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Nata

Client:

LumCAT: 1657-S

Luminaire: 92.70.124.00

Report No:

Voltage(V): 33.2400

Test No: GC2019082808

Current(A): 0.2970

LampCAT: XICATO XOB LES 9.8MM

Power (W): 9.8700

Lamp flux(lm): 902.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 47

Width(mm): 47

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 809.70, Efficiency(%): 89.77% , Luminous Efficacy(lm/W): 82.04

Central intensity(cd): 3024.563, Maximum intensity(cd): 3024.563

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=23.6

[C90/270]Total=23.6

Field angle(10%Imax): [C0/180]Total=56.8

[C90/270]Total=56.8

Maximum s/h(1/2): C0_180=0.40 C90_270=0.40

Maximum s/h(1/4): C0_180=0.41 C90_270=0.41

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.77%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.198%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3024.563	0.000	0	.000%	.000%
1.0	3007.828	2.886	2.886	.320%	.356%
2.0	2965.852	8.574	11.46	.951%	1.415%
3.0	2896.031	14.020	25.48	1.554%	3.147%
4.0	2801.320	19.071	44.551	2.114%	5.502%
5.0	2678.133	23.572	68.123	2.613%	8.413%
6.0	2541.727	27.432	95.555	3.041%	11.801%
7.0	2379.234	30.544	126.099	3.386%	15.574%
8.0	2207.320	32.825	158.924	3.639%	19.628%
9.0	2024.016	34.293	193.217	3.802%	23.863%
10.0	1835.761	34.930	228.147	3.872%	28.177%
11.0	1651.500	34.845	262.992	3.863%	32.480%
12.0	1478.454	34.215	297.206	3.793%	36.706%
13.0	1305.148	33.034	330.241	3.662%	40.786%
14.0	1137.516	31.266	361.507	3.466%	44.647%
15.0	988.418	29.186	390.692	3.236%	48.251%
16.0	874.969	27.304	417.996	3.027%	51.624%
17.0	757.406	25.420	443.417	2.818%	54.763%
18.0	664.720	23.448	466.864	2.600%	57.659%
19.0	590.456	21.838	488.702	2.421%	60.356%
20.0	520.320	20.330	509.032	2.254%	62.867%
21.0	468.176	18.981	528.013	2.104%	65.211%
22.0	428.674	18.023	546.036	1.998%	67.437%
23.0	395.592	17.295	563.331	1.917%	69.573%
24.0	369.591	16.730	580.061	1.855%	71.639%
25.0	350.438	16.372	596.433	1.815%	73.661%
26.0	334.976	16.179	612.612	1.794%	75.659%
27.0	320.702	16.041	628.653	1.778%	77.640%
28.0	307.723	15.910	644.564	1.764%	79.605%
29.0	294.054	15.744	660.308	1.745%	81.550%
30.0	280.737	15.519	675.827	1.721%	83.466%
31.0	262.399	15.115	690.942	1.676%	85.333%
32.0	239.379	14.375	705.317	1.594%	87.108%
33.0	216.232	13.422	718.74	1.488%	88.766%
34.0	192.255	12.362	731.102	1.371%	90.293%
35.0	164.805	11.089	742.191	1.229%	91.662%
36.0	134.360	9.525	751.716	1.056%	92.839%
37.0	109.603	7.957	759.673	.882%	93.821%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	83.988	6.462	766.135	.716%	94.619%
39.0	63.675	5.040	771.175	.559%	95.242%
40.0	47.777	3.887	775.062	.431%	95.722%
41.0	34.397	2.926	777.988	.324%	96.083%
42.0	24.209	2.129	780.117	.236%	96.346%
43.0	18.134	1.568	781.686	.174%	96.540%
44.0	14.660	1.238	782.924	.137%	96.693%
45.0	12.853	1.057	783.981	.117%	96.824%
46.0	11.686	0.960	784.941	.106%	96.942%
47.0	10.680	0.890	785.83	.099%	97.052%
48.0	9.956	0.834	786.664	.092%	97.155%
49.0	9.401	0.795	787.459	.088%	97.253%
50.0	8.993	0.767	788.226	.085%	97.348%
51.0	8.599	0.744	788.971	.083%	97.440%
52.0	8.248	0.723	789.693	.080%	97.529%
53.0	8.135	0.713	790.406	.079%	97.617%
54.0	7.882	0.706	791.112	.078%	97.704%
55.0	7.657	0.694	791.806	.077%	97.790%
56.0	7.601	0.689	792.495	.076%	97.875%
57.0	7.334	0.683	793.178	.076%	97.959%
58.0	6.982	0.662	793.84	.073%	98.041%
59.0	6.792	0.644	794.484	.071%	98.121%
60.0	6.490	0.627	795.111	.070%	98.198%
61.0	6.195	0.605	795.717	.067%	98.273%
62.0	6.019	0.589	796.305	.065%	98.346%
63.0	5.857	0.578	796.883	.064%	98.417%
64.0	5.709	0.568	797.45	.063%	98.487%
65.0	5.505	0.555	798.005	.062%	98.556%
66.0	5.203	0.534	798.54	.059%	98.622%
67.0	5.084	0.517	799.057	.057%	98.685%
68.0	4.999	0.511	799.568	.057%	98.749%
69.0	4.887	0.504	800.072	.056%	98.811%
70.0	4.802	0.498	800.57	.055%	98.872%
71.0	4.711	0.492	801.061	.055%	98.933%
72.0	4.648	0.487	801.548	.054%	98.993%
73.0	4.563	0.482	802.03	.053%	99.053%
74.0	4.500	0.476	802.506	.053%	99.111%
75.0	4.451	0.473	802.979	.052%	99.170%

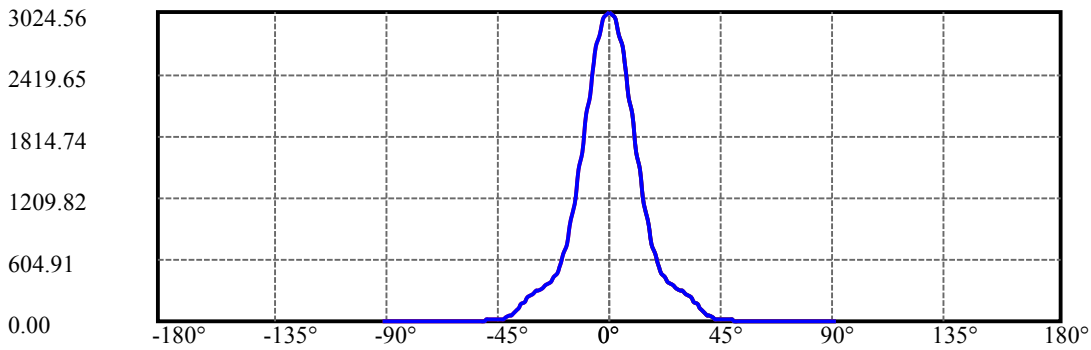
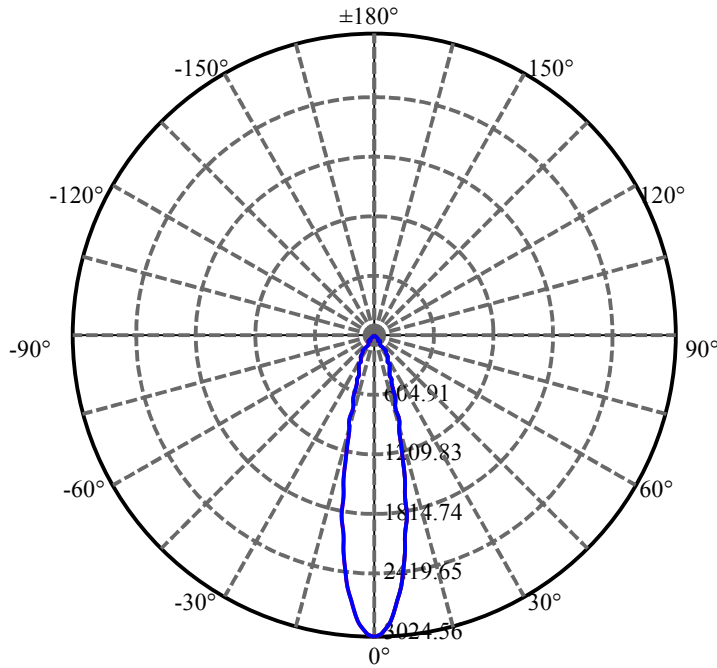
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.373	0.468	803.447	.052%	99.228%
77.0	4.331	0.464	803.912	.051%	99.285%
78.0	4.317	0.463	804.375	.051%	99.342%
79.0	4.261	0.461	804.835	.051%	99.399%
80.0	4.219	0.457	805.293	.051%	99.456%
81.0	4.198	0.455	805.748	.050%	99.512%
82.0	4.205	0.456	806.203	.051%	99.568%
83.0	4.226	0.458	806.662	.051%	99.625%
84.0	4.254	0.462	807.124	.051%	99.682%
85.0	4.261	0.465	807.588	.052%	99.739%
86.0	4.078	0.456	808.044	.051%	99.795%
87.0	3.825	0.433	808.477	.048%	99.849%
88.0	3.734	0.414	808.891	.046%	99.900%
89.0	3.691	0.407	809.298	.045%	99.950%
90.0	3.663	0.403	809.701	.045%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	675.83	74.93%	83.47%
0-40	775.06	85.93%	95.72%
0-60	795.11	88.15%	98.20%
0-90	809.30	89.72%	99.95%
0-120	809.30	89.72%	99.95%
0-180	809.70	89.77%	100.00%
60-90	14.81	1.64%	1.83%
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%
0-28.20	647.76	71.81%	80.00%

ZONAL LUMEN SUMMARY

0-10	228.15
10-20	280.89
20-30	166.79
30-40	99.23
40-50	13.16
50-60	6.89
60-70	5.46
70-80	4.72
80-90	4.01
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: —————

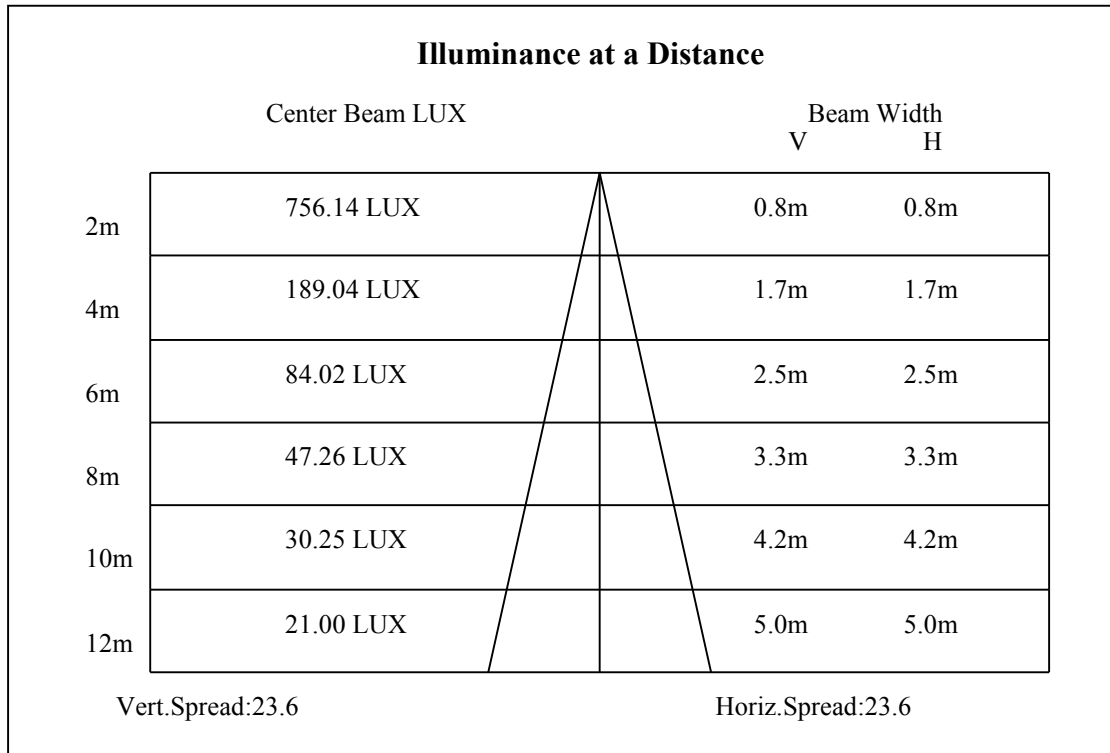
C90/C270: —————

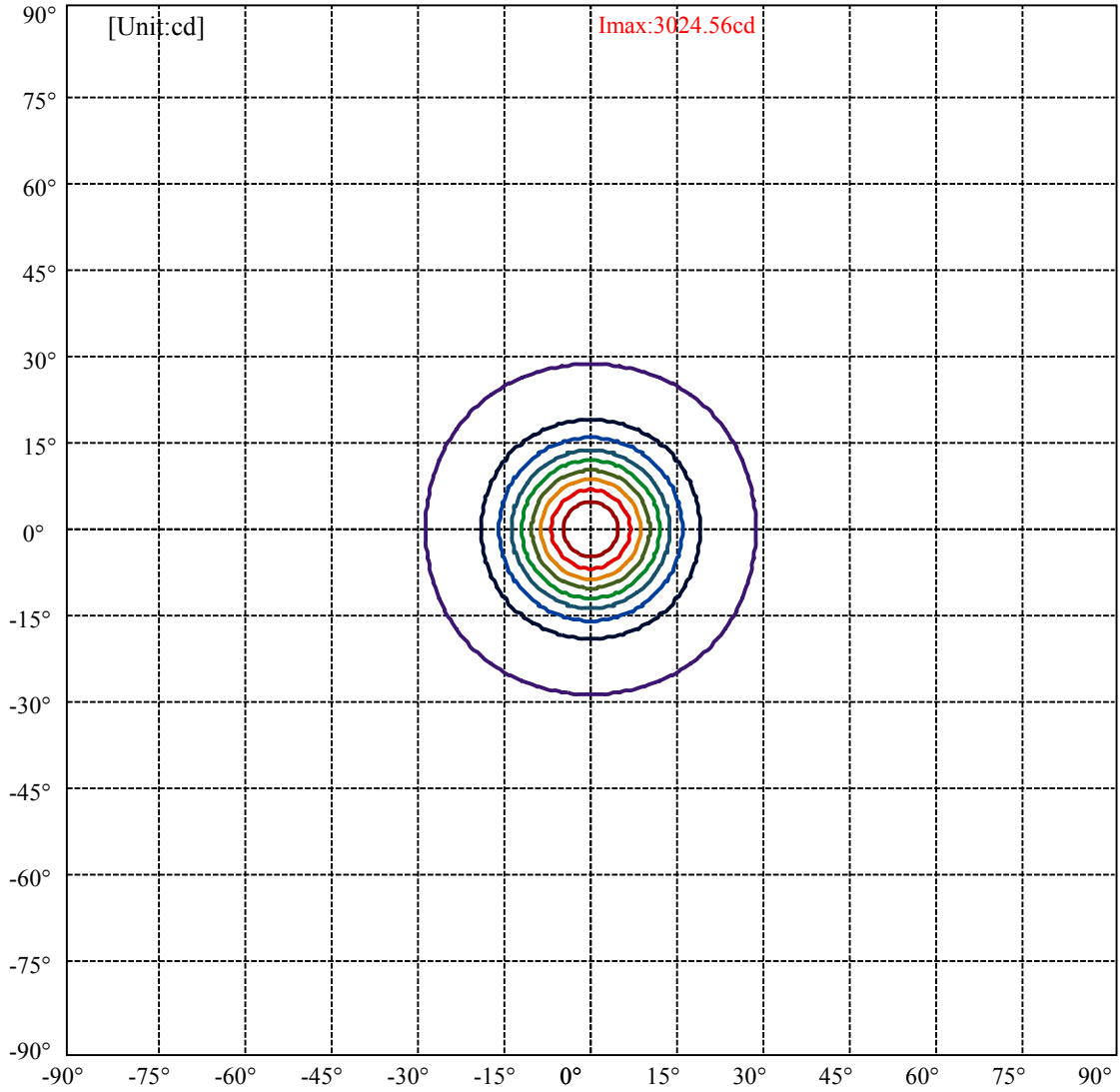
Field angle(10%Imax):C0/180Left:28.4 Right:28.4

:C90/270Left:28.4 Right:28.4

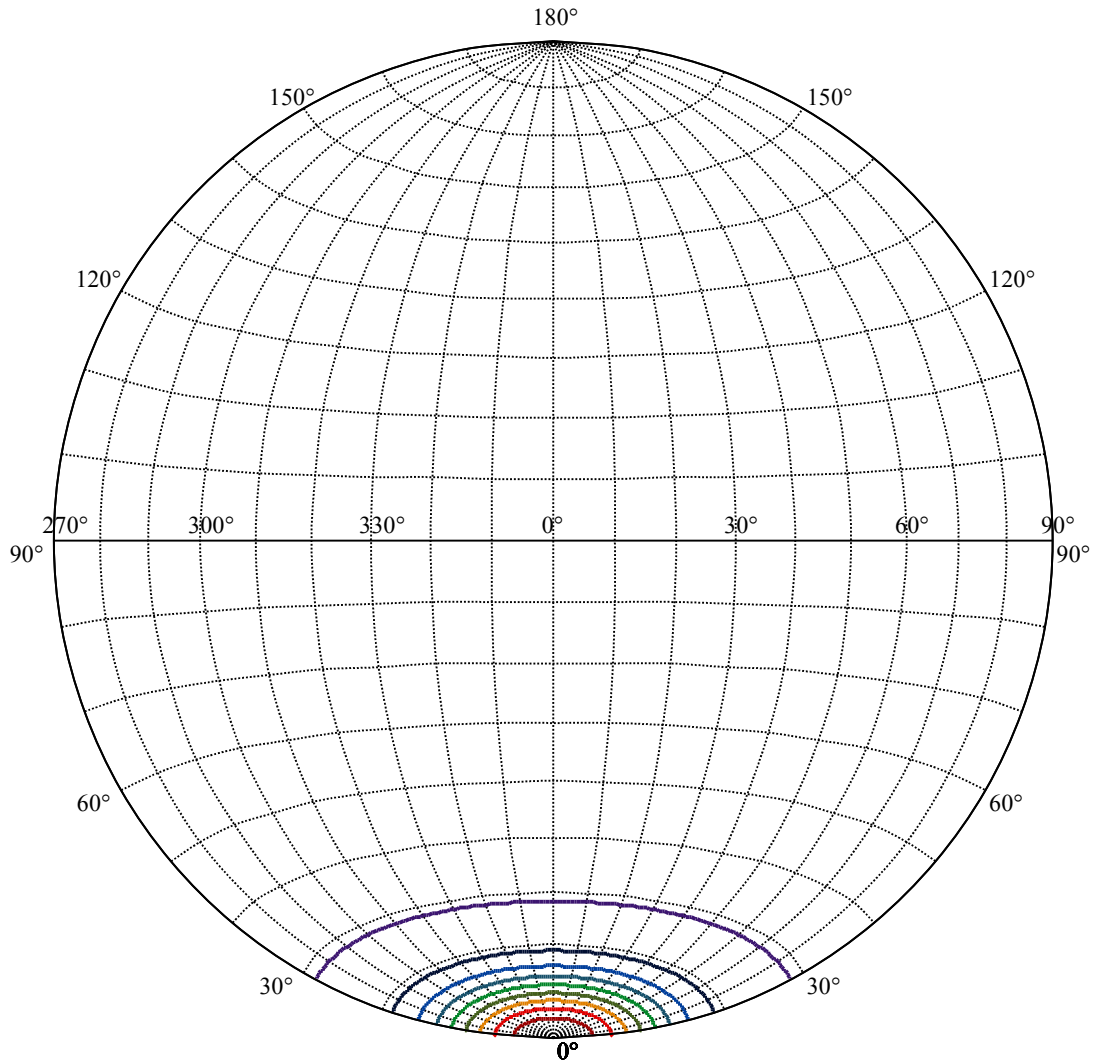
Beam Angle(50%Imax):C0/180Left:11.8 Right:11.8

:C90/270Left:11.8 Right:11.8





(10%Imax) 302.456	—
(20%Imax) 604.912	—
(30%Imax) 907.369	—
(40%Imax) 1209.82	—
(50%Imax) 1512.28	—
(60%Imax) 1814.74	—
(70%Imax) 2117.19	—
(80%Imax) 2419.65	—
(90%Imax) 2722.11	—



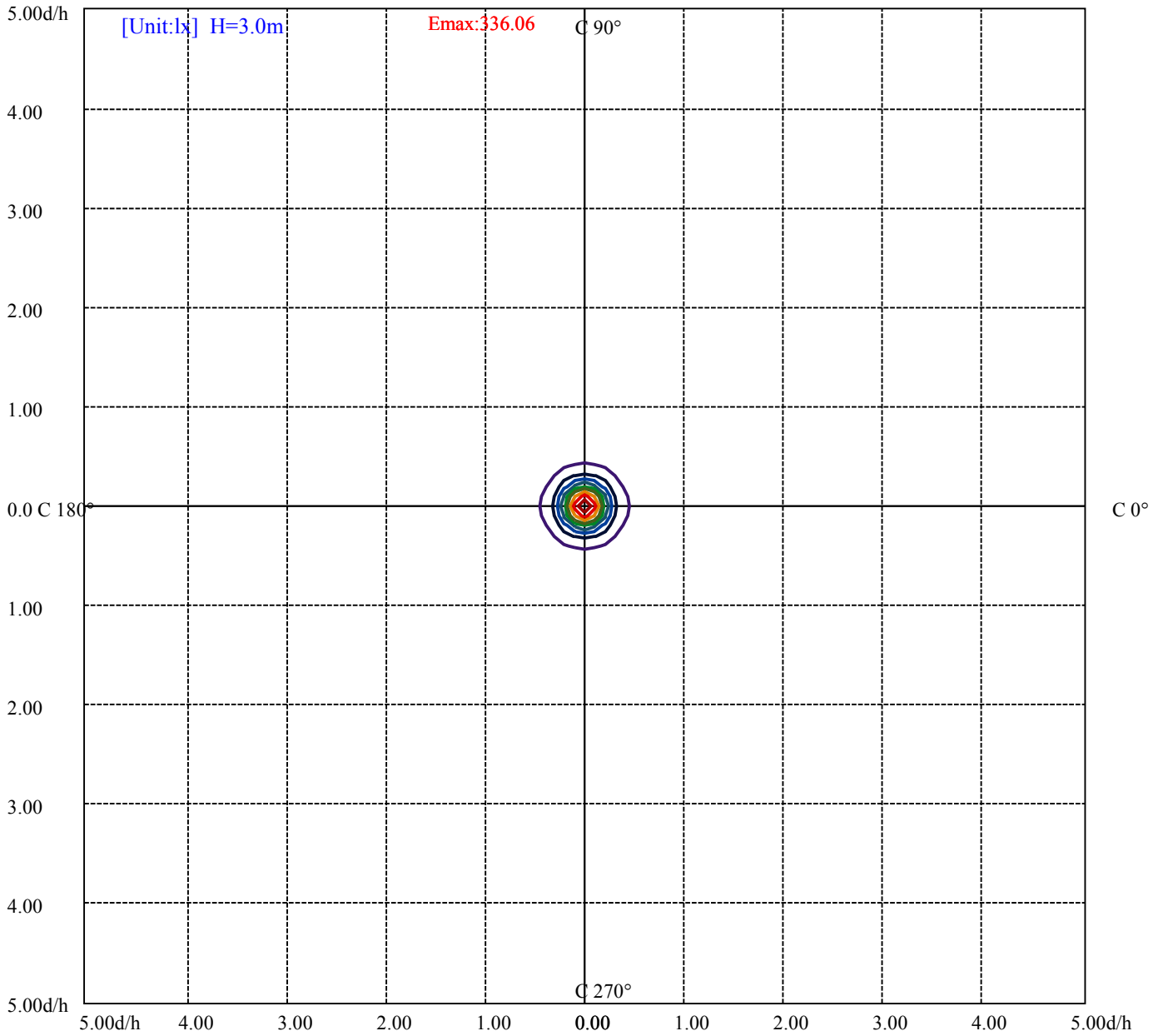
House

[Unit:cd]

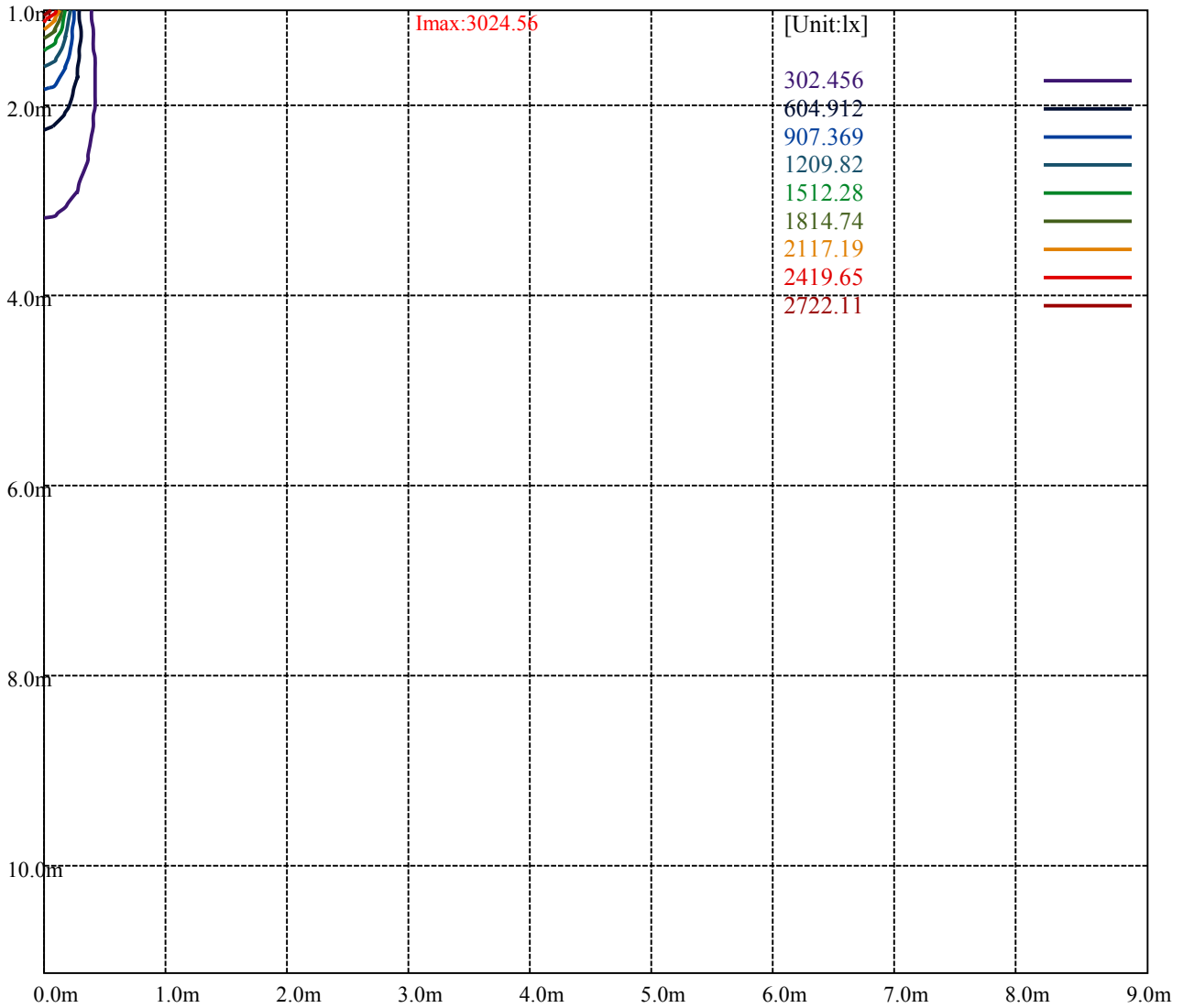
Road

Imax:3024.56

(10%Imax) 302.456	—
(20%Imax) 604.912	—
(30%Imax) 907.369	—
(40%Imax) 1209.82	—
(50%Imax) 1512.28	—
(60%Imax) 1814.74	—
(70%Imax) 2117.19	—
(80%Imax) 2419.65	—
(90%Imax) 2722.11	—



- (10%Emax) 33.60622
- (20%Emax) 67.21244
- (30%Emax) 100.8187
- (40%Emax) 134.4244
- (50%Emax) 168.0311
- (60%Emax) 201.6378
- (70%Emax) 235.2433
- (80%Emax) 268.85
- (90%Emax) 302.4556



Luminance Table

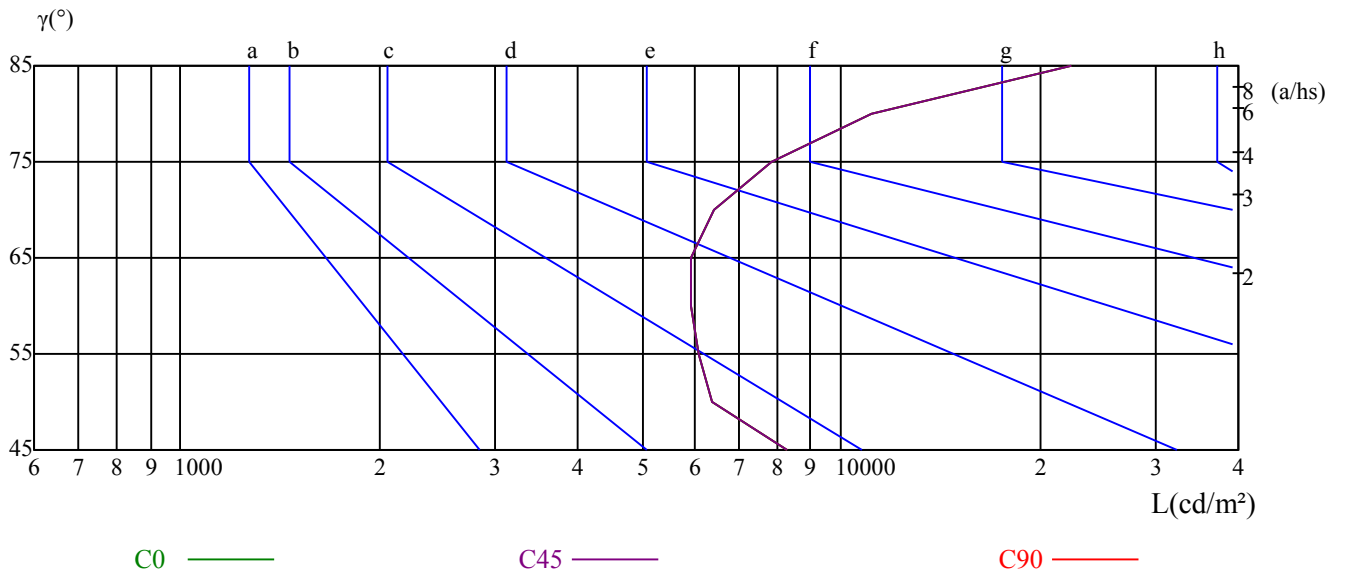
γ	45	50	55	60	65	70	75	80	85
C0	8299	6388	6095	5926	5948	6411	7851	11092	22321
C45	8299	6388	6095	5926	5948	6411	7851	11092	22321
C90	8299	6388	6095	5926	5948	6411	7851	11092	22321

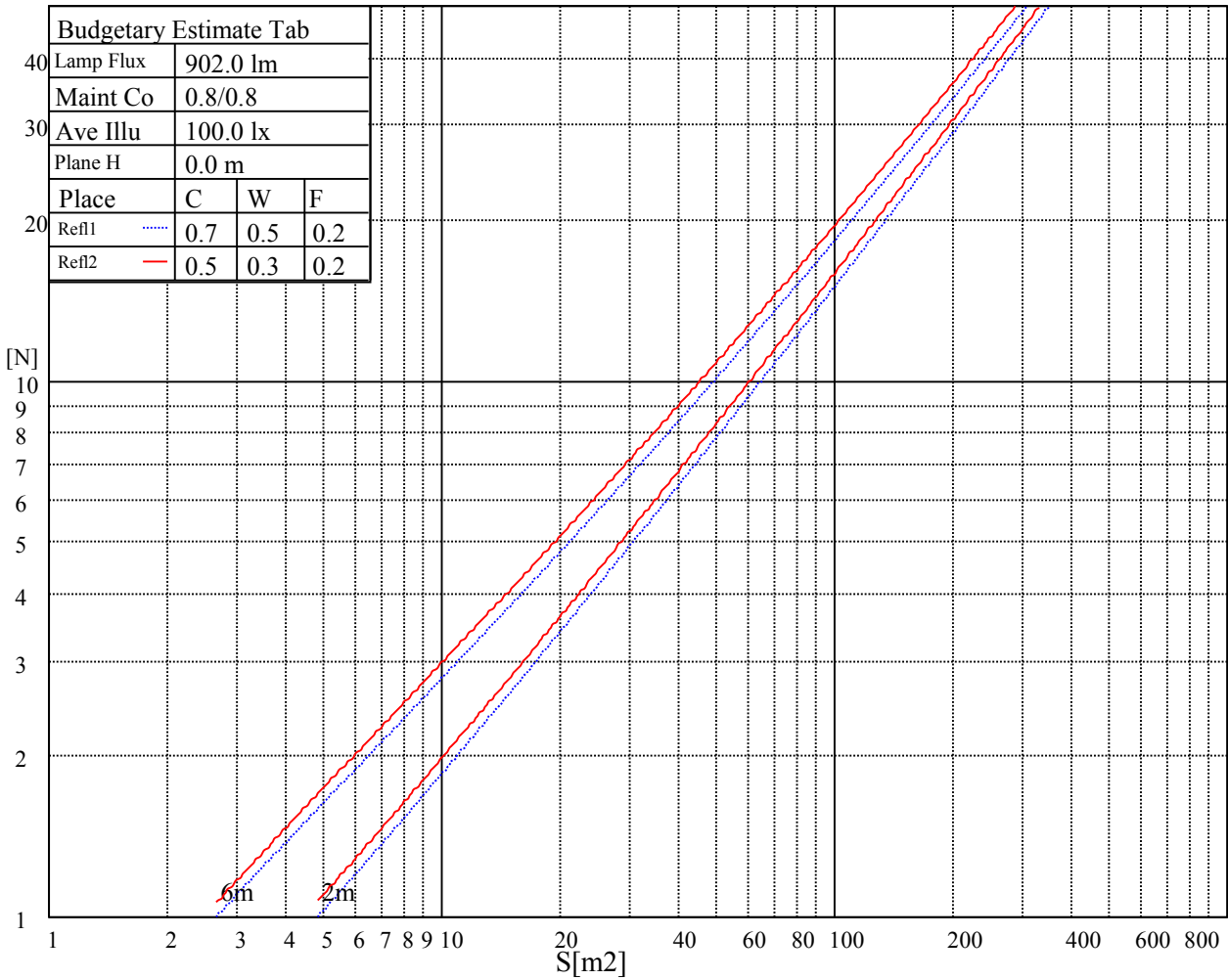
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5948	5948	5948	7851	7851	7851	22321	22321	22321

Glare Table

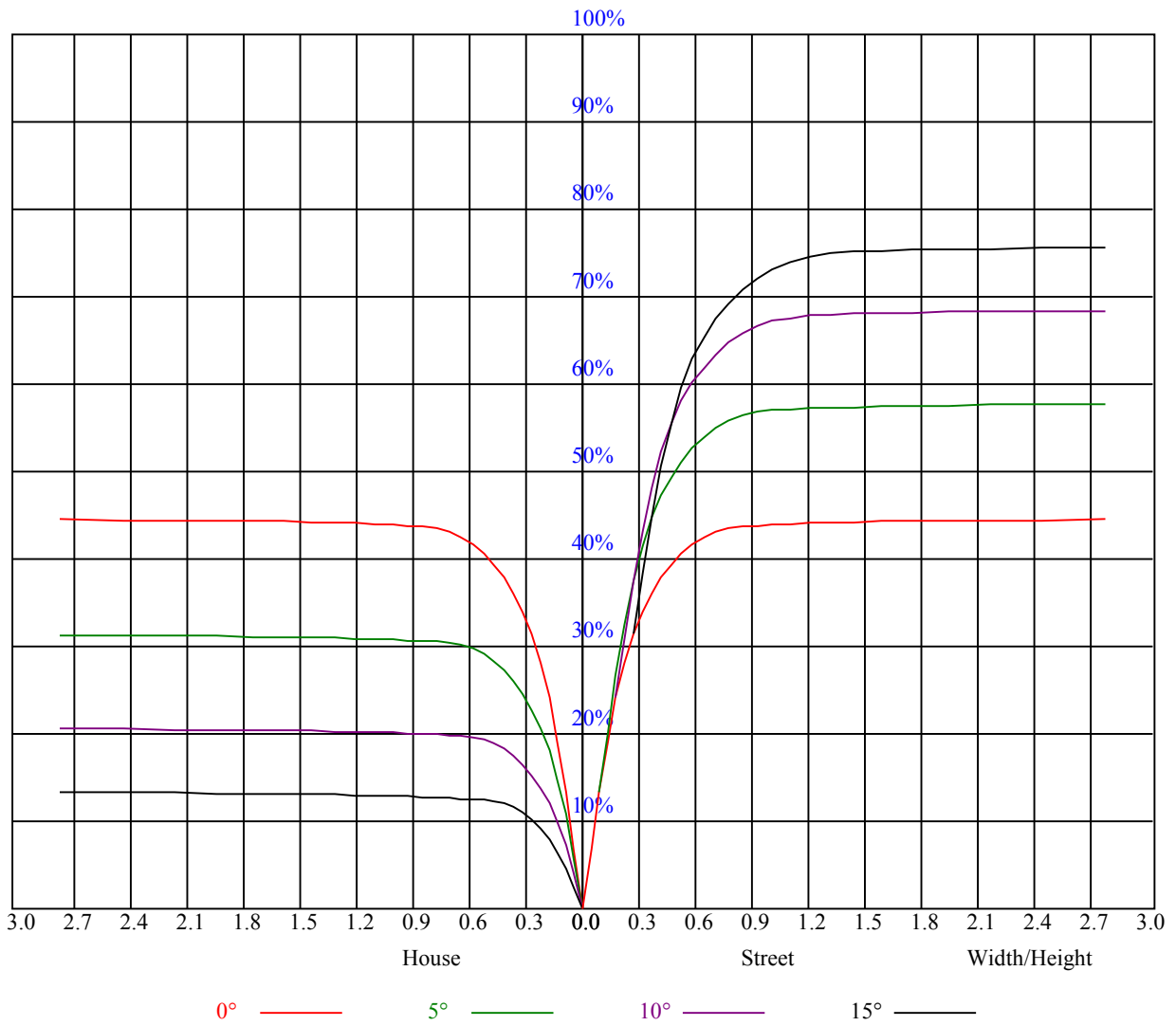
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

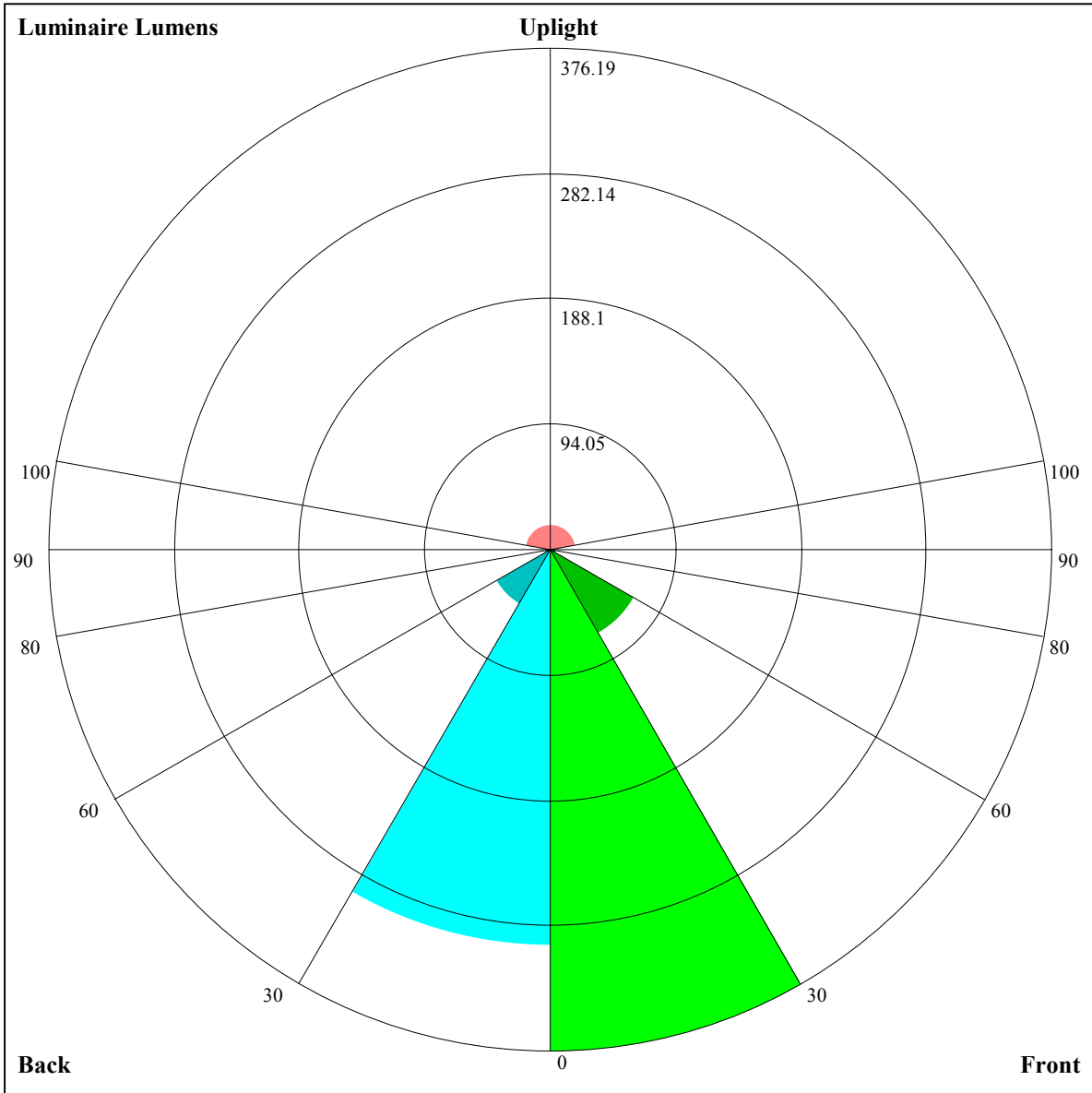
Luminance Limiting Curve





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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.92	0.92	0.92	0.90
1	1.00	0.98	0.96	0.98	0.96	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.71	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.71	0.69	0.73	0.71	0.69	0.67
7	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.62
9	0.69	0.65	0.62	0.68	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58





Luminaire Lumens:

FL=376.19,FM=72.72,FH=5.29,FVH=2.18

BL=297.29,BM=46.92,BH=4.82,BVH=2.21

UL=4,UH=19.02

BUG Rating:B1-U2-G0

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	3040.31	3102.19	3145.50	3149.44	3124.69	3056.06	2972.81	2887.88	2733.75
45.0	2976.19	3070.13	3151.69	3192.19	3200.06	3173.06	3103.31	3013.88	2905.31
90.0	3031.88	3076.31	3092.63	3076.31	3024.56	2957.63	2860.88	2700.56	2551.50
135.0	3049.88	3026.81	2974.50	2903.06	2804.63	2661.19	2522.25	2363.06	2169.00
180.0	3040.31	2950.88	2824.31	2666.81	2508.19	2314.69	2124.00	1903.50	1686.38
225.0	2976.19	2839.50	2695.50	2518.88	2322.00	2131.31	1938.94	1704.94	1522.69
270.0	3031.88	2964.38	2845.69	2733.75	2594.81	2422.13	2233.69	2053.13	1870.31
315.0	3049.88	3032.44	2997.00	2927.81	2831.63	2709.00	2577.94	2406.94	2219.63
360.0	3040.31	3102.19	3145.50	3149.44	3124.69	3056.06	2972.81	2887.88	2733.75
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2570.06	2431.13	2207.25	2014.31	1783.69	1572.75	1388.25	1224.56	1035.00
45.0	2739.38	2585.25	2408.63	2196.00	1975.50	1773.56	1554.19	1354.50	1193.06
90.0	2383.88	2179.69	1961.44	1768.50	1581.75	1360.13	1119.49	1048.44	886.89
135.0	1962.56	1773.00	1566.00	1391.06	1204.88	1040.63	908.44	785.81	682.31
180.0	1506.94	1311.75	1116.56	998.21	880.03	762.02	658.58	584.78	525.71
225.0	1350.56	1110.15	1004.63	881.61	759.71	659.87	582.47	518.40	462.04
270.0	1641.94	1466.44	1323.56	1132.31	976.50	840.38	736.31	646.88	554.06
315.0	2036.81	1828.69	1623.94	1445.63	1279.13	1090.80	959.63	836.38	720.17
360.0	2570.06	2431.13	2207.25	2014.31	1783.69	1572.75	1388.25	1224.56	1035.00
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	905.06	790.88	667.69	587.25	518.63	459.56	413.44	383.06	355.50
45.0	1029.94	896.63	765.00	663.19	583.31	518.63	456.75	419.63	391.50
90.0	775.69	680.29	591.53	522.79	473.74	430.54	401.18	373.84	353.19
135.0	605.25	542.81	481.50	443.81	411.75	380.81	361.69	346.50	334.13
180.0	463.61	425.81	395.94	368.27	351.11	338.85	327.60	318.66	310.56
225.0	416.76	381.83	356.96	334.97	317.76	305.49	295.09	284.46	274.11
270.0	495.56	448.31	406.13	375.75	356.63	341.44	330.19	322.88	318.38
315.0	625.89	557.10	497.81	449.38	416.48	389.42	370.80	354.49	342.45
360.0	905.06	790.88	667.69	587.25	518.63	459.56	413.44	383.06	355.50
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	336.38	322.88	312.19	304.88	298.13	291.38	284.06	275.46	246.32
45.0	362.81	346.50	334.13	324.00	315.00	308.25	300.38	291.94	285.19
90.0	338.63	325.46	314.94	306.45	299.31	289.24	275.06	253.74	223.82
135.0	321.19	313.31	303.75	293.06	285.19	252.68	218.48	185.34	158.40
180.0	301.56	286.88	267.02	238.16	208.97	170.10	138.09	107.33	74.81
225.0	260.89	237.88	214.59	188.44	160.76	125.89	99.17	74.81	51.36
270.0	311.06	304.31	291.94	285.75	240.98	212.46	176.74	140.91	109.63
315.0	333.11	324.56	313.88	305.16	290.87	265.05	237.88	208.52	168.92
360.0	336.38	322.88	312.19	304.88	298.13	291.38	284.06	275.46	246.32
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	218.81	190.63	152.66	123.13	95.74	67.89	45.28	31.11	24.41
45.0	250.76	225.11	192.15	157.16	125.44	94.05	59.68	38.81	25.93
90.0	190.91	159.98	124.09	90.39	62.78	37.46	22.22	15.13	12.71
135.0	119.14	89.78	63.23	36.06	21.32	14.23	11.64	9.68	7.99
180.0	47.53	29.08	18.00	14.06	12.26	10.46	9.00	8.55	8.38
225.0	33.92	24.30	19.69	16.93	14.91	13.16	12.32	11.87	11.25
270.0	76.67	51.47	30.99	21.26	18.90	16.88	14.34	12.94	12.43
315.0	137.14	106.48	71.10	50.40	30.88	21.04	19.18	16.99	14.18
360.0	218.81	190.63	152.66	123.13	95.74	67.89	45.28	31.11	24.41

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	21.26	18.56	15.86	14.34	13.44	12.66	11.93	11.31	10.58
45.0	20.25	17.66	15.30	13.28	11.98	11.53	11.08	10.52	11.93
90.0	10.63	8.72	7.76	7.48	7.20	6.92	6.69	6.53	6.41
135.0	6.92	6.58	6.47	6.19	6.02	5.91	5.74	5.63	5.51
180.0	8.10	7.88	7.65	7.48	7.26	7.09	6.92	6.75	6.64
225.0	10.74	10.35	9.79	9.39	9.00	8.55	8.16	7.76	7.43
270.0	11.98	11.42	10.86	10.35	9.79	9.28	8.83	8.44	8.04
315.0	12.94	12.32	11.76	11.14	10.52	10.01	9.45	9.06	8.55
360.0	21.26	18.56	15.86	14.34	13.44	12.66	11.93	11.31	10.58
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.96	9.51	8.94	8.55	8.16	7.71	7.31	6.98	6.69
45.0	11.98	11.81	13.56	12.99	11.59	11.42	10.35	9.28	8.94
90.0	6.30	6.13	5.96	5.85	5.74	5.63	5.51	5.40	5.29
135.0	5.46	5.40	5.29	5.18	5.18	5.12	5.01	5.01	4.89
180.0	6.47	6.30	6.08	5.91	5.74	5.63	5.51	5.34	5.29
225.0	7.09	6.86	6.53	6.36	6.08	5.91	5.74	5.57	5.40
270.0	7.59	7.37	6.98	6.64	6.47	6.24	6.02	5.85	5.68
315.0	8.21	7.88	7.48	7.20	6.92	6.69	6.47	6.13	5.96
360.0	9.96	9.51	8.94	8.55	8.16	7.71	7.31	6.98	6.69
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.41	6.19	5.96	5.79	5.57	5.46	5.29	5.12	5.01
45.0	8.72	8.38	7.65	5.96	5.74	5.57	5.46	5.29	5.18
90.0	5.18	5.12	5.01	4.95	4.89	4.84	4.73	4.73	4.61
135.0	4.84	4.84	4.78	4.73	4.67	4.67	4.56	4.56	4.50
180.0	5.18	5.06	5.01	4.95	4.89	4.84	4.78	4.73	4.67
225.0	5.29	5.18	5.01	4.95	4.84	4.78	4.67	4.61	4.50
270.0	5.51	5.34	5.23	5.06	4.95	4.84	4.78	4.67	4.56
315.0	5.74	5.57	5.40	5.23	5.12	5.01	4.84	4.73	4.67
360.0	6.41	6.19	5.96	5.79	5.57	5.46	5.29	5.12	5.01
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.89	4.78	4.67	4.56	4.44	4.39	4.33	4.28	4.22
45.0	5.12	4.95	4.89	4.84	4.73	4.61	4.56	4.56	4.50
90.0	4.61	4.50	4.50	4.44	4.39	4.33	4.33	4.28	4.22
135.0	4.44	4.44	4.39	4.33	4.28	4.22	4.16	4.16	4.11
180.0	4.61	4.56	4.56	4.50	4.44	4.44	4.33	4.39	4.33
225.0	4.44	4.39	4.33	4.33	4.22	4.28	4.56	4.22	4.22
270.0	4.44	4.39	4.28	4.28	4.22	4.16	4.11	4.05	4.05
315.0	4.61	4.50	4.39	4.33	4.28	4.22	4.16	4.16	4.11
360.0	4.89	4.78	4.67	4.56	4.44	4.39	4.33	4.28	4.22
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.11	4.11	4.05	3.99	3.94	3.94	3.88	3.83	3.77
45.0	4.44	4.39	4.33	4.28	4.22	4.16	4.11	3.99	3.94
90.0	4.16	4.11	4.11	4.05	3.99	3.88	3.83	3.77	3.71
135.0	4.11	4.05	4.05	4.05	4.16	4.28	3.71	3.66	3.60
180.0	4.39	4.56	4.73	4.89	5.01	4.22	3.60	3.60	3.60
225.0	4.33	4.39	4.56	4.61	4.56	3.94	3.66	3.66	3.66
270.0	3.99	3.99	3.99	4.16	4.22	4.28	3.83	3.66	3.60
315.0	4.05	4.05	3.99	3.99	3.99	3.94	3.99	3.71	3.66
360.0	4.11	4.11	4.05	3.99	3.94	3.94	3.88	3.83	3.77

Intensity data(cd)

C/γ(°)	90.0
0.0	3.71
45.0	3.88
90.0	3.71
135.0	3.54
180.0	3.60
225.0	3.66
270.0	3.60
315.0	3.60
360.0	3.71