Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

AP8XT 20L 35HK XX MWI

Nom 8.5" diam x 12" H Aluminum reflector pendant

Test Number

SP-00589_3_M-20L

Test Date

10/15/2019

The results contained in this report pertain only to this IES file.

Summary of Results

Power

Input Watts	23.5 W

Lumen Output

Output Lumens	931
Efficacy	39.63 lm/W

Luminous Dimensions

0° - 180° Size	-0.67
90° - 270° Size	-0.67
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.82
Two luminaires, plane 90°	0.82
Four luminaires	0.81

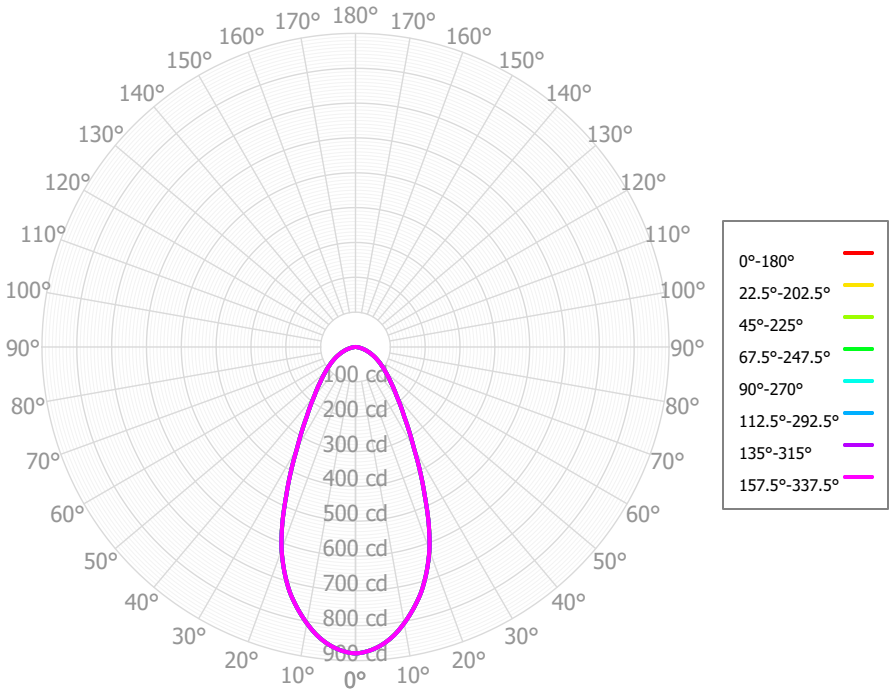
Full Beam Angle

0° - 180°	52°
90° - 270°	52°

IES File Header Contents

Keyword	Value
TEST	SP-00589_3_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	10/15/2019
ISSUEDATE	5/15/2020
LUMCAT	AP8XT 20L 35HK XX MWI
LUMINAIRE	Nom 8.5" diam x 12" H Aluminum reflector pendant
OTHER	Matte White finish - Interior, Khatod closed sphere optic, Open aperture
OTHER	Beam Angle: 52.2 degrees
LAMPCAT	N/A
LAMP	N/A, 19mm LES
OTHER	LEDXT lumen output is the same for all available CCT's
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 30L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	81.36	8.73%	90.00° - 100.00°	0.10	0.01%
10.00° - 20.00°	201.46	21.63%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	214.88	23.07%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	155.27	16.67%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	112.21	12.05%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	81.73	8.77%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	53.16	5.71%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	25.68	2.76%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	5.59	0.60%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	931.32	99.99%	0.00° - 180.00°	931.42	100.00%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47	879.47
2.50°	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21	873.21
5.00°	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72	858.72
7.50°	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21	836.21
10.00°	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13	805.13
12.50°	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02	769.02
15.00°	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56	728.56
17.50°	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02	678.02
20.00°	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30	620.30
22.50°	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15	549.15
25.00°	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31	470.31
27.50°	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71	400.71
30.00°	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33	335.33
32.50°	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65	286.65
35.00°	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02	244.02
37.50°	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57	212.57
40.00°	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15
42.50°	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12	163.12
45.00°	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53	143.53
47.50°	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50	128.50
50.00°	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07	114.07
52.50°	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28	102.28
55.00°	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68	90.68
57.50°	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88	80.88
60.00°	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13	71.13
62.50°	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18	62.18
65.00°	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33	53.33
67.50°	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38	45.38
70.00°	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66	37.66
72.50°	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67	30.67
75.00°	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
77.50°	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88	17.88
80.00°	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33
82.50°	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77	7.77
85.00°	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28
87.50°	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99
90.00°	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1,109	1,109	1,109	1,109	1,083	1,083	1,083	1,083	1,035	1,035	1,035	991	991	991	950	950	950	931
	1	1,039	1,006	976	949	1,015	985	958	934	947	925	905	912	894	878	879	865	852	847
	2	970	912	864	823	948	895	851	814	864	827	795	835	804	778	808	783	761	767
	3	907	831	772	725	886	817	763	719	791	745	707	767	728	696	745	712	684	698
	4	849	761	697	648	830	750	690	644	728	677	636	708	664	628	690	652	620	639
RCR	5	797	701	635	585	779	692	629	583	674	619	577	657	609	571	641	600	566	588
	6	749	649	582	534	734	641	578	532	626	570	528	612	562	524	599	554	520	544
	7	707	604	537	491	693	597	534	489	584	527	486	572	521	483	561	515	480	506
	8	668	564	499	454	655	558	496	453	547	491	450	537	486	448	527	481	446	472
	9	633	529	465	422	621	524	463	421	514	458	419	505	454	418	497	450	416	443
	10	601	497	435	394	590	493	433	393	485	430	392	477	426	391	469	423	390	416

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	29.1 fc	5.4 ft
6.5 ft	20.8 fc	6.4 ft
7.5 ft	15.6 fc	7.3 ft
8.0 ft	13.7 fc	7.8 ft
10.0 ft	8.8 fc	9.8 ft
12.0 ft	6.1 fc	11.8 ft
14.0 ft	4.5 fc	13.7 ft
16.0 ft	3.4 fc	15.7 ft
20.0 ft	2.2 fc	19.6 ft
24.0 ft	1.5 fc	23.5 ft
28.0 ft	1.1 fc	27.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	26,851	26,851	26,851
45.00°	6,197	6,197	6,197
55.00°	4,826	4,826	4,826
65.00°	3,853	3,853	3,853
75.00°	2,832	2,832	2,832
85.00°	1,498	1,498	1,498

UGR CIE 190:2010

Ceiling reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Plane reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
2H	2H	14.8	16.1	15.2	16.4	16.7	14.8	16.1	15.2	16.4	16.7
	3H	16.1	17.3	16.5	17.6	18.0	16.1	17.3	16.5	17.6	18.0
	4H	16.5	17.6	16.9	18.0	18.4	16.5	17.6	16.9	18.0	18.4
	6H	16.8	17.8	17.2	18.1	18.5	16.8	17.8	17.2	18.1	18.5
	8H	16.8	17.8	17.2	18.2	18.6	16.8	17.8	17.2	18.2	18.6
	12H	16.8	17.7	17.3	18.1	18.6	16.8	17.7	17.3	18.1	18.6
4H	2H	15.2	16.3	15.6	16.7	17.1	15.2	16.3	15.6	16.7	17.1
	3H	16.7	17.6	17.2	18.0	18.4	16.7	17.6	17.2	18.0	18.4
	4H	17.3	18.1	17.7	18.5	18.9	17.3	18.1	17.7	18.5	18.9
	6H	17.6	18.3	18.1	18.7	19.2	17.6	18.3	18.1	18.7	19.2
	8H	17.7	18.3	18.1	18.8	19.2	17.7	18.3	18.1	18.8	19.2
	12H	17.7	18.3	18.2	18.7	19.2	17.7	18.3	18.2	18.7	19.2
8H	4H	17.4	18.1	17.9	18.5	19.0	17.4	18.1	17.9	18.5	19.0
	6H	17.8	18.3	18.3	18.8	19.3	17.8	18.3	18.3	18.8	19.3
	8H	17.9	18.4	18.4	18.9	19.4	17.9	18.4	18.4	18.9	19.4
	12H	18.0	18.4	18.5	18.9	19.5	18.0	18.4	18.5	18.9	19.5
12H	4H	17.4	18.0	17.9	18.5	18.9	17.4	18.0	17.9	18.5	18.9
	6H	17.8	18.3	18.4	18.8	19.3	17.8	18.3	18.4	18.8	19.3
	8H	18.0	18.4	18.5	18.9	19.4	18.0	18.4	18.5	18.9	19.4

Corrected UGR values based on total output lumens

SHR = 1.0