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Nata

Client:

LumCAT: 3-2326-M

Luminaire: 92.70.131.00

Report No: GC2019091909

Test No: NATA07

LampCAT: OSRAM OPTO SOLERIQ S13

Lamp flux(lm): 1204.0

Number of Lamps: 1

Length(mm): 78

Phm Type: C

Voltage(V): 220.4000

Current(A): 0.0720

Power (W): 14.6400

PF: 0.9220

Ballast type: AC

Width(mm): 78

Height(mm): 0

Photometric Results

Lumens(lm): 1069.46, Efficiency(%): 88.83% , Luminous Efficacy(lm/W): 73.05

Central intensity(cd): 2668.354, Maximum intensity(cd): 2668.354

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=32.6

[C90/270]Total=32.6

Field angle(10%Imax): [C0/180]Total=68.2

[C90/270]Total=68.2

Maximum s/h(1/2): C0_180=0.53 C90_270=0.53

Maximum s/h(1/4): C0_180=0.55 C90_270=0.55

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.83%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.565%

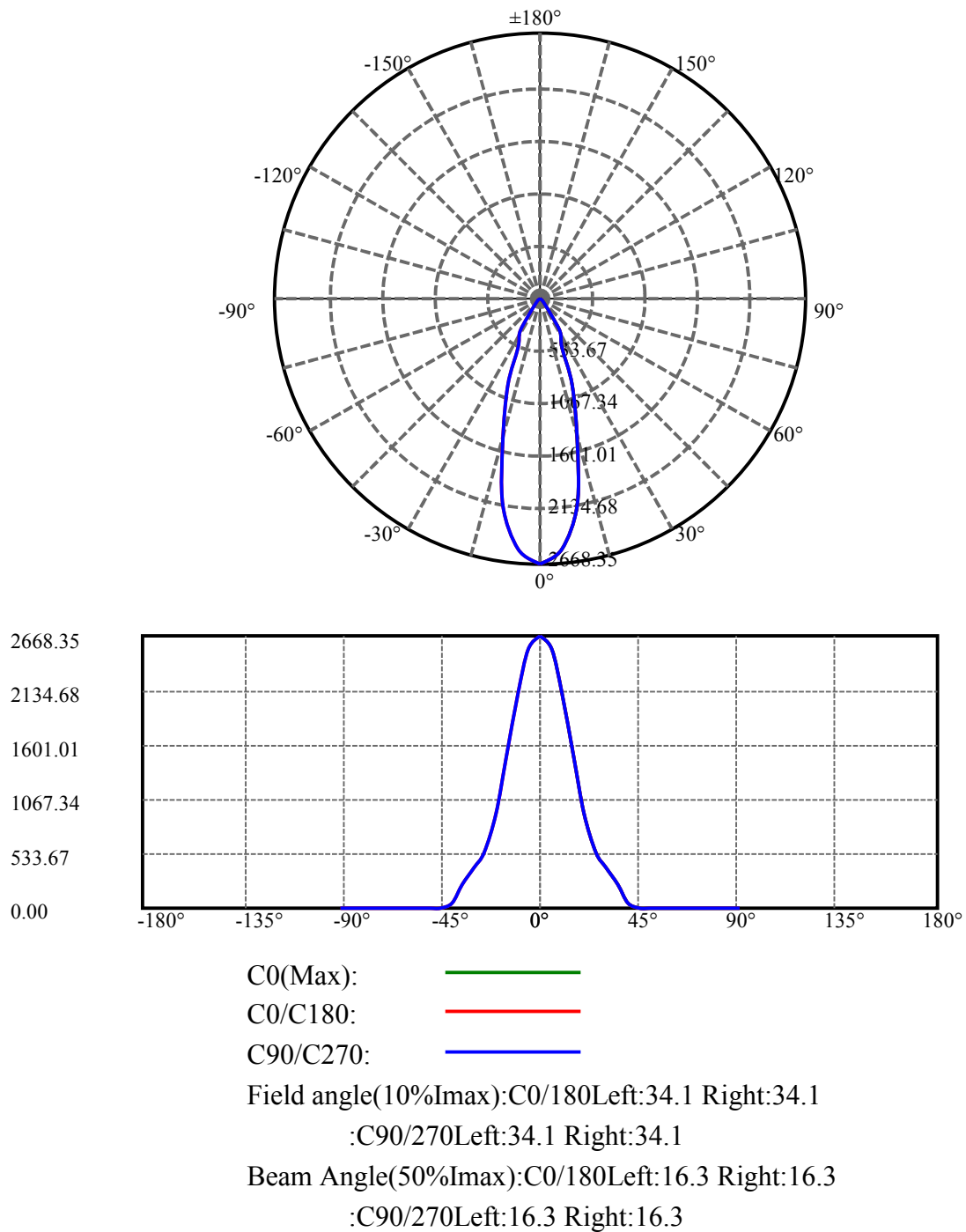
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2668.355	0.000	0	.000%	.000%
5.0	2530.189	62.147	62.147	5.162%	5.811%
10.0	2107.570	165.907	228.054	13.780%	21.324%
15.0	1472.297	212.355	440.41	17.637%	41.181%
20.0	921.460	197.279	637.689	16.385%	59.627%
25.0	538.981	153.173	790.862	12.722%	73.950%
30.0	398.048	118.582	909.444	9.849%	85.038%
35.0	239.192	93.838	1003.282	7.794%	93.812%
40.0	47.047	47.757	1051.039	3.967%	98.278%
45.0	5.081	9.652	1060.691	.802%	99.180%
50.0	3.358	1.705	1062.396	.142%	99.340%
55.0	2.633	1.303	1063.699	.108%	99.461%
60.0	2.169	1.110	1064.809	.092%	99.565%
65.0	1.816	0.969	1065.778	.080%	99.656%
70.0	1.549	0.852	1066.63	.071%	99.735%
75.0	1.380	0.766	1067.395	.064%	99.807%
80.0	1.264	0.708	1068.103	.059%	99.873%
85.0	1.218	0.675	1068.777	.056%	99.936%
90.0	1.270	0.681	1069.459	.057%	100.000%

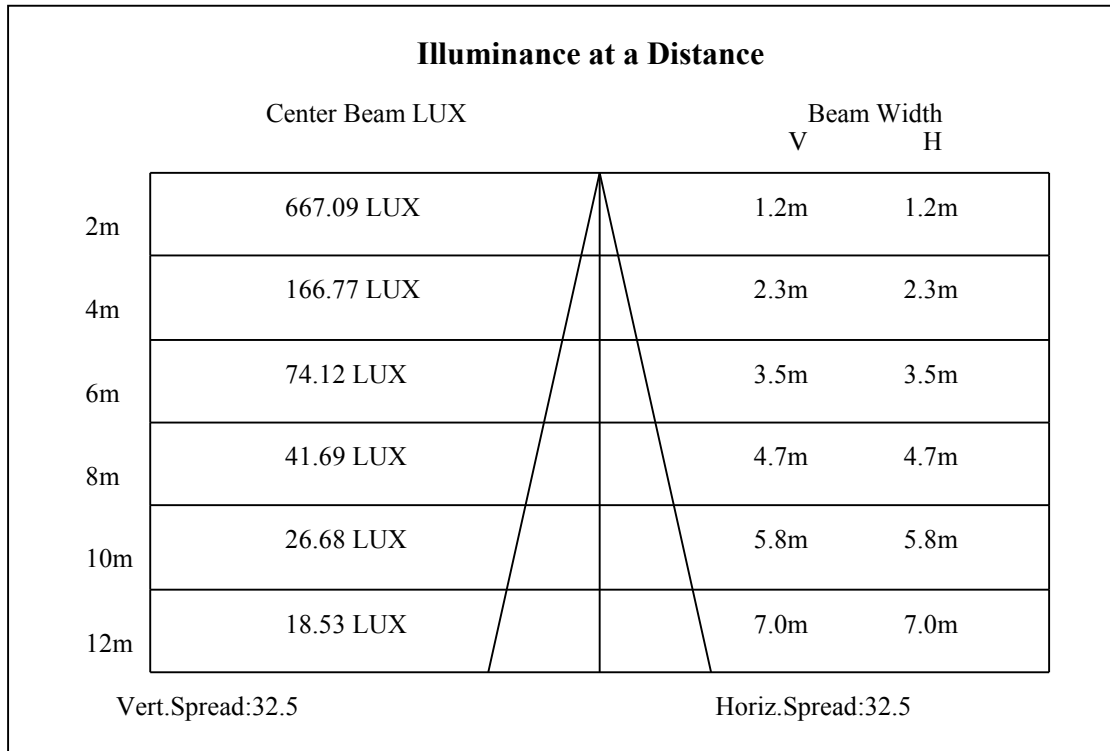
ZONAL LUMEN SUMMARY

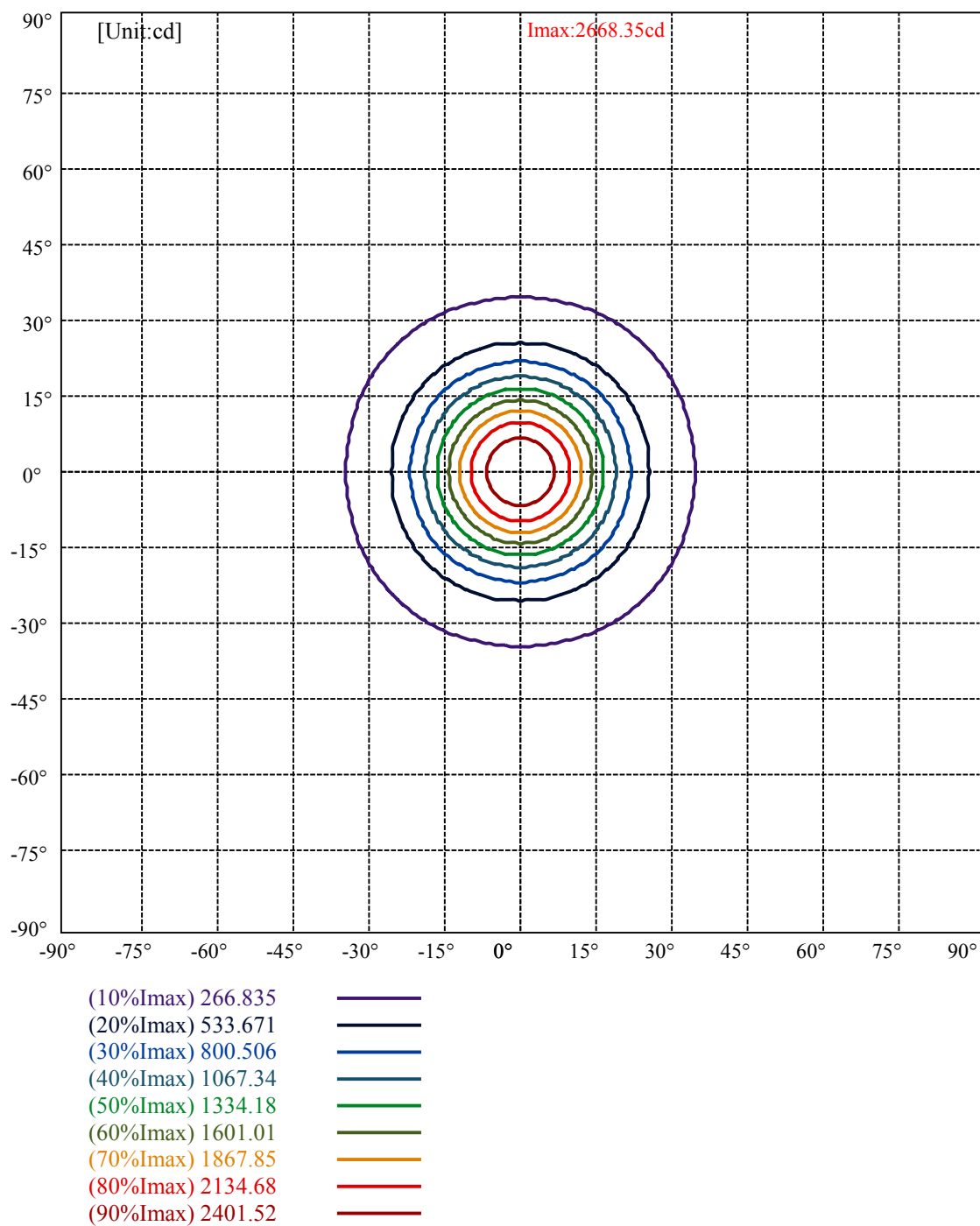
Zone	Lumens	%Lamp	%Fixt
0-30	909.44	75.54%	85.04%
0-40	1051.04	87.30%	98.28%
0-60	1064.81	88.44%	99.57%
0-90	1068.78	88.77%	99.94%
0-120	1068.78	88.77%	99.94%
0-180	1069.46	88.83%	100.00%
60-90	5.08	0.42%	0.47%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.73	855.57	71.06%	80.00%

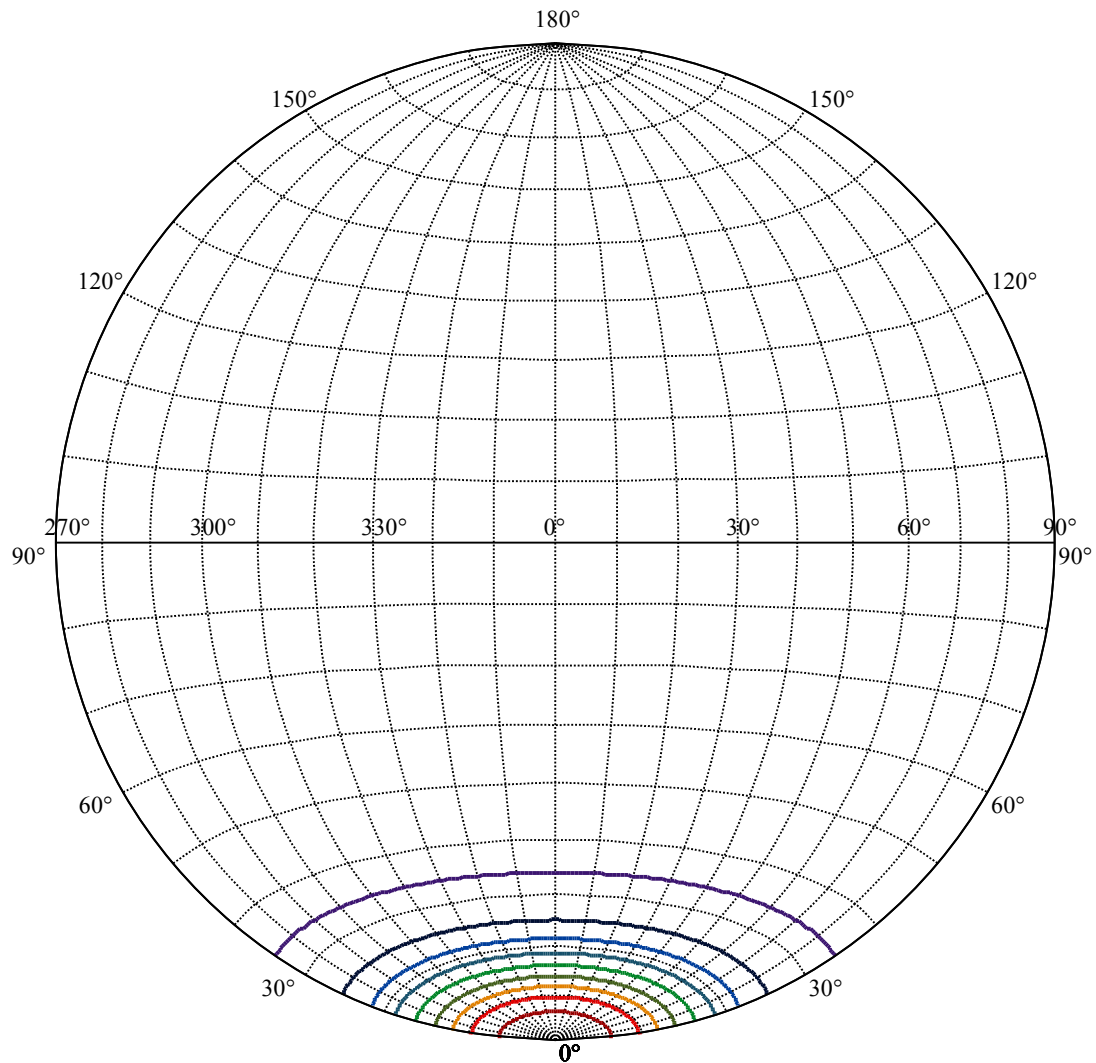
ZONAL LUMEN SUMMARY

0-10	228.05
10-20	409.63
20-30	271.75
30-40	141.59
40-50	11.36
50-60	2.41
60-70	1.82
70-80	1.47
80-90	0.67
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









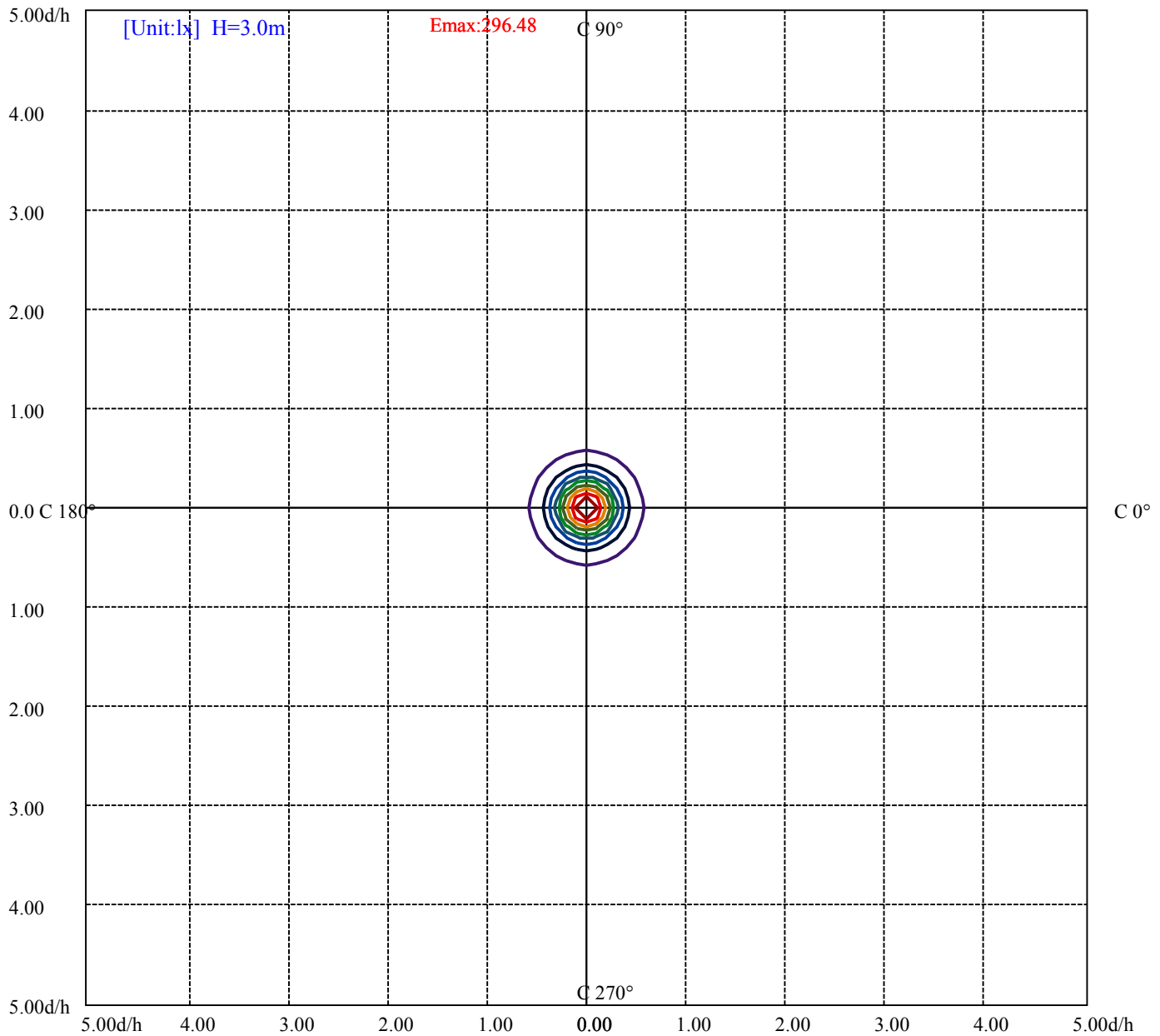
House

[Unit:cd]

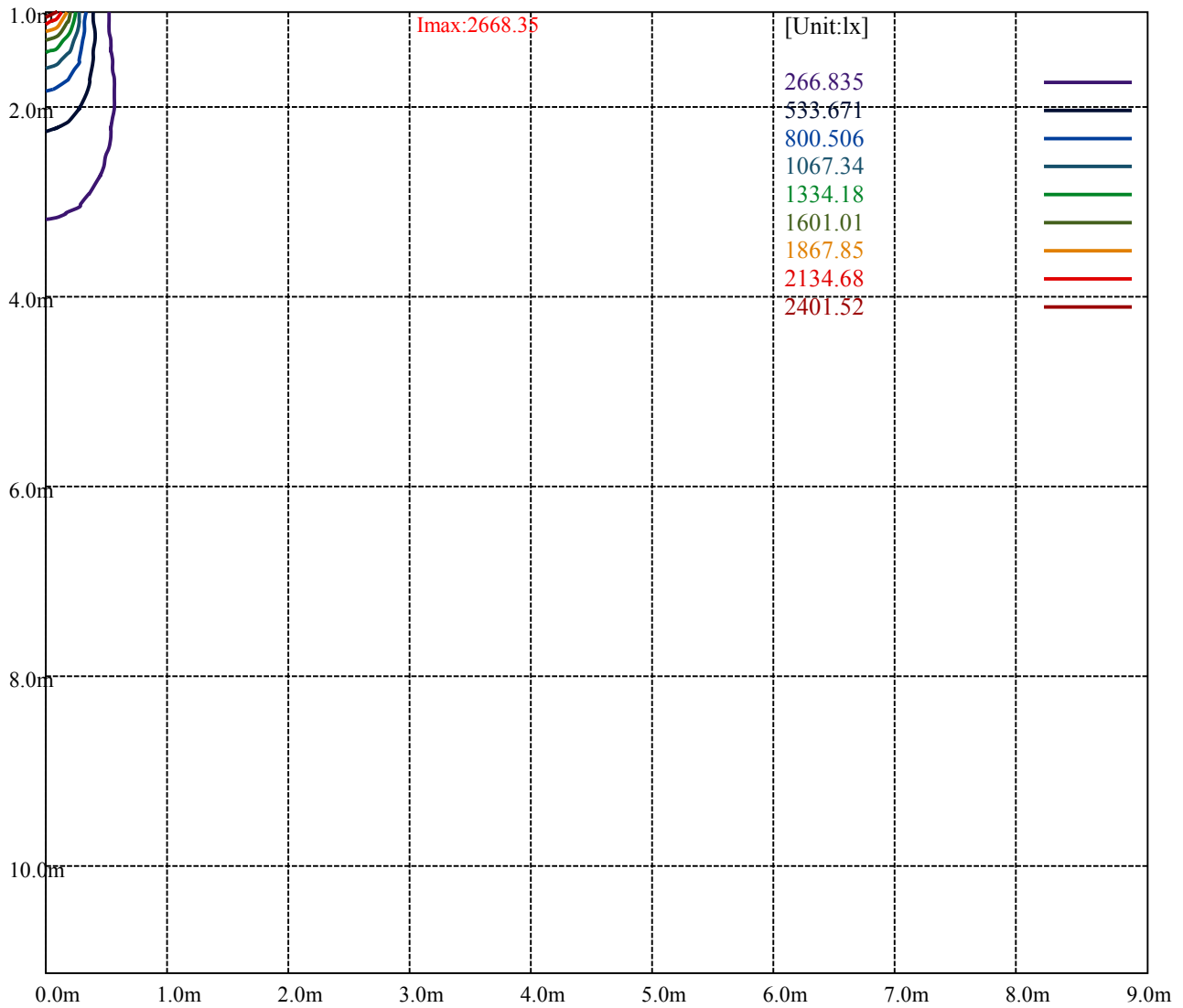
Road

Imax:2668.35

(10%Imax)	266.835	—
(20%Imax)	533.671	—
(30%Imax)	800.506	—
(40%Imax)	1067.34	—
(50%Imax)	1334.18	—
(60%Imax)	1601.01	—
(70%Imax)	1867.85	—
(80%Imax)	2134.68	—
(90%Imax)	2401.52	—



(10%Emax)	29.64833	—
(20%Emax)	59.29667	—
(30%Emax)	88.945	—
(40%Emax)	118.5933	—
(50%Emax)	148.2422	—
(60%Emax)	177.89	—
(70%Emax)	207.5389	—
(80%Emax)	237.1867	—
(90%Emax)	266.8356	—



Luminance Table

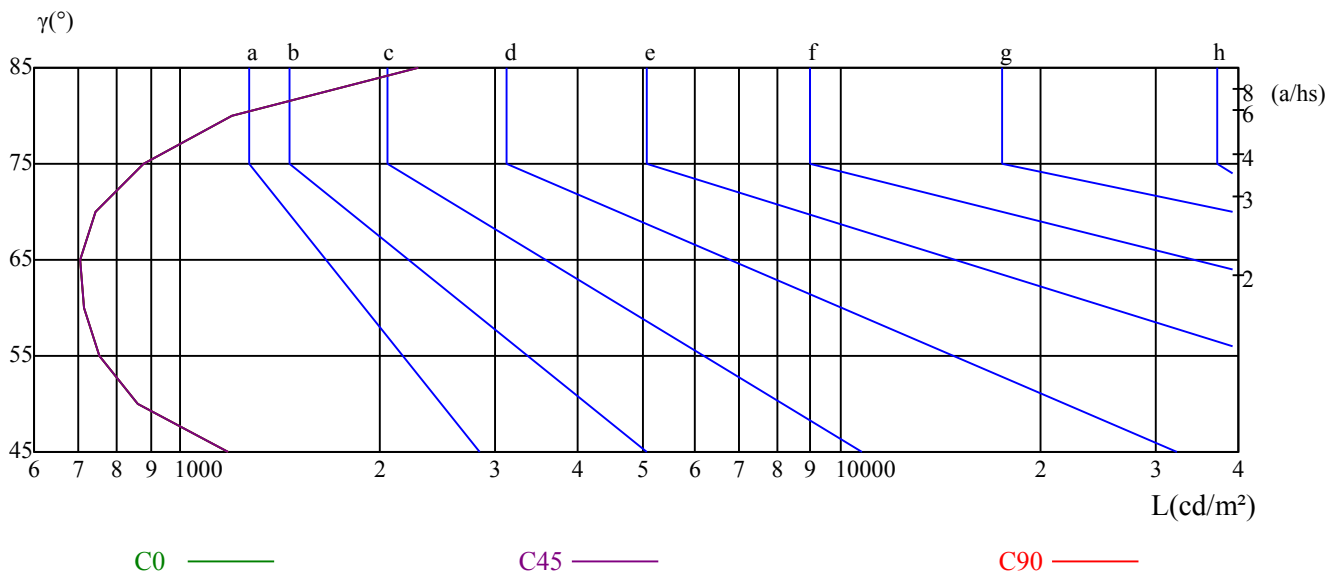
γ	45	50	55	60	65	70	75	80	85
C0	1181	859	755	713	706	744	877	1197	2297
C45	1181	859	755	713	706	744	877	1197	2297
C90	1181	859	755	713	706	744	877	1197	2297

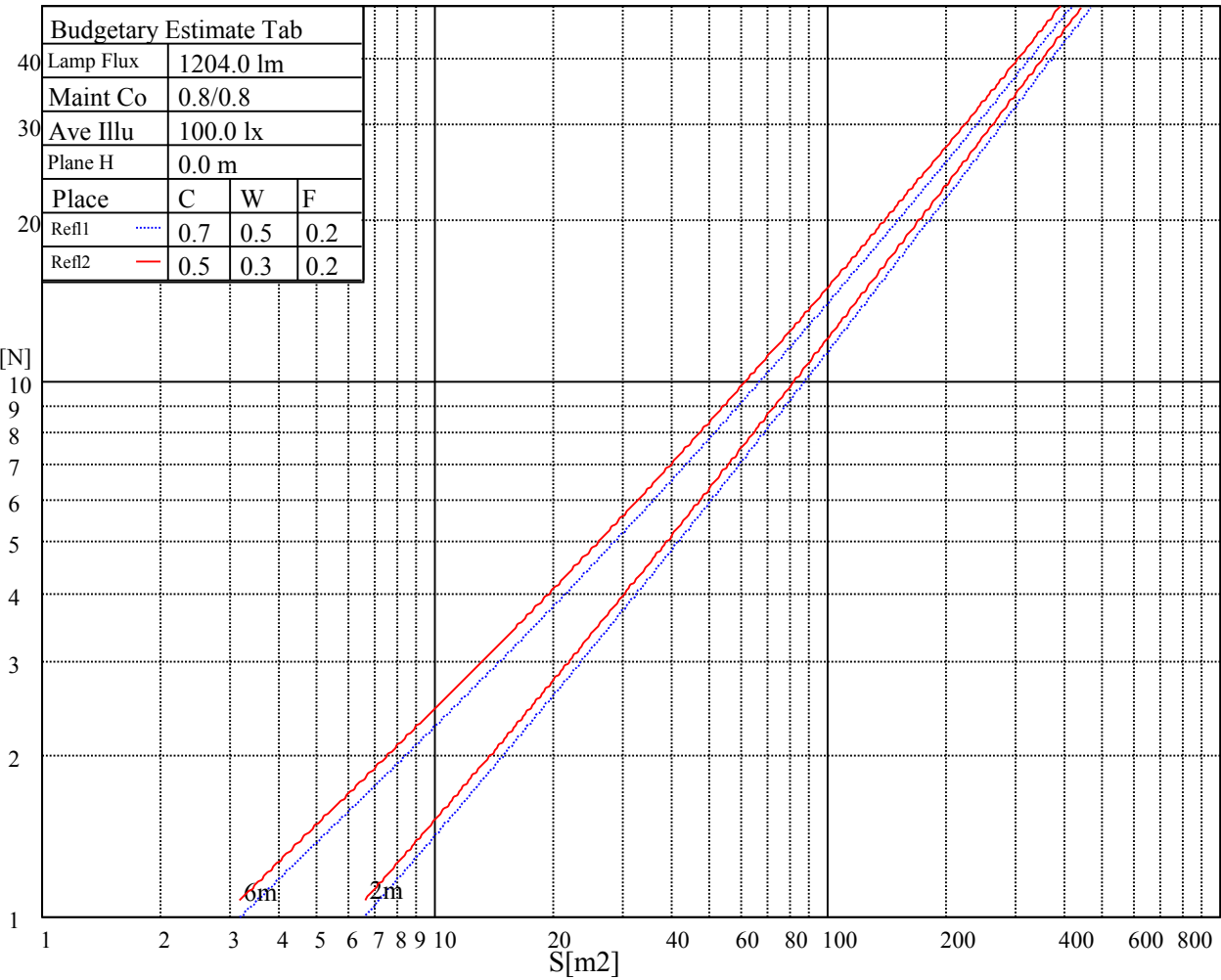
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
706	706	706	877	877	877	2297	2297	2297

Glare Table

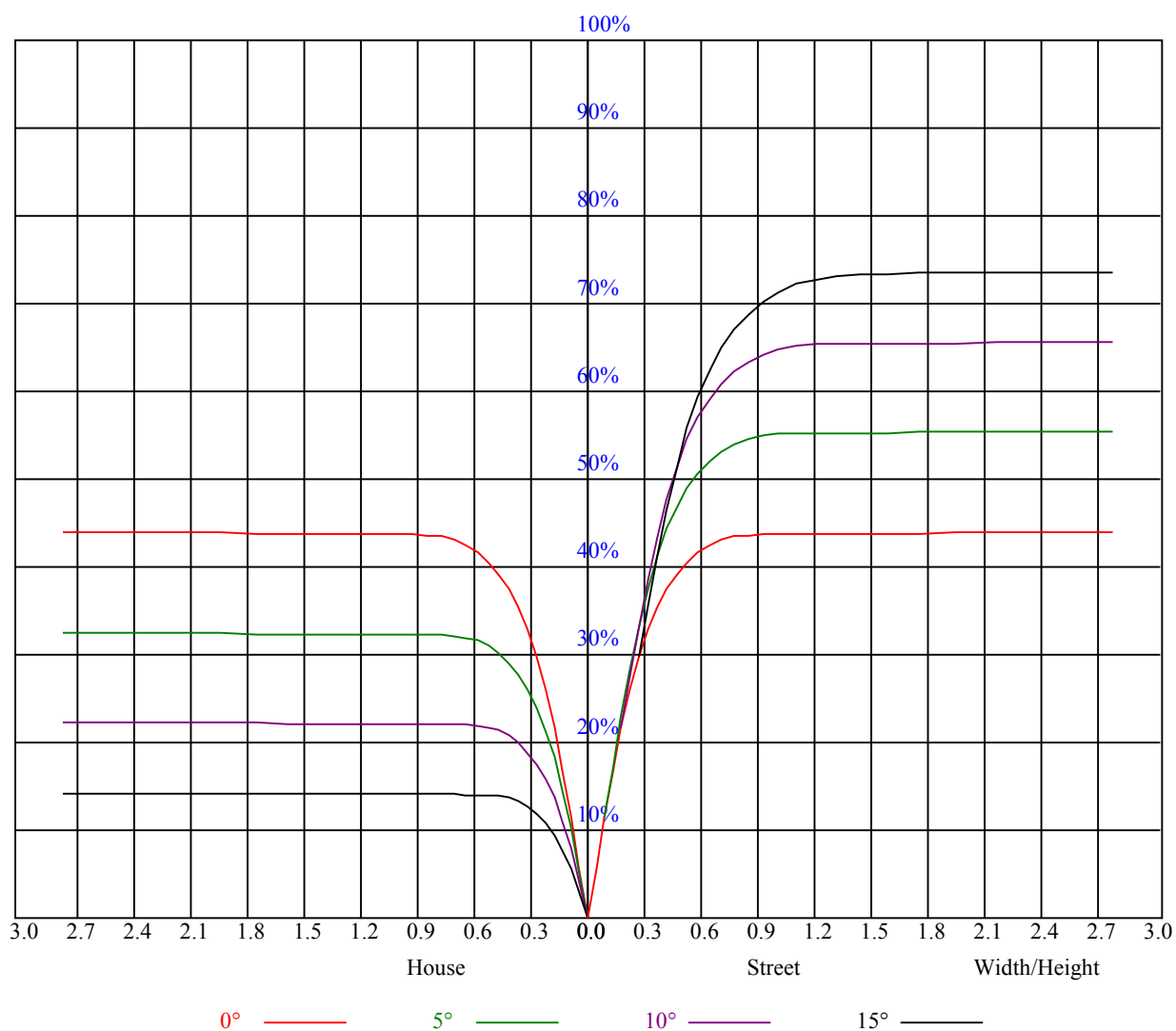
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

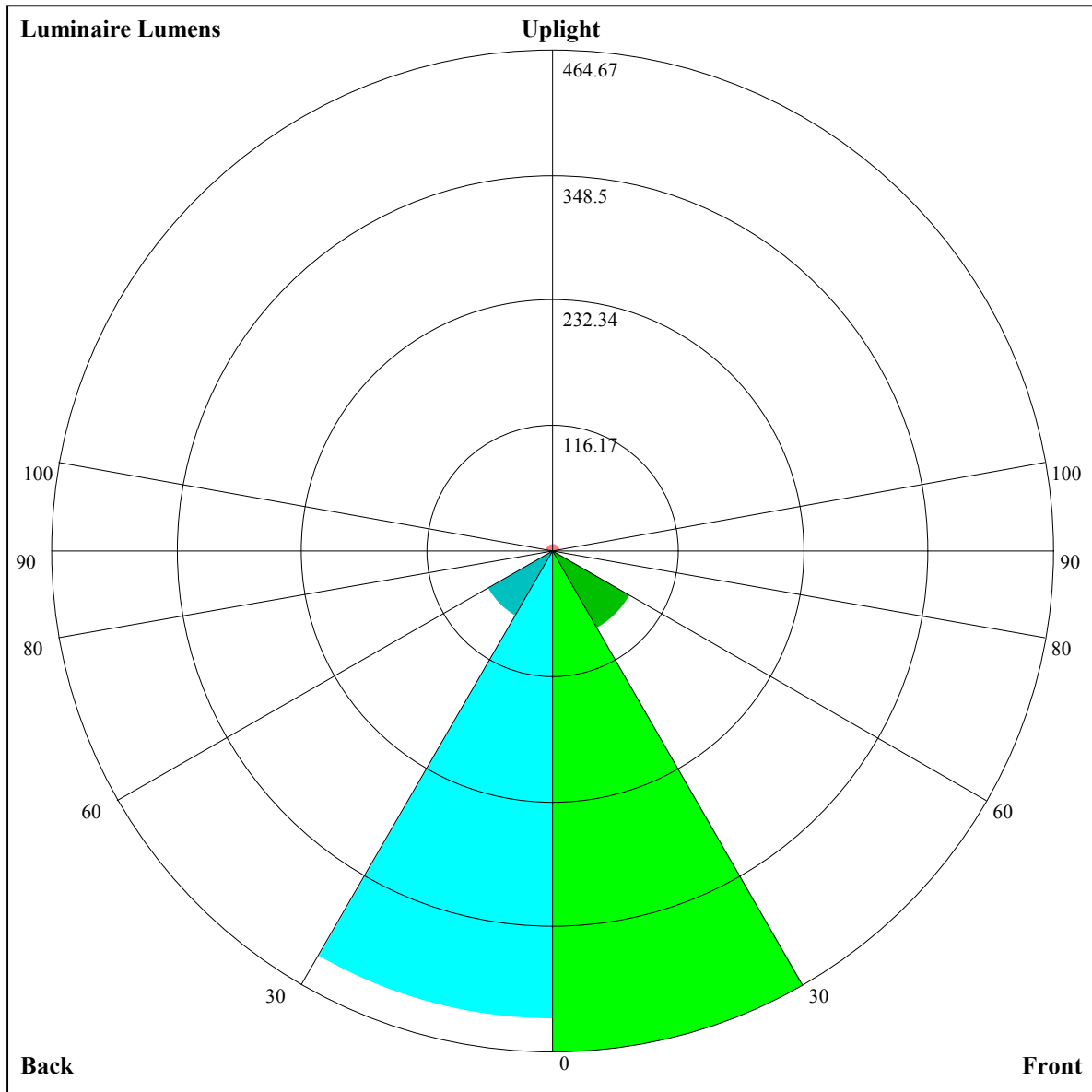
Luminance Limiting Curve





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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	0.99	0.97	0.96	0.97	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.94	0.91	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.82	0.80
3	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.56





Luminaire Lumens:

FL=464.67,FM=82.66,FH=1.66,FVH=0.69

BL=434.32,BM=69.58,BH=1.65,BVH=0.68

UL=1.39,UH=6.6

BUG Rating:B1-U1-G0

Nata 3-2326-M

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	2694.69	2610.23	2207.92	1545.28	855.77	519.02	393.78	240.74	23.62		
45.0	2619.98	2712.79	2460.82	1934.60	1265.93	684.03	445.52	375.45	259.91		
90.0	2696.54	2546.20	2147.59	1414.42	858.97	536.98	402.50	232.43	12.25		
135.0	2662.21	2588.89	2202.81	1561.52	1003.29	609.79	425.57	295.17	38.89		
180.0	2694.69	2537.38	2117.43	1487.27	953.64	526.26	394.01	273.36	12.48		
225.0	2619.98	2296.55	1677.06	884.40	688.72	422.73	337.17	78.61	7.19		
270.0	2696.54	2507.22	2075.67	1521.15	951.31	536.01	400.97	267.79	11.65		
315.0	2662.21	2442.25	1971.26	1429.73	794.05	477.03	384.87	149.98	10.39		
360.0	2694.69	2610.23	2207.92	1545.28	855.77	519.02	393.78	240.74	23.62		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	4.27	3.29	2.46	2.09	1.72	1.48	1.30	1.21	1.21		
45.0	7.33	3.67	2.83	2.32	1.95	1.62	1.44	1.30	1.21		
90.0	4.64	3.34	2.64	2.13	1.81	1.58	1.39	1.30	1.30		
135.0	6.26	3.90	2.92	2.37	2.00	1.62	1.44	1.35	1.25		
180.0	5.10	3.11	2.55	2.09	1.76	1.53	1.39	1.25	1.21		
225.0	3.48	2.74	2.27	1.95	1.58	1.39	1.25	1.16	1.16		
270.0	5.10	3.39	2.69	2.23	1.90	1.62	1.44	1.35	1.21		
315.0	4.45	3.43	2.69	2.18	1.81	1.53	1.39	1.21	1.21		
360.0	4.27	3.29	2.46	2.09	1.72	1.48	1.30	1.21	1.21		
C/γ(°)	90.0										
0.0	1.30										
45.0	1.25										
90.0	1.35										
135.0	1.25										
180.0	1.21										
225.0	1.16										
270.0	1.39										
315.0	1.25										
360.0	1.30										