

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: P241993

Luminaire Tested: **PRS410D010-S4M12-41SWWC-3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P241993
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1802-584-61)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/03/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: PRS410D010-S4M12-41SWWC-3000K
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM SPECULAR
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 580.2 lumens
Efficiency: N/A
Efficacy: 58.0 lumens/watt
Spacing Criteria (0/90/45): 0.94 / 0.9 / 0.99
Luminous Opening: Rectangular (W 0.38' x L: 0.38' x H: 0')
CIE Type: Direct

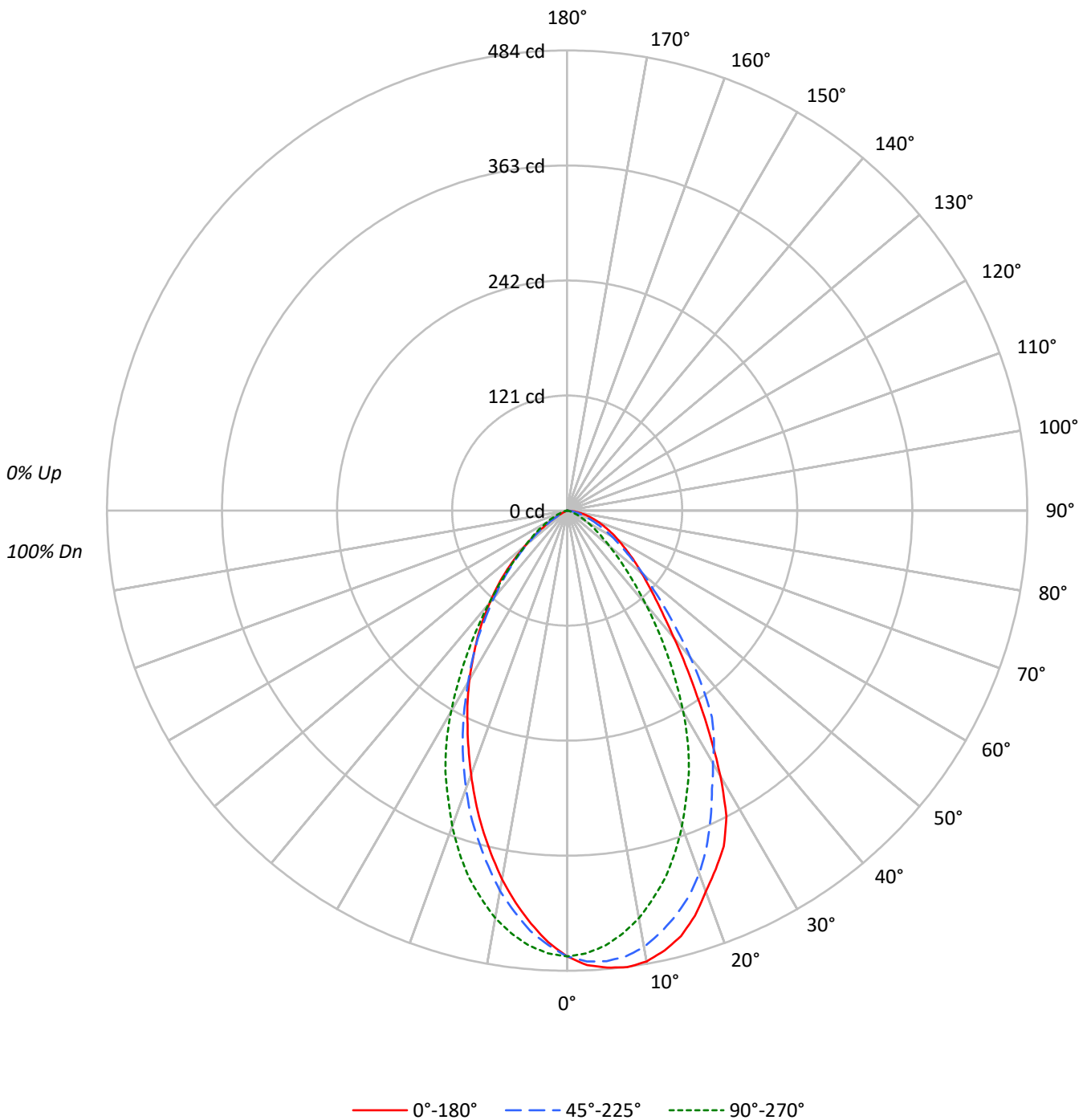
Input Watts (W): 10
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	92	91					91			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81					81			
3	98	90	84	79	96	89	83	79	86	81	77	83	79	76	81	78	75	73					73			
4	92	83	76	71	90	81	75	70	79	74	69	77	72	69	75	71	68	66					66			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60					60			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55					55			
7	76	65	58	53	74	64	58	53	63	57	52	62	56	52	60	55	52	50					50			
8	72	60	53	49	70	60	53	48	59	53	48	58	52	48	56	51	48	46					46			
9	68	56	50	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43					43			
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40					40			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	35891	35891	35891
5°	37073	35291	33508
10°	37424	33826	30600
15°	36706	31658	27371
20°	34741	28770	24054
25°	32921	25590	20945
30°	28486	21575	18163
35°	22267	17044	15418
40°	17446	12820	12630
45°	14202	9396	9926
50°	12182	6895	6895
55°	10689	5151	4124
60°	9461	3689	1914
65°	8567	2626	344
70°	7766	1723	0
75°	6861	1153	0
80°	5510	441	0
85°	3425	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.1	7.4
10°-20°	112.1	19.3
20°-30°	141.5	24.4
30°-40°	125.4	21.6
40°-50°	83.2	14.3
50°-60°	45.3	7.8
60°-70°	20.4	3.5
70°-80°	7.9	1.4
80°-90°	1.3	0.2
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°	296.7	51.1
0°-40°	422.1	72.8
0°-60°	550.6	94.9
0°-90°	580.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	580.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	469	469	469	469	469	
5°	482	476	459	444	436	46
15°	463	441	400	360	345	129
25°	390	357	303	260	248	176
35°	238	265	182	163	165	151
45°	131	146	87	84	92	103
55°	80	75	39	30	31	72
65°	47	37	14	1	2	47
75°	23	14	4	0	0	25
85°	4	2	0	0	0	5
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°	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9
2.5°	478.6	477.6	477.6	477.6	476.7	476.7	476.7	476.7	475.7	474.7	474.7
5°	482.5	483.4	482.5	481.5	481.5	481.5	480.5	479.6	478.6	477.6	475.7
7.5°	484.4	483.4	483.4	482.5	481.5	480.5	479.6	478.6	476.7	474.7	472.8
10°	481.5	480.5	479.6	479.6	476.7	476.7	475.7	473.8	470.9	468.9	466.1
12.5°	473.8	473.8	472.8	471.8	468.9	468.9	467.0	465.1	462.2	458.3	454.5
15°	463.2	463.2	461.2	460.3	458.3	457.4	455.4	452.5	449.6	445.8	441.0
17.5°	446.8	446.8	445.8	443.9	442.9	441.9	439.0	437.1	433.2	429.4	425.5
20°	426.5	424.6	424.6	423.6	421.7	420.7	419.7	416.8	413.9	410.1	406.2
22.5°	408.2	407.2	404.3	402.4	399.5	397.5	396.6	392.7	390.8	387.9	383.1
25°	389.8	387.9	386.9	384.0	380.2	379.2	376.3	370.5	366.7	361.8	357.0
27.5°	362.8	362.8	363.8	362.8	358.9	358.0	356.1	351.2	343.5	335.8	330.0
30°	322.3	321.3	322.3	324.2	327.1	328.1	330.0	329.0	323.2	314.6	306.8
32.5°	278.9	278.9	282.7	285.6	288.5	289.5	291.4	296.2	296.2	293.3	287.5
35°	238.3	240.3	243.2	246.1	249.9	250.9	255.7	256.7	262.5	266.3	265.4
37.5°	204.6	206.5	207.5	210.4	214.2	215.2	217.1	223.9	230.6	235.4	233.5
40°	174.6	174.6	177.5	180.4	184.3	185.3	188.2	192.0	199.7	201.7	201.7
42.5°	150.5	151.5	152.5	154.4	157.3	159.2	161.1	166.9	170.8	173.7	171.8
45°	131.2	132.2	133.2	135.1	137.0	138.0	139.9	143.8	146.7	146.7	145.7
47.5°	115.8	115.8	116.8	117.7	119.6	120.6	122.5	124.5	125.4	124.5	123.5
50°	102.3	103.2	103.2	104.2	105.2	107.1	108.1	108.1	108.1	107.1	105.2
52.5°	90.7	90.7	91.7	91.7	93.6	94.6	94.6	94.6	93.6	91.7	88.8
55°	80.1	80.1	80.1	81.1	83.0	83.0	83.0	82.0	81.1	78.2	75.3
57.5°	70.4	71.4	71.4	71.4	72.4	72.4	72.4	71.4	69.5	66.6	63.7
60°	61.8	62.7	62.7	62.7	63.7	63.7	62.7	61.8	59.8	56.0	54.0
62.5°	55.0	55.0	55.0	55.0	55.0	55.0	54.0	52.1	50.2	47.3	45.4
65°	47.3	47.3	47.3	48.2	47.3	46.3	46.3	44.4	42.5	39.6	36.7
67.5°	40.5	40.5	40.5	40.5	39.6	39.6	38.6	36.7	34.7	32.8	29.9
70°	34.7	34.7	34.7	33.8	32.8	32.8	31.8	29.9	28.0	26.1	24.1
72.5°	28.9	28.9	28.9	28.0	27.0	26.1	26.1	24.1	22.2	20.3	19.3
75°	23.2	23.2	23.2	22.2	21.2	20.3	20.3	18.3	17.4	16.4	14.5
77.5°	18.3	18.3	17.4	16.4	16.4	15.4	15.4	14.5	13.5	11.6	10.6
80°	12.5	12.5	12.5	12.5	11.6	10.6	10.6	9.6	8.7	7.7	6.8
82.5°	8.7	8.7	7.7	7.7	6.8	6.8	6.8	5.8	5.8	4.8	3.9
85°	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9
87.5°	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	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°	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9
2.5°	473.8	472.8	472.8	470.9	470.9	469.9	468.9	468.0	467.0	466.1	465.1
5°	474.7	472.8	470.9	468.9	468.9	467.0	465.1	463.2	462.2	459.3	457.4
7.5°	470.9	468.0	466.1	463.2	462.2	460.3	457.4	454.5	451.6	448.7	445.8
10°	463.2	459.3	456.4	453.5	450.6	449.6	445.8	442.9	438.1	435.2	432.3
12.5°	451.6	447.7	443.9	439.0	438.1	436.1	431.3	426.5	422.6	417.8	413.9
15°	437.1	433.2	427.5	423.6	420.7	417.8	413.9	409.1	403.3	399.5	394.6
17.5°	420.7	414.9	409.1	404.3	400.4	398.5	391.8	386.0	382.1	377.3	372.5
20°	401.4	394.6	387.9	381.1	378.2	374.4	368.6	362.8	357.0	353.2	346.4
22.5°	378.2	371.5	364.7	357.0	355.1	351.2	344.5	338.7	333.9	327.1	321.3
25°	352.2	346.4	341.6	334.8	331.0	327.1	321.3	314.6	307.8	303.0	296.2
27.5°	326.1	322.3	317.5	310.7	306.8	303.0	295.3	288.5	279.8	275.0	267.3
30°	301.1	298.2	291.4	284.6	277.9	275.0	264.4	256.7	248.9	244.1	238.3
32.5°	278.9	270.2	261.5	251.8	248.0	244.1	233.5	225.8	219.0	212.3	206.5
35°	253.8	240.3	230.6	221.9	217.1	213.2	204.6	195.9	190.1	182.4	178.5
37.5°	226.8	215.2	203.6	193.0	189.1	183.3	176.6	166.9	161.1	154.4	148.6
40°	197.8	190.1	177.5	166.9	162.1	158.2	149.6	141.8	134.1	128.3	124.5
42.5°	167.9	163.1	153.4	142.8	138.0	134.1	126.4	117.7	111.0	106.1	101.3
45°	142.8	138.9	131.2	121.6	115.8	111.9	104.2	96.5	90.7	86.8	83.9
47.5°	120.6	116.8	110.0	101.3	96.5	92.6	84.9	78.2	74.3	71.4	69.5
50°	101.3	96.5	90.7	84.9	80.1	76.2	69.5	64.6	60.8	57.9	56.9
52.5°	84.9	81.1	75.3	69.5	65.6	62.7	56.0	52.1	50.2	47.3	45.4
55°	71.4	67.5	62.7	56.9	54.0	51.1	46.3	43.4	40.5	38.6	36.7
57.5°	59.8	56.0	51.1	46.3	43.4	41.5	37.6	34.7	32.8	30.9	28.9
60°	50.2	46.3	42.5	37.6	35.7	33.8	30.9	28.0	26.1	24.1	22.2
62.5°	41.5	37.6	33.8	29.9	28.9	27.0	25.1	22.2	20.3	19.3	17.4
65°	34.7	30.9	27.0	24.1	23.2	21.2	19.3	17.4	15.4	14.5	13.5
67.5°	28.0	24.1	21.2	19.3	18.3	17.4	15.4	13.5	12.5	10.6	9.6
70°	22.2	19.3	16.4	14.5	13.5	12.5	11.6	10.6	8.7	7.7	6.8
72.5°	16.4	14.5	12.5	10.6	10.6	9.6	8.7	7.7	6.8	5.8	4.8
75°	12.5	10.6	9.6	7.7	7.7	6.8	5.8	4.8	3.9	3.9	2.9
77.5°	8.7	7.7	6.8	5.8	4.8	4.8	3.9	2.9	2.9	1.9	1.9
80°	5.8	4.8	3.9	2.9	2.9	2.9	1.9	1.9	1.9	1.0	1.0
82.5°	3.9	2.9	1.9	1.9	1.9	1.0	1.0	1.0	1.0	1.0	0.0
85°	1.0	1.0	1.0	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9
2.5°	464.1	463.2	462.2	461.2	461.2	459.3	459.3	458.3	457.4	457.4	456.4
5°	455.4	453.5	451.6	450.6	450.6	447.7	445.8	444.8	443.9	442.9	441.0
7.5°	442.9	441.0	438.1	436.1	435.2	432.3	430.4	427.5	425.5	424.6	421.7
10°	428.4	425.5	420.7	419.7	417.8	414.9	412.0	409.1	406.2	403.3	401.4
12.5°	410.1	405.3	402.4	399.5	397.5	394.6	389.8	386.0	383.1	381.1	378.2
15°	389.8	385.0	381.1	378.2	376.3	372.5	366.7	363.8	359.9	356.1	355.1
17.5°	366.7	360.9	357.0	354.1	351.2	348.3	342.5	339.6	336.8	332.9	330.0
20°	341.6	335.8	331.9	328.1	325.2	322.3	318.4	313.6	310.7	308.8	304.9
22.5°	315.5	310.7	304.9	303.0	301.1	294.3	291.4	287.5	285.6	282.7	280.8
25°	290.4	283.7	279.8	276.9	274.0	269.2	264.4	261.5	259.6	257.6	254.7
27.5°	262.5	258.6	253.8	249.9	248.9	244.1	239.3	236.4	233.5	231.6	228.7
30°	232.5	227.7	223.9	223.9	221.9	218.1	216.1	212.3	208.4	207.5	206.5
32.5°	201.7	198.8	195.9	193.9	193.9	191.1	188.2	187.2	185.3	183.3	183.3
35°	173.7	170.8	167.9	166.9	166.9	165.0	164.0	163.1	163.1	162.1	161.1
37.5°	146.7	142.8	139.9	139.9	139.9	139.9	139.9	139.9	139.9	141.8	140.9
40°	121.6	119.6	118.7	117.7	117.7	117.7	118.7	118.7	119.6	121.6	122.5
42.5°	99.4	99.4	98.4	98.4	97.5	98.4	99.4	100.4	101.3	101.3	103.2
45°	83.0	82.0	81.1	81.1	82.0	81.1	82.0	83.9	83.9	84.9	85.9
47.5°	67.5	66.6	66.6	66.6	66.6	66.6	66.6	67.5	68.5	68.5	69.5
50°	55.0	54.0	53.1	54.0	53.1	53.1	54.0	54.0	54.0	55.0	55.0
52.5°	43.4	42.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5
55°	33.8	32.8	31.8	31.8	30.9	30.9	29.9	29.9	29.9	29.9	29.9
57.5°	27.0	25.1	24.1	23.2	23.2	21.2	20.3	20.3	19.3	19.3	19.3
60°	20.3	19.3	17.4	17.4	16.4	14.5	13.5	11.6	11.6	10.6	10.6
62.5°	15.4	14.5	13.5	12.5	11.6	9.6	7.7	5.8	3.9	3.9	4.8
65°	11.6	10.6	8.7	7.7	7.7	5.8	3.9	1.9	1.0	1.0	1.9
67.5°	8.7	7.7	5.8	4.8	3.9	2.9	1.0	0.0	0.0	0.0	0.0
70°	5.8	4.8	2.9	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0
72.5°	3.9	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.0	0.0	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



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CATALOG NUMBER: PRS410D010-S4M12-41SWWC-3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	468.9	468.9	468.9	468.9	468.9	468.9	468.9	468.9
2.5°	455.4	455.4	455.4	455.4	454.5	454.5	454.5	454.5
5°	441.0	438.1	438.1	438.1	438.1	438.1	437.1	436.1
7.5°	420.7	418.8	418.8	417.8	417.8	416.8	416.8	415.9
10°	399.5	397.5	397.5	395.6	395.6	394.6	393.7	393.7
12.5°	375.4	373.4	373.4	373.4	371.5	371.5	369.6	369.6
15°	351.2	349.3	348.3	348.3	346.4	346.4	345.4	345.4
17.5°	326.1	325.2	323.2	323.2	322.3	320.4	320.4	320.4
20°	303.0	300.1	299.1	299.1	296.2	296.2	295.3	295.3
22.5°	277.9	276.0	275.0	274.0	272.1	273.1	271.1	271.1
25°	252.8	252.8	250.9	250.9	249.9	248.9	248.0	248.0
27.5°	228.7	228.7	227.7	227.7	226.8	225.8	225.8	226.8
30°	205.5	205.5	205.5	206.5	205.5	204.6	205.5	205.5
32.5°	183.3	183.3	184.3	183.3	184.3	184.3	184.3	184.3
35°	162.1	162.1	163.1	163.1	164.0	164.0	165.0	165.0
37.5°	140.9	142.8	142.8	142.8	144.7	144.7	145.7	145.7
40°	122.5	122.5	123.5	124.5	125.4	126.4	127.4	126.4
42.5°	104.2	104.2	105.2	106.1	107.1	108.1	109.0	109.0
45°	85.9	86.8	87.8	87.8	89.7	90.7	90.7	91.7
47.5°	69.5	71.4	71.4	71.4	72.4	73.3	74.3	73.3
50°	55.0	56.0	56.0	56.0	56.9	57.9	57.9	57.9
52.5°	41.5	42.5	42.5	42.5	43.4	43.4	43.4	44.4
55°	29.9	29.9	29.9	30.9	30.9	30.9	30.9	30.9
57.5°	19.3	19.3	19.3	20.3	21.2	21.2	20.3	20.3
60°	10.6	11.6	12.5	12.5	12.5	13.5	12.5	12.5
62.5°	5.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
65°	1.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9
67.5°	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
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)