

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

**Luminaire**

ALDDH16LEDLX 140L 35K xx AL16 MWI xx  
16" Diam. Alum Reflector MW Interior

**Test Number**

SP-01482\_3

**Test Date**

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

### Summary of Results

#### Power

Input Watts	107 W
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#### Lumen Output

Output Lumens	11400
Efficacy	106.54 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	1.09
Two luminaires, plane 90°	1.1
Four luminaires	1.04

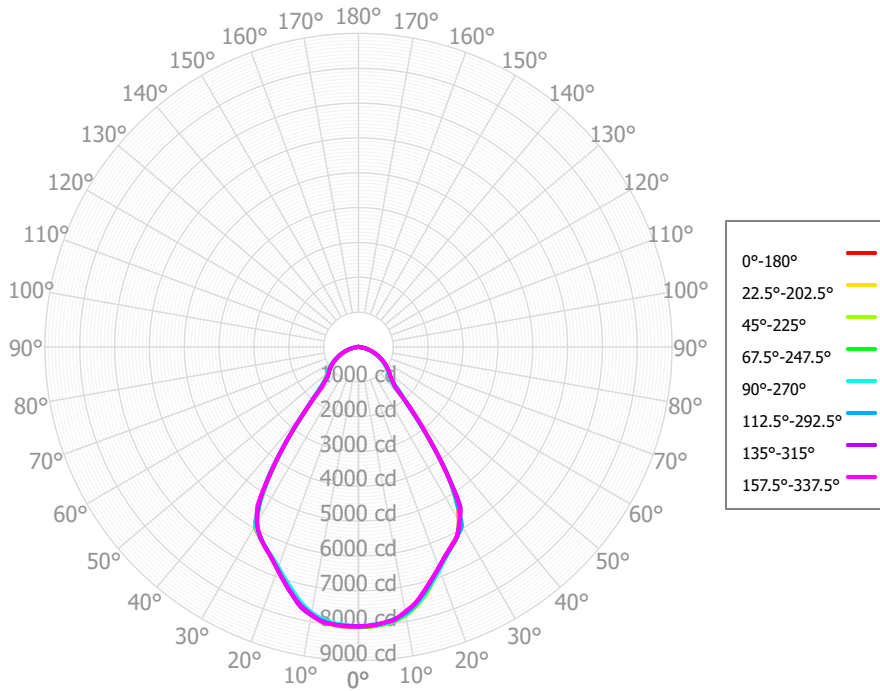
#### Full Beam Angle

0° - 180°	72°
90° - 270°	72°

### IES File Header Contents

Keyword	Value
TEST	SP-01482_3
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TEST DATE	2/27/2023
ISSUEDATE	03/01/2023
LUMCAT	ALDDH16LEDLX 140L 35K xx AL16 MWI xx
LUMINAIRE	16" Diam. Alum Reflector MW Interior
LAMP	N/A
LAMPCAT	N/A
OTHER	Total Luminaire Watts is approximate
OTHER	This report is created by Spectrum Lighting
_CRI	80+
_CCTMULT	40K x 1.00, 30K x 0.978, 27K x 0.949
_LAMPMULT	130L x .940

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	767.16	6.73%	90.00° - 100.00°	2.37	0.02%
10.00° - 20.00°	2052.24	18.00%	100.00° - 110.00°	2.24	0.02%
20.00° - 30.00°	2910.93	25.53%	100.00° - 120.00°	4.63	0.04%
30.00° - 40.00°	2633.15	23.10%	120.00° - 130.00°	2.45	0.02%
40.00° - 50.00°	1128.16	9.90%	130.00° - 140.00°	2.55	0.02%
50.00° - 60.00°	869.53	7.63%	140.00° - 150.00°	2.38	0.02%
60.00° - 70.00°	628.49	5.51%	150.00° - 160.00°	1.93	0.02%
70.00° - 80.00°	328.71	2.88%	160.00° - 170.00°	1.22	0.01%
80.00° - 90.00°	63.49	0.56%	170.00° - 180.00°	0.43	0.00%
0.00° - 90.00°	11381.85	99.84%	0.00° - 180.00°	11399.82	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°	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79	8021.79
2.50°	8026.25	8034.03	8018.77	8027.55	8010.51	8009.71	8016.42	8032.03	8027.77	8042.25	8014.12	8005.85	7988.84	7986.22	8010.07	8010.38	8026.25
5.00°	7987.72	7994.18	8003.64	7991.82	7981.12	7990.39	7996.58	7998.36	8008.25	8011.60	8001.59	7976.89	7959.23	7958.80	7954.26	7956.82	7987.72
7.50°	7911.02	7945.12	7926.79	7934.79	7924.72	7916.97	7953.01	7956.32	7921.83	7951.18	7905.30	7900.19	7876.18	7872.98	7889.18	7900.66	7911.02
10.00°	7773.24	7797.31	7829.10	7791.25	7788.08	7800.57	7819.15	7790.35	7794.94	7814.23	7801.71	7748.72	7738.66	7769.53	7720.97	7715.49	7773.24
12.50°	7563.10	7624.38	7620.01	7609.06	7594.64	7589.62	7650.45	7614.92	7589.23	7634.44	7562.91	7543.17	7529.72	7551.16	7537.72	7526.61	7563.10
15.00°	7309.24	7349.96	7391.67	7351.10	7344.77	7351.62	7366.80	7341.39	7340.64	7358.48	7316.68	7261.18	7254.82	7302.77	7269.62	7253.13	7309.24
17.50°	7008.44	7054.06	7078.87	7063.05	7059.37	7061.30	7082.66	7068.30	7066.69	7078.34	7035.94	6989.91	6988.67	7021.98	6992.18	6981.45	7008.44
20.00°	6739.56	6779.82	6780.96	6791.93	6793.48	6788.62	6797.12	6798.52	6780.37	6789.98	6754.39	6732.16	6729.85	6733.97	6745.32	6733.60	6739.56
22.50°	6501.30	6509.42	6538.95	6526.64	6538.63	6546.60	6536.37	6538.93	6549.71	6536.31	6543.82	6510.28	6514.39	6520.14	6500.92	6492.17	6501.30
25.00°	6296.50	6311.37	6311.70	6323.38	6329.94	6328.04	6337.69	6341.59	6342.85	6344.06	6333.96	6329.36	6331.31	6319.87	6315.20	6309.71	6296.50
27.50°	6120.37	6123.38	6131.56	6138.44	6144.36	6145.62	6114.62	6127.53	6142.25	6129.39	6148.33	6119.24	6125.43	6126.38	6132.57	6111.31	6120.37
30.00°	5763.76	5764.56	5832.03	5777.15	5786.42	5812.16	5838.14	5831.15	5943.98	5879.49	5933.38	5879.34	5904.39	5933.87	5795.21	5799.21	5763.76
32.50°	5267.12	5387.32	5197.91	5370.83	5351.42	5268.37	5327.07	5394.59	5236.77	5322.82	5197.69	5276.52	5258.53	5211.22	5449.89	5381.51	5267.12
35.00°	4414.14	4357.96	4422.32	4393.57	4432.18	4462.33	4363.77	4373.45	4362.75	4331.29	4429.18	4338.29	4358.09	4428.54	4396.76	4370.06	4414.14
37.50°	3314.77	3280.09	3302.19	3294.96	3323.82	3330.64	3367.42	3356.41	3324.33	3320.68	3290.29	3332.04	3347.33	3345.28	3347.82	3364.78	3314.77
40.00°	2416.28	2385.78	2337.05	2388.69	2412.94	2389.73	2313.85	2353.84	2239.87	2285.94	2219.56	2269.64	2277.15	2238.13	2430.15	2388.51	2416.28
42.50°	1643.10	1500.04	1707.82	1516.54	1568.88	1660.36	1579.24	1550.75	1707.54	1616.98	1723.60	1661.12	1711.89	1760.40	1556.96	1573.63	1643.10
45.00°	1311.98	1346.16	1269.56	1304.38	1291.75	1256.83	1341.87	1347.41	1305.25	1366.55	1285.41	1386.86	1386.44	1315.10	1392.59	1389.61	1311.98
47.50°	1225.29	1205.35	1195.77	1184.41	1182.22	1180.67	1175.85	1181.45	1184.45	1204.65	1220.27	1233.94	1240.10	1236.10	1235.53	1229.84	1225.29
50.00°	1142.58	1129.01	1119.89	1107.39	1104.98	1107.64	1108.81	1114.41	1119.69	1133.25	1152.26	1161.75	1168.30	1164.86	1158.59	1152.05	1142.58
52.50°	1061.85	1052.46	1040.48	1035.04	1035.98	1037.45	1036.64	1043.79	1043.22	1056.96	1069.48	1081.19	1085.91	1080.58	1080.39	1072.14	1061.85
55.00°	977.77	970.05	959.17	955.19	955.88	960.59	958.12	964.75	964.82	976.21	986.32	995.62	999.61	996.15	992.26	986.10	977.77
57.50°	892.23	887.32	874.96	874.78	873.40	878.31	878.46	883.64	883.33	893.07	901.46	909.51	911.97	907.18	904.43	899.70	892.23
60.00°	808.29	799.69	790.84	789.56	792.03	795.26	797.55	798.29	801.43	807.94	816.12	823.10	823.91	818.36	818.47	812.41	808.29
62.50°	724.94	712.50	706.84	704.13	710.84	711.66	714.24	713.69	715.73	722.72	728.97	735.29	737.47	731.82	732.39	725.39	724.94
65.00°	638.22	629.80	623.79	620.91	626.55	626.98	628.55	630.44	629.67	637.43	642.68	646.83	651.46	645.47	645.72	638.94	638.22
67.50°	550.36	547.18	541.90	537.75	541.83	541.61	544.75	547.94	546.17	552.93	559.13	561.03	564.74	561.09	560.02	554.08	550.36
70.00°	468.37	465.07	460.63	458.03	461.25	460.66	462.67	466.65	462.84	468.95	475.41	476.33	477.87	477.02	478.42	472.38	468.37
72.50°	388.09	383.55	380.03	378.44	381.09	382.33	383.86	386.97	385.85	389.42	391.25	395.73	397.96	395.40	397.55	391.79	388.09
75.00°	310.48	305.63	302.99	302.40	304.67	305.18	307.69	309.62	309.07	312.51	310.46	316.61	319.42	314.53	319.34	313.16	310.48
77.50°	233.52	229.11	229.46	226.88	228.52	228.64	233.11	235.32	234.50	236.94	237.81	241.95	243.81	238.46	242.13	236.38	233.52
80.00°	161.81	159.44	159.62	159.07	158.76	157.84	159.71	165.02	160.14	162.09	166.52	168.71	168.66	164.03	168.01	162.49	161.81
82.50°	91.17	93.83	93.04	93.17	89.27	89.68	95.87	100.96	94.58	97.61	98.12	102.63	101.59	97.87	99.72	97.04	91.17
85.00°	47.27	45.07	46.46	46.93	46.14	45.96	38.26	44.23	31.28	38.00	44.44	38.50	35.50	40.21	47.18	43.52	47.27
87.50°	7.90	6.58	15.94	5.83	3.92	12.23	12.19	11.67	16.10	13.95	18.74	16.43	16.89	18.78	9.10	10.94	7.90
90.00°	2.59	4.01	3.04	3.72	2.90	2.72	4.38	4.78	2.03	4.76	2.44	4.14	2.58	1.98	5.10	4.75	2.59
92.50°	1.80	2.09	2.75	1.89	1.91	1.82	1.85	1.43	2.19	2.21	1.94	2.16	1.66	1.81	2.40	1.78	1.80
95.00°	1.81	2.14	2.49	1.76	1.78	1.76	2.06	1.45	2.28	2.06	1.70	2.16	1.58	1.79	2.41	2.49	1.81
97.50°	1.89	2.15	2.25	1.66	1.66	1.95	2.07	1.67	1.77	2.06	1.85	1.93	1.66	2.27	2.44	2.61	1.89
100.00°	1.83	2.08	2.36	1.72	1.61	1.96	1.98	2.06	1.35	2.11	1.81	1.66	1.75	2.67	2.50	2.15	1.83
102.50°	1.77	2.08	2.66	1.91	1.57	1.91	1.98	2.07	1.52	1.99	1.51	1.87	2.00	2.84	2.63	1.95	1.77
105.00°	2.11	2.26	2.75	2.64	1.59	2.05	2.00	1.78	1.69	1.83	1.45	2.14	2.25	2.87	2.88	1.99	2.11

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</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%	10%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
	<b>0</b>	13567	13567	13567	13567	13249	13249	13249	13249	12656	12656	12656	12114	12114	12114	11616	11616	11382
	<b>1</b>	12709	12297	11928	11595	12413	12043	11710	11407	11569	11297	11049	11133	10915	10713	10731	10558	10340
	<b>2</b>	11852	11130	10534	10033	11577	10924	10378	9916	10536	10082	9689	10179	9803	9474	9849	9541	9268
	<b>3</b>	11060	10121	9395	8817	10806	9952	9281	8741	9632	9062	8592	9336	8854	8449	9061	8657	8311
	<b>4</b>	10338	9252	8457	7849	10106	9111	8371	7798	8845	8205	7698	8598	8046	7600	8368	7896	7505
	<b>5</b>	9682	8498	7671	7061	9470	8380	7605	7025	8157	7477	6956	7949	7354	6887	7755	7237	6821
	<b>6</b>	9086	7841	7005	6406	8893	7741	6953	6380	7552	6852	6330	7376	6755	6281	7211	6662	6233
	<b>7</b>	8544	7263	6433	5851	8369	7179	6392	5833	7018	6311	5796	6867	6233	5760	6725	6158	5725
	<b>8</b>	8050	6753	5937	5376	7892	6681	5904	5363	6542	5838	5335	6413	5775	5308	6291	5713	5281
	<b>9</b>	7601	6300	5503	4965	7457	6238	5476	4955	6118	5422	4934	6006	5370	4913	5900	5319	4892
	<b>10</b>	7191	5896	5121	4606	7060	5842	5098	4597	5738	5054	4581	5640	5010	4565	5548	4968	4549

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	265.2 fc	8.0 ft
6.5 ft	189.9 fc	9.4 ft
7.5 ft	142.6 fc	10.8 ft
8.0 ft	125.3 fc	11.6 ft
10.0 ft	80.2 fc	14.5 ft
12.0 ft	55.7 fc	17.3 ft
14.0 ft	40.9 fc	20.2 ft
16.0 ft	31.3 fc	23.1 ft
20.0 ft	20.1 fc	28.9 ft
24.0 ft	13.9 fc	34.7 ft
28.0 ft	10.2 fc	40.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	62151	62151	62151
<b>45.00°</b>	14375	13911	14154
<b>55.00°</b>	13208	12956	12912
<b>65.00°</b>	11700	11436	11486
<b>75.00°</b>	9294	9070	9120
<b>85.00°</b>	4202	4130	4102

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	18.1	19.3	18.4	19.7	20.0	18.1	19.3	18.5	19.7	20.0
	<b>3H</b>	19.6	20.8	20.0	21.1	21.5	19.7	20.8	20.0	21.1	21.5
	<b>4H</b>	20.2	21.2	20.6	21.6	22.0	20.2	21.2	20.6	21.6	22.0
	<b>6H</b>	20.5	21.5	20.9	21.8	22.2	20.5	21.5	20.9	21.9	22.3
	<b>8H</b>	20.5	21.5	21.0	21.9	22.3	20.6	21.5	21.0	21.9	22.3
	<b>12H</b>	20.5	21.4	21.0	21.8	22.2	20.6	21.4	21.0	21.8	22.3
<b>4H</b>	<b>2H</b>	18.6	19.6	19.0	20.0	20.4	18.6	19.7	19.0	20.0	20.4
	<b>3H</b>	20.4	21.2	20.8	21.6	22.0	20.4	21.2	20.8	21.6	22.1
	<b>4H</b>	21.0	21.8	21.4	22.2	22.6	21.0	21.8	21.5	22.2	22.7
	<b>6H</b>	21.4	22.1	21.9	22.5	23.0	21.4	22.1	21.9	22.6	23.0
	<b>8H</b>	21.5	22.1	22.0	22.6	23.0	21.5	22.1	22.0	22.6	23.1
	<b>12H</b>	21.5	22.1	22.0	22.5	23.0	21.5	22.1	22.0	22.6	23.0
<b>8H</b>	<b>4H</b>	21.2	21.8	21.7	22.3	22.7	21.2	21.8	21.7	22.3	22.8
	<b>6H</b>	21.7	22.2	22.2	22.7	23.2	21.7	22.2	22.2	22.7	23.2
	<b>8H</b>	21.8	22.3	22.3	22.8	23.3	21.8	22.3	22.4	22.8	23.3
	<b>12H</b>	21.9	22.3	22.4	22.8	23.3	21.9	22.3	22.4	22.8	23.3
<b>12H</b>	<b>4H</b>	21.2	21.7	21.7	22.2	22.7	21.2	21.8	21.7	22.2	22.7
	<b>6H</b>	21.7	22.2	22.2	22.6	23.2	21.7	22.2	22.3	22.6	23.2
	<b>8H</b>	21.8	22.2	22.4	22.7	23.3	21.9	22.3	22.4	22.8	23.3

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0