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NATA

Client:

LumCAT: 1677-A

Luminaire: 92.70.046.00+92.70.147.00

Report No: nata-0100

Voltage(V): 36.3000

Test No: GC2018121206

Current(A): 0.4000

LampCAT: CREE CXA1512

Power (W): 14.5200

Lamp flux(lm): 1983.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 46

Width(mm): 46

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1659.10, Efficiency(%): 83.67% , Luminous Efficacy(lm/W): 114.26

Central intensity(cd): 4530.938, Maximum intensity(cd): 4530.938

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=30.8

[C90/270]Total=30.8

Field angle(10%Imax): [C0/180]Total=59.2

[C90/270]Total=59.2

Maximum s/h(1/2): C0_180=0.51 C90_270=0.51

Maximum s/h(1/4): C0_180=0.49 C90_270=0.49

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 84.95%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.234%

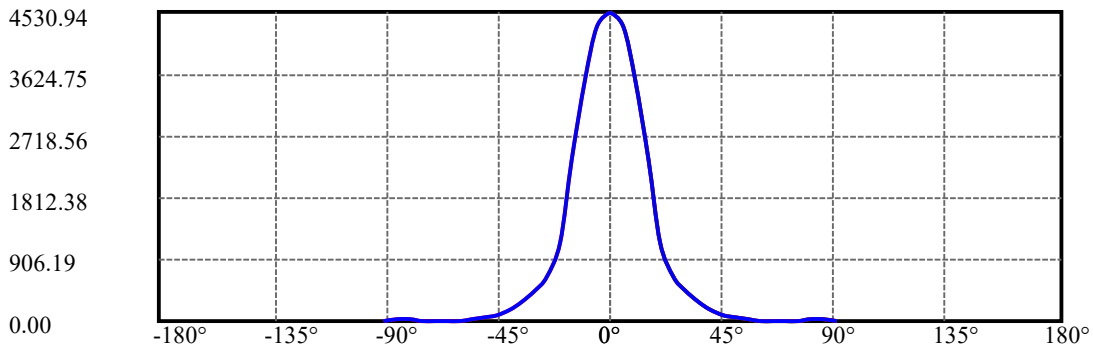
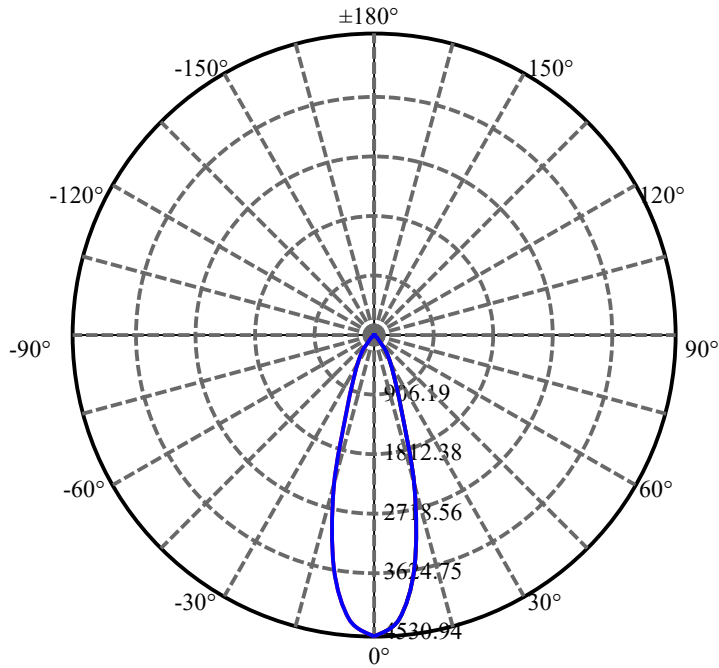
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4530.938	27.096	27.096	1.366%	1.633%
5.0	4301.648	205.504	232.6	10.363%	14.020%
10.0	3535.664	336.535	569.135	16.971%	34.304%
15.0	2356.383	334.296	903.432	16.858%	54.453%
20.0	1164.790	218.368	1121.799	11.012%	67.615%
25.0	649.090	150.364	1272.163	7.583%	76.678%
30.0	436.352	119.591	1391.753	6.031%	83.886%
35.0	286.573	90.098	1481.851	4.544%	89.317%
40.0	173.067	60.978	1542.829	3.075%	92.992%
45.0	93.874	36.385	1579.214	1.835%	95.185%
50.0	54.120	22.725	1601.939	1.146%	96.555%
55.0	29.932	13.440	1615.378	.678%	97.365%
60.0	12.206	5.794	1621.173	.292%	97.714%
65.0	10.723	5.327	1626.5	.269%	98.035%
70.0	11.609	5.979	1632.479	.302%	98.396%
75.0	12.895	6.828	1639.307	.344%	98.807%
80.0	16.348	8.825	1648.131	.445%	99.339%
85.0	16.601	9.065	1657.196	.457%	99.885%
90.0	6.940	1.902	1659.098	.096%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1391.75	70.18%	83.89%
0-40	1542.83	77.80%	92.99%
0-60	1621.17	81.75%	97.71%
0-90	1657.20	83.57%	99.89%
0-120	1657.20	83.57%	99.89%
0-180	1659.10	83.67%	100.00%
60-90	41.82	2.11%	2.52%
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%
0-27.30	1327.28	66.93%	80.00%

ZONAL LUMEN SUMMARY

0-10	569.14
10-20	552.66
20-30	269.95
30-40	151.08
40-50	59.11
50-60	19.23
60-70	11.31
70-80	15.65
80-90	9.06
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: —————

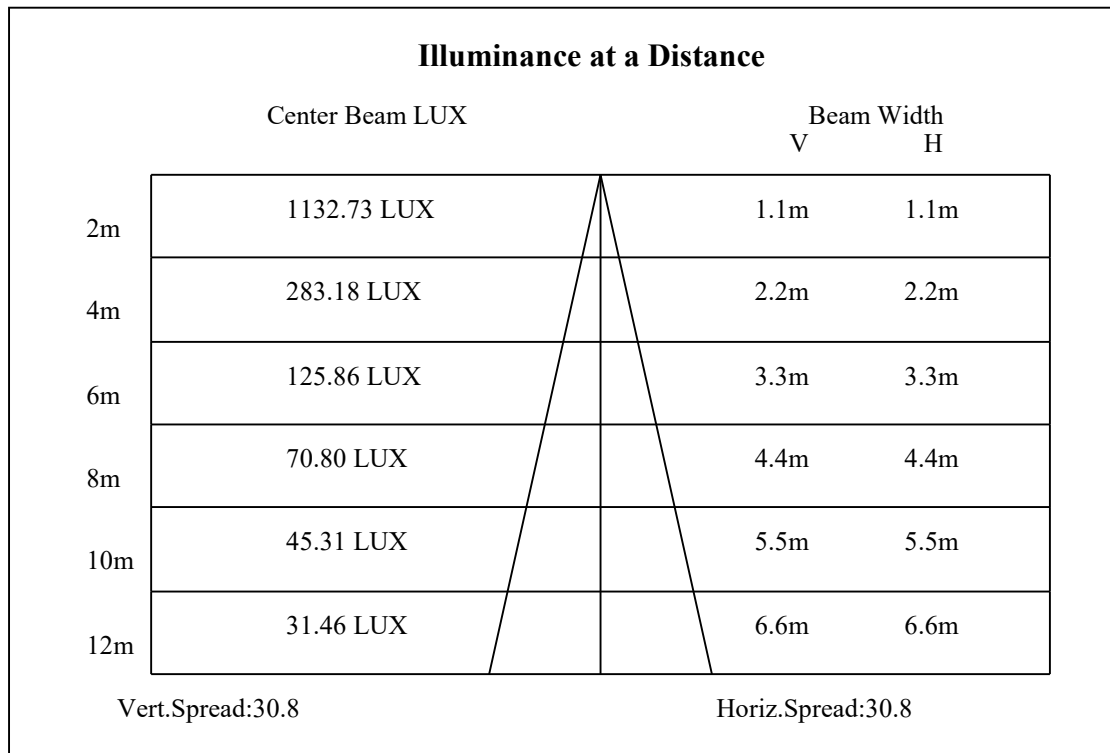
C90/C270: —————

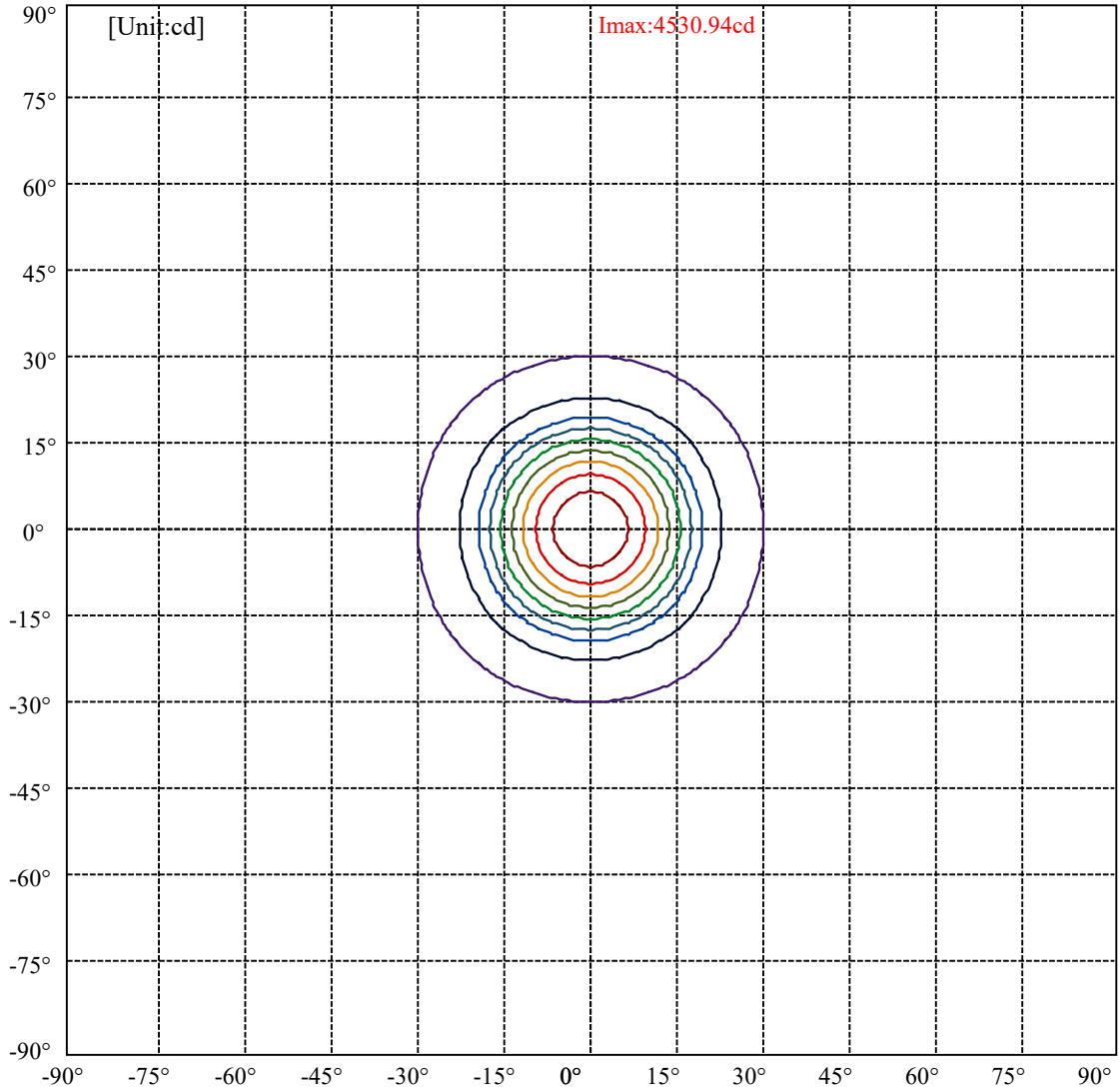
Field angle(10%Imax):C0/180Left:29.6 Right:29.6

:C90/270Left:29.6 Right:29.6

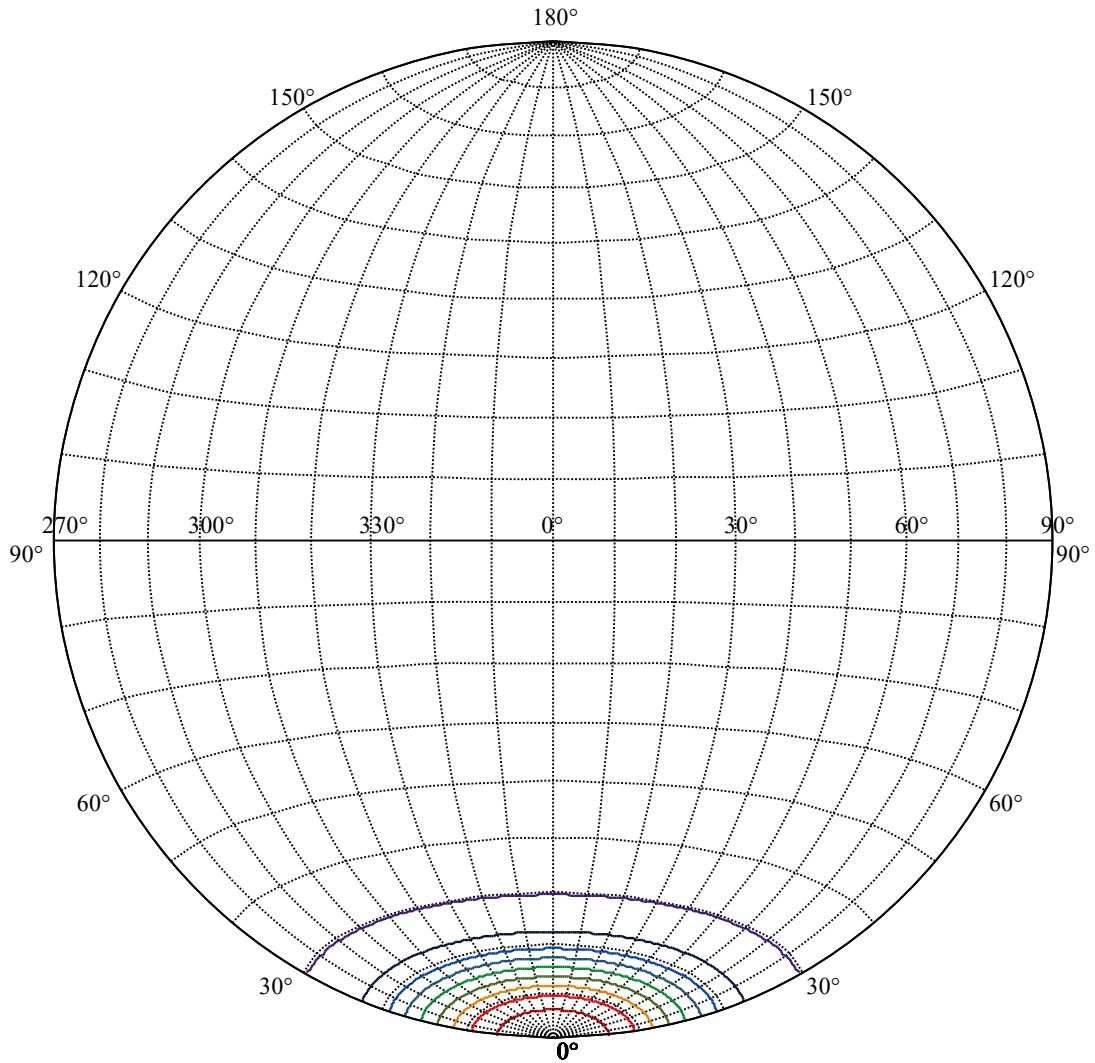
Beam Angle(50%Imax):C0/180Left:15.4 Right:15.4

:C90/270Left:15.4 Right:15.4





(10%Imax) 453.094	—
(20%Imax) 906.188	—
(30%Imax) 1359.28	—
(40%Imax) 1812.38	—
(50%Imax) 2265.47	—
(60%Imax) 2718.56	—
(70%Imax) 3171.66	—
(80%Imax) 3624.75	—
(90%Imax) 4077.84	—



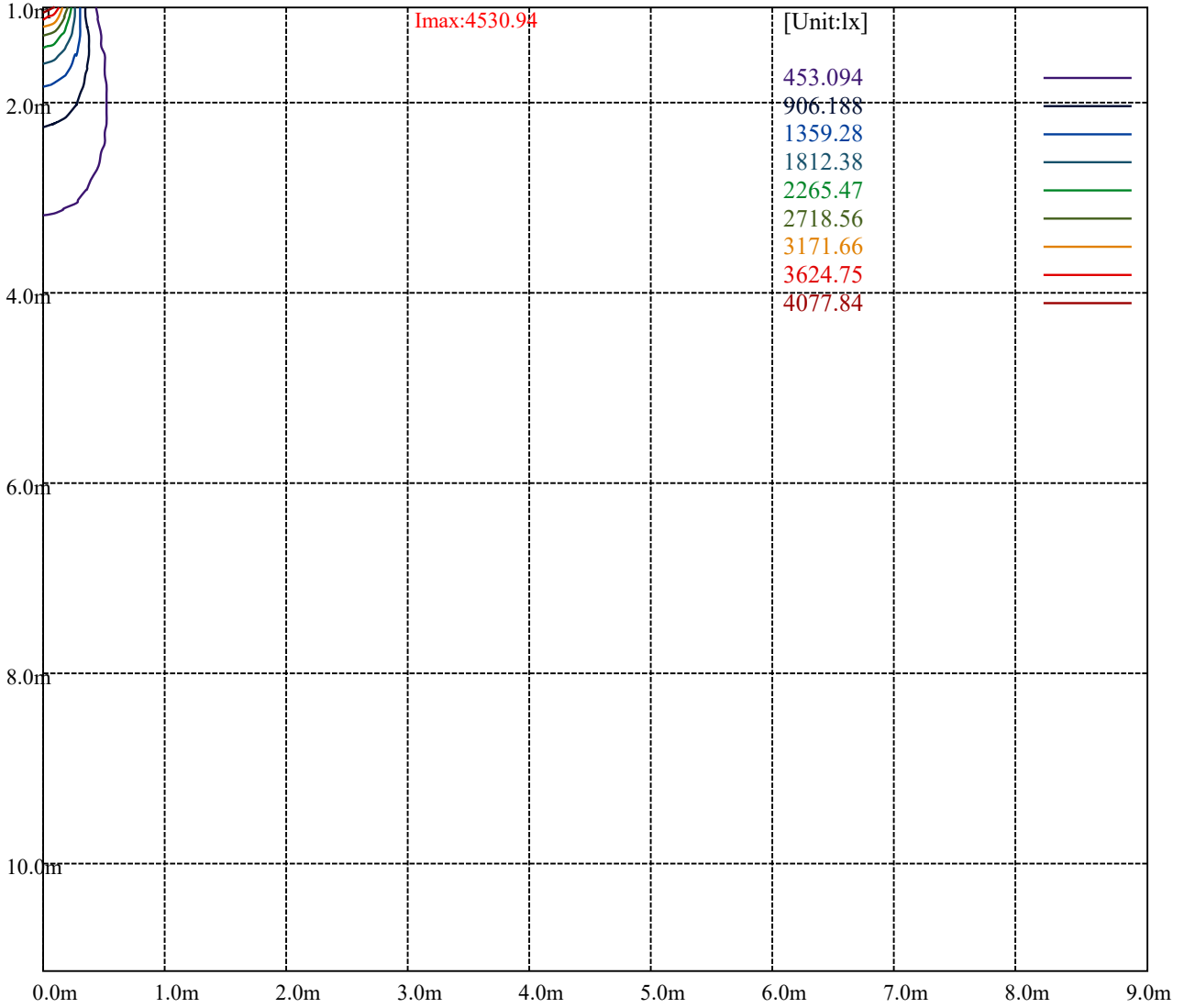
House

[Unit:cd]

Road

Imax:4530.94

(10%Imax) 453.094	—
(20%Imax) 906.188	—
(30%Imax) 1359.28	—
(40%Imax) 1812.38	—
(50%Imax) 2265.47	—
(60%Imax) 2718.56	—
(70%Imax) 3171.66	—
(80%Imax) 3624.75	—
(90%Imax) 4077.84	—



Luminance Table

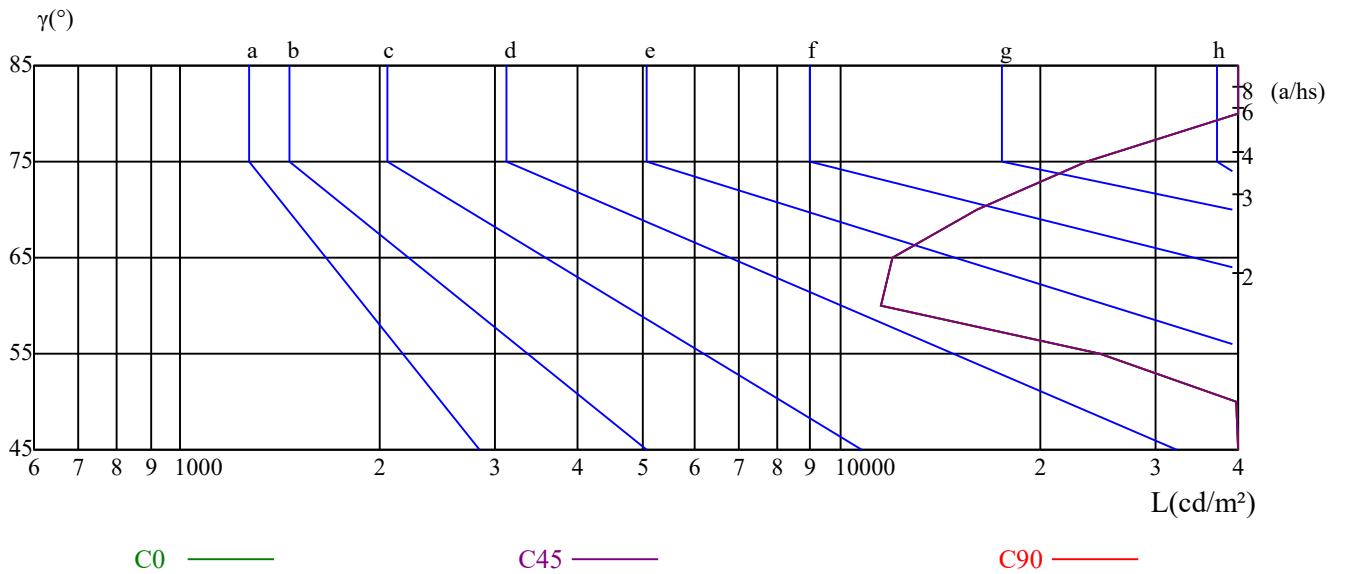
γ	45	50	55	60	65	70	75	80	85
C0	62740	39790	24662	11537	11991	16040	23546	44491	90015
C45	62740	39790	24662	11537	11991	16040	23546	44491	90015
C90	62740	39790	24662	11537	11991	16040	23546	44491	90015

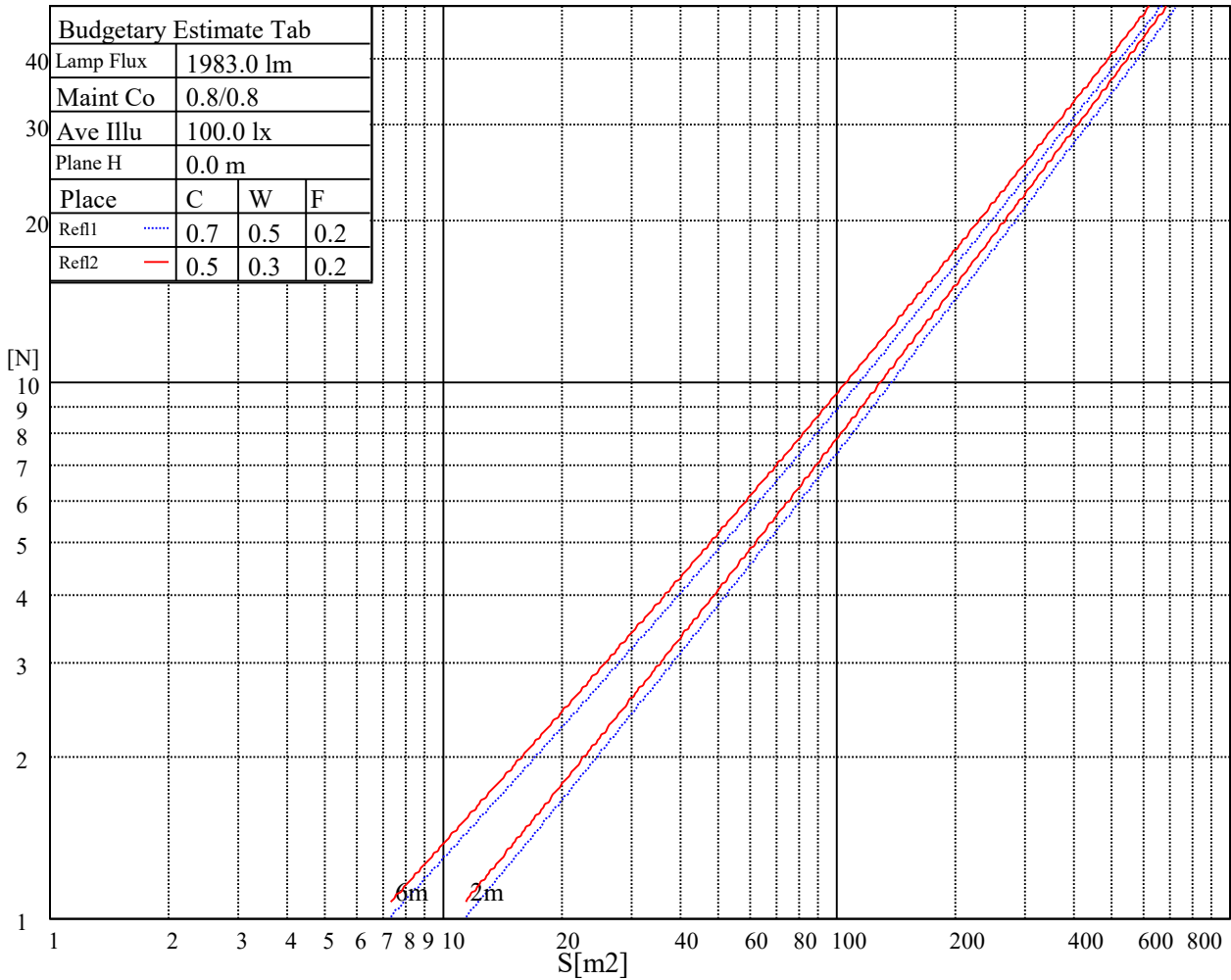
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11991	11991	11991	23546	23546	23546	90015	90015	90015

Glare Table

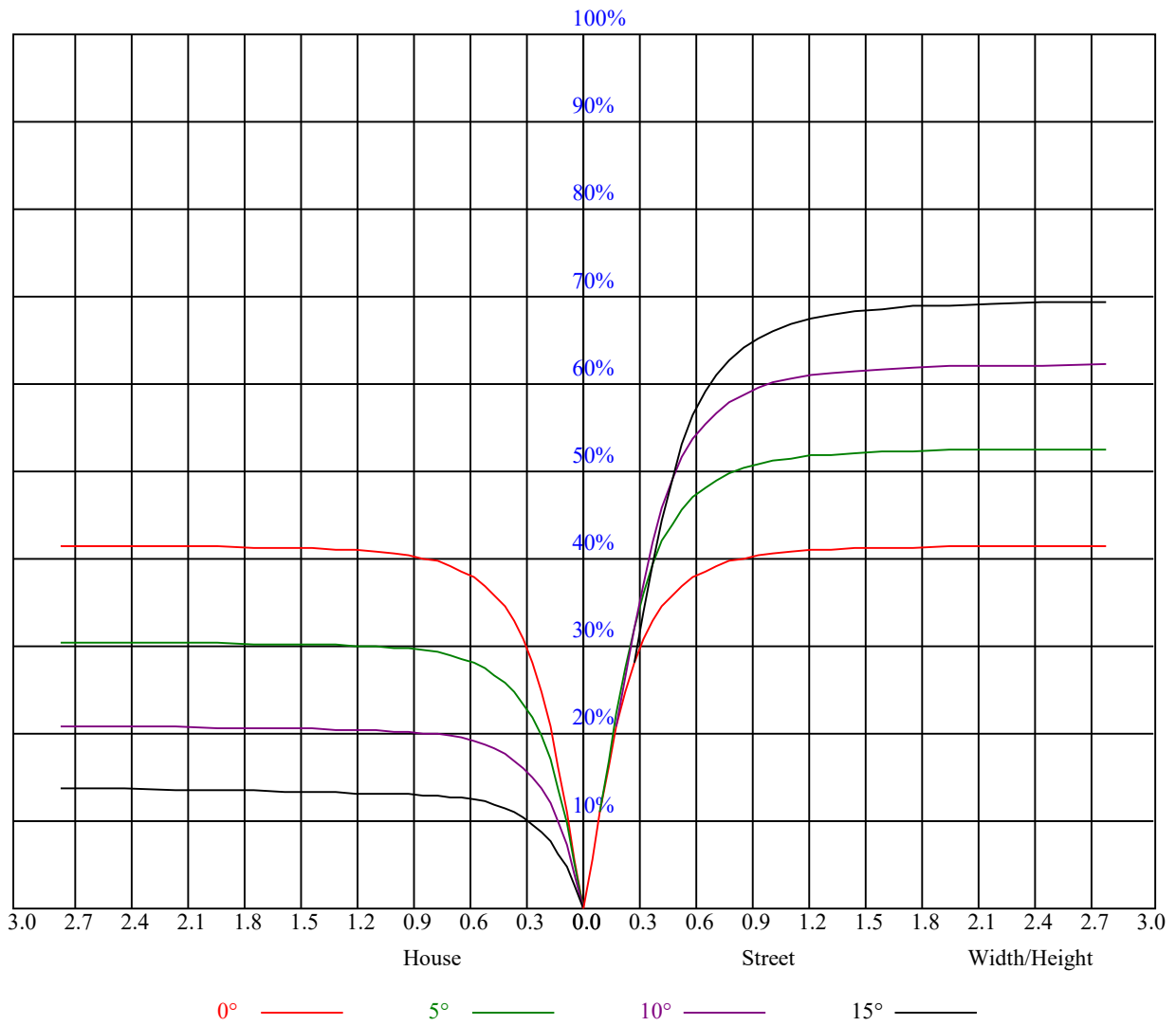
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

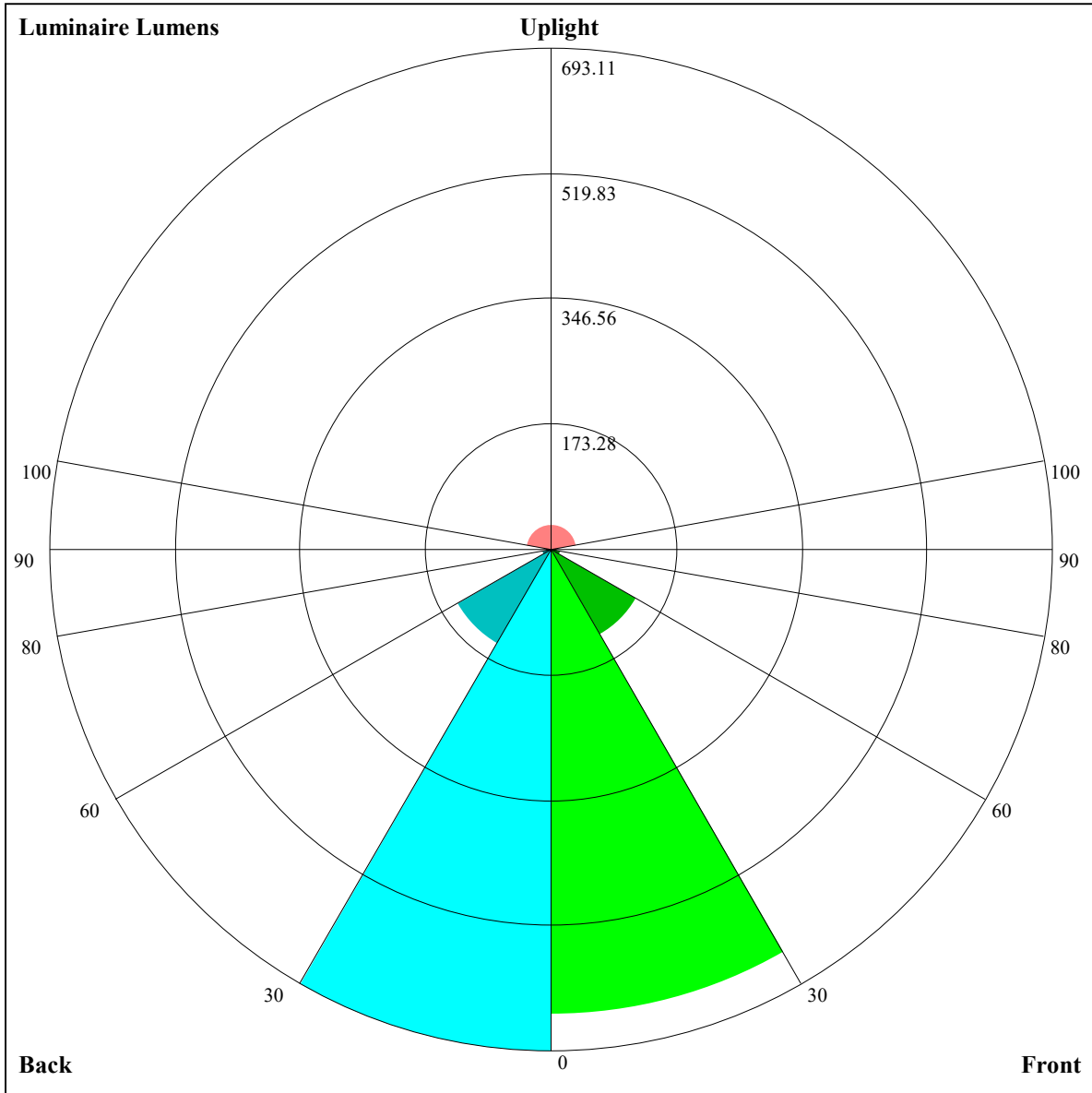
Luminance Limiting Curve





RHOCC	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	1.01	1.01	1.01	0.99	0.99	0.99	0.94	0.94	0.94	0.90	0.90	0.90	0.87	0.87	0.87	0.85
1	0.93	0.91	0.89	0.91	0.89	0.87	0.88	0.86	0.84	0.85	0.83	0.82	0.82	0.81	0.80	0.78
2	0.88	0.84	0.82	0.86	0.83	0.81	0.84	0.81	0.79	0.81	0.79	0.77	0.79	0.77	0.76	0.74
3	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.71
4	0.79	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.68
5	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
6	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
7	0.70	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.61
8	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.59	0.58
9	0.65	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.57
10	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.55





Luminaire Lumens:

FL=641.81,FM=136.99,FH=12.95,FVH=7.57

BL=693.11,BM=151.78,BH=12.58,BVH=7.77

UL=7.57,UH=36.03

BUG Rating:B2-U2-G0

NATA 1677-A

Intensity data(cd)

C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	4531.50	4197.38	3369.38	2178.56	1123.31	611.44	408.94	284.63	156.38
45.0	4546.69	4257.56	3488.06	2293.31	1191.94	628.31	419.63	284.06	166.39
90.0	4540.50	4311.56	3487.50	2274.75	1081.63	630.56	418.33	264.09	168.36
135.0	4505.06	4495.50	3919.50	2765.25	1517.06	754.88	497.25	319.50	207.17
180.0	4531.50	4431.38	3719.25	2608.31	1102.11	682.82	464.74	301.84	184.78
225.0	4546.69	4371.19	3598.88	2353.50	1094.51	661.61	435.32	296.21	182.64
270.0	4540.50	4288.50	3526.88	2430.56	1259.44	653.63	460.69	295.88	177.08
315.0	4505.06	4060.13	3175.88	1946.81	948.32	569.48	385.93	246.38	141.75
360.0	4531.50	4197.38	3369.38	2178.56	1123.31	611.44	408.94	284.63	156.38

C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	82.52	47.31	26.66	10.58	10.52	12.15	12.77	18.56	14.91
45.0	88.88	53.66	27.23	10.80	10.01	10.46	12.15	16.26	15.75
90.0	90.00	51.02	28.29	11.64	11.14	11.98	13.56	15.64	16.26
135.0	113.51	62.38	34.65	15.24	10.52	11.08	12.43	15.92	21.49
180.0	99.28	57.71	33.08	12.66	9.96	10.41	11.42	14.06	16.09
225.0	99.56	58.73	33.53	12.71	10.69	11.81	12.66	16.26	16.03
270.0	99.39	56.59	32.46	13.11	11.31	11.70	12.88	15.30	16.76
315.0	77.85	45.56	23.57	10.91	11.64	13.28	15.30	18.79	15.53
360.0	82.52	47.31	26.66	10.58	10.52	12.15	12.77	18.56	14.91

C/ γ (°)	90.0
0.0	6.81
45.0	7.03
90.0	7.03
135.0	6.92
180.0	6.81
225.0	6.98
270.0	7.03
315.0	6.92
360.0	6.81