

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: HALO COMMERCIAL

Report Number: P242022

Luminaire Tested: **PRS440D010-S4M24-41SWWH-4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242022
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-62)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PRS440D010-S4M24-41SWWH-4000K
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM HAZE
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2146.8 lumens
Efficiency: N/A
Efficacy: 56.5 lumens/watt
Spacing Criteria (0/90/45): 1 / 0.96 / 1.05
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')
CIE Type: Direct

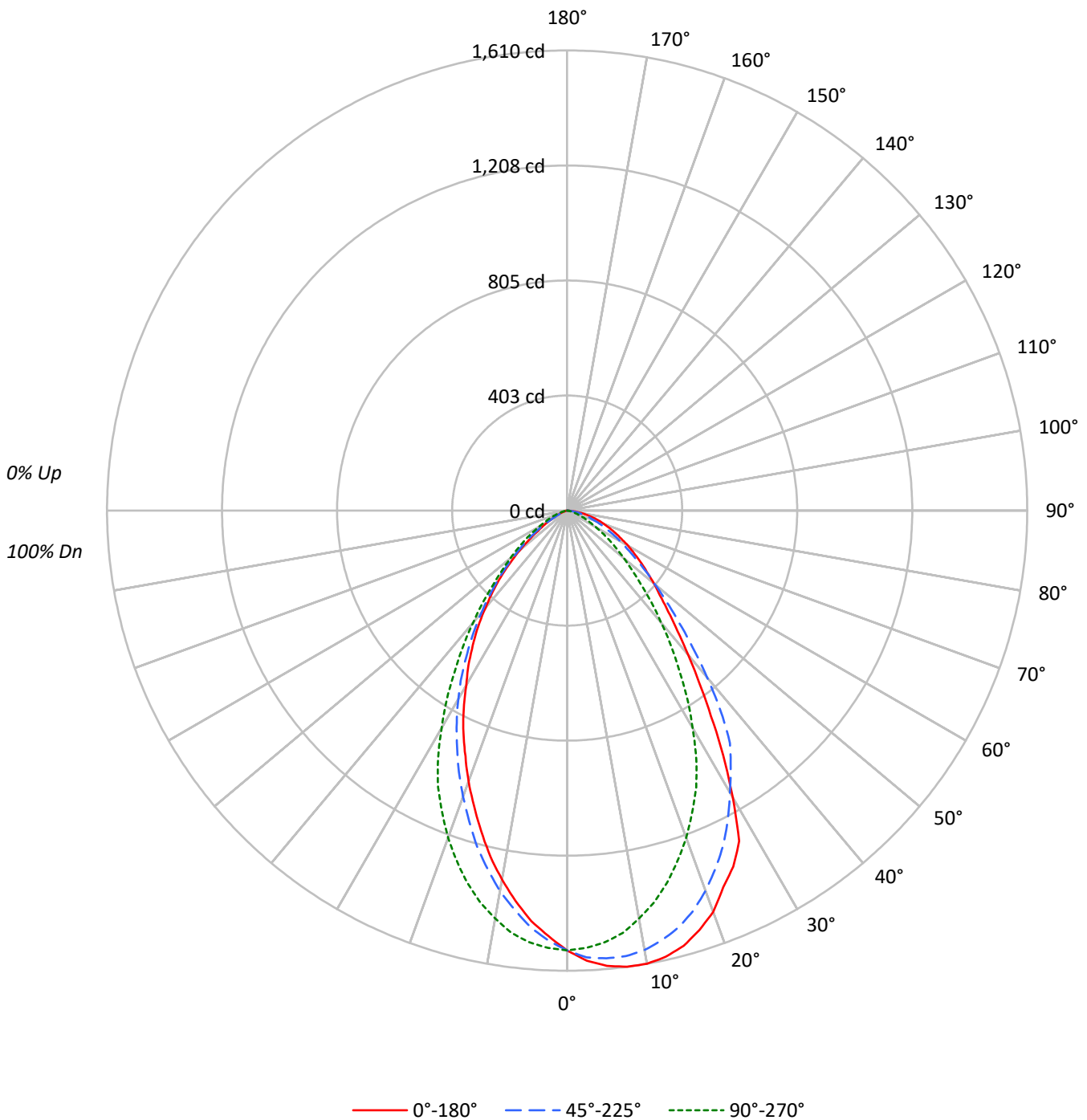
Input Watts (W): 38
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	108	105	102	109	106	103	101	102	100	97	98	96	95	95	93	92	90					90			
2	104	98	93	88	102	96	91	87	93	89	86	90	87	84	87	84	82	80					80			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	74	80	76	73	71					71			
4	91	81	74	69	89	80	73	68	78	72	68	76	71	67	74	69	66	64					64			
5	85	74	67	62	83	73	67	61	71	65	61	70	64	60	68	63	60	58					58			
6	79	68	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53					53			
7	75	63	56	51	73	62	56	51	61	55	50	60	54	50	59	53	50	48					48			
8	70	59	51	46	69	58	51	46	57	51	46	56	50	46	55	49	46	44					44			
9	66	55	48	43	65	54	47	43	53	47	42	52	46	42	51	46	42	41					41			
10	62	51	44	40	61	51	44	39	50	44	39	49	43	39	48	43	39	38					38			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	117785	117785	117785
5°	122830	116514	110774
10°	125120	112638	101896
15°	124904	106852	92049
20°	121695	99181	82148
25°	116085	90216	72556
30°	102341	77575	62391
35°	82014	63868	53748
40°	65688	51129	44415
45°	54178	39619	35581
50°	47144	30687	25793
55°	41863	23927	16454
60°	37736	17727	10869
65°	33833	12859	6774
70°	30929	9198	4185
75°	27622	5530	2218
80°	23054	3306	1631
85°	16423	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.9	6.7
10°-20°	381.0	17.7
20°-30°	501.4	23.4
30°-40°	465.5	21.7
40°-50°	325.1	15.1
50°-60°	190.9	8.9
60°-70°	94.7	4.4
70°-80°	38.2	1.8
80°-90°	7.0	0.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1025.4	47.8
0°-40°	1490.8	69.4
0°-60°	2006.8	93.5
0°-90°	2146.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2146.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1539	1539	1539	1539	1539	
5°	1599	1572	1516	1464	1442	153
15°	1576	1509	1348	1218	1162	442
25°	1374	1292	1068	911	859	624
35°	878	994	684	609	575	553
45°	500	553	366	340	329	392
55°	314	291	179	146	123	282
65°	187	149	71	30	37	186
75°	93	64	19	8	8	99
85°	19	11	0	0	0	22
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8
2.5°	1576.2	1572.5	1572.5	1572.5	1572.5	1568.7	1568.7	1568.7	1565.0	1565.0	1565.0
5°	1598.6	1598.6	1594.9	1594.9	1591.1	1591.1	1591.1	1587.4	1583.7	1579.9	1572.5
7.5°	1609.8	1609.8	1606.1	1606.1	1602.3	1598.6	1598.6	1591.1	1587.4	1579.9	1572.5
10°	1609.8	1609.8	1606.1	1606.1	1598.6	1594.9	1594.9	1591.1	1579.9	1572.5	1561.3
12.5°	1598.6	1598.6	1594.9	1591.1	1587.4	1583.7	1579.9	1572.5	1561.3	1550.1	1538.8
15°	1576.2	1576.2	1572.5	1568.7	1561.3	1557.5	1553.8	1546.3	1535.1	1520.2	1509.0
17.5°	1538.8	1538.8	1535.1	1531.4	1527.6	1520.2	1516.4	1505.2	1494.0	1482.8	1467.9
20°	1494.0	1490.3	1490.3	1486.6	1479.1	1479.1	1471.6	1460.4	1449.2	1430.5	1415.6
22.5°	1426.8	1430.5	1430.5	1423.1	1415.6	1415.6	1408.1	1404.4	1389.4	1374.5	1355.8
25°	1374.5	1370.8	1370.8	1363.3	1352.1	1352.1	1348.4	1337.2	1322.2	1307.3	1292.3
27.5°	1303.5	1299.8	1299.8	1299.8	1288.6	1288.6	1281.1	1266.2	1251.2	1240.0	1217.6
30°	1157.9	1169.1	1169.1	1180.3	1191.5	1199.0	1206.4	1199.0	1180.3	1161.6	1139.2
32.5°	1015.9	1023.4	1030.9	1042.1	1057.0	1068.2	1079.4	1090.6	1105.6	1086.9	1064.5
35°	877.7	885.2	888.9	903.9	922.6	926.3	941.2	967.4	982.3	997.3	993.5
37.5°	758.2	762.0	769.4	780.6	795.6	806.8	818.0	836.7	862.8	885.2	881.5
40°	657.4	653.6	664.8	668.6	683.5	694.7	709.7	724.6	750.7	762.0	762.0
42.5°	571.5	571.5	575.2	582.7	593.9	601.3	608.8	623.8	646.2	649.9	649.9
45°	500.5	500.5	504.2	511.7	519.2	519.2	530.4	545.3	549.1	552.8	552.8
47.5°	440.7	444.5	444.5	448.2	451.9	459.4	463.1	470.6	470.6	470.6	470.6
50°	395.9	395.9	395.9	399.7	403.4	407.1	407.1	407.1	407.1	403.4	399.7
52.5°	351.1	351.1	351.1	354.8	354.8	358.6	358.6	354.8	351.1	347.4	343.6
55°	313.7	310.0	313.7	313.7	317.5	317.5	313.7	310.0	306.3	298.8	291.3
57.5°	276.4	276.4	276.4	276.4	280.1	276.4	276.4	272.7	265.2	257.7	250.2
60°	246.5	242.8	242.8	242.8	246.5	242.8	242.8	235.3	231.6	220.4	212.9
62.5°	212.9	212.9	212.9	216.6	212.9	212.9	209.2	201.7	198.0	190.5	183.0
65°	186.8	186.8	186.8	186.8	183.0	179.3	179.3	171.8	168.1	160.6	149.4
67.5°	160.6	160.6	160.6	160.6	156.9	153.1	153.1	145.7	141.9	134.5	127.0
70°	138.2	134.5	138.2	134.5	130.7	127.0	127.0	123.3	115.8	108.3	100.8
72.5°	115.8	115.8	115.8	112.1	108.3	104.6	104.6	97.1	93.4	89.6	82.2
75°	93.4	93.4	93.4	89.6	85.9	85.9	82.2	78.4	74.7	71.0	63.5
77.5°	71.0	71.0	71.0	71.0	67.2	63.5	63.5	59.8	56.0	52.3	48.6
80°	52.3	52.3	52.3	48.6	48.6	48.6	44.8	44.8	41.1	37.4	33.6
82.5°	33.6	33.6	33.6	33.6	29.9	29.9	29.9	26.1	26.1	22.4	18.7
85°	18.7	18.7	18.7	18.7	14.9	14.9	14.9	14.9	14.9	11.2	11.2
87.5°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8
2.5°	1561.3	1557.5	1553.8	1550.1	1550.1	1546.3	1542.6	1538.8	1535.1	1531.4	1531.4
5°	1568.7	1561.3	1557.5	1550.1	1546.3	1546.3	1538.8	1531.4	1523.9	1516.4	1509.0
7.5°	1565.0	1557.5	1546.3	1538.8	1535.1	1527.6	1520.2	1509.0	1497.8	1490.3	1479.1
10°	1550.1	1538.8	1527.6	1512.7	1509.0	1501.5	1490.3	1475.3	1464.1	1449.2	1438.0
12.5°	1527.6	1512.7	1497.8	1482.8	1475.3	1467.9	1452.9	1434.3	1419.3	1404.4	1385.7
15°	1490.3	1479.1	1456.7	1441.7	1430.5	1423.1	1404.4	1385.7	1367.0	1348.4	1333.4
17.5°	1445.5	1430.5	1411.9	1389.4	1378.2	1370.8	1348.4	1322.2	1303.5	1284.9	1269.9
20°	1400.6	1378.2	1355.8	1333.4	1318.5	1311.0	1284.9	1258.7	1240.0	1217.6	1195.2
22.5°	1340.9	1314.7	1292.3	1266.2	1255.0	1240.0	1217.6	1187.7	1161.6	1142.9	1116.8
25°	1269.9	1251.2	1221.4	1195.2	1180.3	1169.1	1139.2	1116.8	1090.6	1068.2	1042.1
27.5°	1199.0	1172.8	1150.4	1124.3	1105.6	1090.6	1064.5	1034.6	1008.5	978.6	956.2
30°	1120.5	1101.8	1072.0	1030.9	1012.2	997.3	963.6	930.0	903.9	877.7	859.1
32.5°	1042.1	1004.7	971.1	933.8	915.1	900.1	862.8	836.7	806.8	784.4	765.7
35°	948.7	911.4	874.0	829.2	814.2	795.6	762.0	735.8	705.9	683.5	668.6
37.5°	855.3	810.5	769.4	735.8	720.9	698.5	668.6	638.7	616.3	597.6	578.9
40°	754.5	717.1	679.8	638.7	623.8	608.8	578.9	556.5	526.6	511.7	496.8
42.5°	642.4	627.5	590.1	556.5	537.8	522.9	493.0	470.6	451.9	437.0	422.1
45°	545.3	534.1	508.0	474.4	463.1	448.2	422.1	395.9	381.0	366.0	354.8
47.5°	463.1	451.9	433.3	403.4	388.4	377.2	354.8	336.2	321.2	306.3	298.8
50°	392.2	381.0	362.3	343.6	332.4	317.5	298.8	283.9	268.9	257.7	250.2
52.5°	332.4	321.2	302.5	287.6	280.1	268.9	250.2	239.0	224.1	216.6	209.2
55°	283.9	272.7	257.7	242.8	235.3	224.1	209.2	194.2	186.8	179.3	171.8
57.5°	242.8	227.8	216.6	205.4	198.0	186.8	171.8	164.3	153.1	145.7	138.2
60°	205.4	194.2	183.0	168.1	160.6	156.9	141.9	130.7	123.3	115.8	108.3
62.5°	171.8	160.6	149.4	138.2	134.5	127.0	115.8	104.6	97.1	89.6	85.9
65°	141.9	134.5	123.3	112.1	108.3	100.8	89.6	82.2	74.7	71.0	67.2
67.5°	119.5	108.3	100.8	89.6	85.9	82.2	71.0	63.5	59.8	56.0	48.6
70°	93.4	85.9	78.4	71.0	67.2	63.5	56.0	48.6	44.8	41.1	37.4
72.5°	74.7	67.2	59.8	52.3	48.6	48.6	41.1	37.4	33.6	29.9	26.1
75°	59.8	52.3	44.8	41.1	37.4	33.6	29.9	26.1	22.4	18.7	18.7
77.5°	41.1	37.4	33.6	26.1	26.1	22.4	18.7	18.7	14.9	14.9	11.2
80°	29.9	26.1	22.4	18.7	14.9	14.9	11.2	11.2	7.5	7.5	7.5
82.5°	18.7	14.9	11.2	11.2	11.2	7.5	7.5	7.5	3.7	3.7	3.7
85°	7.5	7.5	3.7	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0
87.5°	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8
2.5°	1527.6	1523.9	1520.2	1516.4	1516.4	1516.4	1509.0	1509.0	1505.2	1501.5	1501.5
5°	1505.2	1497.8	1490.3	1490.3	1482.8	1479.1	1475.3	1467.9	1464.1	1460.4	1456.7
7.5°	1467.9	1460.4	1449.2	1445.5	1441.7	1434.3	1423.1	1419.3	1408.1	1404.4	1400.6
10°	1426.8	1411.9	1404.4	1393.2	1393.2	1378.2	1370.8	1359.6	1352.1	1344.6	1337.2
12.5°	1374.5	1355.8	1340.9	1337.2	1329.7	1314.7	1307.3	1292.3	1284.9	1277.4	1269.9
15°	1314.7	1299.8	1281.1	1273.7	1266.2	1251.2	1240.0	1228.8	1217.6	1206.4	1199.0
17.5°	1247.5	1232.6	1210.2	1202.7	1199.0	1180.3	1165.3	1150.4	1139.2	1131.7	1120.5
20°	1176.5	1157.9	1139.2	1131.7	1124.3	1109.3	1094.4	1079.4	1064.5	1053.3	1045.8
22.5°	1098.1	1075.7	1060.8	1053.3	1045.8	1027.1	1015.9	1001.0	989.8	978.6	971.1
25°	1023.4	1001.0	982.3	974.9	963.6	948.7	937.5	926.3	911.4	900.1	892.7
27.5°	937.5	915.1	900.1	896.4	885.2	874.0	859.1	844.1	836.7	825.4	818.0
30°	844.1	829.2	818.0	806.8	803.0	791.8	784.4	773.2	762.0	750.7	739.5
32.5°	747.0	735.8	720.9	720.9	717.1	709.7	702.2	694.7	687.3	679.8	668.6
35°	657.4	642.4	635.0	635.0	627.5	623.8	623.8	616.3	608.8	605.1	601.3
37.5°	567.7	560.3	549.1	549.1	545.3	545.3	541.6	537.8	537.8	537.8	534.1
40°	485.6	478.1	470.6	466.9	466.9	466.9	463.1	466.9	466.9	466.9	466.9
42.5°	410.9	407.1	399.7	399.7	399.7	399.7	399.7	399.7	399.7	403.4	403.4
45°	351.1	343.6	339.9	336.2	339.9	336.2	336.2	339.9	339.9	343.6	339.9
47.5°	291.3	291.3	283.9	283.9	283.9	283.9	283.9	283.9	283.9	283.9	287.6
50°	246.5	239.0	239.0	235.3	235.3	235.3	235.3	235.3	231.6	235.3	235.3
52.5°	205.4	198.0	198.0	194.2	194.2	190.5	190.5	186.8	186.8	186.8	186.8
55°	168.1	160.6	160.6	156.9	156.9	153.1	153.1	149.4	145.7	145.7	141.9
57.5°	134.5	127.0	127.0	123.3	123.3	119.5	115.8	112.1	108.3	108.3	104.6
60°	104.6	100.8	97.1	97.1	93.4	89.6	85.9	78.4	74.7	74.7	71.0
62.5°	82.2	78.4	74.7	71.0	71.0	63.5	59.8	52.3	48.6	44.8	48.6
65°	63.5	59.8	56.0	52.3	48.6	44.8	37.4	33.6	29.9	33.6	33.6
67.5°	44.8	41.1	37.4	37.4	33.6	29.9	22.4	22.4	22.4	22.4	26.1
70°	33.6	29.9	26.1	22.4	18.7	14.9	14.9	14.9	14.9	14.9	18.7
72.5°	22.4	18.7	14.9	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
75°	14.9	11.2	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
77.5°	11.2	7.5	3.7	3.7	3.7	3.7	3.7	7.5	7.5	3.7	7.5
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
82.5°	0.0	0.0	0.0	3.7	3.7	0.0	3.7	3.7	0.0	3.7	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242022

CATALOG NUMBER: PRS440D010-S4M24-41SWWH-4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8	1538.8
2.5°	1501.5	1497.8	1497.8	1494.0	1494.0	1497.8	1494.0	1490.3
5°	1449.2	1449.2	1449.2	1445.5	1441.7	1441.7	1441.7	1441.7
7.5°	1393.2	1389.4	1389.4	1389.4	1385.7	1378.2	1378.2	1378.2
10°	1329.7	1322.2	1322.2	1318.5	1318.5	1314.7	1314.7	1311.0
12.5°	1262.5	1255.0	1251.2	1247.5	1243.8	1240.0	1243.8	1240.0
15°	1191.5	1184.0	1176.5	1176.5	1172.8	1165.3	1165.3	1161.6
17.5°	1113.0	1101.8	1101.8	1098.1	1090.6	1090.6	1086.9	1083.2
20°	1034.6	1027.1	1023.4	1019.7	1015.9	1008.5	1008.5	1008.5
22.5°	956.2	948.7	945.0	945.0	941.2	933.8	933.8	930.0
25°	881.5	874.0	870.3	866.5	862.8	862.8	859.1	859.1
27.5°	810.5	799.3	799.3	791.8	788.1	784.4	784.4	784.4
30°	732.1	728.3	720.9	724.6	713.4	713.4	713.4	705.9
32.5°	661.1	657.4	653.6	653.6	646.2	642.4	646.2	642.4
35°	593.9	590.1	586.4	582.7	578.9	578.9	575.2	575.2
37.5°	530.4	522.9	519.2	519.2	515.4	515.4	511.7	511.7
40°	463.1	463.1	459.4	455.7	451.9	448.2	444.5	444.5
42.5°	403.4	399.7	395.9	395.9	392.2	384.7	384.7	384.7
45°	343.6	339.9	336.2	336.2	332.4	328.7	325.0	328.7
47.5°	283.9	283.9	283.9	280.1	276.4	272.7	268.9	268.9
50°	235.3	231.6	231.6	231.6	224.1	220.4	216.6	216.6
52.5°	186.8	183.0	183.0	183.0	179.3	171.8	168.1	168.1
55°	141.9	141.9	141.9	138.2	134.5	130.7	127.0	123.3
57.5°	100.8	100.8	100.8	100.8	100.8	100.8	97.1	97.1
60°	71.0	74.7	74.7	78.4	78.4	74.7	71.0	71.0
62.5°	52.3	56.0	56.0	56.0	56.0	52.3	52.3	52.3
65°	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
67.5°	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
70°	18.7	18.7	18.7	18.7	18.7	18.7	14.9	18.7
72.5°	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
75°	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
77.5°	3.7	7.5	3.7	3.7	3.7	3.7	3.7	3.7
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
82.5°	3.7	3.7	3.7	0.0	0.0	0.0	0.0	3.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)