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NATA

Client:

LumCAT: 1-0927-M

Luminaire: 92.70.124.00

Report No: nt0100

Test No: GC2019122303

LampCAT: LUMINUS CXM-9-AC40

Lamp flux(lm): 1036.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 33.6000

Current(A): 0.2970

Power (W): 9.9700

PF: 1.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 848.48, Efficiency(%): 81.90% , Luminous Efficacy(lm/W): 85.10

Central intensity(cd): 4088.953, Maximum intensity(cd): 4088.953

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=26.4

[C90/270]Total=26.4

Field angle(10%Imax): [C0/180]Total=42.6

[C90/270]Total=42.6

Maximum s/h(1/2): C0_180=0.45 C90_270=0.45

Maximum s/h(1/4): C0_180=0.43 C90_270=0.43

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 81.90%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.502%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4088.953	0.000	0	.000%	.000%
1.0	4077.563	3.908	3.908	.377%	.461%
2.0	4037.344	11.647	15.555	1.124%	1.833%
3.0	3971.602	19.155	34.71	1.849%	4.091%
4.0	3883.852	26.295	61.004	2.538%	7.190%
5.0	3760.031	32.884	93.888	3.174%	11.065%
6.0	3619.758	38.783	132.671	3.744%	15.636%
7.0	3450.234	43.883	176.554	4.236%	20.808%
8.0	3258.633	48.014	224.568	4.635%	26.467%
9.0	3049.594	51.125	275.693	4.935%	32.492%
10.0	2821.852	53.134	328.827	5.129%	38.755%
11.0	2585.039	54.026	382.853	5.215%	45.122%
12.0	2354.906	54.001	436.854	5.212%	51.486%
13.0	2102.484	52.898	489.752	5.106%	57.721%
14.0	1840.359	50.468	540.22	4.871%	63.669%
15.0	1612.195	47.398	587.618	4.575%	69.255%
16.0	1355.787	43.489	631.107	4.198%	74.381%
17.0	1148.667	39.001	670.108	3.765%	78.977%
18.0	938.665	34.416	704.524	3.322%	83.033%
19.0	779.583	29.894	734.418	2.886%	86.557%
20.0	600.630	25.262	759.68	2.438%	89.534%
21.0	445.380	20.086	779.765	1.939%	91.901%
22.0	338.885	15.760	795.525	1.521%	93.759%
23.0	213.940	11.600	807.125	1.120%	95.126%
24.0	134.086	7.609	814.734	.734%	96.022%
25.0	67.085	4.574	819.308	.442%	96.562%
26.0	33.216	2.368	821.676	.229%	96.841%
27.0	16.938	1.227	822.903	.118%	96.985%
28.0	11.911	0.730	823.633	.071%	97.071%
29.0	9.886	0.570	824.204	.055%	97.138%
30.0	8.782	0.504	824.708	.049%	97.198%
31.0	7.959	0.466	825.174	.045%	97.253%
32.0	7.235	0.435	825.609	.042%	97.304%
33.0	6.687	0.410	826.019	.040%	97.352%
34.0	6.244	0.391	826.41	.038%	97.399%
35.0	5.871	0.376	826.787	.036%	97.443%
36.0	5.555	0.364	827.15	.035%	97.486%
37.0	5.323	0.355	827.505	.034%	97.528%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	5.133	0.349	827.854	.034%	97.569%
39.0	4.957	0.344	828.199	.033%	97.609%
40.0	4.830	0.341	828.54	.033%	97.650%
41.0	4.718	0.340	828.88	.033%	97.690%
42.0	4.634	0.340	829.22	.033%	97.730%
43.0	4.563	0.341	829.56	.033%	97.770%
44.0	4.507	0.342	829.903	.033%	97.810%
45.0	4.458	0.345	830.247	.033%	97.851%
46.0	4.423	0.347	830.595	.034%	97.892%
47.0	4.373	0.350	830.944	.034%	97.933%
48.0	4.338	0.352	831.297	.034%	97.974%
49.0	4.324	0.356	831.652	.034%	98.016%
50.0	4.303	0.360	832.012	.035%	98.059%
51.0	4.261	0.362	832.374	.035%	98.101%
52.0	4.247	0.365	832.739	.035%	98.144%
53.0	4.226	0.369	833.108	.036%	98.188%
54.0	4.205	0.372	833.48	.036%	98.232%
55.0	4.191	0.375	833.854	.036%	98.276%
56.0	4.170	0.378	834.232	.036%	98.320%
57.0	4.170	0.381	834.613	.037%	98.365%
58.0	4.148	0.385	834.998	.037%	98.411%
59.0	4.134	0.387	835.385	.037%	98.456%
60.0	4.134	0.391	835.776	.038%	98.502%
61.0	4.113	0.394	836.169	.038%	98.549%
62.0	4.106	0.396	836.566	.038%	98.595%
63.0	4.099	0.399	836.965	.039%	98.642%
64.0	4.092	0.402	837.367	.039%	98.690%
65.0	4.078	0.404	837.771	.039%	98.737%
66.0	4.057	0.406	838.177	.039%	98.785%
67.0	4.064	0.408	838.585	.039%	98.833%
68.0	4.050	0.411	838.996	.040%	98.882%
69.0	4.057	0.414	839.41	.040%	98.931%
70.0	4.050	0.416	839.826	.040%	98.980%
71.0	4.043	0.418	840.244	.040%	99.029%
72.0	4.050	0.421	840.665	.041%	99.079%
73.0	4.050	0.424	841.089	.041%	99.129%
74.0	4.043	0.425	841.514	.041%	99.179%
75.0	4.036	0.427	841.941	.041%	99.229%

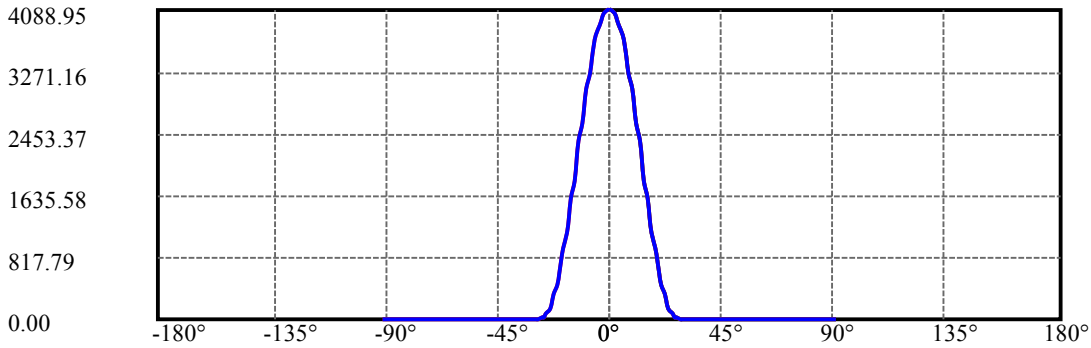
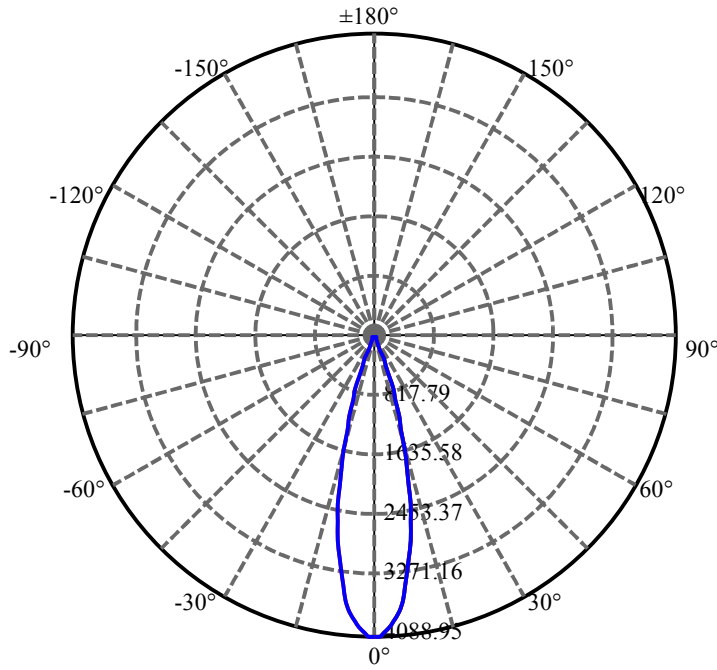
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.043	0.429	842.37	.041%	99.280%
77.0	4.036	0.431	842.801	.042%	99.330%
78.0	4.029	0.432	843.232	.042%	99.381%
79.0	4.036	0.433	843.666	.042%	99.432%
80.0	4.029	0.435	844.101	.042%	99.483%
81.0	4.029	0.436	844.536	.042%	99.535%
82.0	4.015	0.436	844.972	.042%	99.586%
83.0	4.036	0.438	845.41	.042%	99.638%
84.0	4.036	0.440	845.85	.042%	99.690%
85.0	4.029	0.440	846.29	.042%	99.742%
86.0	4.015	0.440	846.73	.042%	99.793%
87.0	4.015	0.439	847.169	.042%	99.845%
88.0	3.994	0.439	847.608	.042%	99.897%
89.0	3.994	0.438	848.046	.042%	99.948%
90.0	3.987	0.438	848.483	.042%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	824.71	79.60%	97.20%
0-40	828.54	79.97%	97.65%
0-60	835.78	80.67%	98.50%
0-90	848.05	81.86%	99.95%
0-120	848.05	81.86%	99.95%
0-180	848.48	81.90%	100.00%
60-90	12.66	1.22%	1.49%
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%
0-17.25	678.79	65.52%	80.00%

ZONAL LUMEN SUMMARY

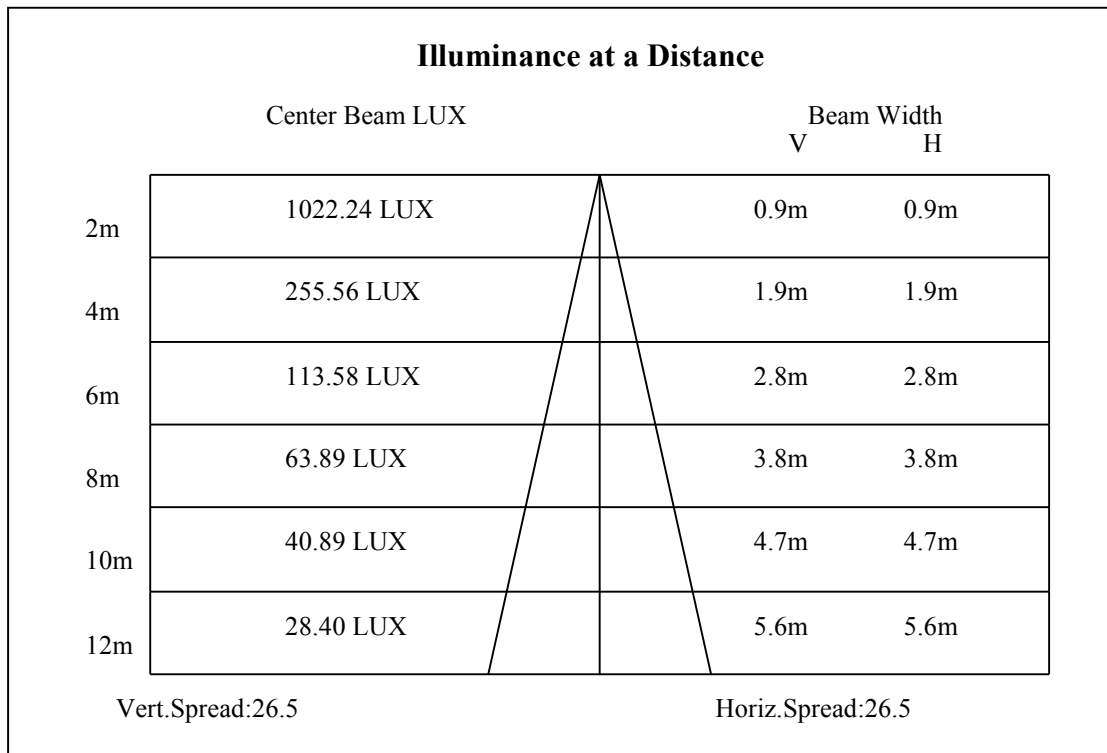
0-10	328.83
10-20	430.85
20-30	65.03
30-40	3.83
40-50	3.47
50-60	3.76
60-70	4.05
70-80	4.27
80-90	3.95
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

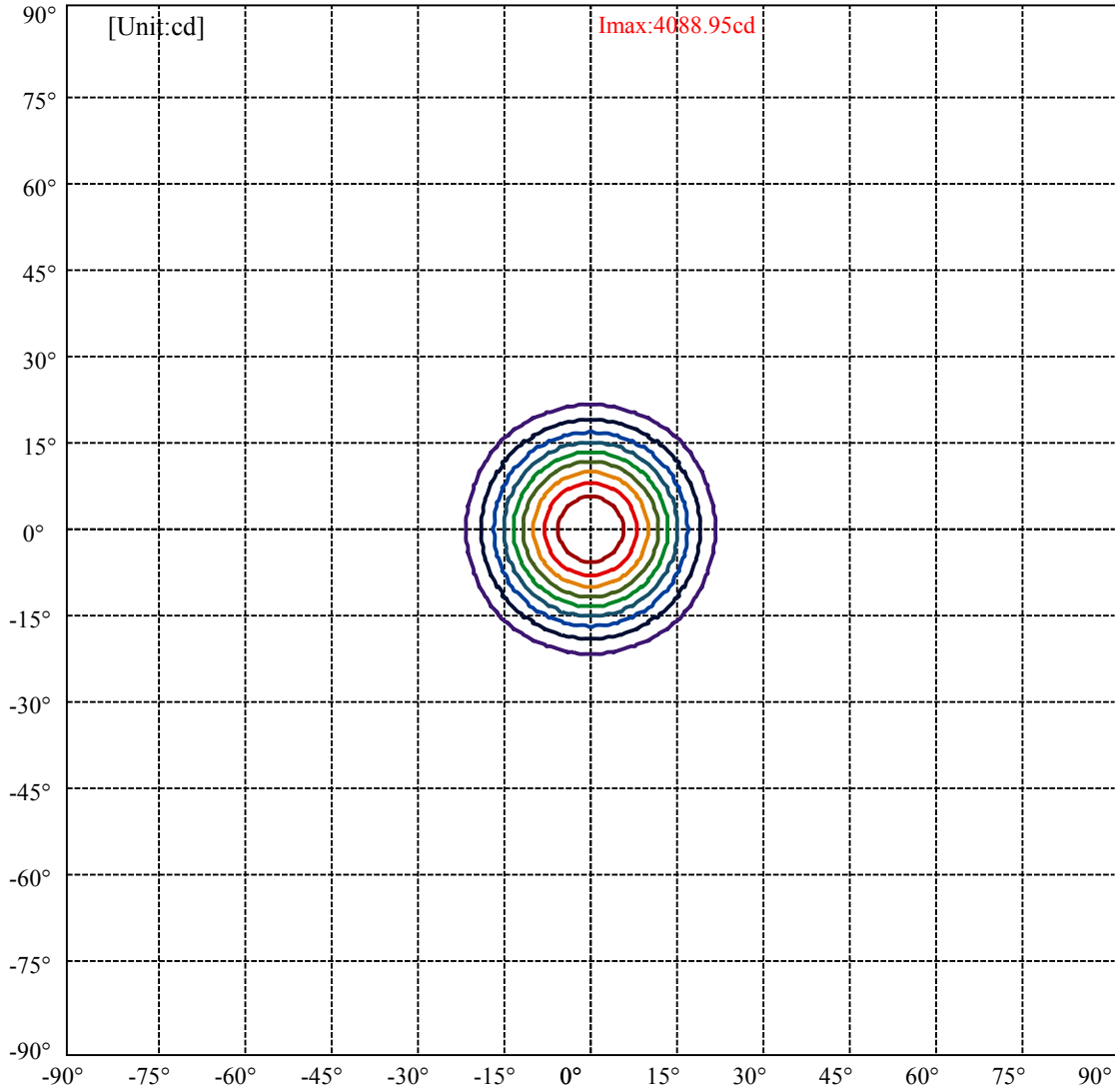


C0(Max): —————
C0/C180: —————
C90/C270: —————

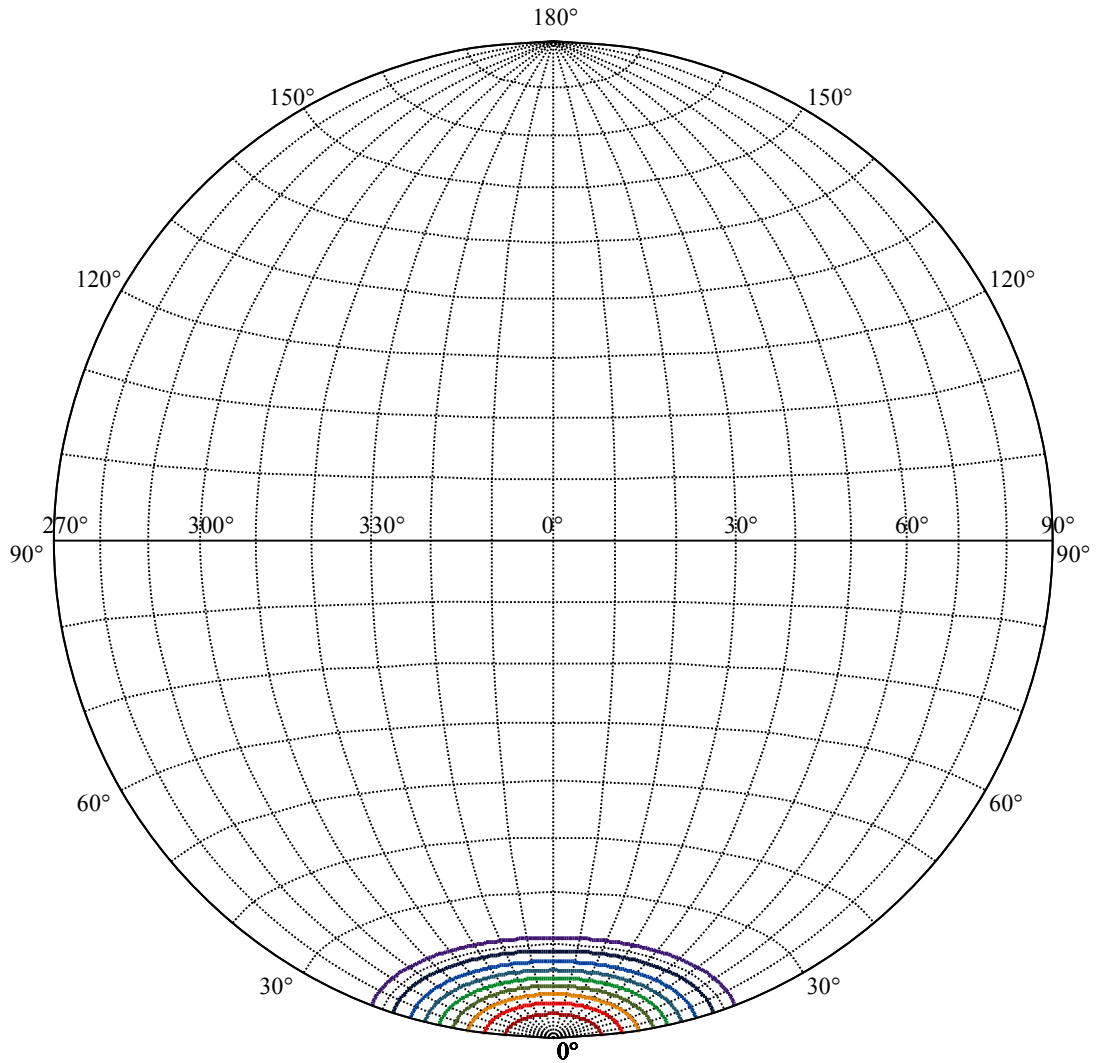
Field angle(10%Imax):C0/180Left:21.3 Right:21.3
:C90/270Left:21.3 Right:21.3

Beam Angle(50%Imax):C0/180Left:13.2 Right:13.2
:C90/270Left:13.2 Right:13.2





(10%Imax) 408.895	—
(20%Imax) 817.791	—
(30%Imax) 1226.69	—
(40%Imax) 1635.58	—
(50%Imax) 2044.48	—
(60%Imax) 2453.37	—
(70%Imax) 2862.27	—
(80%Imax) 3271.16	—
(90%Imax) 3680.06	—



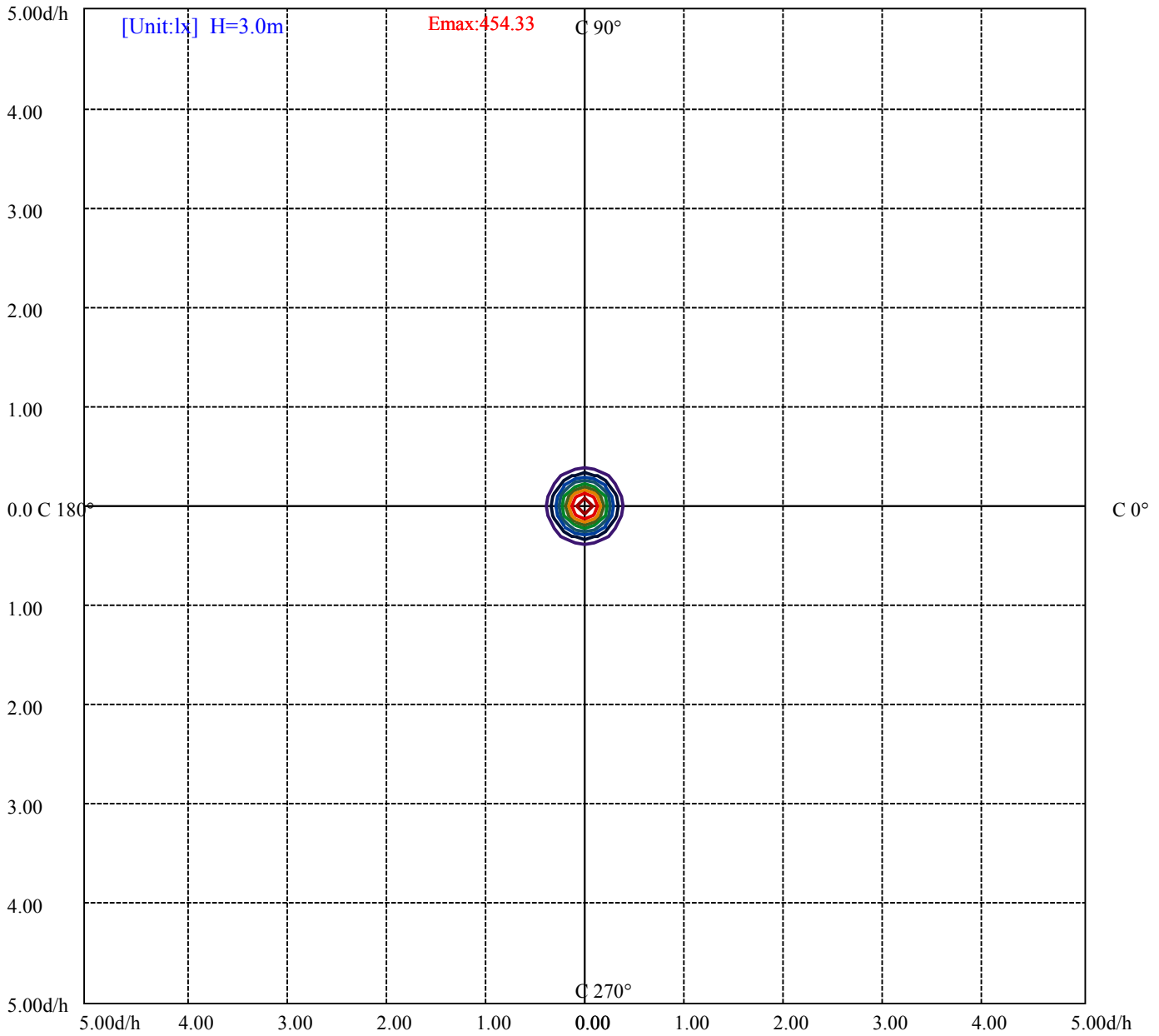
House

[Unit:cd]

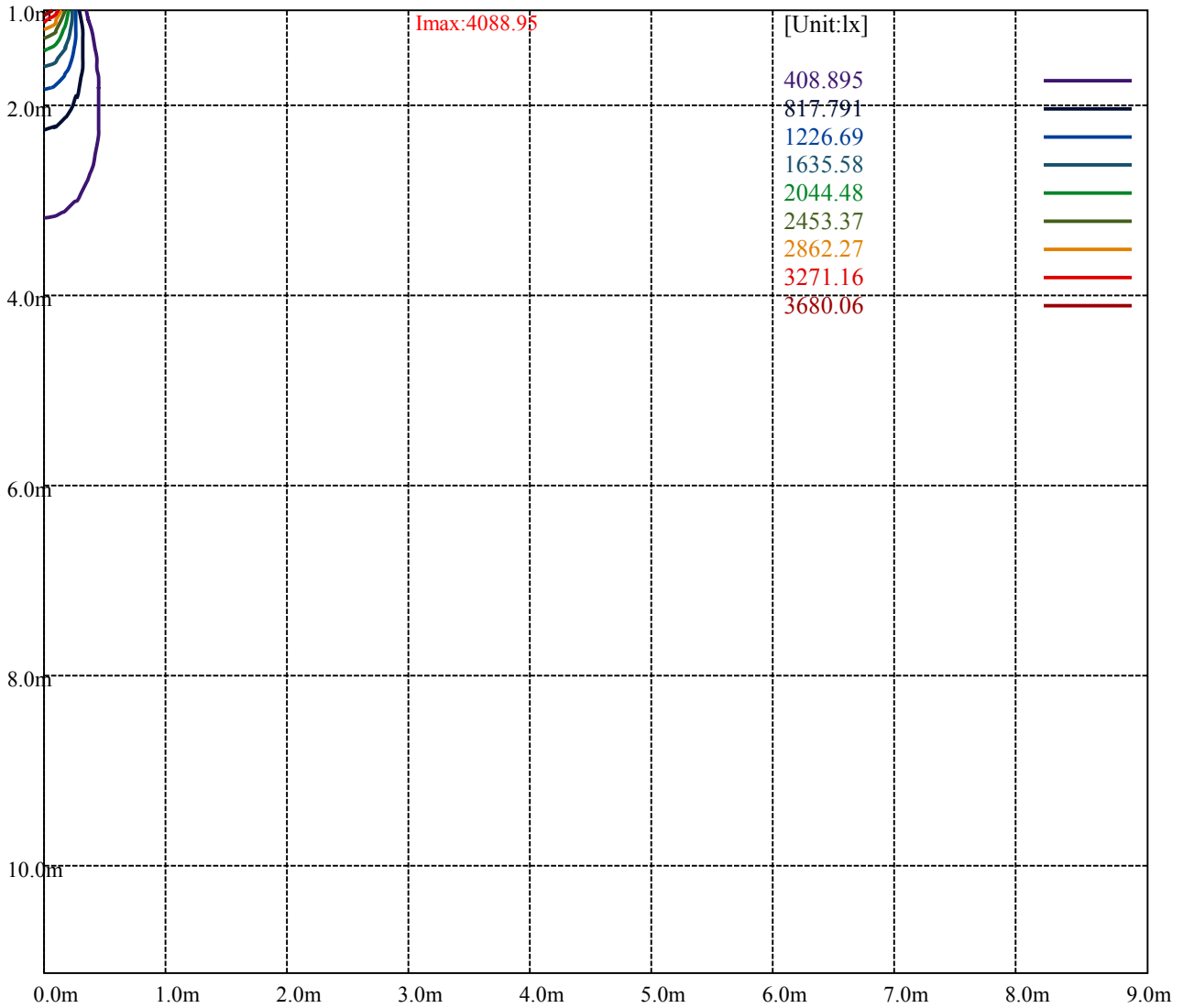
Road

Imax:4088.95

(10%Imax) 408.895	—
(20%Imax) 817.791	—
(30%Imax) 1226.69	—
(40%Imax) 1635.58	—
(50%Imax) 2044.48	—
(60%Imax) 2453.37	—
(70%Imax) 2862.27	—
(80%Imax) 3271.16	—
(90%Imax) 3680.06	—



- (10%E_{max}) 45.43278
- (20%E_{max}) 90.86555
- (30%E_{max}) 136.2989
- (40%E_{max}) 181.7311
- (50%E_{max}) 227.1644
- (60%E_{max}) 272.5967
- (70%E_{max}) 318.03
- (80%E_{max}) 363.4622
- (90%E_{max}) 408.8956



Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

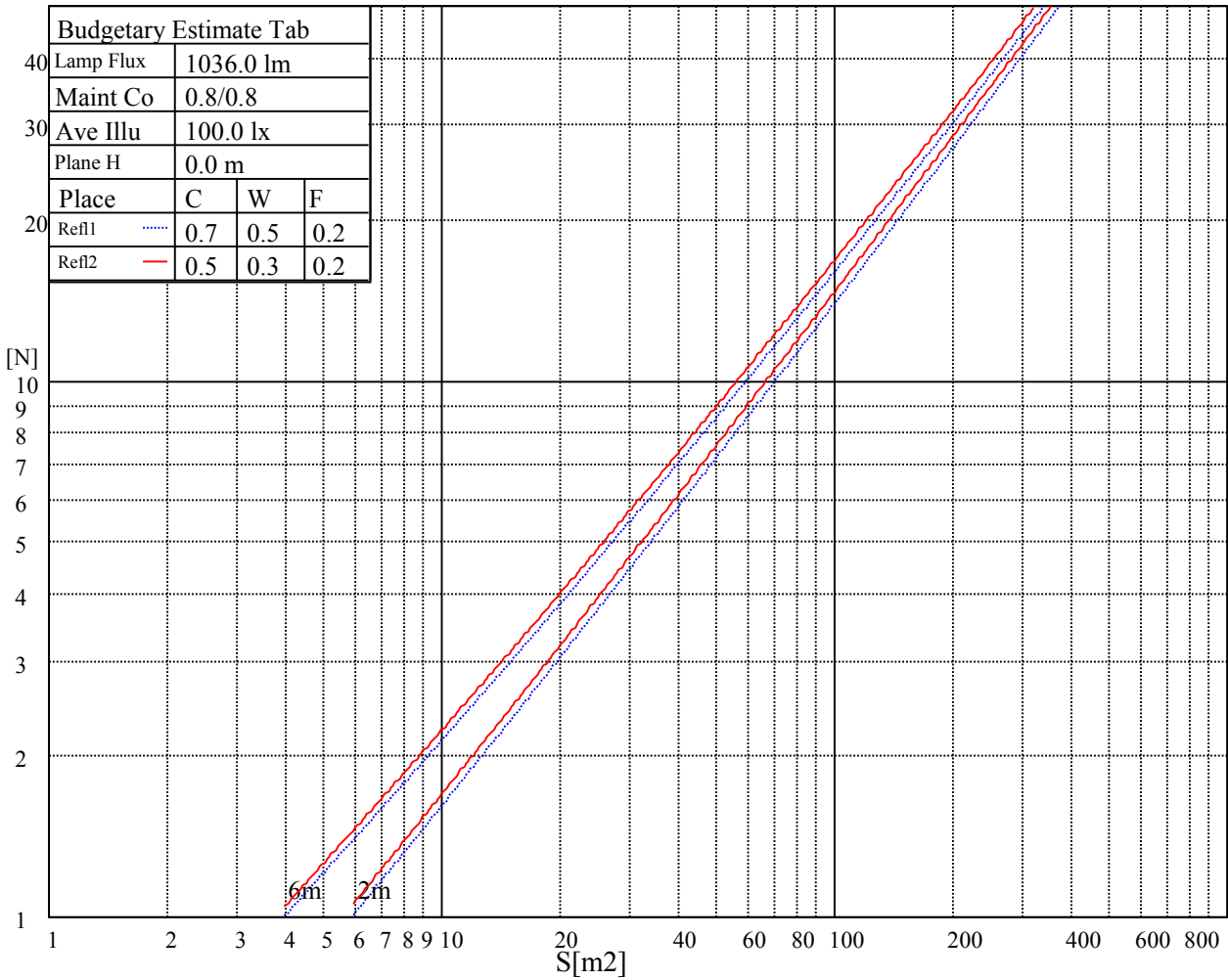
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

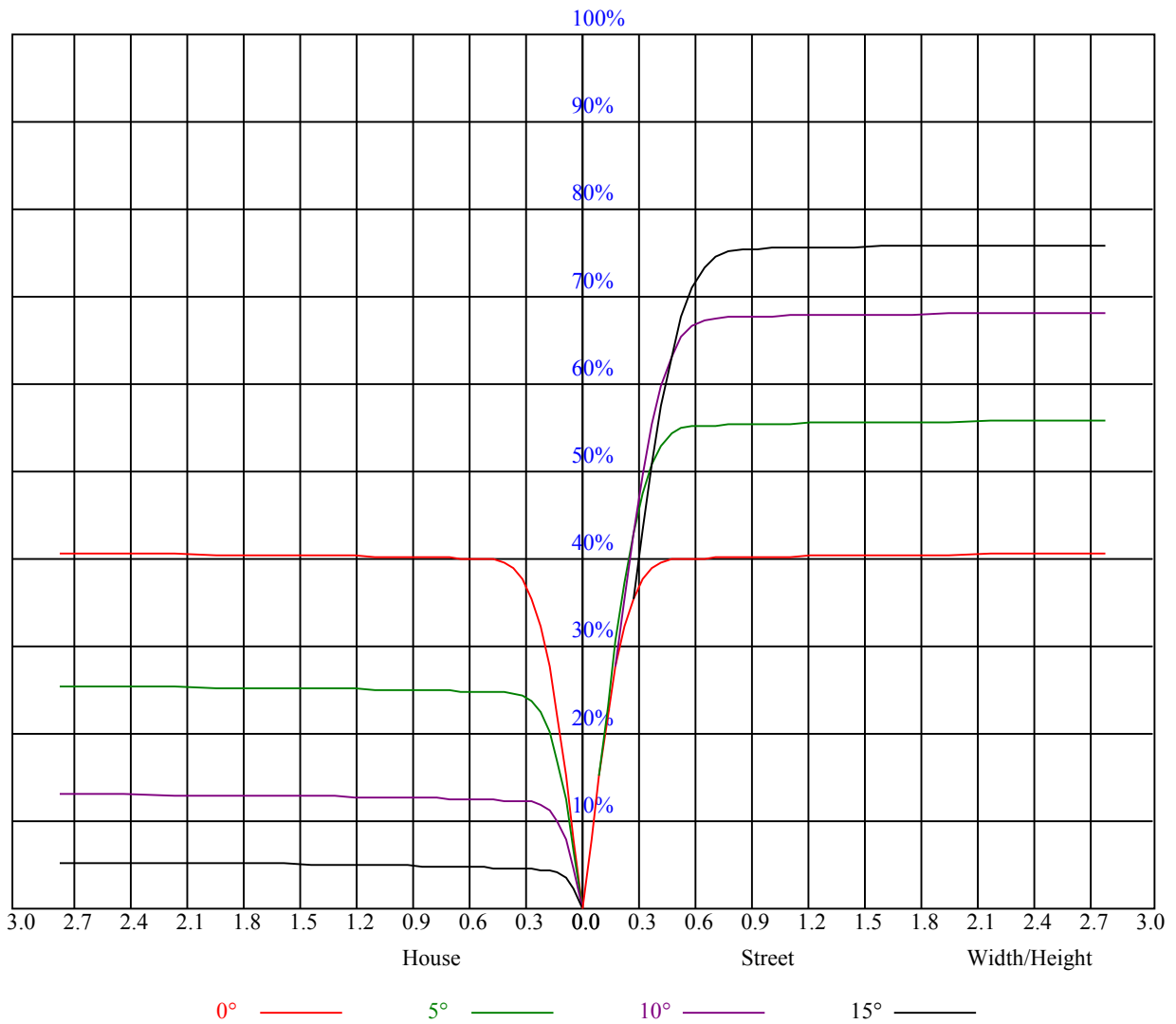
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

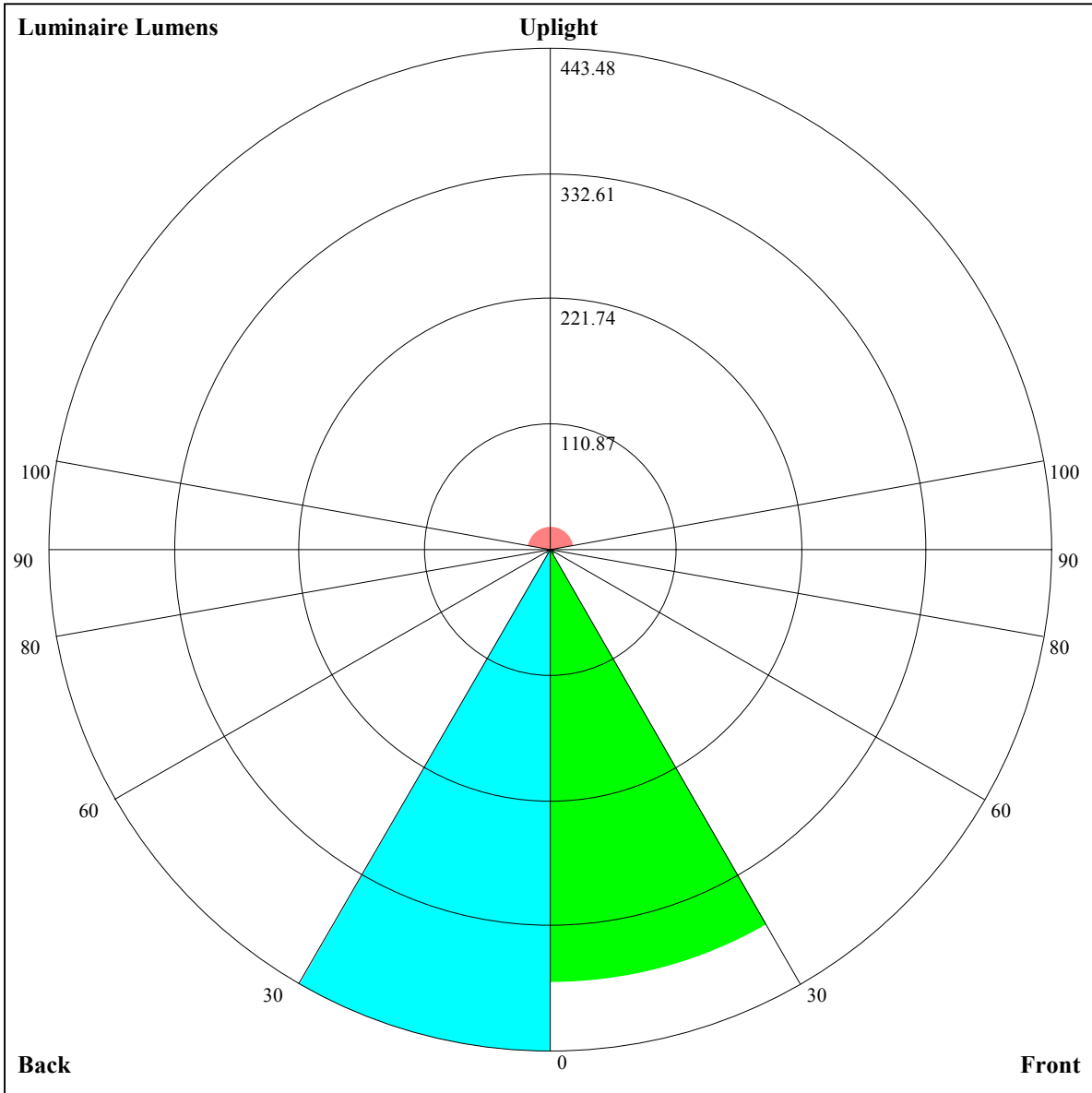
Luminance Limiting Curve





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	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.92	0.91	0.89	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79
2	0.88	0.86	0.84	0.87	0.85	0.83	0.84	0.83	0.81	0.82	0.81	0.79	0.80	0.79	0.78	0.77
3	0.85	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.77	0.75	0.74
4	0.82	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.76	0.75	0.73	0.72
5	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.71
6	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.74	0.72	0.70	0.73	0.71	0.70	0.69
7	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.72	0.70	0.68	0.72	0.70	0.68	0.67
8	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.67	0.70	0.68	0.66	0.66
9	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.69	0.67	0.65	0.64
10	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.64	0.63





Luminaire Lumens:

FL=382.58,FM=5.47,FH=4.17,FVH=2.2

BL=443.48,BM=5.66,BH=4.18,BVH=2.2

UL=4.35,UH=20.7

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	4091.63	4057.31	3984.19	3896.44	3785.06	3609.00	3444.75	3263.06	3044.25
45.0	4092.19	4059.56	4005.56	3903.75	3798.00	3668.63	3476.81	3300.19	3107.25
90.0	4087.13	4062.38	4009.50	3925.69	3812.63	3688.88	3542.06	3353.06	3141.00
135.0	4084.88	4096.13	4080.94	4045.50	3989.25	3885.19	3773.81	3636.00	3456.56
180.0	4091.63	4103.44	4091.06	4057.88	4004.44	3905.44	3809.81	3655.69	3449.81
225.0	4092.19	4100.63	4082.06	4042.69	3962.81	3884.06	3756.38	3582.56	3441.94
270.0	4087.13	4090.50	4061.25	4012.31	3938.06	3810.94	3686.63	3542.06	3378.38
315.0	4084.88	4050.56	3984.19	3888.56	3780.56	3628.13	3467.81	3269.25	3049.88
360.0	4091.63	4057.31	3984.19	3896.44	3785.06	3609.00	3444.75	3263.06	3044.25
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2811.38	2590.88	2332.69	2099.81	1834.31	1577.81	1359.56	1126.13	911.25
45.0	2851.88	2630.81	2398.50	2133.00	1869.19	1643.06	1398.38	1193.06	973.69
90.0	2939.06	2698.31	2447.44	2217.94	1986.19	1701.56	1482.19	1078.54	1055.25
135.0	3256.88	3060.56	2822.06	2601.00	2346.75	2084.06	1851.19	1599.75	1352.81
180.0	3288.94	3067.31	2808.00	2619.56	2396.81	2080.13	1877.06	1654.31	1357.31
225.0	3261.94	2989.69	2804.63	2583.00	2296.13	2063.81	1833.75	1609.31	1337.06
270.0	3146.06	2944.69	2733.75	2486.25	2228.06	1992.38	1730.25	1479.38	1264.50
315.0	2840.63	2592.56	2333.25	2098.69	1862.44	1580.06	1365.19	1105.82	937.46
360.0	2811.38	2590.88	2332.69	2099.81	1834.31	1577.81	1359.56	1126.13	911.25
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	737.44	581.63	408.94	286.31	221.91	93.26	45.84	22.28	13.84
45.0	777.38	620.44	454.50	312.19	285.19	124.14	50.85	23.74	14.06
90.0	853.09	690.08	524.81	376.59	260.94	157.61	88.59	37.41	17.27
135.0	1150.31	968.63	748.13	594.00	464.06	300.94	286.88	120.49	59.18
180.0	1099.86	982.24	807.58	611.04	468.90	338.40	216.62	123.86	64.13
225.0	1109.53	949.28	755.04	578.53	437.34	300.54	186.98	107.04	46.86
270.0	1040.63	859.50	677.25	510.75	379.69	291.38	146.53	79.03	36.06
315.0	741.09	584.89	428.79	293.63	193.05	105.24	50.40	22.84	14.34
360.0	737.44	581.63	408.94	286.31	221.91	93.26	45.84	22.28	13.84
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	10.97	9.68	8.61	7.88	7.14	6.58	6.13	5.74	5.46
45.0	10.58	9.34	8.44	7.59	6.98	6.47	6.02	5.74	5.46
90.0	11.93	10.13	8.78	7.99	7.37	6.69	6.30	5.96	5.63
135.0	22.73	13.44	10.69	9.28	8.27	7.54	6.92	6.41	6.02
180.0	27.00	15.41	11.03	9.45	8.49	7.65	6.98	6.47	6.08
225.0	23.40	14.34	11.59	10.24	9.23	8.21	7.54	6.98	6.41
270.0	17.38	12.99	11.08	9.73	8.78	7.99	7.31	6.69	6.30
315.0	11.53	9.96	8.89	8.10	7.43	6.75	6.30	5.96	5.63
360.0	10.97	9.68	8.61	7.88	7.14	6.58	6.13	5.74	5.46
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	5.23	5.01	4.89	4.73	4.61	4.56	4.44	4.39	4.39
45.0	5.18	5.06	4.89	4.78	4.73	4.61	4.56	4.56	4.44
90.0	5.34	5.18	5.01	4.89	4.78	4.67	4.61	4.56	4.50
135.0	5.68	5.46	5.23	5.01	4.89	4.78	4.67	4.61	4.56
180.0	5.74	5.46	5.23	5.06	4.84	4.73	4.67	4.56	4.50
225.0	6.02	5.68	5.40	5.18	5.06	4.89	4.78	4.67	4.61
270.0	5.91	5.63	5.40	5.18	5.01	4.89	4.78	4.67	4.61
315.0	5.34	5.12	5.01	4.84	4.73	4.61	4.56	4.50	4.44
360.0	5.23	5.01	4.89	4.73	4.61	4.56	4.44	4.39	4.39

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	4.33	4.33	4.28	4.22	4.22	4.22	4.16	4.16	4.16
45.0	4.39	4.39	4.33	4.28	4.33	4.28	4.22	4.22	4.16
90.0	4.44	4.44	4.39	4.33	4.39	4.33	4.28	4.28	4.28
135.0	4.50	4.44	4.39	4.39	4.39	4.33	4.33	4.28	4.28
180.0	4.44	4.39	4.33	4.33	4.28	4.28	4.22	4.22	4.16
225.0	4.56	4.50	4.44	4.39	4.33	4.33	4.28	4.28	4.28
270.0	4.56	4.50	4.50	4.44	4.39	4.39	4.39	4.33	4.28
315.0	4.44	4.39	4.33	4.33	4.28	4.28	4.22	4.22	4.22
360.0	4.33	4.33	4.28	4.22	4.22	4.22	4.16	4.16	4.16
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.11	4.11	4.11	4.11	4.11	4.05	4.05	4.05	4.05
45.0	4.22	4.16	4.16	4.16	4.11	4.11	4.11	4.11	4.11
90.0	4.22	4.22	4.22	4.16	4.16	4.16	4.16	4.16	4.16
135.0	4.22	4.22	4.16	4.22	4.16	4.16	4.16	4.11	4.11
180.0	4.16	4.16	4.16	4.11	4.11	4.11	4.11	4.11	4.05
225.0	4.22	4.22	4.22	4.22	4.16	4.16	4.16	4.11	4.11
270.0	4.28	4.28	4.22	4.28	4.22	4.22	4.22	4.16	4.16
315.0	4.22	4.16	4.11	4.11	4.16	4.11	4.11	4.11	4.11
360.0	4.11	4.11	4.11	4.11	4.11	4.05	4.05	4.05	4.05
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.99	4.05	3.99	3.99	3.99	3.99	3.99	3.99	3.94
45.0	4.11	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
90.0	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11
135.0	4.16	4.11	4.11	4.05	4.11	4.05	4.11	4.05	4.05
180.0	4.05	4.05	4.05	3.99	3.99	3.99	3.99	3.99	3.99
225.0	4.11	4.11	4.11	4.05	4.05	4.05	4.05	4.05	4.05
270.0	4.16	4.16	4.11	4.16	4.16	4.11	4.11	4.11	4.11
315.0	4.11	4.11	4.11	4.05	4.05	4.05	4.05	4.05	4.05
360.0	3.99	4.05	3.99	3.99	3.99	3.99	3.99	3.99	3.94
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.99	3.99	3.99	3.94	3.94	3.94	3.94	3.94	3.94
45.0	4.05	4.05	3.99	4.05	4.05	3.99	3.99	4.05	3.99
90.0	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11
135.0	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
180.0	3.99	3.99	3.99	3.99	3.99	3.99	3.94	3.94	3.99
225.0	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
270.0	4.11	4.16	4.11	4.11	4.11	4.11	4.11	4.11	4.11
315.0	4.05	3.99	4.05	3.99	4.05	4.05	4.05	4.05	3.99
360.0	3.99	3.99	3.99	3.94	3.94	3.94	3.94	3.94	3.94
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.94	3.94	3.94	3.94	3.94	3.94	3.99	3.94	3.94
45.0	3.99	3.99	4.05	4.05	3.99	3.99	3.99	3.99	3.99
90.0	4.11	4.16	4.11	4.11	4.11	4.05	4.05	3.99	4.05
135.0	4.05	3.99	4.05	3.99	3.99	4.05	4.05	3.99	3.99
180.0	3.99	3.94	3.94	3.99	3.94	3.94	3.94	3.94	3.94
225.0	3.99	3.99	4.05	4.05	4.05	3.99	3.99	4.05	3.99
270.0	4.11	4.11	4.16	4.16	4.16	4.16	4.05	4.05	4.05
315.0	4.05	3.99	3.99	3.99	4.05	3.99	4.05	3.99	3.99
360.0	3.94	3.94	3.94	3.94	3.94	3.94	3.99	3.94	3.94

Intensity data(cd)

C/ γ (°)	90.0
0.0	3.94
45.0	3.99
90.0	3.99
135.0	3.99
180.0	3.94
225.0	3.99
270.0	4.05
315.0	3.99
360.0	3.94