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## NATA

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Client:

LumCAT: 1534-E

Luminaire: 92.70.043.00

Report No: nt0100

Voltage(V): 34.7100

Test No: GC20200115114

Current(A): 0.1970

LampCAT: LUMINUS CXM-6-AC40

Power (W): 6.8400

Lamp flux(lm): 850.2

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 716.99, Efficiency(%): 84.33% , Luminous Efficacy(lm/W): 104.82

Central intensity(cd): 1923.680, Maximum intensity(cd): 1923.680

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=24.6

[C90/270]Total=24.6

Field angle(10%Imax): [C0/180]Total=73.6

[C90/270]Total=73.6

Maximum s/h(1/2): C0\_180=0.41 C90\_270=0.41

Maximum s/h(1/4): C0\_180=0.47 C90\_270=0.47

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 84.34%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.824%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1923.680	0.000	0	.000%	.000%
1.0	1911.164	1.835	1.835	.216%	.256%
2.0	1873.125	5.432	7.266	.639%	1.013%
3.0	1814.906	8.821	16.087	1.038%	2.244%
4.0	1739.883	11.899	27.986	1.400%	3.903%
5.0	1650.727	14.586	42.572	1.716%	5.938%
6.0	1557.914	16.862	59.435	1.983%	8.289%
7.0	1456.594	18.711	78.146	2.201%	10.899%
8.0	1362.094	20.173	98.318	2.373%	13.713%
9.0	1259.564	21.247	119.565	2.499%	16.676%
10.0	1147.739	21.785	141.351	2.562%	19.714%
11.0	1066.409	22.124	163.475	2.602%	22.800%
12.0	989.037	22.469	185.944	2.643%	25.934%
13.0	903.741	22.462	208.406	2.642%	29.067%
14.0	821.953	22.089	230.495	2.598%	32.148%
15.0	755.986	21.663	252.157	2.548%	35.169%
16.0	689.611	21.182	273.339	2.492%	38.123%
17.0	629.220	20.538	293.877	2.416%	40.988%
18.0	577.709	19.900	313.777	2.341%	43.763%
19.0	531.879	19.305	333.081	2.271%	46.455%
20.0	488.461	18.675	351.756	2.197%	49.060%
21.0	452.320	18.065	369.821	2.125%	51.580%
22.0	420.384	17.537	387.359	2.063%	54.026%
23.0	392.463	17.056	404.414	2.006%	56.404%
24.0	368.318	16.633	421.048	1.956%	58.724%
25.0	347.442	16.275	437.323	1.914%	60.994%
26.0	330.666	16.007	453.329	1.883%	63.227%
27.0	315.752	15.815	469.144	1.860%	65.432%
28.0	305.438	15.727	484.871	1.850%	67.626%
29.0	294.286	15.690	500.562	1.846%	69.814%
30.0	285.968	15.667	516.229	1.843%	71.999%
31.0	277.376	15.677	531.906	1.844%	74.186%
32.0	267.033	15.597	547.502	1.835%	76.361%
33.0	255.698	15.400	562.902	1.811%	78.509%
34.0	241.109	15.035	577.937	1.768%	80.606%
35.0	224.958	14.474	592.411	1.703%	82.625%
36.0	207.162	13.759	606.17	1.618%	84.544%
37.0	188.466	12.903	619.073	1.518%	86.343%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	167.280	11.874	630.948	1.397%	87.999%
39.0	146.327	10.704	641.652	1.259%	89.492%
40.0	126.563	9.517	651.169	1.119%	90.820%
41.0	106.988	8.317	659.486	.978%	91.980%
42.0	86.927	7.045	666.531	.829%	92.962%
43.0	69.511	5.795	672.326	.682%	93.771%
44.0	54.886	4.695	677.021	.552%	94.425%
45.0	41.716	3.713	680.734	.437%	94.943%
46.0	32.759	2.913	683.646	.343%	95.349%
47.0	27.162	2.383	686.029	.280%	95.682%
48.0	23.857	2.062	688.092	.243%	95.969%
49.0	21.670	1.870	689.961	.220%	96.230%
50.0	19.997	1.737	691.699	.204%	96.472%
51.0	18.105	1.612	693.311	.190%	96.697%
52.0	16.059	1.466	694.777	.172%	96.902%
53.0	12.741	1.253	696.03	.147%	97.077%
54.0	10.230	1.012	697.042	.119%	97.218%
55.0	8.916	0.855	697.897	.101%	97.337%
56.0	8.241	0.775	698.672	.091%	97.445%
57.0	7.727	0.730	699.402	.086%	97.547%
58.0	7.284	0.694	700.096	.082%	97.644%
59.0	6.877	0.662	700.758	.078%	97.736%
60.0	6.546	0.634	701.392	.075%	97.824%
61.0	6.265	0.611	702.004	.072%	97.910%
62.0	6.047	0.593	702.597	.070%	97.992%
63.0	5.857	0.579	703.176	.068%	98.073%
64.0	5.667	0.565	703.741	.067%	98.152%
65.0	5.520	0.554	704.295	.065%	98.229%
66.0	5.442	0.547	704.842	.064%	98.306%
67.0	5.421	0.546	705.388	.064%	98.382%
68.0	5.435	0.550	705.938	.065%	98.458%
69.0	5.470	0.556	706.495	.065%	98.536%
70.0	5.541	0.566	707.06	.067%	98.615%
71.0	5.667	0.579	707.639	.068%	98.696%
72.0	5.674	0.590	708.229	.069%	98.778%
73.0	5.681	0.594	708.823	.070%	98.861%
74.0	5.766	0.602	709.425	.071%	98.945%
75.0	5.745	0.608	710.033	.072%	99.030%

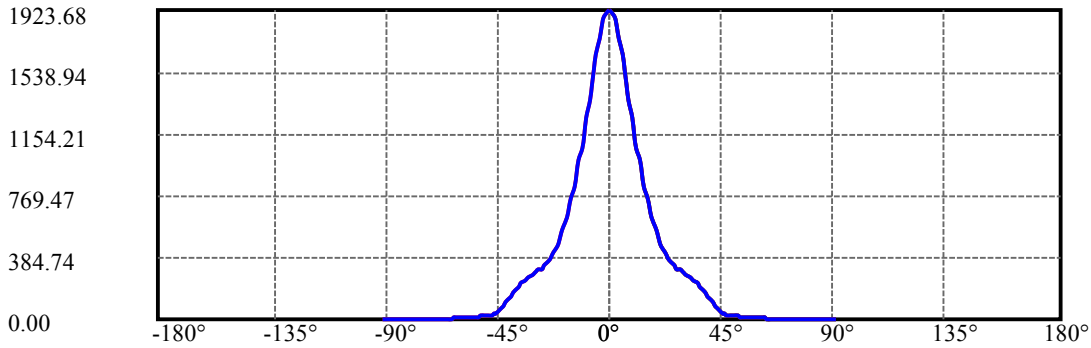
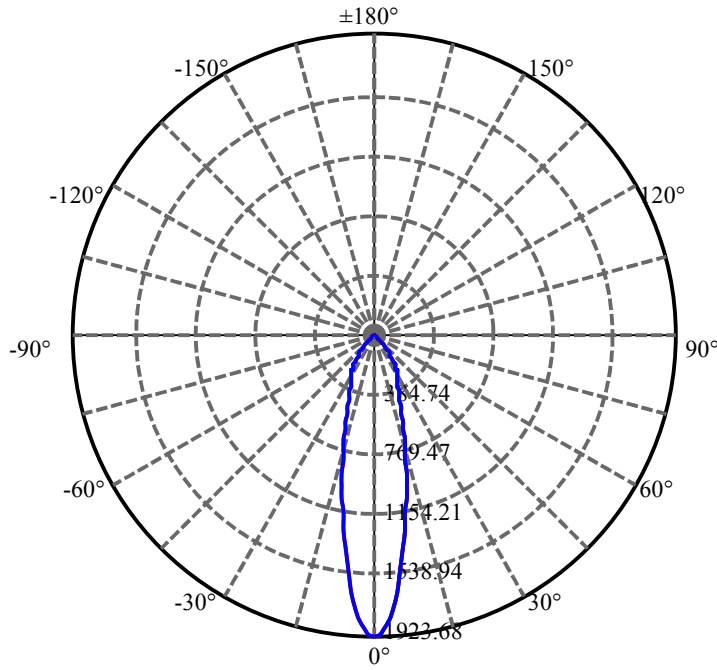
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.632	0.604	710.637	.071%	99.114%
77.0	5.520	0.595	711.231	.070%	99.197%
78.0	5.238	0.576	711.807	.068%	99.277%
79.0	4.795	0.539	712.346	.063%	99.352%
80.0	4.416	0.497	712.843	.058%	99.421%
81.0	4.282	0.470	713.313	.055%	99.487%
82.0	4.205	0.460	713.773	.054%	99.551%
83.0	4.163	0.455	714.228	.054%	99.615%
84.0	4.120	0.451	714.679	.053%	99.678%
85.0	4.071	0.447	715.127	.053%	99.740%
86.0	3.874	0.434	715.561	.051%	99.801%
87.0	3.255	0.390	715.951	.046%	99.855%
88.0	3.178	0.352	716.303	.041%	99.904%
89.0	3.136	0.346	716.65	.041%	99.952%
90.0	3.087	0.341	716.991	.040%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	516.23	60.72%	72.00%
0-40	651.17	76.59%	90.82%
0-60	701.39	82.50%	97.82%
0-90	716.65	84.29%	99.95%
0-120	716.65	84.29%	99.95%
0-180	716.99	84.33%	100.00%
60-90	15.89	1.87%	2.22%
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%
0-33.71	573.59	67.47%	80.00%

ZONAL LUMEN SUMMARY

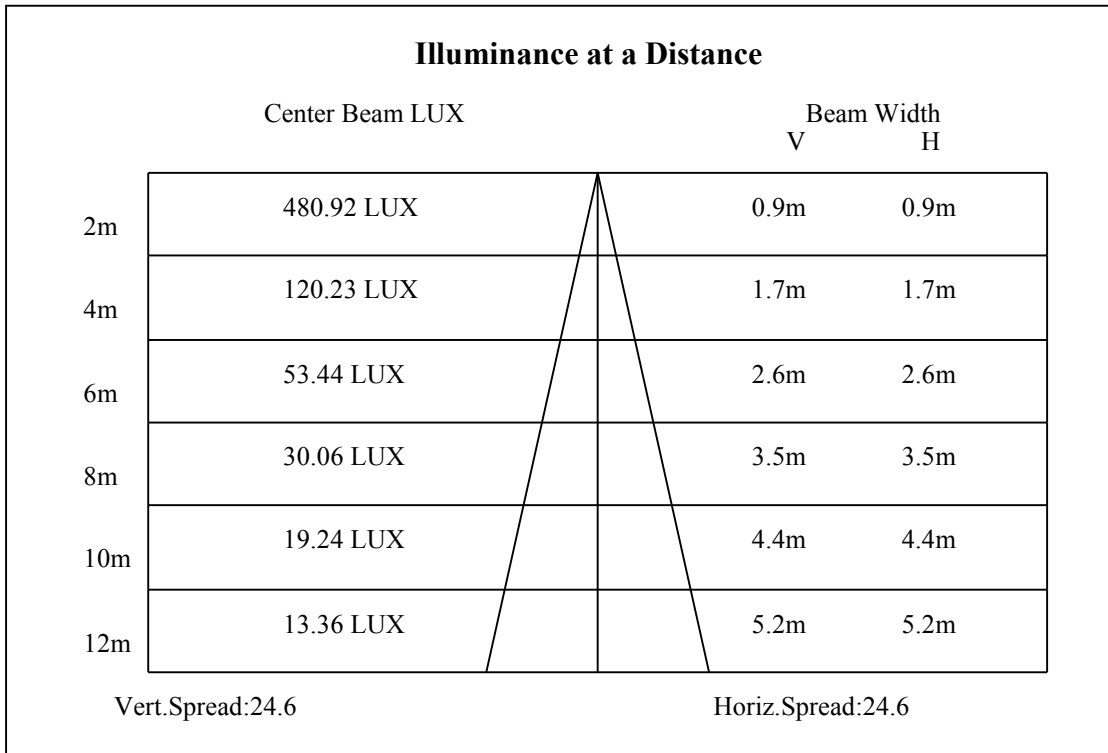
0-10	141.35
10-20	210.41
20-30	164.47
30-40	134.94
40-50	40.53
50-60	9.69
60-70	5.67
70-80	5.78
80-90	3.81
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

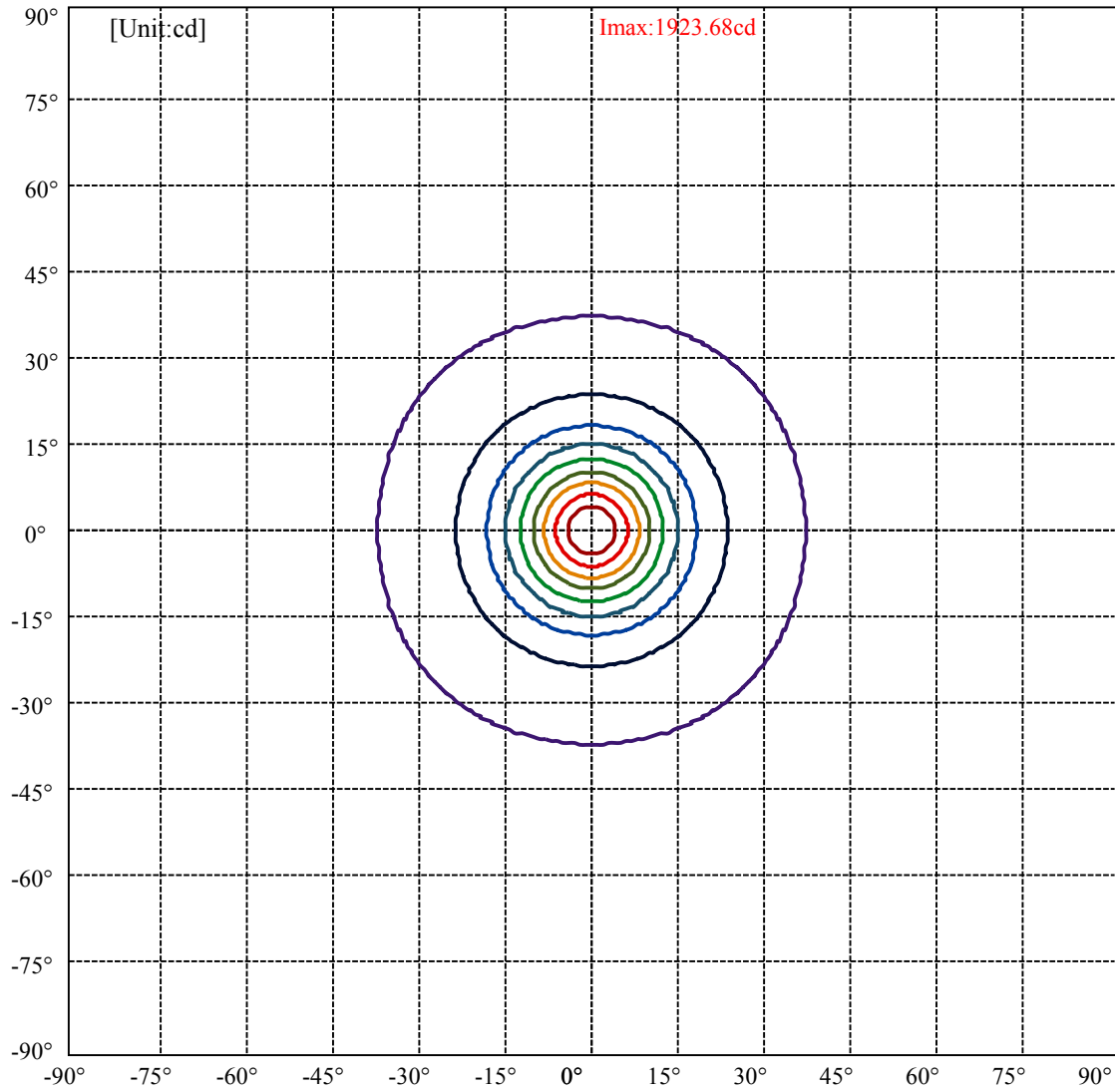


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:36.8 Right:36.8  
:C90/270Left:36.8 Right:36.8

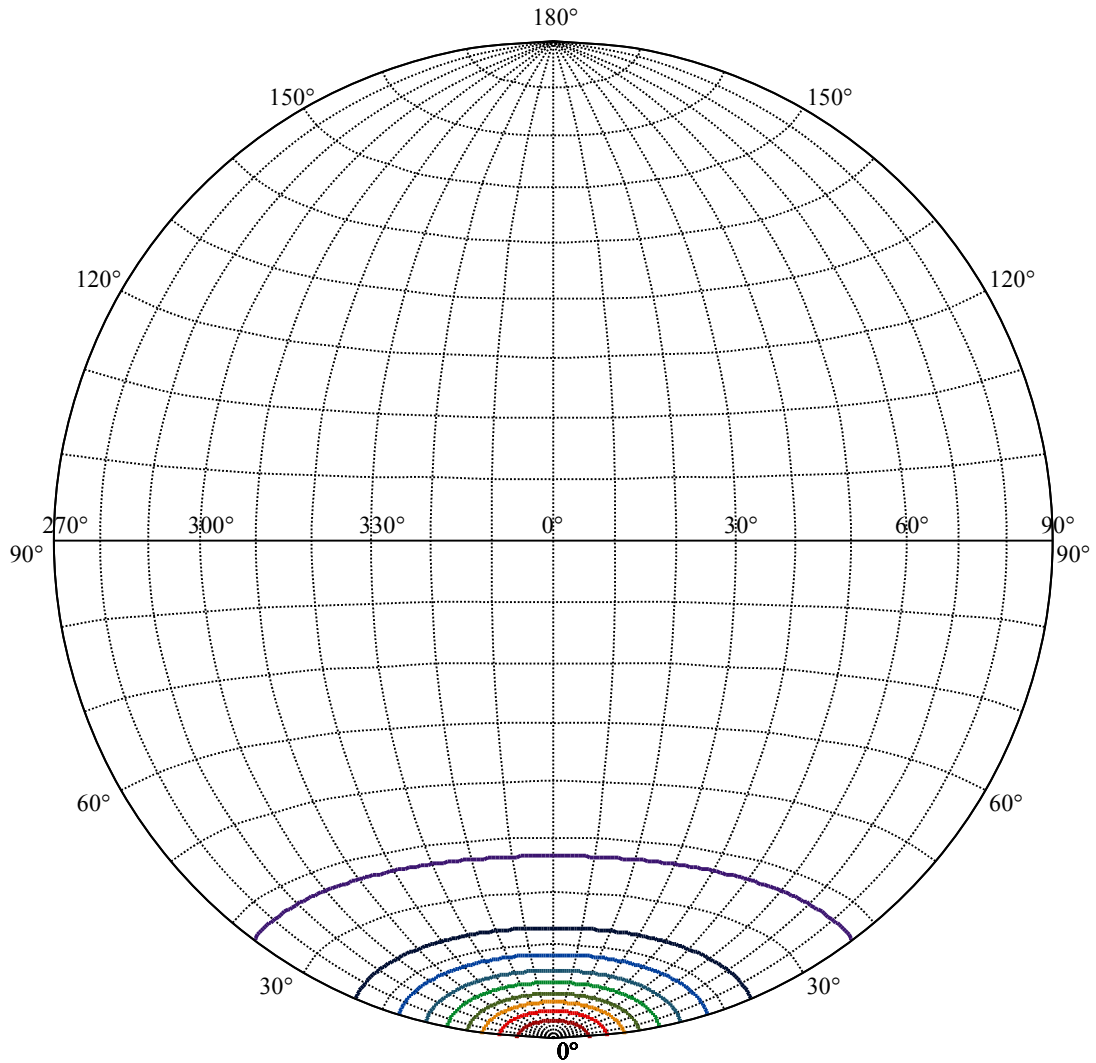
Beam Angle(50%Imax):C0/180Left:12.3 Right:12.3  
:C90/270Left:12.3 Right:12.3





(10%Imax) 192.368	—
(20%Imax) 384.736	—
(30%Imax) 577.104	—
(40%Imax) 769.472	—
(50%Imax) 961.84	—
(60%Imax) 1154.21	—
(70%Imax) 1346.58	—
(80%Imax) 1538.94	—
(90%Imax) 1731.31	—





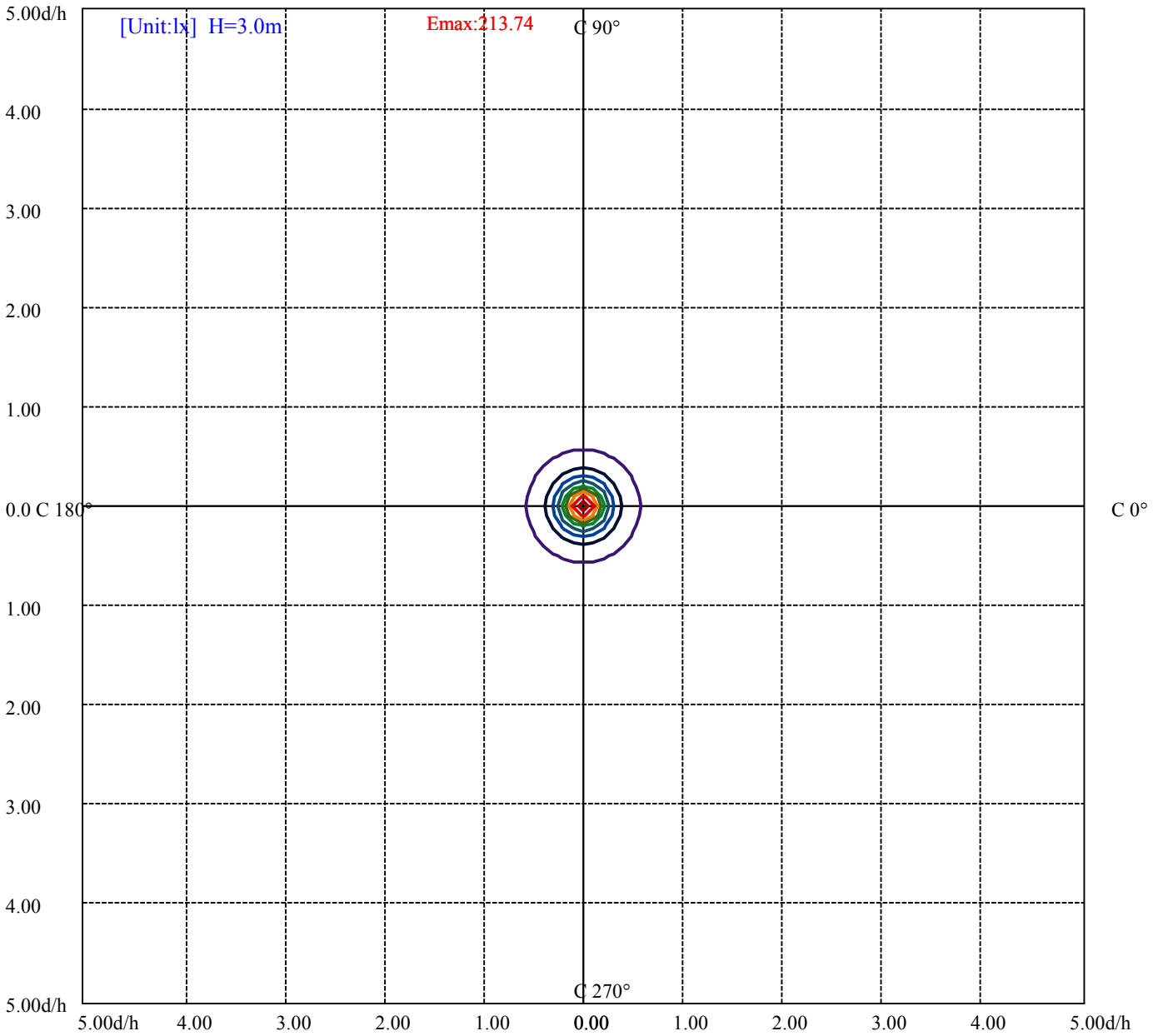
House

[Unit:cd]

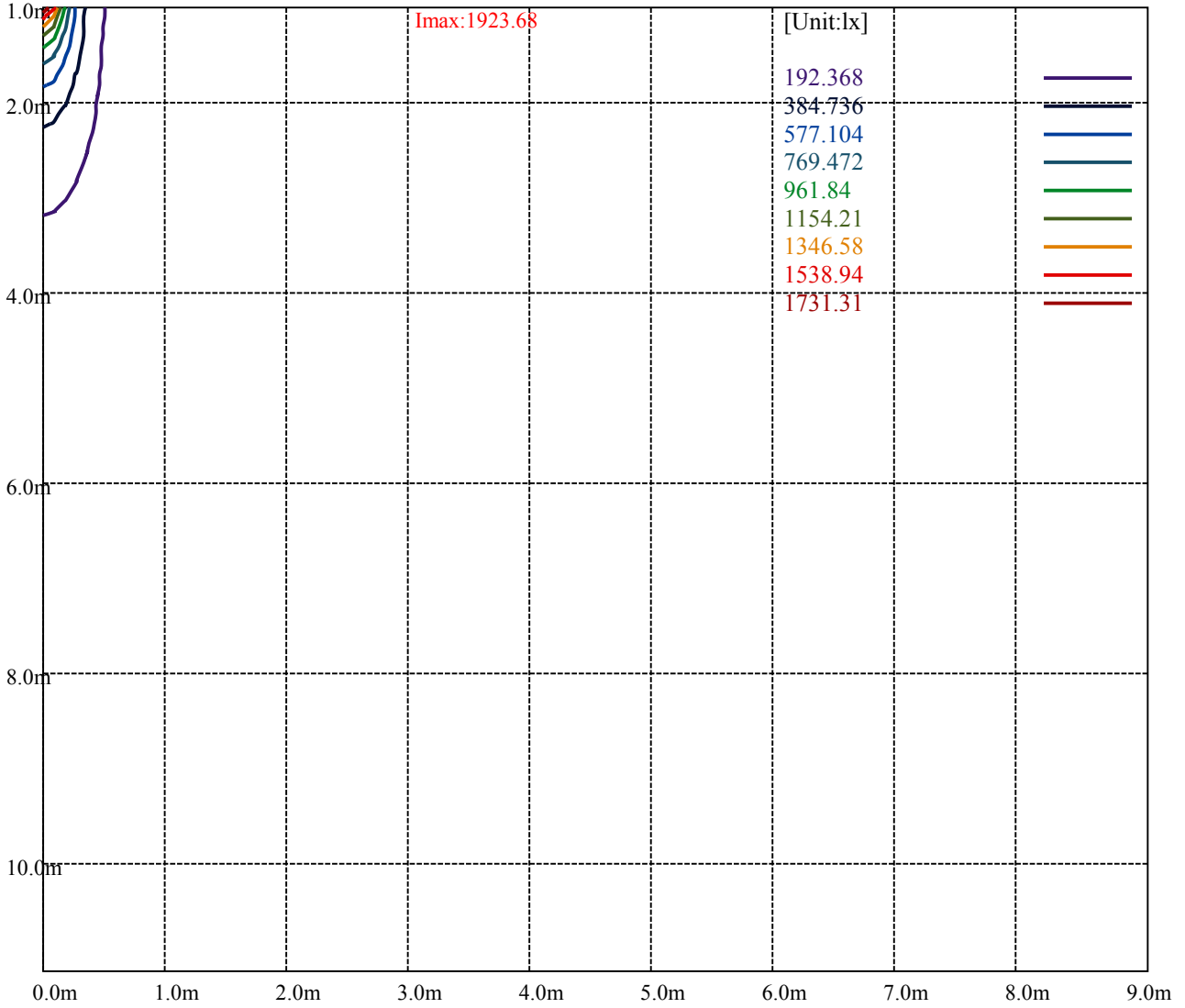
Road

Imax:1923.68

(10%Imax) 192.368	—
(20%Imax) 384.736	—
(30%Imax) 577.104	—
(40%Imax) 769.472	—
(50%Imax) 961.84	—
(60%Imax) 1154.21	—
(70%Imax) 1346.58	—
(80%Imax) 1538.94	—
(90%Imax) 1731.31	—



- (10%Emax) 21.37422 ———
- (20%Emax) 42.74844 ———
- (30%Emax) 64.12256 ———
- (40%Emax) 85.49678 ———
- (50%Emax) 106.871 ———
- (60%Emax) 128.2455 ———
- (70%Emax) 149.6189 ———
- (80%Emax) 170.9933 ———
- (90%Emax) 192.3678 ———



Luminance Table

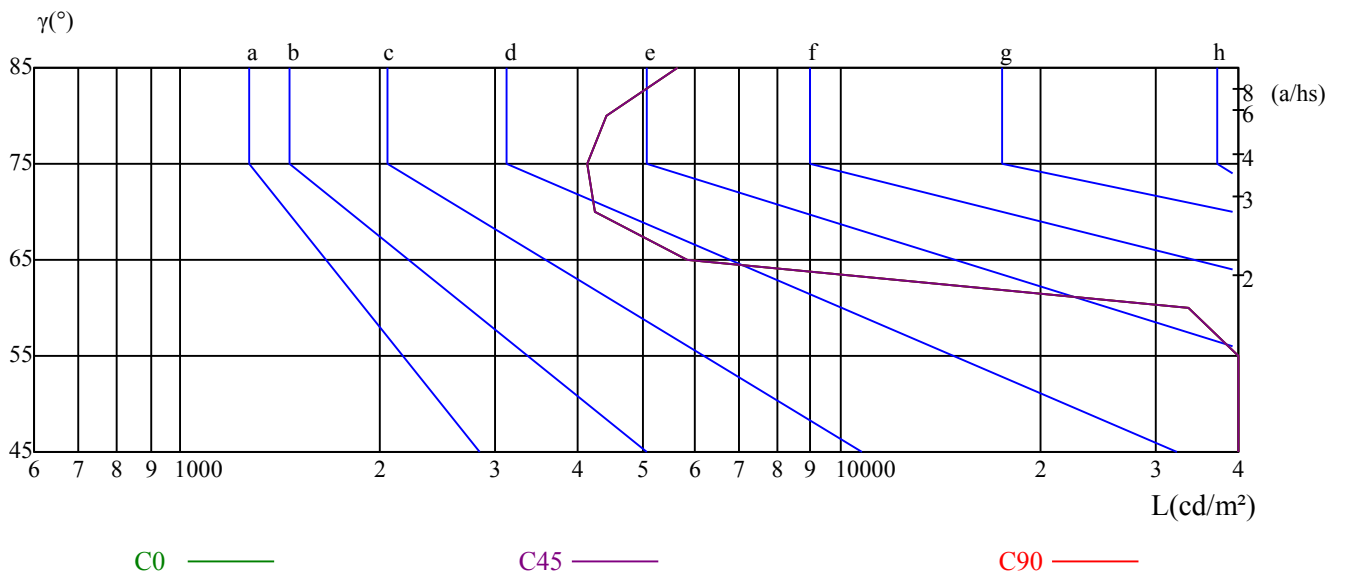
$\gamma$	45	50	55	60	65	70	75	80	85
C0	46650	52836	53885	33658	5848	4245	4131	4405	5640
C45	46650	52836	53885	33658	5848	4245	4131	4405	5640
C90	46650	52836	53885	33658	5848	4245	4131	4405	5640

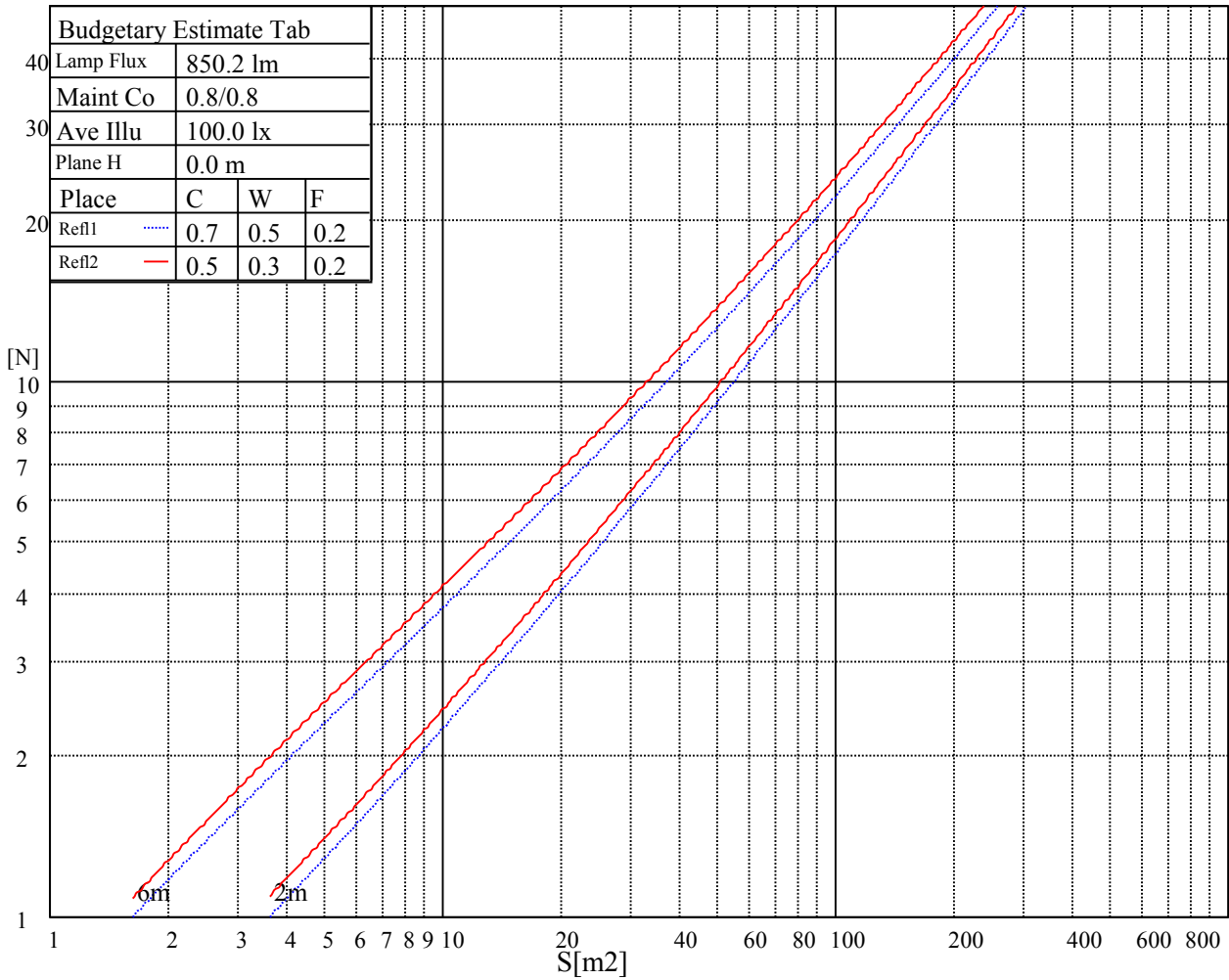
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5848	5848	5848	4131	4131	4131	5640	5640	5640

Glare Table

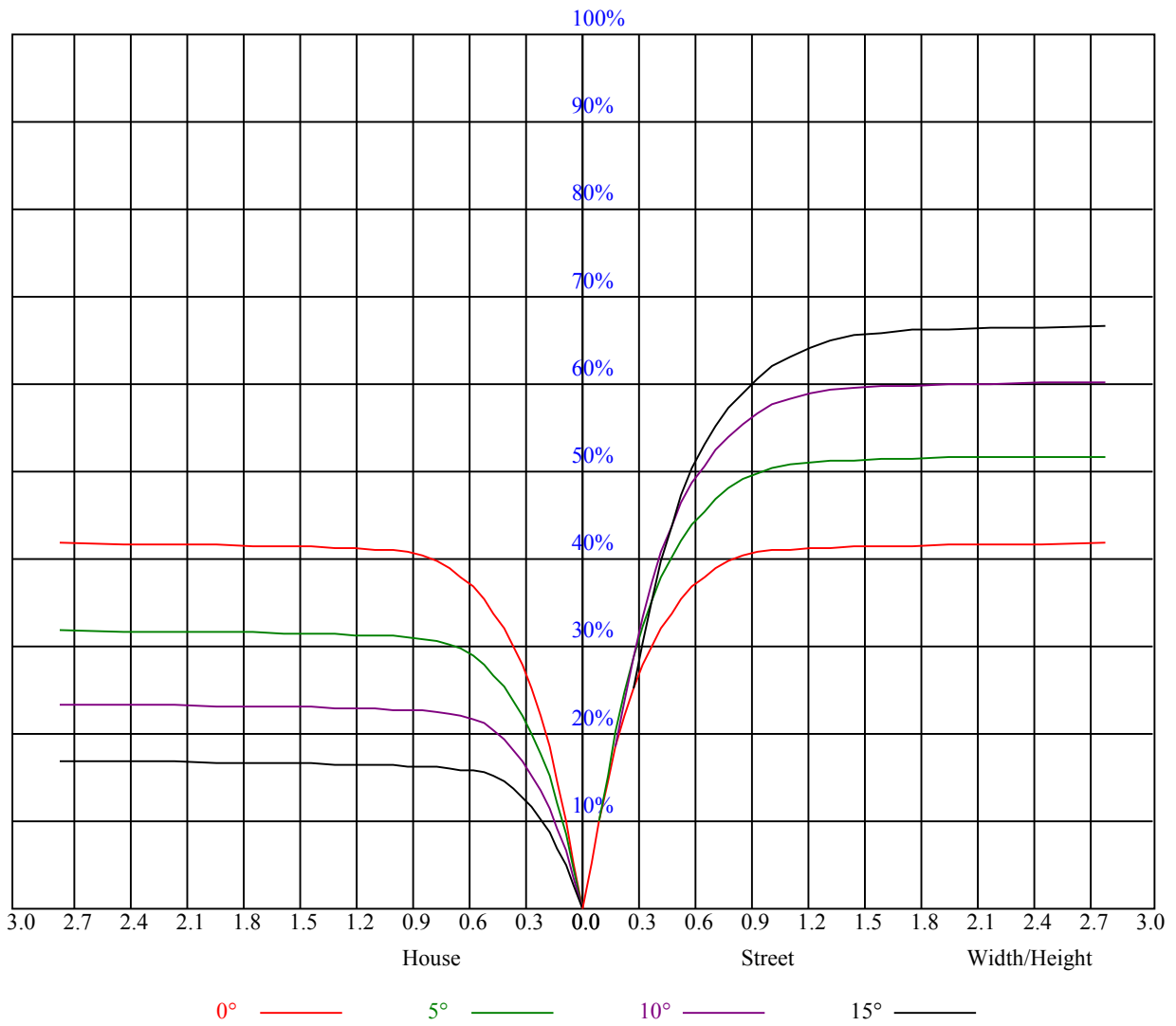
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

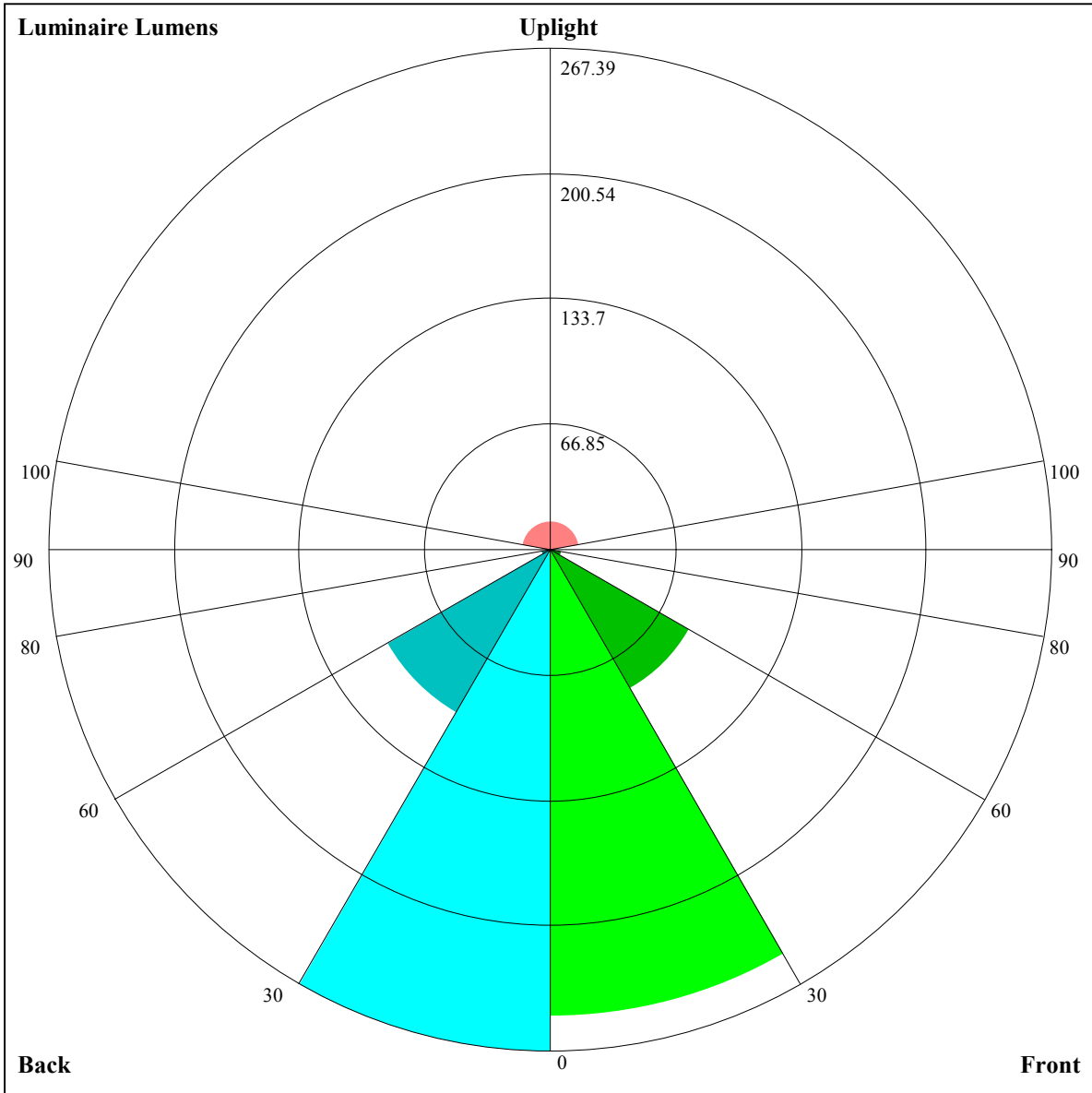
Luminance Limiting Curve





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	1.00	1.00	1.00	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.84
1	0.93	0.91	0.89	0.92	0.90	0.88	0.88	0.87	0.85	0.85	0.84	0.83	0.82	0.81	0.80	0.79
2	0.87	0.84	0.81	0.86	0.83	0.80	0.83	0.80	0.78	0.80	0.78	0.77	0.78	0.77	0.75	0.74
3	0.82	0.78	0.74	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.71	0.74	0.72	0.70	0.69
4	0.77	0.72	0.69	0.76	0.72	0.68	0.74	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.66	0.65
5	0.72	0.68	0.64	0.72	0.67	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.67	0.65	0.62	0.61
6	0.68	0.64	0.60	0.68	0.63	0.60	0.67	0.63	0.60	0.65	0.62	0.59	0.64	0.61	0.59	0.58
7	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.56	0.62	0.59	0.56	0.61	0.58	0.56	0.55
8	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.55	0.53	0.52
9	0.59	0.54	0.51	0.58	0.54	0.51	0.58	0.54	0.51	0.57	0.53	0.51	0.56	0.53	0.50	0.49
10	0.56	0.52	0.49	0.56	0.51	0.49	0.55	0.51	0.48	0.55	0.51	0.48	0.54	0.51	0.48	0.47





Luminaire Lumens:

FL=249.29,FM=85.61,FH=6.07,FVH=2.14

BL=267.39,BM=100.43,BH=5.11,BVH=1.98

UL=3.37,UH=16.03

BUG Rating:B1-U2-G0



NATA 1534-E

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	1923.19	1895.63	1839.38	1773.00	1680.19	1573.31	1475.44	1366.31	1269.00
45.0	1929.38	1916.44	1882.13	1809.00	1732.50	1648.13	1533.94	1436.06	1339.31
90.0	1928.25	1916.44	1881.56	1824.75	1757.25	1669.50	1581.19	1476.56	1371.94
135.0	1914.75	1928.25	1914.75	1882.69	1831.50	1751.06	1676.25	1593.56	1499.06
180.0	1921.50	1923.75	1904.63	1860.75	1793.25	1722.94	1645.31	1540.69	1454.06
225.0	1929.38	1914.19	1879.31	1826.44	1737.56	1665.56	1569.38	1459.69	1380.38
270.0	1928.25	1916.44	1870.31	1809.56	1735.88	1631.25	1537.88	1444.50	1352.81
315.0	1914.75	1878.19	1812.94	1733.06	1650.94	1544.06	1443.94	1335.38	1230.19
360.0	1923.19	1895.63	1839.38	1773.00	1680.19	1573.31	1475.44	1366.31	1269.00

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1162.13	1061.44	975.94	905.63	804.94	736.88	685.13	612.00	568.13
45.0	1234.13	1131.19	1041.19	948.94	873.56	794.25	723.38	667.13	612.56
90.0	1280.81	1112.57	1081.52	1000.35	924.24	834.30	764.94	700.59	636.86
135.0	1404.56	1317.94	1217.81	1132.88	1038.94	950.63	875.81	797.06	722.25
180.0	1366.88	1256.06	1122.41	1080.39	990.06	903.04	828.34	749.81	685.80
225.0	1277.44	1119.83	1087.71	1004.79	916.76	833.06	766.46	703.41	629.61
270.0	1238.06	1146.94	1062.00	973.13	887.06	816.19	743.63	675.56	622.13
315.0	1112.51	1035.96	942.69	866.19	794.36	707.29	660.21	611.33	556.43
360.0	1162.13	1061.44	975.94	905.63	804.94	736.88	685.13	612.00	568.13

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	533.81	486.56	448.88	423.00	388.13	360.00	341.44	317.25	299.81
45.0	563.63	522.00	487.13	446.06	415.13	389.81	361.69	342.00	325.69
90.0	579.32	534.04	489.66	451.97	422.16	393.47	371.03	351.45	334.69
135.0	660.38	606.38	548.44	505.69	466.31	429.19	401.63	378.56	357.19
180.0	619.14	561.66	517.56	474.02	436.84	407.42	383.74	356.85	339.53
225.0	578.98	534.09	485.27	450.96	420.53	390.38	363.66	343.91	326.31
270.0	570.38	530.44	490.50	453.94	425.81	404.44	375.75	358.31	344.25
315.0	516.04	479.87	440.27	412.93	388.18	365.01	347.63	331.20	317.87
360.0	533.81	486.56	448.88	423.00	388.13	360.00	341.44	317.25	299.81

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	287.44	284.06	266.12	258.69	247.56	234.34	219.71	199.69	184.05
45.0	308.81	295.88	284.06	273.49	267.92	254.14	239.79	225.34	207.68
90.0	321.19	310.44	299.03	291.83	285.41	278.72	270.23	256.95	241.43
135.0	339.19	325.13	313.88	305.44	295.31	288.00	284.06	273.54	262.41
180.0	323.10	308.98	296.27	287.44	278.83	271.07	264.38	256.05	245.42
225.0	308.93	298.46	289.01	281.53	273.32	267.24	259.82	248.29	230.40
270.0	327.94	318.94	311.63	302.06	295.31	286.88	268.43	249.58	231.58
315.0	309.43	301.61	294.30	287.27	275.34	255.88	239.18	219.43	196.71
360.0	287.44	284.06	266.12	258.69	247.56	234.34	219.71	199.69	184.05

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	166.16	146.98	127.46	110.59	92.14	76.89	59.96	47.19	37.01
45.0	188.44	169.82	151.59	128.25	110.53	91.01	73.35	57.49	45.34
90.0	222.53	203.34	181.29	158.06	136.69	114.19	93.60	74.93	56.98
135.0	248.01	232.54	211.61	190.74	171.00	152.21	123.58	104.51	87.30
180.0	230.51	212.40	195.08	175.11	154.01	135.62	117.00	94.56	77.96
225.0	216.06	198.62	174.43	155.93	136.07	115.43	95.46	77.91	60.81
270.0	210.88	190.18	165.88	141.86	120.66	100.24	77.29	59.57	44.33
315.0	174.71	153.84	130.89	110.08	91.41	70.31	55.18	39.94	29.36
360.0	166.16	146.98	127.46	110.59	92.14	76.89	59.96	47.19	37.01

NATA 1534-E

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	30.43	26.78	25.65	24.30	22.05	20.87	18.73	16.03	10.97
45.0	35.10	28.74	26.83	25.76	24.47	22.50	20.36	19.18	14.79
90.0	43.37	34.03	26.72	24.92	23.68	21.60	19.58	17.38	13.16
135.0	62.78	47.03	37.18	28.07	23.63	22.50	20.59	18.68	15.75
180.0	61.65	46.18	35.04	28.63	24.41	22.05	19.97	17.33	14.85
225.0	47.08	34.99	27.23	22.73	21.09	19.13	17.33	15.47	13.44
270.0	29.64	22.84	18.17	16.93	15.81	14.63	13.11	11.81	10.18
315.0	23.68	21.49	20.48	19.52	18.23	16.71	15.19	12.60	8.78
360.0	30.43	26.78	25.65	24.30	22.05	20.87	18.73	16.03	10.97
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.96	9.11	8.33	7.76	7.37	6.92	6.53	6.36	6.24
45.0	10.46	9.45	8.66	7.93	7.43	6.98	6.64	6.30	6.08
90.0	9.17	8.72	8.21	7.93	7.48	7.03	6.81	6.47	6.13
135.0	12.83	9.79	8.94	8.33	7.82	7.37	6.86	6.53	6.24
180.0	12.49	9.73	8.78	8.21	7.54	7.09	6.75	6.41	6.19
225.0	11.03	9.28	8.44	7.76	7.26	6.75	6.41	6.13	5.91
270.0	7.65	7.37	7.03	6.75	6.53	6.24	6.02	5.79	5.63
315.0	8.27	7.88	7.54	7.14	6.86	6.64	6.36	6.13	5.96
360.0	9.96	9.11	8.33	7.76	7.37	6.92	6.53	6.36	6.24
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.19	6.02	5.91	6.13	6.64	7.09	7.26	7.65	8.44
45.0	5.91	5.74	5.63	5.51	5.40	5.46	5.63	5.74	6.02
90.0	5.91	5.68	5.40	5.29	5.12	5.01	4.89	4.84	4.73
135.0	5.96	5.68	5.51	5.29	5.12	5.01	4.89	4.84	4.73
180.0	5.96	5.74	5.63	5.51	5.34	5.29	5.18	5.06	5.01
225.0	5.68	5.57	5.40	5.23	5.18	5.06	4.95	4.89	4.78
270.0	5.46	5.29	5.18	5.06	4.95	4.84	4.73	4.67	4.56
315.0	5.79	5.63	5.51	5.51	5.63	5.74	6.24	6.64	7.09
360.0	6.19	6.02	5.91	6.13	6.64	7.09	7.26	7.65	8.44
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.66	8.49	9.11	9.11	8.72	8.44	7.54	6.24	5.12
45.0	6.24	6.53	6.64	6.64	6.69	6.53	6.24	5.40	4.89
90.0	4.61	4.56	4.50	4.56	4.73	4.84	4.89	4.84	4.44
135.0	4.61	4.56	4.44	4.33	4.28	4.22	4.11	4.11	4.11
180.0	4.89	4.78	4.73	4.61	4.50	4.44	4.39	4.28	4.16
225.0	4.67	4.61	4.50	4.39	4.28	4.22	4.16	4.05	3.99
270.0	4.44	4.39	4.33	4.33	4.28	4.16	4.05	3.99	3.99
315.0	7.26	7.54	7.88	7.99	7.59	7.31	6.53	5.46	4.61
360.0	8.66	8.49	9.11	9.11	8.72	8.44	7.54	6.24	5.12
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.06	5.06	5.01	5.01	4.95	4.89	3.21	3.09	3.09
45.0	4.50	4.39	4.39	4.28	4.16	3.94	3.15	3.09	3.04
90.0	4.05	4.05	4.05	4.05	3.99	3.88	3.32	3.26	3.21
135.0	4.11	3.88	3.83	3.83	3.83	3.71	3.43	3.26	3.21
180.0	4.11	3.99	3.88	3.77	3.71	3.54	3.26	3.15	3.09
225.0	3.94	3.83	3.71	3.66	3.60	3.54	3.26	3.26	3.15
270.0	3.94	3.88	3.83	3.77	3.77	3.71	3.21	3.15	3.15
315.0	4.56	4.56	4.61	4.61	4.56	3.77	3.21	3.15	3.15
360.0	5.06	5.06	5.01	5.01	4.95	4.89	3.21	3.09	3.09

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>3.04</b>
<b>45.0</b>	<b>3.04</b>
<b>90.0</b>	<b>3.04</b>
<b>135.0</b>	<b>3.15</b>
<b>180.0</b>	<b>3.04</b>
<b>225.0</b>	<b>3.09</b>
<b>270.0</b>	<b>3.15</b>
<b>315.0</b>	<b>3.15</b>
<b>360.0</b>	<b>3.04</b>