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Nata

Client:

LumCAT: 1681-s

Luminaire: 92.70.124.00

Report No: nata0100

Test No: GC2018042501

LampCAT: CITIZEN CLU028

Lamp flux(lm): 1496.4

Number of Lamps: 1

Length(mm): 47

Phm Type: C

Voltage(V): 38.1000

Current(A): 0.3400

Power (W): 12.9540

PF: 0.0000

Ballast type: DC

Width(mm): 47

Height(mm): 0

Photometric Results

Lumens(lm): 1356.23, Efficiency(%): 90.63% , Luminous Efficacy(lm/W): 104.70

Central intensity(cd): 1676.880, Maximum intensity(cd): 1676.880

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=58.4

[C90/270]Total=58.4

Field angle(10%Imax): [C0/180]Total=78.0

[C90/270]Total=78.0

Maximum s/h(1/2): C0_180=0.91 C90_270=0.91

Maximum s/h(1/4): C0_180=0.87 C90_270=0.87

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.21%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.199%

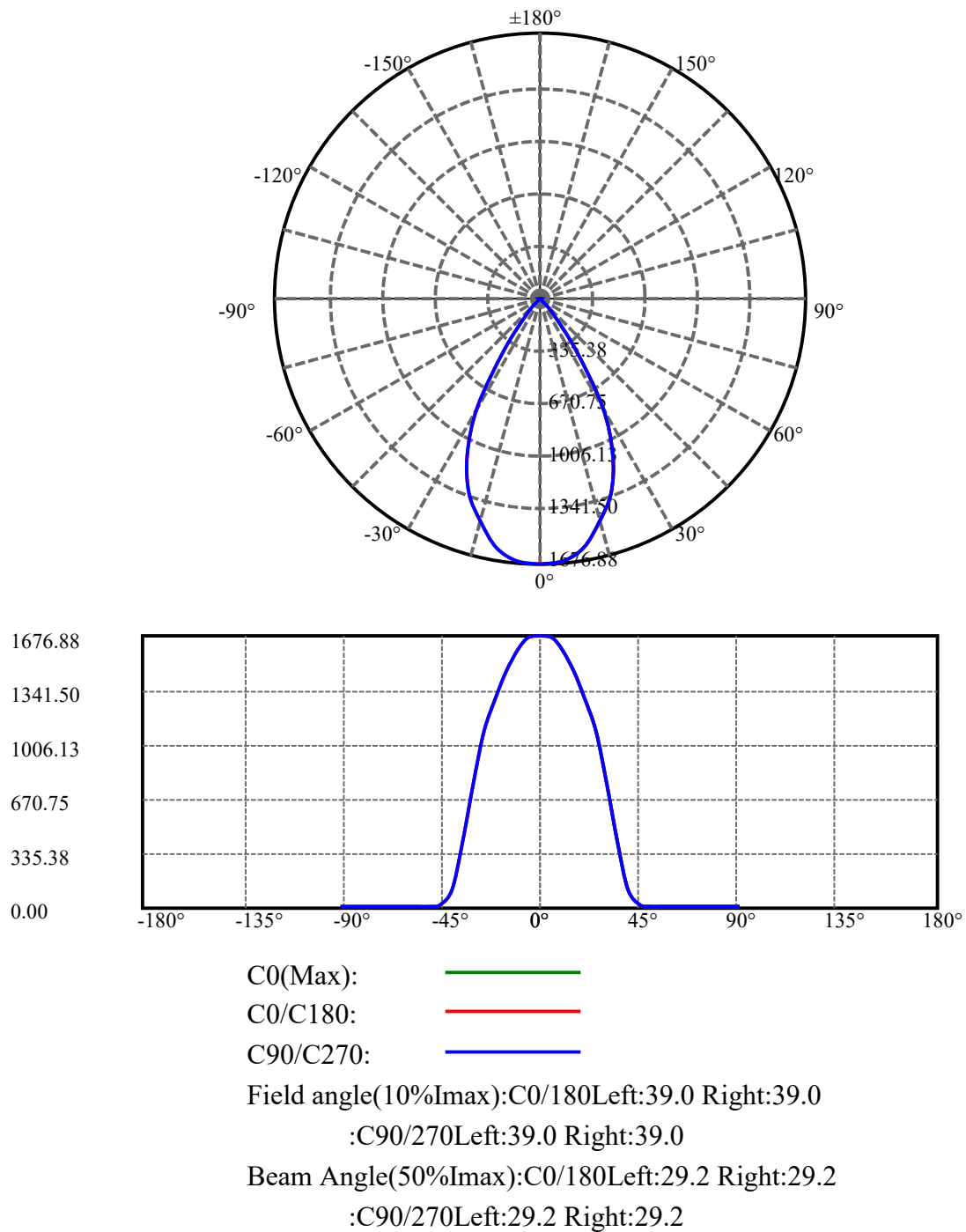
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1676.880	10.028	10.028	.670%	.739%
5.0	1665.456	79.564	89.592	5.317%	6.606%
10.0	1595.672	151.881	241.473	10.150%	17.805%
15.0	1457.068	206.712	448.185	13.814%	33.046%
20.0	1303.942	244.455	692.641	16.336%	51.071%
25.0	1088.493	252.152	944.793	16.850%	69.663%
30.0	787.547	215.842	1160.635	14.424%	85.578%
35.0	395.215	124.255	1284.89	8.303%	94.740%
40.0	113.402	39.956	1324.846	2.670%	97.686%
45.0	18.602	7.210	1332.056	.482%	98.218%
50.0	7.364	3.092	1335.148	.207%	98.446%
55.0	5.767	2.589	1337.738	.173%	98.637%
60.0	5.568	2.643	1340.381	.177%	98.832%
65.0	5.478	2.721	1343.102	.182%	99.032%
70.0	5.457	2.811	1345.913	.188%	99.239%
75.0	5.464	2.893	1348.806	.193%	99.453%
80.0	5.464	2.950	1351.756	.197%	99.670%
85.0	5.471	2.988	1354.743	.200%	99.891%
90.0	5.416	1.484	1356.228	.099%	100.000%

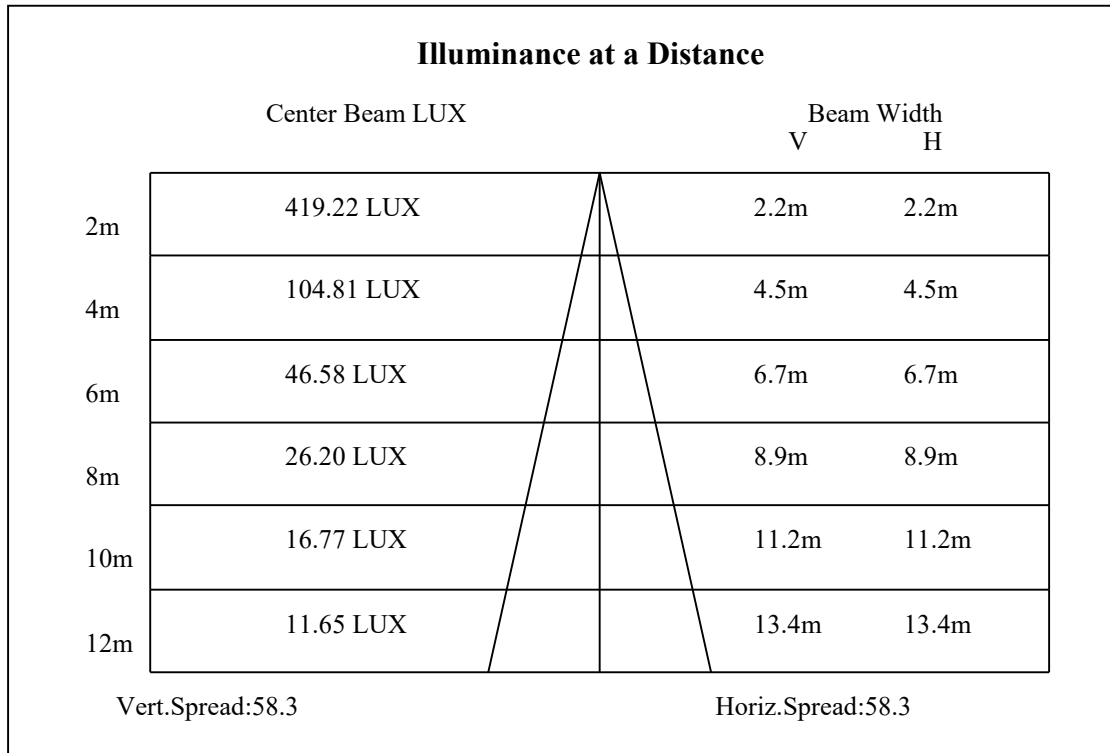
ZONAL LUMEN SUMMARY

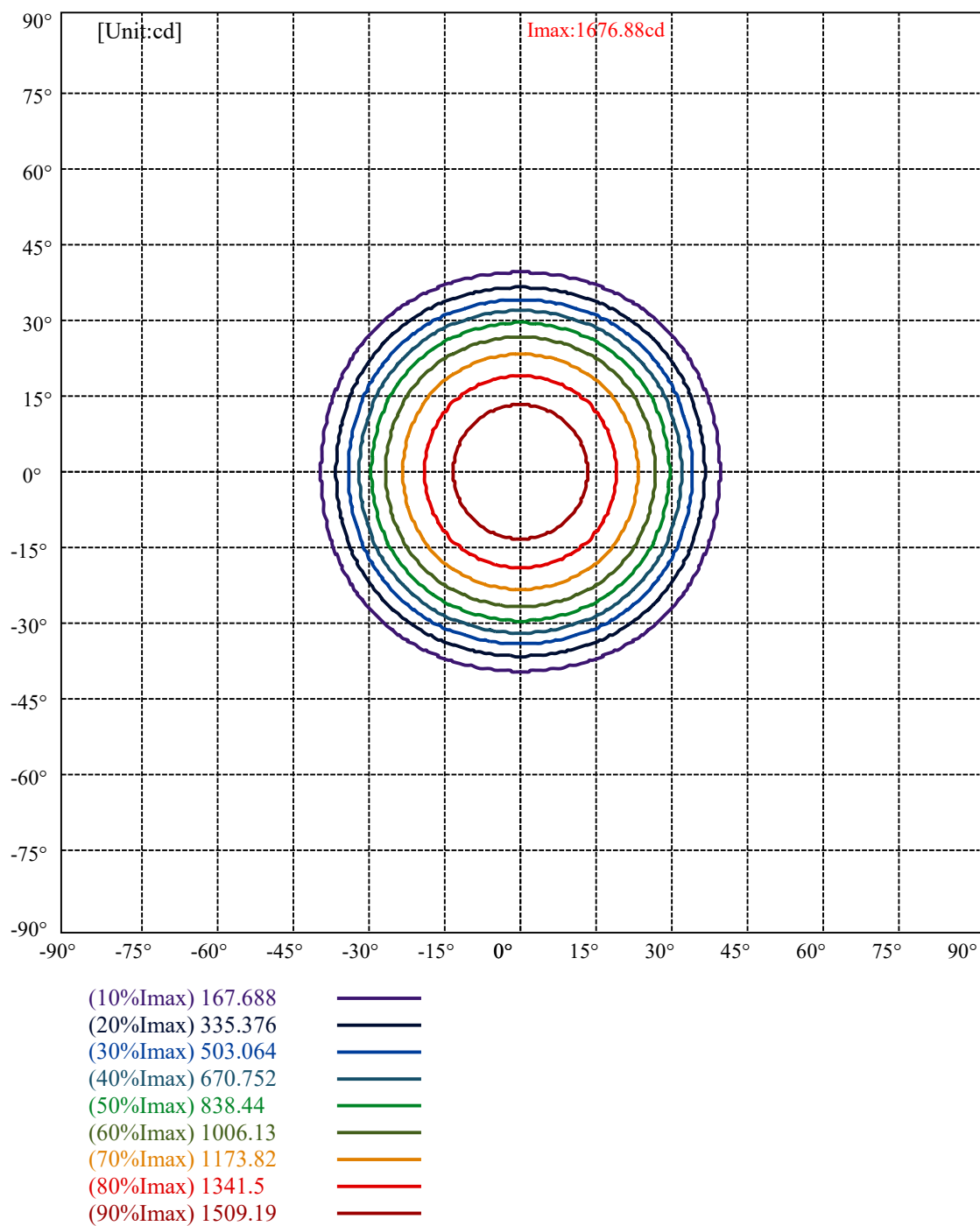
Zone	Lumens	%Lamp	%Fixt
0-30	1160.64	77.56%	85.58%
0-40	1324.85	88.53%	97.69%
0-60	1340.38	89.57%	98.83%
0-90	1354.74	90.53%	99.89%
0-120	1354.74	90.53%	99.89%
0-180	1356.23	90.63%	100.00%
60-90	17.01	1.14%	1.25%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.25	1084.98	72.50%	80.00%

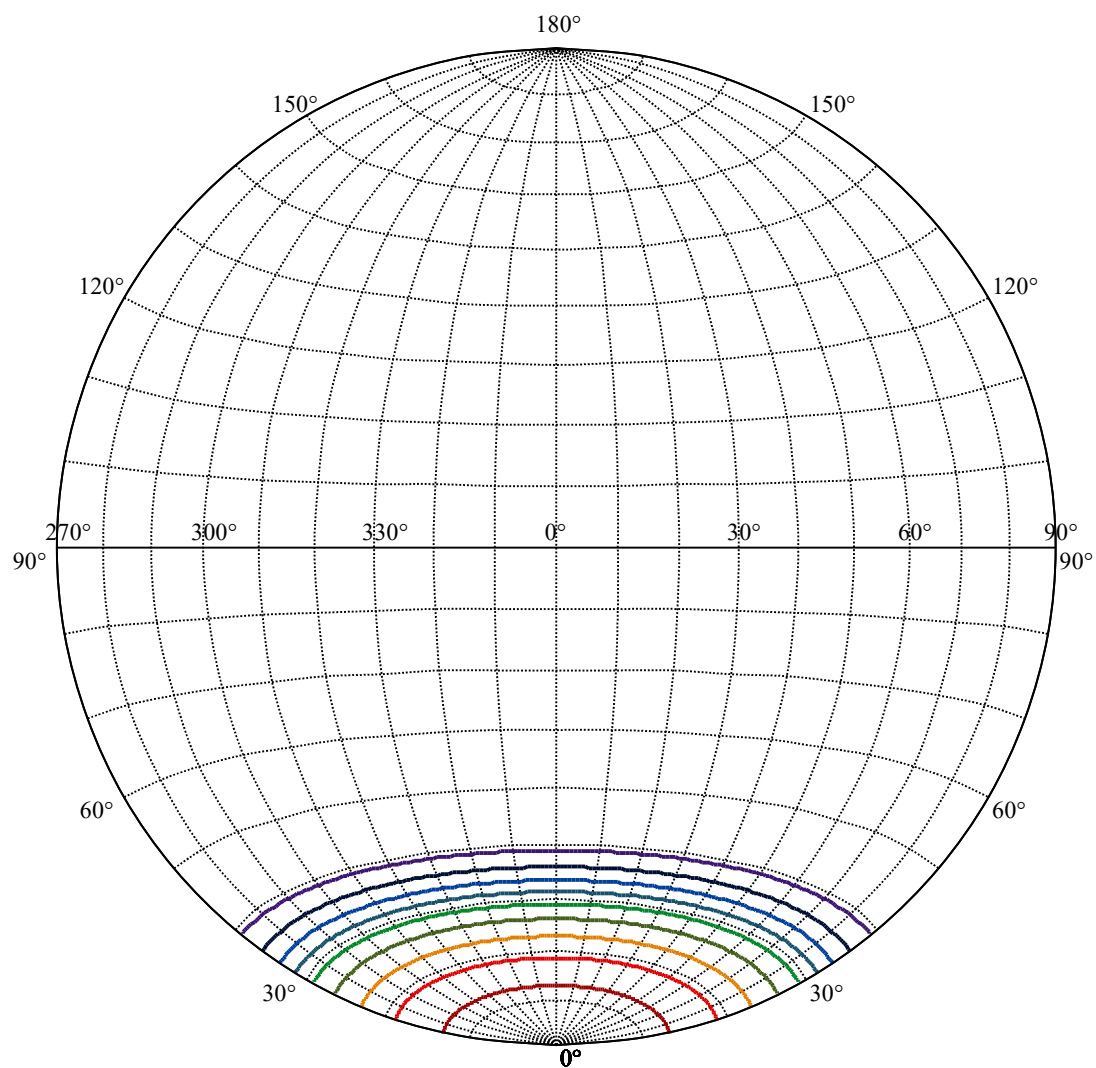
ZONAL LUMEN SUMMARY

0-10	241.47
10-20	451.17
20-30	467.99
30-40	164.21
40-50	10.30
50-60	5.23
60-70	5.53
70-80	5.84
80-90	2.99
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









House

[Unit:cd]

Road

Imax:1676.88

(10%Imax) 167.688

(20%Imax) 335.376

(30%Imax) 503.064

(40%Imax) 670.752

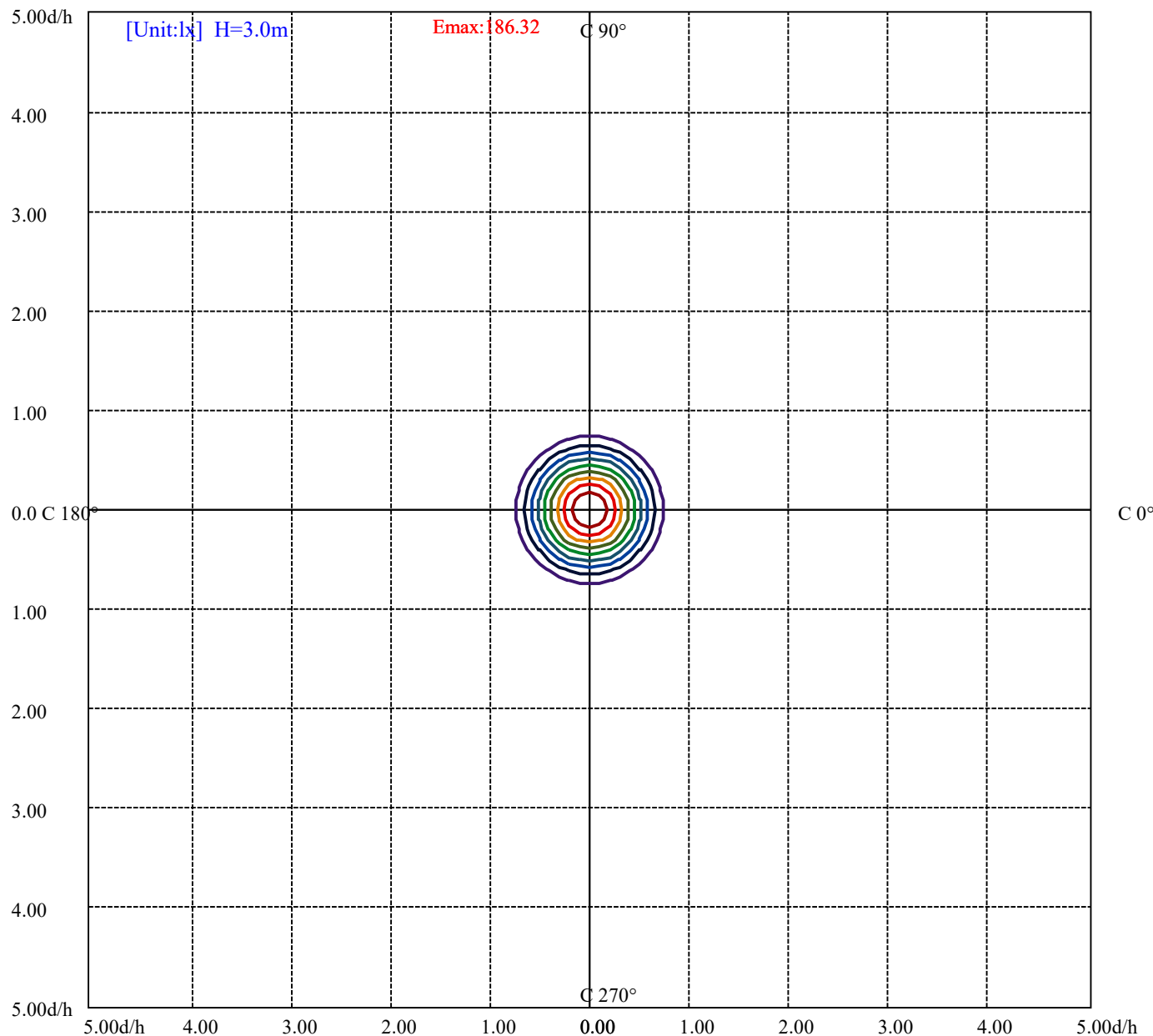
(50%Imax) 838.44

(60%Imax) 1006.13

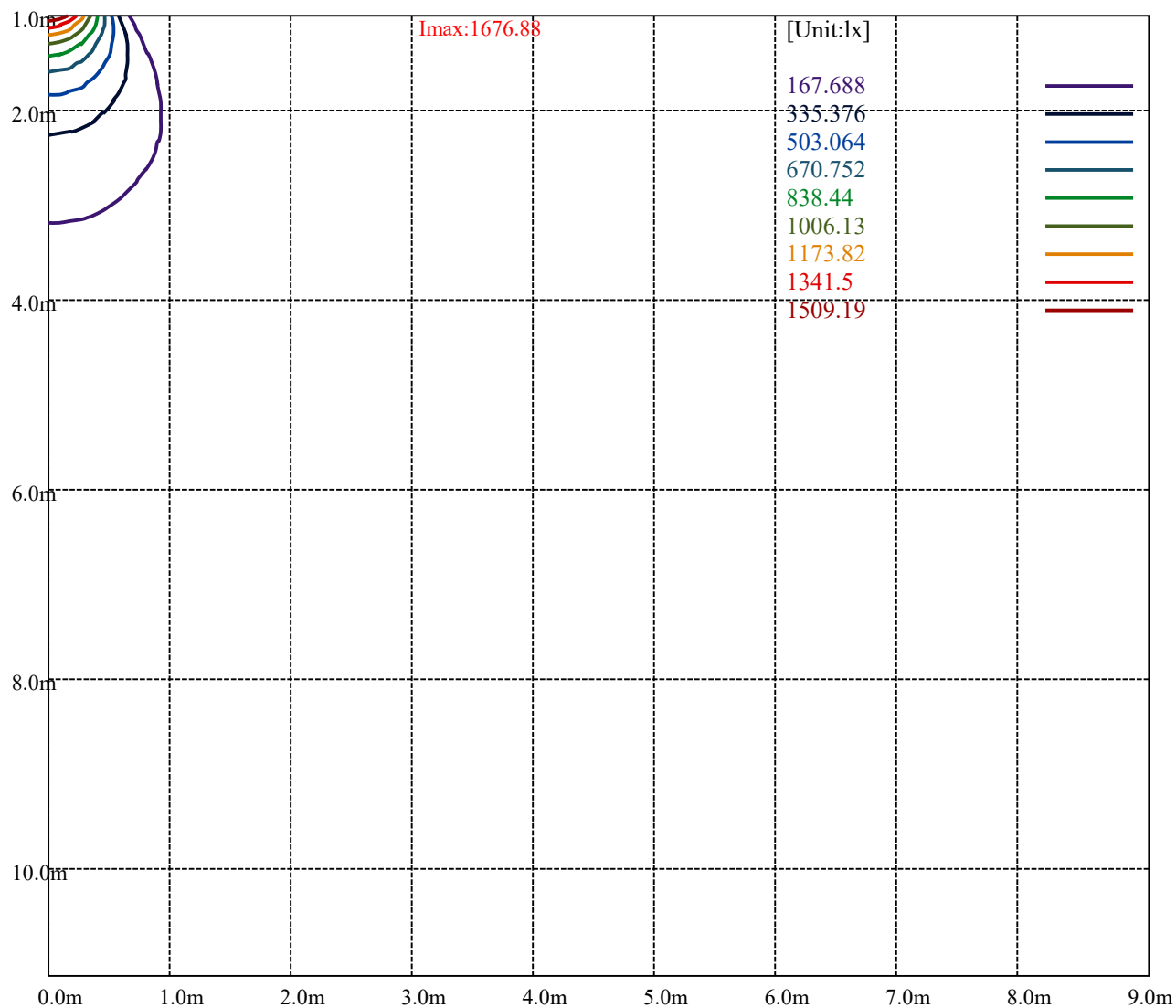
(70%Imax) 1173.82

(80%Imax) 1341.5

(90%Imax) 1509.19



(10%Emax)	18.632	—
(20%Emax)	37.264	—
(30%Emax)	55.896	—
(40%Emax)	74.528	—
(50%Emax)	93.16	—
(60%Emax)	111.7922	—
(70%Emax)	130.4244	—
(80%Emax)	149.0556	—
(90%Emax)	167.6878	—



Luminance Table

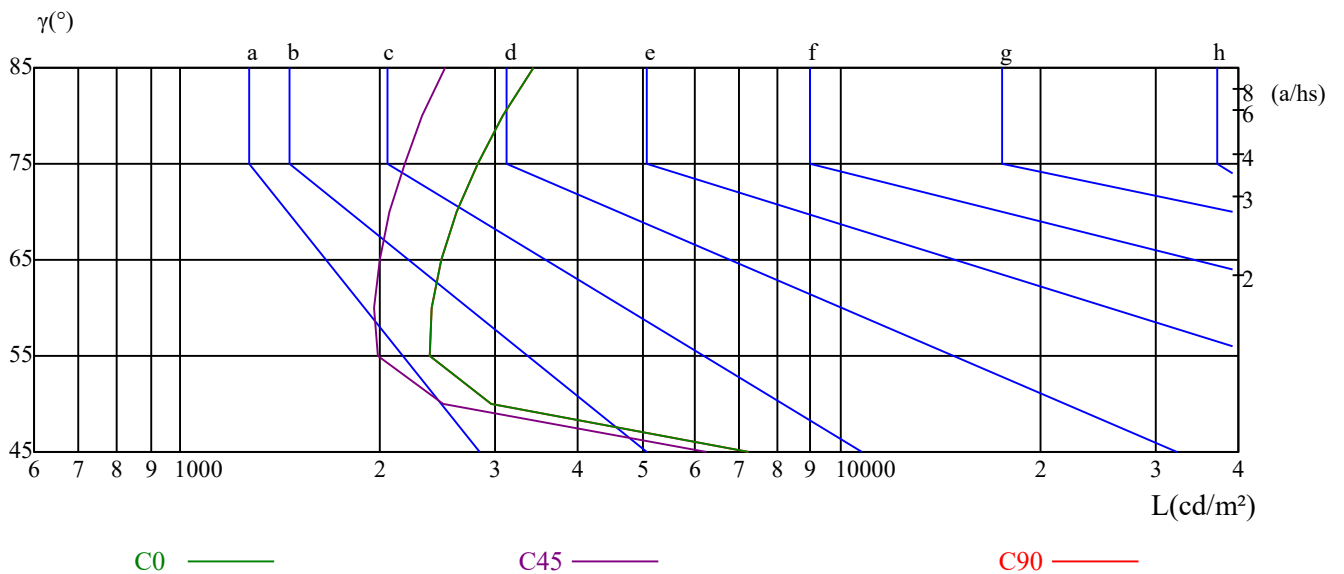
γ	45	50	55	60	65	70	75	80	85
C0	7269	2945	2381	2394	2477	2623	2826	3083	3426
C45	6259	2498	1988	1966	1999	2076	2188	2328	2511
C90	7269	2945	2381	2394	2477	2623	2826	3083	3426

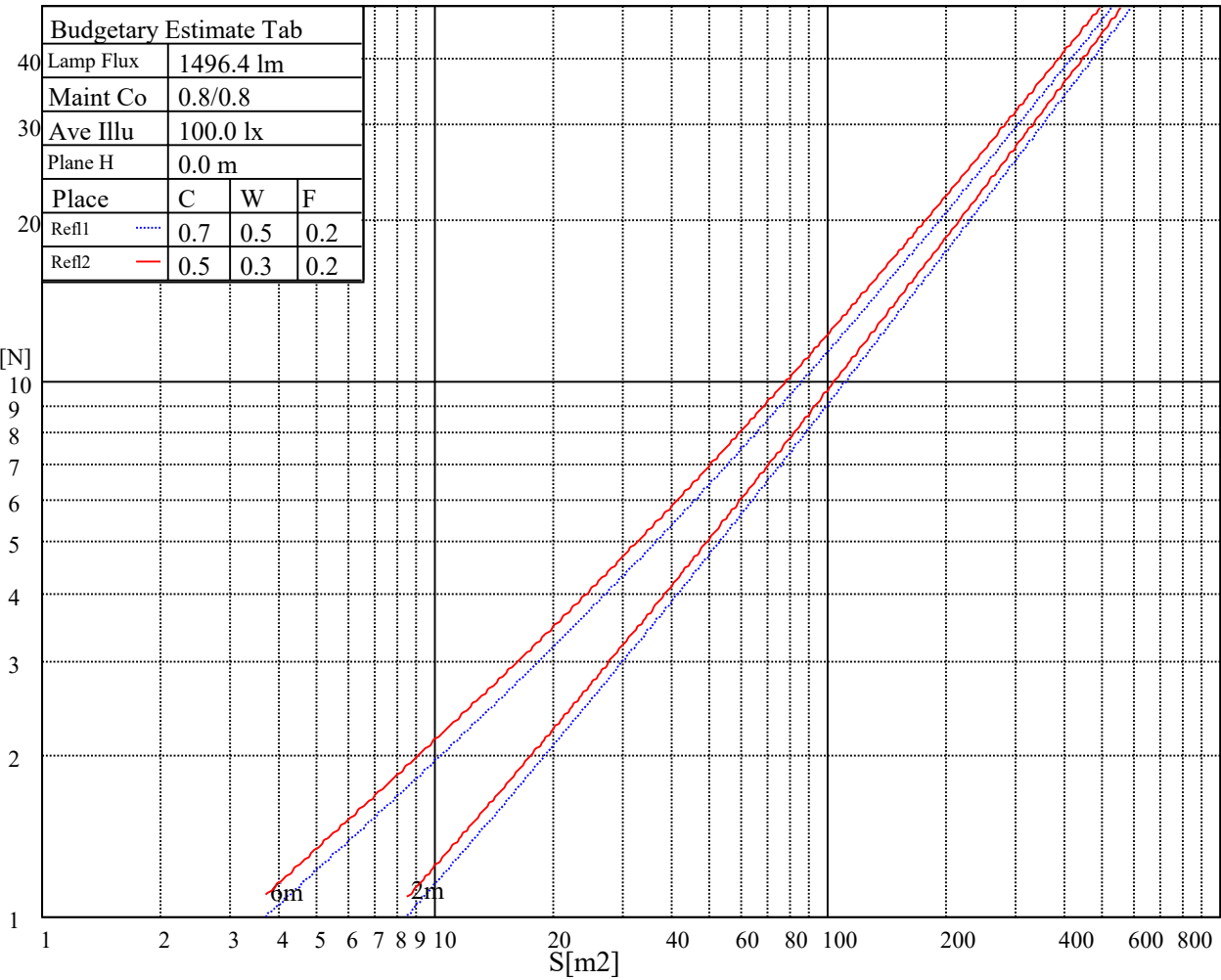
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5868	5868	5868	9558	9558	9558	28418	28418	28418

Glare Table

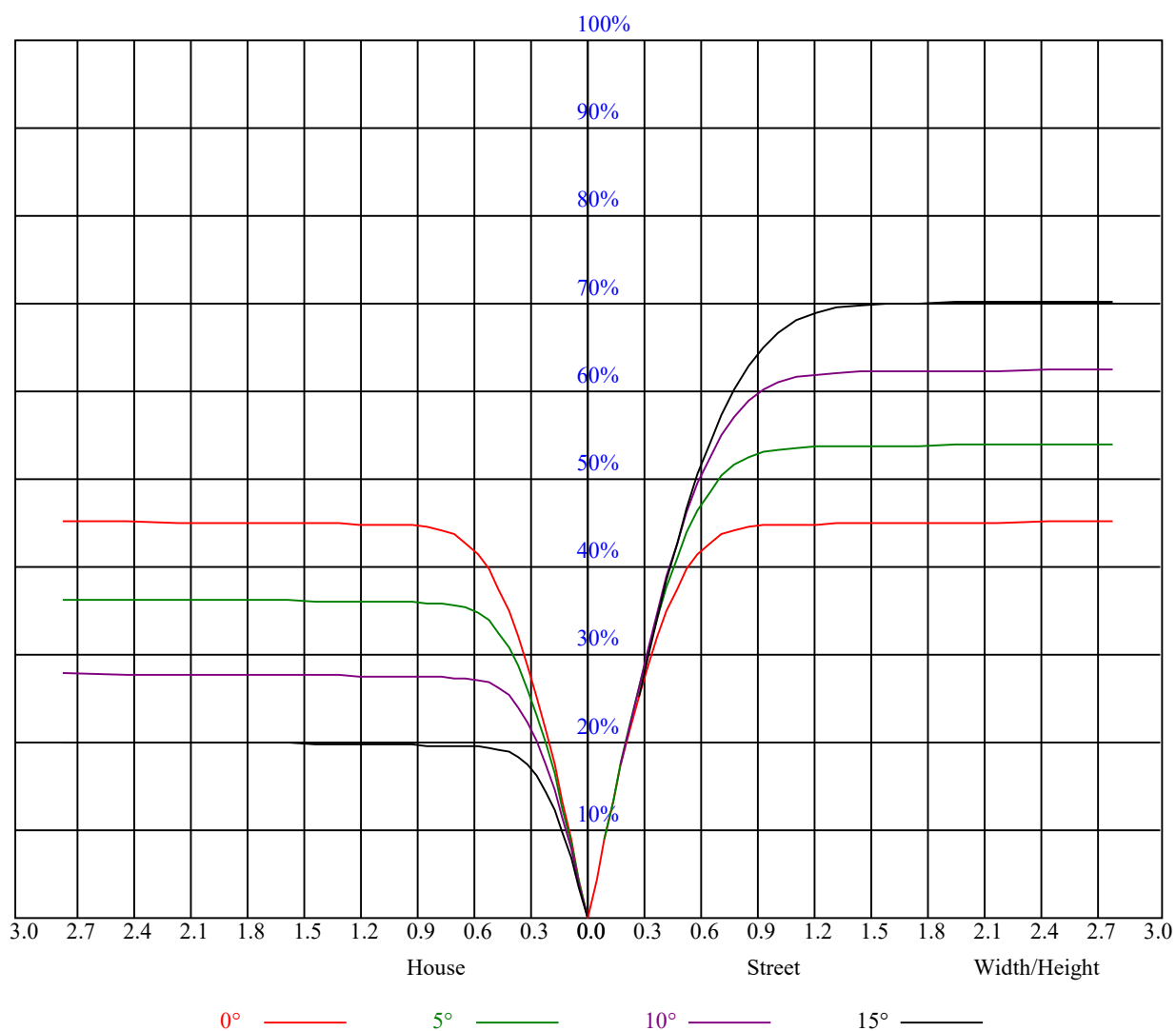
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

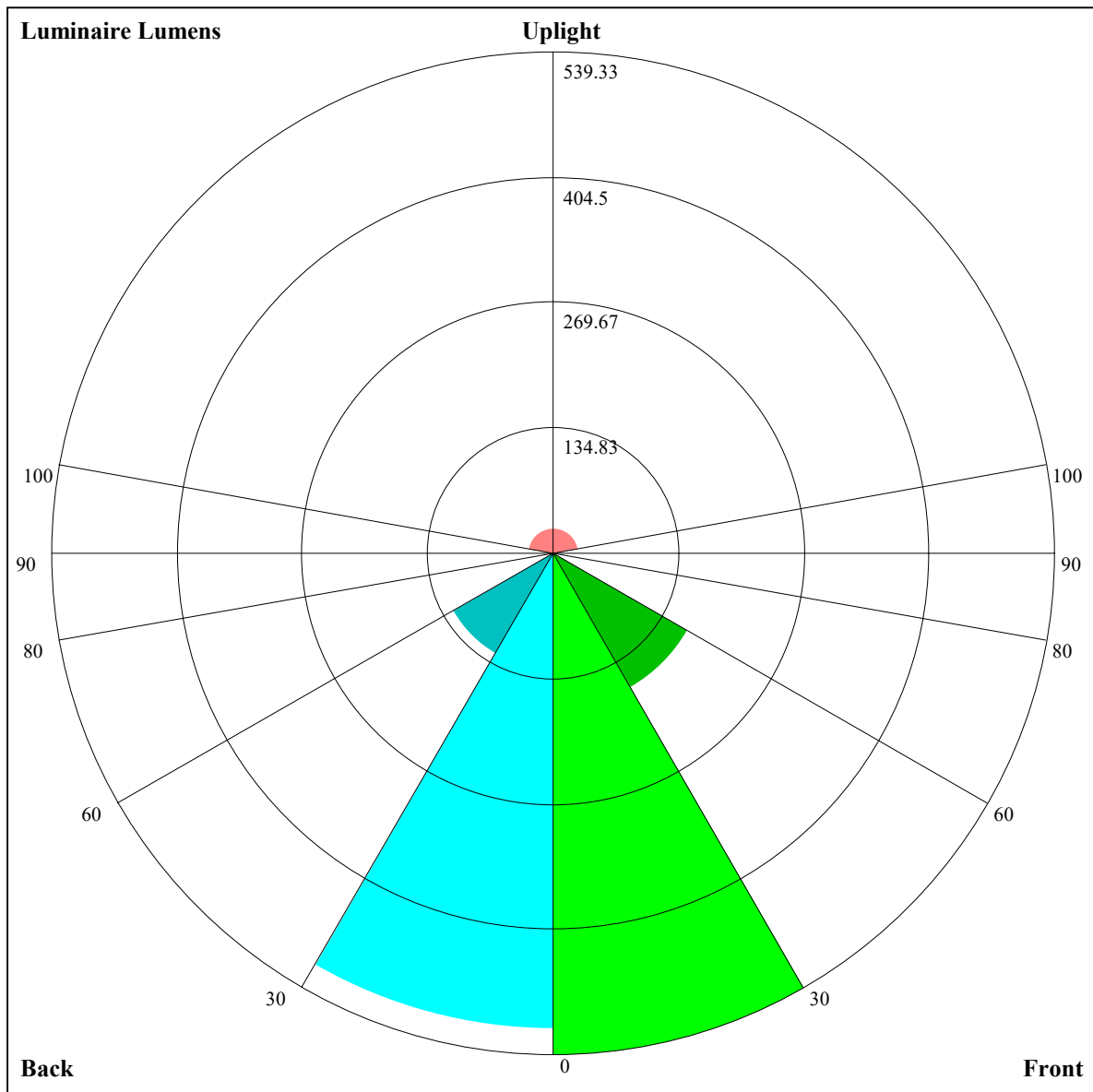
Luminance Limiting Curve





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	0.98	0.96	0.99	0.97	0.95	0.95	0.93	0.92	0.92	0.90	0.89	0.89	0.88	0.87	0.85
2	0.95	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.82	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.76
4	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.76	0.74	0.78	0.75	0.73	0.72
5	0.80	0.75	0.71	0.79	0.74	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.68
6	0.76	0.71	0.67	0.75	0.70	0.67	0.74	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
7	0.72	0.67	0.64	0.71	0.67	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.61
8	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.58
9	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.56
10	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.57	0.54	0.53





Luminaire Lumens:

FL=539.33,FM=167.33,FH=5.62,FVH=2.97

BL=512.25,BM=124.21,BH=5.62,BVH=2.98

UL=5.91,UH=28.12

BUG Rating:B2-U2-G0

Nata 1681-s

Intensity data(cd)										Appendix Page: 15 Total:15	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	1677.02	1682.52	1638.48	1526.16	1364.85	1200.78	948.07	571.49	291.80		
45.0	1683.62	1674.82	1607.10	1476.06	1329.06	1139.12	836.31	464.13	106.42		
90.0	1672.61	1637.93	1560.85	1405.59	1259.14	1024.10	683.53	270.71	53.85		
135.0	1674.27	1641.78	1553.14	1390.72	1239.87	1027.90	701.42	299.51	52.25		
180.0	1677.02	1642.88	1543.78	1372.01	1222.25	975.10	629.35	227.49	41.29		
225.0	1683.62	1677.02	1598.84	1444.13	1303.74	1071.29	735.28	335.79	61.99		
270.0	1672.61	1682.52	1637.93	1537.73	1378.61	1182.06	895.22	510.37	184.27		
315.0	1674.27	1684.18	1625.26	1504.14	1334.02	1087.58	871.21	482.24	115.34		
360.0	1677.02	1682.52	1638.48	1526.16	1364.85	1200.78	948.07	571.49	291.80		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	28.46	8.81	5.89	5.56	5.45	5.45	5.51	5.51	5.51		
45.0	20.54	8.31	5.84	5.62	5.51	5.45	5.45	5.45	5.40		
90.0	13.65	6.66	5.67	5.56	5.51	5.45	5.45	5.45	5.45		
135.0	13.54	6.61	5.73	5.56	5.51	5.45	5.45	5.45	5.45		
180.0	11.34	6.28	5.67	5.51	5.45	5.51	5.51	5.51	5.56		
225.0	14.53	6.77	5.73	5.51	5.45	5.45	5.45	5.45	5.51		
270.0	24.50	7.98	5.84	5.62	5.51	5.45	5.45	5.45	5.45		
315.0	22.24	7.49	5.78	5.62	5.45	5.45	5.45	5.45	5.45		
360.0	28.46	8.81	5.89	5.56	5.45	5.45	5.51	5.51	5.51		
C/γ(°)	90.0										
0.0	5.40										
45.0	5.40										
90.0	5.45										
135.0	5.40										
180.0	5.40										
225.0	5.40										
270.0	5.45										
315.0	5.45										
360.0	5.40										