

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: P242004

Luminaire Tested: **PRS415D010-S4M12-41SWWC-4000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242004
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: PRS415D010-S4M12-41SWWC-4000K
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, WITH 4" WALL WASH DISTRIBUTION, WW TRIM SPECULAR
Light Source: ARRAYS OF HIGH LUMEN LEDS 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 811.4 lumens
Efficiency: N/A
Efficacy: 67.6 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

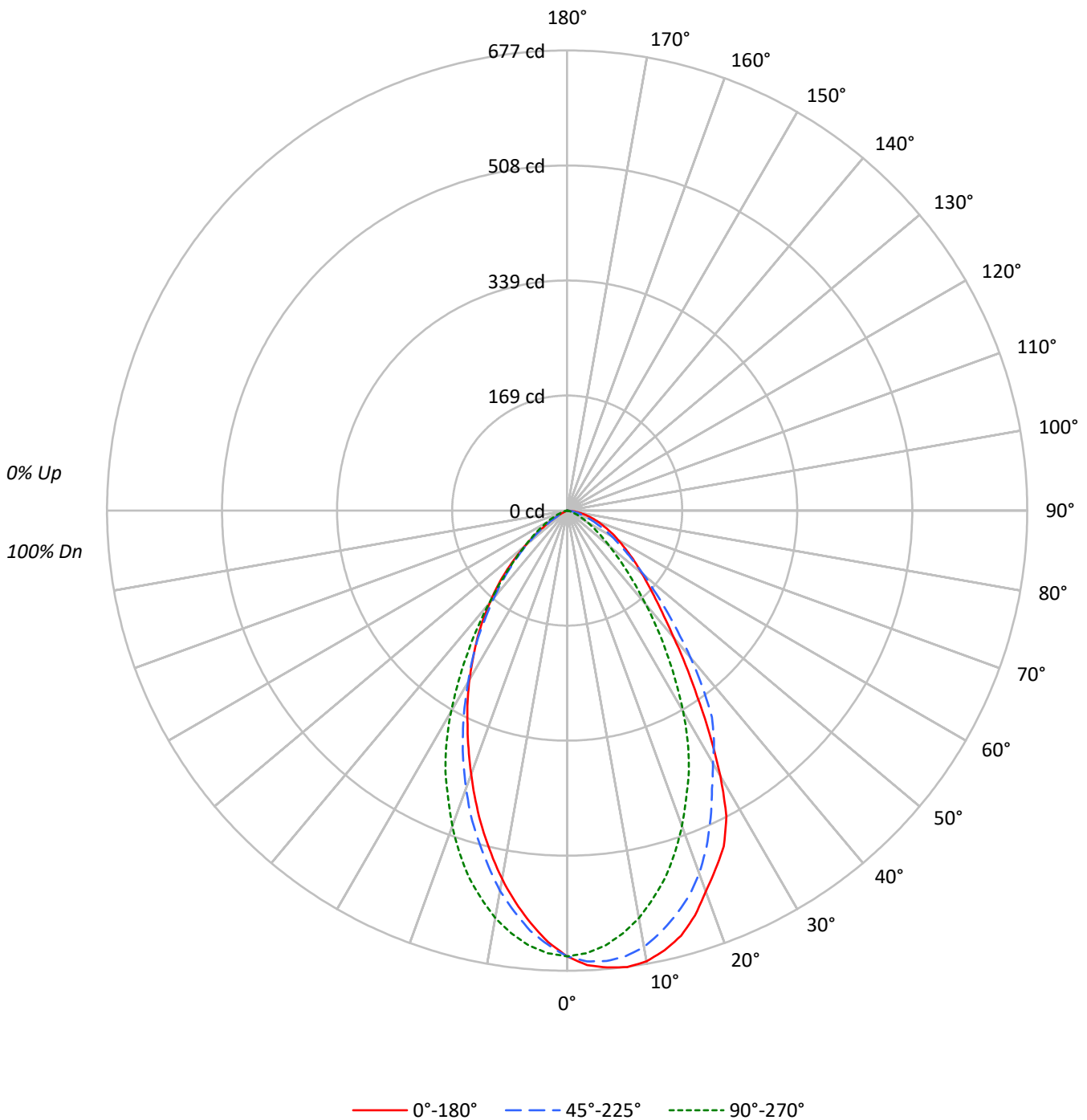
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	92	91
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81
3	98	90	84	79	96	89	83	79	86	81	77	83	79	76	81	78	75	73
4	92	83	76	71	90	81	75	70	79	74	69	77	72	69	75	71	68	66
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55
7	76	65	58	53	74	64	58	53	63	57	52	62	56	52	60	55	52	50
8	72	60	53	49	70	60	53	48	59	53	48	58	52	48	56	51	48	46
9	68	56	50	45	66	56	49	45	55	49	45	54	48	44	53	48	44	43
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	50197	50197	50197
5°	51841	49352	46862
10°	52332	47303	42787
15°	51326	44265	38283
20°	48580	40231	33633
25°	46046	35784	29289
30°	39835	30175	25402
35°	31144	23828	21557
40°	24401	17936	17666
45°	19864	13141	13877
50°	17028	9646	9646
55°	14946	7206	5765
60°	13227	5159	2679
65°	11972	3659	489
70°	10877	2417	0
75°	9582	1597	0
80°	7714	573	0
85°	4742	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.3	7.4
10°-20°	156.7	19.3
20°-30°	197.9	24.4
30°-40°	175.4	21.6
40°-50°	116.4	14.3
50°-60°	63.3	7.8
60°-70°	28.4	3.5
70°-80°	11.0	1.4
80°-90°	1.8	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°	414.9	51.1
0°-40°	590.3	72.8
0°-60°	770.0	94.9
0°-90°	811.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	811.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	656	656	656	656	656	
5°	675	665	642	621	610	64
15°	648	617	559	503	483	181
25°	545	499	424	363	347	247
35°	333	371	255	228	231	211
45°	184	204	121	117	128	144
55°	112	105	54	42	43	101
65°	66	51	20	1	3	66
75°	32	20	5	0	0	35
85°	5	3	0	0	0	7
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°	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8
2.5°	669.3	667.9	667.9	667.9	666.6	666.6	666.6	666.6	665.2	663.9	663.9
5°	674.7	676.0	674.7	673.3	673.3	673.3	672.0	670.6	669.3	667.9	665.2
7.5°	677.4	676.0	676.0	674.7	673.3	672.0	670.6	669.3	666.6	663.9	661.2
10°	673.3	672.0	670.6	670.6	666.6	666.6	665.2	662.5	658.5	655.8	651.8
12.5°	662.5	662.5	661.2	659.8	655.8	655.8	653.1	650.4	646.4	641.0	635.6
15°	647.7	647.7	645.0	643.7	641.0	639.6	636.9	632.9	628.8	623.4	616.7
17.5°	624.8	624.8	623.4	620.7	619.4	618.0	614.0	611.3	605.9	600.5	595.1
20°	596.4	593.7	593.7	592.4	589.7	588.3	587.0	582.9	578.9	573.5	568.1
22.5°	570.8	569.4	565.4	562.7	558.6	555.9	554.6	549.2	546.5	542.5	535.7
25°	545.2	542.5	541.1	537.1	531.7	530.3	526.3	518.2	512.8	506.0	499.3
27.5°	507.4	507.4	508.7	507.4	502.0	500.6	497.9	491.2	480.4	469.6	461.5
30°	450.7	449.3	450.7	453.4	457.4	458.8	461.5	460.1	452.0	439.9	429.1
32.5°	390.0	390.0	395.4	399.4	403.5	404.8	407.5	414.3	414.3	410.2	402.1
35°	333.3	336.0	340.0	344.1	349.5	350.8	357.6	358.9	367.0	372.4	371.1
37.5°	286.1	288.8	290.1	294.2	299.6	300.9	303.6	313.1	322.5	329.3	326.6
40°	244.2	244.2	248.3	252.3	257.7	259.1	263.1	268.5	279.3	282.0	282.0
42.5°	210.5	211.9	213.2	215.9	219.9	222.6	225.3	233.4	238.8	242.9	240.2
45°	183.5	184.9	186.2	188.9	191.6	193.0	195.7	201.1	205.1	205.1	203.8
47.5°	161.9	161.9	163.3	164.6	167.3	168.7	171.4	174.1	175.4	174.1	172.7
50°	143.0	144.4	144.4	145.7	147.1	149.8	151.1	151.1	151.1	149.8	147.1
52.5°	126.8	126.8	128.2	128.2	130.9	132.2	132.2	132.2	130.9	128.2	124.1
55°	112.0	112.0	112.0	113.3	116.0	116.0	116.0	114.7	113.3	109.3	105.3
57.5°	98.5	99.9	99.9	99.9	101.2	101.2	101.2	99.9	97.2	93.1	89.1
60°	86.4	87.7	87.7	87.7	89.1	89.1	87.7	86.4	83.7	78.3	75.6
62.5°	76.9	76.9	76.9	76.9	76.9	76.9	75.6	72.9	70.2	66.1	63.4
65°	66.1	66.1	66.1	67.5	66.1	64.8	64.8	62.1	59.4	55.3	51.3
67.5°	56.7	56.7	56.7	56.7	55.3	55.3	54.0	51.3	48.6	45.9	41.8
70°	48.6	48.6	48.6	47.2	45.9	45.9	44.5	41.8	39.1	36.4	33.7
72.5°	40.5	40.5	40.5	39.1	37.8	36.4	36.4	33.7	31.0	28.3	27.0
75°	32.4	32.4	32.4	31.0	29.7	28.3	28.3	25.6	24.3	22.9	20.2
77.5°	25.6	25.6	24.3	22.9	22.9	21.6	21.6	20.2	18.9	16.2	14.8
80°	17.5	17.5	17.5	17.5	16.2	14.8	14.8	13.5	12.1	10.8	9.4
82.5°	12.1	12.1	10.8	10.8	9.4	9.4	9.4	8.1	8.1	6.7	5.4
85°	5.4	5.4	5.4	5.4	4.0	4.0	4.0	4.0	4.0	2.7	2.7
87.5°	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.3	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°	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8
2.5°	662.5	661.2	661.2	658.5	658.5	657.2	655.8	654.5	653.1	651.8	650.4
5°	663.9	661.2	658.5	655.8	655.8	653.1	650.4	647.7	646.4	642.3	639.6
7.5°	658.5	654.5	651.8	647.7	646.4	643.7	639.6	635.6	631.5	627.5	623.4
10°	647.7	642.3	638.3	634.2	630.2	628.8	623.4	619.4	612.6	608.6	604.5
12.5°	631.5	626.1	620.7	614.0	612.6	609.9	603.2	596.4	591.0	584.3	578.9
15°	611.3	605.9	597.8	592.4	588.3	584.3	578.9	572.1	564.0	558.6	551.9
17.5°	588.3	580.2	572.1	565.4	560.0	557.3	547.9	539.8	534.4	527.6	520.9
20°	561.3	551.9	542.5	533.0	529.0	523.6	515.5	507.4	499.3	493.9	484.4
22.5°	529.0	519.5	510.1	499.3	496.6	491.2	481.7	473.6	466.9	457.4	449.3
25°	492.5	484.4	477.7	468.2	462.8	457.4	449.3	439.9	430.5	423.7	414.3
27.5°	456.1	450.7	443.9	434.5	429.1	423.7	412.9	403.5	391.3	384.6	373.8
30°	421.0	417.0	407.5	398.1	388.6	384.6	369.7	358.9	348.1	341.4	333.3
32.5°	390.0	377.8	365.7	352.2	346.8	341.4	326.6	315.8	306.3	296.9	288.8
35°	354.9	336.0	322.5	310.4	303.6	298.2	286.1	273.9	265.8	255.0	249.6
37.5°	317.1	300.9	284.7	269.9	264.5	256.4	246.9	233.4	225.3	215.9	207.8
40°	276.6	265.8	248.3	233.4	226.7	221.3	209.2	198.4	187.6	179.5	174.1
42.5°	234.8	228.0	214.6	199.7	193.0	187.6	176.8	164.6	155.2	148.4	141.7
45°	199.7	194.3	183.5	170.0	161.9	156.5	145.7	134.9	126.8	121.4	117.4
47.5°	168.7	163.3	153.8	141.7	134.9	129.5	118.7	109.3	103.9	99.9	97.2
50°	141.7	134.9	126.8	118.7	112.0	106.6	97.2	90.4	85.0	81.0	79.6
52.5°	118.7	113.3	105.3	97.2	91.8	87.7	78.3	72.9	70.2	66.1	63.4
55°	99.9	94.5	87.7	79.6	75.6	71.5	64.8	60.7	56.7	54.0	51.3
57.5°	83.7	78.3	71.5	64.8	60.7	58.0	52.6	48.6	45.9	43.2	40.5
60°	70.2	64.8	59.4	52.6	49.9	47.2	43.2	39.1	36.4	33.7	31.0
62.5°	58.0	52.6	47.2	41.8	40.5	37.8	35.1	31.0	28.3	27.0	24.3
65°	48.6	43.2	37.8	33.7	32.4	29.7	27.0	24.3	21.6	20.2	18.9
67.5°	39.1	33.7	29.7	27.0	25.6	24.3	21.6	18.9	17.5	14.8	13.5
70°	31.0	27.0	22.9	20.2	18.9	17.5	16.2	14.8	12.1	10.8	9.4
72.5°	22.9	20.2	17.5	14.8	14.8	13.5	12.1	10.8	9.4	8.1	6.7
75°	17.5	14.8	13.5	10.8	10.8	9.4	8.1	6.7	5.4	5.4	4.0
77.5°	12.1	10.8	9.4	8.1	6.7	6.7	5.4	4.0	4.0	2.7	2.7
80°	8.1	6.7	5.4	4.0	4.0	4.0	2.7	2.7	2.7	1.3	1.3
82.5°	5.4	4.0	2.7	2.7	2.7	1.3	1.3	1.3	1.3	1.3	0.0
85°	1.3	1.3	1.3	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°	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8
2.5°	649.1	647.7	646.4	645.0	645.0	642.3	642.3	641.0	639.6	639.6	638.3
5°	636.9	634.2	631.5	630.2	630.2	626.1	623.4	622.1	620.7	619.4	616.7
7.5°	619.4	616.7	612.6	609.9	608.6	604.5	601.8	597.8	595.1	593.7	589.7
10°	599.1	595.1	588.3	587.0	584.3	580.2	576.2	572.1	568.1	564.0	561.3
12.5°	573.5	566.7	562.7	558.6	555.9	551.9	545.2	539.8	535.7	533.0	529.0
15°	545.2	538.4	533.0	529.0	526.3	520.9	512.8	508.7	503.3	497.9	496.6
17.5°	512.8	504.7	499.3	495.2	491.2	487.1	479.0	475.0	470.9	465.5	461.5
20°	477.7	469.6	464.2	458.8	454.7	450.7	445.3	438.6	434.5	431.8	426.4
22.5°	441.2	434.5	426.4	423.7	421.0	411.6	407.5	402.1	399.4	395.4	392.7
25°	406.2	396.7	391.3	387.3	383.2	376.5	369.7	365.7	363.0	360.3	356.2
27.5°	367.0	361.6	354.9	349.5	348.1	341.4	334.6	330.6	326.6	323.9	319.8
30°	325.2	318.5	313.1	313.1	310.4	305.0	302.3	296.9	291.5	290.1	288.8
32.5°	282.0	278.0	273.9	271.2	271.2	267.2	263.1	261.8	259.1	256.4	256.4
35°	242.9	238.8	234.8	233.4	233.4	230.7	229.4	228.0	228.0	226.7	225.3
37.5°	205.1	199.7	195.7	195.7	195.7	195.7	195.7	195.7	195.7	198.4	197.0
40°	170.0	167.3	166.0	164.6	164.6	164.6	166.0	166.0	167.3	170.0	171.4
42.5°	139.0	139.0	137.6	137.6	136.3	137.6	139.0	140.3	141.7	141.7	144.4
45°	116.0	114.7	113.3	113.3	114.7	113.3	114.7	117.4	117.4	118.7	120.1
47.5°	94.5	93.1	93.1	93.1	93.1	93.1	93.1	94.5	95.8	95.8	97.2
50°	76.9	75.6	74.2	75.6	74.2	74.2	75.6	75.6	75.6	76.9	76.9
52.5°	60.7	59.4	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
55°	47.2	45.9	44.5	44.5	43.2	43.2	41.8	41.8	41.8	41.8	41.8
57.5°	37.8	35.1	33.7	32.4	32.4	29.7	28.3	28.3	27.0	27.0	27.0
60°	28.3	27.0	24.3	24.3	22.9	20.2	18.9	16.2	16.2	14.8	14.8
62.5°	21.6	20.2	18.9	17.5	16.2	13.5	10.8	8.1	5.4	5.4	6.7
65°	16.2	14.8	12.1	10.8	10.8	8.1	5.4	2.7	1.3	1.3	2.7
67.5°	12.1	10.8	8.1	6.7	5.4	4.0	1.3	0.0	0.0	0.0	0.0
70°	8.1	6.7	4.0	4.0	2.7	1.3	0.0	0.0	0.0	0.0	0.0
72.5°	5.4	4.0	2.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	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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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	655.8	655.8	655.8	655.8	655.8	655.8	655.8	655.8
2.5°	636.9	636.9	636.9	636.9	635.6	635.6	635.6	635.6
5°	616.7	612.6	612.6	612.6	612.6	612.6	611.3	609.9
7.5°	588.3	585.6	585.6	584.3	584.3	582.9	582.9	581.6
10°	558.6	555.9	555.9	553.2	553.2	551.9	550.5	550.5
12.5°	524.9	522.2	522.2	522.2	519.5	519.5	516.8	516.8
15°	491.2	488.5	487.1	487.1	484.4	484.4	483.1	483.1
17.5°	456.1	454.7	452.0	452.0	450.7	448.0	448.0	448.0
20°	423.7	419.7	418.3	418.3	414.3	414.3	412.9	412.9
22.5°	388.6	385.9	384.6	383.2	380.5	381.9	379.2	379.2
25°	353.5	353.5	350.8	350.8	349.5	348.1	346.8	346.8
27.5°	319.8	319.8	318.5	318.5	317.1	315.8	315.8	317.1
30°	287.4	287.4	287.4	288.8	287.4	286.1	287.4	287.4
32.5°	256.4	256.4	257.7	256.4	257.7	257.7	257.7	257.7
35°	226.7	226.7	228.0	228.0	229.4	229.4	230.7	230.7
37.5°	197.0	199.7	199.7	199.7	202.4	202.4	203.8	203.8
40°	171.4	171.4	172.7	174.1	175.4	176.8	178.1	176.8
42.5°	145.7	145.7	147.1	148.4	149.8	151.1	152.5	152.5
45°	120.1	121.4	122.8	122.8	125.5	126.8	126.8	128.2
47.5°	97.2	99.9	99.9	99.9	101.2	102.6	103.9	102.6
50°	76.9	78.3	78.3	78.3	79.6	81.0	81.0	81.0
52.5°	58.0	59.4	59.4	59.4	60.7	60.7	60.7	62.1
55°	41.8	41.8	41.8	43.2	43.2	43.2	43.2	43.2
57.5°	27.0	27.0	27.0	28.3	29.7	29.7	28.3	28.3
60°	14.8	16.2	17.5	17.5	17.5	18.9	17.5	17.5
62.5°	8.1	9.4	9.4	9.4	9.4	9.4	9.4	9.4
65°	2.7	4.0	4.0	4.0	4.0	4.0	2.7	2.7
67.5°	1.3	1.3	1.3	1.3	1.3	0.0	1.3	1.3
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)