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NATA

Client:

LumCAT: 2-1258-N

Luminaire: 92.70.065.00+92.70.059.00

Report No: nt0100

Voltage(V): 33.9200

Test No: GC2020011019

Current(A): 0.6000

LampCAT: LUMINUS CXM-14-AC40

Power (W): 20.3500

Lamp flux(lm): 2462.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1887.95, Efficiency(%): 76.68% , Luminous Efficacy(lm/W): 92.77

Central intensity(cd): 9120.655, Maximum intensity(cd): 9122.133

Angle of maximum intensity: C=0.0 $\gamma=1.0$

Beam Angle(50%Imax): [C0/180]Total=20.8

[C90/270]Total=20.8

Field angle(10%Imax): [C0/180]Total=40.8

[C90/270]Total=40.8

Maximum s/h(1/2): C0_180=0.36 C90_270=0.36

Maximum s/h(1/4): C0_180=0.34 C90_270=0.34

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 76.68%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.846%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9120.656	0.000	0	.000%	.000%
1.0	9122.133	8.729	8.729	.355%	.462%
2.0	9094.430	26.146	34.875	1.062%	1.847%
3.0	9013.500	43.308	78.183	1.759%	4.141%
4.0	8875.758	59.881	138.064	2.432%	7.313%
5.0	8609.906	75.222	213.287	3.055%	11.297%
6.0	8133.750	87.992	301.279	3.574%	15.958%
7.0	7541.508	97.296	398.575	3.952%	21.112%
8.0	6766.945	102.403	500.978	4.159%	26.536%
9.0	5811.539	101.942	602.92	4.141%	31.935%
10.0	4879.898	96.754	699.673	3.930%	37.060%
11.0	4017.797	88.906	788.58	3.611%	41.769%
12.0	3288.516	79.868	868.448	3.244%	45.999%
13.0	2672.086	70.737	939.185	2.873%	49.746%
14.0	2229.680	62.742	1001.928	2.548%	53.070%
15.0	1896.820	56.650	1058.578	2.301%	56.070%
16.0	1646.438	51.919	1110.497	2.109%	58.820%
17.0	1402.805	47.485	1157.982	1.929%	61.335%
18.0	1201.648	42.942	1200.923	1.744%	63.610%
19.0	1079.107	39.680	1240.604	1.612%	65.712%
20.0	953.227	37.197	1277.801	1.511%	67.682%
21.0	847.238	34.573	1312.374	1.404%	69.513%
22.0	775.891	32.617	1344.991	1.325%	71.241%
23.0	705.073	31.075	1376.066	1.262%	72.887%
24.0	639.478	29.397	1405.462	1.194%	74.444%
25.0	593.487	28.035	1433.497	1.139%	75.929%
26.0	545.843	26.894	1460.391	1.092%	77.353%
27.0	502.165	25.640	1486.031	1.041%	78.711%
28.0	461.138	24.389	1510.42	.991%	80.003%
29.0	423.914	23.155	1533.575	.941%	81.230%
30.0	388.863	21.945	1555.52	.891%	82.392%
31.0	358.045	20.785	1576.306	.844%	83.493%
32.0	327.769	19.648	1595.953	.798%	84.534%
33.0	301.908	18.551	1614.504	.753%	85.516%
34.0	282.227	17.678	1632.181	.718%	86.452%
35.0	258.068	16.780	1648.961	.682%	87.341%
36.0	236.616	15.751	1664.712	.640%	88.176%
37.0	221.337	14.936	1679.648	.607%	88.967%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	206.283	14.273	1693.921	.580%	89.723%
39.0	191.595	13.581	1707.502	.552%	90.442%
40.0	178.200	12.897	1720.399	.524%	91.125%
41.0	162.837	12.144	1732.543	.493%	91.768%
42.0	147.389	11.271	1743.814	.458%	92.365%
43.0	134.585	10.445	1754.259	.424%	92.919%
44.0	123.124	9.727	1763.986	.395%	93.434%
45.0	112.563	9.058	1773.044	.368%	93.914%
46.0	102.080	8.394	1781.438	.341%	94.358%
47.0	92.433	7.736	1789.174	.314%	94.768%
48.0	83.904	7.128	1796.303	.290%	95.146%
49.0	76.268	6.578	1802.88	.267%	95.494%
50.0	68.667	6.043	1808.923	.245%	95.814%
51.0	62.522	5.550	1814.473	.225%	96.108%
52.0	56.988	5.128	1819.602	.208%	96.380%
53.0	51.328	4.712	1824.313	.191%	96.629%
54.0	46.181	4.298	1828.611	.175%	96.857%
55.0	41.674	3.922	1832.533	.159%	97.065%
56.0	37.216	3.565	1836.098	.145%	97.253%
57.0	33.005	3.211	1839.308	.130%	97.423%
58.0	29.820	2.905	1842.214	.118%	97.577%
59.0	26.880	2.651	1844.864	.108%	97.718%
60.0	24.237	2.415	1847.279	.098%	97.846%
61.0	21.720	2.193	1849.472	.089%	97.962%
62.0	19.624	1.992	1851.465	.081%	98.067%
63.0	17.951	1.827	1853.292	.074%	98.164%
64.0	16.594	1.695	1854.987	.069%	98.254%
65.0	15.806	1.603	1856.591	.065%	98.339%
66.0	15.265	1.550	1858.141	.063%	98.421%
67.0	14.773	1.510	1859.651	.061%	98.501%
68.0	14.316	1.474	1861.125	.060%	98.579%
69.0	13.957	1.442	1862.567	.059%	98.655%
70.0	13.620	1.416	1863.983	.058%	98.730%
71.0	13.324	1.393	1865.376	.057%	98.804%
72.0	13.092	1.374	1866.75	.056%	98.877%
73.0	12.945	1.362	1868.111	.055%	98.949%
74.0	12.846	1.356	1869.467	.055%	99.021%
75.0	12.748	1.352	1870.819	.055%	99.093%

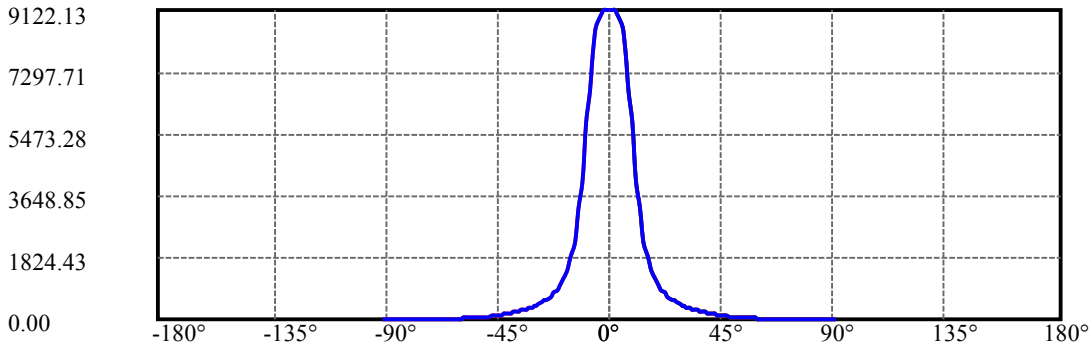
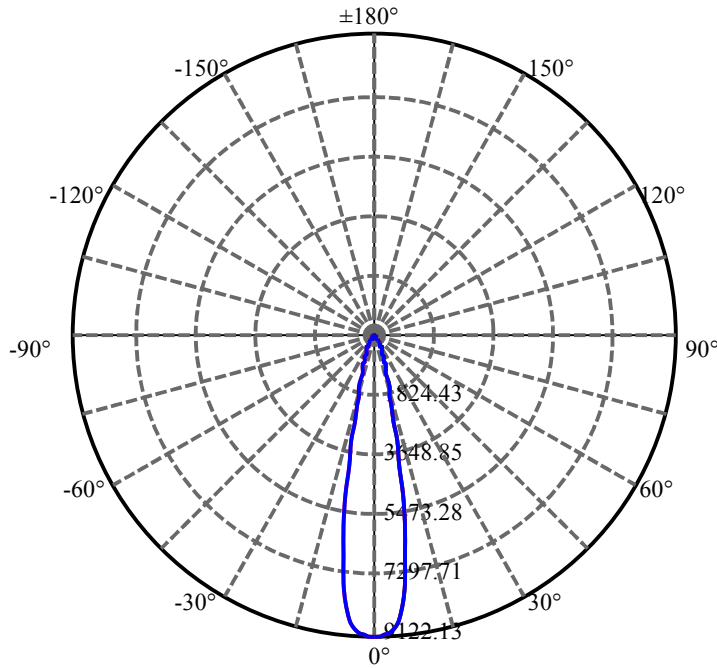
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.600	1.346	1872.165	.055%	99.164%
77.0	12.466	1.336	1873.501	.054%	99.235%
78.0	12.298	1.326	1874.827	.054%	99.305%
79.0	11.981	1.304	1876.131	.053%	99.374%
80.0	11.637	1.273	1877.405	.052%	99.441%
81.0	11.250	1.238	1878.642	.050%	99.507%
82.0	10.835	1.198	1879.84	.049%	99.570%
83.0	10.371	1.153	1880.993	.047%	99.631%
84.0	9.984	1.109	1882.102	.045%	99.690%
85.0	9.605	1.069	1883.171	.043%	99.747%
86.0	9.211	1.028	1884.199	.042%	99.801%
87.0	8.810	0.986	1885.186	.040%	99.853%
88.0	8.494	0.948	1886.133	.039%	99.904%
89.0	8.269	0.919	1887.052	.037%	99.952%
90.0	8.142	0.900	1887.952	.037%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1555.52	63.18%	82.39%
0-40	1720.40	69.88%	91.13%
0-60	1847.28	75.03%	97.85%
0-90	1887.05	76.65%	99.95%
0-120	1887.05	76.65%	99.95%
0-180	1887.95	76.68%	100.00%
60-90	42.19	1.71%	2.23%
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%
0-28.00	1510.36	61.35%	80.00%

ZONAL LUMEN SUMMARY

0-10	699.67
10-20	578.13
20-30	277.72
30-40	164.88
40-50	88.52
50-60	38.36
60-70	16.70
70-80	13.42
80-90	9.65
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: —————

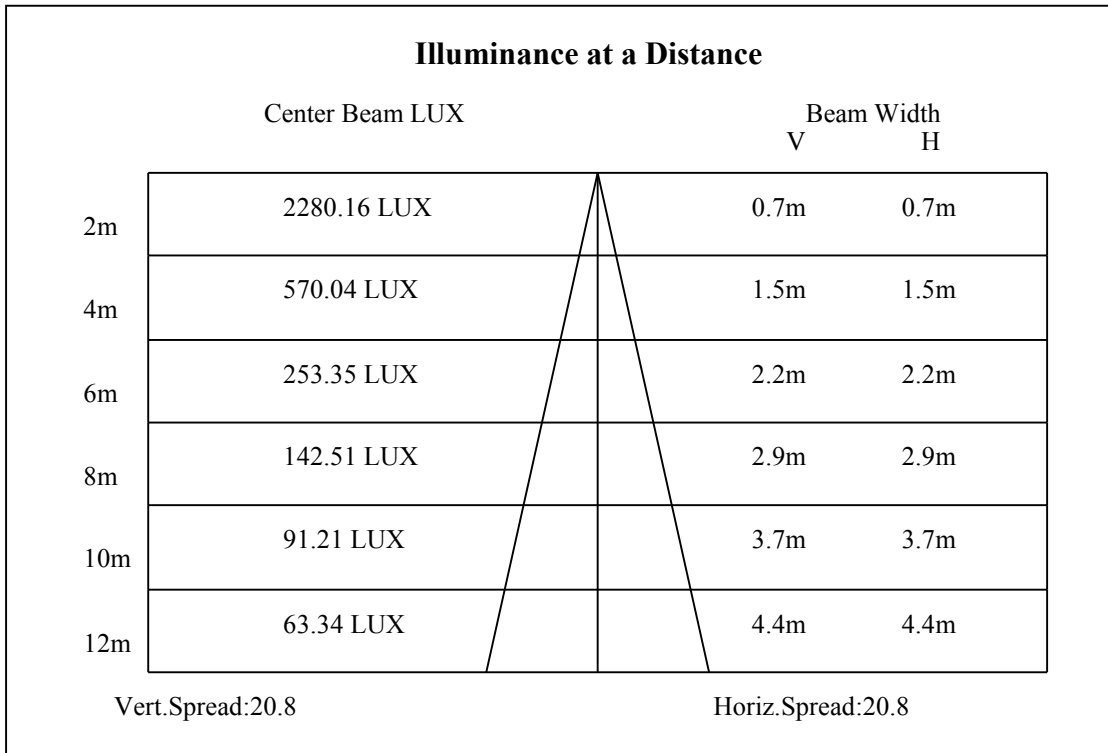
C90/C270: —————

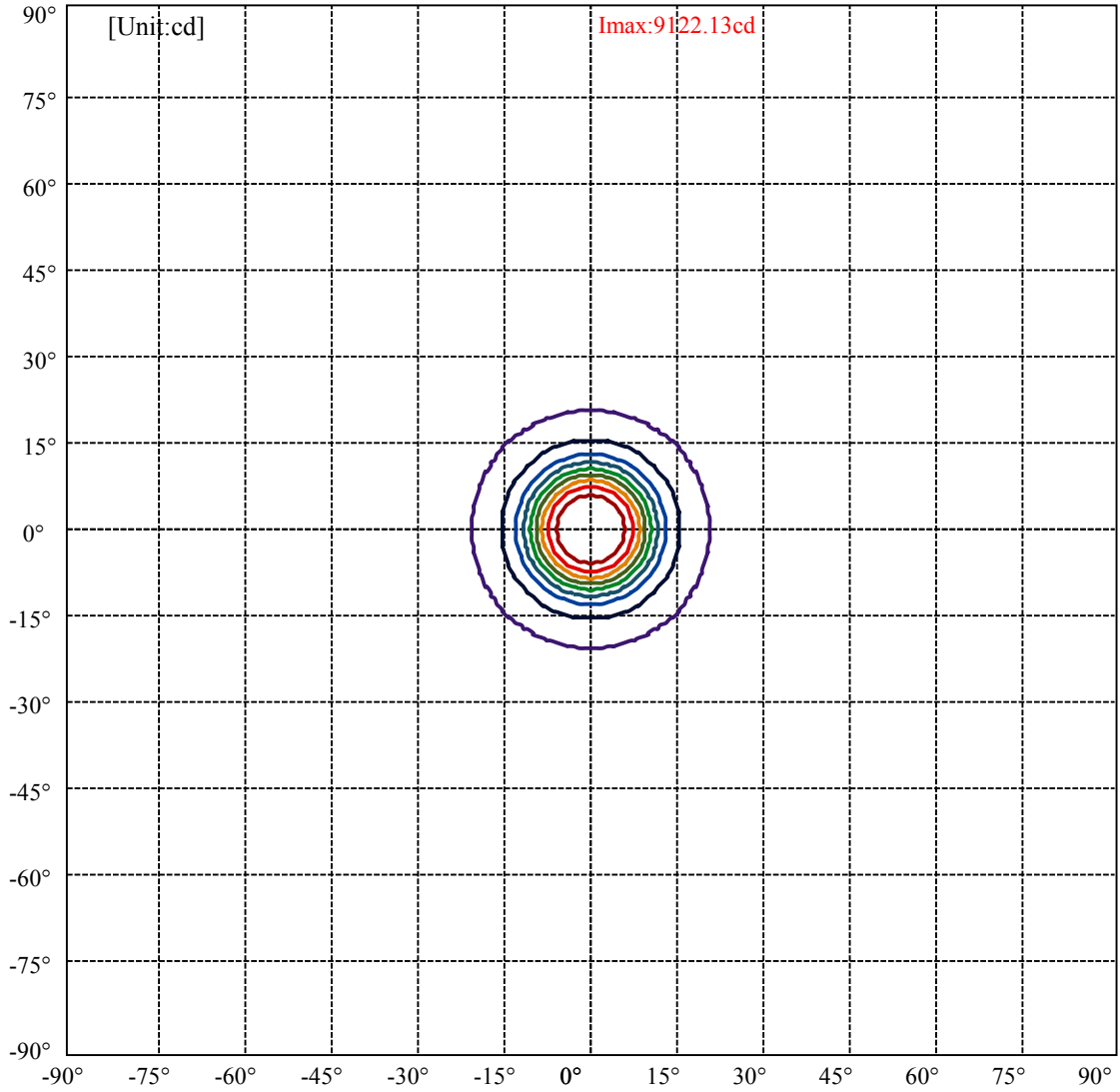
Field angle(10%Imax):C0/180Left:20.4 Right:20.4

:C90/270Left:20.4 Right:20.4

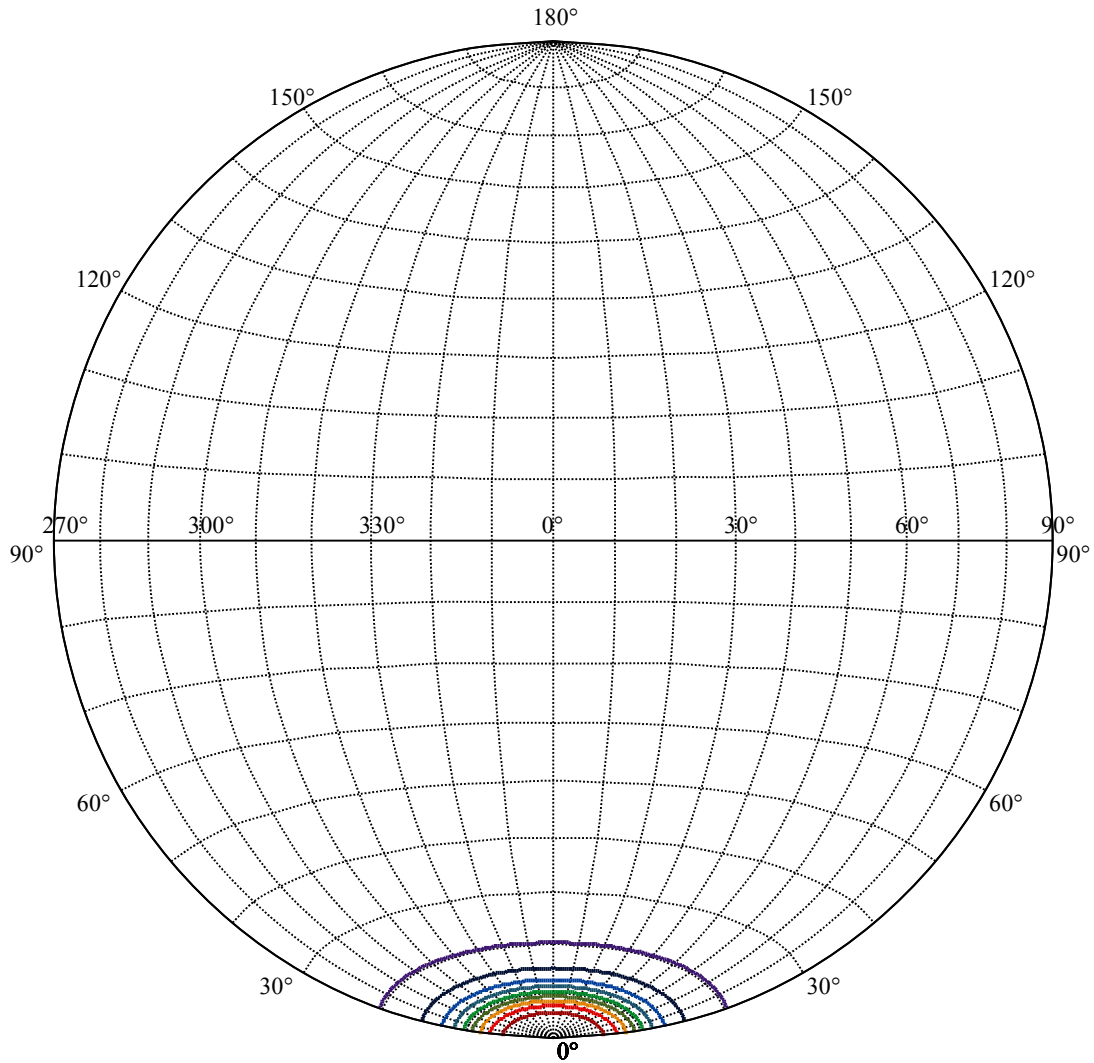
Beam Angle(50%Imax):C0/180Left:10.4 Right:10.4

:C90/270Left:10.4 Right:10.4





(10%Imax) 912.213	—
(20%Imax) 1824.43	—
(30%Imax) 2736.64	—
(40%Imax) 3648.85	—
(50%Imax) 4561.07	—
(60%Imax) 5473.28	—
(70%Imax) 6385.49	—
(80%Imax) 7297.71	—
(90%Imax) 8209.92	—



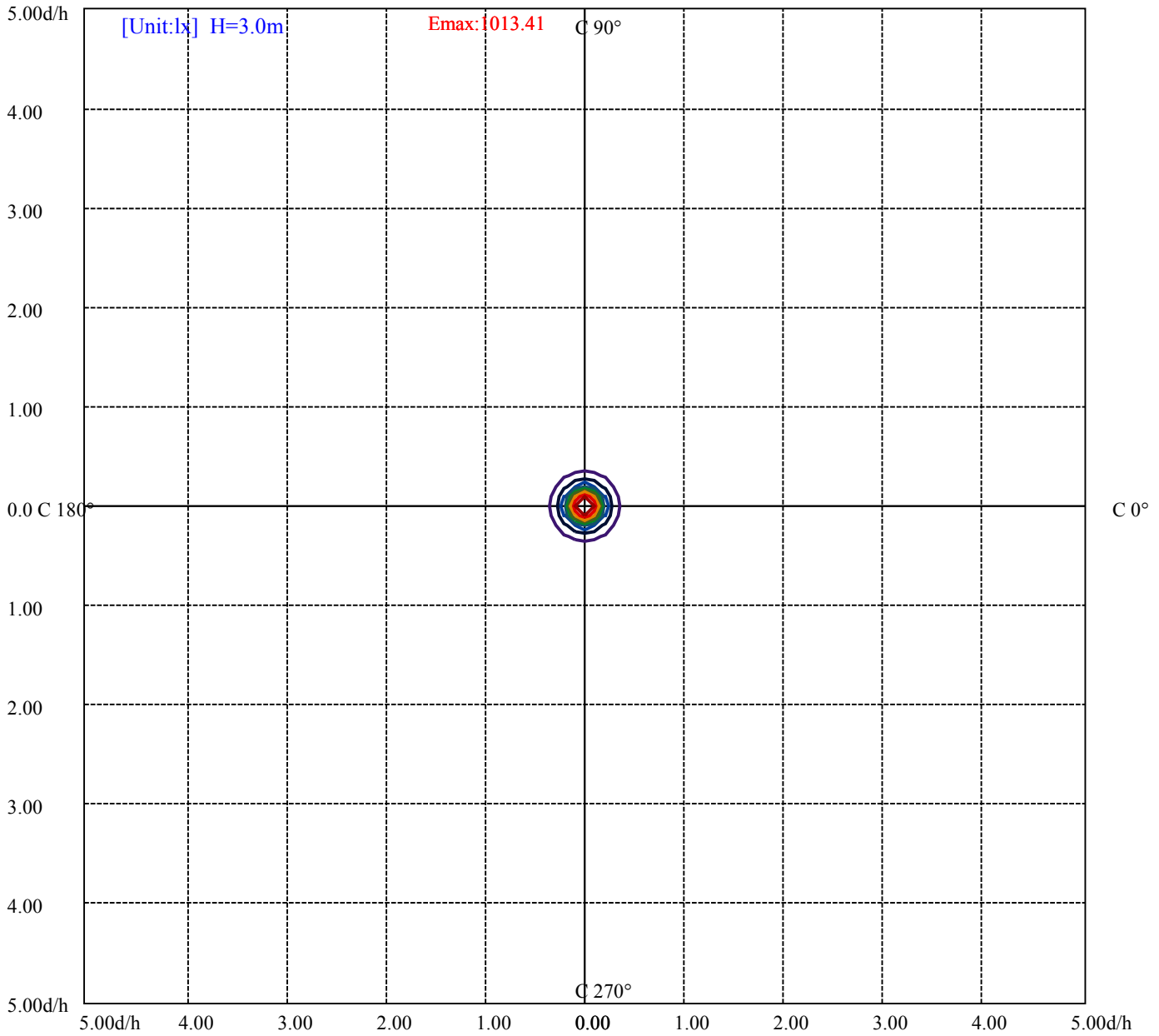
House

[Unit:cd]

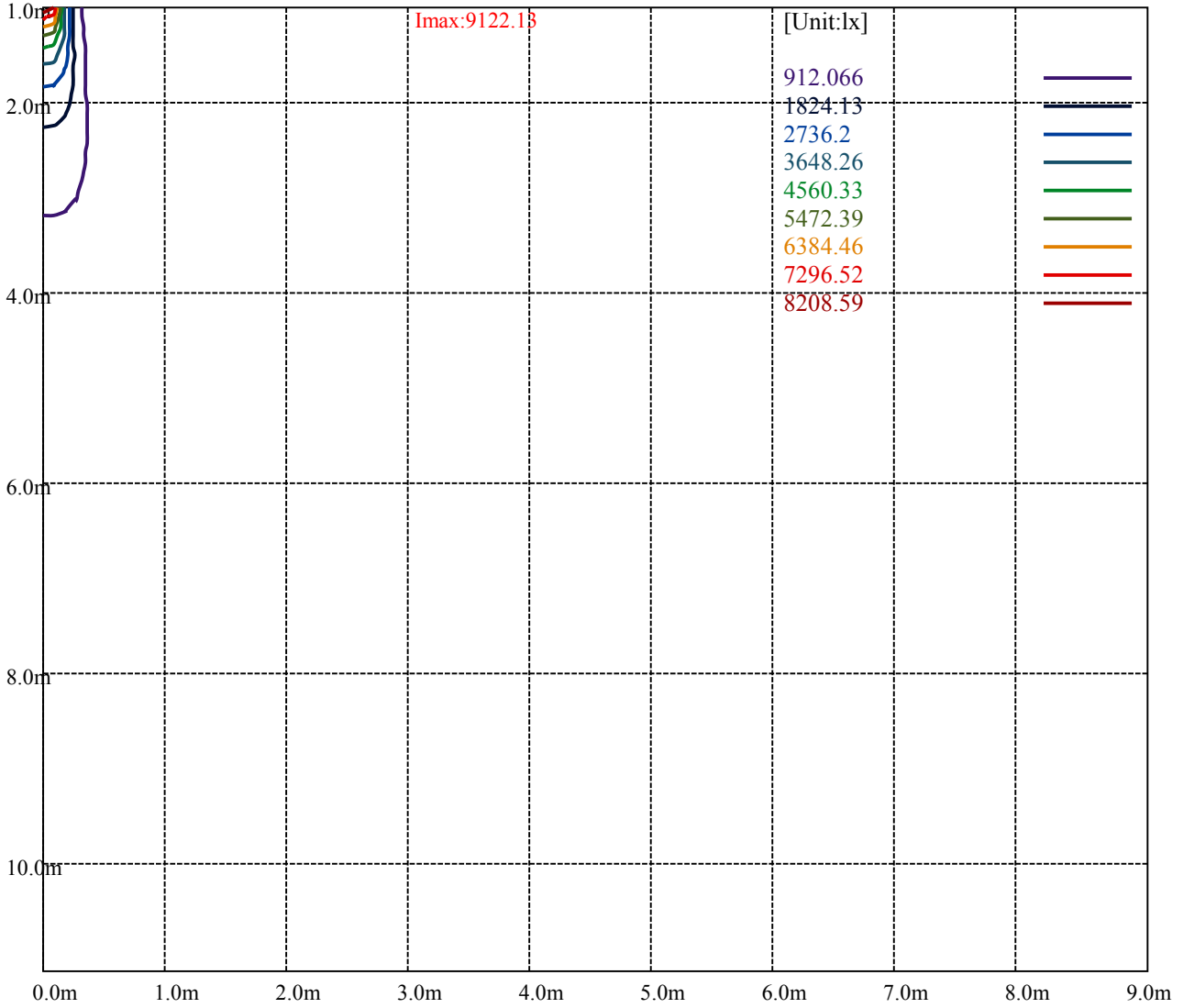
Road

Imax:9122.13

(10%Imax)	912.213	—
(20%Imax)	1824.43	—
(30%Imax)	2736.64	—
(40%Imax)	3648.85	—
(50%Imax)	4561.07	—
(60%Imax)	5473.28	—
(70%Imax)	6385.49	—
(80%Imax)	7297.71	—
(90%Imax)	8209.92	—



(10%Emax) 101.3407	—
(20%Emax) 202.6811	—
(30%Emax) 304.0222	—
(40%Emax) 405.3622	—
(50%Emax) 506.7033	—
(60%Emax) 608.0433	—
(70%Emax) 709.3845	—
(80%Emax) 810.7244	—
(90%Emax) 912.0656	—



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

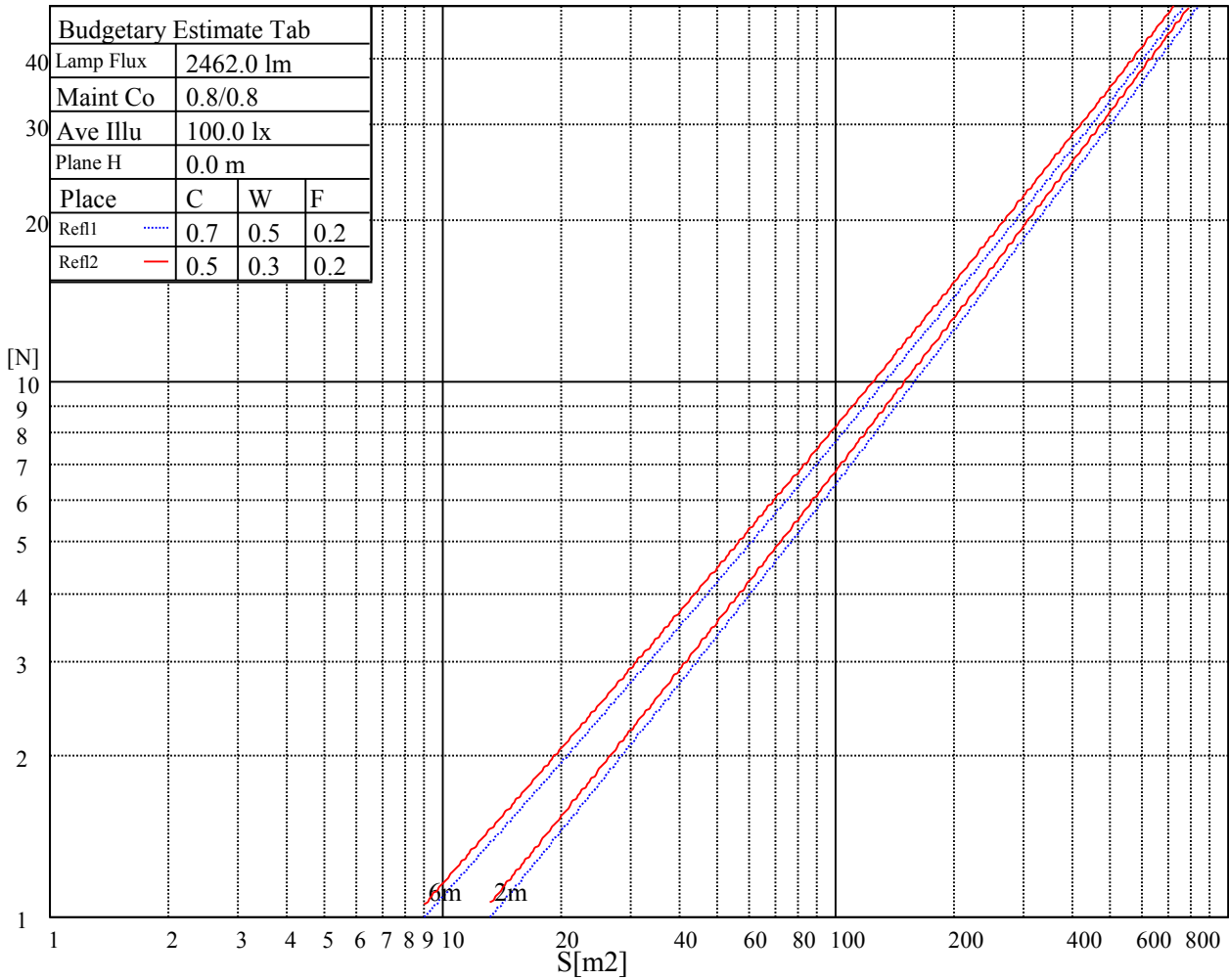
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

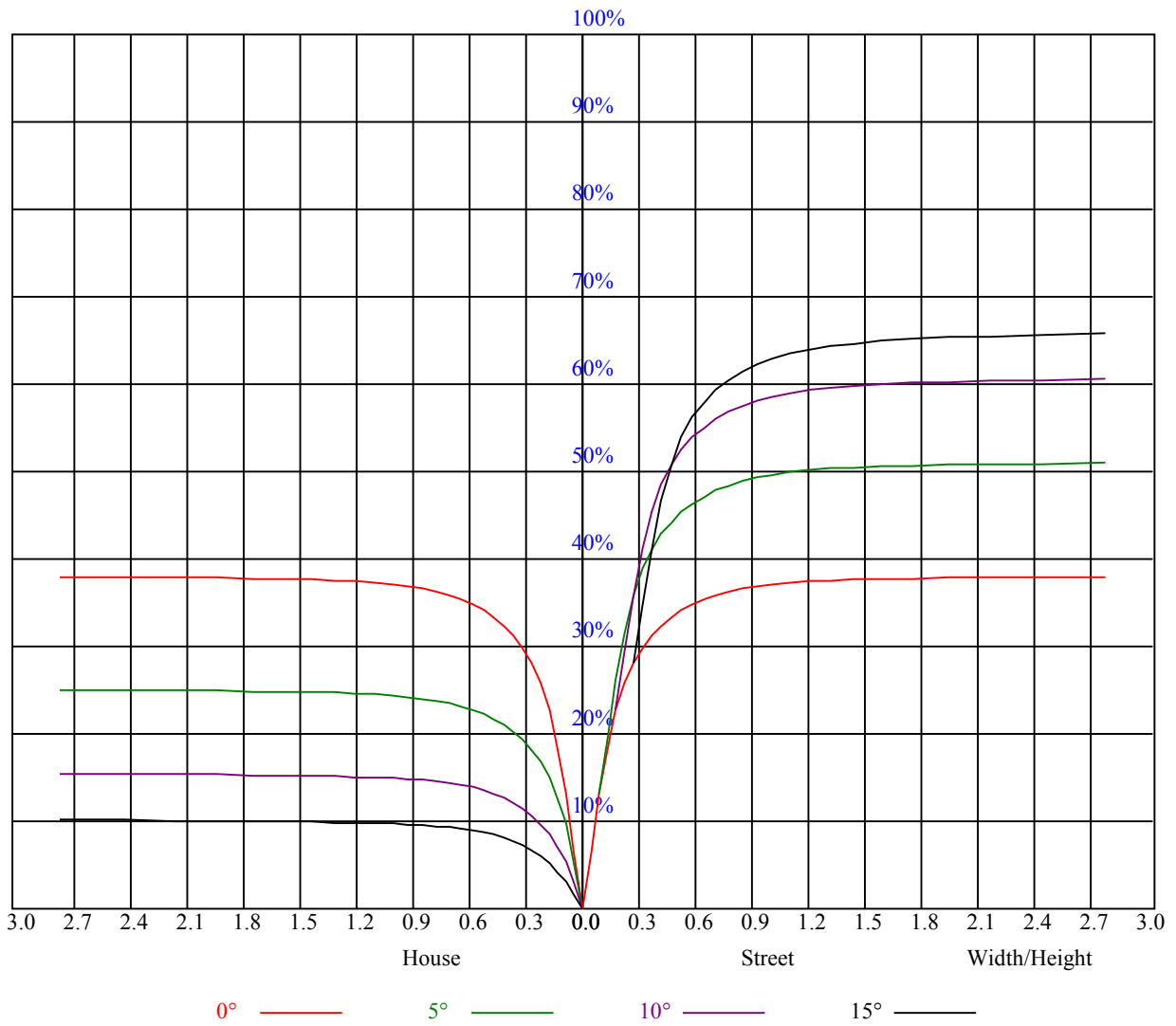
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

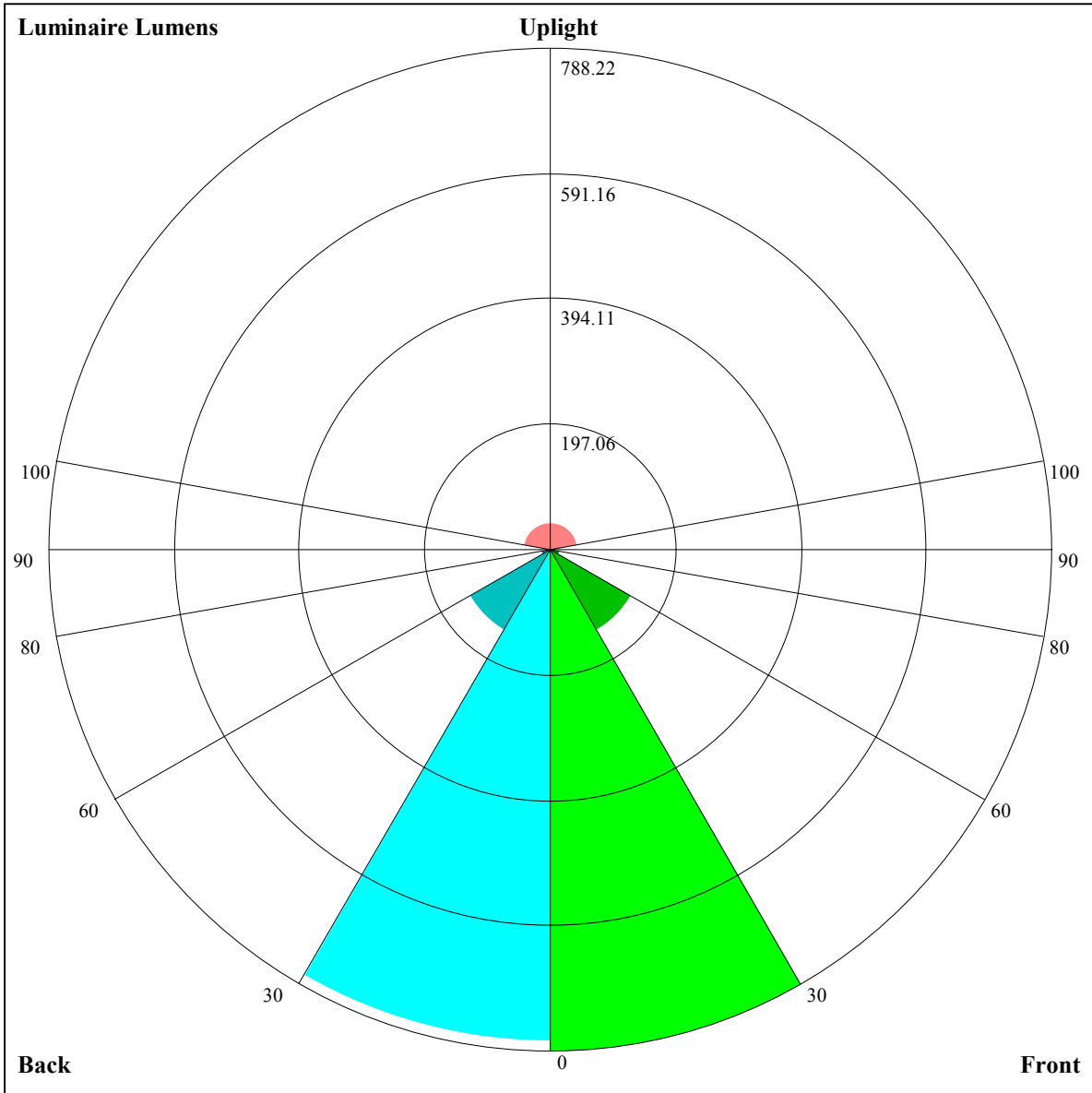
Luminance Limiting Curve





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	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.82	0.82	0.82	0.78	0.78	0.78	0.77
1	0.86	0.84	0.82	0.84	0.83	0.81	0.81	0.80	0.79	0.78	0.77	0.76	0.76	0.75	0.74	0.73
2	0.81	0.78	0.76	0.80	0.77	0.75	0.77	0.75	0.74	0.75	0.73	0.72	0.73	0.72	0.71	0.69
3	0.77	0.74	0.71	0.76	0.73	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.66
4	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.64	0.63
5	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
6	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.61	0.60	0.59
7	0.65	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.59	0.58	0.57
8	0.63	0.59	0.57	0.62	0.59	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55
9	0.61	0.57	0.55	0.60	0.57	0.55	0.60	0.57	0.54	0.59	0.56	0.54	0.58	0.56	0.54	0.53
10	0.59	0.55	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.57	0.54	0.53	0.52





Luminaire Lumens:

FL=788.22,FM=146.53,FH=15.15,FVH=5.31

BL=771.85,BM=145.86,BH=15.07,BVH=5.25

UL=8.88,UH=42.28

BUG Rating:B2-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	9112.50	9119.81	9084.38	9036.00	8961.75	8719.31	8312.63	7794.00	7030.69
45.0	9120.94	9145.13	9115.88	9062.44	8933.06	8651.25	8187.75	7592.63	6761.25
90.0	9131.06	9144.00	9108.00	8976.38	8760.94	8397.00	7786.69	6963.75	6093.56
135.0	9118.13	9120.94	9113.06	9028.69	8849.25	8551.69	8053.88	7433.44	6564.38
180.0	9112.50	9104.06	9075.94	8941.50	8748.56	8454.38	7874.44	7218.56	6415.31
225.0	9120.94	9132.19	9093.94	9004.50	8866.69	8615.25	8120.25	7553.25	6852.94
270.0	9131.06	9114.19	9095.06	9064.69	8996.63	8810.44	8524.13	8101.69	7441.88
315.0	9118.13	9096.75	9069.19	8993.81	8889.19	8679.94	8210.25	7674.75	6975.56
360.0	9112.50	9119.81	9084.38	9036.00	8961.75	8719.31	8312.63	7794.00	7030.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6107.06	5231.81	4299.19	3571.88	2894.63	2372.63	2020.50	1767.38	1446.75
45.0	5788.69	4893.19	3956.06	3255.19	2633.06	2180.25	1881.56	1643.63	1397.81
90.0	5068.69	4112.44	3391.31	2744.44	2304.56	1935.56	1658.81	1454.63	1280.81
135.0	5583.38	4700.25	3800.25	3138.75	2498.63	2112.19	1810.69	1569.38	1321.31
180.0	5427.00	4460.63	3698.44	2997.56	2459.25	2086.31	1761.19	1530.56	1312.31
225.0	5909.63	4929.75	4116.94	3328.31	2707.31	2291.63	1941.19	1695.94	1460.81
270.0	6590.25	5713.88	4723.88	3924.00	3168.00	2576.25	2181.38	1848.94	1590.75
315.0	6017.63	4997.25	4156.31	3348.00	2711.25	2282.63	1919.25	1661.06	1411.88
360.0	6107.06	5231.81	4299.19	3571.88	2894.63	2372.63	2020.50	1767.38	1446.75
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1257.19	1119.94	948.94	856.13	789.19	711.56	651.38	609.19	554.63
45.0	1227.94	1089.00	945.56	849.38	768.38	692.44	626.63	582.19	532.69
90.0	1082.53	982.52	885.43	772.54	711.17	651.09	593.33	543.77	503.27
135.0	1151.44	1018.69	896.63	816.19	749.81	686.25	629.44	588.38	540.56
180.0	1113.02	1007.55	910.13	811.58	746.61	689.63	620.94	582.02	540.62
225.0	1271.81	1114.93	1013.63	877.95	805.89	735.24	659.70	608.63	563.01
270.0	1397.81	1238.63	1076.06	967.50	872.44	772.31	704.25	644.06	585.00
315.0	1111.44	1061.61	949.44	826.65	763.65	702.06	630.17	589.67	546.98
360.0	1257.19	1119.94	948.94	856.13	789.19	711.56	651.38	609.19	554.63
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	514.13	472.50	434.25	403.31	374.63	340.88	315.56	291.38	271.24
45.0	492.75	450.00	412.31	376.88	344.25	317.25	294.19	285.75	246.99
90.0	460.91	424.80	387.56	353.03	325.86	298.74	274.61	255.15	237.32
135.0	498.94	457.88	420.75	385.31	351.56	320.63	295.88	284.06	248.01
180.0	497.93	457.37	423.68	388.01	358.65	328.28	299.48	276.24	252.73
225.0	516.32	472.50	435.26	397.24	367.26	336.99	309.49	287.10	264.94
270.0	534.38	494.44	452.25	417.38	381.94	349.88	324.56	298.69	285.75
315.0	501.98	459.62	425.25	389.76	360.23	329.51	301.50	279.45	257.57
360.0	514.13	472.50	434.25	403.31	374.63	340.88	315.56	291.38	271.24
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	243.17	226.52	210.09	195.41	183.38	166.39	150.69	138.43	125.94
45.0	229.61	214.54	198.84	184.61	170.72	154.63	140.34	129.21	118.29
90.0	217.29	202.95	189.73	174.83	158.74	145.74	132.64	120.83	111.60
135.0	231.69	217.58	202.95	189.62	175.16	159.02	143.72	131.85	119.76
180.0	233.04	218.42	205.03	190.07	175.67	161.10	145.80	132.24	121.33
225.0	244.86	228.88	214.26	198.06	185.29	169.59	153.06	139.11	127.97
270.0	254.93	238.05	219.21	205.26	193.28	177.64	160.37	146.93	133.43
315.0	238.33	223.76	210.15	194.91	183.38	168.58	152.49	138.09	126.68
360.0	243.17	226.52	210.09	195.41	183.38	166.39	150.69	138.43	125.94

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	115.93	105.19	95.18	86.57	78.86	70.43	64.35	58.95	52.71
45.0	109.58	99.79	90.45	82.69	75.49	67.95	62.10	56.64	50.23
90.0	101.70	93.32	84.09	76.16	69.86	63.51	57.49	52.54	47.81
135.0	109.80	99.23	89.04	81.00	73.91	66.21	60.53	55.41	49.33
180.0	109.63	98.49	89.49	80.49	73.46	66.49	60.19	55.01	50.23
225.0	117.84	105.69	96.24	86.79	79.09	71.33	65.19	58.78	53.44
270.0	121.16	111.26	100.63	91.63	82.18	73.80	67.50	61.43	54.79
315.0	114.86	103.67	94.33	85.89	77.29	69.64	62.83	57.15	52.09
360.0	115.93	105.19	95.18	86.57	78.86	70.43	64.35	58.95	52.71
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	47.93	43.48	38.53	34.26	30.94	27.68	24.81	22.50	20.19
45.0	45.51	40.89	36.23	32.12	29.08	26.04	23.63	21.15	18.96
90.0	42.36	38.03	34.26	30.43	27.23	24.64	21.99	19.69	17.89
135.0	44.94	40.73	36.28	32.40	29.42	26.33	23.57	21.32	19.07
180.0	44.44	39.94	36.00	31.67	28.69	26.10	23.74	21.04	19.18
225.0	48.04	42.98	38.64	33.92	30.66	27.84	25.31	22.39	20.36
270.0	49.89	45.45	40.05	36.11	32.57	29.14	26.04	23.63	21.21
315.0	46.35	41.91	37.74	33.13	29.98	27.28	24.81	22.05	20.14
360.0	47.93	43.48	38.53	34.26	30.94	27.68	24.81	22.50	20.19
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	18.39	16.93	15.98	15.41	14.96	14.40	14.06	13.73	13.39
45.0	17.38	16.20	15.53	15.08	14.63	14.18	13.84	13.56	13.28
90.0	16.48	15.75	15.19	14.68	14.29	13.95	13.56	13.22	12.99
135.0	17.44	16.20	15.58	15.08	14.63	14.18	13.84	13.56	13.22
180.0	17.44	16.26	15.58	15.02	14.57	14.18	13.89	13.56	13.33
225.0	18.56	16.93	16.14	15.58	14.96	14.51	14.12	13.73	13.44
270.0	19.35	17.61	16.37	15.75	15.19	14.63	14.23	13.89	13.44
315.0	18.56	16.88	16.09	15.53	14.96	14.51	14.12	13.73	13.50
360.0	18.39	16.93	15.98	15.41	14.96	14.40	14.06	13.73	13.39
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.11	12.94	12.83	12.77	12.66	12.54	12.38	12.09	11.76
45.0	13.11	12.99	12.88	12.77	12.60	12.49	12.32	11.98	11.53
90.0	12.77	12.66	12.60	12.49	12.26	12.15	11.93	11.59	11.19
135.0	13.05	12.83	12.71	12.66	12.49	12.38	12.21	11.87	11.53
180.0	13.11	12.99	12.88	12.66	12.49	12.26	12.04	11.70	11.36
225.0	13.16	12.99	12.94	12.83	12.71	12.60	12.49	12.15	11.87
270.0	13.22	13.05	12.94	12.88	12.77	12.60	12.49	12.26	11.98
315.0	13.22	13.11	12.99	12.94	12.83	12.71	12.54	12.21	11.87
360.0	13.11	12.94	12.83	12.77	12.66	12.54	12.38	12.09	11.76
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.48	11.08	10.63	10.29	9.90	9.45	9.06	8.61	8.38
45.0	11.14	10.69	10.24	9.90	9.45	9.11	8.66	8.38	8.16
90.0	10.80	10.35	9.96	9.51	9.23	8.83	8.44	8.27	8.16
135.0	11.08	10.74	10.18	9.84	9.34	9.00	8.72	8.44	8.16
180.0	10.97	10.52	10.13	9.68	9.39	9.00	8.66	8.38	8.16
225.0	11.48	11.03	10.46	10.01	9.68	9.28	8.83	8.55	8.33
270.0	11.53	11.14	10.63	10.29	9.84	9.45	9.11	8.72	8.44
315.0	11.53	11.14	10.74	10.35	10.01	9.56	9.00	8.61	8.38
360.0	11.48	11.08	10.63	10.29	9.90	9.45	9.06	8.61	8.38

Intensity data(cd)

C/γ(°)	90.0
0.0	8.10
45.0	8.16
90.0	8.10
135.0	8.21
180.0	8.16
225.0	8.10
270.0	8.16
315.0	8.16
360.0	8.10