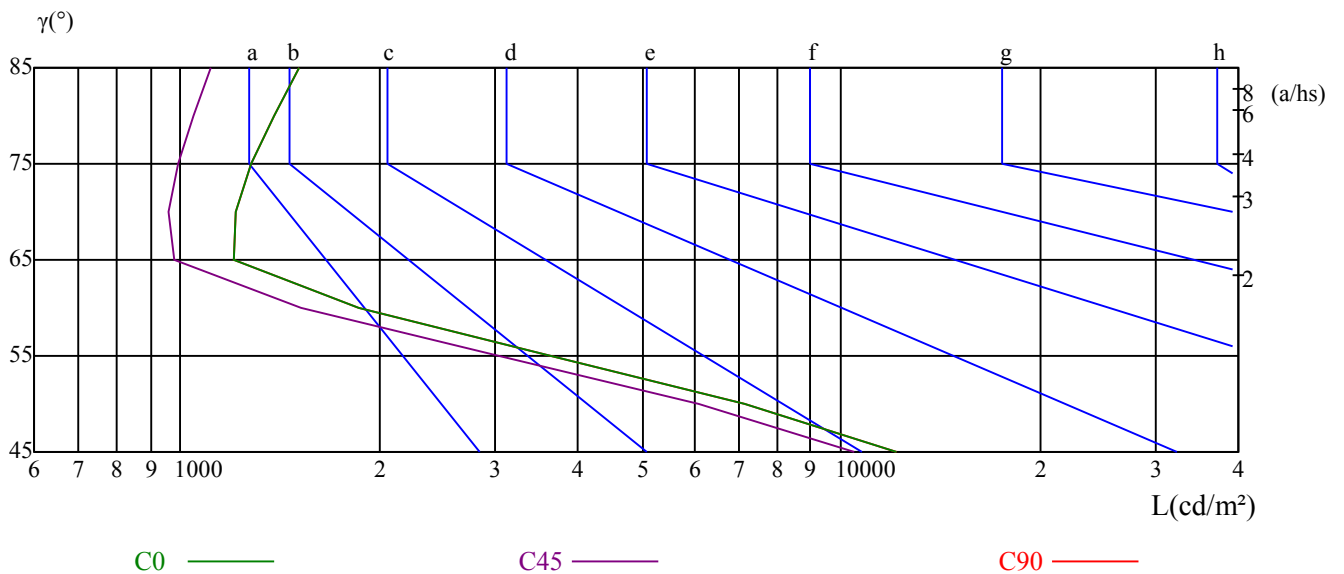
γ	45	50	55	60	65	70	75	80	85
C0	12165	7154	3627	1855	1208	1211	1280	1387	1511
C45	10483	6073	3031	1525	975	959	992	1047	1108
C90	12165	7154	3627	1855	1208	1211	1280	1387	1511

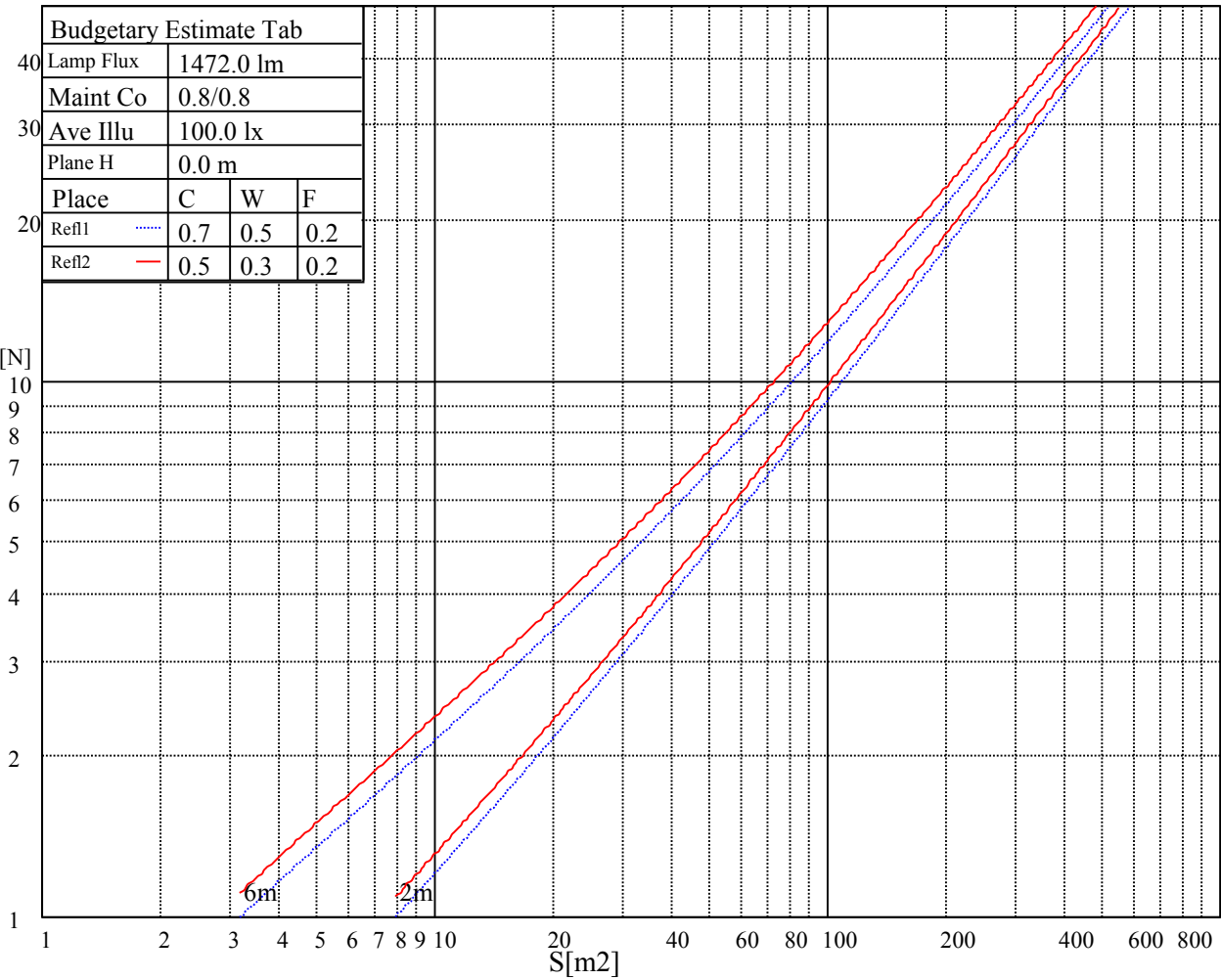
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2846	2846	2846	4301	4301	4301	12432	12432	12432

Glare Table

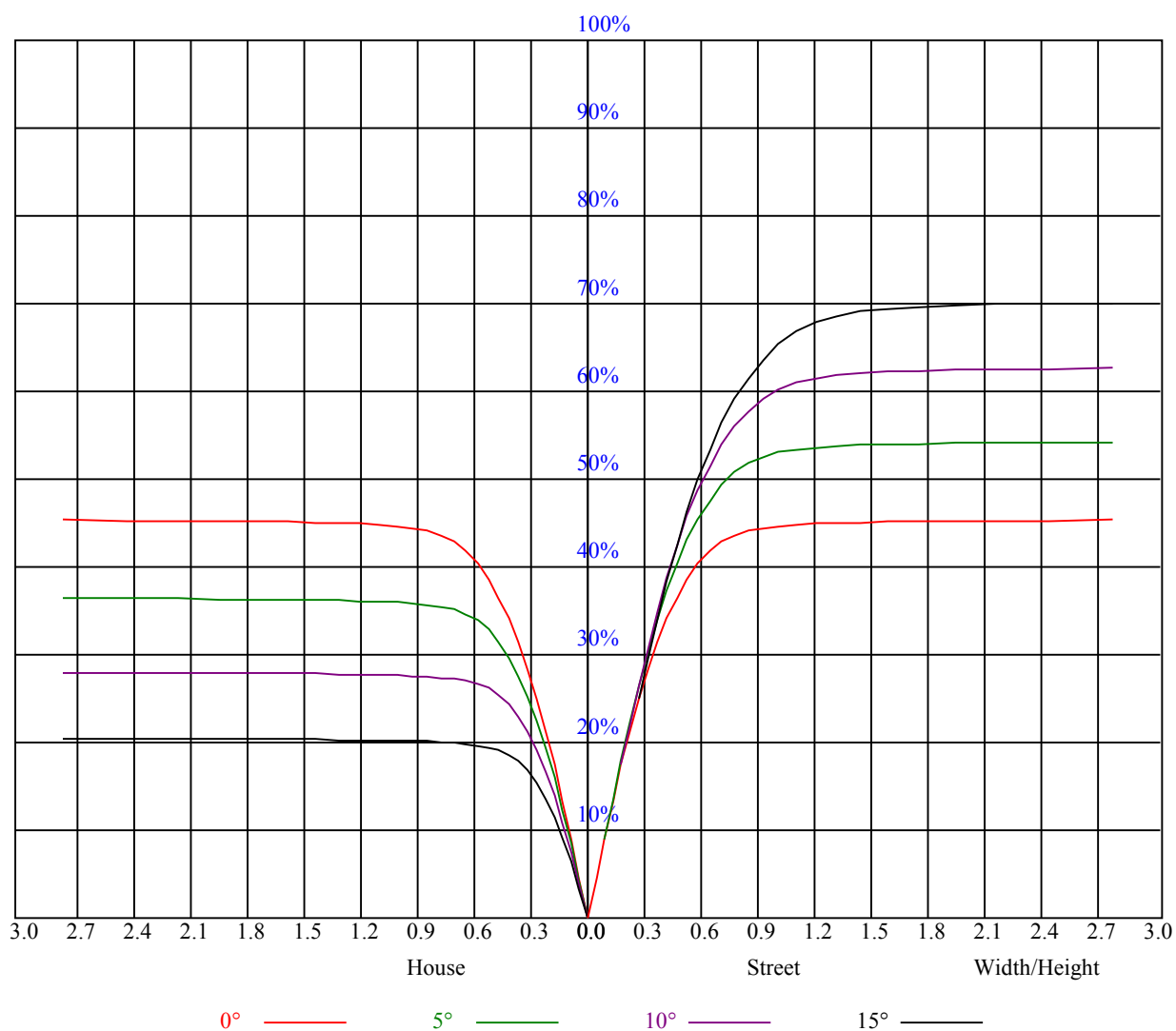
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.85
2	0.94	0.91	0.88	0.93	0.89	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.81	0.80
3	0.88	0.84	0.80	0.87	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.77	0.80	0.78	0.76	0.75
4	0.83	0.78	0.74	0.82	0.78	0.74	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.71	0.70
5	0.78	0.73	0.69	0.77	0.73	0.69	0.76	0.72	0.68	0.74	0.71	0.68	0.73	0.70	0.67	0.66
6	0.74	0.69	0.65	0.73	0.68	0.65	0.72	0.67	0.64	0.71	0.67	0.64	0.69	0.66	0.63	0.62
7	0.70	0.65	0.61	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.60	0.66	0.63	0.60	0.59
8	0.66	0.61	0.57	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.55
9	0.63	0.58	0.54	0.62	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.54	0.53
10	0.60	0.55	0.52	0.59	0.55	0.51	0.59	0.54	0.51	0.58	0.54	0.51	0.57	0.54	0.51	0.50



NATA 2-1431-E

Appendix Page: 14 Total:14

Intensity data(cd)

C/ γ (°)	0.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0
0.0	1831.73	1820.16	1778.32	1710.33	1617.28	1512.12	1401.19	1283.09	1143.25
45.0	1827.32	1818.24	1779.70	1711.59	1619.48	1512.67	1399.53	1284.91	1168.19
90.0	1828.42	1817.96	1782.18	1712.25	1613.70	1512.67	1398.98	1279.51	1161.41
135.0	1831.73	1818.24	1779.70	1711.59	1619.48	1512.67	1399.53	1284.91	1168.19
180.0	1831.73	1820.16	1778.32	1710.33	1617.28	1512.12	1401.19	1283.09	1143.25
225.0	1827.32	1818.24	1779.70	1711.59	1619.48	1512.67	1399.53	1284.91	1168.19
270.0	1828.42	1817.96	1782.18	1712.25	1613.70	1512.67	1398.98	1279.51	1161.41
315.0	1831.73	1818.24	1779.70	1711.59	1619.48	1512.67	1399.53	1284.91	1168.19
360.0	1831.73	1820.16	1778.32	1710.33	1617.28	1512.12	1401.19	1283.09	1143.25

C/ γ (°)	22.5	25.0	27.5	30.0	32.5	35.0	37.5	40.0	42.5
0.0	1028.89	886.30	786.59	708.69	583.27	447.06	313.27	179.37	103.18
45.0	1033.90	895.71	803.99	727.18	611.79	450.75	293.67	169.41	105.82
90.0	1025.04	907.16	817.97	741.66	609.03	445.35	275.39	150.91	105.65
135.0	1033.90	895.71	803.99	727.18	611.79	450.75	293.67	169.41	105.82
180.0	1028.89	886.30	786.59	708.69	583.27	447.06	313.27	179.37	103.18
225.0	1033.90	895.71	803.99	727.18	611.79	450.75	293.67	169.41	105.82
270.0	1025.04	907.16	817.97	741.66	609.03	445.35	275.39	150.91	105.65
315.0	1033.90	895.71	803.99	727.18	611.79	450.75	293.67	169.41	105.82
360.0	1028.89	886.30	786.59	708.69	583.27	447.06	313.27	179.37	103.18

C/ γ (°)	45.0	47.5	50.0	52.5	55.0	57.5	60.0	62.5	65.0
0.0	61.00	45.59	34.25	24.45	17.18	12.55	8.75	6.33	5.67
45.0	64.47	49.50	37.00	26.54	18.17	12.77	8.92	6.22	5.51
90.0	69.76	54.78	40.91	28.96	19.71	13.60	9.36	6.50	5.56
135.0	64.47	49.50	37.00	26.54	18.17	12.77	8.92	6.22	5.51
180.0	61.00	45.59	34.25	24.45	17.18	12.55	8.75	6.33	5.67
225.0	64.47	49.50	37.00	26.54	18.17	12.77	8.92	6.22	5.51
270.0	69.76	54.78	40.91	28.96	19.71	13.60	9.36	6.50	5.56
315.0	64.47	49.50	37.00	26.54	18.17	12.77	8.92	6.22	5.51
360.0	61.00	45.59	34.25	24.45	17.18	12.55	8.75	6.33	5.67

C/ γ (°)	67.5	70.0	72.5	75.0	77.5	80.0	82.5	85.0	87.5
0.0	5.56	5.56	5.51	5.45	5.51	5.45	5.45	5.45	4.84
45.0	5.23	5.18	5.12	5.12	5.01	5.07	4.96	4.90	4.79
90.0	5.23	5.07	5.07	4.90	4.90	4.84	4.79	4.79	4.79
135.0	5.23	5.18	5.12	5.12	5.01	5.07	4.96	4.90	4.79
180.0	5.56	5.56	5.51	5.45	5.51	5.45	5.45	5.45	4.84
225.0	5.23	5.18	5.12	5.12	5.01	5.07	4.96	4.90	4.79
270.0	5.23	5.07	5.07	4.90	4.90	4.84	4.79	4.79	4.79
315.0	5.23	5.18	5.12	5.12	5.01	5.07	4.96	4.90	4.79
360.0	5.56	5.56	5.51	5.45	5.51	5.45	5.45	5.45	4.84

C/ γ (°)	90.0
0.0	4.73
45.0	4.73
90.0	4.73
135.0	4.73
180.0	4.73
225.0	4.73
270.0	4.73
315.0	4.73
360.0	4.73