

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: P242049

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

Issue Date: 03/03/2020

Test Information

Test Method: LM-79-08
Report Number: P242049
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-4000K
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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 615.6 lumens
Efficiency: N/A
Efficacy: 51.3 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

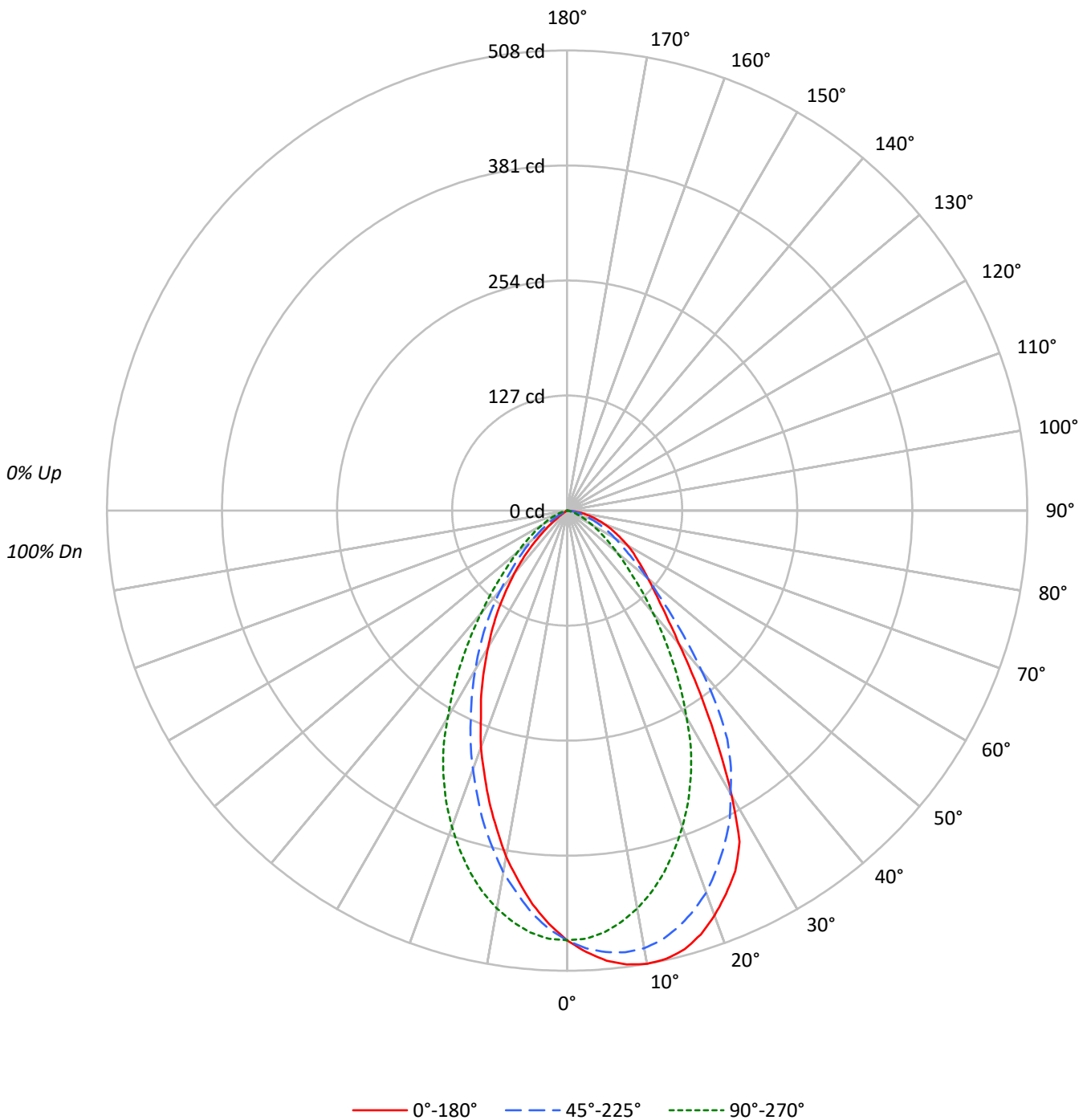
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	36312	36312	36312
5°	38318	35928	33539
10°	39492	34665	30149
15°	39733	32767	26348
20°	38749	30269	22677
25°	37093	27279	18944
30°	32128	23289	15405
35°	24874	18941	12250
40°	19175	14718	9043
45°	15804	11117	5997
50°	13837	8526	3060
55°	12624	6499	721
60°	11788	4960	214
65°	10776	3677	0
70°	9981	2417	0
75°	8784	1597	0
80°	7758	617	0
85°	4742	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.0	7.1
10°-20°	116.3	18.9
20°-30°	150.3	24.4
30°-40°	133.5	21.7
40°-50°	86.8	14.1
50°-60°	48.2	7.8
60°-70°	24.4	4.0
70°-80°	10.3	1.7
80°-90°	1.8	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°	310.6	50.5
0°-40°	444.1	72.1
0°-60°	579.2	94.1
0°-90°	615.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	615.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	474	474	474	474	474	
5°	499	489	468	446	436	48
15°	501	476	414	357	332	141
25°	439	410	323	251	224	199
35°	266	308	203	158	131	168
45°	146	162	103	78	55	115
55°	95	82	49	28	5	86
65°	60	43	20	1	0	59
75°	30	19	5	0	0	32
85°	5	3	0	0	0	7
90°	0	0	0	0	0	



TEST NUMBER: P242049

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4
2.5°	487.9	486.5	487.9	486.5	486.5	486.5	486.5	485.2	485.2	483.8	483.8
5°	498.7	498.7	497.3	497.3	496.0	496.0	496.0	494.6	493.3	491.9	489.2
7.5°	505.4	505.4	504.1	504.1	502.7	501.4	501.4	498.7	497.3	494.6	491.9
10°	508.1	508.1	506.8	505.4	504.1	502.7	502.7	500.0	497.3	493.3	490.6
12.5°	506.8	506.8	505.4	504.1	502.7	501.4	500.0	497.3	493.3	489.2	485.2
15°	501.4	501.4	500.0	498.7	496.0	494.6	493.3	490.6	486.5	481.1	475.7
17.5°	490.6	490.6	489.2	487.9	486.5	485.2	482.5	479.8	474.4	469.0	463.5
20°	475.7	475.7	475.7	474.4	471.7	470.3	469.0	464.9	460.8	455.4	448.7
22.5°	458.1	458.1	456.8	455.4	452.7	452.7	450.0	446.0	441.9	436.5	429.8
25°	439.2	437.9	436.5	436.5	432.5	431.1	429.8	425.7	421.7	416.2	409.5
27.5°	412.2	410.8	412.2	412.2	410.8	409.5	408.1	404.1	397.3	391.9	387.9
30°	363.5	364.9	364.9	367.6	373.0	377.1	379.8	379.8	374.4	368.9	360.8
32.5°	312.2	314.9	316.2	321.6	327.1	331.1	333.8	339.2	346.0	344.6	336.5
35°	266.2	268.9	270.3	274.3	281.1	283.8	287.9	296.0	304.1	310.8	308.1
37.5°	225.7	225.7	229.7	233.8	239.2	243.3	247.3	254.1	264.9	270.3	271.6
40°	191.9	193.3	194.6	200.0	204.1	208.1	210.8	217.6	227.0	231.1	231.1
42.5°	166.2	166.2	167.6	170.3	175.7	177.0	179.7	185.1	190.6	193.3	194.6
45°	146.0	146.0	146.0	148.7	151.4	152.7	155.4	159.5	160.8	162.2	162.2
47.5°	129.7	129.7	129.7	131.1	132.4	133.8	135.1	136.5	137.8	137.8	135.1
50°	116.2	116.2	117.6	117.6	117.6	118.9	118.9	118.9	117.6	116.2	114.9
52.5°	105.4	105.4	105.4	105.4	105.4	105.4	105.4	104.1	101.4	100.0	97.3
55°	94.6	96.0	96.0	96.0	94.6	94.6	93.3	91.9	87.8	85.1	82.4
57.5°	86.5	86.5	86.5	85.1	85.1	83.8	82.4	79.7	77.0	74.3	70.3
60°	77.0	77.0	77.0	75.7	75.7	74.3	73.0	70.3	67.6	63.5	60.8
62.5°	67.6	67.6	67.6	67.6	66.2	64.9	63.5	60.8	58.1	55.4	52.7
65°	59.5	59.5	59.5	59.5	56.8	55.4	54.1	51.4	48.7	45.9	43.2
67.5°	51.4	51.4	51.4	50.0	48.7	47.3	45.9	44.6	41.9	39.2	36.5
70°	44.6	44.6	43.2	41.9	40.5	40.5	39.2	36.5	35.1	32.4	29.7
72.5°	36.5	36.5	36.5	35.1	33.8	32.4	31.1	29.7	28.4	25.7	24.3
75°	29.7	29.7	29.7	28.4	27.0	25.7	25.7	23.0	21.6	20.3	18.9
77.5°	23.0	23.0	23.0	21.6	20.3	20.3	18.9	17.6	16.2	14.9	13.5
80°	17.6	17.6	16.2	16.2	14.9	14.9	13.5	13.5	12.2	10.8	9.5
82.5°	10.8	10.8	10.8	10.8	9.5	9.5	9.5	8.1	8.1	6.8	5.4
85°	5.4	5.4	5.4	5.4	4.1	4.1	4.1	4.1	4.1	2.7	2.7
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°	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4
2.5°	482.5	481.1	479.8	478.4	478.4	477.1	477.1	475.7	474.4	473.0	471.7
5°	487.9	485.2	482.5	481.1	479.8	478.4	475.7	473.0	470.3	467.6	464.9
7.5°	487.9	485.2	481.1	478.4	475.7	474.4	470.3	466.3	462.2	458.1	454.1
10°	486.5	481.1	477.1	473.0	469.0	466.3	462.2	456.8	451.4	446.0	440.6
12.5°	479.8	474.4	469.0	463.5	459.5	456.8	450.0	443.3	437.9	431.1	424.4
15°	470.3	464.9	458.1	450.0	447.3	443.3	436.5	428.4	421.7	413.5	406.8
17.5°	458.1	450.0	443.3	435.2	431.1	427.1	419.0	409.5	402.7	393.3	385.2
20°	441.9	435.2	424.4	417.6	412.2	408.1	398.7	389.2	379.8	371.6	360.8
22.5°	423.0	414.9	405.4	396.0	391.9	386.5	377.1	366.2	358.1	348.7	337.9
25°	402.7	393.3	383.8	373.0	368.9	364.9	354.1	344.6	333.8	323.0	314.9
27.5°	378.4	370.3	360.8	350.0	346.0	340.6	328.4	317.6	306.8	296.0	286.5
30°	354.1	347.3	335.2	323.0	316.2	309.5	297.3	285.2	273.0	263.5	255.4
32.5°	329.8	316.2	302.7	289.2	281.1	274.3	263.5	252.7	241.9	233.8	224.3
35°	297.3	283.8	268.9	255.4	248.7	243.3	231.1	220.3	210.8	202.7	194.6
37.5°	263.5	250.0	236.5	223.0	217.6	212.2	200.0	190.6	181.1	174.3	166.2
40°	227.0	220.3	205.4	193.3	187.9	182.4	173.0	162.2	155.4	147.3	140.6
42.5°	193.3	186.5	175.7	164.9	159.5	155.4	146.0	137.8	131.1	124.3	118.9
45°	162.2	156.8	148.7	140.6	135.1	131.1	121.6	114.9	109.5	102.7	98.7
47.5°	135.1	131.1	125.7	117.6	113.5	109.5	101.4	96.0	90.5	86.5	82.4
50°	112.2	109.5	104.1	98.7	94.6	91.9	85.1	79.7	75.7	71.6	68.9
52.5°	94.6	90.5	86.5	81.1	78.4	75.7	71.6	66.2	63.5	59.5	56.8
55°	79.7	77.0	73.0	67.6	64.9	63.5	59.5	55.4	51.4	48.7	45.9
57.5°	67.6	64.9	60.8	56.8	55.4	52.7	48.7	44.6	41.9	40.5	37.8
60°	58.1	54.1	51.4	47.3	44.6	43.2	39.2	36.5	33.8	32.4	29.7
62.5°	48.7	45.9	41.9	37.8	36.5	35.1	32.4	29.7	27.0	25.7	23.0
65°	40.5	37.8	35.1	31.1	29.7	28.4	25.7	23.0	21.6	20.3	18.9
67.5°	33.8	31.1	28.4	25.7	24.3	21.6	20.3	18.9	16.2	14.9	13.5
70°	27.0	24.3	21.6	18.9	18.9	17.6	14.9	13.5	12.2	10.8	9.5
72.5°	21.6	18.9	17.6	14.9	13.5	13.5	12.2	10.8	9.5	8.1	6.8
75°	16.2	14.9	12.2	10.8	9.5	9.5	8.1	6.8	6.8	5.4	4.1
77.5°	12.2	10.8	9.5	8.1	6.8	6.8	5.4	4.1	4.1	2.7	2.7
80°	8.1	6.8	5.4	4.1	4.1	4.1	2.7	2.7	2.7	1.4	1.4
82.5°	4.1	4.1	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4	0.0
85°	1.4	1.4	1.4	1.4	1.4	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°	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4
2.5°	470.3	469.0	467.6	467.6	466.3	464.9	463.5	463.5	462.2	460.8	460.8
5°	462.2	459.5	456.8	455.4	454.1	451.4	450.0	447.3	446.0	443.3	441.9
7.5°	450.0	446.0	441.9	440.6	439.2	436.5	432.5	428.4	425.7	424.4	421.7
10°	436.5	431.1	425.7	423.0	421.7	416.2	412.2	408.1	405.4	401.4	397.3
12.5°	417.6	412.2	406.8	404.1	401.4	396.0	391.9	386.5	381.1	377.1	373.0
15°	398.7	391.9	385.2	382.5	378.4	373.0	367.6	362.2	356.8	351.4	347.3
17.5°	377.1	370.3	362.2	358.1	355.4	348.7	340.6	336.5	329.8	325.7	320.3
20°	354.1	346.0	337.9	335.2	331.1	323.0	316.2	309.5	304.1	298.7	293.3
22.5°	329.8	320.3	312.2	309.5	305.4	297.3	290.6	285.2	278.4	271.6	266.2
25°	305.4	296.0	287.9	282.5	278.4	271.6	263.5	258.1	251.4	246.0	241.9
27.5°	278.4	268.9	260.8	256.8	254.1	247.3	240.6	233.8	227.0	221.6	216.2
30°	247.3	240.6	233.8	231.1	227.0	221.6	214.9	209.5	202.7	197.3	191.9
32.5°	217.6	210.8	204.1	202.7	200.0	194.6	190.6	185.1	179.7	174.3	170.3
35°	189.2	182.4	178.4	175.7	173.0	168.9	164.9	162.2	158.1	152.7	148.7
37.5°	160.8	158.1	151.4	150.0	148.7	144.6	141.9	139.2	135.1	132.4	128.4
40°	136.5	132.4	128.4	127.0	124.3	121.6	118.9	116.2	113.5	112.2	108.1
42.5°	113.5	110.8	106.8	106.8	104.1	101.4	98.7	97.3	94.6	91.9	90.5
45°	96.0	91.9	90.5	87.8	87.8	85.1	82.4	81.1	78.4	75.7	73.0
47.5°	79.7	77.0	74.3	73.0	73.0	70.3	67.6	64.9	63.5	59.5	56.8
50°	66.2	63.5	62.2	60.8	59.5	58.1	55.4	52.7	50.0	47.3	43.2
52.5°	54.1	52.7	50.0	50.0	48.7	45.9	43.2	40.5	37.8	35.1	31.1
55°	44.6	41.9	40.5	39.2	37.8	36.5	33.8	31.1	28.4	24.3	21.6
57.5°	35.1	33.8	31.1	31.1	29.7	27.0	24.3	21.6	18.9	14.9	12.2
60°	28.4	25.7	24.3	23.0	21.6	20.3	16.2	13.5	10.8	8.1	4.1
62.5°	21.6	20.3	17.6	17.6	16.2	13.5	10.8	8.1	4.1	1.4	0.0
65°	16.2	14.9	13.5	12.2	10.8	8.1	5.4	2.7	1.4	0.0	0.0
67.5°	12.2	10.8	8.1	8.1	6.8	4.1	1.4	0.0	0.0	0.0	0.0
70°	8.1	6.8	5.4	4.1	2.7	1.4	0.0	0.0	0.0	0.0	0.0
72.5°	5.4	4.1	2.7	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
75°	4.1	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.4	1.4	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°	474.4	474.4	474.4	474.4	474.4	474.4	474.4	474.4
2.5°	459.5	458.1	459.5	458.1	458.1	456.8	458.1	456.8
5°	440.6	439.2	439.2	437.9	437.9	437.9	436.5	436.5
7.5°	419.0	417.6	416.2	416.2	414.9	413.5	413.5	412.2
10°	396.0	393.3	390.6	391.9	389.2	389.2	387.9	387.9
12.5°	370.3	367.6	367.6	364.9	362.2	362.2	359.5	359.5
15°	344.6	341.9	339.2	337.9	335.2	335.2	333.8	332.5
17.5°	316.2	313.5	310.8	309.5	308.1	306.8	305.4	304.1
20°	289.2	285.2	283.8	282.5	279.8	278.4	277.0	278.4
22.5°	263.5	258.1	256.8	255.4	254.1	251.4	250.0	248.7
25°	236.5	232.5	229.7	229.7	227.0	225.7	223.0	224.3
27.5°	210.8	208.1	205.4	204.1	201.4	200.0	198.7	198.7
30°	187.9	183.8	182.4	179.7	178.4	175.7	174.3	174.3
32.5°	164.9	160.8	159.5	158.1	155.4	152.7	152.7	152.7
35°	144.6	140.6	139.2	136.5	133.8	131.1	131.1	131.1
37.5°	124.3	120.3	117.6	116.2	113.5	112.2	109.5	109.5
40°	105.4	101.4	98.7	97.3	94.6	91.9	90.5	90.5
42.5°	86.5	83.8	81.1	79.7	77.0	74.3	73.0	73.0
45°	68.9	66.2	64.9	63.5	60.8	56.8	55.4	55.4
47.5°	54.1	51.4	50.0	47.3	44.6	41.9	39.2	39.2
50°	40.5	37.8	35.1	33.8	31.1	28.4	25.7	25.7
52.5°	28.4	25.7	24.3	21.6	18.9	16.2	14.9	13.5
55°	17.6	14.9	13.5	12.2	9.5	8.1	5.4	5.4
57.5°	9.5	6.8	5.4	4.1	2.7	1.4	1.4	1.4
60°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4
62.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)