

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: P242018

Luminaire Tested: **PRS410D010-S4M12-41SWWH-4000K**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242018  
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: PRS410D010-S4M12-41SWWH-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: 582.0 lumens  
Efficiency: N/A  
Efficacy: 58.2 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

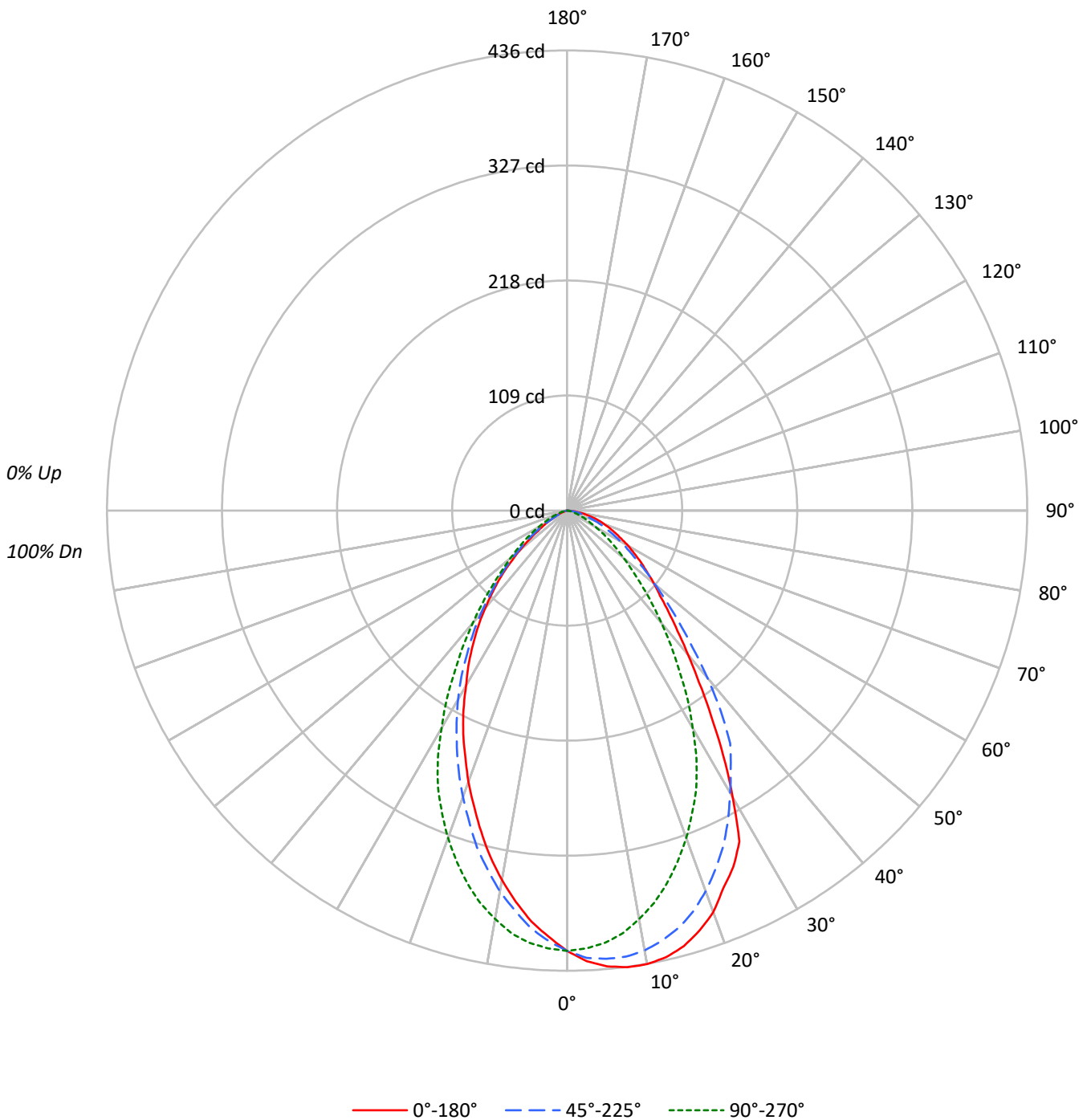
Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	31934	31934	31934
5°	33301	31587	30027
10°	33919	30538	27623
15°	33861	28964	24954
20°	32990	26889	22270
25°	31468	24459	19670
30°	27744	21027	16917
35°	22230	17315	14568
40°	17806	13859	12040
45°	14689	10738	9645
50°	12777	8324	6990
55°	11357	6486	4457
60°	10226	4807	2939
65°	9165	3477	1829
70°	8392	2484	1141
75°	7482	1508	591
80°	6259	882	441
85°	4479	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.7	6.7
10°-20°	103.3	17.7
20°-30°	135.9	23.4
30°-40°	126.2	21.7
40°-50°	88.1	15.1
50°-60°	51.8	8.9
60°-70°	25.7	4.4
70°-80°	10.3	1.8
80°-90°	1.9	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°	278.0	47.8
0°-40°	404.1	69.4
0°-60°	544.0	93.5
0°-90°	582.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	582.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	417	417	417	417	417	
5°	433	426	411	397	391	41
15°	427	409	366	330	315	120
25°	373	350	290	247	233	169
35°	238	269	185	165	156	150
45°	136	150	99	92	89	106
55°	85	79	49	40	33	76
65°	51	40	19	8	10	50
75°	25	17	5	2	2	27
85°	5	3	0	0	0	6
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°	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2
2.5°	427.3	426.3	426.3	426.3	426.3	425.3	425.3	425.3	424.2	424.2	424.2
5°	433.4	433.4	432.3	432.3	431.3	431.3	431.3	430.3	429.3	428.3	426.3
7.5°	436.4	436.4	435.4	435.4	434.4	433.4	433.4	431.3	430.3	428.3	426.3
10°	436.4	436.4	435.4	435.4	433.4	432.3	432.3	431.3	428.3	426.3	423.2
12.5°	433.4	433.4	432.3	431.3	430.3	429.3	428.3	426.3	423.2	420.2	417.2
15°	427.3	427.3	426.3	425.3	423.2	422.2	421.2	419.2	416.1	412.1	409.1
17.5°	417.2	417.2	416.1	415.1	414.1	412.1	411.1	408.0	405.0	402.0	397.9
20°	405.0	404.0	404.0	403.0	401.0	401.0	398.9	395.9	392.9	387.8	383.7
22.5°	386.8	387.8	387.8	385.8	383.7	383.7	381.7	380.7	376.7	372.6	367.5
25°	372.6	371.6	371.6	369.6	366.5	366.5	365.5	362.5	358.4	354.4	350.3
27.5°	353.4	352.4	352.4	352.4	349.3	349.3	347.3	343.2	339.2	336.2	330.1
30°	313.9	316.9	316.9	320.0	323.0	325.0	327.0	325.0	320.0	314.9	308.8
32.5°	275.4	277.4	279.5	282.5	286.5	289.6	292.6	295.7	299.7	294.6	288.6
35°	237.9	240.0	241.0	245.0	250.1	251.1	255.2	262.2	266.3	270.3	269.3
37.5°	205.5	206.6	208.6	211.6	215.7	218.7	221.7	226.8	233.9	240.0	239.0
40°	178.2	177.2	180.2	181.2	185.3	188.3	192.4	196.4	203.5	206.6	206.6
42.5°	154.9	154.9	155.9	158.0	161.0	163.0	165.0	169.1	175.2	176.2	176.2
45°	135.7	135.7	136.7	138.7	140.7	140.7	143.8	147.8	148.8	149.9	149.9
47.5°	119.5	120.5	120.5	121.5	122.5	124.5	125.6	127.6	127.6	127.6	127.6
50°	107.3	107.3	107.3	108.3	109.4	110.4	110.4	110.4	110.4	109.4	108.3
52.5°	95.2	95.2	95.2	96.2	96.2	97.2	97.2	96.2	95.2	94.2	93.2
55°	85.1	84.0	85.1	85.1	86.1	86.1	85.1	84.0	83.0	81.0	79.0
57.5°	74.9	74.9	74.9	74.9	75.9	74.9	74.9	73.9	71.9	69.9	67.8
60°	66.8	65.8	65.8	65.8	66.8	65.8	65.8	63.8	62.8	59.7	57.7
62.5°	57.7	57.7	57.7	58.7	57.7	57.7	56.7	54.7	53.7	51.6	49.6
65°	50.6	50.6	50.6	50.6	49.6	48.6	48.6	46.6	45.6	43.5	40.5
67.5°	43.5	43.5	43.5	43.5	42.5	41.5	41.5	39.5	38.5	36.5	34.4
70°	37.5	36.5	37.5	36.5	35.4	34.4	34.4	33.4	31.4	29.4	27.3
72.5°	31.4	31.4	31.4	30.4	29.4	28.4	28.4	26.3	25.3	24.3	22.3
75°	25.3	25.3	25.3	24.3	23.3	23.3	22.3	21.3	20.3	19.2	17.2
77.5°	19.2	19.2	19.2	19.2	18.2	17.2	17.2	16.2	15.2	14.2	13.2
80°	14.2	14.2	14.2	13.2	13.2	13.2	12.2	12.2	11.1	10.1	9.1
82.5°	9.1	9.1	9.1	9.1	8.1	8.1	8.1	7.1	7.1	6.1	5.1
85°	5.1	5.1	5.1	5.1	4.1	4.1	4.1	4.1	4.1	3.0	3.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2
2.5°	423.2	422.2	421.2	420.2	420.2	419.2	418.2	417.2	416.1	415.1	415.1
5°	425.3	423.2	422.2	420.2	419.2	419.2	417.2	415.1	413.1	411.1	409.1
7.5°	424.2	422.2	419.2	417.2	416.1	414.1	412.1	409.1	406.0	404.0	401.0
10°	420.2	417.2	414.1	410.1	409.1	407.0	404.0	399.9	396.9	392.9	389.8
12.5°	414.1	410.1	406.0	402.0	399.9	397.9	393.9	388.8	384.8	380.7	375.6
15°	404.0	401.0	394.9	390.8	387.8	385.8	380.7	375.6	370.6	365.5	361.5
17.5°	391.8	387.8	382.7	376.7	373.6	371.6	365.5	358.4	353.4	348.3	344.3
20°	379.7	373.6	367.5	361.5	357.4	355.4	348.3	341.2	336.2	330.1	324.0
22.5°	363.5	356.4	350.3	343.2	340.2	336.2	330.1	322.0	314.9	309.8	302.7
25°	344.3	339.2	331.1	324.0	320.0	316.9	308.8	302.7	295.7	289.6	282.5
27.5°	325.0	317.9	311.9	304.8	299.7	295.7	288.6	280.5	273.4	265.3	259.2
30°	303.8	298.7	290.6	279.5	274.4	270.3	261.2	252.1	245.0	237.9	232.9
32.5°	282.5	272.4	263.3	253.1	248.1	244.0	233.9	226.8	218.7	212.6	207.6
35°	257.2	247.1	236.9	224.8	220.7	215.7	206.6	199.5	191.4	185.3	181.2
37.5°	231.9	219.7	208.6	199.5	195.4	189.3	181.2	173.1	167.1	162.0	156.9
40°	204.5	194.4	184.3	173.1	169.1	165.0	156.9	150.9	142.8	138.7	134.7
42.5°	174.2	170.1	160.0	150.9	145.8	141.8	133.7	127.6	122.5	118.5	114.4
45°	147.8	144.8	137.7	128.6	125.6	121.5	114.4	107.3	103.3	99.2	96.2
47.5°	125.6	122.5	117.5	109.4	105.3	102.3	96.2	91.1	87.1	83.0	81.0
50°	106.3	103.3	98.2	93.2	90.1	86.1	81.0	77.0	72.9	69.9	67.8
52.5°	90.1	87.1	82.0	78.0	75.9	72.9	67.8	64.8	60.8	58.7	56.7
55°	77.0	73.9	69.9	65.8	63.8	60.8	56.7	52.7	50.6	48.6	46.6
57.5°	65.8	61.8	58.7	55.7	53.7	50.6	46.6	44.6	41.5	39.5	37.5
60°	55.7	52.7	49.6	45.6	43.5	42.5	38.5	35.4	33.4	31.4	29.4
62.5°	46.6	43.5	40.5	37.5	36.5	34.4	31.4	28.4	26.3	24.3	23.3
65°	38.5	36.5	33.4	30.4	29.4	27.3	24.3	22.3	20.3	19.2	18.2
67.5°	32.4	29.4	27.3	24.3	23.3	22.3	19.2	17.2	16.2	15.2	13.2
70°	25.3	23.3	21.3	19.2	18.2	17.2	15.2	13.2	12.2	11.1	10.1
72.5°	20.3	18.2	16.2	14.2	13.2	13.2	11.1	10.1	9.1	8.1	7.1
75°	16.2	14.2	12.2	11.1	10.1	9.1	8.1	7.1	6.1	5.1	5.1
77.5°	11.1	10.1	9.1	7.1	7.1	6.1	5.1	5.1	4.1	4.1	3.0
80°	8.1	7.1	6.1	5.1	4.1	4.1	3.0	3.0	2.0	2.0	2.0
82.5°	5.1	4.1	3.0	3.0	3.0	2.0	2.0	2.0	1.0	1.0	1.0
85°	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
87.5°	1.0	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°	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2
2.5°	414.1	413.1	412.1	411.1	411.1	411.1	409.1	409.1	408.0	407.0	407.0
5°	408.0	406.0	404.0	404.0	402.0	401.0	399.9	397.9	396.9	395.9	394.9
7.5°	397.9	395.9	392.9	391.8	390.8	388.8	385.8	384.8	381.7	380.7	379.7
10°	386.8	382.7	380.7	377.7	377.7	373.6	371.6	368.6	366.5	364.5	362.5
12.5°	372.6	367.5	363.5	362.5	360.5	356.4	354.4	350.3	348.3	346.3	344.3
15°	356.4	352.4	347.3	345.3	343.2	339.2	336.2	333.1	330.1	327.0	325.0
17.5°	338.2	334.1	328.1	326.0	325.0	320.0	315.9	311.9	308.8	306.8	303.8
20°	318.9	313.9	308.8	306.8	304.8	300.7	296.7	292.6	288.6	285.5	283.5
22.5°	297.7	291.6	287.6	285.5	283.5	278.4	275.4	271.4	268.3	265.3	263.3
25°	277.4	271.4	266.3	264.3	261.2	257.2	254.1	251.1	247.1	244.0	242.0
27.5°	254.1	248.1	244.0	243.0	240.0	236.9	232.9	228.8	226.8	223.8	221.7
30°	228.8	224.8	221.7	218.7	217.7	214.7	212.6	209.6	206.6	203.5	200.5
32.5°	202.5	199.5	195.4	195.4	194.4	192.4	190.4	188.3	186.3	184.3	181.2
35°	178.2	174.2	172.1	172.1	170.1	169.1	169.1	167.1	165.0	164.0	163.0
37.5°	153.9	151.9	148.8	148.8	147.8	147.8	146.8	145.8	145.8	145.8	144.8
40°	131.6	129.6	127.6	126.6	126.6	126.6	125.6	126.6	126.6	126.6	126.6
42.5°	111.4	110.4	108.3	108.3	108.3	108.3	108.3	108.3	108.3	109.4	109.4
45°	95.2	93.2	92.1	91.1	92.1	91.1	91.1	92.1	92.1	93.2	92.1
47.5°	79.0	79.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	78.0
50°	66.8	64.8	64.8	63.8	63.8	63.8	63.8	63.8	62.8	63.8	63.8
52.5°	55.7	53.7	53.7	52.7	52.7	51.6	51.6	50.6	50.6	50.6	50.6
55°	45.6	43.5	43.5	42.5	42.5	41.5	41.5	40.5	39.5	39.5	38.5
57.5°	36.5	34.4	34.4	33.4	33.4	32.4	31.4	30.4	29.4	29.4	28.4
60°	28.4	27.3	26.3	26.3	25.3	24.3	23.3	21.3	20.3	20.3	19.2
62.5°	22.3	21.3	20.3	19.2	19.2	17.2	16.2	14.2	13.2	12.2	13.2
65°	17.2	16.2	15.2	14.2	13.2	12.2	10.1	9.1	8.1	9.1	9.1
67.5°	12.2	11.1	10.1	10.1	9.1	8.1	6.1	6.1	6.1	6.1	7.1
70°	9.1	8.1	7.1	6.1	5.1	4.1	4.1	4.1	4.1	4.1	5.1
72.5°	6.1	5.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
75°	4.1	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	3.0	2.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	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: P242018

CATALOG NUMBER: PRS410D010-S4M12-41SWWH-4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	417.2	417.2	417.2	417.2	417.2	417.2	417.2	417.2
2.5°	407.0	406.0	406.0	405.0	405.0	406.0	405.0	404.0
5°	392.9	392.9	392.9	391.8	390.8	390.8	390.8	390.8
7.5°	377.7	376.7	376.7	376.7	375.6	373.6	373.6	373.6
10°	360.5	358.4	358.4	357.4	357.4	356.4	356.4	355.4
12.5°	342.2	340.2	339.2	338.2	337.2	336.2	337.2	336.2
15°	323.0	321.0	318.9	318.9	317.9	315.9	315.9	314.9
17.5°	301.7	298.7	298.7	297.7	295.7	295.7	294.6	293.6
20°	280.5	278.4	277.4	276.4	275.4	273.4	273.4	273.4
22.5°	259.2	257.2	256.2	256.2	255.2	253.1	253.1	252.1
25°	239.0	236.9	235.9	234.9	233.9	233.9	232.9	232.9
27.5°	219.7	216.7	216.7	214.7	213.6	212.6	212.6	212.6
30°	198.5	197.4	195.4	196.4	193.4	193.4	193.4	191.4
32.5°	179.2	178.2	177.2	177.2	175.2	174.2	175.2	174.2
35°	161.0	160.0	159.0	158.0	156.9	156.9	155.9	155.9
37.5°	143.8	141.8	140.7	140.7	139.7	139.7	138.7	138.7
40°	125.6	125.6	124.5	123.5	122.5	121.5	120.5	120.5
42.5°	109.4	108.3	107.3	107.3	106.3	104.3	104.3	104.3
45°	93.2	92.1	91.1	91.1	90.1	89.1	88.1	89.1
47.5°	77.0	77.0	77.0	75.9	74.9	73.9	72.9	72.9
50°	63.8	62.8	62.8	62.8	60.8	59.7	58.7	58.7
52.5°	50.6	49.6	49.6	49.6	48.6	46.6	45.6	45.6
55°	38.5	38.5	38.5	37.5	36.5	35.4	34.4	33.4
57.5°	27.3	27.3	27.3	27.3	27.3	27.3	26.3	26.3
60°	19.2	20.3	20.3	21.3	21.3	20.3	19.2	19.2
62.5°	14.2	15.2	15.2	15.2	15.2	14.2	14.2	14.2
65°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
67.5°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
70°	5.1	5.1	5.1	5.1	5.1	5.1	4.1	5.1
72.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	1.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0
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)