

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: P242042

Luminaire Tested: **PRS440D010-S4M24-41SWWMB-3000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242042  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-64)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: PRS440D010-S4M24-41SWWMB-3000K  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM MATTE BLACK  
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1611.8 lumens  
Efficiency: N/A  
Efficacy: 42.4 lumens/watt  
Spacing Criteria (0/90/45): 0.96 / 0.94 / 1.03  
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')  
CIE Type: Direct

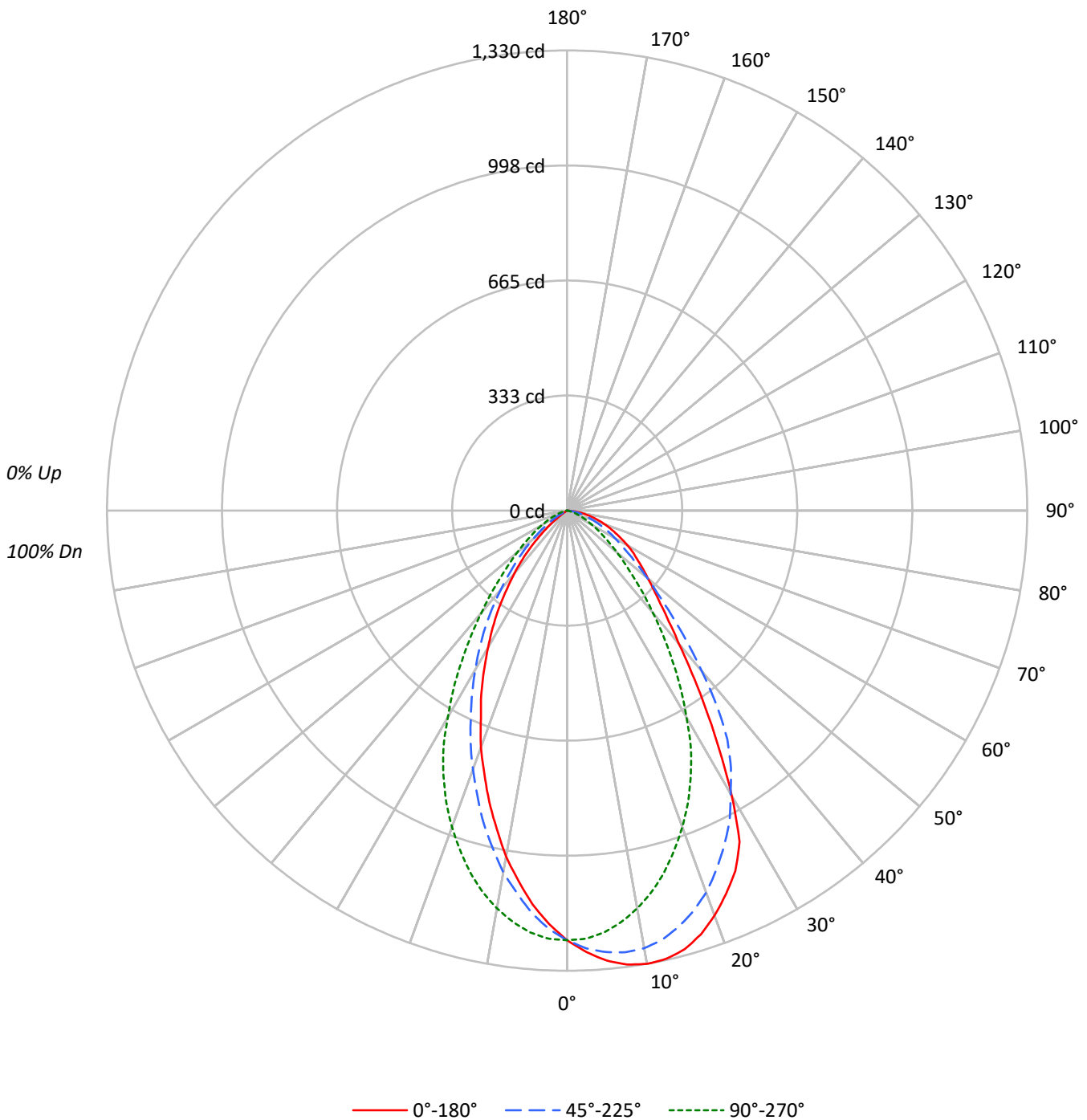
Input Watts (W): 38  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				
1	112	108	105	103	109	106	104	101	102	100	98	98	97	95	95	93	92	90				
2	105	99	94	89	102	97	92	88	93	90	86	90	87	84	88	85	83	81				
3	98	90	84	79	96	88	83	78	86	81	77	83	79	76	81	77	74	73				
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	71	67	65				
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59				
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54				
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	50				
8	71	60	53	48	70	59	53	48	58	52	48	57	51	47	56	51	47	46				
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42				
10	64	52	46	41	62	52	45	41	51	45	41	50	45	41	49	44	41	39				

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

	0°	90°	180°
0°	95059	95059	95059
5°	100317	94062	87816
10°	103404	90751	78929
15°	104023	85797	68974
20°	101453	79256	59373
25°	97116	71416	49601
30°	84125	60985	40339
35°	65129	49590	32069
40°	50200	38539	23691
45°	41362	29108	15707
50°	36236	22328	8002
55°	33055	17001	1895
60°	30878	12997	536
65°	28200	9617	0
70°	26140	6333	0
75°	23009	4200	0
80°	20277	1543	0
85°	12471	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	115.1	7.1
10°-20°	304.6	18.9
20°-30°	393.6	24.4
30°-40°	349.5	21.7
40°-50°	227.3	14.1
50°-60°	126.3	7.8
60°-70°	63.8	4.0
70°-80°	26.9	1.7
80°-90°	4.7	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°	813.3	50.5
0°-40°	1162.8	72.1
0°-60°	1516.4	94.1
0°-90°	1611.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1611.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1242	1242	1242	1242	1242	
5°	1306	1281	1224	1168	1143	125
15°	1313	1246	1083	934	870	368
25°	1150	1072	846	658	587	520
35°	697	807	531	414	343	439
45°	382	425	269	205	145	300
55°	248	216	127	74	14	224
65°	156	113	53	4	0	155
75°	78	50	14	0	0	83
85°	14	7	0	0	0	18
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°	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9
2.5°	1277.3	1273.8	1277.3	1273.8	1273.8	1273.8	1273.8	1270.2	1270.2	1266.7	1266.7
5°	1305.6	1305.6	1302.1	1302.1	1298.5	1298.5	1298.5	1295.0	1291.5	1287.9	1280.8
7.5°	1323.3	1323.3	1319.8	1319.8	1316.2	1312.7	1312.7	1305.6	1302.1	1295.0	1287.9
10°	1330.4	1330.4	1326.8	1323.3	1319.8	1316.2	1316.2	1309.1	1302.1	1291.5	1284.4
12.5°	1326.8	1326.8	1323.3	1319.8	1316.2	1312.7	1309.1	1302.1	1291.5	1280.8	1270.2
15°	1312.7	1312.7	1309.1	1305.6	1298.5	1295.0	1291.5	1284.4	1273.8	1259.6	1245.5
17.5°	1284.4	1284.4	1280.8	1277.3	1273.8	1270.2	1263.2	1256.1	1241.9	1227.8	1213.6
20°	1245.5	1245.5	1245.5	1241.9	1234.8	1231.3	1227.8	1217.2	1206.5	1192.4	1174.7
22.5°	1199.5	1199.5	1195.9	1192.4	1185.3	1185.3	1178.2	1167.6	1157.0	1142.9	1125.2
25°	1149.9	1146.4	1142.9	1142.9	1132.2	1128.7	1125.2	1114.5	1103.9	1089.8	1072.1
27.5°	1079.2	1075.6	1079.2	1079.2	1075.6	1072.1	1068.5	1057.9	1040.2	1026.1	1015.5
30°	951.8	955.3	955.3	962.4	976.6	987.2	994.2	994.2	980.1	965.9	944.7
32.5°	817.3	824.4	827.9	842.1	856.3	866.9	873.9	888.1	905.8	902.3	881.0
35°	697.0	704.1	707.6	718.3	736.0	743.0	753.6	774.9	796.1	813.8	806.7
37.5°	590.9	590.9	601.5	612.1	626.3	636.9	647.5	665.2	693.5	707.6	711.2
40°	502.4	506.0	509.5	523.7	534.3	544.9	552.0	569.7	594.4	605.0	605.0
42.5°	435.2	435.2	438.7	445.8	460.0	463.5	470.6	484.7	498.9	506.0	509.5
45°	382.1	382.1	382.1	389.2	396.3	399.8	406.9	417.5	421.1	424.6	424.6
47.5°	339.7	339.7	339.7	343.2	346.7	350.3	353.8	357.4	360.9	360.9	353.8
50°	304.3	304.3	307.8	307.8	307.8	311.4	311.4	311.4	307.8	304.3	300.8
52.5°	276.0	276.0	276.0	276.0	276.0	276.0	276.0	272.4	265.4	261.8	254.8
55°	247.7	251.2	251.2	251.2	247.7	247.7	244.1	240.6	230.0	222.9	215.8
57.5°	226.4	226.4	226.4	222.9	222.9	219.4	215.8	208.8	201.7	194.6	184.0
60°	201.7	201.7	201.7	198.1	198.1	194.6	191.1	184.0	176.9	166.3	159.2
62.5°	176.9	176.9	176.9	176.9	173.4	169.8	166.3	159.2	152.1	145.1	138.0
65°	155.7	155.7	155.7	155.7	148.6	145.1	141.5	134.5	127.4	120.3	113.2
67.5°	134.5	134.5	134.5	130.9	127.4	123.8	120.3	116.8	109.7	102.6	95.5
70°	116.8	116.8	113.2	109.7	106.1	106.1	102.6	95.5	92.0	84.9	77.8
72.5°	95.5	95.5	95.5	92.0	88.5	84.9	81.4	77.8	74.3	67.2	63.7
75°	77.8	77.8	77.8	74.3	70.8	67.2	67.2	60.2	56.6	53.1	49.5
77.5°	60.2	60.2	60.2	56.6	53.1	53.1	49.5	46.0	42.5	38.9	35.4
80°	46.0	46.0	42.5	42.5	38.9	38.9	35.4	35.4	31.8	28.3	24.8
82.5°	28.3	28.3	28.3	28.3	24.8	24.8	24.8	21.2	21.2	17.7	14.2
85°	14.2	14.2	14.2	14.2	10.6	10.6	10.6	10.6	10.6	7.1	7.1
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



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9
2.5°	1263.2	1259.6	1256.1	1252.5	1252.5	1249.0	1249.0	1245.5	1241.9	1238.4	1234.8
5°	1277.3	1270.2	1263.2	1259.6	1256.1	1252.5	1245.5	1238.4	1231.3	1224.2	1217.2
7.5°	1277.3	1270.2	1259.6	1252.5	1245.5	1241.9	1231.3	1220.7	1210.1	1199.5	1188.8
10°	1273.8	1259.6	1249.0	1238.4	1227.8	1220.7	1210.1	1195.9	1181.8	1167.6	1153.5
12.5°	1256.1	1241.9	1227.8	1213.6	1203.0	1195.9	1178.2	1160.5	1146.4	1128.7	1111.0
15°	1231.3	1217.2	1199.5	1178.2	1171.2	1160.5	1142.9	1121.6	1103.9	1082.7	1065.0
17.5°	1199.5	1178.2	1160.5	1139.3	1128.7	1118.1	1096.9	1072.1	1054.4	1029.6	1008.4
20°	1157.0	1139.3	1111.0	1093.3	1079.2	1068.5	1043.8	1019.0	994.2	973.0	944.7
22.5°	1107.5	1086.2	1061.5	1036.7	1026.1	1011.9	987.2	958.9	937.6	912.9	884.6
25°	1054.4	1029.6	1004.9	976.6	965.9	955.3	927.0	902.3	873.9	845.6	824.4
27.5°	990.7	969.5	944.7	916.4	905.8	891.6	859.8	831.5	803.2	774.9	750.1
30°	927.0	909.3	877.5	845.6	827.9	810.3	778.4	746.6	714.7	690.0	668.7
32.5°	863.3	827.9	792.6	757.2	736.0	718.3	690.0	661.7	633.3	612.1	587.3
35°	778.4	743.0	704.1	668.7	651.0	636.9	605.0	576.7	552.0	530.7	509.5
37.5°	690.0	654.6	619.2	583.8	569.7	555.5	523.7	498.9	474.1	456.4	435.2
40°	594.4	576.7	537.8	506.0	491.8	477.7	452.9	424.6	406.9	385.7	368.0
42.5°	506.0	488.3	460.0	431.7	417.5	406.9	382.1	360.9	343.2	325.5	311.4
45°	424.6	410.4	389.2	368.0	353.8	343.2	318.4	300.8	286.6	268.9	258.3
47.5°	353.8	343.2	329.1	307.8	297.2	286.6	265.4	251.2	237.1	226.4	215.8
50°	293.7	286.6	272.4	258.3	247.7	240.6	222.9	208.8	198.1	187.5	180.5
52.5°	247.7	237.1	226.4	212.3	205.2	198.1	187.5	173.4	166.3	155.7	148.6
55°	208.8	201.7	191.1	176.9	169.8	166.3	155.7	145.1	134.5	127.4	120.3
57.5°	176.9	169.8	159.2	148.6	145.1	138.0	127.4	116.8	109.7	106.1	99.1
60°	152.1	141.5	134.5	123.8	116.8	113.2	102.6	95.5	88.5	84.9	77.8
62.5°	127.4	120.3	109.7	99.1	95.5	92.0	84.9	77.8	70.8	67.2	60.2
65°	106.1	99.1	92.0	81.4	77.8	74.3	67.2	60.2	56.6	53.1	49.5
67.5°	88.5	81.4	74.3	67.2	63.7	56.6	53.1	49.5	42.5	38.9	35.4
70°	70.8	63.7	56.6	49.5	49.5	46.0	38.9	35.4	31.8	28.3	24.8
72.5°	56.6	49.5	46.0	38.9	35.4	35.4	31.8	28.3	24.8	21.2	17.7
75°	42.5	38.9	31.8	28.3	24.8	24.8	21.2	17.7	17.7	14.2	10.6
77.5°	31.8	28.3	24.8	21.2	17.7	17.7	14.2	10.6	10.6	7.1	7.1
80°	21.2	17.7	14.2	10.6	10.6	10.6	7.1	7.1	7.1	3.5	3.5
82.5°	10.6	10.6	7.1	7.1	7.1	7.1	3.5	3.5	3.5	3.5	0.0
85°	3.5	3.5	3.5	3.5	3.5	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



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9
2.5°	1231.3	1227.8	1224.2	1224.2	1220.7	1217.2	1213.6	1213.6	1210.1	1206.5	1206.5
5°	1210.1	1203.0	1195.9	1192.4	1188.8	1181.8	1178.2	1171.2	1167.6	1160.5	1157.0
7.5°	1178.2	1167.6	1157.0	1153.5	1149.9	1142.9	1132.2	1121.6	1114.5	1111.0	1103.9
10°	1142.9	1128.7	1114.5	1107.5	1103.9	1089.8	1079.2	1068.5	1061.5	1050.9	1040.2
12.5°	1093.3	1079.2	1065.0	1057.9	1050.9	1036.7	1026.1	1011.9	997.8	987.2	976.6
15°	1043.8	1026.1	1008.4	1001.3	990.7	976.6	962.4	948.2	934.1	919.9	909.3
17.5°	987.2	969.5	948.2	937.6	930.6	912.9	891.6	881.0	863.3	852.7	838.6
20°	927.0	905.8	884.6	877.5	866.9	845.6	827.9	810.3	796.1	782.0	767.8
22.5°	863.3	838.6	817.3	810.3	799.6	778.4	760.7	746.6	728.9	711.2	697.0
25°	799.6	774.9	753.6	739.5	728.9	711.2	690.0	675.8	658.1	644.0	633.3
27.5°	728.9	704.1	682.9	672.3	665.2	647.5	629.8	612.1	594.4	580.3	566.1
30°	647.5	629.8	612.1	605.0	594.4	580.3	562.6	548.4	530.7	516.6	502.4
32.5°	569.7	552.0	534.3	530.7	523.7	509.5	498.9	484.7	470.6	456.4	445.8
35°	495.4	477.7	467.0	460.0	452.9	442.3	431.7	424.6	414.0	399.8	389.2
37.5°	421.1	414.0	396.3	392.7	389.2	378.6	371.5	364.4	353.8	346.7	336.1
40°	357.4	346.7	336.1	332.6	325.5	318.4	311.4	304.3	297.2	293.7	283.1
42.5°	297.2	290.1	279.5	279.5	272.4	265.4	258.3	254.8	247.7	240.6	237.1
45°	251.2	240.6	237.1	230.0	230.0	222.9	215.8	212.3	205.2	198.1	191.1
47.5°	208.8	201.7	194.6	191.1	191.1	184.0	176.9	169.8	166.3	155.7	148.6
50°	173.4	166.3	162.8	159.2	155.7	152.1	145.1	138.0	130.9	123.8	113.2
52.5°	141.5	138.0	130.9	130.9	127.4	120.3	113.2	106.1	99.1	92.0	81.4
55°	116.8	109.7	106.1	102.6	99.1	95.5	88.5	81.4	74.3	63.7	56.6
57.5°	92.0	88.5	81.4	81.4	77.8	70.8	63.7	56.6	49.5	38.9	31.8
60°	74.3	67.2	63.7	60.2	56.6	53.1	42.5	35.4	28.3	21.2	10.6
62.5°	56.6	53.1	46.0	46.0	42.5	35.4	28.3	21.2	10.6	3.5	0.0
65°	42.5	38.9	35.4	31.8	28.3	21.2	14.2	7.1	3.5	0.0	0.0
67.5°	31.8	28.3	21.2	21.2	17.7	10.6	3.5	0.0	0.0	0.0	0.0
70°	21.2	17.7	14.2	10.6	7.1	3.5	0.0	0.0	0.0	0.0	0.0
72.5°	14.2	10.6	7.1	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0
75°	10.6	7.1	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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: P242042

CATALOG NUMBER: PRS440D010-S4M24-41SWWMB-3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9	1241.9
2.5°	1203.0	1199.5	1203.0	1199.5	1199.5	1195.9	1199.5	1195.9
5°	1153.5	1149.9	1149.9	1146.4	1146.4	1146.4	1142.9	1142.9
7.5°	1096.9	1093.3	1089.8	1089.8	1086.2	1082.7	1082.7	1079.2
10°	1036.7	1029.6	1022.6	1026.1	1019.0	1019.0	1015.5	1015.5
12.5°	969.5	962.4	962.4	955.3	948.2	948.2	941.2	941.2
15°	902.3	895.2	888.1	884.6	877.5	877.5	873.9	870.4
17.5°	827.9	820.9	813.8	810.3	806.7	803.2	799.6	796.1
20°	757.2	746.6	743.0	739.5	732.4	728.9	725.3	728.9
22.5°	690.0	675.8	672.3	668.7	665.2	658.1	654.6	651.0
25°	619.2	608.6	601.5	601.5	594.4	590.9	583.8	587.3
27.5°	552.0	544.9	537.8	534.3	527.2	523.7	520.1	520.1
30°	491.8	481.2	477.7	470.6	467.0	460.0	456.4	456.4
32.5°	431.7	421.1	417.5	414.0	406.9	399.8	399.8	399.8
35°	378.6	368.0	364.4	357.4	350.3	343.2	343.2	343.2
37.5°	325.5	314.9	307.8	304.3	297.2	293.7	286.6	286.6
40°	276.0	265.4	258.3	254.8	247.7	240.6	237.1	237.1
42.5°	226.4	219.4	212.3	208.8	201.7	194.6	191.1	191.1
45°	180.5	173.4	169.8	166.3	159.2	148.6	145.1	145.1
47.5°	141.5	134.5	130.9	123.8	116.8	109.7	102.6	102.6
50°	106.1	99.1	92.0	88.5	81.4	74.3	67.2	67.2
52.5°	74.3	67.2	63.7	56.6	49.5	42.5	38.9	35.4
55°	46.0	38.9	35.4	31.8	24.8	21.2	14.2	14.2
57.5°	24.8	17.7	14.2	10.6	7.1	3.5	3.5	3.5
60°	7.1	3.5	3.5	3.5	3.5	3.5	3.5	3.5
62.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
65°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)