
Nata

Client:

LumCAT: 1653-N

Luminaire: 92.70.044.00

Report No: nata-0100

Test No: GC2018060202

LampCAT: NICHIA NFCWS024B-V3

Lamp flux(lm): 1023.0

Number of Lamps: 1

Length(mm): 32

Phm Type: C

Voltage(V): 36.4000

Current(A): 0.3000

Power (W): 10.9200

PF: 0.0000

Ballast type: DC

Width(mm): 32

Height(mm): 0

Photometric Results

Lumens(lm): 923.54, Efficiency(%): 90.28% , Luminous Efficacy(lm/W): 84.57

Central intensity(cd): 5762.065, Maximum intensity(cd): 5762.065

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=16.8

[C90/270]Total=16.8

Field angle(10%Imax): [C0/180]Total=37.6

[C90/270]Total=37.6

Maximum s/h(1/2): C0_180=0.29 C90_270=0.29

Maximum s/h(1/4): C0_180=0.29 C90_270=0.29

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.80%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.655%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5762.065	5.514	5.514	.539%	.597%
2.0	5576.938	42.685	48.2	4.173%	5.219%
4.0	5023.690	76.855	125.055	7.513%	13.541%
6.0	4116.016	94.358	219.412	9.224%	23.758%
8.0	3067.674	93.633	313.045	9.153%	33.896%
10.0	2121.048	80.777	393.822	7.896%	42.643%
12.0	1412.087	64.388	458.21	6.294%	49.615%
14.0	1011.028	53.642	511.852	5.244%	55.423%
16.0	775.173	46.860	558.712	4.581%	60.497%
18.0	616.694	41.794	600.506	4.085%	65.022%
20.0	520.297	39.027	639.533	3.815%	69.248%
22.0	457.312	37.571	677.105	3.673%	73.316%
24.0	411.354	36.694	713.798	3.587%	77.290%
26.0	381.458	36.674	750.472	3.585%	81.261%
28.0	352.629	36.307	786.779	3.549%	85.192%
30.0	307.194	33.686	820.465	3.293%	88.839%
32.0	243.287	28.274	848.74	2.764%	91.901%
34.0	169.780	20.822	869.561	2.035%	94.155%
36.0	97.181	12.528	882.089	1.225%	95.512%
38.0	46.075	6.221	888.31	.608%	96.186%
40.0	22.201	3.130	891.44	.306%	96.524%
42.0	15.801	2.319	893.759	.227%	96.776%
44.0	11.741	1.789	895.547	.175%	96.969%
46.0	9.594	1.513	897.061	.148%	97.133%
48.0	8.740	1.424	898.485	.139%	97.287%
50.0	8.197	1.377	899.862	.135%	97.436%
52.0	7.976	1.378	901.241	.135%	97.586%
54.0	8.011	1.421	902.662	.139%	97.740%
56.0	8.135	1.479	904.141	.145%	97.900%
58.0	8.031	1.494	905.635	.146%	98.061%
60.0	7.859	1.493	907.128	.146%	98.223%
62.0	7.543	1.461	908.588	.143%	98.381%
64.0	7.130	1.405	909.994	.137%	98.533%
66.0	6.531	1.309	911.302	.128%	98.675%
68.0	6.056	1.231	912.534	.120%	98.808%
70.0	5.643	1.163	913.697	.114%	98.934%
72.0	5.430	1.133	914.829	.111%	99.057%
74.0	5.306	1.119	915.948	.109%	99.178%

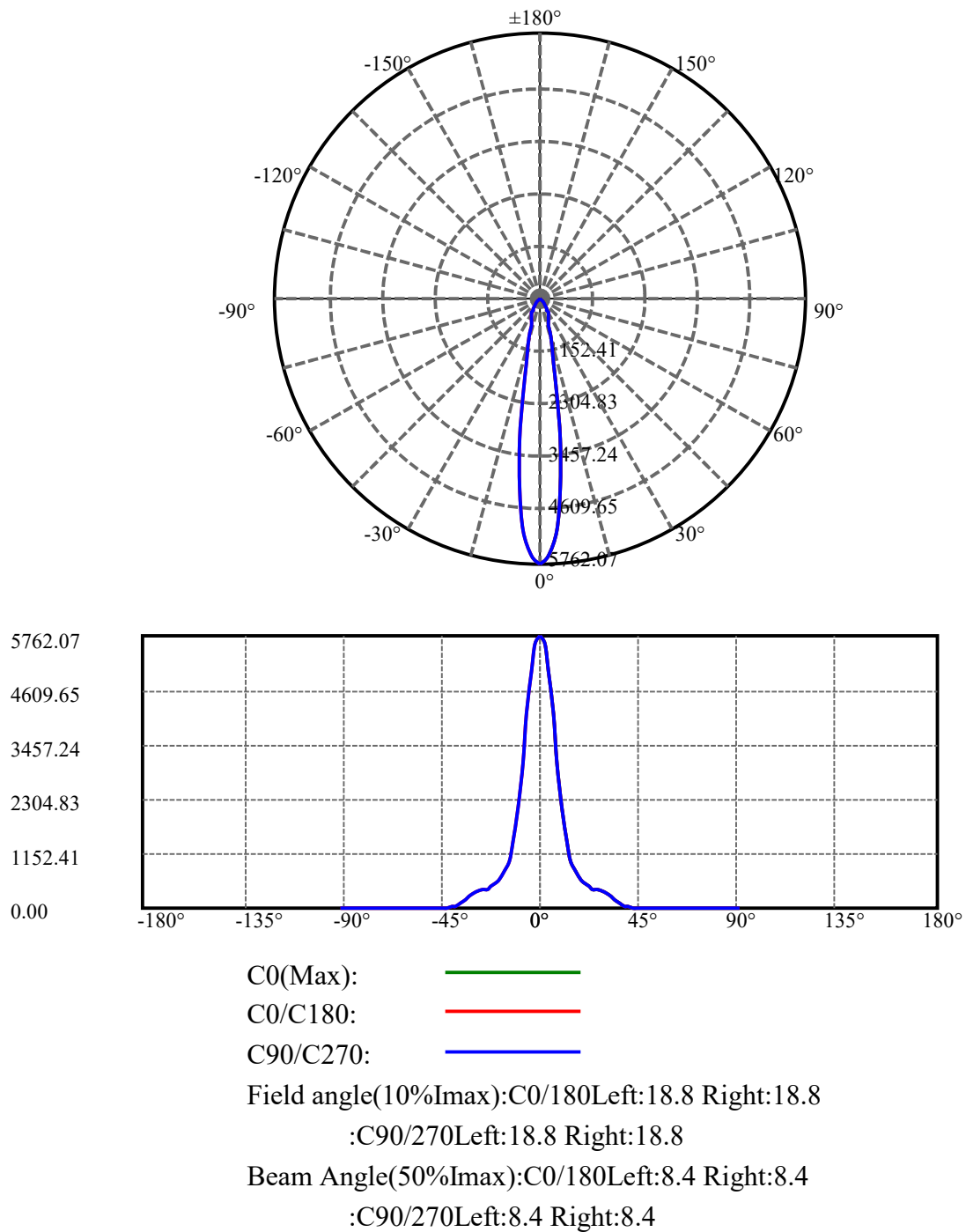
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.162	1.098	917.046	.107%	99.297%
78.0	5.017	1.076	918.122	.105%	99.414%
80.0	4.852	1.048	919.17	.102%	99.527%
82.0	4.735	1.028	920.199	.101%	99.638%
84.0	4.618	1.007	921.206	.098%	99.747%
86.0	4.398	0.962	922.168	.094%	99.852%
88.0	4.212	0.923	923.091	.090%	99.952%
90.0	4.074	0.447	923.538	.044%	100.000%

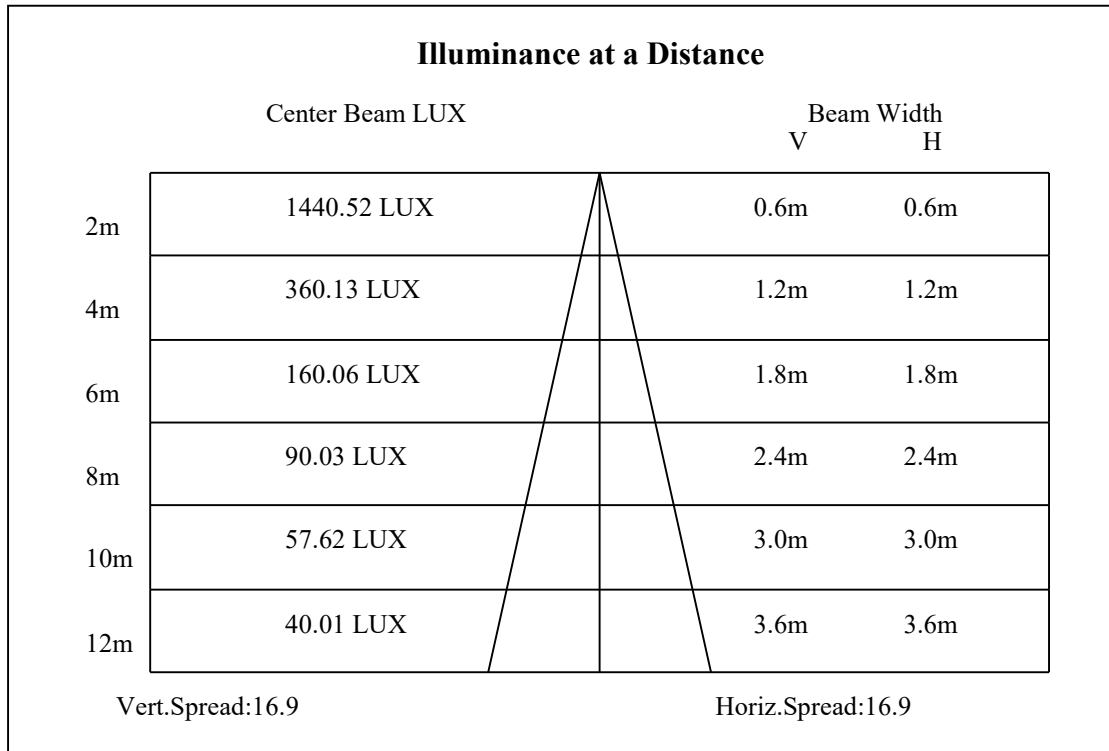
ZONAL LUMEN SUMMARY

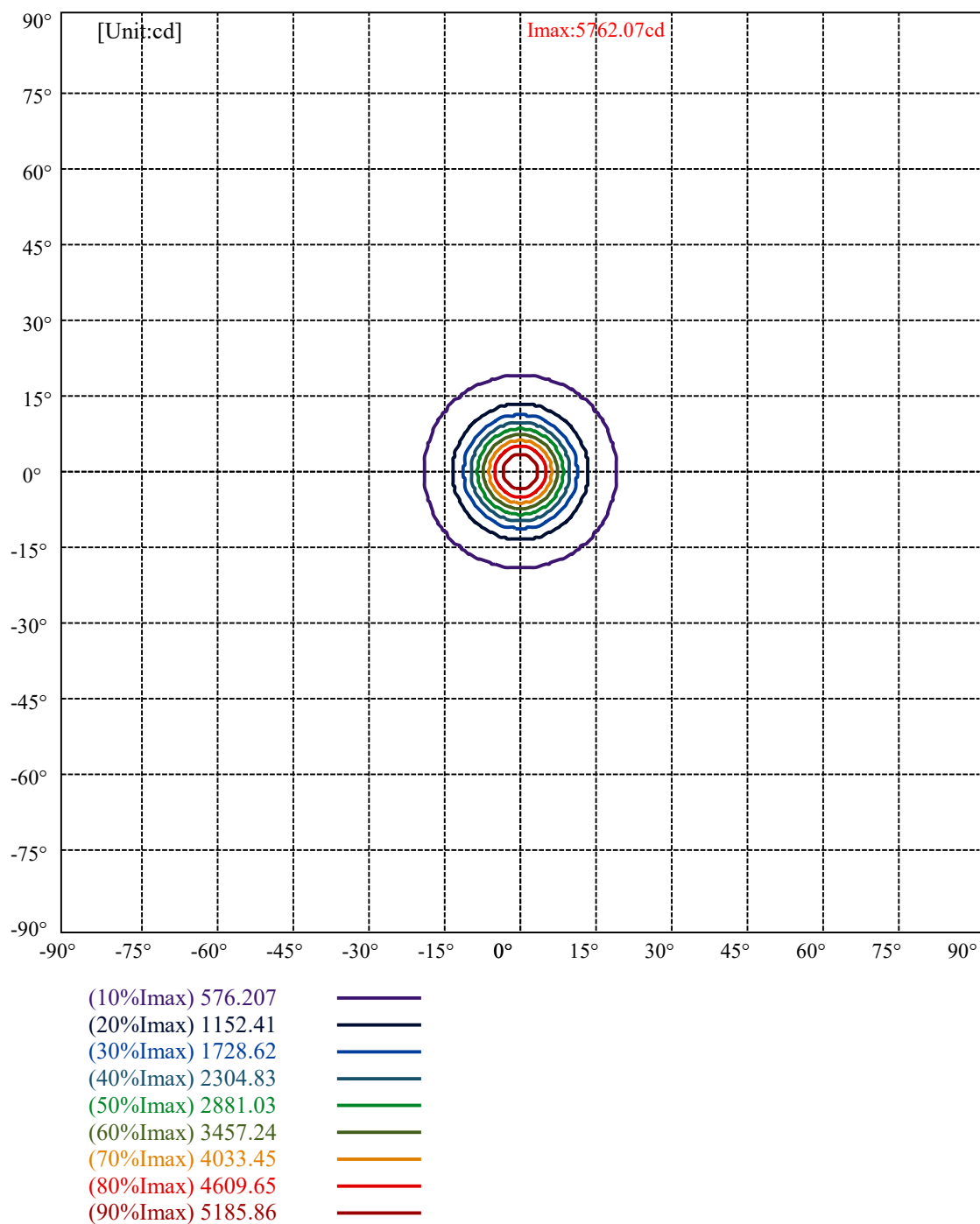
Zone	Lumens	%Lamp	%Fixt
0-30	820.47	80.20%	88.84%
0-40	891.44	87.14%	96.52%
0-60	907.13	88.67%	98.22%
0-90	923.09	90.23%	99.95%
0-120	923.09	90.23%	99.95%
0-180	923.54	90.28%	100.00%
60-90	17.46	1.71%	1.89%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-25.37	738.83	72.22%	80.00%

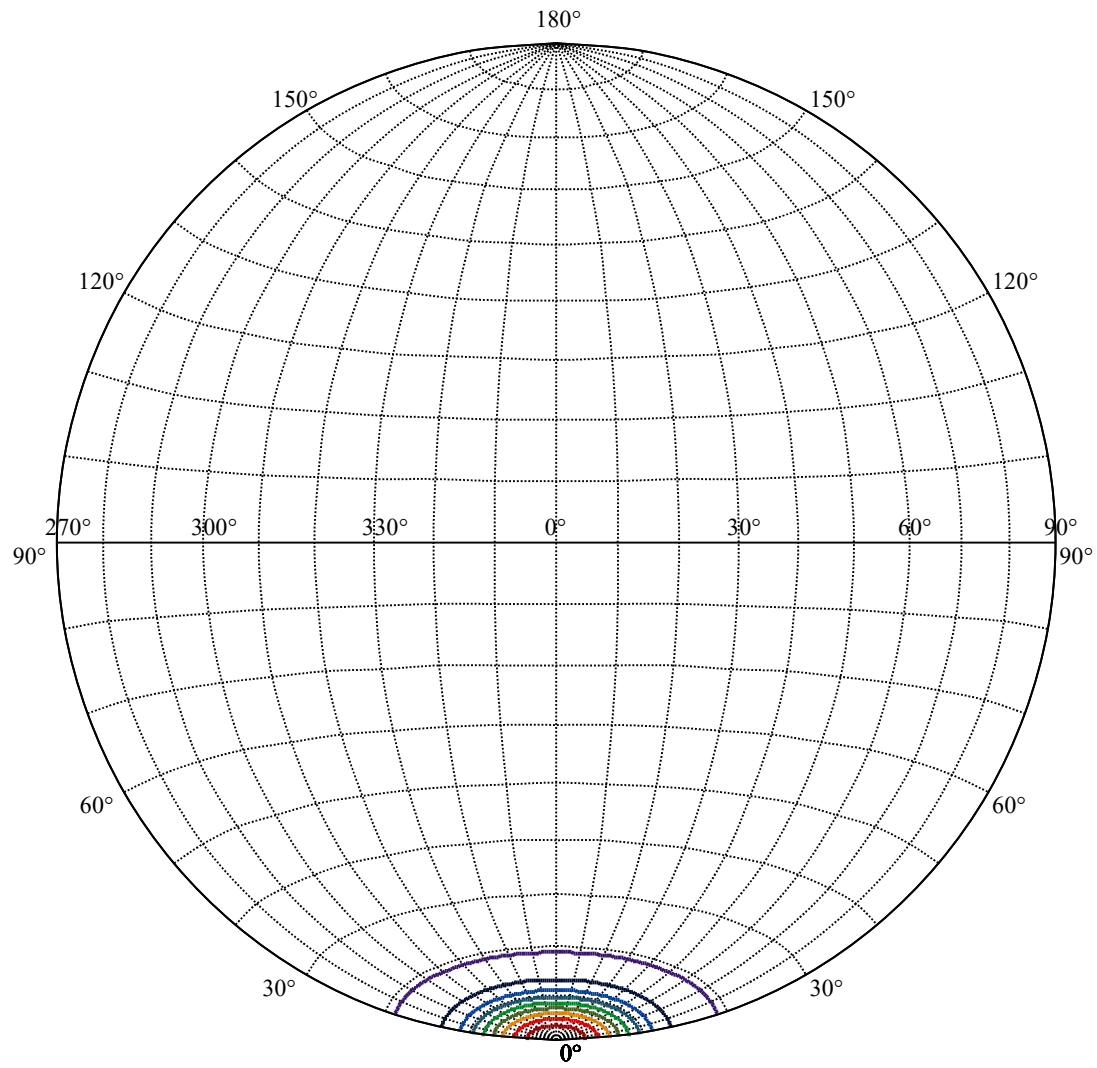
ZONAL LUMEN SUMMARY

0-10	393.82
10-20	245.71
20-30	180.93
30-40	70.97
40-50	8.42
50-60	7.27
60-70	6.57
70-80	5.47
80-90	3.92
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







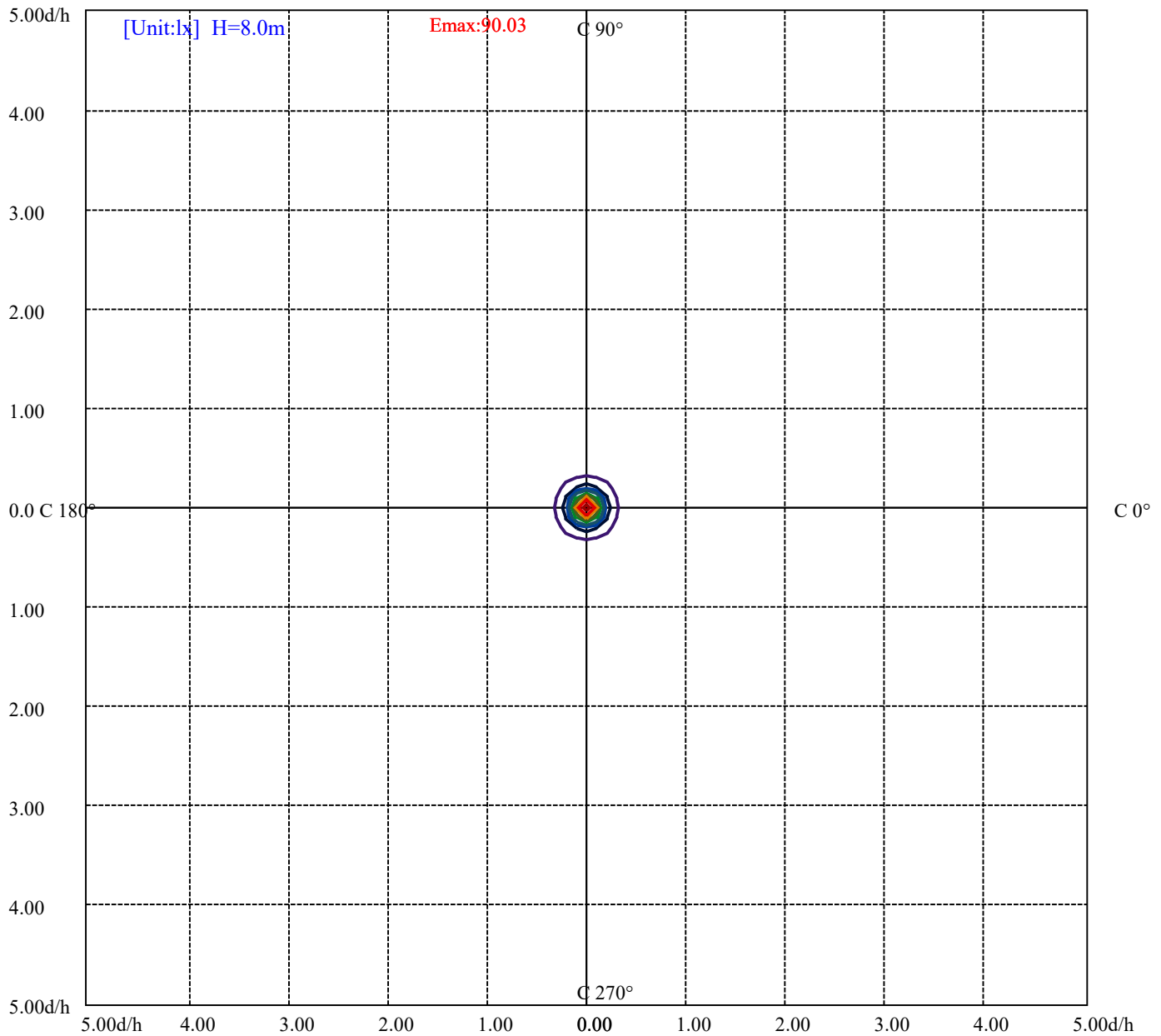


House

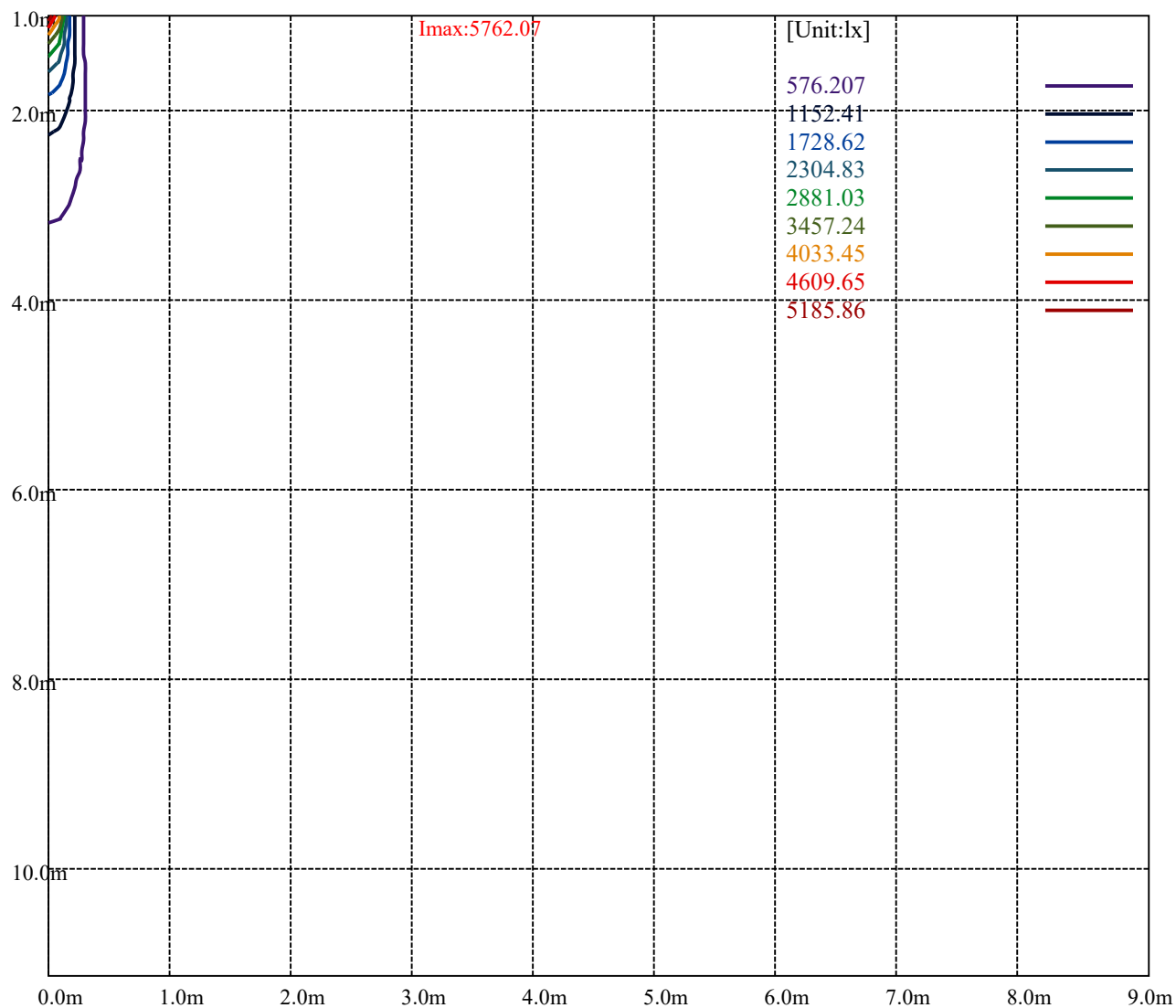
[Unit:cd]

Road

Imax:5762.07	
(10%Imax) 576.207	
(20%Imax) 1152.41	
(30%Imax) 1728.62	
(40%Imax) 2304.83	
(50%Imax) 2881.03	
(60%Imax) 3457.24	
(70%Imax) 4033.45	
(80%Imax) 4609.65	
(90%Imax) 5185.86	



(10%Emax)	9.003203	—
(20%Emax)	18.00641	—
(30%Emax)	27.00969	—
(40%Emax)	36.01281	—
(50%Emax)	45.01609	—
(60%Emax)	54.01922	—
(70%Emax)	63.0225	—
(80%Emax)	72.02563	—
(90%Emax)	81.02891	—



Luminance Table

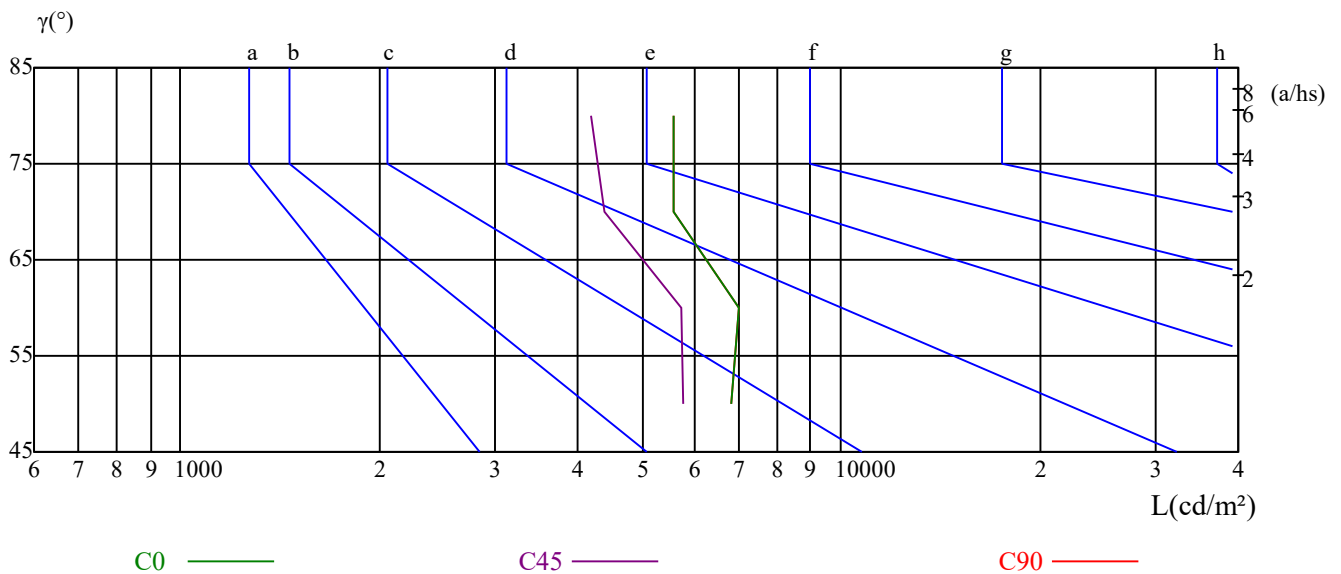
γ	45	50	55	60	65	70	75	80	85
C0	0	6845	0	7007	0	5578	0	5570	0
C45	0	5769	0	5719	0	4389	0	4189	0
C90	0	6845	0	7007	0	5578	0	5570	0

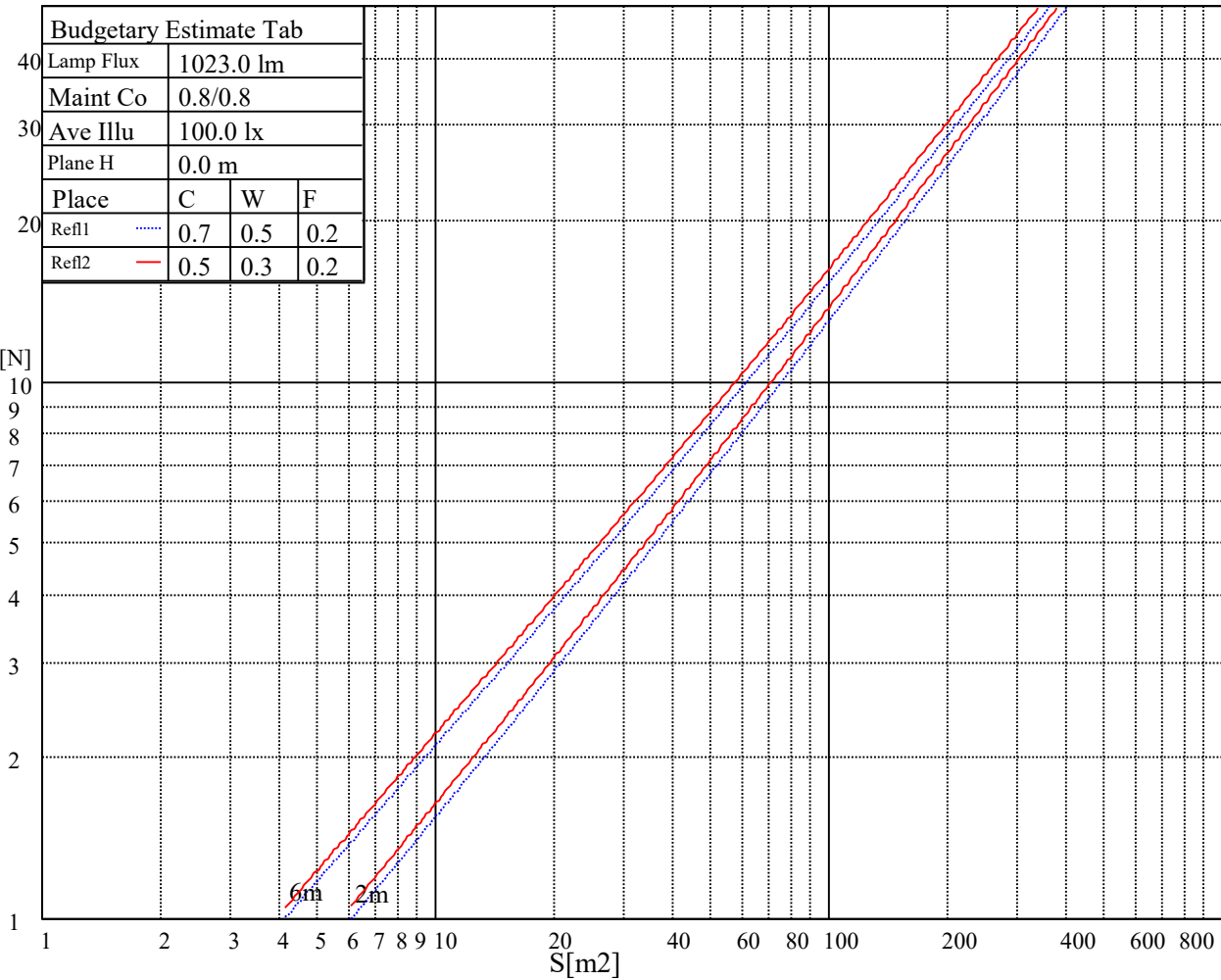
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
55166	55166	55166	46585	46585	46585	57834	57834	57834

Glare Table

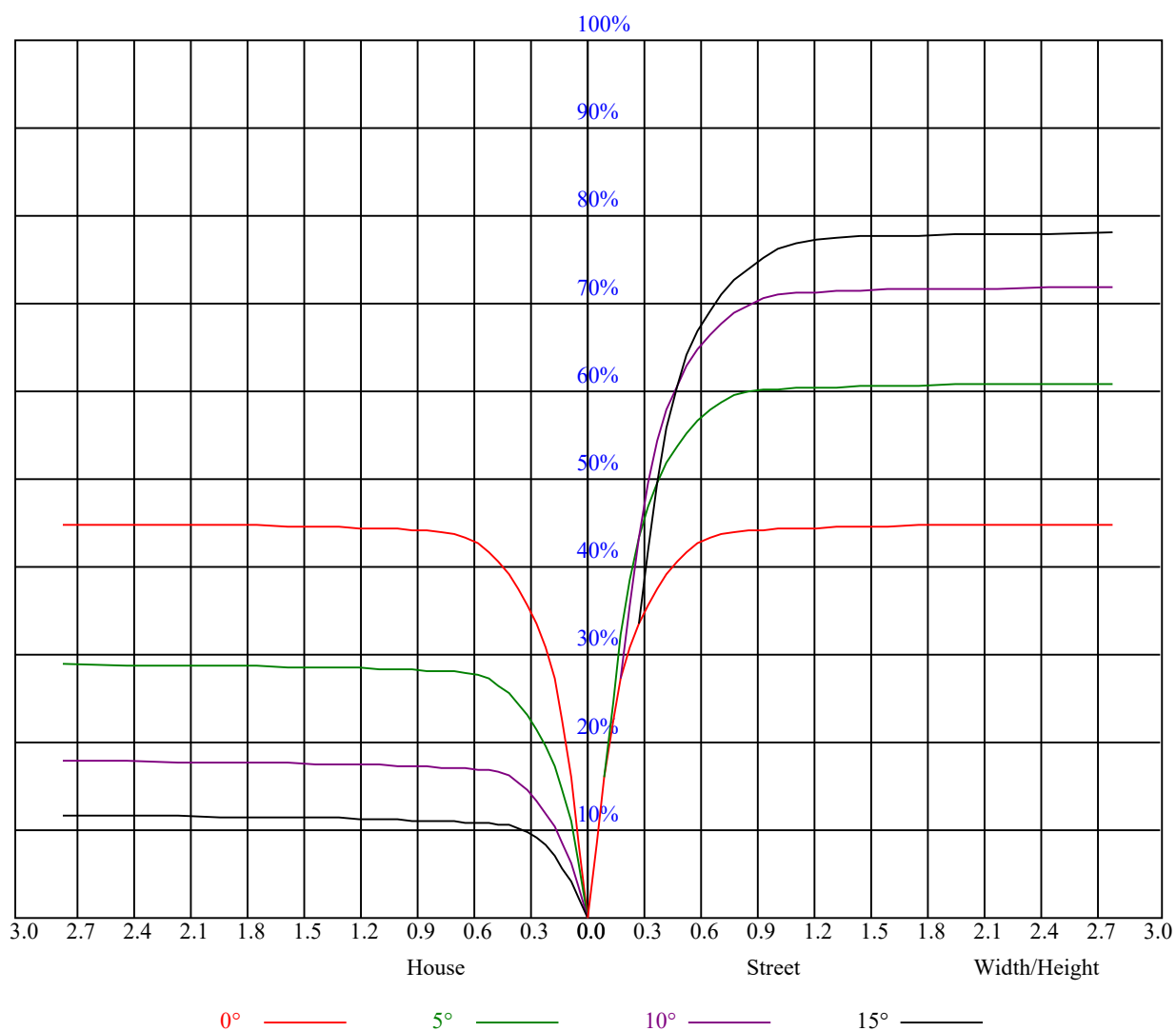
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

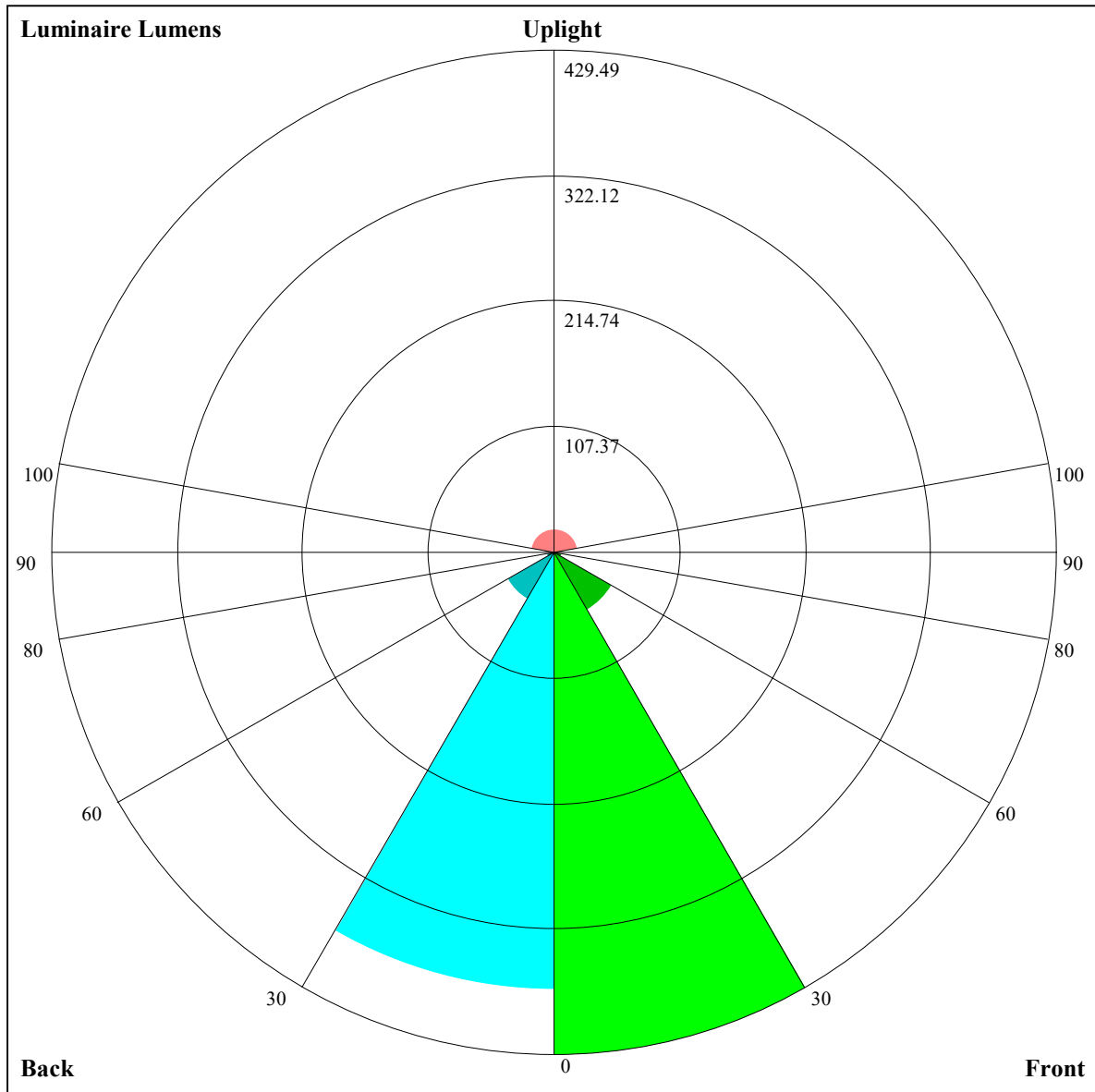
Luminance Limiting Curve





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	1.08	1.08	1.08	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	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.96	0.93	0.90	0.95	0.92	0.89	0.92	0.89	0.87	0.89	0.87	0.86	0.87	0.85	0.84	0.82
3	0.92	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.79
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.77
5	0.84	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.74
6	0.81	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.76	0.73	0.77	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.72	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68
9	0.74	0.70	0.68	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66
10	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64





Luminaire Lumens:

FL=429.49,FM=57.2,FH=6.26,FVH=2.49

BL=374.45,BM=46.06,BH=6.23,BVH=2.39

UL=4.45,UH=21.15

BUG Rating:B1-U2-G0

Nata 1653-N

Intensity data(cd)									
Appendix Page: 16 Total:17									
C/ γ (°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	5751.74	5756.15	5385.07	4653.92	3673.36	2599.76	1832.83	1267.40	962.39
45.0	5751.19	5628.97	5176.40	4320.28	3283.01	2324.48	1601.04	1123.70	872.64
90.0	5751.19	5376.81	4706.22	3710.80	2533.14	1751.34	1087.75	879.20	685.56
135.0	5794.14	5469.85	4739.81	3760.90	2677.94	1810.25	1226.11	861.08	667.83
180.0	5751.74	5415.90	4625.29	3537.37	2521.58	1643.43	1093.81	810.32	631.72
225.0	5751.19	5490.22	4851.57	3829.72	2769.89	1873.02	1092.87	890.70	692.33
270.0	5751.19	5725.32	5348.73	4527.84	3513.70	2507.27	1710.05	1161.69	847.87
315.0	5794.14	5752.29	5356.44	4587.30	3568.76	2458.82	1652.24	1094.14	841.04
360.0	5751.74	5756.15	5385.07	4653.92	3673.36	2599.76	1832.83	1267.40	962.39
C/ γ (°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	752.62	622.14	540.10	474.04	428.34	396.41	365.02	308.32	235.53
45.0	687.10	570.93	503.22	447.06	409.62	380.44	344.65	281.89	200.35
90.0	555.46	479.54	420.63	387.05	363.15	337.83	285.47	216.87	139.29
135.0	543.41	457.52	407.42	360.62	331.44	301.71	244.51	179.92	116.94
180.0	518.36	454.88	409.56	385.39	371.69	336.23	269.78	195.95	117.44
225.0	562.84	487.30	437.04	406.04	388.86	362.05	304.19	231.84	155.37
270.0	659.03	537.35	463.57	401.91	362.82	335.84	300.61	246.21	180.70
315.0	654.73	552.71	476.95	428.72	395.75	370.53	343.33	285.30	212.63
360.0	752.62	622.14	540.10	474.04	428.34	396.41	365.02	308.32	235.53
C/ γ (°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	146.89	74.93	30.01	17.29	12.50	8.48	7.43	6.88	6.50
45.0	120.08	57.26	21.69	15.25	10.46	7.60	6.94	6.50	6.22
90.0	69.32	29.51	17.45	13.38	9.41	8.53	7.71	7.16	6.83
135.0	61.88	26.59	18.39	13.87	10.74	9.74	8.81	8.31	8.31
180.0	53.35	24.00	16.68	12.77	10.13	9.74	9.30	9.19	9.58
225.0	78.57	31.88	18.99	15.09	11.23	10.35	9.91	9.58	9.74
270.0	113.53	57.48	29.23	20.54	15.69	12.22	10.79	9.69	9.03
315.0	133.84	66.95	25.16	18.22	13.76	10.08	9.03	8.26	7.60
360.0	146.89	74.93	30.01	17.29	12.50	8.48	7.43	6.88	6.50
C/ γ (°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	6.22	6.06	5.95	5.89	5.89	5.89	5.84	5.78	5.73
45.0	5.89	5.78	5.73	5.73	5.73	5.73	5.73	5.67	5.56
90.0	6.66	6.61	6.94	7.43	8.20	8.09	7.05	6.33	5.56
135.0	8.97	10.02	10.74	10.24	9.14	7.65	6.39	5.89	5.56
180.0	9.91	9.91	8.70	7.65	6.61	6.17	5.78	5.51	5.29
225.0	10.41	10.35	9.30	8.42	6.99	6.44	6.11	5.78	5.34
270.0	8.86	9.36	9.91	10.41	10.24	9.25	7.71	6.66	6.00
315.0	7.16	6.99	6.99	7.10	7.54	7.82	7.65	6.83	6.11
360.0	6.22	6.06	5.95	5.89	5.89	5.89	5.84	5.78	5.73
C/ γ (°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	5.62	5.51	5.34	5.23	5.12	5.01	4.96	4.62	4.35
45.0	5.45	5.40	5.23	5.12	5.01	4.96	4.96	4.40	4.24
90.0	5.51	5.45	5.29	5.12	4.90	4.68	4.46	4.24	4.07
135.0	5.40	5.18	5.01	4.79	4.57	4.46	4.29	4.13	4.07
180.0	5.07	4.90	4.79	4.68	4.51	4.46	4.40	4.40	4.29
225.0	5.12	4.96	4.79	4.68	4.51	4.46	4.40	4.40	4.29
270.0	5.67	5.56	5.40	5.18	5.01	4.90	4.73	4.40	4.13
315.0	5.62	5.51	5.45	5.34	5.18	4.96	4.73	4.57	4.24
360.0	5.62	5.51	5.34	5.23	5.12	5.01	4.96	4.62	4.35

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	90.0
0.0	4.24
45.0	4.07
90.0	3.91
135.0	4.02
180.0	4.13
225.0	4.18
270.0	4.02
315.0	4.02
360.0	4.24