
Nata

Client:

LumCAT: 1656-S

Luminaire: 92.70.125.00

Report No: nata-0100

Test No: GC2018060210

LampCAT: NICHIA NFCWS024B-V3

Lamp flux(lm): 1055.6

Number of Lamps: 1

Length(mm): 47

Phm Type: C

Voltage(V): 36.4000

Current(A): 0.3000

Power (W): 10.9200

PF: 0.0000

Ballast type: DC

Width(mm): 47

Height(mm): 0

Photometric Results

Lumens(lm): 960.74, Efficiency(%): 91.01% , Luminous Efficacy(lm/W): 87.98

Central intensity(cd): 9988.744, Maximum intensity(cd): 9988.744

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=12.0

[C90/270]Total=12.0

Field angle(10%Imax): [C0/180]Total=25.8

[C90/270]Total=25.8

Maximum s/h(1/2): C0_180=0.21 C90_270=0.21

Maximum s/h(1/4): C0_180=0.22 C90_270=0.22

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.90%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.503%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9988.745	9.559	9.559	.906%	.995%
2.0	9112.454	69.746	79.305	6.607%	8.255%
4.0	7248.037	110.884	190.189	10.504%	19.796%
6.0	4984.669	114.271	304.46	10.825%	31.690%
8.0	3162.508	96.528	400.988	9.144%	41.738%
10.0	1875.317	71.418	472.406	6.766%	49.171%
12.0	1186.885	54.119	526.526	5.127%	54.804%
14.0	776.557	41.202	567.727	3.903%	59.093%
16.0	576.750	34.865	602.592	3.303%	62.722%
18.0	470.106	31.860	634.452	3.018%	66.038%
20.0	414.850	31.118	665.57	2.948%	69.277%
22.0	385.326	31.657	697.227	2.999%	72.572%
24.0	366.937	32.732	729.959	3.101%	75.979%
26.0	354.777	34.108	764.067	3.231%	79.529%
28.0	343.765	35.395	799.462	3.353%	83.213%
30.0	332.912	36.506	835.968	3.458%	87.013%
32.0	302.136	35.114	871.082	3.326%	90.668%
34.0	236.708	29.030	900.111	2.750%	93.690%
36.0	141.990	18.304	918.415	1.734%	95.595%
38.0	60.961	8.231	926.646	.780%	96.452%
40.0	23.482	3.310	929.956	.314%	96.796%
42.0	13.943	2.046	932.002	.194%	97.009%
44.0	11.218	1.709	933.711	.162%	97.187%
46.0	9.951	1.570	935.281	.149%	97.350%
48.0	9.759	1.590	936.872	.151%	97.516%
50.0	9.490	1.594	938.466	.151%	97.682%
52.0	9.160	1.583	940.049	.150%	97.847%
54.0	8.733	1.550	941.599	.147%	98.008%
56.0	8.238	1.498	943.097	.142%	98.164%
58.0	7.729	1.437	944.534	.136%	98.313%
60.0	7.302	1.387	945.921	.131%	98.458%
62.0	6.689	1.295	947.216	.123%	98.593%
64.0	6.077	1.198	948.414	.113%	98.717%
66.0	5.519	1.106	949.52	.105%	98.832%
68.0	5.134	1.044	950.564	.099%	98.941%
70.0	4.879	1.006	951.57	.095%	99.046%
72.0	4.755	0.992	952.561	.094%	99.149%
74.0	4.707	0.992	953.554	.094%	99.252%

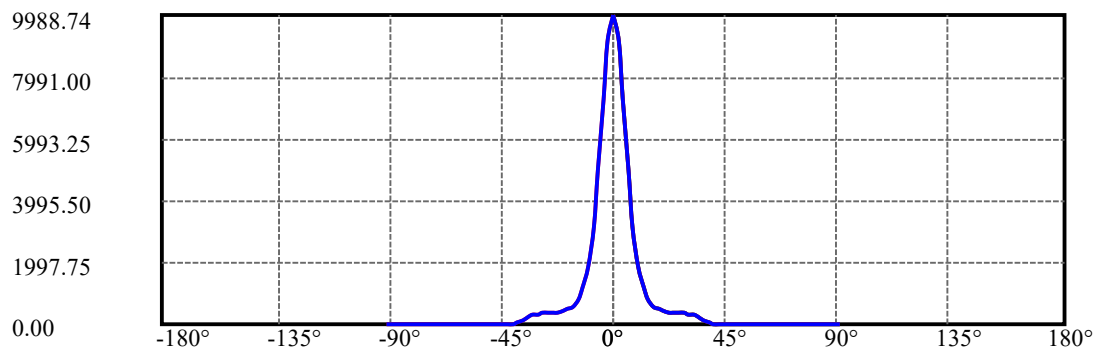
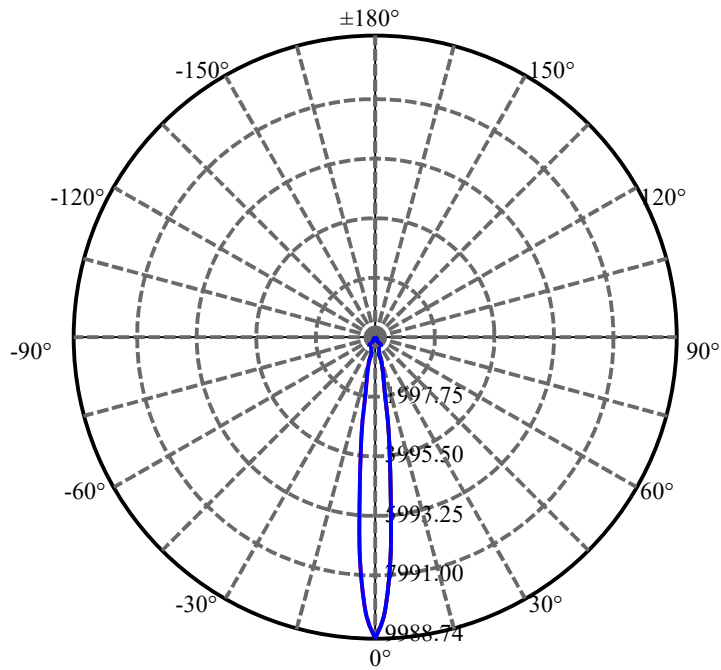
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.659	0.991	954.545	.094%	99.355%
78.0	4.590	0.985	955.53	.093%	99.458%
80.0	4.535	0.980	956.51	.093%	99.560%
82.0	4.439	0.964	957.474	.091%	99.660%
84.0	4.384	0.956	958.43	.091%	99.760%
86.0	4.274	0.935	959.365	.089%	99.857%
88.0	4.191	0.919	960.283	.087%	99.953%
90.0	4.143	0.454	960.738	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	835.97	79.19%	87.01%
0-40	929.96	88.10%	96.80%
0-60	945.92	89.61%	98.46%
0-90	960.28	90.97%	99.95%
0-120	960.28	90.97%	99.95%
0-180	960.74	91.01%	100.00%
60-90	15.75	1.49%	1.64%
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%
0-26.26	768.59	72.81%	80.00%

ZONAL LUMEN SUMMARY

0-10	472.41
10-20	193.16
20-30	170.40
30-40	93.99
40-50	8.51
50-60	7.45
60-70	5.65
70-80	4.94
80-90	3.77
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



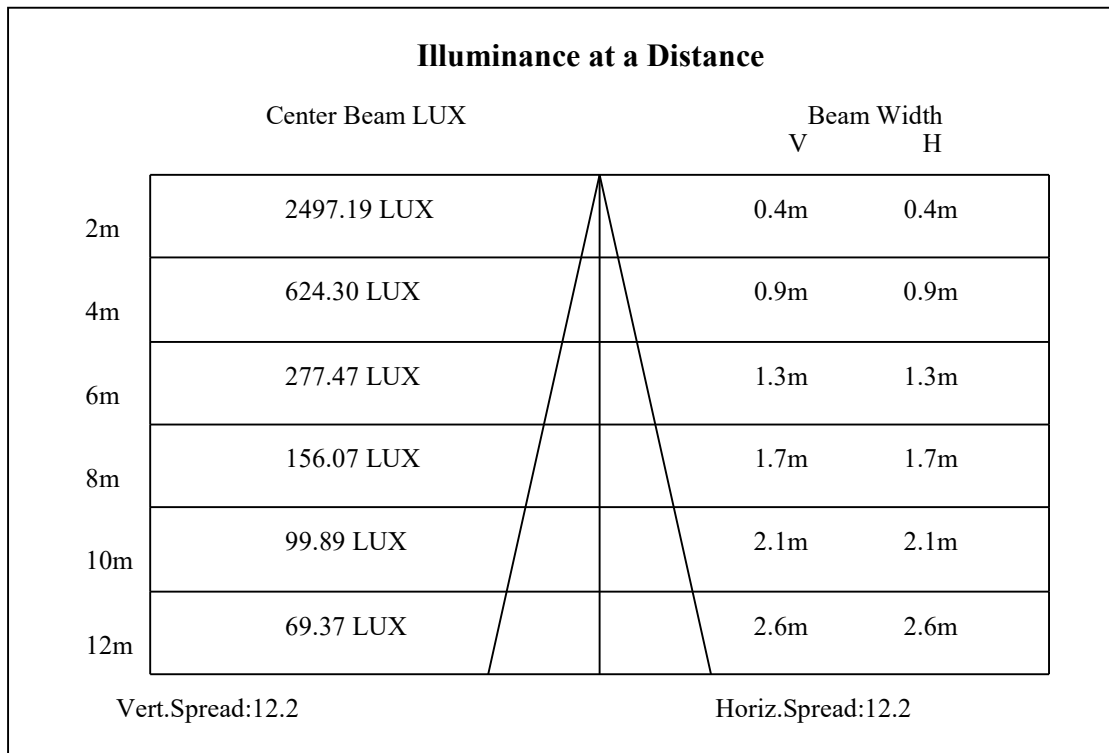
C0(Max): —————

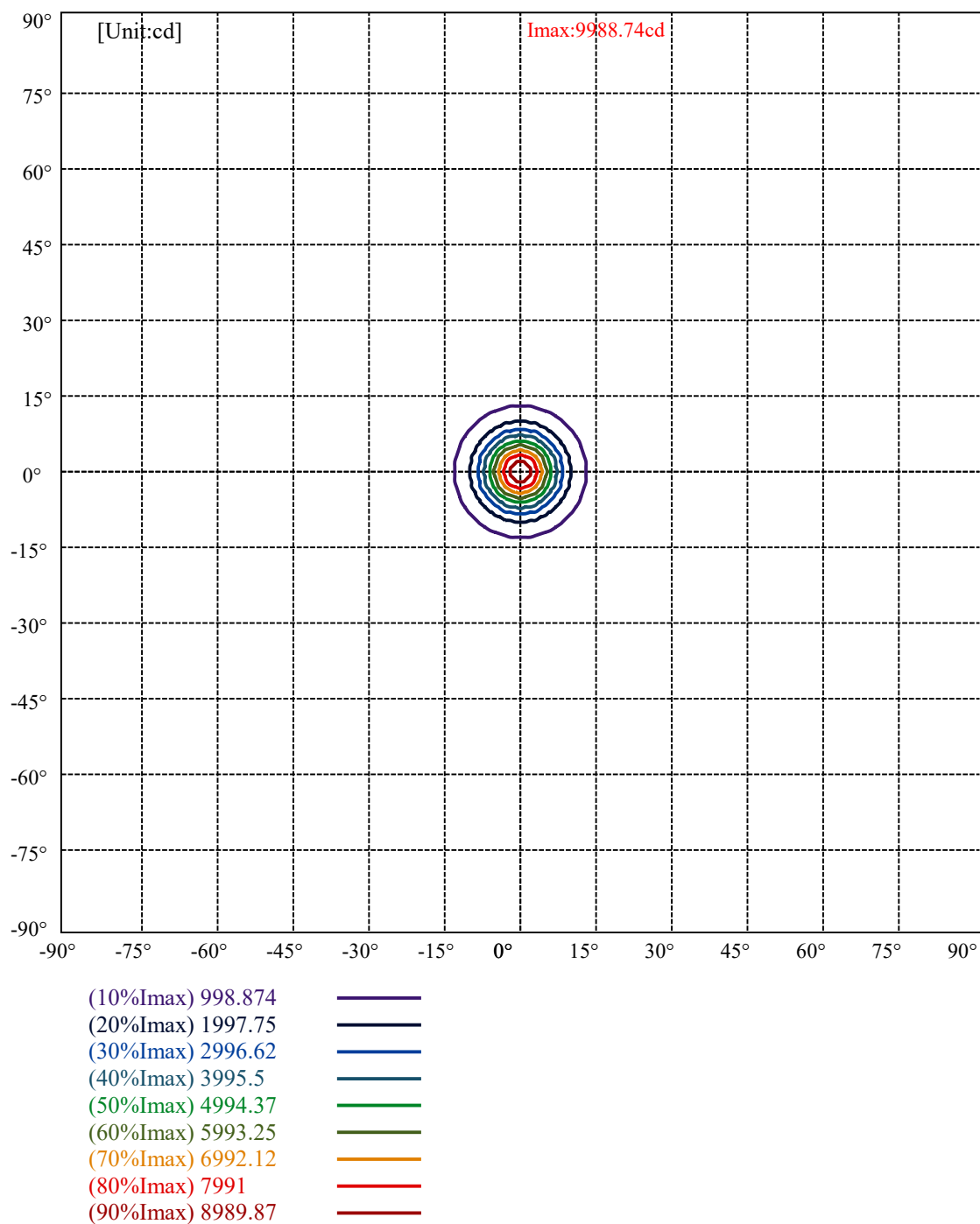
C0/C180: —————

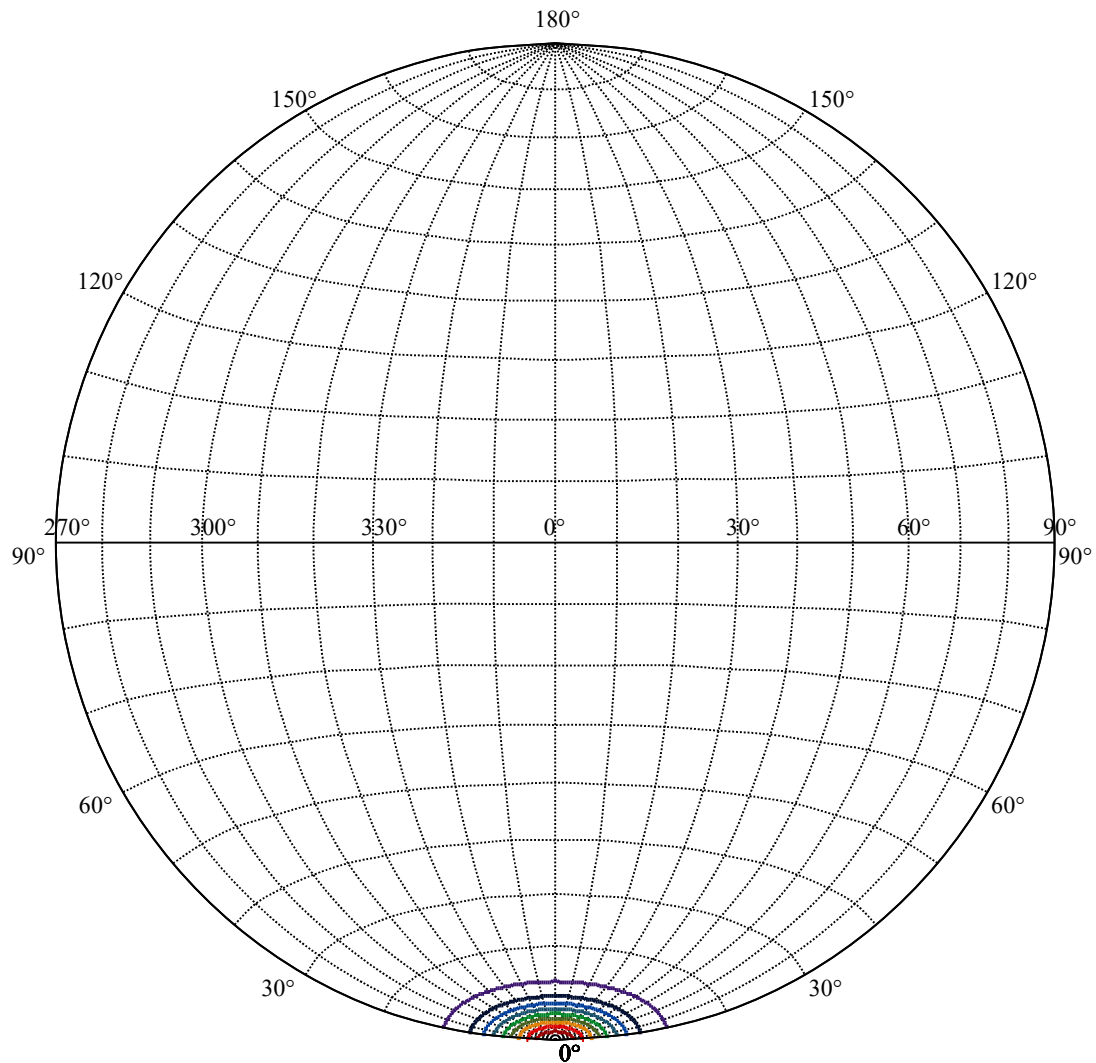
C90/C270: —————

Field angle(10%Imax):C0/180Left:12.9 Right:12.9
:C90/270Left:12.9 Right:12.9

Beam Angle(50%Imax):C0/180Left:6.0 Right:6.0
:C90/270Left:6.0 Right:6.0







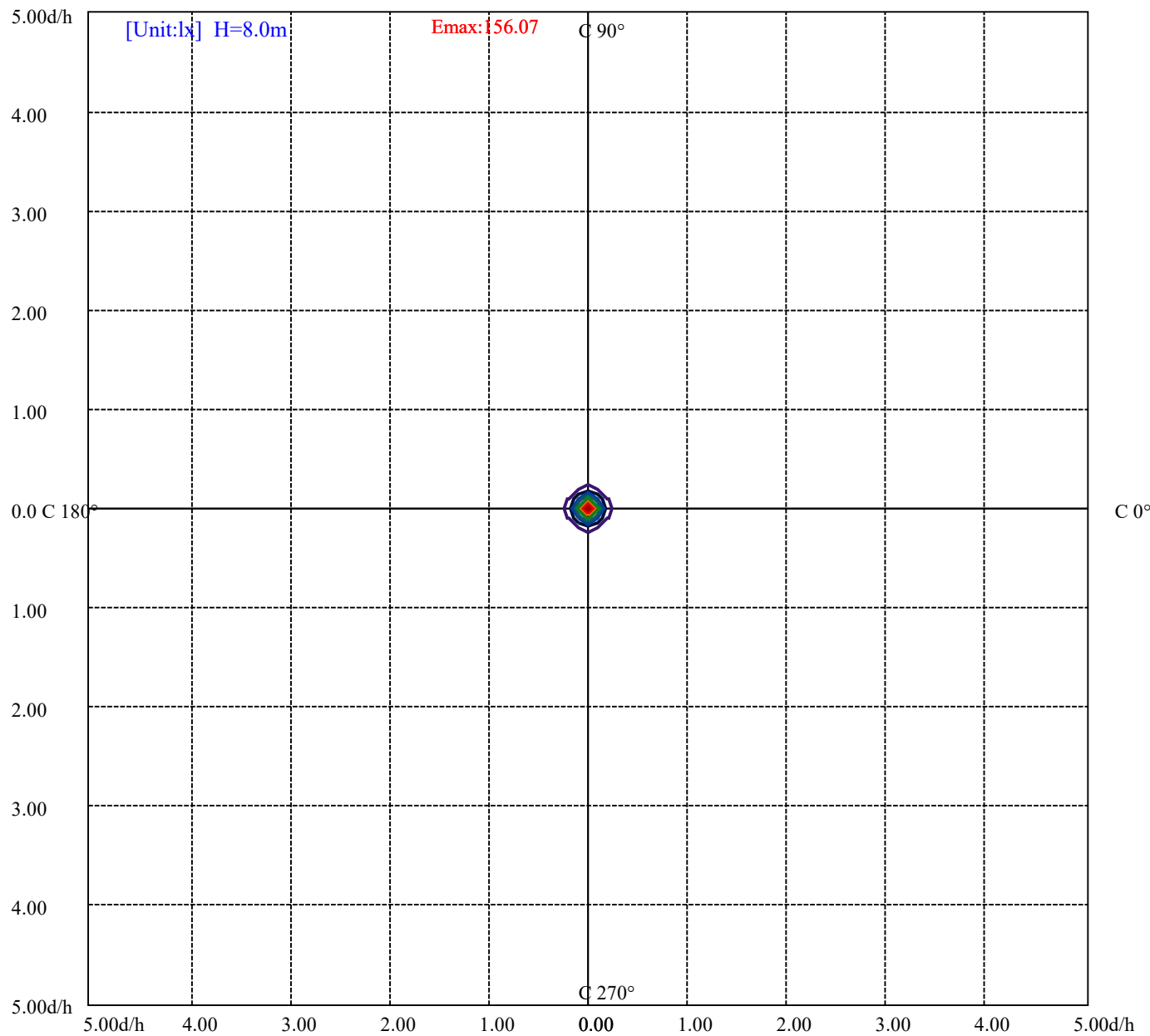
House

[Unit:cd]

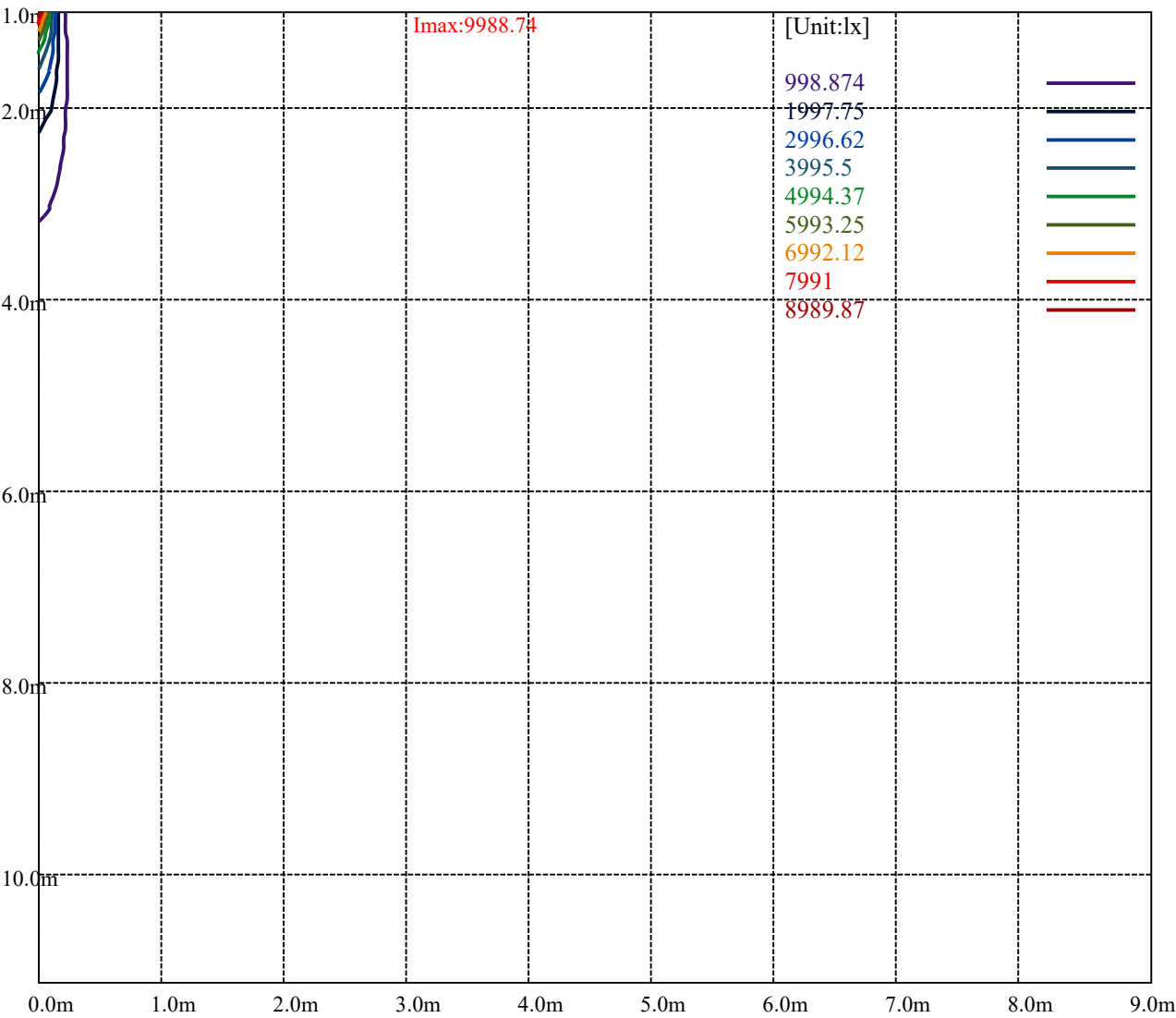
Road

Imax:9988.74

(10%Imax)	998.874	—
(20%Imax)	1997.75	—
(30%Imax)	2996.62	—
(40%Imax)	3995.5	—
(50%Imax)	4994.37	—
(60%Imax)	5993.25	—
(70%Imax)	6992.12	—
(80%Imax)	7991	—
(90%Imax)	8989.87	—



(10%Emax)	15.60731	
(20%Emax)	31.21469	
(30%Emax)	46.82188	
(40%Emax)	62.42922	
(50%Emax)	78.03656	
(60%Emax)	93.64391	
(70%Emax)	109.2511	
(80%Emax)	124.8584	
(90%Emax)	140.4658	



Luminance Table

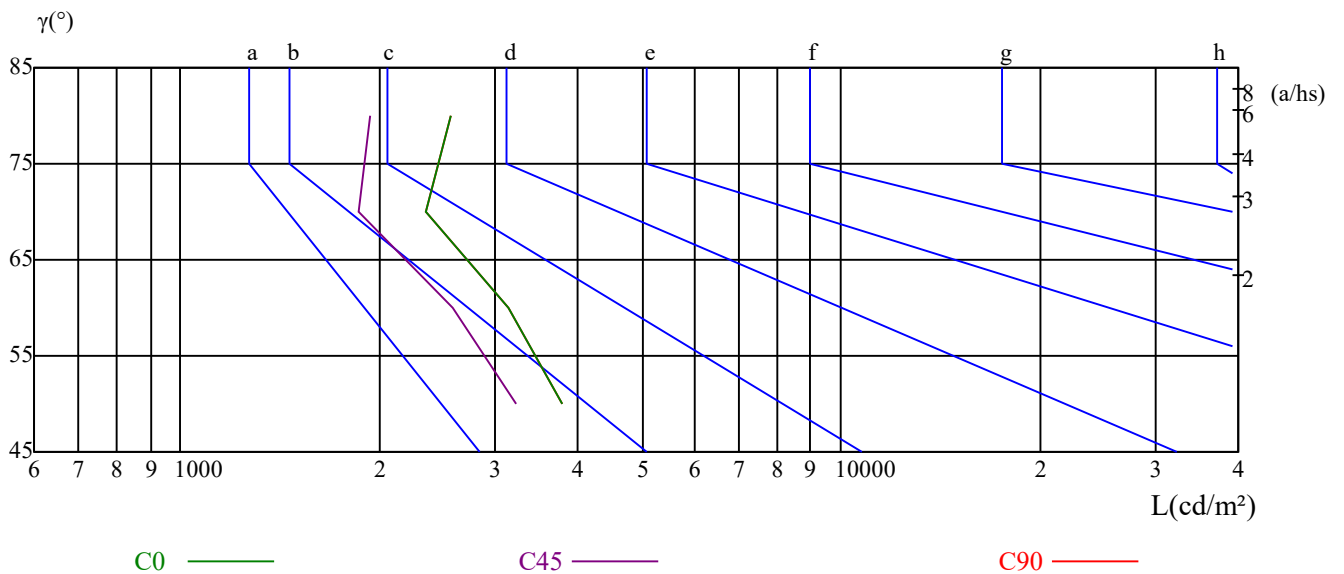
γ	45	50	55	60	65	70	75	80	85
C0	0	3796	0	3140	0	2345	0	2559	0
C45	0	3220	0	2579	0	1856	0	1932	0
C90	0	3796	0	3140	0	2345	0	2559	0

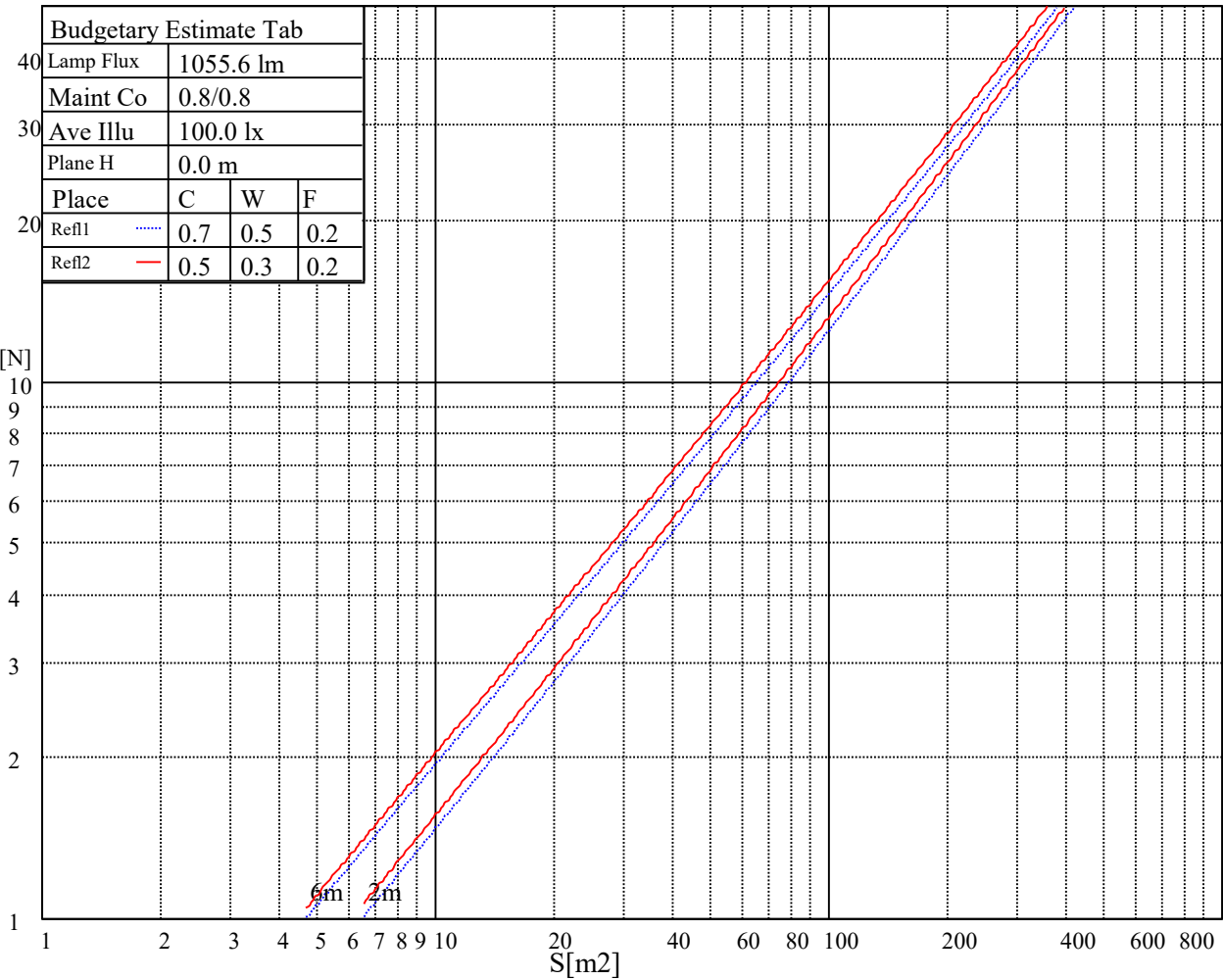
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8079	8079	8079	10147	10147	10147	23521	23521	23521

Glare Table

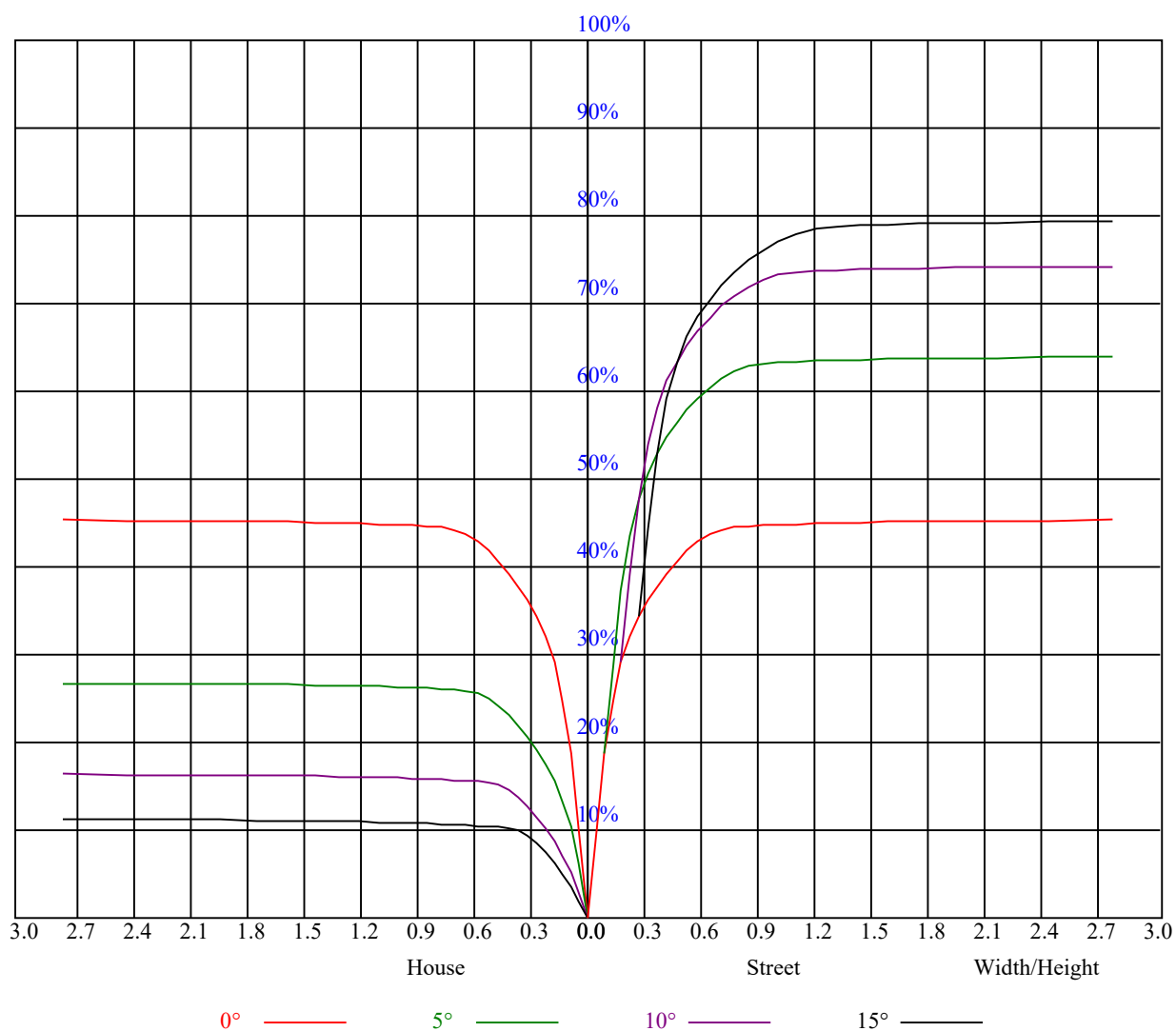
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

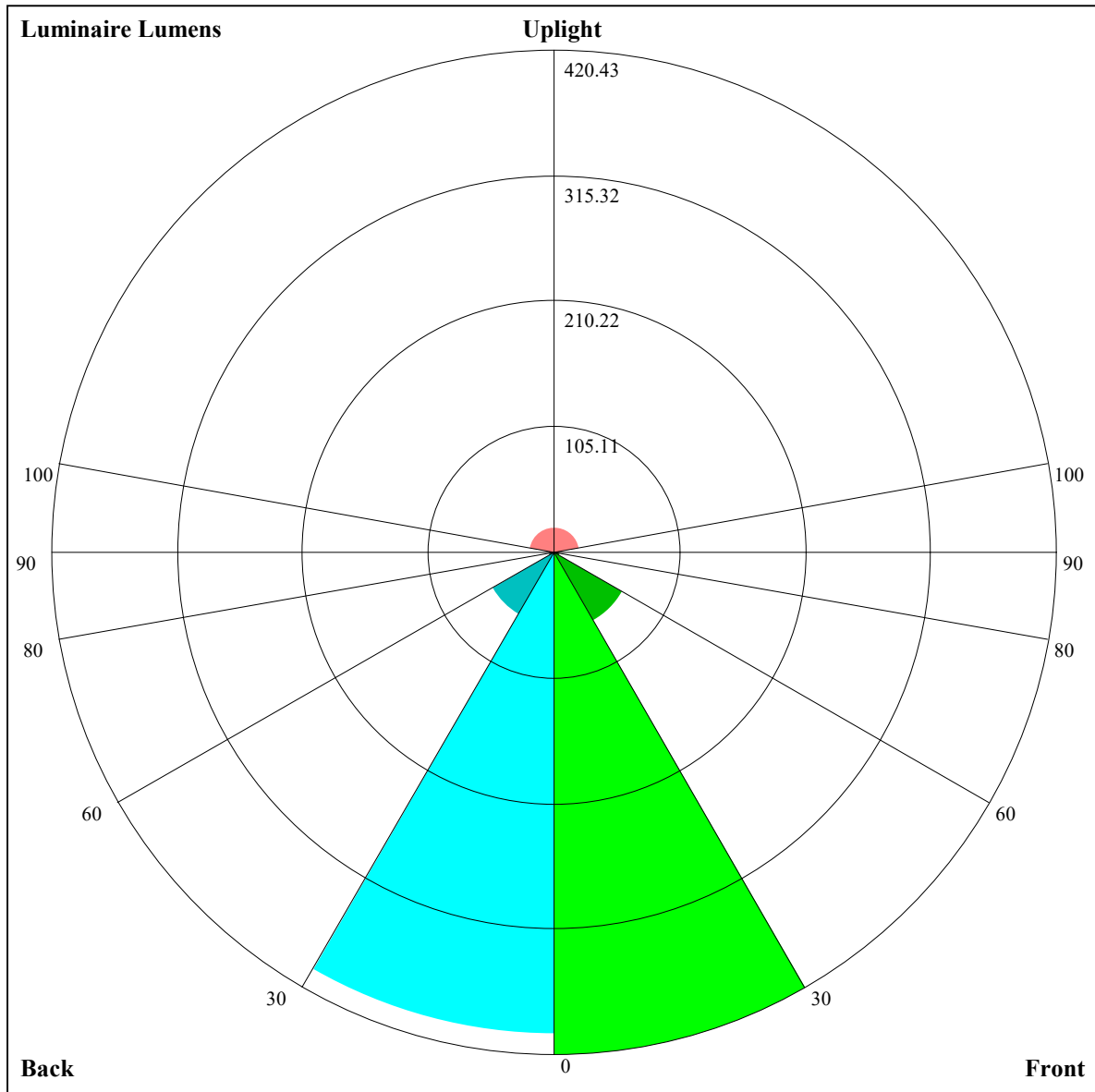
Luminance Limiting Curve





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	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.86
2	0.97	0.94	0.91	0.96	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.85	0.83
3	0.93	0.89	0.86	0.92	0.88	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.80
4	0.89	0.85	0.82	0.88	0.84	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.83	0.81	0.79	0.78
5	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.75
6	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
7	0.80	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
8	0.78	0.74	0.71	0.77	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
9	0.76	0.72	0.69	0.75	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.68
10	0.74	0.70	0.67	0.73	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66





Luminaire Lumens:

FL=420.43,FM=66.79,FH=5.51,FVH=2.35

BL=403.84,BM=60.31,BH=5.37,BVH=2.37

UL=4.52,UH=21.51

BUG Rating:B1-U2-G0

Nata 1656-S

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	9996.04	9523.66	7678.72	5260.09	3278.06	2062.96	1248.68	802.17	591.86		
45.0	9852.89	10400.15	9170.19	6754.32	4652.82	2834.30	1702.89	1051.03	688.21		
90.0	10209.11	10488.24	8989.06	6561.62	4189.24	2546.91	1528.37	923.30	646.75		
135.0	9896.94	10004.85	8526.58	6027.57	3912.31	2392.75	1442.48	902.37	652.42		
180.0	9996.04	8502.91	6566.58	4359.92	2730.25	1665.46	1035.17	743.43	569.12		
225.0	9852.89	7802.04	5503.44	3559.95	2129.58	1076.74	846.33	606.56	504.48		
270.0	10209.11	8121.37	5819.46	3652.44	2221.53	1346.13	858.33	602.32	488.35		
315.0	9896.94	8056.40	5730.27	3701.44	2186.29	1077.29	832.84	581.29	472.82		
360.0	9996.04	9523.66	7678.72	5260.09	3278.06	2062.96	1248.68	802.17	591.86		
C/ γ (°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0		
0.0	474.04	418.43	393.65	383.19	372.18	358.97	344.65	328.69	278.59		
45.0	520.83	437.15	388.70	363.92	355.11	348.51	345.75	338.05	315.47		
90.0	484.61	405.05	368.88	345.15	329.24	318.12	307.38	293.56	264.16		
135.0	523.04	448.71	411.27	384.29	367.78	355.11	343.00	331.44	287.39		
180.0	476.24	424.15	394.42	374.49	362.33	348.89	336.12	308.26	224.19		
225.0	442.98	410.45	390.18	375.54	362.77	350.87	337.17	275.56	181.19		
270.0	431.09	400.26	383.74	370.53	359.52	347.96	335.84	280.79	172.71		
315.0	408.02	374.60	351.76	338.38	329.29	321.69	313.38	260.75	169.96		
360.0	474.04	418.43	393.65	383.19	372.18	358.97	344.65	328.69	278.59		
C/ γ (°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0		
0.0	166.77	68.16	19.55	15.64	12.33	11.51	11.29	10.52	9.47		
45.0	250.23	133.07	49.00	19.88	16.90	14.15	14.37	14.15	13.32		
90.0	187.41	96.90	34.74	18.22	14.31	12.22	12.33	12.44	12.44		
135.0	190.99	86.22	23.62	12.72	9.47	6.66	6.11	5.78	5.62		
180.0	118.32	39.20	14.48	10.41	6.88	6.17	5.84	5.56	5.40		
225.0	75.65	18.55	12.72	8.15	6.06	5.67	5.45	5.29	5.18		
270.0	73.28	21.80	15.36	10.85	9.25	8.64	7.98	7.87	8.53		
315.0	73.28	23.78	18.39	15.69	14.53	14.59	14.70	14.31	13.32		
360.0	166.77	68.16	19.55	15.64	12.33	11.51	11.29	10.52	9.47		
C/ γ (°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0		
0.0	7.93	6.88	6.55	6.55	6.55	6.55	6.22	5.78	5.01		
45.0	11.73	10.19	8.86	8.37	7.71	6.94	6.11	5.29	4.96		
90.0	12.88	12.33	10.79	9.58	7.93	6.55	5.51	5.07	4.84		
135.0	5.56	5.84	6.50	7.27	7.38	6.77	5.95	5.23	4.96		
180.0	5.29	5.18	5.18	5.18	5.12	5.18	5.12	5.01	4.84		
225.0	5.12	5.12	5.12	5.12	5.23	5.18	5.01	4.96	4.90		
270.0	9.41	9.86	9.69	8.37	6.88	5.73	5.18	4.96	4.90		
315.0	11.95	10.52	9.14	7.98	6.72	5.73	5.07	4.79	4.62		
360.0	7.93	6.88	6.55	6.55	6.55	6.55	6.22	5.78	5.01		
C/ γ (°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0		
0.0	4.68	4.62	4.51	4.46	4.40	4.40	4.35	4.35	4.29		
45.0	4.79	4.62	4.57	4.46	4.46	4.40	4.35	4.29	4.24		
90.0	4.79	4.73	4.68	4.68	4.62	4.51	4.46	4.29	4.13		
135.0	4.84	4.84	4.79	4.73	4.68	4.57	4.51	4.35	4.24		
180.0	4.79	4.73	4.73	4.62	4.51	4.35	4.35	4.29	4.24		
225.0	4.79	4.79	4.73	4.68	4.62	4.46	4.35	4.24	4.18		
270.0	4.84	4.84	4.84	4.79	4.68	4.57	4.46	4.18	4.07		
315.0	4.51	4.46	4.40	4.29	4.29	4.24	4.24	4.18	4.13		
360.0	4.68	4.62	4.51	4.46	4.40	4.40	4.35	4.35	4.29		

Intensity data(cd)

Appendix Page: 17 Total:17

C/γ(°)	90.0
0.0	4.29
45.0	4.24
90.0	4.07
135.0	4.13
180.0	4.18
225.0	4.13
270.0	4.02
315.0	4.07
360.0	4.29