

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: P242032

Luminaire Tested: **PRS440D010-S4M24-41SWWMW**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242032  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-63)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: PRS440D010-S4M24-41SWWMW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM MATTE WHITE  
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2331.8 lumens  
Efficiency: N/A  
Efficacy: 61.4 lumens/watt  
Spacing Criteria (0/90/45): 1 / 0.97 / 1.07  
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')  
CIE Type: Direct

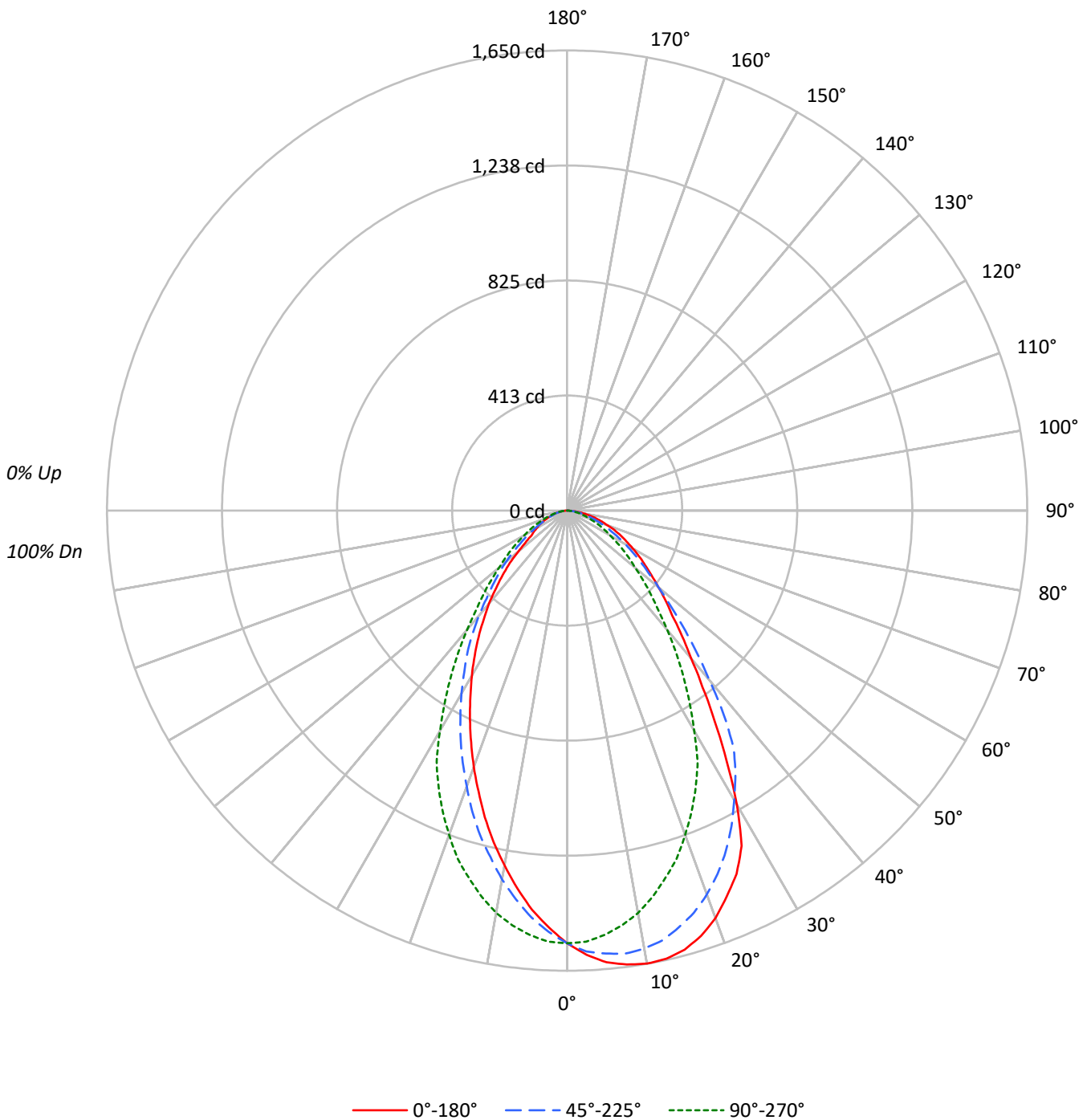
Input Watts (W): 38  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	111	107	104	101	109	105	102	99	101	98	96	97	95	93	94	92	91	89					89			
2	103	97	91	86	101	95	90	85	91	87	84	88	85	82	85	82	80	78					78			
3	96	87	81	75	94	86	80	75	83	78	73	80	76	72	78	74	71	69					69			
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	62					62			
5	83	72	65	59	81	71	64	59	69	63	58	67	62	58	66	61	57	55					55			
6	78	66	59	53	76	65	58	53	64	57	53	62	57	52	61	56	52	50					50			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45					45			
8	68	57	49	44	67	56	49	44	55	48	44	54	48	44	53	47	43	42					42			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38					38			
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35					35			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	118742	118742	118742
5°	124927	117382	110444
10°	128206	113858	100427
15°	129159	107993	90250
20°	126680	100769	79656
25°	121397	92209	69651
30°	107608	80536	60402
35°	86238	67895	51748
40°	69065	55726	43555
45°	57816	45919	35289
50°	50978	37879	27127
55°	45600	32495	20965
60°	41487	27050	19243
65°	38415	23473	17786
70°	34286	19336	15823
75°	31349	16266	13929
80°	27682	13841	12122
85°	17213	10363	10363



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	144.1	6.2
10°-20°	385.2	16.5
20°-30°	511.5	21.9
30°-40°	481.9	20.7
40°-50°	352.7	15.1
50°-60°	231.7	9.9
60°-70°	139.6	6.0
70°-80°	68.7	2.9
80°-90°	16.4	0.7
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°	1040.8	44.6
0°-40°	1522.7	65.3
0°-60°	2107.1	90.4
0°-90°	2331.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2331.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1551	1551	1551	1551	1551	
5°	1626	1594	1528	1465	1437	156
15°	1630	1547	1363	1206	1139	458
25°	1437	1347	1092	903	825	652
35°	923	1041	727	624	554	581
45°	534	585	424	377	326	420
55°	342	322	244	204	157	308
65°	212	173	130	94	98	210
75°	106	78	55	47	47	112
85°	20	16	12	12	12	27
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°	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3
2.5°	1594.5	1594.5	1594.5	1594.5	1590.6	1590.6	1590.6	1586.7	1586.7	1582.7	1582.7
5°	1625.9	1625.9	1622.0	1622.0	1618.1	1618.1	1614.1	1610.2	1606.3	1602.4	1594.5
7.5°	1641.6	1641.6	1637.7	1637.7	1633.8	1633.8	1629.9	1625.9	1618.1	1610.2	1602.4
10°	1649.5	1645.6	1645.6	1641.6	1637.7	1633.8	1629.9	1625.9	1614.1	1606.3	1594.5
12.5°	1645.6	1641.6	1641.6	1633.8	1629.9	1625.9	1622.0	1614.1	1602.4	1590.6	1578.8
15°	1629.9	1625.9	1622.0	1618.1	1610.2	1606.3	1602.4	1590.6	1578.8	1563.1	1547.4
17.5°	1598.4	1594.5	1594.5	1586.7	1578.8	1574.9	1570.9	1559.2	1543.5	1527.7	1512.0
20°	1555.2	1551.3	1547.4	1543.5	1535.6	1531.7	1527.7	1516.0	1500.3	1484.5	1464.9
22.5°	1496.3	1492.4	1492.4	1488.5	1480.6	1476.7	1472.8	1461.0	1449.2	1429.6	1409.9
25°	1437.4	1433.5	1429.6	1425.6	1417.8	1409.9	1406.0	1394.2	1382.4	1370.7	1347.1
27.5°	1354.9	1358.9	1358.9	1354.9	1351.0	1347.1	1343.2	1327.5	1311.7	1296.0	1276.4
30°	1217.5	1209.6	1217.5	1229.3	1241.0	1245.0	1256.8	1256.8	1241.0	1221.4	1197.8
32.5°	1064.3	1068.2	1072.2	1087.9	1103.6	1107.5	1115.4	1138.9	1158.6	1146.8	1123.2
35°	922.9	926.9	934.7	946.5	958.3	977.9	985.8	1005.4	1025.0	1048.6	1040.8
37.5°	797.3	801.2	809.0	816.9	836.5	844.4	860.1	875.8	907.2	926.9	922.9
40°	691.2	695.1	699.1	706.9	730.5	734.4	742.3	765.8	785.5	801.2	793.3
42.5°	608.7	604.8	612.7	620.5	632.3	636.2	644.1	659.8	675.5	683.4	683.4
45°	534.1	538.0	542.0	549.8	553.8	561.6	565.5	577.3	581.3	585.2	585.2
47.5°	479.1	479.1	483.1	487.0	490.9	494.8	498.8	502.7	502.7	502.7	498.8
50°	428.1	428.1	432.0	435.9	435.9	439.9	439.9	439.9	435.9	432.0	428.1
52.5°	381.0	381.0	384.9	388.8	388.8	388.8	388.8	384.9	381.0	377.0	369.2
55°	341.7	341.7	345.6	345.6	345.6	345.6	345.6	337.8	329.9	326.0	322.0
57.5°	306.3	306.3	306.3	306.3	306.3	306.3	302.4	294.6	290.6	282.8	278.8
60°	271.0	271.0	271.0	271.0	271.0	267.1	263.1	259.2	251.4	243.5	239.6
62.5°	239.6	239.6	239.6	239.6	235.6	231.7	231.7	223.9	219.9	212.1	204.2
65°	212.1	212.1	208.2	208.2	204.2	200.3	200.3	192.4	188.5	180.7	172.8
67.5°	184.6	180.7	180.7	180.7	176.7	172.8	168.9	164.9	161.0	153.2	145.3
70°	153.2	153.2	157.1	153.2	149.2	145.3	145.3	137.5	133.5	129.6	121.7
72.5°	129.6	129.6	129.6	125.7	125.7	121.7	117.8	113.9	110.0	106.0	98.2
75°	106.0	106.0	106.0	102.1	98.2	98.2	98.2	90.3	90.3	82.5	78.5
77.5°	82.5	82.5	82.5	78.5	78.5	78.5	74.6	70.7	66.8	66.8	62.8
80°	62.8	62.8	58.9	58.9	55.0	55.0	55.0	51.1	51.1	47.1	43.2
82.5°	43.2	39.3	39.3	39.3	39.3	39.3	35.3	35.3	31.4	31.4	27.5
85°	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	15.7	15.7	15.7
87.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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°	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3
2.5°	1574.9	1574.9	1570.9	1567.0	1563.1	1563.1	1559.2	1555.2	1551.3	1547.4	1539.5
5°	1590.6	1582.7	1574.9	1567.0	1567.0	1563.1	1551.3	1543.5	1535.6	1527.7	1519.9
7.5°	1590.6	1578.8	1570.9	1559.2	1555.2	1547.4	1535.6	1523.8	1512.0	1500.3	1488.5
10°	1582.7	1567.0	1555.2	1539.5	1531.7	1523.8	1508.1	1492.4	1476.7	1464.9	1445.3
12.5°	1559.2	1543.5	1527.7	1508.1	1500.3	1492.4	1472.8	1453.1	1437.4	1417.8	1402.1
15°	1527.7	1512.0	1492.4	1472.8	1461.0	1453.1	1429.6	1406.0	1382.4	1362.8	1343.2
17.5°	1492.4	1468.8	1449.2	1425.6	1413.9	1398.1	1374.6	1351.0	1327.5	1307.8	1284.3
20°	1441.3	1421.7	1394.2	1366.7	1354.9	1339.2	1315.7	1288.2	1264.6	1237.1	1213.6
22.5°	1390.3	1362.8	1335.3	1303.9	1292.1	1276.4	1248.9	1217.5	1193.9	1166.4	1138.9
25°	1323.5	1296.0	1268.5	1241.0	1221.4	1209.6	1182.1	1150.7	1123.2	1091.8	1064.3
27.5°	1252.8	1225.3	1197.8	1166.4	1150.7	1135.0	1099.7	1068.2	1036.8	1013.3	981.8
30°	1174.3	1150.7	1119.3	1076.1	1056.5	1040.8	1001.5	966.1	934.7	911.2	891.5
32.5°	1095.7	1060.4	1017.2	974.0	954.4	934.7	895.4	864.0	840.5	816.9	793.3
35°	993.6	954.4	915.1	875.8	856.2	836.5	805.1	773.7	746.2	726.6	706.9
37.5°	899.4	856.2	813.0	777.6	758.0	742.3	706.9	683.4	659.8	640.2	620.5
40°	785.5	761.9	714.8	683.4	663.7	648.0	616.6	593.0	573.4	557.7	542.0
42.5°	675.5	663.7	624.5	593.0	577.3	565.5	538.0	518.4	498.8	483.1	475.2
45°	577.3	561.6	545.9	514.5	502.7	490.9	467.4	447.7	432.0	424.2	412.4
47.5°	494.8	483.1	467.4	443.8	432.0	424.2	404.5	388.8	377.0	369.2	361.3
50°	420.2	412.4	400.6	384.9	373.1	365.2	349.5	337.8	326.0	318.1	314.2
52.5°	361.3	353.5	341.7	329.9	322.0	314.2	302.4	290.6	286.7	278.8	271.0
55°	310.3	302.4	294.6	282.8	278.8	274.9	263.1	255.3	247.4	243.5	239.6
57.5°	271.0	263.1	251.4	243.5	239.6	235.6	227.8	219.9	212.1	208.2	204.2
60°	231.7	223.9	216.0	208.2	204.2	200.3	196.4	188.5	180.7	176.7	176.7
62.5°	200.3	192.4	184.6	176.7	176.7	172.8	164.9	161.0	157.1	153.2	149.2
65°	168.9	161.0	157.1	149.2	145.3	145.3	141.4	133.5	129.6	129.6	125.7
67.5°	141.4	137.5	129.6	125.7	121.7	121.7	113.9	113.9	110.0	106.0	102.1
70°	117.8	110.0	106.0	102.1	102.1	98.2	94.3	94.3	90.3	86.4	82.5
72.5°	94.3	90.3	86.4	82.5	82.5	78.5	78.5	74.6	70.7	70.7	66.8
75°	74.6	70.7	70.7	62.8	62.8	62.8	58.9	58.9	55.0	55.0	51.1
77.5°	58.9	55.0	51.1	51.1	47.1	47.1	47.1	43.2	43.2	43.2	39.3
80°	39.3	39.3	35.3	35.3	35.3	35.3	31.4	31.4	31.4	31.4	27.5
82.5°	27.5	23.6	23.6	23.6	23.6	23.6	19.6	19.6	19.6	19.6	19.6
85°	15.7	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
87.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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°	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3
2.5°	1535.6	1531.7	1527.7	1527.7	1523.8	1519.9	1519.9	1516.0	1512.0	1508.1	1504.2
5°	1512.0	1504.2	1496.3	1492.4	1488.5	1484.5	1476.7	1468.8	1464.9	1457.1	1453.1
7.5°	1476.7	1464.9	1457.1	1449.2	1445.3	1433.5	1425.6	1417.8	1406.0	1402.1	1394.2
10°	1433.5	1417.8	1402.1	1398.1	1390.3	1378.5	1366.7	1351.0	1343.2	1335.3	1327.5
12.5°	1382.4	1366.7	1347.1	1339.2	1331.4	1315.7	1300.0	1288.2	1272.5	1264.6	1252.8
15°	1323.5	1303.9	1284.3	1276.4	1268.5	1248.9	1233.2	1217.5	1205.7	1190.0	1178.2
17.5°	1260.7	1237.1	1213.6	1205.7	1197.8	1178.2	1162.5	1142.9	1131.1	1115.4	1103.6
20°	1190.0	1166.4	1142.9	1138.9	1123.2	1103.6	1084.0	1068.2	1052.5	1040.8	1025.0
22.5°	1115.4	1091.8	1072.2	1060.4	1048.6	1029.0	1009.3	993.6	977.9	958.3	946.5
25°	1044.7	1017.2	993.6	989.7	974.0	958.3	938.6	919.0	903.3	887.6	875.8
27.5°	962.2	942.6	919.0	907.2	899.4	879.7	864.0	844.4	828.7	813.0	801.2
30°	867.9	848.3	832.6	824.7	816.9	805.1	785.5	773.7	758.0	742.3	730.5
32.5°	777.6	765.8	750.1	742.3	738.3	722.6	714.8	703.0	687.3	675.5	663.7
35°	687.3	679.4	663.7	663.7	655.9	648.0	640.2	632.3	624.5	612.7	600.9
37.5°	608.7	600.9	589.1	581.3	581.3	573.4	569.5	561.6	557.7	549.8	542.0
40°	534.1	522.3	514.5	510.6	506.6	502.7	494.8	490.9	490.9	487.0	479.1
42.5°	459.5	455.6	447.7	443.8	447.7	439.9	439.9	435.9	428.1	424.2	420.2
45°	404.5	396.7	396.7	392.7	392.7	388.8	384.9	381.0	377.0	369.2	369.2
47.5°	353.5	349.5	345.6	345.6	341.7	341.7	337.8	333.8	329.9	326.0	318.1
50°	310.3	306.3	302.4	302.4	298.5	298.5	294.6	290.6	286.7	278.8	271.0
52.5°	271.0	267.1	263.1	263.1	259.2	259.2	255.3	247.4	243.5	239.6	231.7
55°	235.6	231.7	227.8	227.8	223.9	223.9	219.9	212.1	204.2	200.3	192.4
57.5°	200.3	200.3	196.4	196.4	192.4	188.5	184.6	176.7	172.8	168.9	161.0
60°	172.8	168.9	168.9	164.9	164.9	161.0	153.2	149.2	141.4	137.5	129.6
62.5°	145.3	145.3	141.4	137.5	137.5	129.6	125.7	121.7	117.8	110.0	113.9
65°	121.7	117.8	117.8	113.9	113.9	106.0	102.1	98.2	94.3	94.3	98.2
67.5°	102.1	98.2	94.3	94.3	90.3	86.4	82.5	82.5	82.5	82.5	82.5
70°	82.5	78.5	74.6	74.6	74.6	70.7	66.8	66.8	66.8	70.7	70.7
72.5°	66.8	62.8	58.9	58.9	55.0	55.0	55.0	55.0	55.0	58.9	58.9
75°	51.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1
77.5°	39.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3
80°	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
82.5°	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
85°	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
87.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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: P242032

CATALOG NUMBER: PRS440D010-S4M24-41SWWMW

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3	1551.3
2.5°	1504.2	1504.2	1504.2	1500.3	1500.3	1500.3	1500.3	1496.3
5°	1449.2	1449.2	1445.3	1445.3	1441.3	1441.3	1441.3	1437.4
7.5°	1386.4	1382.4	1382.4	1378.5	1374.6	1370.7	1370.7	1366.7
10°	1319.6	1311.7	1303.9	1307.8	1300.0	1300.0	1292.1	1292.1
12.5°	1245.0	1237.1	1237.1	1229.3	1221.4	1221.4	1217.5	1217.5
15°	1166.4	1158.6	1154.6	1150.7	1146.8	1142.9	1142.9	1138.9
17.5°	1087.9	1084.0	1080.0	1076.1	1068.2	1064.3	1060.4	1056.5
20°	1013.3	1001.5	997.6	997.6	985.8	985.8	977.9	977.9
22.5°	934.7	922.9	922.9	919.0	911.2	903.3	903.3	899.4
25°	860.1	852.2	844.4	840.5	836.5	828.7	828.7	824.7
27.5°	785.5	777.6	773.7	769.8	761.9	758.0	754.1	750.1
30°	718.7	706.9	703.0	699.1	691.2	687.3	683.4	683.4
32.5°	651.9	640.2	640.2	632.3	628.4	620.5	616.6	616.6
35°	589.1	581.3	573.4	569.5	561.6	561.6	553.8	553.8
37.5°	526.3	518.4	518.4	510.6	502.7	498.8	494.8	490.9
40°	471.3	459.5	459.5	451.6	443.8	439.9	435.9	435.9
42.5°	416.3	404.5	400.6	396.7	388.8	381.0	381.0	377.0
45°	361.3	353.5	349.5	345.6	337.8	329.9	329.9	326.0
47.5°	310.3	306.3	298.5	294.6	290.6	282.8	278.8	278.8
50°	267.1	263.1	255.3	251.4	243.5	235.6	231.7	227.8
52.5°	223.9	219.9	216.0	212.1	204.2	196.4	192.4	188.5
55°	188.5	184.6	176.7	176.7	168.9	164.9	161.0	157.1
57.5°	153.2	149.2	145.3	145.3	141.4	141.4	141.4	141.4
60°	125.7	129.6	129.6	129.6	129.6	129.6	129.6	125.7
62.5°	113.9	113.9	113.9	113.9	113.9	113.9	113.9	113.9
65°	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2
67.5°	82.5	82.5	86.4	82.5	82.5	82.5	82.5	82.5
70°	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7
72.5°	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
75°	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1
77.5°	39.3	39.3	35.3	35.3	39.3	39.3	35.3	39.3
80°	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
82.5°	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
85°	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
87.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)