

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: P242039

Luminaire Tested: **PRS415D010-S4M12-41SWWMB-3000K**

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242039
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: PRS415D010-S4M12-41SWWMB-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: 587.2 lumens
Efficiency: N/A
Efficacy: 48.9 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

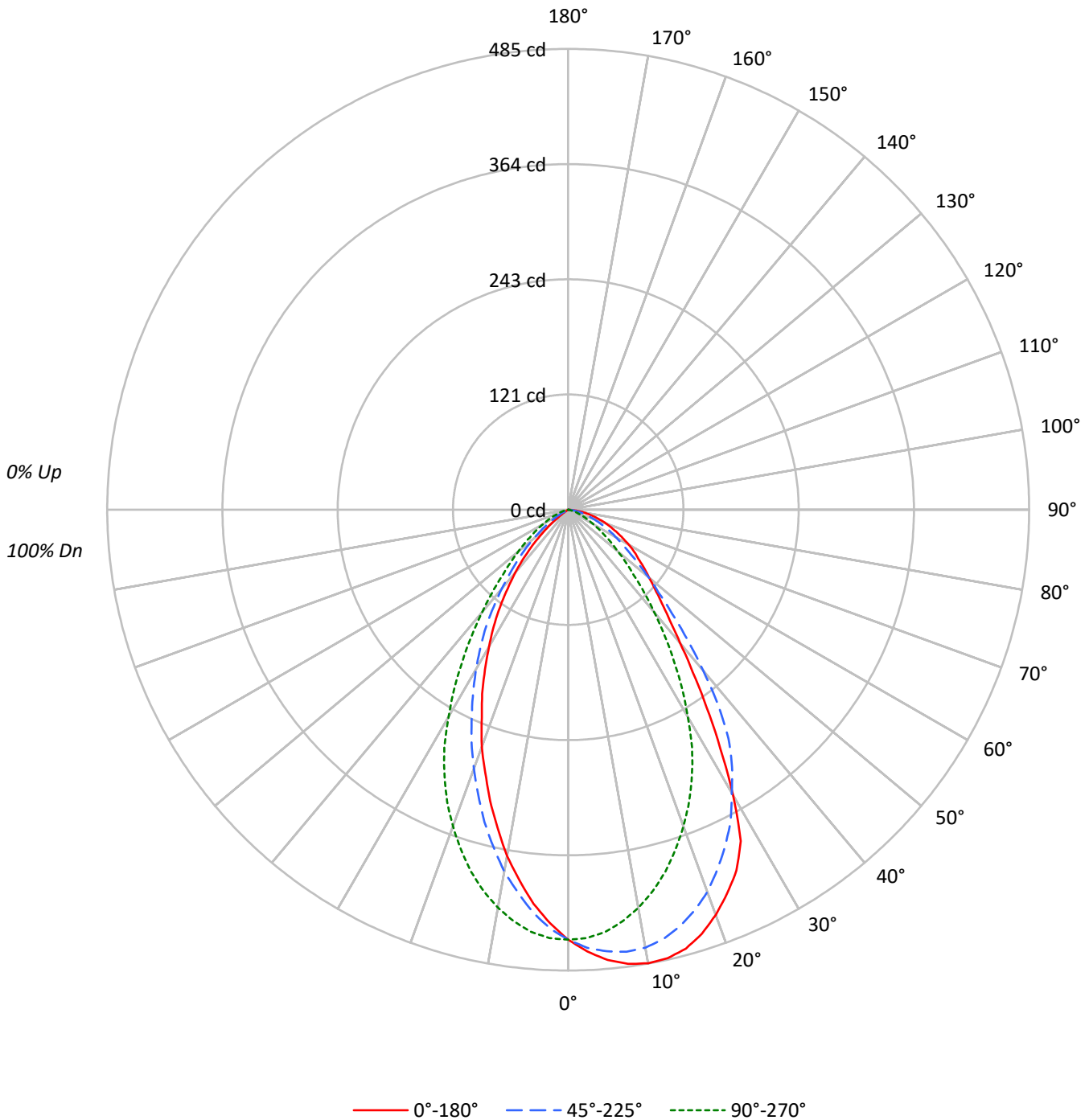
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	34636	34636	34636
5°	36551	34269	31994
10°	37673	33064	28758
15°	37894	31262	25128
20°	36965	28876	21635
25°	35387	26021	18074
30°	30652	22220	14698
35°	23725	18072	11680
40°	18285	14039	8633
45°	15068	10608	5726
50°	13206	8133	2917
55°	12037	6192	694
60°	11252	4730	199
65°	10269	3496	0
70°	9511	2305	0
75°	8399	1538	0
80°	7405	573	0
85°	4567	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	41.9	7.1
10°-20°	111.0	18.9
20°-30°	143.4	24.4
30°-40°	127.3	21.7
40°-50°	82.8	14.1
50°-60°	46.0	7.8
60°-70°	23.3	4.0
70°-80°	9.8	1.7
80°-90°	1.7	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°	296.3	50.5
0°-40°	423.6	72.1
0°-60°	552.5	94.1
0°-90°	587.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	587.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	452	452	452	452	452	
5°	476	467	446	425	416	46
15°	478	454	394	340	317	134
25°	419	391	308	240	214	190
35°	254	294	193	151	125	160
45°	139	155	98	75	53	109
55°	90	79	46	27	5	82
65°	57	41	19	1	0	56
75°	28	18	5	0	0	30
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°	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5
2.5°	465.4	464.1	465.4	464.1	464.1	464.1	464.1	462.8	462.8	461.5	461.5
5°	475.7	475.7	474.4	474.4	473.1	473.1	473.1	471.8	470.5	469.2	466.6
7.5°	482.1	482.1	480.8	480.8	479.5	478.2	478.2	475.7	474.4	471.8	469.2
10°	484.7	484.7	483.4	482.1	480.8	479.5	479.5	477.0	474.4	470.5	467.9
12.5°	483.4	483.4	482.1	480.8	479.5	478.2	477.0	474.4	470.5	466.6	462.8
15°	478.2	478.2	477.0	475.7	473.1	471.8	470.5	467.9	464.1	458.9	453.8
17.5°	467.9	467.9	466.6	465.4	464.1	462.8	460.2	457.6	452.5	447.3	442.2
20°	453.8	453.8	453.8	452.5	449.9	448.6	447.3	443.4	439.6	434.4	428.0
22.5°	437.0	437.0	435.7	434.4	431.8	431.8	429.3	425.4	421.5	416.4	409.9
25°	419.0	417.7	416.4	416.4	412.5	411.2	409.9	406.1	402.2	397.0	390.6
27.5°	393.2	391.9	393.2	393.2	391.9	390.6	389.3	385.4	379.0	373.8	370.0
30°	346.8	348.1	348.1	350.6	355.8	359.7	362.2	362.2	357.1	351.9	344.2
32.5°	297.8	300.4	301.6	306.8	312.0	315.8	318.4	323.6	330.0	328.7	321.0
35°	253.9	256.5	257.8	261.7	268.1	270.7	274.6	282.3	290.0	296.5	293.9
37.5°	215.3	215.3	219.1	223.0	228.2	232.0	235.9	242.3	252.7	257.8	259.1
40°	183.0	184.3	185.6	190.8	194.7	198.5	201.1	207.5	216.6	220.4	220.4
42.5°	158.6	158.6	159.8	162.4	167.6	168.9	171.4	176.6	181.8	184.3	185.6
45°	139.2	139.2	139.2	141.8	144.4	145.7	148.2	152.1	153.4	154.7	154.7
47.5°	123.8	123.8	123.8	125.0	126.3	127.6	128.9	130.2	131.5	131.5	128.9
50°	110.9	110.9	112.1	112.1	112.1	113.4	113.4	113.4	112.1	110.9	109.6
52.5°	100.5	100.5	100.5	100.5	100.5	100.5	100.5	99.3	96.7	95.4	92.8
55°	90.2	91.5	91.5	91.5	90.2	90.2	88.9	87.7	83.8	81.2	78.6
57.5°	82.5	82.5	82.5	81.2	81.2	79.9	78.6	76.1	73.5	70.9	67.0
60°	73.5	73.5	73.5	72.2	72.2	70.9	69.6	67.0	64.5	60.6	58.0
62.5°	64.5	64.5	64.5	64.5	63.2	61.9	60.6	58.0	55.4	52.9	50.3
65°	56.7	56.7	56.7	56.7	54.1	52.9	51.6	49.0	46.4	43.8	41.3
67.5°	49.0	49.0	49.0	47.7	46.4	45.1	43.8	42.5	40.0	37.4	34.8
70°	42.5	42.5	41.3	40.0	38.7	38.7	37.4	34.8	33.5	30.9	28.4
72.5°	34.8	34.8	34.8	33.5	32.2	30.9	29.6	28.4	27.1	24.5	23.2
75°	28.4	28.4	28.4	27.1	25.8	24.5	24.5	21.9	20.6	19.3	18.0
77.5°	21.9	21.9	21.9	20.6	19.3	19.3	18.0	16.8	15.5	14.2	12.9
80°	16.8	16.8	15.5	15.5	14.2	14.2	12.9	12.9	11.6	10.3	9.0
82.5°	10.3	10.3	10.3	10.3	9.0	9.0	9.0	7.7	7.7	6.4	5.2
85°	5.2	5.2	5.2	5.2	3.9	3.9	3.9	3.9	3.9	2.6	2.6
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°	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5
2.5°	460.2	458.9	457.6	456.3	456.3	455.0	455.0	453.8	452.5	451.2	449.9
5°	465.4	462.8	460.2	458.9	457.6	456.3	453.8	451.2	448.6	446.0	443.4
7.5°	465.4	462.8	458.9	456.3	453.8	452.5	448.6	444.7	440.9	437.0	433.1
10°	464.1	458.9	455.0	451.2	447.3	444.7	440.9	435.7	430.6	425.4	420.2
12.5°	457.6	452.5	447.3	442.2	438.3	435.7	429.3	422.8	417.7	411.2	404.8
15°	448.6	443.4	437.0	429.3	426.7	422.8	416.4	408.6	402.2	394.5	388.0
17.5°	437.0	429.3	422.8	415.1	411.2	407.3	399.6	390.6	384.1	375.1	367.4
20°	421.5	415.1	404.8	398.3	393.2	389.3	380.3	371.3	362.2	354.5	344.2
22.5°	403.5	395.7	386.7	377.7	373.8	368.7	359.7	349.3	341.6	332.6	322.3
25°	384.1	375.1	366.1	355.8	351.9	348.1	337.7	328.7	318.4	308.1	300.4
27.5°	360.9	353.2	344.2	333.9	330.0	324.8	313.2	302.9	292.6	282.3	273.3
30°	337.7	331.3	319.7	308.1	301.6	295.2	283.6	272.0	260.4	251.4	243.6
32.5°	314.5	301.6	288.8	275.9	268.1	261.7	251.4	241.1	230.7	223.0	214.0
35°	283.6	270.7	256.5	243.6	237.2	232.0	220.4	210.1	201.1	193.4	185.6
37.5°	251.4	238.5	225.6	212.7	207.5	202.4	190.8	181.8	172.7	166.3	158.6
40°	216.6	210.1	195.9	184.3	179.2	174.0	165.0	154.7	148.2	140.5	134.1
42.5°	184.3	177.9	167.6	157.3	152.1	148.2	139.2	131.5	125.0	118.6	113.4
45°	154.7	149.5	141.8	134.1	128.9	125.0	116.0	109.6	104.4	98.0	94.1
47.5°	128.9	125.0	119.9	112.1	108.3	104.4	96.7	91.5	86.4	82.5	78.6
50°	107.0	104.4	99.3	94.1	90.2	87.7	81.2	76.1	72.2	68.3	65.7
52.5°	90.2	86.4	82.5	77.3	74.8	72.2	68.3	63.2	60.6	56.7	54.1
55°	76.1	73.5	69.6	64.5	61.9	60.6	56.7	52.9	49.0	46.4	43.8
57.5°	64.5	61.9	58.0	54.1	52.9	50.3	46.4	42.5	40.0	38.7	36.1
60°	55.4	51.6	49.0	45.1	42.5	41.3	37.4	34.8	32.2	30.9	28.4
62.5°	46.4	43.8	40.0	36.1	34.8	33.5	30.9	28.4	25.8	24.5	21.9
65°	38.7	36.1	33.5	29.6	28.4	27.1	24.5	21.9	20.6	19.3	18.0
67.5°	32.2	29.6	27.1	24.5	23.2	20.6	19.3	18.0	15.5	14.2	12.9
70°	25.8	23.2	20.6	18.0	18.0	16.8	14.2	12.9	11.6	10.3	9.0
72.5°	20.6	18.0	16.8	14.2	12.9	12.9	11.6	10.3	9.0	7.7	6.4
75°	15.5	14.2	11.6	10.3	9.0	9.0	7.7	6.4	6.4	5.2	3.9
77.5°	11.6	10.3	9.0	7.7	6.4	6.4	5.2	3.9	3.9	2.6	2.6
80°	7.7	6.4	5.2	3.9	3.9	3.9	2.6	2.6	2.6	1.3	1.3
82.5°	3.9	3.9	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3	0.0
85°	1.3	1.3	1.3	1.3	1.3	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°	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5
2.5°	448.6	447.3	446.0	446.0	444.7	443.4	442.2	442.2	440.9	439.6	439.6
5°	440.9	438.3	435.7	434.4	433.1	430.6	429.3	426.7	425.4	422.8	421.5
7.5°	429.3	425.4	421.5	420.2	419.0	416.4	412.5	408.6	406.1	404.8	402.2
10°	416.4	411.2	406.1	403.5	402.2	397.0	393.2	389.3	386.7	382.9	379.0
12.5°	398.3	393.2	388.0	385.4	382.9	377.7	373.8	368.7	363.5	359.7	355.8
15°	380.3	373.8	367.4	364.8	360.9	355.8	350.6	345.5	340.3	335.2	331.3
17.5°	359.7	353.2	345.5	341.6	339.0	332.6	324.8	321.0	314.5	310.7	305.5
20°	337.7	330.0	322.3	319.7	315.8	308.1	301.6	295.2	290.0	284.9	279.7
22.5°	314.5	305.5	297.8	295.2	291.3	283.6	277.2	272.0	265.6	259.1	253.9
25°	291.3	282.3	274.6	269.4	265.6	259.1	251.4	246.2	239.8	234.6	230.7
27.5°	265.6	256.5	248.8	244.9	242.3	235.9	229.5	223.0	216.6	211.4	206.3
30°	235.9	229.5	223.0	220.4	216.6	211.4	205.0	199.8	193.4	188.2	183.0
32.5°	207.5	201.1	194.7	193.4	190.8	185.6	181.8	176.6	171.4	166.3	162.4
35°	180.5	174.0	170.2	167.6	165.0	161.1	157.3	154.7	150.8	145.7	141.8
37.5°	153.4	150.8	144.4	143.1	141.8	137.9	135.4	132.8	128.9	126.3	122.5
40°	130.2	126.3	122.5	121.2	118.6	116.0	113.4	110.9	108.3	107.0	103.1
42.5°	108.3	105.7	101.8	101.8	99.3	96.7	94.1	92.8	90.2	87.7	86.4
45°	91.5	87.7	86.4	83.8	83.8	81.2	78.6	77.3	74.8	72.2	69.6
47.5°	76.1	73.5	70.9	69.6	69.6	67.0	64.5	61.9	60.6	56.7	54.1
50°	63.2	60.6	59.3	58.0	56.7	55.4	52.9	50.3	47.7	45.1	41.3
52.5°	51.6	50.3	47.7	47.7	46.4	43.8	41.3	38.7	36.1	33.5	29.6
55°	42.5	40.0	38.7	37.4	36.1	34.8	32.2	29.6	27.1	23.2	20.6
57.5°	33.5	32.2	29.6	29.6	28.4	25.8	23.2	20.6	18.0	14.2	11.6
60°	27.1	24.5	23.2	21.9	20.6	19.3	15.5	12.9	10.3	7.7	3.9
62.5°	20.6	19.3	16.8	16.8	15.5	12.9	10.3	7.7	3.9	1.3	0.0
65°	15.5	14.2	12.9	11.6	10.3	7.7	5.2	2.6	1.3	0.0	0.0
67.5°	11.6	10.3	7.7	7.7	6.4	3.9	1.3	0.0	0.0	0.0	0.0
70°	7.7	6.4	5.2	3.9	2.6	1.3	0.0	0.0	0.0	0.0	0.0
72.5°	5.2	3.9	2.6	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
75°	3.9	2.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.3	1.3	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°	452.5	452.5	452.5	452.5	452.5	452.5	452.5	452.5
2.5°	438.3	437.0	438.3	437.0	437.0	435.7	437.0	435.7
5°	420.2	419.0	419.0	417.7	417.7	417.7	416.4	416.4
7.5°	399.6	398.3	397.0	397.0	395.7	394.5	394.5	393.2
10°	377.7	375.1	372.5	373.8	371.3	371.3	370.0	370.0
12.5°	353.2	350.6	350.6	348.1	345.5	345.5	342.9	342.9
15°	328.7	326.1	323.6	322.3	319.7	319.7	318.4	317.1
17.5°	301.6	299.1	296.5	295.2	293.9	292.6	291.3	290.0
20°	275.9	272.0	270.7	269.4	266.8	265.6	264.3	265.6
22.5°	251.4	246.2	244.9	243.6	242.3	239.8	238.5	237.2
25°	225.6	221.7	219.1	219.1	216.6	215.3	212.7	214.0
27.5°	201.1	198.5	195.9	194.7	192.1	190.8	189.5	189.5
30°	179.2	175.3	174.0	171.4	170.2	167.6	166.3	166.3
32.5°	157.3	153.4	152.1	150.8	148.2	145.7	145.7	145.7
35°	137.9	134.1	132.8	130.2	127.6	125.0	125.0	125.0
37.5°	118.6	114.7	112.1	110.9	108.3	107.0	104.4	104.4
40°	100.5	96.7	94.1	92.8	90.2	87.7	86.4	86.4
42.5°	82.5	79.9	77.3	76.1	73.5	70.9	69.6	69.6
45°	65.7	63.2	61.9	60.6	58.0	54.1	52.9	52.9
47.5°	51.6	49.0	47.7	45.1	42.5	40.0	37.4	37.4
50°	38.7	36.1	33.5	32.2	29.6	27.1	24.5	24.5
52.5°	27.1	24.5	23.2	20.6	18.0	15.5	14.2	12.9
55°	16.8	14.2	12.9	11.6	9.0	7.7	5.2	5.2
57.5°	9.0	6.4	5.2	3.9	2.6	1.3	1.3	1.3
60°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)