

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
Fall River, MA 02721  
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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

HMI1313 60L 50K DS10X SM BZ  
Nom. 12" x 12" x 5" H, HMI1313, Square Canopy Light

### **Test Number**

s17030051b-01

### **Test Date**

2017-03-19

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	6267
Efficacy	120.51 lm/W

#### Luminous Dimensions

0° - 180° Size	1.03
90° - 270° Size	1.03
Height	0.42

#### Spacing Criterion

Two luminaires, plane 0°	1.4
Two luminaires, plane 90°	1.37
Four luminaires	1.69

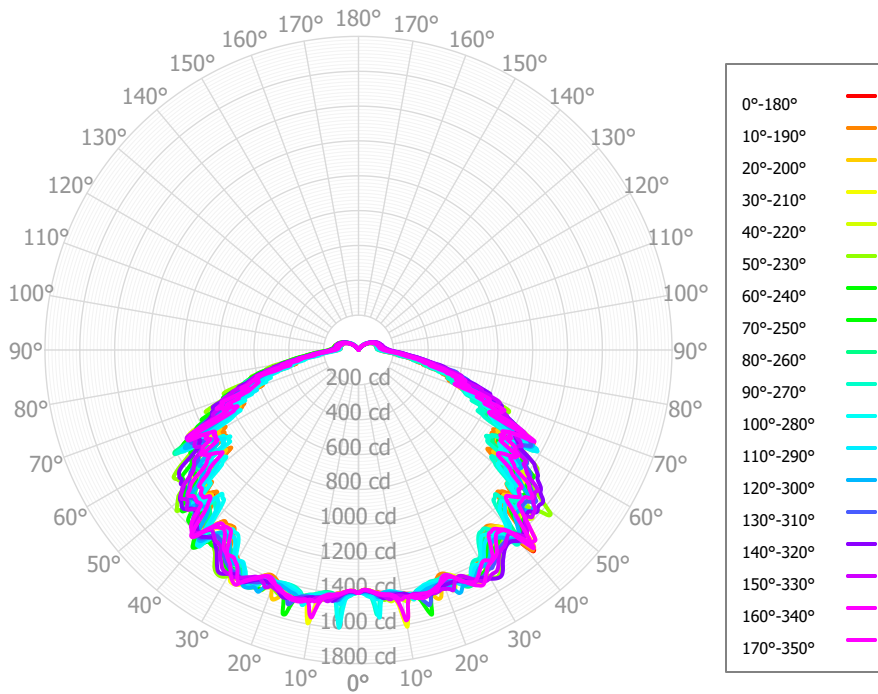
#### Full Beam Angle

0° - 180°	129°
90° - 270°	132°

### IES File Header Contents

Keyword	Value
TEST	s17030051b-01
TESTLAB	LTL
MANUFAC	Spectrum Lighting
TESTDATE	2017-03-19
ISSUEDATE	2017-03-19
LUMCAT	HMI1313 60L 50K DS10X SM BZ
LUMINAIRE	Nom. 12" x 12" x 5" H, HMI1313, Square Canopy Light
OTHER	Polycarbonate Refractive lens
OTHER	Beam Angle: xx.x
LAMP	45W 5000K
LAMPCAT	N/A
OTHER	Total Luminaire Watts is approximate
OTHER	N/A
OTHER	This report generated by Spectrum Lighting
_CRI	N/A
_CCTMULT	4000K x 0.96
_LAMPMULT	N/A

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	135.88	2.17%	90.00° - 100.00°	140.81	2.25%
10.00° - 20.00°	409.66	6.54%	100.00° - 110.00°	121.44	1.94%
20.00° - 30.00°	672.10	10.73%	100.00° - 120.00°	217.24	3.47%
30.00° - 40.00°	858.55	13.70%	120.00° - 130.00°	62.48	1.00%
40.00° - 50.00°	1006.17	16.06%	130.00° - 140.00°	32.66	0.52%
50.00° - 60.00°	975.83	15.57%	140.00° - 150.00°	11.43	0.18%
60.00° - 70.00°	886.40	14.14%	150.00° - 160.00°	1.51	0.02%
70.00° - 80.00°	592.21	9.45%	160.00° - 170.00°	0.41	0.01%
80.00° - 90.00°	263.08	4.20%	170.00° - 180.00°	0.14	0.00%
0.00° - 90.00°	5799.88	92.55%	0.00° - 180.00°	6266.56	100.00%

## Candela Dis

	0.00°	10.00°	20.00°	30.00°	40.00°	50.00°	60.00°	70.00°	80.00°	90.00°	100.00°	110.00°	120.00°	130.00°	140.00°	150.00°	160.00°	170.00°	18
0.00°	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19	1394.19
0.50°	1385.24	1385.74	1385.74	1386.22	1387.81	1388.13	1389.71	1391.36	1392.94	1394.39	1394.84	1394.92	1395.20	1393.99	1393.51	1392.67	1391.79	1391.75	1391.75
1.00°	1379.20	1379.05	1379.24	1379.67	1380.61	1381.34	1383.75	1387.75	1391.97	1396.19	1397.89	1397.05	1394.79	1390.95	1389.02	1387.68	1385.68	1384.87	1384.87
1.50°	1377.76	1377.55	1377.54	1378.06	1378.31	1379.02	1381.81	1386.92	1393.78	1400.87	1404.11	1401.11	1395.24	1389.67	1386.55	1385.09	1384.01	1383.46	1383.46
2.00°	1379.35	1378.88	1379.57	1380.22	1379.76	1381.59	1383.58	1388.09	1396.82	1407.29	1411.56	1405.23	1396.67	1389.65	1386.97	1384.75	1383.26	1383.20	1383.20
2.50°	1381.18	1381.06	1381.78	1382.21	1382.87	1385.69	1388.83	1392.21	1400.03	1412.45	1419.13	1409.36	1399.17	1392.85	1389.31	1386.88	1385.63	1385.93	1385.93
3.00°	1386.97	1385.78	1385.40	1386.01	1387.24	1390.30	1393.17	1396.83	1404.85	1424.90	1436.12	1418.41	1403.44	1397.41	1394.57	1393.17	1390.85	1390.46	1390.46
3.50°	1392.31	1391.07	1390.83	1391.71	1393.15	1394.60	1398.25	1404.30	1415.88	1465.52	1495.15	1438.81	1413.01	1404.63	1400.85	1400.00	1396.46	1394.86	1394.86
4.00°	1394.62	1394.12	1394.61	1397.11	1399.90	1401.96	1406.43	1417.62	1433.98	1523.92	1598.96	1464.10	1426.09	1415.81	1410.93	1406.17	1401.86	1400.13	1400.13
4.50°	1395.60	1396.06	1397.72	1402.17	1406.86	1411.66	1419.87	1432.74	1430.39	1486.05	1542.88	1455.16	1440.70	1430.98	1419.00	1412.83	1408.09	1404.77	1404.77
5.00°	1398.92	1399.62	1401.78	1407.89	1412.89	1424.26	1432.77	1423.75	1411.09	1432.69	1457.19	1425.83	1428.76	1444.34	1429.54	1419.86	1413.17	1406.61	1406.61
5.50°	1400.07	1401.32	1403.98	1412.04	1421.71	1437.92	1430.26	1412.55	1405.97	1421.26	1436.33	1415.27	1417.00	1433.55	1444.03	1426.14	1415.91	1409.91	1409.91
6.00°	1400.82	1401.57	1405.57	1415.46	1428.78	1443.51	1423.25	1411.33	1406.54	1418.46	1432.57	1413.43	1416.09	1423.42	1448.79	1434.12	1420.17	1412.38	1412.38
6.50°	1402.01	1400.89	1407.51	1419.58	1438.38	1437.30	1422.62	1414.39	1410.16	1417.61	1431.76	1415.06	1419.86	1425.31	1439.23	1446.05	1425.51	1412.70	1412.70
7.00°	1404.64	1401.10	1408.27	1423.45	1450.34	1431.21	1424.94	1418.24	1414.27	1415.50	1428.84	1416.88	1424.22	1429.83	1434.24	1453.59	1428.75	1414.06	1414.06
7.50°	1407.62	1405.13	1411.62	1426.89	1455.48	1430.23	1428.57	1422.84	1415.62	1416.37	1425.88	1418.36	1428.14	1433.12	1434.93	1450.22	1432.42	1419.86	1419.86
8.00°	1412.58	1410.80	1417.30	1434.80	1450.80	1431.16	1431.76	1426.06	1417.53	1418.42	1427.62	1421.22	1430.38	1436.27	1437.55	1442.04	1440.86	1426.66	1426.66
8.50°	1420.65	1419.12	1426.63	1450.13	1443.96	1433.42	1434.91	1428.98	1419.58	1419.68	1429.33	1423.91	1433.05	1437.53	1440.00	1438.36	1454.68	1434.87	1434.87
9.00°	1429.84	1427.33	1438.86	1484.54	1442.23	1436.06	1435.96	1431.26	1421.99	1420.94	1432.94	1426.18	1435.55	1439.56	1440.00	1440.09	1476.82	1447.15	1447.15
9.50°	1427.35	1425.21	1445.00	1561.35	1445.21	1438.72	1437.16	1432.53	1423.02	1422.21	1434.99	1428.14	1437.75	1441.97	1441.61	1443.21	1517.72	1459.59	1459.59
10.00°	1421.74	1419.70	1440.34	1613.58	1453.54	1441.38	1438.13	1435.83	1423.98	1423.47	1437.62	1429.15	1440.62	1444.61	1443.79	1449.70	1559.53	1465.25	1465.25
10.50°	1422.79	1420.17	1436.94	1563.32	1463.91	1442.83	1440.04	1438.23	1427.26	1424.73	1439.56	1432.85	1443.02	1444.95	1443.37	1460.23	1543.02	1460.90	1460.90
11.00°	1428.52	1424.47	1437.83	1489.10	1468.37	1446.63	1441.72	1441.09	1428.76	1427.01	1443.08	1435.34	1444.29	1445.65	1446.40	1469.77	1492.90	1459.77	1459.77
11.50°	1433.95	1427.41	1441.04	1461.24	1463.07	1451.62	1442.85	1444.69	1432.31	1431.89	1458.28	1437.98	1445.50	1445.22	1450.72	1471.01	1467.03	1464.63	1464.63
12.00°	1438.37	1430.53	1445.56	1456.79	1455.04	1457.97	1446.12	1445.97	1439.58	1441.26	1489.48	1445.12	1447.41	1446.38	1456.04	1466.07	1463.65	1471.62	1471.62
12.50°	1441.57	1433.91	1451.10	1457.25	1451.39	1462.70	1449.75	1448.22	1448.88	1443.83	1500.41	1452.60	1452.69	1448.87	1463.98	1462.79	1467.82	1478.44	1478.44
13.00°	1444.32	1435.66	1456.14	1459.16	1451.72	1461.53	1455.79	1453.17	1450.75	1431.58	1472.09	1453.60	1458.85	1452.47	1471.61	1464.59	1471.69	1482.78	1482.78
13.50°	1446.78	1438.16	1460.11	1460.76	1453.52	1457.24	1462.62	1460.19	1440.55	1420.85	1437.42	1440.18	1461.51	1460.12	1475.45	1467.33	1473.77	1484.65	1484.65
14.00°	1448.28	1440.12	1462.16	1462.21	1453.86	1455.17	1482.20	1463.63	1434.18	1416.35	1427.16	1436.19	1457.36	1472.31	1476.91	1468.63	1474.79	1484.92	1484.92
14.50°	1448.08	1440.90	1464.57	1462.52	1454.56	1455.05	1517.03	1455.11	1431.27	1414.07	1422.46	1433.65	1448.92	1485.60	1475.55	1471.25	1474.59	1483.97	1483.97
15.00°	1446.90	1439.51	1466.27	1463.23	1455.53	1455.97	1554.68	1446.86	1428.16	1410.23	1416.99	1432.36	1445.27	1504.39	1476.18	1473.44	1471.48	1483.74	1483.74
15.50°	1444.42	1435.68	1467.86	1463.01	1455.78	1456.47	1577.01	1442.99	1425.24	1405.70	1412.31	1429.52	1443.22	1514.99	1477.15	1472.80	1467.60	1481.42	1481.42
16.00°	1441.75	1431.80	1468.41	1460.98	1456.01	1458.05	1515.86	1440.28	1420.93	1401.54	1409.54	1425.42	1439.88	1489.64	1480.75	1469.79	1464.62	1477.56	1477.56
16.50°	1437.43	1426.77	1468.90	1456.51	1455.11	1460.65	1466.62	1435.55	1416.78	1396.69	1405.43	1421.35	1435.52	1474.04	1484.16	1465.92	1463.34	1471.66	1471.66
17.00°	1433.58	1421.91	1477.15	1451.43	1454.60	1463.31	1450.38	1431.35	1413.61	1392.79	1404.28	1417.40	1431.41	1466.40	1484.82	1462.75	1459.27	1463.98	1463.98
17.50°	1429.32	1416.93	1494.83	1444.12	1454.59	1464.79	1443.56	1428.68	1412.33	1391.78	1405.56	1413.16	1428.07	1459.04	1479.35	1461.04	1452.62	1456.79	1456.79
18.00°	1421.84	1409.03	1501.90	1436.16	1452.00	1463.43	1437.71	1425.56	1411.59	1393.65	1406.79	1411.09	1423.50	1451.04	1469.37	1459.58	1444.37	1451.80	1451.80
18.50°	1410.13	1396.63	1495.35	1431.04	1448.63	1458.46	1432.07	1422.63	1410.86	1393.67	1408.00	1410.76	1422.13	1445.40	1460.59	1458.22	1436.85	1448.10	1448.10
19.00°	1396.70	1383.51	1464.94	1425.32	1446.36	1452.58	1427.34	1423.02	1411.74	1394.12	1413.65	1411.93	1422.07	1441.21	1454.43	1455.37	1433.02	1441.15	1441.15
19.50°	1386.80	1373.28	1424.10	1416.35	1449.26	1446.16	1422.67	1423.48	1411.12	1392.50	1415.83	1411.04	1422.75	1437.47	1447.93	1451.20	1430.71	1429.84	1429.84
20.00°	1383.59	1369.79	1401.89	1406.07	1459.55	1441.95	1418.97	1426.32	1409.66	1388.15	1409.44	1407.72	1427.90	1434.72	1443.86	1447.27	1426.77	1415.84	1415.84
20.50°	1382.29	1370.56	1393.24	1395.40	1453.66	1437.83	1415.54	1430.43	1408.75	1384.93	1407.13	1402.17	1441.70	1432.54	1438.62	1448.25	1421.51	1405.52	1405.52
21.00°	1387.12	1375.20	1392.54	1386.94	1462.11	1434.20	1415.21	1436.89	1407.11	1383.67	1403.33	1400.47	1450.22	1430.37	1433.77	1459.19	1414.80	1398.80	1398.80
21.50°	1396.87	1384.02	1397.69	1385.86	1484.40	1430.58	1415.90	1447.60	1410.01	1386.68	1398.52	1401.81	1459.42	1431.95	1431.23	1463.55	1408.18	1396.73	1396.73
22.00°	1410.22	1397.76	1407.85	1390.57	1479.69	1426.96	1418.59	1438.49	1413.64	1397.88	1407.37	1407.84	1479.95	1435.47	1430.19	1448.62	1405.69	1398.25	1398.25
22.50°	1425.15	1413.05	1420.02	1399.40	1455.60	1426.16	1423.94	1437.16	1423.70	1417.55	1427.12	1423.01	1502.72	1440.98	1431.12	1440.40	1407.61	1403.91	1403.91

### 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%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	7349	7349	7349	7349	7124	7124	7124	7124	6704	6704	6704	6319	6319	6319	5966	5966	5800
	<b>1</b>	6591	6244	5933	5652	6366	6053	5771	5515	5697	5466	5254	5369	5182	5009	5067	4918	4779
	<b>2</b>	5923	5345	4868	4467	5707	5184	4747	4376	4880	4515	4201	4600	4298	4034	4341	4094	3966
	<b>3</b>	5353	4629	4069	3623	5150	4491	3975	3559	4232	3794	3434	3993	3624	3314	3770	3462	3351
	<b>4</b>	4867	4055	3461	3007	4679	3938	3386	2959	3716	3242	2866	3511	3105	2776	3320	2974	2879
	<b>5</b>	4450	3589	2988	2544	4279	3489	2927	2507	3299	2810	2435	3123	2698	2365	2958	2590	2509
	<b>6</b>	4091	3206	2612	2186	3935	3120	2562	2157	2957	2466	2100	2804	2373	2043	2661	2284	2213
	<b>7</b>	3779	2887	2309	1904	3638	2813	2268	1881	2671	2187	1834	2539	2109	1788	2414	2034	1973
	<b>8</b>	3506	2619	2061	1678	3378	2555	2026	1658	2431	1958	1620	2316	1891	1581	2207	1827	1774
	<b>9</b>	3267	2392	1855	1493	3151	2335	1825	1477	2227	1767	1444	2125	1710	1412	2030	1655	1609
	<b>10</b>	3055	2196	1682	1340	2950	2147	1657	1326	2052	1606	1298	1962	1557	1271	1877	1509	1468

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	46.1 fc	23.5 ft
6.5 ft	33.0 fc	27.7 ft
7.5 ft	24.8 fc	32.0 ft
8.0 ft	21.8 fc	34.1 ft
10.0 ft	13.9 fc	42.7 ft
12.0 ft	9.7 fc	51.2 ft
14.0 ft	7.1 fc	59.8 ft
16.0 ft	5.4 fc	68.3 ft
20.0 ft	3.5 fc	85.4 ft
24.0 ft	2.4 fc	102.4 ft
28.0 ft	1.8 fc	119.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	14145	14145	14145
<b>45.00°</b>	11828	12107	12642
<b>55.00°</b>	11823	11548	10085
<b>65.00°</b>	10435	9820	10029
<b>75.00°</b>	7840	7314	7325
<b>85.00°</b>	3982	3726	3859

### 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	19.8	21.4	20.3	21.9	22.4	19.9	21.5	20.4	22.0	22.5
	3H	21.8	23.2	22.3	23.7	24.2	21.8	23.2	22.3	23.7	24.2
	4H	22.5	23.9	23.0	24.4	24.9	22.6	24.0	23.1	24.5	25.0
	6H	23.0	24.2	23.5	24.7	25.3	23.1	24.4	23.6	24.9	25.4
	8H	23.1	24.3	23.6	24.8	25.4	23.3	24.5	23.8	25.0	25.6
	12H	23.2	24.4	23.7	24.9	25.5	23.4	24.5	23.9	25.1	25.7
4H	2H	20.7	22.0	21.2	22.5	23.1	20.8	22.1	21.3	22.6	23.2
	3H	22.8	24.0	23.3	24.5	25.1	22.9	24.0	23.4	24.6	25.1
	4H	23.7	24.7	24.2	25.3	25.9	23.8	24.9	24.3	25.4	26.0
	6H	24.2	25.1	24.8	25.7	26.3	24.4	25.3	25.0	25.9	26.5
	8H	24.4	25.3	25.0	25.8	26.5	24.6	25.5	25.1	26.0	26.7
	12H	24.5	25.3	25.1	25.9	26.6	24.7	25.5	25.3	26.1	26.8
8H	4H	24.0	24.9	24.6	25.5	26.1	24.2	25.1	24.8	25.6	26.3
	6H	24.7	25.5	25.3	26.1	26.7	24.9	25.6	25.5	26.3	26.9
	8H	25.0	25.6	25.6	26.3	26.9	25.2	25.8	25.8	26.5	27.1
	12H	25.2	25.8	25.8	26.4	27.1	25.4	26.0	26.0	26.6	27.3
12H	4H	24.1	24.9	24.7	25.5	26.1	24.2	25.0	24.8	25.6	26.3
	6H	24.8	25.5	25.4	26.1	26.8	25.0	25.7	25.6	26.2	26.9
	8H	25.1	25.7	25.7	26.3	27.0	25.3	25.9	25.9	26.5	27.2

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0