

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

ALDDH16LEDLX 65L 35K xx AL16 MWI TF3 xx  
16" Diam. Alum Reflector MW Interior with TF3 Lens

#### Test Number

SP-01504

#### Test Date

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

### Summary of Results

#### Power

Input Watts	52 W
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#### Lumen Output

Output Lumens	5363
Efficacy	103.14 lm/W

#### Luminous Dimensions

0° - 180° Size	-1.33
90° - 270° Size	-1.33
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.06
Two luminaires, plane 90°	1.06
Four luminaires	1.03

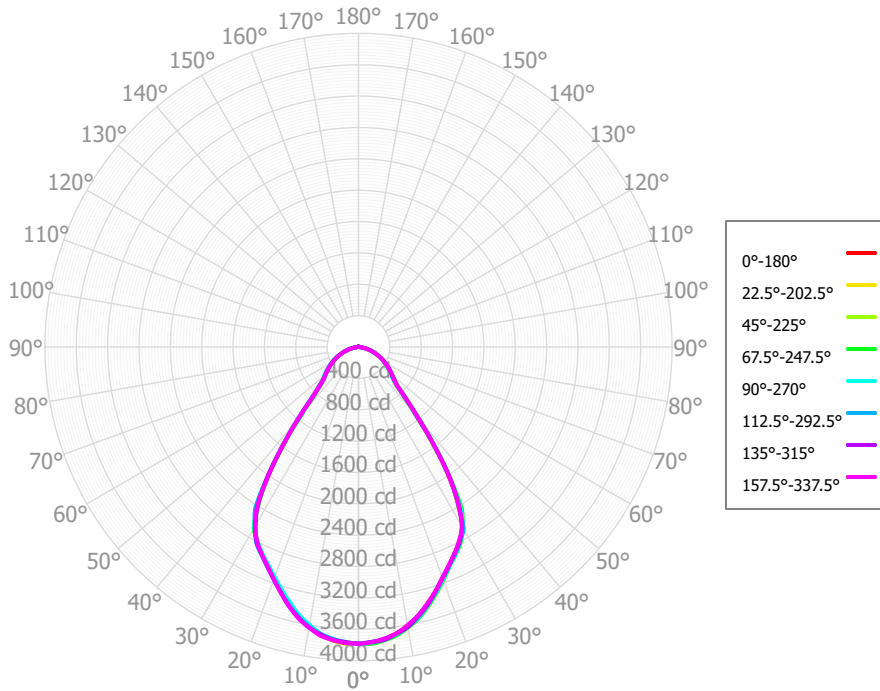
#### Full Beam Angle

0° - 180°	71°
90° - 270°	71°

### IES File Header Contents

Keyword	Value
TEST	SP-01504
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TEST DATE	2/27/2023
ISSUEDATE	03/01/2023
LUMCAT	ALDDH16LEDLX 65L 35K xx AL16 MWI TF3 xx
LUMINAIRE	16" Diam. Alum Reflector MW Interior with TF3 Lens
LAMP	N/A
LAMPCAT	N/A
OTHER	Total Luminaire Watts is approximate
OTHER	This report is created by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	358.84	6.69%	90.00° - 100.00°	2.92	0.05%
10.00° - 20.00°	954.33	17.79%	100.00° - 110.00°	2.78	0.05%
20.00° - 30.00°	1338.31	24.95%	100.00° - 120.00°	5.32	0.10%
30.00° - 40.00°	1219.87	22.74%	120.00° - 130.00°	2.18	0.04%
40.00° - 50.00°	581.29	10.84%	130.00° - 140.00°	2.03	0.04%
50.00° - 60.00°	417.38	7.78%	140.00° - 150.00°	1.74	0.03%
60.00° - 70.00°	295.71	5.51%	150.00° - 160.00°	1.33	0.02%
70.00° - 80.00°	152.08	2.84%	160.00° - 170.00°	0.84	0.02%
80.00° - 90.00°	29.02	0.54%	170.00° - 180.00°	0.30	0.01%
0.00° - 90.00°	5346.82	99.69%	0.00° - 180.00°	5363.48	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°	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84	3784.84
2.50°	3772.99	3786.63	3781.96	3789.69	3775.85	3767.17	3768.16	3781.37	3782.98	3789.58	3782.10	3778.95	3778.85	3767.06	3766.29	3772.20	3772.99
5.00°	3744.32	3746.19	3752.91	3757.76	3737.76	3740.04	3751.18	3750.55	3757.58	3750.87	3750.41	3745.33	3737.55	3743.72	3750.25	3735.33	3744.32
7.50°	3685.11	3701.67	3697.86	3712.12	3696.44	3698.99	3698.03	3716.16	3701.19	3706.70	3697.14	3690.05	3690.03	3692.89	3690.97	3687.21	3685.11
10.00°	3617.06	3618.64	3629.38	3634.46	3618.42	3623.52	3636.23	3633.03	3627.10	3618.21	3619.19	3607.72	3599.08	3619.49	3627.46	3602.59	3617.06
12.50°	3511.06	3528.86	3526.53	3546.57	3533.45	3529.77	3536.49	3546.83	3529.59	3524.11	3520.48	3507.02	3501.29	3517.70	3519.25	3507.40	3511.06
15.00°	3397.93	3404.14	3410.89	3424.99	3408.08	3411.62	3426.92	3418.64	3414.12	3403.80	3402.61	3388.98	3374.66	3398.44	3406.64	3388.16	3397.93
17.50°	3265.19	3277.91	3278.72	3296.39	3281.59	3284.13	3288.70	3289.94	3280.47	3280.56	3272.63	3261.85	3248.92	3269.72	3270.29	3264.26	3265.19
20.00°	3130.55	3146.67	3142.30	3164.92	3151.02	3158.94	3156.37	3157.00	3152.05	3148.37	3148.18	3128.14	3125.72	3136.73	3137.78	3132.49	3130.55
22.50°	3015.06	3021.76	3023.22	3033.13	3027.42	3034.36	3036.47	3028.18	3027.62	3024.48	3026.30	3014.02	3009.28	3021.33	3018.69	3010.98	3015.06
25.00°	2900.12	2911.72	2906.92	2927.08	2921.19	2926.62	2921.35	2919.13	2914.28	2918.59	2917.01	2910.42	2906.71	2911.63	2903.27	2902.65	2900.12
27.50°	2787.33	2787.82	2793.18	2820.14	2802.15	2821.63	2813.66	2798.54	2807.27	2798.95	2811.95	2794.02	2791.86	2797.07	2796.89	2781.28	2787.33
30.00°	2652.75	2640.12	2679.40	2652.05	2659.63	2642.24	2638.99	2641.90	2625.56	2657.05	2636.75	2672.56	2658.42	2681.44	2634.49	2647.25	2652.75
32.50°	2348.25	2386.55	2357.66	2457.65	2409.37	2456.84	2385.01	2408.36	2412.24	2398.89	2445.65	2369.16	2404.34	2363.47	2371.86	2372.57	2348.25
35.00°	2017.73	1995.10	2026.48	2025.25	2011.86	2023.76	2030.95	2002.66	2018.27	1997.60	2023.74	2016.39	2010.69	2020.75	2031.26	1994.93	2017.73
37.50°	1571.47	1586.01	1564.63	1597.97	1601.62	1592.30	1587.28	1595.80	1570.01	1584.17	1571.85	1579.64	1602.13	1587.98	1586.60	1590.07	1571.47
40.00°	1167.59	1159.55	1131.11	1195.85	1178.07	1204.18	1205.78	1187.01	1195.10	1159.44	1195.43	1128.39	1180.54	1156.63	1205.12	1170.16	1167.59
42.50°	888.59	874.12	875.74	853.99	884.68	848.84	866.79	881.71	834.30	877.54	828.10	889.57	899.54	908.86	888.19	902.09	888.59
45.00°	678.04	694.88	660.49	707.63	694.14	710.60	694.72	705.59	704.62	695.81	716.93	668.57	712.40	678.79	703.57	696.09	678.04
47.50°	613.23	600.26	602.40	591.98	593.97	591.41	607.26	597.32	598.22	602.78	611.59	614.78	617.09	620.70	622.56	609.39	613.23
50.00°	555.82	553.19	547.86	547.36	548.06	547.93	550.82	553.04	552.64	556.67	564.70	562.73	567.12	564.56	563.10	556.42	555.82
52.50°	510.20	507.14	502.76	503.27	503.32	504.39	505.86	509.24	508.67	511.82	518.33	518.12	520.94	518.47	516.25	512.53	510.20
55.00°	465.67	461.52	458.30	460.10	459.10	460.67	463.03	465.77	465.46	467.47	474.76	473.69	476.12	473.04	471.30	470.25	465.67
57.50°	422.46	418.99	415.11	417.64	416.88	417.99	420.73	422.60	422.44	425.46	431.37	430.57	432.42	429.76	427.17	424.94	422.46
60.00°	380.20	377.34	372.71	376.07	375.29	377.35	378.79	379.60	380.97	384.08	388.55	387.52	388.99	386.84	384.70	379.35	380.20
62.50°	338.78	335.87	331.47	335.57	334.66	336.57	336.91	338.25	339.68	342.73	346.06	344.75	347.26	344.78	342.73	339.57	338.78
65.00°	298.00	294.42	291.18	296.10	294.22	295.58	297.38	297.56	299.24	301.38	304.35	302.55	305.77	302.78	302.34	299.78	298.00
67.50°	257.64	255.03	251.95	256.71	254.17	255.39	258.00	257.14	258.94	260.00	263.29	261.95	264.45	260.89	262.26	258.08	257.64
70.00°	217.90	215.84	213.38	217.40	214.17	216.12	217.67	216.78	219.11	218.62	223.38	222.17	223.16	220.85	220.48	217.01	217.90
72.50°	178.49	179.18	175.36	179.29	178.14	177.64	177.64	179.83	179.55	182.37	185.05	184.07	184.80	183.21	178.51	180.57	178.49
75.00°	142.51	142.65	138.74	141.85	142.28	139.83	141.52	143.44	140.57	146.16	148.80	146.19	146.63	145.89	143.53	144.25	142.51
77.50°	107.80	107.71	103.00	107.12	107.26	105.40	105.96	109.20	104.48	110.40	113.00	108.64	110.68	108.88	108.78	108.48	107.80
80.00°	73.32	73.28	68.95	73.47	72.74	73.16	73.90	75.14	73.04	75.34	77.63	73.66	75.42	74.11	74.74	73.55	73.32
82.50°	38.89	42.73	35.69	44.22	42.67	44.59	43.83	44.73	44.43	44.90	47.09	41.62	44.16	41.02	42.19	41.08	38.89
85.00°	20.22	16.30	17.98	16.20	16.44	17.78	21.37	15.75	19.26	18.60	20.27	20.29	17.70	20.32	21.75	16.36	20.22
87.50°	4.04	8.12	5.41	8.11	9.16	7.82	4.78	8.74	5.84	8.98	7.81	8.19	8.92	6.56	4.63	7.85	4.04
90.00°	2.73	2.06	3.05	3.55	3.43	3.62	3.44	2.68	3.31	1.94	3.61	3.09	2.57	2.50	3.14	2.65	2.73
92.50°	2.53	2.35	2.97	3.33	2.66	2.89	2.62	2.97	2.37	1.94	2.56	2.60	2.48	2.46	2.08	2.58	2.53
95.00°	2.46	2.57	3.04	3.52	2.25	2.96	2.79	3.13	2.56	1.95	2.84	2.33	2.55	2.41	2.38	2.66	2.46
97.50°	2.41	2.64	3.12	3.37	2.69	2.68	2.82	2.72	2.45	1.99	2.78	2.17	2.91	2.35	2.55	2.94	2.41
100.00°	2.47	2.57	3.34	3.23	2.86	2.35	2.64	2.41	2.19	1.97	2.63	2.74	3.11	2.48	2.43	2.91	2.47
102.50°	2.54	2.27	3.54	3.46	2.59	2.59	2.54	2.37	2.05	1.85	2.95	3.57	3.10	2.64	2.40	2.62	2.54
105.00°	2.60	2.07	3.04	3.66	2.31	2.85	2.51	2.23	1.97	1.77	3.36	3.87	3.05	2.30	2.54	2.43	2.60

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>ptc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	6381	6381	6381	6381	6231	6231	6231	6231	5950	5950	5950	5693	5693	5693	5458	5458	5347
	<b>1</b>	5976	5782	5608	5451	5836	5662	5504	5362	5437	5309	5192	5230	5127	5032	5040	4958	4855
	<b>2</b>	5571	5230	4948	4712	5441	5132	4875	4656	4948	4734	4549	4779	4602	4446	4622	4477	4384
	<b>3</b>	5196	4752	4409	4136	5076	4672	4355	4100	4520	4251	4029	4380	4152	3961	4249	4059	3975
	<b>4</b>	4854	4341	3965	3678	4744	4274	3924	3653	4147	3845	3605	4030	3770	3559	3921	3698	3623
	<b>5</b>	4544	3984	3593	3305	4443	3928	3562	3288	3822	3501	3254	3723	3442	3221	3631	3386	3319
	<b>6</b>	4262	3673	3278	2995	4171	3626	3253	2983	3536	3205	2959	3452	3159	2935	3373	3114	3055
	<b>7</b>	4006	3401	3008	2733	3923	3360	2988	2724	3284	2950	2707	3212	2912	2689	3144	2877	2824
	<b>8</b>	3773	3160	2774	2509	3698	3125	2758	2503	3060	2727	2489	2998	2696	2476	2940	2667	2620
	<b>9</b>	3561	2947	2570	2316	3493	2917	2557	2311	2860	2531	2300	2806	2506	2290	2756	2482	2440
	<b>10</b>	3368	2757	2390	2147	3306	2731	2379	2143	2681	2358	2135	2634	2337	2127	2590	2316	2280

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	125.1 fc	7.9 ft
6.5 ft	89.6 fc	9.3 ft
7.5 ft	67.3 fc	10.8 ft
8.0 ft	59.1 fc	11.5 ft
10.0 ft	37.8 fc	14.4 ft
12.0 ft	26.3 fc	17.2 ft
14.0 ft	19.3 fc	20.1 ft
16.0 ft	14.8 fc	23.0 ft
20.0 ft	9.5 fc	28.7 ft
24.0 ft	6.6 fc	34.5 ft
28.0 ft	4.8 fc	40.2 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	29324	29324	29324
<b>45.00°</b>	7429	7237	7606
<b>55.00°</b>	6290	6191	6201
<b>65.00°</b>	5463	5338	5394
<b>75.00°</b>	4266	4153	4259
<b>85.00°</b>	1798	1598	1462

### 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	15.5	16.7	15.8	17.1	17.4	15.5	16.8	15.9	17.1	17.4
	3H	17.0	18.1	17.4	18.5	18.8	17.0	18.2	17.4	18.5	18.9
	4H	17.5	18.6	17.9	18.9	19.3	17.6	18.6	18.0	19.0	19.4
	6H	17.8	18.8	18.2	19.2	19.6	17.9	18.8	18.3	19.2	19.6
	8H	17.8	18.8	18.3	19.2	19.6	17.9	18.8	18.3	19.2	19.6
	12H	17.8	18.7	18.3	19.1	19.6	17.9	18.8	18.3	19.2	19.6
4H	2H	16.0	17.0	16.4	17.4	17.8	16.0	17.1	16.4	17.4	17.8
	3H	17.7	18.6	18.1	19.0	19.4	17.8	18.6	18.2	19.0	19.4
	4H	18.3	19.1	18.8	19.5	20.0	18.4	19.2	18.8	19.6	20.0
	6H	18.7	19.4	19.2	19.8	20.3	18.8	19.4	19.2	19.9	20.4
	8H	18.8	19.4	19.2	19.9	20.3	18.8	19.5	19.3	19.9	20.4
	12H	18.8	19.3	19.3	19.8	20.3	18.8	19.4	19.3	19.9	20.4
8H	4H	18.5	19.1	19.0	19.6	20.1	18.6	19.2	19.0	19.6	20.1
	6H	19.0	19.5	19.5	20.0	20.5	19.0	19.5	19.5	20.0	20.5
	8H	19.1	19.5	19.6	20.0	20.5	19.1	19.6	19.7	20.1	20.6
	12H	19.1	19.5	19.6	20.0	20.6	19.2	19.6	19.7	20.1	20.7
12H	4H	18.5	19.0	19.0	19.5	20.0	18.6	19.1	19.0	19.6	20.1
	6H	19.0	19.4	19.5	19.9	20.5	19.0	19.5	19.6	20.0	20.5
	8H	19.1	19.5	19.6	20.0	20.6	19.2	19.6	19.7	20.1	20.7

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0